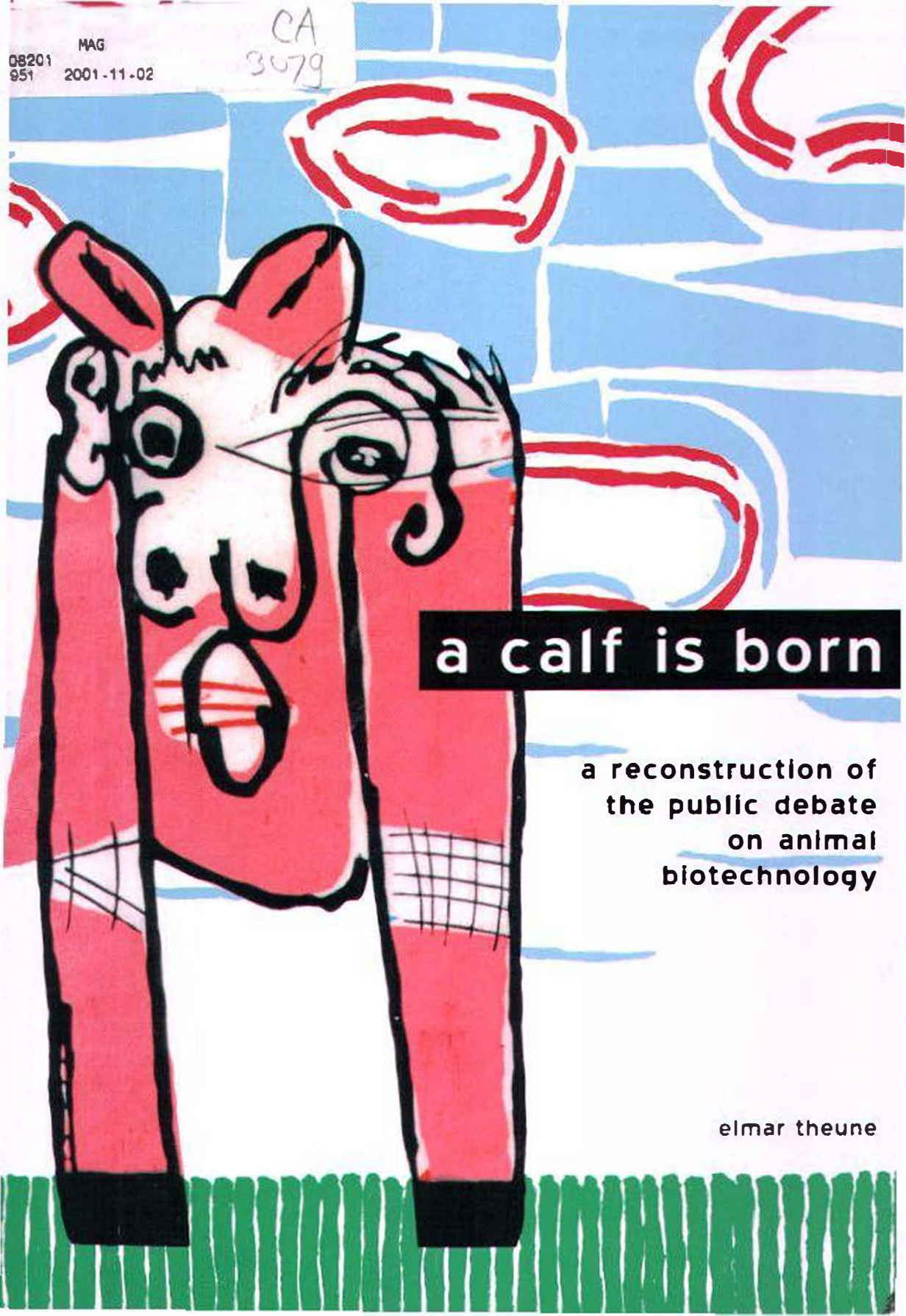

a calf is born

a reconstruction of the public debate on animal biotechnology

elmar theune

Stellingen

1) De 'onafhankelijke' deskundigen in het onderhavige debat zijn elk verbonden met bepaalde maatschappelijke belangen. (hoofdstuk 4)

2) Er zouden meer bedrijven moeten zijn zoals Gene Pharming in haar eerste jaren: behoorlijk transparant en bereid het publieke debat aan te gaan. (dit proefschrift)

3) Publieke debatten zijn in de eerste plaats gericht op het overtuigen van het brede publiek en niet op wederzijds begrip of overeenstemming. (hoofdstuk 7)

4) De inhoud van de ethische principes 'respect voor autonomie' en 'rechtvaardigheid' verandert wezenlijk als deze principes getransformeerd worden naar principes die toepasbaar zijn op dieren of op de natuur. (hoofdstuk 5)

5) Zonder casus geen publiek debat. De wens om een breed publiek debat te laten plaatsvinden voorafgaand aan het ingangzetten van technologische innovaties is derhalve niet realistisch. (hoofdstuk 3)

6) Respect voor de integriteit van dieren maakt een goede kans om een breed gedragen norm voor de omgang met dieren te worden. (hoofdstuk 5 en 6)

7) Een internationaal georiënteerde universiteit die haar dissertaties graag in het Engels ziet verschijnen zou zich mede verantwoordelijk moeten voelen voor de kwaliteit van het Engels in deze dissertaties.

8) Een veilige auto is een gevaar op de weg.

9) Het centraal stellen van het dier in de toekomstige veehouderij betekent niet altijd dat het systeem aan het dier moet worden aangepast. Vaak betekent het een keuze voor andere dieren.

10) De ontwikkeling van het dierendebat is een tegenvoorbeeld voor het hellend vlak argument. Immers, de lat voor de omgang met dieren wordt steeds hoger gelegd.

Stellingen behorende bij het proefschrift 'A calf is born. A reconstruction of the public debate on animal biotechnology' van Elmar Theune, dat in het openbaar wordt verdedigd op dinsdag 13 november 2001 des namiddags om vier uur in de Aula van Wageningen Universiteit.

A calf is born

A reconstruction of the public debate

on animal biotechnology

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A calf is born

A reconstruction of the public debate on animal biotechnology

Elmar Theune

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Table of contents

1. Introduction

Dierenbescherming absolutely against the genetic manipulation of animals

Calf with new gene opens debate

Queen warns in Christmas-speech against genetic engineering

Herman is there for our wellbeing

There is something wrong about Herman's testicles

Herman may have his offspring

The real purpose behind Herman

Herman should not be blamed

A licence will be needed for genetic experiments with animals

Agriculture and Gene Pharming break the contract on Herman the bull

Herman the bull becomes a grandpa

Mould beats cow

Pressure groups as a new business risk

Just a few headlines taken from some major Dutch newspapers[1]. The Dutch debate on animal transgenesis has focused on Herman the bull and has lasted for about nine years. It is quite amazing that a single bull has initiated such a lengthy public debate. Ask an average Dutch citizen and he or she will know about Herman. The least he or she will know is that there has been a lot of fuss about this bull.
How could a bull have been so intriguing? What was the debate about? How could a debate have lasted that long? What happened during this debate? Has it had any impact? What can we learn from this particular debate about public debates in

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[1] The headlines in this order are taken from: De Staatscourant 11 December 1989, Het Parool 7 December 1990, Telegraaf 27 December 1990, Algemeen Dagblad 15 December 1992, De Volkskrant 17 December 1992, Trouw 18 December 1992, Trouw 24 November 1993, Volkskrant 10 October 1994, Volkskrant 1 October 1994, Algemeen Dagblad 9 November 1994, Algemeen Dagblad 23 May 1995, NRC 18 July 1996, NRC 5 September 1996. All translations of headlines are mine (ET). The *Dierenbescherming* is the short name of the Dutch Society for the Protection of Animals. And the Ministry of Agriculture, Nature Management, and Fisheries is usually shortened to Ministry of Agriculture or, if the context is clear, just Agriculture.

general? These and other questions will be central to this book on the Dutch public debate on animal biotechnology.
In this introductory chapter, I will introduce the debate on animal transgenesis, set out my views on public debates, formulate my guiding questions, and sketch how I will answer these questions in the course of this book.

Herman the bull

In 1990, the Leiden biotechnology firm Gene Pharming succeeded in inserting an exotic gene in the genome of a bull, thus making this bull transgenic. This gene was supposed to come to expression in the mammary glands of his lactating daughters. If the gene came to expression, it would cause the excretion of human lactoferrin in the milk. Lactoferrin is supposed to prevent and control infections. The excretion would start after the birth of the grandchildren of Herman the bull. Only then would the success of the project become clear. The announcements of the project in 1989 and more particularly of the birth of the first transgenic calf in December 1990 initiated an extensive public debate on animal transgenesis. This debate has lasted for almost nine years.

The genetic engineering of cattle has been discussed as a case in the domain of animal ethics. People were concerned about the impact of genetic engineering on the animals. They were concerned, for instance, about their wellbeing, about their integrity, and about the mingling of species. During the debate, people have hardly ever referred to any other context in which genetic engineering took place. This is quite remarkable, since there had been a debate on the genetic engineering of micro-organisms in the seventies. And parallel to the debate on animal transgenesis there has also been an ongoing debate about genetically modified crops. This lack of interference is probably due to the different focuses of these debates. The debate on micro-organisms had focused on safety aspects regarding humans and the human environment. The debate on the deliberate release of genetically modified crops has mainly concentrated on potential ecological damage, next to human safety aspects. The debate on animal transgenesis, however, has focused on what we do to the animals, which is a question of animal ethics. This focus has not been questioned by any of the participants; at the most participants have put forward major human goals that might overrule this focus on animal ethics. This also means that arguments that apply specifically to animals have been much more important in the debate than arguments that hardly distinguish between animals and plants or between animals and micro-organisms.

But this still does not explain why there has been such an extensive debate. Issues in animal ethics have never been discussed so thoroughly in the media before in the Netherlands. The debate in the media could be compared with the upheaval around a major medical-ethical issue like abortion or a major infra-structural issue like the Schiphol debate. It probably made a difference that Herman was a bull instead of a less appealing animal[2]. Many Dutchmen consider dairy cattle as part of the Dutch identity. The Dutch were cattlemen from way back; even the polders with their wet pastures and ditches specifically had been made for cattlefarming[3]. Even now, farmers are associated with cattlemen, although most farmers do not have dairy cattle anymore. Furthermore, a description of a typical Dutch landscape will contain pastures, ditches, and cows. Most Dutch people also identify themselves with cows to a certain extent. For instance, they give cows human names[4], like they also do with horses, pets, and zoo animals, while sheep, pigs, poultry, and laboratory animals usually have no name. They regard cows as gentle, innocent and useful animals that are completely dependent on human care. They are prepared to pay extra respect to these animals.

As an animal near to us, Herman has appealed to people's imagination, more than a laboratory animal could ever do. And as a photogenic animal, he was a willing subject for the (poster) campaigns of the Dierenbescherming[5], for the media[6] and for the promotion of animal transgenesis by Gene Pharming[7]. Herman's creator, Dr. Herman de Boer, has referred several times to his agrarian background while stressing that he would never do anything to cows that he would not be able to explain to his grandchildren[8]. This cultural background has certainly played an important part in the large public involvement in the debate on animal transgenesis. Another reason for the lengthiness of the debate was the time it took from the

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2 In a lecture at the workshop 'The social management of biotechnology' at Tilburg University, Michiel Linskens of the Dierenbescherming has stressed that the fact of Herman being a bull has made it a lot easier for the Dierenbescherming to publicly discuss animal transgenesis.

3 See also Koos van Zomeren in the NRC Handelsblad of 7 March 1997.

4 In the practice of very large and highly computerised firms, cattle will usually not be known by name. This does not match, however, with the views of many Dutchmen.

5 In this book, I will use the common name of the Dutch Society for the Protection of Animals, to wit the Dierenbescherming.

6 A VPRO documentary on television made Herman the bull a media star in 1992 as K. Glastra van Loon and K. Kuiper (1994) have stated in their book 'Herman – biography of a genetically engineered bull'.

7 Gene Pharming did not want to have Herman the bull killed at the end of the experiment, since the bull had become an attraction for their firm. According to them, all visitors to the firm want to see the bull.

8 See for instance his statement in *Mare* April 18 1991 'If I will cycle with my grandson through the polders some day, I must be able to say: that is a real cow' (my translation, E.T.)

planning of the creation of transgenic calves (1989) to the lactation of the daughters of one of these calves (1995). The time it took to arrive at an Animal Health and Welfare Act (from 1981 to 1992) and subsequently the regulation of animal biotechnology (from 1992 to 1996) probably have had an influence on the prolongation of the debate as well.

Debates and the public

Public debates are an intriguing phenomenon. Major shifts in ways of thinking and acting may occur in a society while no one is able to pinpoint the moment it happened and to say what exactly happened at that moment. An issue is argued for and against, arguments are substantiated, commented, articulated, differentiated, adapted and ... after some time people start acting differently. Something has changed in their overall way of thinking. Something has changed in what they think is important or morally required. And I assume that they have committed themselves to the outcome of the debate, which means that people have been intrinsically motivated to change their way of doing things. A changed opinion causes things to change. The pragmatist Pierce has stated throughout his writings that whatever we believe, we believe to be true. This means that we cannot but act according to our beliefs[9].
Sumner and Phelps have argued that the convictions of people about what should be considered normal and deviant behaviour will change because of new information provided and discussions about this information.[10] I, for one, am convinced that the general attitude of researchers (and the public) towards the use of animals in laboratory experiments is determined by the ongoing debate on the human-animal relationship. Such societal transformation processes are intriguing because they raise many questions about what public debates are and about what happens in a public debate.

The most conspicuous of public debates are the informal debates in the media in which public opinion leaders, like experts, politicians, senior civil servants, spokespersons of (public and economic) interest groups, and concerned parties, express their views on a certain subject. But there are many other public debates as well, like the institutionalised political debates in Parliament and the more or less formalised scientific, juridical, ethical and aesthetic debates in specialised forums like journals, workshops, and conferences. Subjects of public interest are discussed

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[9] This is a central point in his essay 'The Fixation of Belief' [Die Festlegung der Überzeugung. E.g. par. 5.375. In: Ch.S. Pierce (1967) *Schriften I*, Theorie Suhrkamp Verlag].

[10] See for instance W. G. Sumner and W.L. Phelps (1940) *Folkways*. Boston.

in all kinds of organisations from political parties to community associations, and spontaneously in public places, at work, and at kitchen tables as well. No, this is not a mistake. I do mean kitchen tables. I do not make distinctions of principle between a discussion on a public issue at a kitchen table among members of a family, at work among colleagues, or in a pub among friends. Not only are these minor debates part of the major debate on an issue, they are very important as well. Simone Chambers[11], for instance, conceives a public debate as consisting of many interrelated smaller debates that may also take place in the private sphere. For forming their opinion people do not only need the information presented by the media, but they also need to cope with this information, which they do in the direct communications with friends, colleagues and relatives[12]. Chambers adds convincingly that opinion formation does not take place *during* these discussions, but *in between* discussions, as people think over the arguments and prepare themselves for a next round of the discussion. This means that these many small discussions have an impact on the formation of a considered opinion. Gabriel Weimann[13] has substantiated these arguments by showing empirically that public opinions are not only influenced by a top-down flow of information (media to opinion leaders to ordinary people). A bottom-up flow and a horizontal flow of information also is very important for opinion formation. Each discussion on a subject may count and may help people to arrive at a considered opinion.
This means that these small-scale debates are influential as they produce public reasons that may be put forward in discussions in other places. In this sense, even the arguments put forward at kitchen tables are potentially fruitful and may enter into broader discussions. They are public because of their content, not because of their context. The vitality of these discussions depends on a continuous flow of information about the subject, which stresses the role of the media.

Public debates are primarily associated with informal, spontaneous, non-organised debates in which potentially every citizen is involved. The debates in the media are exemplary, since these debates take place before the public as a whole. Although the public in a media debate is basically an audience, the members of this audience can discuss the arguments, preferences, and views put forward among themselves.

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[11] Simone Chambers (1995) Discourse and democratic practices. In: S.K. White (Ed.) *The Cambridge companion to Habermas.* Cambridge University Press. Cambridge/New York/Melbourne. p.233-259

[12] See also Schenk, M. and P. Rössler (1994) Das unterschätzte Publikum. Wie Themenbewusstsein und politische Meinungsbildung im Alltag von Massenmedien und interpersonaler Kommunikation beeinflusst werden. In: F. Neidhart (Ed.) Öffentlichkeit, öffentliche Meinung, soziale Bewegungen. *Köllner Zeitschrift für Soziologie und Sozialpsychologie*, Sonderheft 34.

[13] Gabriel Weimann (1994) *The Influentials. People Who Influence People.* SUNY Press, Albany NY p.243-254

And they are able to write a letter to the editor or to react in an interactive radio-programme, and, so, still participate. This does not mean, however, that every citizen will actively follow the debates in the media. People will only follow debates on the topics they are interested in. And they expect others to adequately deal with the other issues they think important.[14]

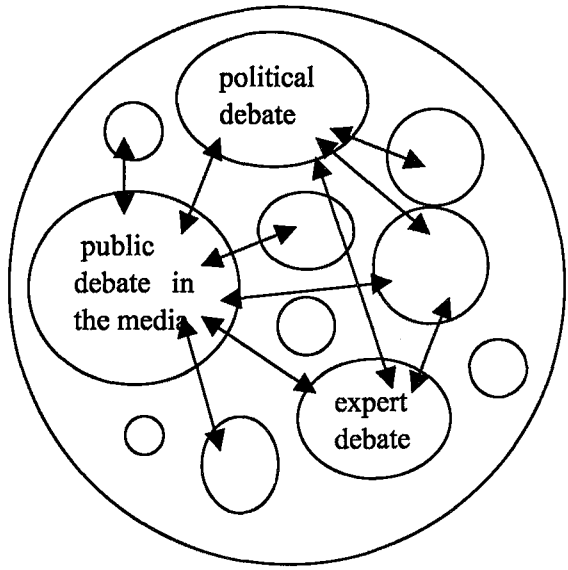

Figure 1.1: The public sphere exists of many interrelated public debates with their own sub-spheres.

Public debates in the media are also characterised by a specific kind of openness. They are not aimed at reaching consensus, but at convincing the public and so at gaining public support and impact. Therefore public debates will hardly ever be closed. Of course, people may reach consent on some aspects of the issue, but people will continue to disagree on other aspects. Such disagreement will not necessarily cause ongoing debate. If no new arguments or insights can be put forward, the discussion will usually fade away and people will reconcile themselves to dissent until they have reasons for reopening the debate. For the time being, they will agree to disagree. Issues that are closed may also be reopened as new reasons or insights arise.

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[14] This insight is developed in my discussions with Geert Munnichs. See also his book G.M. Munnichs (2000) *Publiek ongenoegen en politieke geloofwaardigheid. Democratische legitimiteit in een ontzuilde samenleving.* [Public discontent and political credibility. Democratic legitimacy in a post-traditional society.] Van Gorcum. Assen.

Public debates and Western democracies

Public debates on all kinds of subjects are inherent to modern Western societies. The concept of a public sphere refers to the sphere of public life in which the citizens discuss matters of common concern and in which their opinions are formed. This concept refers to a politicised public sphere. Such a public sphere has emerged out of a non-politicised public sphere that dates back to feudal times[15]. At the feudal courts, civil intellectuals discussed literary subjects. These discussions developed into a literary public sphere that flourished in the 17th and 18th century 'salons' in France, the 'coffee-houses' in England, and the 'Tischgesellschaften' in Germany. Looking back, these literary discussions can be regarded as preparation for the struggle of the citizens with the Government on the rules of the economic markets and the labour market[16]. About the same time, the first newspapers appear. The Government starts to use this new medium to address itself to its citizens, for instance, to announce regulations and taxes. These governmental activities stir up public criticism, which forces the Government to legitimate its acts. Public discussions develop into an intermediary between the needs of the citizens and the state. In these discussions, a critical public opinion is formed. Around 1800, a truly political public sphere can be detected in England. Citizens who wanted to influence governmental decisions were appealing to the broader public in order to legitimate their claims. By then, some obstacles for the emergence of a public sphere have already disappeared. Censorship has ended and the first cabinet government has been installed. The first political periodicals have appeared and the press has started to be a critical institution of a public discussing political topics. At the end of the 18th century, journalists had been allowed to be present in Parliament, which meant that the public could critically follow Parliament. Now, parliamentary minorities had a means to appeal to the judgement of the public, and majorities could legitimate their views in front of the public. With the emergence of political parties, members of the public even become the 'direct' discussion-partners of their representatives. But this also means that political parties have become an intermediary between the public and the Government. This interaction between public and politics still exists. During the 20th century some new players appeared on the stage, namely all kinds of societal (public interest) organisations.

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[15] Habermas (1962/1984) *Strukturwandel der Öffentlichtkeit. Untersuchungen zu einer Kategorie der bürgerlichen Gesellschaft.* [Structural change of the public sphere. Research into a category of civil society.] Herman Luchterhand Verlag, Darmstadt und Neuwied

[16] See Keulartz (1992) *De verkeerde wereld van Jurgen Habermas* [The reversed world of Jürgen Habermas] Boom. Meppel

They became important voices in public debates, and they are lobbying in the wings of Parliament. The first entails a reinforcement of public debates, but lobbying means that parts of political decision-making have become less transparent. Because of the emergence of political parties and all kinds of other intermediate organisations that represent 'the public', a gap has developed between the public and politics. Citizens, however, can actively participate in the discussions within these intermediate organisations, and they can be a critical audience for the discussions in the media. Between organisations, within organisations, and in the media vivid public debates on all kinds of subjects are going on.

From this historical sketch, I can derive some characteristics of public debates. Politicians are forced to explain their judgements to the public, which means that they have to be sensitive to the needs and views of the public[17]. There is a strong urge for citizens and their organisations to critically follow the activities of the political parties, of politicians, and of the intermediate organisations. Their views will be discussed in public as well. The function of the press is to be an intermediate between politics, the public, and organisations.
Because of the diversity of opinions and reasons put forward in public, people can reflect on their views, preferences, and interests, and so arrive at a more or less considered (critical, reflexive) opinion and will. Such opinions and wills, joined together, are basic to what can be called a considered public opinion. Considered public opinions are considered because of the way in which these opinions have been arrived at, and because of the reflective assent on which the outcome may reckon, since the outcome is the result of an active public sphere.
Public debates may have a major political impact. The arguments put forward may convince political decision-makers. And if a considered public opinion does not cohere with the views of the politicians, it may form a source of political power, since democratic political decisions are in need of public support. The outcome of a public debate is an indicator for the extent to which a political decision may reckon on public support. Public debates can thus be regarded as a vital complement to political decision-making[18].

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[17] See also G.M. Munnichs (2000) *Publiek ongenoegen en politieke geloofwaardigheid. Democratische legitimiteit in een ontzuilde samenleving.* [Public discontent and political credibility. Democratic legitimacy in a post-traditional society.] Van Gorcum. Assen.

[18] See also: B. Manin (1987) On legitimacy and political deliberation. In: *Political Theory 15/3 p. 338-368*

Guiding questions and approach

My starting point is that debating in public makes sense. Debates may pass off well; they can have impact; and so be successful. My central claim in this book is that, although this debate on animal transgenesis has not been perfect, it still is an example of how a debate can be. I have the strong assumption that this has been a successful debate, because it has had continuity; it has had development in argumentation; the participants have reacted to each other's argumentation; new concepts have been introduced; lapses have been criticised; all relevant viewpoints and interests have been well argued for; the quality of the debating itself has been discussed if necessary; and the debate has had impact. By examining this debate on animal transgenesis, we can learn a lot about this particular debate. But this inquiry will also give an answer to the question *why* this has been an exemplary debate. I will analyse the factors that have determined the success of this particular debate, that is to say, I will explain why this debate can be considered a successful and exemplary debate. In this way I can, by examining this particular debate, learn something about debates in general. An empirical analysis of a single, though exemplary debate will therefore be relevant for understanding public debates in general.

The following questions will be guiding my research:

- what has kept this debate going?
  - . what has been the internal dynamics of the debate?
  - . what were the external influences that have kept the debate going?
  - . what has been the role of the participants?
- what has been the development regarding the content of the debate?
  - . have any new concepts been suggested and substantiated?
  - . has there been progress in the positions and the lines of argumentation of the participants?
  - . what has been the influence of the participants on each other?
- what has been the impact of the debate?
  - . have the members of the broader public been enabled to form a considered opinion?
  - . has it had any impact on the development of ethical standards?
  - . has it had any impact on political decision making?
- has the debate passed off well?
  - . were participants receptive to critiques of their behaviour?
  - . have the participants taken the debate and the audience of the broader public seriously?
  - . have all relevant views been heard?

Many Dutch authors have investigated public debates. Some of them were primarily interested in the substance of a specific debate in a certain context. They have focused on reasons, lines of argumentation, and sometimes on the rhetoric of the debate. This has resulted in some fine analyses of written and spoken texts. Others have concentrated on debates as a whole, trying to grasp general shifts in ways of speaking and writing. These analyses usually did not differentiate among the different debates I have distinguished, but focused on the overall development or the characteristic structure of the debating about a certain issue. Among these analyses, two approaches can be distinguished. Some researchers take an observational stance: they analyse a debate from outside. Others take a participatory perspective: they analyse a debate from within. By being part of what is going on, it will be possible to reconstruct the reasons that are put forward by showing their contribution to the development of the debate. Such an inside perspective has priority over an outside perspective as one cannot even understand what an argument or an influence is, if one does not understand what has been going on. An observational stance, however, is needed for gaining insight into influences from outside on the debate.

I have concentrated on *the debate in the media*, as it is only through the media that the general public is involved in the debates among experts, politicians, societal organisations, and policymakers. Consequently, I have not used the very interesting and thorough reports with very sophisticated lines of reasoning that were written by experts and governmental committees. I have only made use of the abstracts and comments in the media referring to those reports, since these abstracts and comments have facilitated the opinion and will formation of the general public.
I am not primarily interested in the detailed arguments and rhetoric at a micro level, nor in major overall shifts of reasoning in the debate as a whole. But I am interested in the participants, their lines of reasoning, shifts in their reasoning, their persuasiveness, and the clashes with other lines of argument. So, I am interested in *the internal development of the debate*[19].
This does not mean, however, that I did restrict myself to the content of the debate. I do not want to regard a debate as an argumentation only, but as a debate. This means that I want to understand *what has kept this debate on animal transgenesis going* (its internal dynamics) and what has caused the debate (its underlying controversies and external dynamics).

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[19] Margo Trappenburg, I have mentioned her before, also has directed her research at this level. She has chosen a participatory perspective. She, however, was interested in the debate as an argumentation only, not as a debate. M. Trappenburg (1993) *Soorten van gelijk. Medisch-ethische discussies in Nederland.* [Discussing medical ethics in the Netherlands] Tjeenk Willink. Zwolle.

And I want to develop an inherent set of parameters for evaluating the quality of this debate (its process) by asking and discussing the question how the participants evaluated the debate themselves. In doing so, I take the debate itself as a point of departure. This means that I have adopted *an inductive approach in grasping the debate as a debate.*
One might expect a personal viewpoint, evaluation, or position regarding animal transgenesis. Most of the time I did not take a stance, however, for two reasons: I was primarily interested in what public debates are and for this reason I did not need to take position; and I have not come to a specific general position regarding the issue. All positions have their merits and weaknesses.

Outline of the book

In the next chapter (chapter 2), I will give a chronological sketch of the Dutch debate on animal biotechnology. We will get to know the themes and sub-themes of the debate. We will meet the participants and their main lines of argumentation. And we will get a glimpse of the outcomes.
My analysis starts in chapter 3 (How the debate proceeded: rounds and issues) with an investigation of the structure and internal dynamics of the debate. Debates in the media have a specific dynamic, since for the media topicality is a major motivation for publishing about a certain issue. As the debate on animal transgenesis extended over some nine years, it will be possible to distinguish a number of episodes in the debate on animal transgenesis that are connected with specific events. I will discuss these episodes and I will discuss the events that initiated and closed these episodes.
The participants of the debate and their roles in the debate will be the focus of chapter 4 (Players, related debates, and roles). The many voices that were heard will be clustered to a manageable number. I will show that each voice had its specific role in the debate. I will also elaborate on some general notions I mentioned in the introductory chapter regarding the characteristics of some different debates and on the interrelation of these debates, which will result in specific roles for experts, politicians, and the Government in this debate in the media.
Chapter 5 (Animal integrity contested. A reconstruction of the lines of reasoning) will concentrate on the content of the debate. The arguments that substantiate the major positions will be classified with reference to some guiding moral principles. I will also discuss the differences between a 'yes, if' policy and a 'no, unless' policy. I will argue that this distinction goes back to different valuations of animals and to different valuations of technology. This last issue will be briefly discussed in the same chapter.

The influence of the context in which the debate took place will be the subject of chapter 6 [Which practice, what norms?]. Not only animal transgenesis in general, several applications of this technology have been discussed as well. In discussing these applications, it turned out that the transgenic animals in the experiment (cattle) do not easily accord with the traditional categories of thinking about animals. They are not just rats in a laboratory experiment, or cattle in a dairy farm, or sick animals in a veterinary clinic, or laboratory animals producing inoculates. All these contexts have, however, influenced the way in which people evaluated the Herman project.
Chapter 7 [The process] will deal with the process of debating. The process of debating has been an issue itself during the debate. Participants that did not comply with a 'standard' of 'good' debating were criticised by other participants. I will try to grasp what the requirements of a 'good' debate are, in order to evaluate the debate and to evaluate the internal critiques. I will do so by confronting some theoretical notions of 'good' debating with the reconstructed notions of the participants.
In my Conclusion (chapter 8) I will recapitulate the guiding questions and the answers I have found. This will result in a discussion about what makes a public debate a successful debate.

Choices concerning the empirical material

It is obvious that the public is primarily informed by way of television. I have, however, taken my material from the newspapers. Except for the very practical reason of accessibility for the researcher, this also had a substantive reason. Events on television have a major impact on the agenda of the wider public, because of the images that accompany the topics. On the other hand, items in news programs are rather short and only a few items will be better articulated in informative programmes. Dutch newspapers offer much more opportunity for discussing contested topics. They literally have more space and can therefore allow more room for background information on many issues. They have their opinion and forum pages (each day one or two full pages), so allowing room for a broad variety of opinions and being open to the public for writing a letter to the editor or an opinion page article. This means that newspapers will offer a broader and deeper view on an issue. Consequently, newspaper readers will be better informed than television viewers. Most Dutch households have a subscription to a newspaper. So they have an opportunity to follow the topics they are interested in not only on television but also in their newspaper.
The Netherlands has many newspapers. Six general newspapers, two sectoral newspapers, and two ecclesiastical newspapers have a nation-wide coverage. Next,

there are some dozens of regional newspapers. For practical reasons, I had to restrict myself. I have concentrated on the six national newspapers[20], for two reasons. Firstly, I have assumed that all newspapers cover national news roughly the same way, which would mean that including all newspapers would produce much redundancy. Secondly, one might expect more and better articulated articles on animal biotechnology in the general national newspapers, as these give more background information and allow more space for national topics.
By the way, in this specific case the second reason is not true for the sectoral newspaper 'Het Agrarisch Dagblad' [The Agrarian Daily], as this newspaper has followed the debate on animal biotechnology most actively. But, since it is a sectoral newspaper, this information did not reach the general public which formed my focus of interest.
Most articles have been obtained from the archives of the Dierenbescherming. Michiel Linskens, during the debate staff officer of the Dierenbescherming, has been collecting cuttings from national and regional newspapers from the very beginning of the discussion on animal biotechnology. This collection provides a good coverage of the debate[21].

[20] The general national newspapers are 'De Telegraaf' (circulation approximately 725.000), the 'Algemeen Dagblad' (415.000), the 'NRC-Handelsblad' (250.000), 'De Volkskrant' (320.000), 'Trouw' (110.000) and 'Het Parool' (110.000). These circulation figures pertain to the moment half-way through the debate. 'Het Parool' has become a regional newspaper by now.

[21] I have roughly checked the coverage of the archive. Two years of De Volkskrant on CD-ROM and four years of cutting by myself of the NRC-Handelsblad did not reveal serious gaps in the coverage. So, I suppose the archive is rather complete.

2. A calf is born

December 1990, the Netherlands was startled by the news that a transgenic calf was born. This first (female) calf did not prove to be transgenic after all. A bull-calf (named Herman) born out of the same experiment, however, was! Herman the bull became the focal point of a public debate about animal biotechnology. The births of these calves, however, did not start the debate. It already had started one and a half-year before, at the occasion of the announcement of the project by Gene Pharming[1]. The debate, as it has taken place in the newspapers, can be reconstructed into several episodes concentrated either on a more specific aspect of animal transgenesis or on the doings of one of the main actors in the debate. An underlying and continuing discussion has dealt with the ethics of animal biotechnology as such. The main actors[2] are Gene Pharming; the Dierenbescherming[3]; Parliament; and the Minister of Agriculture[4].

The announcement

March 1989, a small report in the national newspapers[5] announces that Gene Pharming plans to create transgenic dairy cattle that will produce milk of a changed chemical composition. Herman de Boer, scientific manager of Gene Pharming, argues that a whole range of opportunities will arise if this project succeeds. To wit: the production of biomedical proteins; an increase of the inherited resistance against diseases and parasites; and an alteration in quality of the milk.

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1 The firm has changed its name several times. It started as Gene Pharming Europe, then it was called Gene Pharming and later just Pharming. During the debate, it was called Gene Pharming for the longest period. Therefore, this name will be used throughout this book.

2 A complete overview of the actors can be found in supplement 3.

3 In full: de Nederlandse Vereniging voor de Bescherming van Dieren [the Dutch Society for the Protection of Animals].

4 In full: Ministry of Agriculture, Nature Management, and Fisheries. Several persons have been Minister of Agriculture, Nature Management, and Fisheries during the debate, to wit in chronological order: Minister Braks, Minister Bukman and Minister Aartsen. State Secretary Gabor has also spoken several times about the subject.

5 NRC 9 March 1989 and De Volkskrant 11 March 1989

The Ministry of Agriculture is directly involved, since one of its research institutions (IVO-DLO)[6] is housing the facilities of Gene Pharming.
This announcement coincides with a parliamentary debate on the proposal for an Animal Health and Welfare Act in April 1989. This coincidence has given this debate an interesting turn. Animal transgenesis is discussed as a new technology of which the development cannot be anticipated. It is realised that as technological developments cannot be anticipated, it will also be impossible to develop a limited list of conditions or restrictions regarding the handling of animals. Some political parties suggest that it would be a good thing to change the operating principle of the Act from a 'yes, if a limited list of conditions is fulfilled' principle to a 'no, unless there are good reasons to do so' principle. Minister Braks of Agriculture does not want to meet this suggestion (yet).
A few months later the Dierenbescherming changes its position regarding animal biotechnology[7] to an absolute 'no'. The Dierenbescherming argues that changing the genetic code of animals does not agree with respect for the intrinsic value of animals. A few days later Minister Braks[8], as an honorary guest at the 125th anniversary of the Dierenbescherming, also argues that the Animal Health and Welfare Act (AHWA) has to put a check on animal biotechnology 'because of ethical motives'. However, his conclusion differs substantially. He (then) announces that 'no, unless' will be the operating principle of the AHWA.

The announcement of Gene Pharming that it is going to make transgenic dairy cattle also initiates a more general discussion about the ethics of creating transgenic animals. Most participants of the debate are convinced that animal biotechnology is ethically problematic. Especially the Christelijke Plattelands Jongeren[9] are very explicit in their argumentation[10]. In their view, a transgression of the species barrier is a violation of God's creation. Some researchers, however, indicate that they do not even want to discuss the ethical aspects of animal transgenesis, because they fear that such a discussion might lead to a limitation of scientific autonomy[11]. Herman de Boer[12], manager of Gene Pharming, does not regard the creation of transgenic animals

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6 IVO-DLO (Instituut voor Veeteeltkundig Onderzoek, in English: Institute for Animal Husbandry Research)) is later called ID-DLO which stands for Instituut voor Dierhouderij en Diergezondheid of the Dienst Landbouwkundig Onderzoek [Institute for Animal Science and Health of the Agricultural Research Department]. I will use the name ID-DLO from now on.

7 Staatscourant 11 November 1989, Algemeen Dagblad 2 December 1989

8 Staatscourant 11 November 1989

9 Christian Rural Youngsters

10 NRC 5 April 1989

11 NRC 5 April 1989

12 De Volkskrant 11 March 1989

ethically problematic as such. In his opinion, there is nothing ethically new about it, because transgenic laboratory animals already exist. He stresses that animal biotechnology should be restricted if negative effects on animal health or welfare will occur.
Although most people seem to conceive animal biotechnology as ethically problematic, this does not imply that they are in favour of a ban on biotechnology as well. As, for instance, Minister Braks argues: "Not enough is known about the subject and there might be good reasons in favour of biotechnology as well"[13]. The Minister installs a Committee on Ethics and Biotechnology in Animals (CEBD)[14] to advise him about how to deal with the issue of animal biotechnology.

The advice

One year passes before the CEBD publishes its report[15] on the matter (May 1990). The CEBD distinguishes three problem areas requiring regulation from an ethical point of view. The Committee is convinced that in these three areas the intrinsic value of the animals might be harmed:

- gene transfer in animals (recombinant DNA techniques in animals)
- embryo technology (cloning and the creation of chimeras)
- the administration to animals of substances that are obtained through recombinant DNA-technology and of modified micro-organisms.

Therefore the CEBD advises to install an Ethics and Biotechnology Council that should advise the Minister and promote public debate, and to incorporate a 'no, unless' policy principle in the AHWA. The Dierenbescherming does not support this advice[16]. The Dierenbescherming argues that if animals have intrinsic value, they ought not be used as mere instruments. The genetic engineering of animals should be forbidden.
October 1990 Parliament meets the advice of the CEBD. In practice this implies that animal biotechnology activities have to be licensed[17].

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[13] De Volkskrant of 4 April 1989

[14] This committee is also called Schroten Committee after its chairperson.

[15] NRC, De Volkskrant 10 May 1990. See also: Commissie van Advies Ethiek en Biotechnologie bij Dieren (1990) *Rapport van de Commissie van Advies Ethiek en Biotechnologie bij Dieren.* [Report of the Advisory Committee Ethics and Biotechnology in Animals.] NRLO. Wageningen.

[16] Staatscourant 11 May 1990

[17] De Volkskrant, Het Parool 30 October 1990

A calf is born

On 4 December 1990 the first calf, Adriana, is born. She is supposed to produce extra lactoferrin in her milk. Gene Pharming argues that this will protect her against mastitis, an infection of the udders. This extra lactoferrin will make the cows healthier which is also profitable for the owners.
The birth gives rise to many reactions. Some reactions can be seen as a refresher of the debate on the ethics of animal biotechnology in general. Some reactions deal with this specific case of lactoferrin production and the assessment procedure used (see the next section).
The most prominent person who addresses her concern is Queen Beatrix. In her Christmas speech[18] she explicitly asks whether everything that is possible should also be allowed. She considers animal biotechnology as ethically problematic for reason of expressing disrespect for nature and for life, and lacking harmony with God's creation. The Dierenbescherming, Lekker Dier[19], and the Nederlands Agrarisch Jongeren Kontakt[20] stress that transgenic animals should not be made, since the intrinsic value of the animals, and in particular their integrity, will be harmed[21]. Especially Gene Pharming is denying that animal biotechnology is ethically problematic. It argues that genetic engineering is in line with traditional breeding. And therefore transgenic breeding as such is not ethically new[22]. In its view, Adriana is just a normal calf with one extra gene out of 100.000.
From the newspaper comments, it transpires that most people are convinced that animal biotechnology is ethically problematic. Everybody seems to agree that chimeras (also called hybrids, 'new' animals, or mixes of two species) should not be made at all. The introduction of minor changes in the genome which induce the production of 'exotic' proteins in the milk remains debatable, however.
April 1991, a majority in Parliament[23] is in favour of animal biotechnology to be licensed, because it expects that life saving medicine may be produced in time. Thus, Parliament proposes a case-by-case assessment procedure.

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[18] All Newspapers 27 December 1990

[19] 'Tasty Animal', an organisation against factory farming

[20] Dutch Agrarian Youngsters

[21] Het Parool 7 December 1990

[22] E.g. O. Postma of Gene Pharming in the NRC of 5 January 1991

[23] A minority in Parliament, consisting of GroenLinks (left wing environmentalists), D66 (liberals), and the SGP (small christian party), wants the experiment to be stopped (Trouw 23 April 1991).

Mastitis prevention

A fierce debate develops in the newspapers on whether mastitis prevention is a sufficient reason for making transgenic animals. Some argue that mastitis is a multi-factorial disease and that high productivity farming is one of these factors. Hence, there might be other ways to reduce the incidence[24]. During the debate it becomes apparent that economic interests, or an increase in productivity are not accepted as a sufficient reason for creating transgenic (farm) animals; neither is the production of luxury products, or the production of cosmetics[25]. Human health is mentioned as a major interest that might be a sufficient reason to allow for animal transgenesis.
June 1992, more than a year later, Minister Bukman argues that transgenesis is ethically problematic in farm animals, since transgressing the species barrier for commercial reasons cannot reckon on public support. This means that mastitis prevention no longer can be brought forward as a legitimate reason for making transgenic animals.

Human genes?

April/May 1991, it turns out that the calves will produce *human* lactoferrin. This gives rise to a rather academic discussion. Fact is that the transgenic calves will produce human lactoferrin. The question is whether this means that a human gene is used. All political parties agree that the incorporation of human DNA should not be allowed. According to a minority in Parliament[26] the gene used has to be human-identical, as the lactoferrin produced will be human-identical. In its view it does not matter how the gene is made. Minister Bukman claims that the gene is a chemical construct and therefore is neither human-identical nor animal-identical. Dr. Tj. de Cock Buning[27] stresses that it is evident that Gene Pharming wants to make a human product. A difference between human and human identical seems to him irrelevant in this respect. This discussion stimulates P. Borst to react in his column in the NRC[28]: in his view, scientists should have been asked for advice. Henceforth scientists would have explained how important transgenic animals are for the developments in medical research; how indispensable the technique is in medical biology; and that human medicine will be obtained cheaper and more easily.

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[24] E.g. Dr. Brand (NRC 8 December 1990), Drs Bart Rutgers (De Volkskrant 11 December 1990), Dr. Jan Grommers (NRC 5 January 1991).

[25] See e.g. Dr. E. Schroten in Algemeen Dagblad 11 December 1990.

[26] This minority consisted of GroenLinks (left wing environmentalists), D66 (liberals), and the SGP (small Christian party).

[27] NRC 7 May 1991

The non-transgenic foetuses

Another discussion evolves around the issue what to do with the non-transgenic foetuses[29]. Only a few animals out of every experiment will be transgenic, while all the animals are kept, which is very costly. Hitherto Gene Pharming has asked the Minister for an allowance to abort or to sell the calves superfluous to the experiment. Gene Pharming itself is in favour of sale, since it expects ethical disapproval of abortion. The vCOGEM[30] advises negatively on bringing the superfluous animal in the (human) food chain. It doubts the quality of the method used to determine whether or not a foetus is transgenic. Furthermore, once the animals are sold, the experiment cannot be evaluated fully later in time, because the effect on the health and welfare of the non-transgenic calves cannot be monitored. The Minister adds to the debate that even if the experiment has failed in most animals, these experimental animals might still be transgenic after all and should therefore not be mixed with other cattle. All the animals procreated have to be kept for evaluation purposes.

Health and welfare 1

August 1991, the results of the research into the health and welfare of the experimental animals are made public[31]. Minister Bukman concludes that since the calves are in good health the experiment may go on. Out of 21 cows-in-calf 19 calves were born of which three died shortly after birth. Only two calves proved to be transgenic. From the limited information available, the Dierenbescherming[32] concludes that the animals were harmed, since only 16 living calves were born and many cows had delivery problems. It suggests that further experiments should be forbidden. And it asks for publication of the whole report, since it wants to be able to fully evaluate the effects. This last request is met by minister Bukman[33]. The experiments may proceed.

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[28] NRC summer '91 (exact date unknown to me)

[29] NRC, De Volkskrant, Trouw 2 February 1991

[30] This is the provisional Committee on Genetic Modification that has to assess the safety of the handling of genetically modified organisms.

[31] De Telegraaf 6 August 1991; Trouw, De Volkskrant 7 August 1991

[32] Algemeen Dagblad, De Volkskrant 26 September 1991

[33] Gene Pharming Europe B.V. and DLO-Instituut voor Veeteeltkundig Onderzoek "Schoonoord" (IVO-DLO) (1991) *Eerste resultaten van een experiment inzake genetische modificatie van rundvee ten behoeve van mastitisbestrijding. Project P 796 ('Weefselspecifieke expressie van genen in de melkklier van gemodificeerde runderen')* [First results of an experiment concerning the genetic modification of cattle for mastitis control. Project P 796 (Tissue specific expression of genes in the mammal gland of modified cattle.)]

Breeding with Herman the bull

Every new project of Gene Pharming already is in need of a license because the Minister thinks this appropriate for its own research institution ID-DLO. This also applies to the next step taken by Gene Pharming in November 1992 namely to produce lactating daughters of Herman the bull. Only after having delivered calve will it prove whether or not the milk contains human lactoferrin. If this lactoferrin is recoverable and can be purified in a sufficient quantity, the project will have succeeded. The Minister has asked the provisional Committee on Ethical Evaluation of Genetic Modification in Animals (vCEEGMD)[34] for advice. This committee, however, gives a dual advice[35]. A majority of five persons are in favour of giving a license. This majority argues that in time important medical proteins might become available, while harm for the animals is not expected. The minority argues that the integrity of the animals will be affected and the animals might be harmed, while no convincing reasons are given by Gene Pharming for proceeding the experiment. They state that Gene Pharming is only pointing at expectations instead of facts, and that it did not really look for alternatives.
The Dierenbescherming, of course, is in favour of the minority point of view[36].
For the first time a patients organisation speaks up. Margreet van Bladeren of the Rheumatics Patients Association argues in favour of the majority point of view[37]. She states that there are no effective medicine against rheumatics now. Contemporary medicine only ease the symptoms. She has high expectations of the production of medicine by way of transgenic animals, since proteins out of fungi might cause immune response reactions in patients. She is very critical about the Dierenbescherming, for only standing up for the interests of animals. The Dierenbescherming responds that Van Bladeren has been misled by Gene Pharming[38]. It argues that Gene Pharming is creating false hope, since the production of medicine is not under discussion.

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[34] This committee is usually called the Committee Schroten 2

[35] Het Parool van 28 November 1992. See also: Voorlopige Commissie Ethische Toetsing Genetische Modificatie van Dieren (1992) *Advies inzake het dossier "Weefselspecifieke expressie van genen in de melkklier van genetische gemodificeerde runderen"* [Advice concerning the file 'Tissue specific expression of genes in the mammal glad of modified cattle.] Supplement to a letter of the Minister of Agriculture, Nature Management, and Fisheries to the Chairman of the Permanent Committee on Agriculture and Nature Management of the Second House of Parliament, dated October 28 1992

[36] Algemeen Dagblad 5 December 1992

[37] Algemeen Dagblad 15 December 1992

[38] Algemeen Dagblad 16 December 1992

Minister Bukman advises Parliament to continue the experiment[39]. Parliament agrees, although a substantial minority, consisting of GroenLinks, D66, GPV, RPF, and some members of the PvdA, the VVD, and the CDA[40], does not agree[41]. This minority is not convinced of the necessity of the experiment. It asks for an investigation into alternative production methods for producing medicine. The majority of Parliament hopes that in time it will be possible to produce human medicine by way of this technique. But for the moment it wants to be careful and so a number of restrictions are imposed:

- Herman the bull is allowed to have offspring only once;
- the offspring should not be used for human consumption;
- all male animals as well as the second generation should be destroyed immediately;
- the experiment has to be stopped as soon as alternative production methods prove to be sound.

Only after a motion in the first Chamber of Parliament starts the Minister of Agriculture an inquiry into how to deal with alternatives[42].

April 1993, the Dierenbescherming goes to court for the first time[43], together with the Stichting Natuur en Milieu[44],[45]. Its main objection is that the 'no, unless' principle is not taken seriously, since alternative production methods have not been investigated.

Cees Smit of the Dutch Association of Haemophiliacs (NVHP) is trying to turn the balance of the first trial in the favour of animal biotechnology by writing an opinion page article in which he expresses his hope that in time medicine against Haemophilia will be produced in cattle[46]. The Dierenbescherming reacts instantly by accusing Cees Smit of propaganda, and Gene Pharming of misusing patients and their organisations[47]. In its view, Gene Pharming is using the production of medicine as a crowbar for animal biotechnology.

October and November 1993, the first offspring of Herman the bull is born[48].

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[39] De Volkskrant 31 October 1992

[40] Left environmentalists, liberals, two small Christian parties, social democrats, conservatives and the Christian democrats.

[41] Het Parool 17 December 1992

[42] Trouw 21 April 1993

[43] They will go to court four times, but none of these actions will be successful. (Algemeen Dagblad 25 March 1994)

[44] Foundation Nature and Environment

[45] Het Parool 30 January 1993

[46] De Volkskrant 7 April 1993

[47] De Volkskrant 16 April 1993

[48] De Volkskrant , Algemeen Dagblad 23 October 1993, Trouw, De Volkskrant 10 November 1993

The campaign 1

Meanwhile, autumn 1992, the Dierenbescherming starts a campaign against animal biotechnology[49]. It seeks publicity for its views; it makes teaching packages; it has advertisement campaigns; and so on and so forth. It stresses that animal interests should have more priority, in stead of always having secondary importance. And it argues that now a 'no, unless' policy is agreed upon in Parliament, it should also be applied. Especially the way alternative production methods are handled is a thorn in its flesh.
During 1993 a new aspect comes up, namely that Gene Pharming is up to make mothers' milk out of cows[50].

Health and welfare 2

Animal health and welfare are a returning topic for discussion. Information about how transgenic cattle are made, and about the effects on the animals only gradually becomes available. For instance, it turns out that for producing transgenic animals many embryos have to be inserted in one cow. This cow is slaughtered after a while for taking out the embryos to test them on transgenicity. The transgenic embryos are replaced in another cow for maturing[51]. The Dierenbescherming argues that this treatment of the 'mother' cows is disgusting. Its complaint is in vain, since there is no regulation for such treatment.
Research into the health and welfare of the offspring of Herman the bull[52] reveals health and welfare problems during pregnancy and at birth. There were, for instance, many spontaneous abortions (17 out of 75); 6 out of 45 calves died at birth, and 17 Caesareans were needed. Gene Pharming claims that these problems were not due to the exotic gene that was inserted, but to the transfer of the gene as such, or to the treatment and/or cultivation of the embryo's. Changes in the process did diminish these problems but could not remove them completely.

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[49] Trouw 6 November 1992

[50] Trouw 24 November 1993

[51] De Volkskrant 24 August 1993

[52] Het Parool 31 May 1993. See also: Gene Pharming Europe B.V. and DLO-Instituut voor Veeteeltkundig Onderzoek (IVO-DLO) (1993) *Overzichtsnotitie van een experiment inzake genetische modificatie ten behoeve van de produktie van lactoferrine en lysozyme in de melkklier. Project P796* ('Weefselspecifieke expressie van genen in de melkklier van genetische gemodificeerde runderen'). [Overview memorandum of an experiment concerning genetic modification for producing lactoferrrin and lysozyme in the mammal gland. Project P796 ('Tissue specific expression of genes in the mammal gland of genetically modified cattle')]. Supplement to a letter of the Minister of Agriculture, Nature Management and Fisheries to the Chairman of the Permanent Committee on Agriculture and Nature Management of the Second House of Parliament, dated April 5 1993

Grown up cattle do not seem to have health or welfare problems, which implies that the gene for lactoferrin production does not affect the animal in a harmful way. The Dierenbescherming, however, stresses that the problems around birth are ignored and that only the effects on healthy animals are taken into account.

The campaign 2

1994 is started with a poster campaign by the Dierenbescherming[53]. The most striking of these posters shows a breast-feeding mother with cows' udders, saying 'NEW. Mothers' milk from cows!'. This campaign is meant to encourage discussion. Which it does, as the letters to the editor in the newspapers reveal. But it causes another kind of discussion than the Dierenbescherming expected[54]. People are shocked. They write that the poster is disgusting, or disrespectful to women, or mocking God's Creation, or an insult to biologists. And, it is called demagogic and misleading. Some people even complain at the Advertising Code Foundation[55]. This complaint will not be granted, however.

A loan of Dfl 20 million

Gene Pharming has asked the Ministry of Economic Affairs for a loan of Dfl 20 million as to continue its research into cows' milk containing human proteins. This loan is granted under the condition that the experiments will be assessed by the vCEEGMD[56]. Gene Pharming does not want its experiments to be assessed and claims that it still is not obligatory[57]. The Minister of Economic Affairs acknowledges that he cannot pose conditions yet. As an alternative, he will block the loan until the Royal Decree on Animal Biotechnology is approved of. Now Gene Pharming agrees with the assessment of its experiments.

Mothers' milk from cows

March 1994, Nutricia publishes its plans for a joint venture with Gene Pharming. Nutricia wants to use the lactoferrin produced by Gene Pharming in infant formula in

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[53] Algemeen Dagblad / Trouw /Volkskrant 18 January 1994

[54] De Volkskrant 22 January and 29 January 1994, Trouw 25 January, De Telegraaf 27 January 1994 and 2 February, Parool 3 February 1994

[55] Het Parool 19 March 1994

[56] De Volkskrant 3 February 1994, Algemeen Dagblad 4 February 1994, Staatscourant 25 February 1994

[57] De Volkskrant/NRC 10 February 1994

order to make it better resemble to mothers' milk[58]. This does not cohere with the two purposes Gene Pharming has mentioned until now, namely mastitis prevention and human pharmaceuticals. The chairperson of the vCEEGMD, Dr. Schroten, assumes that Gene Pharming did not mislead the committee, since producing baby food was not under discussion in 1992. Gene Pharming states that it certainly is not up to produce lactoferrin for baby food, but only for clinical uses, such as food for premature babies. Parliament has only granted permission for producing lactoferrin as a medicine. A few days later Nutricia claims that the lactoferrin will be used in clinical nutrition only that is to say in food to be used under medical supervision[59]. In time, however, human lactoferrin and also human lysozyme might be added to infant nutrition as well. For the time being, Nutricia is interested in medical and paramedical products only. Gene Pharming mentions some categories of patients that would benefit from such products, namely sepsis patients and AIDS patients.

A discussion arises on whether the addition of lactoferrin and lysozyme to the nutrition of these patients will work, since proteins usually denaturalise in the stomach of a mature person. This might be different in patients though.

The Dierenbescherming is warning Nutricia that it takes a commercial risk, since people might not be interested in genetically modified baby milk[60]. In its view, Nutricia and Gene Pharming have commercial reasons for developing transgenic cattle only, as lactoferrin is not a vital medicine. This implies that the 'no, unless' principle is violated. Hence Parliament ought not grant permission.

Gene Pharming sketches a future in which herds of transgenic cattle will exist that produce several kinds of medicine in the milk[61]. Its activities are directed at the production of medicine that cannot be made in an alternative way. For these activities government has granted permission.

Dr. Herman de Boer, who no longer is scientific manager of Gene Pharming, stands up for the choices made by Gene Pharming[62]. He points at the future possibilities of this technique, namely the production of human medicine. This is the main purpose of Gene Pharming. De Boer he makes a sharp distinction between adding one gene to a species and the mixing of species, and concludes that there is no ethical problem at hand. He repeats that animal health and welfare always has been and should be a condition for creating transgenic animals. Since the products of Gene Pharming will arrive in the milk, no negative health and welfare effects are to be expected.

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[58] NRC 25 February 1994 & 26 February, Algemeen Dagblad 26 February & 1 March

[59] NRC 1 March 1994

[60] Algemeen Dagblad 11 March 1994

[61] Algemeen Dagblad 1 April 1994

[62] Algemeen Dagblad 7 May 1994

Secret sponsoring by Nutricia

June 1994, it transpires that Nutricia has secretly been sponsoring Gene Pharming[63] all the time. Now a crucial period arises for the project, as the production of infant formula might have been a major reason for starting the project. Van der Wielen of Nutricia, indicates that the only reason for keeping this contract secret has been the acquirement of Europeans marketing licenses for proteins obtained from the process. At the time, there was no reason to fear public opinion, since he could not imagine any objections. After all, the public debate about recombinant DNA had calmed down; the project was approved of by the vCOGEM; government was sponsoring the project; and the opinion of the Dierenbescherming was not known.
The Minister claims that he did not know about the contract, but that he can understand the secrecy[64]. Dr. L. Layendecker, member of the vCEEGMD, is annoyed, since the vCEEGMD should have known about the contract. As we know, the vCEEGMD was divided about the project. A small majority agreed because of the idealistic objectives of the project. These objectives cannot be matched with the production of infant formula. Schroten, chairperson of the vCEEGMD, is still willing to defend the decision of the majority of the committee. In his view, the committee did have enough information, since it knew that Gene Pharming was seeking finance.
The Dierenbescherming, supported by the Stichting Natuur en Milieu and the Alternatieve Konsumenten Bond[65],[66], threatens to organise a boycott, if Nutricia does not quit the joint venture. Nutricia gives in and postpones the joint venture[67]. Gene Pharming is annoyed, since it claims that it was always open for debate and has made itself vulnerable to criticism. A few days later, Gene Pharming by mouth of Hersbach[68], states not to agree with the boycott. Hersbach states that he is also glad that everything is made public now, which means that it can be discussed.

Meanwhile the Minister of Agriculture is called to account by Parliament, since Nutricia claims that the Minister knew about the sponsoring[69]. So, the Minister might have misled Parliament by withholding relevant information. Secretary of State Gabor and Minister Bukman answer that they knew about a contract but did know the content

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[63] NRC 2 June. Algemeen Dagblad, Trouw 3 June 1994. See also: NV Verenigde bedrijven Nutricia, Gene Pharming Europe B.V. and Genpharm Internationale, INC (1990) Research Agreement

[64] De Volkskrant 4 June 1994

[65] Alternative Consumer's Union

[66] Algemeen Dagblad, De Volkskrant 7 June 1994

[67] NRC, Trouw, Algemeen Dagblad 10 June 1994

[68] Trouw 16 June 1994

[69] Algemeen Dagblad 11 June 1994

of this contract[70]. After all, in the contract of Gene Pharming and ID-DLO only biomedical purposes were mentioned, and only these purposes were approved of. Gabor claims to be shocked about the content of the contract and argues that he should have been informed actively by Gene Pharming about its content[71]. Minister Bukman asks the Government Prosecutor to re-examine the contract of the Ministry (i.e. DLO) and Gene Pharming, since he prefers the contract to be ended[72]. A few weeks later it turns out that it will not be possible to end the contract. Instead he proposes that the project has to be directed at the production of human medicine only. Gene Pharming agrees to this condition[73].

Meanwhile the discussion goes on. De Boer, former manager of Gene Pharming, explains that the original project had a very broad scope[74]. The project was meant to develop a technique for producing human proteins in cattle. There are many possible applications for these proteins. In order to approve of the project the Minister of Agriculture asked for a specific application. So, Gene Pharming has chosen one of the options for agriculture namely mastitis prevention. Adding lactoferrin to infant formula might also be a more specific and realistic application, so a co-operation with Nutricia was not foreign to the project.

Schroten of the vCEEGMD now acknowledges that it would have made a difference if this had been known in 1992. The issues now under discussion would have been discussed then[75]. He suggests that the committee might have been more specific in its approval.

Looking back Gene Pharming admits that it ought to have been more open and professional in its information supply.

July, Gene Pharming announces to start new experiments with an improved genetic construct[76].

Alternatives

The Kooreman committee publishes its study[77] into alternative production methods for breeding with Herman the bull in June 1994. The purification of lactoferrin out of

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[70] NRC 16 June 1994

[71] De Volkskrant 16 June 1994

[72] NRC, Algemeen Dagblad, De Volkskrant, De Telegraaf 17 June 1994

[73] NRC, De Telegraaf, Trouw, Algemeen Dagblad , De Volkskrant 29 June 1994

[74] De Volkskrant 18 June 1994

[75] Ibidem

[76] De Volkskrant 31 June 1994

[77] De Volkskrant 25 June 1994 and NRC 18 July 1996. See also: H.J. Kooreman, D.D. Breimer, W.P.M. Hoekstra and A. Bekkers (1994) *Technische studie naar alternatieve mogelijkheden voor de produktie van humaan lactoferrine. In opdracht van het Ministerie van Landbouw, Natuurbeheer en Visserij*

mothers' milk does not seem a reasonable alternative, since there is not enough mothers' milk available. The production of lactoferrin in transgenic fungi will lead to a sufficient quantity and a reasonable price. But, lactoferrin from fungi and lactoferrin from cattle will not be identical, so their effects have to be tested clinically in order to make qan adequate comparison. Therefore the committee advises to continue the experiment as to be able to make such a comparison.
The Dierenbescherming is furious, since this will make a fake out of the 'no, unless' principle. The Minister, however, follows the advice of the committee.

The 'Besluit Biotechnologie'

A concept of a Royal Decree on animal biotechnology, called 'Besluit Biotechnologie', is released in October 1994[78]. This 'Besluit' is directed at the implementation of the 'no, unless' policy that is agreed upon in the Animal Health and Welfare Act. The approval of this 'Besluit' will make all biotechnological research in animals in need of a license.
A year later the Royal Dutch Academy of Sciences (KNAW)[79] reacts to this proposal[80] and advises to exclude mice, rats, and other rodents from the Decree. It argues that this Decree will make Dutch regulation too extreme compared to other countries, since it will require an extra assessment. All animal experiments are already under strong supervision of an animal experimentation committee and the COGEM already assesses the risks of every genetic modification of organisms. The KNAW does not fear rejection, but delay, which might slow down medical research. In its view, the Decree is developed to regulate experiments with production-animals like Herman the bull and his descendants that will produce medicine. It should not be applied to laboratory-animals that are used for medical research. Several researchers[81] also question the 'no,

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[Technical study into alternatives for the production of humane lactoferrin. By order of the Ministry of Agriculture, Nature Management, and Fisheries.]. Two other reports on alternatives are published at the same time, namely: L. Fretz and J. Vorstenbosch (1994) *Reëel, rationeel en redelijk. Een onderzoek naar normatieve vragen rond alternatieven voor transgenese bij dieren. In opdracht van het Ministerie van Landbouw, Natuurbeheer en Visserij.* [Realistic, rational and reasonable. An investigation into the normative questions concerning alternatives for transgenesis in animals. By order of the Ministry of Agriculture, Nature Management, and Fisheries]. Amersfoort/Utrecht., and Voorlopige Commissie Ethische Toetsing Genetische Modificatie van Dieren (1994) *Discussienota 'Alternatieven'. De beoordeling van mogelijke alternatieven in het kader van de ethische evaluatie van transgenese bij dieren.* ['Alternatives'. The assessment of possible alternatives as part of the ethical evaluation of transgenesis in animals.]

78 Staatscourant 3 October 1994

79 Supported by 13 other organisations such as biomedical funds and patients' organisations

80 De Volkskrant 30 November 1995 and 37 January 1996

81 NRC 4 April 1996

unless' principle and the concept of intrinsic value that supports is principle. In their view, the concept of intrinsic value is too vague. Gene Pharming supports this view and adds that the harming of animal health and welfare ought to be a restriction in the context of a 'yes, if' policy[82].
The Dierenbescherming[83] does not agree with making an exception for laboratory animals[84]. It does not see any difference between laboratory animals and other animals. Respect should be paid to all animals, which also is the meaning of the concept of intrinsic value. The Dierenbescherming suggests that a fear for delay be exaggerated. And it points at the outcomes of a NIPO questionnaire. This questionnaire reveals that changing the genome of animal is controversial. And it reveals that about half of the Dutchmen do not favour any kind of animal biotechnology, not even in the case of medical research.
Parliament is divided. The PvdA agrees with the arguments provided by the KNAW; CDA, D66, and Groenlinks do not want to make an exception for rats and mice[85]. The Minister explains that he does not know how to balance a careful assessment and a hampering progress in research.
The Dierenbescherming suggests a possible breakthrough. It suggests that after a while, when the effects of the experiments are better known, certain groups of experiments might follow a more mild procedure or might only be assessed afterwards. From the side of the researchers[86] it is suggested to have projects assessed instead of each single experiment that comes under a project. This would imply that the 'no, unless' principle will be uphold, but the procedure shortened. The Minister initiates a consultation of the organisations involved[87]. November 1996, the council of Ministers affirms the 'Besluit Biotechnologie', motivating that only those experiments should be allowed that are ethically sound[88]. A Committee on Biotechnology in Animals, again chaired by Dr. Schroten, will be installed to advise the Minister about the licenses.

Further developments

In the middle of 1996, the experiment with Herman the bull and his daughters will be ended, which means that the animals have to be killed as was agreed upon in

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[82] De Volkskrant 27 January 1996
[83] Supported by the Stichting Natuur en Milieu and the Alternatieve Konsumenten Bond,
[84] Ibidem and NRC 4 April 1996
[85] Trouw, de Volkskrant 2 February 1996
[86] Ibidem, NRC 4 April 1996
[87] Ibidem
[88] NRC 30 November 1996 and de Volkskrant 12 April 1997

Parliament. Gene Pharming does not want Herman to be killed, as many people are interested in Herman. Every visitor of the firm wants to see the bull[89]. The Minister gives permission to keep the bull alive on condition of Herman being castrated as to prevent him from breeding[90]. The attraction park 'Het Land van Ooit' ['Everland'] proposes to buy the bull as to make him the centre of an educational exhibition, but this suggestion is not met by Gene Pharming[91].
Several biochemical companies, such as Gist-Brocades and Organon, are openly choosing for producing human proteins by way of micro-organisms or tissue culture[92]. Organon even states that it prefers tissue culture because of the public controversy about Herman the bull.
In a background article in the NRC, it is suggested that pressure groups have become a business risk, since they can influence the behaviour of consumers[93]. The relation of Nutricia and the Dierenbescherming is mentioned as an example.
Dutch government makes known that the KNAW and other societal organisations will be asked to be more involved in ethical and other legislation concerning research than before. It wants to prevent uncertainty, confusion and indignation among societal organisations, researchers and citizens[94].

Conclusion

In this chapter, I have summarised the debate about animal transgenesis. In the next chapters, I will analyse this debate. In chapter 3, I will show the internal dynamics of the debate. Chapter 4 will discuss the roles of the participants. The content of the debate will be analysed in chapters 5 and 6. Chapter 7 will go into the process of debating. And I will conclude my findings in chapter 8.

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[89] Volkskrant 27 January 1996
[90] NRC 22 June 1996 and De Volkskrant 8 February 1997
[91] NRC 22 June 1996
[92] NRC 18 July 1996
[93] NRC 5 September 1996
[94] NRC 17 September 1996

3. How the debate has proceeded

The media debate on animal transgenesis has taken some nine years. It started in March 1989 with the announcement of the intention of Gene Pharming to create transgenic cattle. And it vanished from the newspapers in 1997. From 1997 onwards other aspects of animal biotechnology were publicly discussed.
In this chapter, I will investigate why the debate has proceeded as it proceeded. For this, I will analyse the structure and the internal dynamics of this debate. A debate in the media proceeds differently from other debates, as for the media topicality is a major reason for publishing about an issue. It will be possible to distinguish several episodes. Periods in which hardly any articles were published on the matter are followed by episodes in which a substantial number of articles appeared. In each episode one or several aspects of animal transgenesis will be discussed. These episodes, the aspects that have initiated these episodes, and the development over time of the debate will be central to this chapter.

Rounds of discussion

Some 300 articles concerning animal transgenesis were collected from the six national newspapers.
These articles had to be transcribed into a manageable format, so as to provide an insight into the debate. Matthias Kettner has been of great help in finding a way of handling the material. As arguments are crucial in every debate, these were taken as a starting point. This has led to the following transcription mode: Actors put forward arguments (reasons) to explain a position. A position is taken with respect to a subject. In the transcription, every reason or line of reasoning has been codified as a reason given by a certain participant to defend a position regarding an issue. So: reasons or lines of reasoning (R) are used by an actor (A) to defend a position (P) with respect to an issue (I). In supplement 2, an example is given of an article that has been codified according to this method. This transcribed material has been used for writing this book.

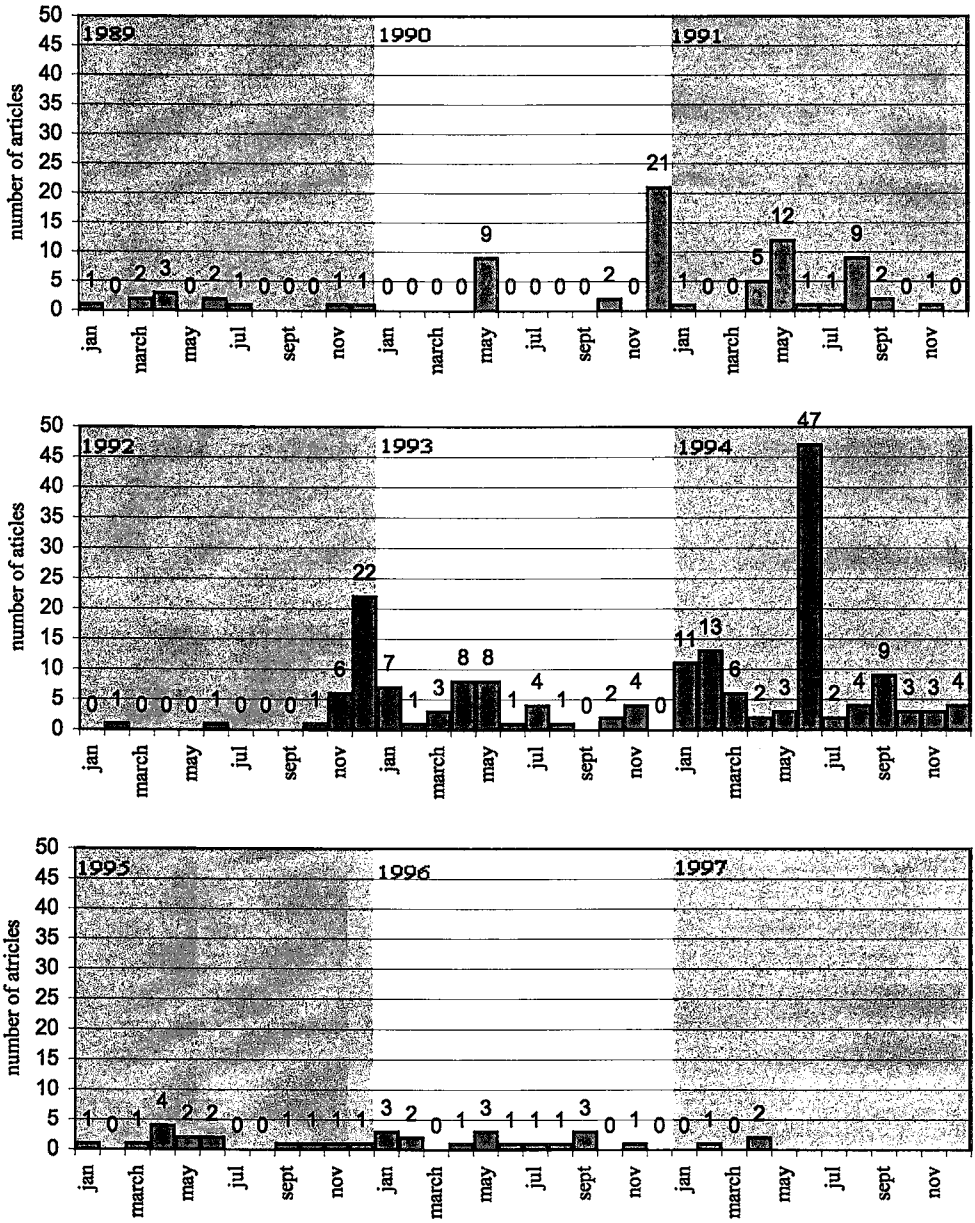

figure 3.1: The number of articles that was published in the major national newspapers per month

In figure 3.1, I have plotted the distribution of the articles over time. I have chosen for a monthly distribution. A distribution over years or trimesters does not differentiate enough; a distribution over weeks or days does not provide additional information.

The articles did not appear evenly distributed over time, but in more or less distinguishable episodes concentrated in relatively short periods of time as can be concluded from the distribution of the articles over time. The figure shows ten peaks in the number of publications, to wit: 1) March/April 1989, 2) May 1990, 3) December 1990, 4) May 1991, 5) August 1991, 6) December 1992, 7) April/May 1993, 8) January/February 1994, 9) June 1994 and 10) September 1994. After this last peak, no further peaks arise, but a continuous number of articles occurs (11). From May 1997
onwards, no further articles were collected, since by then the emphasis in the debate on animal biotechnology had shifted from animal transgenesis to the cloning of animals.
Each peak signifies an episode in the debate. An episode defined by such a climax will be called a *round* of discussion. The ten peaks therefore mark ten rounds of the debate. The steady stream of articles from 1995 onwards does not have a climax and can, strictly taken, not be called a round in the sense I have just defined. Most articles in this period address subjects that have been discussed before or that are relevant to the debate as a whole. These articles will be clustered in what will be called round 11 in order to have a means to address these articles together.

In each round one or several aspects of animal transgenesis or of the doings of the participants was discussed. A closer look at the eleven rounds of the debate reveals that most rounds have a demonstrable beginning and end:

1. March/Apr. '89 A press release of Gene Pharming announces its intention to create transgenic cattle (9 March). This announcement gives rise to a turn in the discussion in Parliament about the Animal Health and Welfare Act (AHWA). Last report 27 April.
2. May 1990 The advise of the ministerial advisory Committee on Ethics and Biotechnology in Animals (CEBD) is published (10 May) and discussed (until 19 May)[1]. In October, this discussion has a

[1] Commissie van Advies Ethiek en Biotechnologie bij Dieren (1990) *Rapport van de Commissie van Advies Ethiek en Biotechnologie bij Dieren.* [Report of the Advisory Committee Ethics and Biotechnology in Animals] NRLO. Wageningen.

small train as Parliament agrees that the Minister should incorporate the suggestions of the CEBD in the AHWA.

3. December 1990 — The first calf is born. It is said to have a genetic resistance against mastitis, an udder-infection (5 December). Background articles and interviews appear, and the first letter to the editor is published (5 January). Even Queen Beatrix addresses these new biotechnological techniques in her Christmas Speech.

4. May 1991 — Some background articles are preluding the parliamentary discussion about the handling of animal biotechnology in the AHWA (17 April). The papers concentrate on whether human genes were used by Gene Pharming and whether it is allowed to use such genes, and on what should be done with the non-transgenic calves. The AHWA is accepted and the Dierenbescherming expresses its satisfaction (1 June).

5. August 1991 — The results of the investigation of the health and welfare of the animals are made public (6 August) and discussed till 26 September.

6. December 1992 — The request of Gene Pharming to breed with Herman-the-bull starts a discussion about the continuation of the project (31 October). And the Dierenbescherming starts a campaign against animal biotechnology. Many background and opinion page articles appear. Parliament deliberates and decides in favour of the project (19 December), but the discussion in the newspapers does not stop before 4 February.

7. April/May 1993 — The Dierenbescherming goes to court (30 January) in order to stop breeding with Herman the bull. The judge does not meet the demand which gives rise to some reactions in the newspapers (12 May).

8. January/Feb. '94 — The Dierenbescherming intensifies its campaign amongst others by distributing a confronting poster showing a breastfeeding woman with udders. This poster gives rise to many reactions (18 January). This round ends with the judgement of the Advertising Code Foundation that the poster is not considered misleading (19 March).

9. June 1994 — Nutricia and Gene Pharming Europe start of a joint venture (25 February). The objective of this co-operation, to wit the use transgenic cattle for producing infant formula ('mothers' milk from cows'), gives rise to much discussion. It turns out that Nutricia has been sponsoring Gene Pharming all along (2 June), and a few days later that the Minister was informed, but

	Parliament was not. After much discussion the Minister allows the project to continue conditionally (30 June).
10. September '94	Gene Pharming wants to end the contract with the Ministry of Agriculture, Nature Management and Fisheries (15 September). The Minister agrees conditionally (7 December).
11. 1994 to 1997	During these 3 years much was reported about the doings of Gene Pharming and the developments in the 'Herman project'. Discussion arises about the Royal Decree on animal biotechnology that has implement the AHWA (3 October 1994). The Decree is accepted in April 1997.

The rounds of discussion have a well-defined start. Three times a development in the project of Gene Pharming has started a round of discussion (1, 3, and 6). The results of a report that was asked for by the Minister started a new round two times (2 and 5). Two rounds were initiated by a parliamentary debate about the (implementation of the) AHWA (4 and 11). Two times, it was action undertaken by the Dierenbescherming (7 and 8). Another two times a discussion started about the collaboration of Gene Pharming with Nutricia and with the Ministry of Agriculture successively (9 and 10).

Most rounds also have a well-demarcated closing. Six rounds ended with either a report on a parliamentary discussion (1, 6) or a political decision (4, 9, 10, 11). One round ended with a juridical verdict (7) and another one with a judgement by the Advertising Code Foundation (8). The other rounds just ended. (2, 3, 5). The second round had a definite closing a few months after the parliamentary debate, namely with a parliamentary decision.

This means that the debate as it has proceeded in the newspapers did not just happen to come into distinguishable episodes. New impulses caused new rounds of discussion. Each round ended after a relatively short period. And ending most of the times really means ending, since an episode really was closed and there were no developments to report. Only a new impulse could inject new life into the debate. This has happened ten times.

I suppose that this pattern is typical for a media debate. Scientific and policy-making debates have a much more regular pattern and much more continuity. And parliamentary debate has its own dynamics, which, as we just saw, affects the debate in the media.

At this point, it becomes interesting what sorts of impulses have caused the debate to be reopened. What can be detected from the brief explanation of the rounds that I have given above is that in most rounds a new aspect of the debate has been discussed and that as the debate continued also the activities of the different actors have become

subject of the discussion. In the next section, these aspects will be reconstructed in more detail as issues of the debate.

Issues

A round of discussion not only has a demonstrable beginning and end, it also has a topic that is discussed. Some of these topics return in almost each round, but in many rounds a new aspect of the project is discussed as well. 16 different issues were distinguished, to wit:

1. Should transgenic animals be made at all?
2. How should the Animal Health and Welfare Act (AHWA) handle animal biotechnology?
3. Should transgenic cattle be made for producing '*mothers' milk*'?
4. Should they be made for producing *valuable/medical proteins* (such as lactoferrin)?
5. Is it a good idea to make transgenic cattle with an inherent resistance against *mastitis?*
6. Is it admissible to make transgenic cattle with a '*human*' gene?
7. Should the project of Gene Pharming (further experiments) continue?
8. Should it be allowed to abort or sell of the non-transgenic calves?
9. Are animal health and welfare harmed and what consequences should this have?
10. Should be *bred* with Herman the bull?
11. How to value the campaign of the Dierenbescherming?
12. Is a joint venture of Gene Pharming and Nutricia desirable?
13. How to deal with the secret contract of Gene Pharming and Nutricia of 1990?
14. What should be the consequences for the involvement of the Minister of Agriculture?
15. Should the contract of Gene Pharming with the governmental research institution ID-DLO be continued?
16. What should the Royal Decree on Animal Biotechnology do?

In figure 3.2, the issues are plotted against the subsequent rounds of the discussion. The table shows that in almost each subsequent round of the debate one or several new aspects of animal transgenesis were discussed. At the start of the debate the discussion has focussed on different aspects of content. At the end of the debate, the activities of the main participants became the main theme of the debate. These discussions did not so much concern the content of the debate as the process of debating.

Two issues returned in almost each round of the discussion, to wit animal transgenesis in general and legislation. The other substantive issues were clustered around these central issues.

Figure 3.2: The number of articles in which an issue is discussed in each round per round of the discussion. (The issues discussed the most in each round are plotted boldly.)

issues subsequent rounds	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	***tot***
1. Should transgenic animals be made?	**7**	**6**	**14**	4	3	**20**	**8**	1	7	2	**6**	***78***
2. Should the AHWA include licensing of biotechnology?	**8**	**11**	2	**12**		3	5		4		2	***47***
3. Should 'mothers' milk' be produced?	1					1	3	1	**13**			***19***
4. Should valuable/medical proteins be produced?	1		1		1	8	4		**13**		2	***30***
5. Should cattle be made resistant against mastitis?			**17**	4	3				1			***25***
6. Should human genes be used?				**16**	1	3						***20***
7. Should Gene Pharming continue its experiments?				1	3		4	5	3	1	**4**	***21***
8. What to do with the non-transgenic calves?				**11**								***11***
9. How to handle animal health and welfare?					**10**	3	3				7	***23***
10. Should be bred with Herman the bull?						**23**	**12**		**10**	2	**7**	***54***
11. How to value the campaign of the Dierenbescherming?						4	2	**15**	6	1	1	***29***
12. Is the joint venture with Nutricia desirable?									**16**		2	***18***
13. How to deal with the secret contract with Nutricia?									**18**			***18***
14. Did the Min. of Agriculture handle this issue well?									**14**			***14***
15. Should the contract with the Min. of Agriculture be continued?						1				**11**		***12***
16. What should the Decree on Animal Biotech. regulate?										3	**8**	***11***
total	*17*	*17*	*34*	*48*	*21*	***66***	*41*	*22*	***104***	*19*	*39*	

Discussions about animal transgenesis in general were almost each time triggered by a development in or a result of the project of Gene Pharming. The first round was triggered by the announcement of the project; the third round started with the birth of

a transgenic calf and the sixth round began with a request for a license to breed with the transgenic bull Herman. The seventh round can be seen as an extension of the sixth, since the license granted by Parliament was discussed before a court of law. Specific aspects of animal transgenesis were discussed in rounds 3, 4, 5, 6, 7, and 9, to wit issues regarding the purpose and the implications of changing the genetic make up of the animals. The project of Gene Pharming, and in particular the 'Herman' case, has served as a case to sharpen people's opinions and wills.

The other substantive theme concerns legislation. An Animal Health and Welfare Act (AHWA) was already in preparation for several years at the time the debate started. The announcement of the project of Gene Pharming happened to coincide with a discussion in Parliament on this bill. The announcement by Gene Pharming implied a development in the use of animals. This means that the AHWA in preparation had to be extended to animal biotechnology. In the first round, it was discussed how animal biotechnology had to be incorporated in the AHWA. A committee was installed to advise about the incorporation of animal transgenesis in this act. The advice was released and discussed in the second round of the debate. This advice was incorporated in the Animal Health and Welfare Act that was decided on in the fourth round. A Royal Decree regarding the implementation of the AHWA was discussed and decided on in the eleventh round.
This means that what at first sight seemed to be a single public debate on animal transgenesis, was in fact two debates, namely one on animal transgenesis and one on the legislation regarding animal health and welfare. The last debate obviously had a much broader scope than the first one, but during this period animal transgenesis, and in particular the Herman case, has been the focus of the discussion on the animal welfare legislation as well.

The activities of the diverse participants discussed in rounds 8, 9, and 10 can be viewed as a third, non-substantive theme in the debate. Here the discussions were not directed at the production of arguments concerning one of the substantive themes, but at the process of debating itself. It is evident that such a debate on the debate can only emerge after a debate has been going on for a while, since only by then will motives as well as activities of the participants have become clear.

In the next three sections, I will reconstruct the two substantive debates distinguished as well as the meta-debate on the process of debating[2]. Hereafter, I will resume the questions regarding the continuity and discontinuity of the debate.

Animal transgenesis

The central case in the debate on animal transgenesis was the project of Gene Pharming *to change the genetic make up of cattle in order to produce specific proteins in the milk*, and in particular the Herman project, that aimed at the production of lactoferrin in cattle milk. Other reasons for genetically modifying animals, such as biomedical research, were hardly mentioned.

The announcement by Gene Pharming of being up to change the genetic code of animals as to produce specific proteins in the milk *started the debate.* No specific reason was mentioned for making transgenic animals, although a number of possibilities were mentioned. The discussion concentrated on concerns about the making of transgenic animals (issue 1). Many contributors to the debate were convinced that animal transgenesis was morally problematic. It should be noted that most contributors did not simply oppose this technology. Most of them did not yet take position, but were delving for reasons. They wanted to critically review reasons pro and contra this new technology. At first, even the Dierenbescherming shared this attitude, but not for long. Shortly after the start of the debate the Dierenbescherming revealed itself as the main opponent of animal transgenesis, arguing that animal biotechnology is incompatible with respect for the intrinsic value of animals.

After the first calf[3] was born in December 1990, the debate entered *the third round.* Again, it was stressed that animal biotechnology is morally problematic (issue 1), the arguments, however, were much more specific now. It was argued that animal biotechnology does not respect nature and life, and more in particular that it does not respect the integrity and therefore the intrinsic value of the animals. And it was stressed that animal transgenesis is not in harmony with God's creation. Others, however, argued that genetic engineering is in line with traditional breeding and therefore nothing morally new. Furthermore, people started to make a difference between 'new' animals (chimeras) that should not be made and minor changes for good reasons that are open for debate. The birth of the calf brought about a discussion on such reasons. It was questioned whether mastitis prevention is a sufficient reason for making such an animal (issue 4). And the question was raised whether there were alternative means for solving the incidence of this udder infection. It also was discussed whether an increase of productivity (which is seen as one of the causes of mastitis) was a compelling reason for making transgenic animals.

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[2] I will analyse these sub-debates in the chapter 5, 6 and 7.

[3] This first calf is not the bull-calf Herman, but a female calf that proved not be transgenic after all.

In *the fourth round* of the debate two issues were discussed, namely whether the gene used was of human origin (issue 6) and what should be done with the redundant animals (issue 8).
It was realised that the gene inserted in the animals might be of human origin, as human lactoferrin would be produced. If this were true, the animal created would be a mixture of an animal and a human, which was thought to constitute an independent moral problem by a substantial part of the parliamentarians. This resulted in a technical discussion on whether the gene used could be understood as a human gene or not. The result of this minor debate was twofold. Firstly, the insertion of properties of one species into another species was not objected by a majority in Parliament as long as minor changes of the genome were concerned. And secondly, Parliament was in agreement on the prohibition of the insertion of human DNA in animals.
The other issue discussed in the fourth round was about the non-transgenic foetuses. Gene Pharming had requested the Minister to be allowed to sell the cows-in-calf, as the calves were too expensive to raise. This request was not granted for two reasons. Parliament did not want to take the risk of 'material' out of the experiment being mixed with the normal livestock. The other reason only applied to this experiment, since it was agreed upon that the effects on the health and welfare of the calves had to be measured. Therefore the calves, including the non-transgenic ones, should remain in the experiment.

In *the fifth round*, an outline of the first report on the effects on the health and welfare of the animals was published (issue 9). The Minister concluded that the calves that survived the experiment were in good health, which meant that the experiment could continue. The Dierenbescherming disagreed with this conclusion, since more calves than on average had died before or during birth, and there were many delivery problems. This controversy remained unsolved.

This discussion in a way repeated itself *in the last (eleventh) round* of the debate. Then, the discussion was between the Dierenbescherming and Herman de Boer, by then former manager of Gene Pharming. De Boer had always stated that no harm should be done to the animals and he has claimed to act accordingly. The Dierenbescherming, however, accused him of not being consistent, for reason of not taking into account all harm that is done during the process of making transgenic animals.

The debate on animal transgenesis has culminated around the question whether breeding with Herman the bull should be allowed or not (issue 10) *in the sixth round.* The reason for making these animals and whether harm was to be expected were

central to this discussion. The controversy revealed itself in the dual advice[4] of the advisory Committee Ethical Assessment Genetic Modification of Animals. A majority argued that human medicine might become available (issue 3), without harm being done to the animals. The minority argued that the 'integrity' of the animals will be affected and that harm might be done, while no convincing reasons for the continuation of the project were mentioned and alternative production methods were not investigated. Here a new aspect entered the debate, namely that the recognition of the intrinsic value of animals implies that alternative production methods should be investigated seriously. A majority in Parliament agreed with the majority of the committee and granted the license. So, short term purposes were not decisive, but the opportunities that might become available in time. A restriction is added, however, namely that as soon as an alternative becomes available this alternative will be preferred and the project ended. A substantial minority in Parliament were of the opinion that alternative production methods should be investigated first. So, medicine that *might* be produced in the future have been decisive for allowing Herman to have offspring.
The Dierenbescherming, together with the Nature and Environment Foundation, even went to Court to enforce an investigation into alternatives before a license would be granted, but lost the trial (*the seventh round*).

In 1994, it was made known that Nutricia would enter a co-operation with Gene Pharming (*ninth round*). This caused a discussion on the 'real' purpose of the project: medicine or infant formula? Nutricia explained that it wanted to develop infant formula which would resemble mothers' milk as best as possible. This purpose was broadly considered a commercial reason, and therefore not a satisfactory reason for creating transgenic animals. A week later, Gene Pharming and Nutricia both stated that they were not aiming at ordinary infant formula, but at the production of clinical food (food for patients). This caused a technical discussion on whether lactoferrin in clinical food might be of help for these patients, which did not come to a conclusion. But the project was allowed to continue for reason of the expectation that human medicine might become available in time. The Dierenbescherming expressed its distrust in the motives of Gene Pharming and Nutricia.
In chapters 5 and 6, I will further analyse the content of the debate.

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[4] Voorlopige Commissie Ethische Toetsing Genetische Modificatie van Dieren (1992) *Advies inzake het dossier "Weefselspecifieke expressie van genen in de melkklier van genetisch gemodificeerde runderen" [Advice concerning 'Tissue-specific expression of genes in the mammary gland of genetically modified cattle']*. Supplement added to a letter by the Minister of Agriculture, Nature Management and Fisheries to the President of the Permanent Committee on Agriculture and Nature Management of the Second House of Parliament, dated October 28 1992.

Legislation

The second debate that can be distinguished concerns legislation. The first Dutch act against the maltreatment of animals dates from 1886. This law did not come about because maltreatment causes animal suffering, but because *people* could not stand this maltreatment and were pitying the animals (maltreatment was seen as an indecency). Only in the renewal of this act in 1961 was the focus directed at the animals themselves. Under the new act hurting or harassing animals 'without reasonable purpose or when exceeding what would be necessary for achieving the purpose' was punishable. This act still concerned animal health only. At the end of the sixties and with the rise of intensive farming people started to question how animals were kept. It was argued that there is more about animals than their usefulness. Animal welfare became an issue and the Minster of Agriculture, Nature management and Fisheries started the procedure to arrive at a new Act, the Animal Health and Welfare Act (AHWA).

A Parliamentary debate about this Animal Health and Welfare Act coincided with the announcement of Gene Pharming's plan for creating transgenic cattle. A discussion emerged on how animal biotechnology should be incorporated into this Act (*the first round*). The Dierenbescherming always had advocated that a 'no, unless there are good reasons for doing so' policy principle should be the operative principle of the Act. The proposed act had as its leading principle a 'yes, if a certain set of conditions is fulfilled' policy, which would mean that animal transgenesis would only be restricted instead of licensed. Now Parliament argued that such a limited list of conditions would not be adequate for this rapidly developing technology, and so suggested that a 'no, unless' policy principle would be more adequate as the operative principle of the AHWA The Minister installed a committee to prepare an advice about animal biotechnology.

After a year the provisional Advisory Committee on Ethics and Biotechnology in Animals (Schroten 1) published its report (*the second round*). According to the committee, the use of the recombinant DNA techniques in animals (the making of transgenic animals) is morally problematic. Therefore, a 'no, unless' policy principle should be adopted; all applications of this technology should be reviewed; an advisory council be installed; and ethical assessment stimulated. Five months later Parliament adopts the 'no, unless' policy.

In the spring of 1992, the final version of the AHWA is accepted in Parliament (*the fourth round*). As this law is only enabling legislation, implementation orders (called Royal Decrees) are needed to specify the general directions of the Act for specific

problem areas. Parliament argued that animal biotechnology should be licensed and that a Royal Decree be made. Governmental research institutions already were in need of a license[5]. Only one person publicly expressed his worries about this development, namely Professor Piet Borst. He argued that experiments with transgenic animals are of eminent importance for medical research, that this technique is indispensable to medical biology, and that human medicine will be obtained more cheaply and more easily. Furthermore, he states that all animal experiments are already reviewed by animal experimentation committees.

The publication of the concept of a Royal Decree, called 'Besluit Biotechnologie', opened *the last round* of the debate in October 1994. The 'Besluit' would make all biotechnological research in need of a license. The Royal Dutch Academy of Sciences (KNAW), supported by 13 medical organisations and funds, questioned this 'Besluit'. It argued that Dutch regulation will be too strong compared to other countries; that all animal experiments are already under strong supervision; and that an extra assessment procedure would be too time-consuming and would therefore hamper medical research. They were in favour of a conditional allowance (a 'yes, if' policy) for laboratory animals like rodents, and the licensing of other uses of animals according to the 'no, unless' policy. The Dierenbescherming reacted that it is not proper to differentiate among species. Parliament was divided and the Minister indecisive. The Dierenbescherming was the first who publicly created a possible breakthrough. It suggested that in time, when the effects of the experiments would be better known, certain groups of experiments might follow a more mild procedure or might even be assessed afterwards. Researchers suggested a shortening of the procedure as a way out. Both suggestions refer to the implementation of the 'Besluit', so the Minister advises to affirm the 'Besluit Biotechnologie' as it is, since only experiments that are ethically sound should be allowed. A Committee on Biotechnology in Animals was installed to execute the assessment procedure.

Most remarkable of this second theme is that the most influential decisions regarding legislation were taken in the first two rounds of the debate. The direction chosen in these episodes has guided future actions of the Minister as well as of the political parties. To be able to control this new technology, animal biotechnology should not be restricted, but licensed, because licensing means that every development has to be assessed carefully, while familiar experiments can be assessed in a more mild procedure or even afterwards.

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[5] For breeding with Herman the bull, for instance, a license was needed because ID-DLO was involved in the project. The discussion about this license has taken place in rounds 6 and 7 of the debate.

Participants

Later in the debate, the main participants became subjects of debate themselves. The Dierenbescherming was the first to be criticised after the intensification of its campaign against animal biotechnology (*the eighth round*). Many people wrote a letter to editor right after the release of a poster showing a breastfeeding mother with cows' udders all over the country. This poster was called disgusting, disrespectful, offending, insulting, demagogic, and misleading. This last accusation was even brought before the Advertising Code Foundation, that, however, did not consider the poster misleading in its message. The Dierenbescherming explained that the campaign was meant to encourage discussion and accused, in its turn, Gene Pharming of not being clear about its reasons for making transgenic animals. The discussion regarding this issue was almost completely limited to this specific round.

Gene Pharming, Nutricia, and the Minister of Agriculture were disputed in *the ninth round*. The publication of the joint venture of Gene Pharming with Nutricia gave rise to questions regarding the real intentions of Gene Pharming, as Nutricia explained that it wanted to produce infant formula that better resembles mother's milk. Shortly thereafter, it turned out that Nutricia had been sponsoring Gene Pharming from the very beginning of the project[6], which was kept secret for competitive reasons. The question was raised whether Gene Pharming had misled the Government and Parliament. Gene Pharming replied that it did not want to produce lactoferrin for infant formula, but only for uses in clinical food, another branch of Nutricia's activities. The Dierenbescherming reacted that baby food must have been the real purpose of the project all along, since this is where the money is. And it argued that the project now is in conflict with the permission granted by Parliament. Nutricia is threatened with a boycott. Herman de Boer, by now former manager of Gene Pharming, responded that the firm is exploring a technique that might in time be used for producing medicine. Furthermore, Gene Pharming claims that it had informed the Minister about the co-operation with Nutricia.
Now the Minister of Agriculture had to explain to Parliament why he had withheld information (the other issue of this round). Minister Bukman answered that he knew about the contract, but that he did not know its content. He had assumed that the contract was in line with the contract of the DLO and Gene Pharming. Parliament accepted this explanation.

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[6] At the start of the project, Gene Pharming mentioned that the changing of the quality of the milk is one of the options opened by animal transgenesis. People have not interpreted this option as entering the production of infant formula.

The tenth round started with the request of Gene Pharming to break off the contract with DLO. Minister van Aartsen, the new Minister of Agriculture, agreed, since he did not consider the involvement of government in research activities proper. In his view, Government should only be involved in the regulation of research.
During *the eleventh round*, the press followed the activities of Gene Pharming, because of the contestability of its projects, but also because of the innovativeness of the firm.

This debate has reconstructed the activities of some of the most important participants. In chapter 7, I will evaluate this process of debating.

Conclusion.

What at first sight seemed to be a single debate on animal transgenesis, on close inspection turns out to be a more complex debate. Two distinctive debates regarding content can be distinguished that are both fed by the activities of Gene Pharming and in particular the Herman project. The first one is a debate on animal transgenesis. This debate was triggered by the research project of Gene Pharming. The second one was the discussion about the Animal Health and Welfare Act in which animal biotechnology had to be incorporated. It is interesting to recognise the impact of the project of Gene Pharming on both debates.
The project (as *a* case) has been a necessary focal point of the debate. This has become obvious from the reconstruction of the debate on animal transgenesis in general. Many aspects of the case were discussed as the project developed. In discussing these aspects, it has become clear how to value and handle cases like this. From the debate as it has proceeded, it can be deduced that these substantial aspects only could have been discussed on the basis of such a case, since as long as the case was still hypothetical only general aspects of animal biotechnology were discussed. *Only after the birth of the calf and only after each development did a discussion arise in which the specific aspect at stake was discussed.* The debate has proceeded as commenting on the developments in the project of Gene Pharming ('the urges'). There always is a risk, however, that the general question is overlooked because of the attention paid to specific aspects of the case. In this case, some people have complained that too much attention was paid to side-issues, but hardly anybody has complained that the general issues were overlooked.

So, the case has provided new causes to articulate, to re-evaluate, or to be more specific on the reasons pro and con. This means that a theme like animal transgenesis cannot be discussed in hot air, but needs substance. Direct causes were needed to

make the debate urgent. A public urge is necessary to feed a public debate, but this is not enough. Societal organisations are needed to recognise and to articulate these urges. Furthermore, the media will have to recognise the news-value of the events. I will discuss the actors in the next chapter.

Not only will a case cause dynamics in the debate, it will also give structure to the debate. In the second section ('rounds of discussion'), I have defined a new round of the discussion by a peak in the number of articles that appeared in the newspapers. From figure 3.2, it can be deduced that most climaxes in the number of articles can be explained from new issues appearing in the debate. The developments in the project by Gene Pharming are directly linked to one of these new issues.
The rounds that cannot be directly linked to the project of Gene Pharming are the ones that are primarily concerning legislation. The proceeding of the debate on legislation had its own dynamics caused by the process of legislation. Nevertheless, the AHWA has been deeply influenced by the project. Animal transgenesis, as a development in animal biotechnology, has made very clear that a 'yes, if a certain set of conditions in fulfilled' policy principle cannot be effective concerning fast developing technologies. If such a 'yes, if' principle would be implemented the conditions have to be continuously re-adjusted as the technology is developing. This argument provoked the incorporation of a 'no, unless there are good reasons to do so' policy principle in the AHWA. Developments in the Herman project did cause discussions in Parliament, but these discussions did not lead to adaptations in the AHWA.

In another respect, however, this specific case also has been a limitation to the debate. Animal transgenesis in order to produce specific proteins (such as medicine) in the milk is just one opportunity opened up by animal transgenesis, which involves only few animals if compared to the number of animals used in medical experiments. Animal experiments in a medical context have been extraneous to the debate. And arguments put forward in order to stress this already existing use of transgenic animals by for instance Piet Borst, by some science journalists, and by the KNAW did not really become part of the debate. The debate really has been shaped by the project of Gene Pharming. This means that the Herman case has not only been illuminating and stimulating for the debate, but limiting as well.

4. Actors, related debates, and roles

Many voices[1] were heard during the debate about animal transgenesis. These voices will be central to this chapter. I will cluster the contributors to the debate and discuss the roles they have taken.
I will go into some general notions regarding different types of public debates and I will discuss the interrelations between these public debates, which will result in a discussion about the specific roles of experts, politicians, and expert committees in this media debate. The input regarding substance as well as the impact of the contributions of the participants will be discussed in the next two chapters.

Mapping the actors

Some 300 articles about animal transgenesis were collected from the six national newspapers[2]. During the nine years the debate on animal transgenesis has lasted, 136 persons or organisations were heard. 45 of these contributors were organisations and their spokespersons, and 91 were persons or groups of persons[3] who spoke for themselves. A complete list of the participants can be found in supplement 3. In figure 4.1, the actors who have contributed more than once to the debate are listed in order of appearance.

The appearance of new actors on the stage is connected to the development of the debate. First, the main participants arrived on the stage, namely Gene Pharming Europe and soon thereafter its main partner the ministerial research institution IVO-DLO (later called ID-DLO) and the Minister of Agriculture, Nature Management and Fisheries. This Minister is responsible for the activities of the ministerial research institutions, as well as for the preparation and implementation of legislation concerning animal biotechnology.

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1 I speak about voices. This means that all the spokespersons of a particular organisation are counted as one voice, namely as the voice of that organisation.

2 In chapter 3, I have explained how I have obtained my material and how I have handled it.

3 This fraction encompasses the non-specified minorities and majorities in parliament or within a committee.

Participants Round *(Articles per round):*	1 *12*	2 *11*	3 *22*	4 *20*	5 *12*	6 39	7 *31*	8 *21*	9 *67*	10 *19*	11 *33*	total
Gene Pharming	3	.	5	5	2	7	9	4	20	8	9	72
Ministry of Agriculture	4	2	1	10	6	9	3	.	23	14	7	79
Dierenbescherming	3	6	3	3	2	14	163	7	20	1	7	82
St. Natuur en Milieu	1	.	.	.	.	1	3	.	3	.	1	9
biotech. researchers	4	.	.	3	.	3	.	1	2	.	6	22
(part of) Parliament	1	1	.	1	.	5	.	.	7	.	1	16
D66 (liberals)	1	.	1	9	.	5	.	.	2	.	1	19
RPF (small Christian party)	2	.	.	.	.	4	.	.	.	.	.	6
GrL (green socialists)	2	1	1	9	.	5	.	.	3	.	.	22
CDA (Christian democrats)	2	2	3	1	.	5	.	.	2	.	2	17
PvdA (social democrats)	2	.	2	1	.	6	.	.	3	.	2	16
VVD (conservatives)	1	1	.	2	.	5	.	.	1	.	.	10
CEBD (Schroten 1)	.	5	.	1	.	.	5	.	.	.	.	7
philosophers and ethicists	.	1	6	1	.	5	5	.	2	.	6	26
animal (welfare) scientists	.	.	1	.	.	.	.	.	.	.	1	7
IVO-DLO (later ID-DLO)	.	.	2	1	.	.	.	.	.	1	.	4
Lekker Dier (Tasty Animal)	.	.	3	.	.	.	.	.	.	.	.	3
Queen Beatrix	.	.	8	.	.	1	.	.	.	.	.	9
SGP (small Christian party)	.	.	.	7	.	1	.	.	1	.	.	9
vCOGEM	.	.	.	3	.	.	.	.	.	.	.	3
NIABA	.	.	.	2	.	.	.	.	1	.	.	4
journalists and editors	.	.	.	2	2	2	1	1	6	.	.	13
individuals not being experts	.	.	.	.	2	4	.	9	2	.	2	20
vCEEGMD (Schroten 2)	.	.	.	.	.	3	4	.	3	.	.	6
patients organisations	.	.	.	.	.	2	3	.	.	.	1	7
GPV (small Christian party)	.	.	.	.	.	3	6	.	.	.	.	6
a lay panel	.	.	.	.	.	.	.	.	.	.	.	6
Ministry of Economic Affairs	.	.	.	.	.	.	.	4	3	.	1	8
Nutricia	.	.	.	.	.	.	.	.	17	.	3	20
Herman de Boer as a person	.	.	.	.	.	.	.	.	3	.	4	7
SP (socialists)	.	.	.	.	.	.	.	.	5	1	.	6
AKB (consumers organisation)	.	.	.	.	.	.	.	.	3	.	.	3
Dutch dairy firms	.	.	.	.	.	.	.	.	4	.	.	4
KNAW	.	.	.	.	.	.	.	.	.	.	4	4
(total of contributions):	*26*	*19*	*36*	*59*	*14*	*90*	*58*	*26*	*136*	*25*	*58*	

Figure 4.1: The contribution of the diverse participants (including spokespersons) to the diverse rounds of discussion. Only the actors who have contributed more than once are listed. (A complete list of the actors can be found in supplement 3).

Then the Dierenbescherming had its first contribution and started to develop itself into the main opponent of animal transgenesis. Several times it has spoken in behalf of the Stichting Natuur en Milieu [Nature and Environment Foundation] and the Alternative Konsumentenbond [Alternative Consumer Foundation] as well.

Next, the political parties had their say as a discussion in Parliament came about on legislation regarding animals, to wit the liberals (D66), the small Christian parties (RPF and GPV), left wing environmentalists (GrL), the Christian democrats (CDA), the social democrats (PvdA), the conservatives (VVD), and the socialists (SP). In the

meantime, some experts and interest groups got publicly involved because they were asked for their opinion by some journalists. From this moment onwards, they will have their share in broadening and deepening the debate by adding new and more sophisticated lines of reasoning. The report of the Committee Ethics and Biotechnology in Animals (Schroten 1) arrived in 1990. The first letter to the editor, written by an ethical expert, was published in December 1990 just after the birth of the first calf, so was the first cartoon, the first poem and the Christmas speech of Queen Beatrix. From the third year onwards citizens, experts, columnists, journalists et cetera have expressed their opinions in opinion page articles, in letters to editor and in interviews.
Only in 1992 did a whole new actor enter the debate, namely the patients' organisation of the Rheumatics, who articulated a new, namely the patients, point of view. Shortly thereafter, in 1993, also the patients' organisation of the Haemophiliacs spoke up. Nutricia was pulled into the debate in 1994 after its co-operation with Gene Pharming became public. In 1995, the KNAW [the Royal Dutch Academy for Sciences] stood up for the interest of medical progress and Dutch medical research. A number of medical trusts and NWO [the Netherlands Research Organisation] supported this input.

The main contributors to the debate

Figure 4.2, on the next page, shows that Gene Pharming, the Minister of Agriculture, the Dierenbescherming; the political parties (incl. Parliament), and Nutricia have contributed most frequently to the debate. Patients organisations did not often contribute, but their voice was very well heard. Next to these organisations, also three groups of relatively independent experts, the advisory committees taken together, journalists and editors taken together, and the individual citizens taken together have contributed quite frequently to the debate. I have clustered these groups. If I would not have done so, I would not have been able to show their input and it would have appeared that only organisations had a prominent input in the debate. Grouped together, however, the impact of these related individuals can be made visible. I will discuss these clusters of individuals briefly.

First, it should be noted that the three groups of independent *experts* do not comprise the experts working for or speaking for an organisation. These non-independent experts have spoken on behalf of their organisations, which means that they did not give an independent expert opinion. These experts are assessed as spokespersons of their respectively organisations. The relatively independent experts that I have clustered in three groups will express their expert opinion. I speak of *relatively*

independent experts as these experts also stand for specific interests that are related to their profession, which we will see in this and the next chapters.

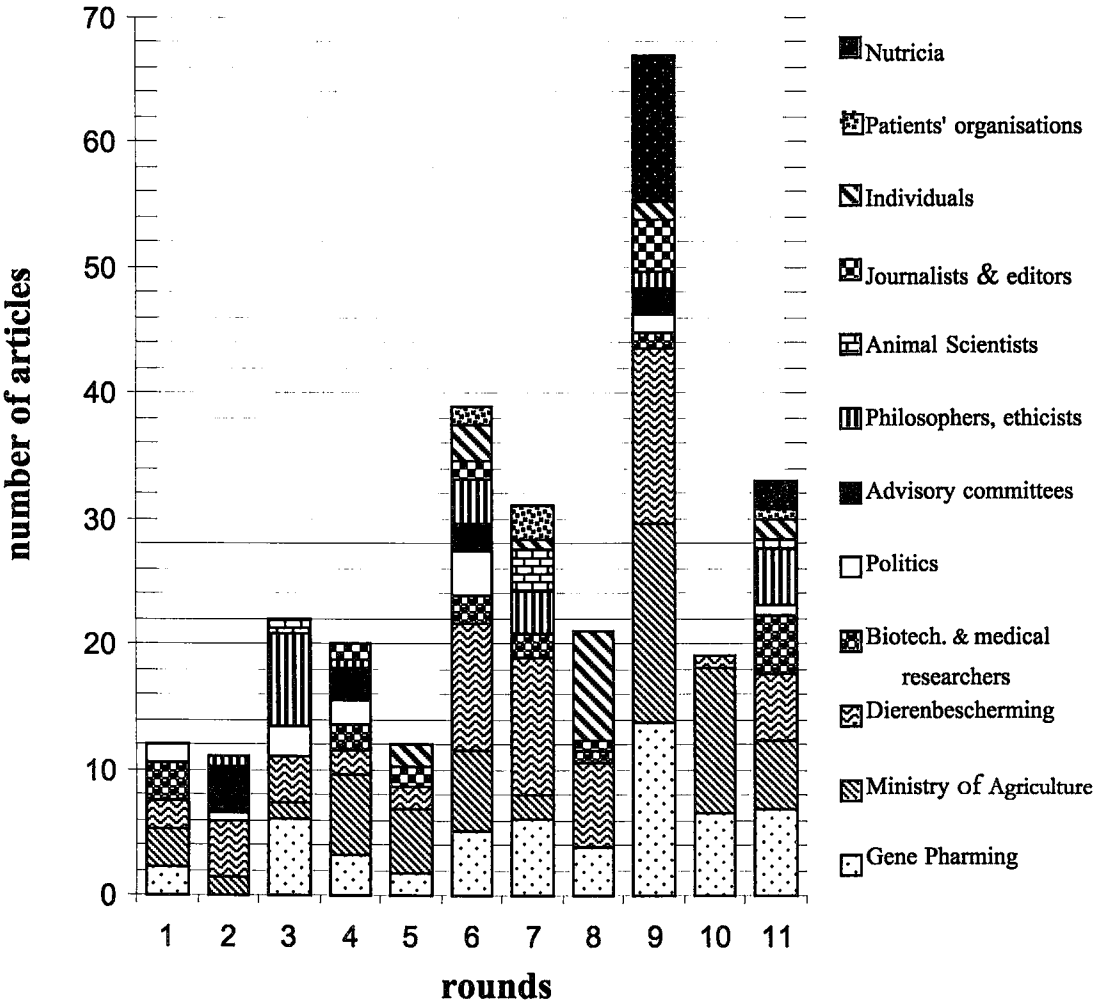

Figure 4.2: The proportional contribution of the various participants to the subsequent rounds of the debate. The length of the bars indicates the number of articles in a particular round. The subdivision of the bars represents the relative contribution of the participants to the total of the articles. (Note: in one articles several participants may express their views.)

This is also the reason why I have assessed these experts as representatives of a specific scientific or social expertise or interest rather than as citizens, which would have been an option as well. These experts can be roughly divided into three groups according to their different expertises and scientific or social interests, to wit:

- Researchers using or creating transgenic animals, for instance biotechnologists, medical researchers and zoo-technologists. Most of these experts have reasoned in favour of animal biotechnology, stipulating the expected benefits of the use of transgenic animals for, in particular, medical progress. And they have pointed at the analogy with animal experiments in which animals are harmed.
- Animal scientists, like veterinarians and ethologists. They were concerned with the welfare of the animals. In several interviews, they were asked for their expert opinion regarding the impact of animal transgenesis on animal health and welfare.
- Animal ethicists and philosophers. Some have developed and/or articulated moral standards regarding the use of animals; others have commented on the events and the decisions taken. Most of these experts had a double background: they were animal veterinarians or biologists as well as philosophers or ethicists.

Five *advisory committees* were heard during the debate, to wit the provisional Committee Ethics and Biotechnology in Animals (Schroten 1), the provisional Committee Ethical Evaluation of Genetic Modification in Animals (Schroten 2), the provisional Kooreman Committee, the Committee Genetic Modification, and the Committee Biotechnology in Animals. These advisory committees also comprise of experts, but these experts fulfil a specific task namely advising of (in this case) the Minister of Agriculture, Nature Management and Fisheries or the Minister of Housing, Rural Planning, and Environment with respect to some aspect of (animal) biotechnology.
One out of seven voices was *a concerned citizen.* Each of these citizens spoke up only once. *Journalists and editors* have several times expressed their views. The editors of all newspapers have used their editorials once, sometimes twice, to write a comment on the debate, mostly on the process of the debate. Some journalists, whose background articles were directed at providing reasons pro and con and so expressed their responsibility for the quality of the debate, also have expressed their *personal* views in opinion page articles, thereby stressing the arguments they thought convincing. These last articles were gathered in the group journalists and editors.

In figure 4.3, a schematic diagram is made of the main participants of the debate. Central to my thesis is the *mass-media mediated public debate* on animal transgenesis, so I made this debate central to the diagram. Here opinions are made known tot the broader public, here discussions take place in front of the broader public, and here public preferences are formed. The Dierenbescherming, the patients' organisations, and the editors and journalists pretend to speak on behalf of the public but actually they speak up for specific interests of this public. Government has installed the advisory committees. The input of these committees

in the debate will usually be a spin-off of this advisory task. The Committee Schroten 2 (vCEEGMD), however, explicitly saw it as its task to stimulate public debate, which they did by making its dual advice public, allowing its members to continue the discussion in the media.

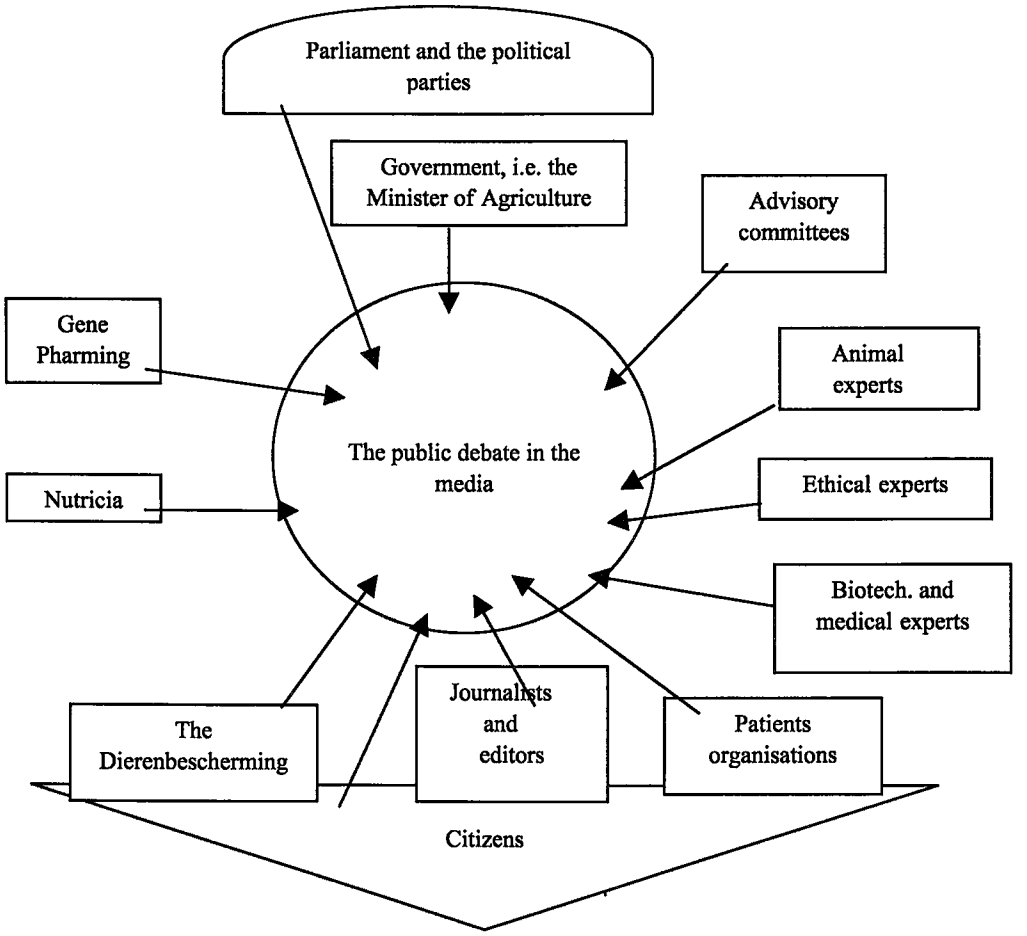

Figure 4.3: Schematic diagram of the main contributors to the public debate on animal transgenesis.

The roles of the participants in comparison to their roles in an organised debate.

The participants I have distinguished in this debate can also be found in other kinds of debates, for instance in organised debates. There is resemblance between an organised debate and a spontaneous debate on a public issues, but there are differences too. I will start with the similarities.

Figure 4.4: The distribution of responsibilities over the diverse stakeholders and the accompanying roles in a process of stakeholder planning (Source: Vermeulen et al., 1998, page 66; my translation ET).

Categories of players	**Specific roles in the considerations**
Elected representatives	- political initiative - consultants during the process - final assessment - formal decision
Administrators	- commissioning authority - directing the process manager - consultants during the process with respect to: - quality of the input of the particular interests - monitoring the accountability
Experts	- knowledge transfer to the participants - identification and offering of knowledge gaps and uncertainties - perform analyses
Professionals of interest groups	- input of perception from the perspective of the particular interest - input of possible solutions and know-how - open attitude - roles towards supporters - roles in implementation
(Groups of) individual citizens or firms	- input of subjective valuations and normative positions - avoiding of particularism - valuation of legitimacy

The diagram in figure 4.3 remarkably resembles the differentiation of the actors that is for instance made by Vermeulen et al. in a preliminary study for the Scientific Council for Government Policy (WRR). Vermeulen et al.[4] have evaluated twenty-two processes of participatory policymaking (stakeholder planning). Stakeholder planning

[4] Vermeulen, W.J. et al (1997) *Duurzaamheid als uitdaging. De afweging van ecologische en maatschappelijke risico's in confrontatie en dialoog.* [Sustainability as challenge. Balancing ecological and social risks in confrontation and dialogue] Sdu Uitgevers. Den Haag.

takes as its point of departure that effective and legitimate planning should be based on the active participation of the stakeholders that can be identified[5]. Stakeholders are the persons and organisations affected by the planning process[6]. By actively involving these stakeholders, their insights and concerns will be taken into account from the very start of the planning process, in the hope that the results of the planning process will gain the support of these stakeholders. From a political point of view, not only persons and organisations affected should be involved, but also people who can add to the process of political will formation, such as experts. Such a process of stakeholder planning will not lead by itself to a consensus with respect to the issue at stake. To avoid ongoing dissent and to avoid particularism (standing up for only one or a few interests), decision making has to remain the responsibility of politics. So, the primacy of politics remains intact (WRR, page 130). The participants distinguished by Vermeulen et al. are: the elected representatives of the people, the administrators, the experts, the professionals of public interest groups, and the (groups of) individual citizens or firms, who will be affected by the outcomes of the process, or, as Vermeulen et al. calls them, the bearers of the risks (see figure 4.4).

There are some differences too between both kinds of debates. These differences are due to the differences between an organised process of interactive planning and a spontaneous public debate in the media on a public issue. The stakeholders in a process of stakeholder planning are invited to join the process. The actors are physically brought together with a political objective, namely to participate in a process of political will formation (or as the WRR says preference formation) of which the limits are already politically defined and which is organised and facilitated by the administration. The planning process will be closed with an advice to politics after a limited time span. A public debate in the media, that takes place before the public as an audience, is much more open. Virtually everyone can participate. Individuals, experts, as well as interest groups can decide for themselves whether or not to participate by putting forward opinions, analysis, arguments, and concerns. In the debate on animal transgenesis, this has even caused unexpected participants, like artists and Queen Beatrix. A public debate does not have a defined closure; it is not even directed at realising an agreement or a closure, but at generating better arguments and at convincing the public (see chapter 7).

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[5] Page 129 of WRR (1998) Ruimtelijke ontwikkelingspolitiek [Environmental Development Policy]. Sdu Uitgevers. Den Haag.

[6] Stakeholders, the people that will be affected by the results of the planning process, should be distinguished from the shareholders, that are the people and organisations that are proprietors of property and so have a direct say in the planning process.

A process of stakeholder planning may have some drawbacks. These drawbacks may also occur in public debates. Vermeulen et al. call particularism a serious drawback for a process of stakeholder planning, as participation by professionals of organised interest groups is usually quite dominant. These professionals tend to have a limited mandate because of the specific interests their organisation stands for. This means that they have limited autonomy to deal with other perspectives, which may inherently cause ongoing dissent. That is why a process of stakeholder planning should preferably include people from the public and firms that are represented by these groups and organisations. These participants are the true bearers of the risks; and they are seen as the ultimate forum.
In a public debate, the interest groups will also have their voices better heard than individual citizens. So, particularism might be an inherent problem of public debates as well. I don not think it a serious drawback, however, for two reasons. First, a public debate is not directed at reaching consensus but at gaining public support. Therefore, it will not be as problematic if organisations and their spokespersons only try to articulated their own views as good as possible. Second, it might be a problem though, if relevant voices were not heard. Well, I can only speak for the particular debate at hand. It is obvious that the Dierenbescherming had its opinion very well heard. But quite a number of citizens spoke up as well. And there were a number of groups that have also spoken up in behalf of the public without being their representative or the representative of a specific public interest. I am thinking of the journalists and editors. And in a way the experts were also speaking in behalf of the public as they have voiced specific public interests or concerns, like public health, animal wellbeing, and animal integrity. The firms involved in this specific public debate also seem to have been able to have their voice heard well enough[7]. So, it seems that in the public debate about animal transgenesis the relevant voices were heard.

In this particular debate, some experts were not just experts expressing expert opinions, but they were also bearers of risks. Researchers working with transgenic animals might be hindered by legislation concerning animal transgenesis. And, they were concerned about medical progress. So, medical researchers, biotechnologists and zoo-technologists and their scientific organisations did not only stand up for the perspective of their sciences, but also expressed the social interests at stake as soon as they realised what the impact would be of the implementation of the Decree on

[7] In the 'Herman the bull' case there were only two firms involved. These substantial firms could very well speak for themselves. If it were not one or two specific firms as in this specific debate but for instance a number of farmers, it might have been much more difficult for them to have their voices heard. In such cases there might be representing organisations that would speak up for these small firms.

Animal Biotechnology. They, however, reacted publicly at a rather late stage in the process of legislation. If their contribution would have been earlier, their voices might have had more impact on the debate.

All in all, opinions and concerns present among the broader public seem to have been broadly discussed in this specific debate. This means that each interested citizen has been capable of forming his or her opinion and will. Therefore, the public opinion will be fairly well considered and so will public support.

Some discussion concerning the roles of experts and citizens

Many differences between a process of stakeholder planning and a public debate are, as I have indicated in the former section, the result of the inherent differences in the processes. Vermeulen et al., however, also have given specific roles to the experts, to professionals from interest groups, and to individual citizens and firms, that I did not find in the public debate at hand. I am not convinced that this differentiation follows from the differences in the processes.

The WRR sees experts as experts operating external to a debate, while in the public debate on animal biotechnology experts also have participated with an expert *opinion* and with expert *interests*. I wonder whether in a process of stakeholder planning experts will really stick to the role of knowledge transfer, the identification and offering of lacks of knowledge and uncertainties, and the making of analysis, as the WRR states. We have seen in, for instance, the advice of the Second Committee Schroten (the provisional Committee Ethical Evaluation of Genetic Modification in Animals) that different experts will value facts, lacks of knowledge, and uncertainties differently. Such valuations are not only present in the advice of ethical committees, but also in the advises of for instance biologists, agronomists, and rural planners in a rural planning process, since valuations are inherent to these disciplines. This means that the experts cannot be seen as external to the debate or as giving disinterested advises. They should be considered as participating in the debate as well.

It is evident that professionals from interest groups will put forward a perception from the point of view of the particular interest the group stands for and that they can raise possible solutions and expertise. Vermeulen et al. state that from a democratic point of view these groups should be open for other opinions and interests, should communicate the planning process to its members, and should have part in the implementation of the outcome. I can imagine that these are preconditions in a process of stakeholder planning aiming at democratic preference formation instead of neo-

corporatistic bargaining (Vermeulen et al., page 131). In the process of public will formation of a public debate, however, it is also important that this process of will formation continues and is extended to the larger public. An organised interest group that is directed at keeping this process going shall not be as open and communicative as a group entering into a process of stakeholder planning, since it sees its role differently. Of course, organised interest groups should communicate what is going on to their members. But it is not obvious that they should feel responsible for the implementation of the outcomes of the process either.

Vermeulen et al. attribute a specific role to (groups of) individual citizens and firms. Their role is the input of subjective valuations and normative positions, while avoiding particularism and while valuing the legitimacy of (the outcome of) the process. In this particular public debate, firms and the affected scientists may be severely harmed in their particular interests by the outcome of the debate. So, it will be hard for them to avoid particularism, even if they should want to. In a process of stakeholder planning, the participants are expected to transcend their private interests. In a public debate, this cannot be expected. Citizens who are not directly affected will usually be better equipped to form an independent opinion[8].

It is noticeable that in the public debate on animal transgenesis, there was hardly a distinction between the views of Gene Pharming and the interest group speaking on the behalf of biotechnology firms (the NIABA). The same can be said about the scientists and their organisations. So in these cases, professionals of interests groups could not be said to have taken a different role from individual experts or firms. They were both speaking with one tongue.

The interrelations of different kinds of public debates

Most participants in the debate also have had debates amongst themselves. Discussions have taken place among citizens at kitchen tables, in coffee houses, and

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[8] I wonder why Vermeulen et al. attribute the role of putting forward norms and values to firms and citizens only. Why cannot experts or interest groups do the same? Likewise, why can only professionals put forward possible solutions and expertise and why cannot experts, citizens, or firms? It is remarkable that Vermeulen et al. make such sharps distinctions between these groups. I would say that the responsibilities and roles the WRR attributes to these groups might be what they factually do most, but it would be wrong to suggest that people and organisations will stick to their attributed responsibilities and roles. Any input in the debate that in the scheme of Vermeulen et al. is restricted to one category of 'players' can in my view also be valuable if put forward by one of the other 'players'.

during coffee and lunch breaks at work. People have discussed within the editorial staffs of the newspapers and other media, within firms, within interest organisations, and within Ministries. Here, I will focus on three more or less formalised and structured public debates namely those in politics, those among scientists, and those within advisory committees. I will discuss these debates from the perspective of the public debate in the media.

I have summarised the main differences and similarities of these relevant public debates in figure 4.5. The figure is not meant to be complete, but it is supposed to give a good grasp of the characteristics of these (public) debates. I will not discuss the process of stakeholder planning here as this has not been part in the media debate about animal transgenesis[9].

Political debates take place among elected representatives, in this case in Parliament. These representatives may enter into public discussions at party meetings, at public gatherings in the country, and with journalists, experts, or other politicians on television. In the newspapers, however, one may mostly find reports on parliamentary discussions. Sometimes politicians write an (opinion page) article and sometimes they are interviewed about a topic.
In the Herman case, most reports on parliamentary discussions hardly contained reasoning. The positions of the diverse parties or politicians were mentioned, but not the reasons why these parties or politicians were willing to defend this position. No politicians were interviewed, and only one (Bas van der Vlies of the SGP) wrote an opinion page article. So, the impact of politicians on the public debate in the media has not been of substantial importance. Public opinion and public support may have affected parliamentary discussion, but the other way around there was hardly any influence. The Minister of Agriculture, Nature Management, and Fisheries, and his ministry did have a major impact on the public debate because of the legislation process it was involved in, but there was no active input in the debate from the side of the ministry in the sense of reasoning. The Minister has hardly ever expressed an opinion. He has ordered for advices by advisory committees, which have influenced public opinion, but he and his ministry only had a receptive attitude towards the public debate.

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[9] Only at the end of the debate has the Minister organised a workshop with all parties in order to arrive at a satisfactory solution for the Decree on Animal Biotechnology. Neither the organisation of this workshop nor the outcomes were mentioned in the newspapers.

Figure 4.5: Some noticeable differences and similarities among four kinds of public debate[10].

	public debates in the media	political debates	debates in advisory councils and advisory committees	expert debates
formality	informal, spontaneous, and non-organised	formalised by law	institutionalised in meetings with a set agenda.	institutionalised in journals, workshops, and conferences
openness	ongoing discussion that may fade away	closure by decision (time pressure)	closure by a state of affairs (time pressure)	ongoing discussion
orientation	convincing the public: gaining public support and impact	convincing each other: consent, but decision by compromise or vote in case of dissent	convincing each other: consent, but decision by compromise or vote in case of dissent	on the long run consent; ongoing debate in case of dissent
type of discourse	explaining, articulating, differentiating, convincing	decision-making, legitimating, bargaining	articulating, differentiating, grounding	articulating, differentiating grounding
participants	opinion leaders, like: experts, spokespersons, concerned parties	elected representatives and Ministers	experts and representatives of concerned parties	experts
kind of input	views, opinions, interests, preferences	views, opinions, interests, preferences	views, opinions, interests, theories, preferences,	views, facts, questions, proof, theories
kind of output	considered opinions, intrinsic motivations	decisions, laws, acts	memorandums, advices, concepts	concepts, views, theories
role of the general public	audience, concerned party, and participant	audience, voter, affected party, social basis	audience as far as the debate is made public	audience as far as the debate is made public

The debates in *advisory committees* had much more substantive impact on the public debate in the media. Most of their reports have initiated public discussion, not so much because of the advice itself, but because of the argumentation underlying the advice.

[10] One may expect that all debates are oriented at consensus. This may be true at some moments, but often debates are directed at convincing others. This is why articulating and differentiating are characteristic aspects of all debates. In a public debate people are not even primarily oriented at convincing each other but at convincing the public. In chapter seven, I will come back to the characteristics of public debates.

These committees and their members (mostly experts) have generated knowledge, valuations, normative positions, views, concepts, and possible ways of handling animal transgenesis. Their reports formally were addressed to Government, but the Ministers in question had to comment on the reports before sending them to Parliament and therefore they were public as well. In general, such advices are not discussed publicly. And most advisory committees do not actively seek the press. The advices in the Herman case, however, were very influential. Both Schroten Committees (CEBD and vCEEGMD) even explicitly wanted to stimulate public debate and they did so by actively seeking publicity for their findings.Most interesting was the dual advice of the Second Schroten Committee (vCEEGMD) on breeding with Herman the bull. This Committee could not agree on breeding with Herman the bull and it made its dual advice public in a press conference. This disagreement stimulated public debate even more than a consensual advice would ever have done. The members of both Schroten committees (CEBD and vCEEGMD) also actively participated in the public debate mostly by being interviewed, but also by writing opinion page articles.

As there is a political sphere in which political deliberations and decision-making takes place there also is an academic sphere in which *scientific and scholarly deliberations* take place. It also is a sphere with its own mores. Deliberations are directed at bringing forth truth or solutions. This sphere is fragmented in many branches of science which also have their own mores, which may result in scientific controversies between various branches of science about social issues[11]. Different experts from different scientific or scholarly backgrounds may be committed to different (legitimate) social goals, such as human health (medical and biomedical scientists), food safety (environmental scientists, food scientists), human dignity (ethicists), or animal welfare (veterinarians and ethicists). These social goals will affect their inputs in the public debate. The opinions of the experts will be shaped in collegial meetings.
With respect to animal transgenesis many expert meetings, workshops, and conferences were organised on many different aspects of the issue. Some of these meetings and conferences were public gatherings and so informative for, for instance, journalists. Hardly any reports on these gatherings were published in the newspapers. Many experts, however, have sought publicity for their views. They presented their views at press conferences, were interviewed and quite a number of them sought

[11] See for instance R. von Schomberg (1997) Argumentie in de context van een wetenschappelijke controverse. Een analyse van de discussie over de introductie van genetisch gemodificeerde organismen in het milieu. [Argumentation and scientific controversy. An analysis of the discussion

publicity for their views by writing an opinion page article. The different social (legitimate) goals to which their professions are committed were reflected in their opinions and lines of reasoning. Biomedical experts have stressed the importance of animal biotechnology for medical knowledge; animal scientists have stressed the backlashes for the animals; philosophers and ethicists have reflected on human and animal dignity. Together they have added relevant reasons and lines of reasoning to the debate, as all these social goals should be valued and re-valued as to come to a reflected public opinion about animal biotechnology.

Conclusion

A public debate can be made, or not, by a well-informed public of citizens, organisations, experts, firms et cetera. These participants bear the responsibility of bringing forward the relevant arguments as to arrive at a public will. In chapter 3, I have indicated two elements that are necessary for a public debate to develop and to continue, namely direct causes that make the debate urgent, and citizens, experts, or organisations that recognise and articulate these urges. The direct causes were discussed in chapter 3. I have also argued that organisations are better equipped to keep a public debate going. Compared to individual citizens or experts, organisations will be better able to hold out long enough. This is what we observe in this debate about animal transgenesis. Many individuals and experts have contributed to the debate. There was one organisation, however, that has fulfilled the role of sustaining the debate, namely the Dierenbescherming. In this case the major firm involved, Gene Pharming, has provided the causes for continuing the debate; it did not fulfil the role of sustaining the debate like the Dierenbescherming did. The other two other major players, namely the Minister of Agriculture and Parliament, did not perform this role either. They have provided causes for discussion, but were not carrying the discussion.

A public debate will only arrive and continue if the public is well informed. The flow of information in a public debate depends on:

- the openness of actors that possess this information (in our case Gene Pharming and the Ministry of Agriculture)
- politicians, interest groups, journalists, or experts, that can point out the disputable issues,
- the media that have to spread the information and disputable issues.

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about the introduction of genetically modified organisms in the environment] WMW-publicatie 27 Eburon. Delft.

The duration of the debate as well as the number of aspects discussed point out that the information flow in this debate was well enough provided. Thanks to all the groups and organisations mentioned.

We have also witnessed interrelations with other debates, to wit the political debate, experts debates, and discussions in advisory committees. Political debate has primarily concentrated on the Animal Health and Welfare Act, but Parliament has also discussed many aspects of the Herman project. Unfortunately the discussions in Parliament were only marginally reported in the media, as only positions were mentioned instead of lines of reasoning as well.
Most reports including the lines of reasoning of the advisory committees were well discussed in the media. In particular the dual advice concerning breeding with bull Herman has stimulated public debate.
There have been many expert meetings. These were not published in the media. Experts, however, have communicated their views very well via the media. It should be realised, thought, that experts express expert views, but these views are not fully independent but shaped in collegial meetings organised around specific social goals.

In the next two chapters, I will go into he content of the debate. In chapter 5, I will analyse the general discussion about animal transgenesis. And in chapter 6, I will analyse how is dealt with some specific applications.

5. Animal integrity contested. A reconstruction of the lines of reasoning.

In the debate on animal transgenesis many reasons were put forward by many different actors. Using an adapted matrix of Mepham, I will unlock the richness of these reasons by presenting an overview of the arguments that were put forward. I will make a matrix for each of the main participants, as each of them represents a particular position in the debate.
Next, I will zoom in on these positions and in particular on the arguments supporting these positions. We will see that a number of arguments is directed at specific applications of this technology, while others are directed at the technology itself. The arguments directed at animal transgenesis as such will be reconstructed in this chapter. The reasoning with respect to the applications of the technology will be the subject of the next chapter.

I will first introduce the matrix (section one), which I will adapt to my purposes (section two). Then, I will use it (section three) and discuss the outcomes (section four). In the next sections, I will analyse the outcomes. First, I will detect the central theme of the debate (section five) and then I will show what this has meant for the lines of reasoning (section six). Next, I will make a side step and discuss some specific features of the political debate, and the consequences for policy making (section seven). Then I will discuss on the usefulness of the matrices (section eight). And I will end with a conclusion (section 9).

Mepham's matrix

For sorting out the arguments in this debate, I have turned to Ben Mepham[1] and his use of the four principles of Beauchamp and Childress. Beauchamp and Childress[2]

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[1] Mepham, B. (1996) Ethical analysis of food biotechnologies: an evaluative framework. In: B. Mepham, *Food Ethics.* 101-119. Routledge. London and New York, and Mepham, T.B. (1996). Ethical Impacts of Biotechnolgoy in Dairying. In: C.J.C. Phillips (Ed.) *Progress in Dairy Science.* CAB International. Wallingford.

[2] Beauchamp, T.L. and Childress, J.F. (1994) *Principles of Biomedical Ethics,* 4th edition. Oxford University Press. New York and Oxford.

have developed a set of prima-facie (non-absolute) ethical principles. These principles can be reconstructed as the underlying normative structure of our contemporary Western societies[3]. In our ethical thinking, we often refer to one of these principles without always designating them. These principles are articulated, specified, and so on in ethical debates in which next to contextual aspects, values, preferences, and other notions of the good life play roles[4]. In my analysis, these principles as well as the matrices Mepham has developed will function as an instrument for sorting out reasons in order to get a better understanding of what has been going on in the debate. In my view, what is really doing the work in dealing with an ethical problem is not the ethical principles, but is the *discussion* on (the application of) these principles, that is the process of interpreting these principles concerning a specific situation[5].

Beauchamp and Childress have reconstructed four general principles[6], to wit:

- Respect for autonomy (a norm of respecting the autonomous choices of other persons, by respecting the person's appreciation of information and independence);
- Justice (a group of norms for distributing benefits, risks, and costs fairly, equitably, and appropriately in light of what is due or owed to persons);
- Non-maleficence (a norm of not inflicting evil or harm intentionally to persons);
- Beneficence (a norm of contributing to the welfare of other persons by preventing evil or harm, by removing evil or harm, or by doing or promoting good).

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[3] Habermas, J. (1993) *Justification and application: remarks on discourse ethics.* Polity press. Cambridge

[4] Beauchamp, T.L. and Childress J.F. (1994), and Korthals, M. (2001) Ethical dilemmas in sustainable agriculture. In: *Int. J. of Food Science and Technology.* 38/8, 898-911

[5] To better understand what is meant by applying principles, I have turned to the *discourse ethics* of Jürgen Habermas and in particular to the notion of application discussions. From a discourse-ethical perspective, the ethical principles have to be justified in *moral discourses* in which mainly (ethical) experts are involved. The four principles of Beauchamp and Childress can be regarded as the outcome of such a discourse. These principles will be articulated, specified, and so on in *application-discussions* in which next to contextual aspects, values, preferences, interests, and other notions of the good life are playing roles. Such discussions concern everybody involved and therefore should include everybody involved (as far as these persons want to participate).

[6] Beauchamp and Childress (1994) page 38 and chapters 3 to 6. See also Frankena, W.K. (1963, 1973) *Ethics* second edition, Prentice-Hall, Inc, Englewoods Cliffs, New Jersey page 47

Mepham has combined the last two principles into 'wellbeing' as they are in his view reciprocally related. Furthermore, he stresses that in food biotechnology, the range of affected parties and interest groups is much broader than in biomedical ethics. This means that the principles have to be translated into terms that are meaningful to these other parties and groups. So, he has 'interpreted' the remaining principles in terms that he thinks appropriate to the interests of the treated organisms, producers, consumers, and biota, so developing a matrix in which the impact of a new technology on these interested categories will become transparent (see figure 5.1). He adds that these categories can be extended and specified at wish to what is most appropriate.

	Well-being	**Autonomy**	**Justice**
Treated organism	e.g. Animal welfare	e.g. Behavioural freedom	Respect for *telos*
Producers (e.g. farmers)	Adequate income and working conditions	Freedom to adopt or not adopt	Fair treatment in trade and law
Consumers	Availability of safe food, acceptability	Respect for consumer choice (labelling)	Universal affordability of food
Biota	Conservation of the biota	Maintenance of biodiversity	Sustainability of biotic populations

Figure 5.1: Mepham's ethical matrix, showing, in twelve individual cells, the interpretation of the three principles of well-being, respect for autonomy and justice in terms appropriate to the interests of treated organisms (e.g. animals or crops), producers (e.g. farmers or biotechnology company employees), consumers, and biota.

The principal aim Mepham has with the matrix is 'to facilitate rational public policy decision-making by articulating the ethical dimensions of any issue in a way which is widely comprehensible' (p. 107). My aim, however, is differently oriented. I want to reflect on a public debate that has taken place by identifying the reasons that support the main positions in this debate and by analysing these positions. I will use the matrix to get a better hold on what has happened in this particular debate.

Developing Mepham's matrix into a heuristic instrument for analysing debates

I have made some adaptations to Mepham's matrix. I will start with discussing four relatively small adaptations that have consequences for the make-up of the matrix.

Next, I will discuss and adapt the way in which Mepham has transformed the principles as to make them adequate for animals.

1. I will, in line with Häyry[7], keep benefits and harms apart. Matti Häyry argues that the tameness of Mepham's conclusions can be attributed to, amongst others, the way Mepham classifies the arguments for and against the use of rBST in dairy farming. Mepham's matrix contains, as we saw, only three ethical principles, as opposed to the four principles introduced by Beauchamp and Childress. The harms and benefits, however, mostly do not arrive at the same 'affected group'. Most of the time the harms arrive at one group and the benefits at another. So, Häyry proposes to evaluate the harms and benefits separately. In his view, such a separation is of the more importance if the avoidance of harm is seen as an important consideration. As all participants of the Dutch debate on animal transgenesis have stressed that no harm should be inflicted upon the animals involved, I will discuss harms and benefits separately.
2. I will, in line with Korthals[8], add an extra column of 'notions of the good life[9]'. In evaluating concrete cases and in the application of norms it is necessary to consider all the features of the concrete situation[10]. This does not only imply that moral norms must be specified to overcome their lack of content and to handle moral conflict, but it also implies that values, preferences, and ideals as well as morally relevant facts need to be considered (Beauchamp, page 183). Michiel Korthals argues that 'in applying these principles, we mostly implicitly switch to the ideal side of the concepts and our values and preferences come into play. This means that the four principles do not cover the whole field of morality, and that another dimension, much more elusive, like that of values, ideals and preferences is of utmost importance in tackling moral dilemmas.' I will therefore summarise values, preferences, and ideals under a new heading called 'values'.

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[7] Häyry, M. (1999) How to apply ethical principles to the biotechnological production of food. The case of bovine growth hormone. In: V. Beekman and F. Brom. *Preprints of the first European Congress on Agricultural and Food ethics.* 93-96. Wageningen. The Netherlands.

[8] Korthals, M. (2001) Ethical dilemmas in sustainable agriculture. In: *Int. J. of Food Science and Technology* 38/8, 898-911

[9] With 'notions of the good life' I mean the notions about the persons, the people, and the society *we* want to be. These notions do refer to principles, but they do not have a universalistic claim like the principles. They only have a cultural specific claim: it is about *our* ideals, *our* values, our *civilization*, and *our* future.

[10] Günther, L. (1989) Impartial application of moral and legal norms: a contribution to discourse ethics. In: *Philosophy and Social Criticism.* 14/ ¾, 425-432. See also: Habermas, J. (1988) *Recht en moraal.* Kok Agora. Kampen; Habermas, J. (1993) *Justification and Application: remarks on discourse ethics.* Polity Press. Cambridge; and Korthals, M. (1994) Rechtvaardiging en toepassing. Twee kanten van het morele oordeel. [Justification and application. Two sides of moral judgement.] In: *Psychologie en Maatschappij.* 66, 25-37

3. I will add a column of 'morally relevant facts that do not refer to a specific principle'. Most facts, namely the ones related to a principle or value, will be written down in the columns of the principle at stake. Other morally relevant facts will be mentioned in the column 'facts'. What remains are facts that refer to the existence of alternatives or to the working of method or the products, and so are referring to the necessity or senselessness of making transgenic animals. Others refer to the lack of knowledge about transgenic animals. And again others discuss whether the inserted gene should be regarded human or not.
4. I will use the matrix in a different way, namely as a heuristic instrument for understanding what has happened in the public debate on animal transgenesis. This use, however, matches with Mepham's aim to articulate the ethical dimensions of the issue in a way, which is widely comprehensible. For understanding a public debate (as well as for policy making at which Mepham is aiming) it is not only interesting to know the different arguments, but it is also important to gain insight into the distribution of arguments over the different actors. This means that I will fill out the matrix for the reasons of each of the three main actors of the debate separately, in order to articulate their different views. By doing so, I can show what the stakes have been for each of the actors and I can also show the underlying reasons for the three major positions that have been taken in the debate, namely: 'no', 'no, unless' and 'yes, if'. So, I will make a matrix for each position in the debate, as to better articulate the different views in the debate.

I have also made some adaptations that need to be explained more thoroughly. Mepham has 'translated' the principles as to make them adequate for animals and biota (i.e. flora and fauna in a specific area). It has long been doubted whether moral norms do apply to animals (and biota) or not. I will only mention this debate, and will discuss into more depth the consequences of its outcome. Central to the animal ethical debate was that animals do not belong to the moral community, as they cannot behave morally themselves. Since they are incapable of moral action, there cannot be reciprocity. Some consider them as moral patients as they cannot speak up for themselves. In this view they are like children. Others however contest this view as animals are in full health and fully dispose of their mental capacities. During the last 20 to 30 years, however, many people have realised that they may have other reasons for treating animals and biota morally that originate from a deeply rooted respect for living creatures and for nature (for an overview and analysis of this discussion see for instance: P.B. Thompson[11]). In this view the moral status of animals more or less corresponds with the one of moral patients but

[11] Thompson, P.B. (1997) Ethics and the genetic engineering of food animals. In: *Journal of Agricultural and Environmental Ethics* 10, 1-23

for different reasons. The concept of animal welfare is now broadly recognised as an adequate concept regarding animals. Therefore, the principles of beneficence and non-maleficence are held fully to apply to these creatures. The principles of doing good and not doing evil or harm to animals are hardly disputed anymore.

The principle of respect for autonomy and that of justice are still seen as problematic, however. These principles are inherently oriented to relations amongst humans and need to be substantially transformed to be adequate for the human treatment of animals. Consequently, these transformations will *alter the content* of the concepts[12]. Mepham does not explain his transformations of these two principles; he just makes them. Backed by the Dutch discussion on these concepts, I do not think his transformations adequate. For the 'treated organisms', he transforms autonomy in behavioural freedom and justice in respect for telos (see the matrix). Respect for telos means in common language 'respect for the species-specific nature of the animals' and so has, in my view, more to do with respect for autonomy than with justice. I will make use of the way the Dutch have interpreted the concepts.

In The Netherlands, a discussion has emerged about whether and how these two principles should be used with respect to animals. The (Dutch) Advisory Committee Ethics and Biotechnology in Animals has made a first step in transforming these principles. It reconstructed respect for *autonomy* into respect for the survival instinct and the possibilities of individual animals for realising survival; and *justice* as that the end should justify the means, and that needless damage and needless risks should be avoided[13]. Especially the first transformation has been discussed thoroughly. The (Dutch) Council for Animal Affairs has suggested that *animal integrity* should be adopted as an adequate equivalent for human autonomy. Grommers, Rutgers, and Wijsmuller[14] have formulated a working definition of this concept: 'the wholeness and soundness of the animal and

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[12] See also: Fretz, L and Vorstenbosch, J. (1994) *Reëel, rationeel en redelijk. Een onderzoek naar normatieve vragen rond alternatieven voor transgenese bij dieren.* [Realistic, rational, and reasonable. Research into the normative questions concerning alternatives for transgenesis in animals]. Amersfoort/Utrecht

[13] Advisory Committee Ethical and Biotechnology in Animals (1990) *Ethics and Biotechnology in Animals (condensed translation).* Ministry of Agriculture, Nature Management and Fisheries. The Hague. See also: Brom, F.W.A. and Schroten, E. (1993) Ethical questions around animal biotechnology. The Dutch approach. In: *Livestock Production Science.* 36, 99-107.

[14] Grommers, F.J., Rutgers, L.J.E. and Wijsmuller, J.M. (1995) Welzijn – intrinsieke waarde – integriteit. Ontwikkelingen in de herwaardering van het gedomesticeerde dier. [Wellbeing – intrinsic value – integrity. Developments in the revaluation of the domesticated animal] In: *Tijdschift voor Diergeneeskunde* 120, 490-494.

the balance of the species-specific nature, and the capability of autonomous maintenance in an environment that is suitable for the species' [my translation, ET]. This concept refers to individual animals as well as to species. Rutgers[15] explains this definition from the notion that there are treatments of animals that do not cause severe pain, and that do not injure the health and welfare of the animals in the long run, but that nevertheless encounter moral objections. In his view such treatments consist of acts that are in themselves, despite the consequences, morally worrisome, because of the infringement on the life, or the integrity of the animals, which is in contradiction with respect for life (page 119). Mepham has translated autonomy as 'e.g. behavioural freedom' whereas he has translated justice as 'respect for telos' which in common language means respect for the species-specific nature of the animal. In the Dutch concept of 'integrity' as a the transformation of respect for autonomy, both elements are present. This means that the transformation of the concept of justice with respect to animals is still open.

Rutgers (page 117 and 118) also has proposed a transformation of the justice concept in terms of equal treatment. He distinguishes two levels of equal treatment of animals:

- Justice in the sense of the equal treatment of animals, which means that species that are biologically equal (homologous) should be treated equally, just as the individual animals of a particular species should be.
- Justice in the sense of a fair, reasonable distribution of the good and the bad over humans and animals. Justice in this sense has to do with proportionality, to wit the 'good' that humans strive at in using and handling animals should be in reasonable proportion to the 'evil' done to the animal [my translation, ET].

The Advisory Committee has translated justice more or less accordingly, namely as 'fair treatment', and in a 'no, unless' principle (which means that any use of animals should only be allowed on the basis of good reasons and provided that no alternatives exist and that unnecessary risks are avoided).

As I am analysing a Dutch debate and as Mepham's transformations are not adequate, I will adhere to the Dutch 'transformations' of the principles of Beauchamp and Childress with respect to animals. This has resulted in a major adaptation of the matrix.

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[15] Rutgers, L.J.E. (1993) *Het wel en wee der dieren. Ethiek en diergeneeskundig handelen.* [The weal and woe of animals. Ethics of veterinary practice.] Utrecht: Universiteit Utrecht, Faculteit Diergeneeskunde.

Mapping the arguments

In the three matrices on the next few pages, the arguments of the three *major positions* in the debate are classified according to the adapted matrix of Mepham. These positions match with the views of the three main participants in the debate on animal biotechnology, to wit Gene Pharming ('yes, if a limited set of conditions is fulfilled'), the Dierenbescherming (an unconditioned 'no') and the Ministry of Agriculture ('no, unless there are good reasons for doing so'). The other participants are mentioned in the footnotes of the matrices.

Mepham indicates (page 107) that the number of 'affected' parties can be extended at wish, which I did. The arguments regarding the main 'affected' parties are mentioned in the matrix. It is evident that depending on the views and interests of the participant involved different 'affected' parties were stressed. Three parties were only mentioned one or two times, to wit effects on nature, on the firm Nutricia, and on the Dutch economy. These 'parties' will not be put into the scheme[16].

In each of the matrices the arguments are classified that *underline or weaken* some principles, or that state that a particular principle is *at stake* or that it is *not.* The first two kinds of arguments stress or specify a principle with respect to a subject (e.g. all animals are equal, or different species should be treated differently). In these cases, the question is answered what the moral-ethical implications should be of a violation of a principle. For instance: not all harms will count the same. Intention might play a role (e.g. deliberate or non-deliberate harm). The kinds of subjects the harm is done to might have some impact (imprisonment for a snail is different from that of an ape). And it may be appropriate to differentiate between kinds of harm (serious and long lasting, or mild and short).
The last two kinds of arguments are factual statements with respect to a principle that activate or de-activate the principle (e.g. there are health defects, so harm is done, or the gene has a similar structure and function, so the integrity is not violated). In these last cases, the question is what the facts on the matter are. This is primarily a cognitive question. The answer, however, has a direct moral-ethical

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[16] I will briefly mention the arguments: About nature the Ministry has stressed that harmful effects should be taken into account, while Gene Pharming has stressed that making transgenic cattle will not be a risk for nature. Nutricia wants to produce food for target groups, which is beneficial to these groups. The Ministry has stressed that as long as The Netherlands stay in the race they can have an influence on the international developments. Dutch interests should be protected, and that international co-operation is needed, is stated by some experts. Other experts stress that the state should stand back and should only react to excesses.

implication, since if harm is done this will be a violation of the non-maleficence principle, and if the integrity is not harmed this objection dissolves.

It was not always easy to classify the arguments, since people just have reasoned, without referring to a specific moral principle. So, I had to link the argument to one of the principles, to values or to facts. Most of the time it was obvious to which one of these a reason should be linked, but sometimes it was not. In these cases, I had to classify the reason under the heading that I thought to be most appropriate. I had expected that many arguments had to be classified under the heading of values i.e. that people would refer to notions of the good life (the people they want to be; the way they want to live). It turned out, however, that most statements are value-laden, and context-bound specifications of principles and therefore had to be classified under the heading of a principle. The principle itself is mentioned at the top of a column and the specifications are made in the cells. Only the statements that were primarily referring to our cultural identity were classified under the heading of 'value'.
Additional cognitive arguments for or against animal transgenesis were usually classified as a fact. Most arguments put under the heading of 'facts' refer to the necessity or senselessness of using transgenic animals, because of the non-existence or existence of a serious alternative. Some other arguments referred to the lack of cognitive and/or moral knowledge regarding transgenic animals.

The resulting three matrices can be found on the next three pages. In the next section, I will analyse the content of these matrices.

Figure 5.2: View of Gene Pharming and its allies[17]: "YES, IF", because:

	Non-maleficence	Beneficence	Respect for autonomy / integrity	Justice: equal / fair treatment	Values: the good life	Facts
Animals	The product will only end up in the milk: *no* health and welfare problems Birth defects are due to the process Treated like production animals	Increased resistance against infections (mastitis prevention)	A cow remains a cow *No* 'new' animals Working with and according to nature The gene has a similar structure and function as the natural gene Classic breeding also changes animals *Animals can also change by viruses	*Nothing* morally new: transgenic mice and sheep already exist *Animals are also harmed in animal experiments for medical purposes	*Laboratory animals should be treated differently from production animals	The gene was not human, but synthesised *The genes have to be human-like, but do not create human-like animals
Species			*The species barrier is but a religious argument *Changing a few genes does not alter a species		People have different relations with different species	
Consumers (and babies)	*No* risks	Improved food production and food quality Food for target groups				
Patients (and premature babies)		Production of biomedical proteins and clinical food Effective, and fewer side-effects		Human interests should bear more weight in balancing the interests		*No* serious alternatives Proteins survive the stomachs of patients
Producers: Gene Pharming		High quantities at low cost: commercially attractive		*Productivity or the protection of nature can also be good reasons	Earning money can be ethically sound	
Producers: farmers		Less production losses **No* impact on cattle breeding		*Productivity or the protection of nature can also be good reasons		
Science	*Young researchers are forced to go abroad	Improving the technique and a better regulation of the effects *Medical progress			*Scientific autonomy should *not* be restricted *Science should *not* be slowed down	

[17] Next to the arguments of Gene Pharming, the arguments of Nutricia, the NIABA, Dutch researchers using or creating transgenic animals, the KNAW and the patients' organizations are incorporated. Arguments introduced by the experts and the KNAW (an expert organization) have been given an *.

Figure 5.3: View of the Dierenbescherming and its allies[18]: "NO", because:

	Non-maleficence	Beneficence	Respect for autonomy / animal integrity	Justice: equal / fair treatment	Values: the good life	Morally relevant facts
Animals	Animals are made with deliberate mistakes Birth defects They will live a controlled life Effects on mature animals unknown New diseases?	*No* positive health effects expected *Not* in the interest of the animals	Respect for intrinsic value and animal integrity *No* reduction to mere things 'New animals' *Violating the integrity is a major harm *No* use as bio-reactor, chemical factory, disposable	Animals should be treated equally Fungi and animals should be treated differently *No* sacrificing of animals for profit *Slippery slope *The more is unclear the more seems to be allowed	*No* mixing of humans and animals: monsters, 'Frankenstein'	*No* need to use animals (alternative methods)
Species	The natural variance of the livestock might diminish		The new genes change the species Respect for evolutionary processes and for inherited characteristics		Original breeds might disappear	
Consumers (babies)	Their moral concerns are neglected	*No* benefits for consumers	They want animals to have a fairly natural life *They want animals to be respected		They think it an immoral way of cattle breeding and playing God	
Patients (and premature babies)	False hope They are being misused	*No vital* medicine			Traditional norms and values should *not* be sacrificed for progress in medicine	Production in animals has *not* yet been proved and neither has the medicine *Still highly theoretical
Producers: Gene Pharming				Economic reasons and technological developments should *not count*		
Producers: farmers		*No* benefits for breeders and farmers		Economic reasons should *not* count		
Science					*Irresponsible optimism	

[18] Next to the views of The Dierenbescherming, the views are presented of the Christelijke Plattelands Jongeren, the Stichting Natuur en Milieu, Lekker Dier, the Nederlands Agrarisch Jongeren Kontakt, the Alternatieve Konsumentenbond, some ethicists and philosophical experts and some animal scientists who subscribe the 'no' of the Dierenbescherming. Experts opinions are marked with an *.

Figure 5.4: View of the Ministry of Agriculture and its allies[19]: "NO, UNLESS", because:

	Non-maleficence	Beneficence	Respect for autonomy / integrity	Justice: equal / fair treatment	Values: the good life	Morally relevant facts
Animals	Harm should be prevented *Hardly any harm should be allowed *Harm should be monitored * The many abortions and birth defects are not due to the gene, but to the process	**No* benefits expected, as mastitis is a multi-factorial disease *Cows for medicine will be treated well	Respect for the intrinsic value and for animal integrity *Patenting also is morally problematic *Less invasive alternatives should be preferred	Experiments need to be ethically sound *Mastitis prevention is *not* a good reason *Very strong reasons are needed *The burden of proof should be inverted	This is a new, morally problematic development *A public debate is needed *No mixing of humans and animals	Alternatives do *not* seem to be useful and of sufficient quality The gene is human-identical *The origin of the gene is a minor question *Theories are *not* clear about animal transgenesis *Lack of knowledge *Alternatives are available
Species			Crossing the species barrier is morally problematic			
Consumers (babies)	Safety precautions have to be taken	There might be good uses, *e.g. humanised milk		*Luxury products and cosmetics are *not* good reasons	*Frightening perspective *People should know what is going on in the laboratories	*The developments are far-reaching and unknown
Patients (and premature babies)		Vital medicine are an option		*Balancing in case of human health and welfare *Only in case of vital diseases and medicine	A public debate is needed	*Lactoferrin produced in micro-organisms may be as good
Producers: Gene Pharming				*Economic reasons should *not* count	Regulation is needed	
Producers: farmers		*Farmers did *not* ask for it		*Economic reasons should *not* count		
Science	Dutch researchers should *not* be hindered	*A giant step forward *New scientific options			*Experiments should be controlled *This cannot be left to scientists alone *A public debate is needed	

[19] Next to the arguments put forward by the Ministry, the additional reasons given by its advisory committees and some experts are mentioned. Expert opinions are marked with an *.

The outcomes.

A first impression of the matrices shows that Gene Pharming puts particular emphasis on the benefits for consumers, patients and producers, and that the Dierenbescherming emphasises the backlashes for the animals and species. The Ministry is reserved. It does not reject animal transgenesis, but acknowledges that it is morally problematic. It transpires from the schemes that most experts have argued in favour of a 'yes, if a certain set of conditions is fulfilled' or of a 'no, unless there are sufficient reasons for doing so' policy. Hardly any experts[20] have publicly supported the absolute 'no' of the Dierenbescherming.
Individual writers to the editor, editors writing an editorial, as well as the journalists who wrote an opinion page article did not bring about new arguments or insights. A few of these expressed quite elaborate opinions that were a recapitulation of the arguments put forward by either the Dierenbescherming, or Gene Pharming, or an expert.
In this sub-section, I will analyse the different positions. In the next ones, I will go into the controversies that have become manifest from the schemes.

The 'no' of the Dierenbescherming was initially supported by some public interest organisations. Later in the debate, the Dierenbescherming actively organised its support. As can be suspected, this did not produce any additional arguments, which means that the Dierenbescherming produced most of the arguments in favour of the 'no' position itself. It argued that the principles of non-maleficence, of respect for autonomy and for justice are at stake with respect to animals, and that the principles of non-maleficence and respect for autonomy are violated concerning species. This last point is interesting, since from the outset the Dierenbescherming has always been concerned with (the suffering of) individual animals only. Its concern does not extend to nature. In this debate, though, it has co-operated with a major nature-conservation organisation, namely the Stichting Natuur en Milieu. They could do so, because of a common interest in species. How can this new interest of the Dierenbescherming be explained? It does not seem to be a strategic consideration only, since arguments referring to the harming of species had been put forward from the very beginning of the debate. I suppose the subject of the debate itself has induced this new scope[21]. Regarding animal transgenesis, the Dierenbescherming could not limit itself to its traditional arguments of animal

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[20] Thijs Visser, biologist and bio-ethicist, is such an exception. Jan Grommers, veterinarian and bio-ethicist, seems to be balancing between an 'no', and a 'no, unless' position.

[21] Aside: the notion of a species had already entered the discourse of the Dierenbescherming with regard to the treatment of the *individual* animals. They advocate that animals must be able to exhibit their species-specific behavior.

suffering. Although there also was a discussion about harm being done (in particular harm done during the actual 'production' of the transgenic animals) the central issue regarding the mature animals was not a question of harming the animals, but of changing the genetic make-up of animals. The individual animals were changed on the level of the species as genes of other species were introduced into the genome. This is exactly what the Dierenbescherming means by not respecting the intrinsic value of the animal and by violating animal integrity: the nature of the animals (and so of the individual animals) is changed.[22]

The Dierenbescherming has also argued that the consumers are on its side. The Alternatieve Konsumentenbond indeed was one of its allies. Arguments referring to consumers, however, arose in a later stage of the debate. These arguments were a reaction to arguments of Gene Pharming in particular and its interpretation of some public opinion surveys. I assume that this means that these arguments were not central to the view of the Dierenbescherming. The same can be said about its remarks regarding the supposed benefits for patients and its statement that producer interests should not count if animals are at stake.

Although the Dierenbescherming has argued in favour of a ban on animal biotechnology, it also has argued for what they regard as a correct interpretation of a 'no, unless' policy. In particular they have stressed the obligation to develop and use alternative production methods. Furthermore, they have tried to take the edge of the arguments in favour of animal biotechnology. In entering in these discussions, they apparently abandoned their unqualified 'no' position, but in fact they did not.

Central to *the 'yes, if' position of Gene Pharming* were the beneficial effects for consumers, patients, and producers as well as for animals, without harming the wellbeing of the animals. It has even stressed that the animals will be well off, as they are valuable, and have to be kept in good condition. Another core argument was its denial of animal transgenesis being morally problematic, as it is not a moral novelty. In its view, animal transgenesis is in line with classic breeding. It has stressed that the animals remain, despite genetic modification, individuals of their species, because the inserted genes have a similar structure and function as the originals. It regards animal transgenesis as a natural way of changing animals that is compatible with traditional livestock breeding. They have also put forward that

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[22] See also: Visser, M.B.H. and Verhoog, H. (1999) *De aard van het beestje. De morele relevantie van natuurlijkheid.* [The nature of the animal. The moral relevance of nature.] NWO Ethiek en Beleid. Den Haag.

transgenic animals already exist for over a decade (laboratory animals), and that nobody has ever complained about it. Furthermore, it points at a moral inconsistency; namely, animals are treated more badly in factory farming.

It is obvious that the reasons mentioned by Nutricia, the NIABA, and Herman de Boer more or less agree with the views of Gene Pharming, since they have a common interest in animal biotechnology.

The arguments of the experts were not directed at livestock breeding but at animal experimentation. Most experts are biomedical researchers, working with transgenic mice. Like Gene Pharming they have argued that animal transgenesis is nothing morally new. Their main argument is that species also change under the influence of viruses, which in their view means that the species barrier cannot really be an argument. Furthermore, they have argued that animals are sometimes badly harmed in animal experiments, which is permitted if the purpose is sound enough. Their arguments mostly refer to the benefits for science and in the end for patients.
Researchers have also stressed another aspect, namely scientific autonomy. This argument was intensively discussed in the seventies during the debate on recombinant DNA, but it did not find much response in the underlying debate on animal transgenesis. Apparently, it has become common sense that scientific autonomy can be restricted when public support is lacking. From the schemes, it can also be concluded that economic autonomy can be restricted for the same reasons. This is not a novelty in the Netherlands either. In the Netherlands commerce, profit etcetera are not reckoned as serious arguments for harming animals. Only Rene von Schomberg suggested that productivity, and so the 'wellbeing' of firms can be an argument in favour of animal transgenesis. He, however, did not give reasons for his point of view, and nobody has supported or even reacted to it either.

The patients' organisations have argued in favour of patients only. They have pointed at the opportunities of creating effective medicine by means of this technology, and the advantages this technology might have compared to alternative production methods. They did not react to any other aspect of the case, which is predictable, as they are, like the Dierenbescherming, single-issue organisations.
Herman de Boer has been a category of its own, since he was very explicit about his views on animals and animal biotechnology. Besides from being the main spokesperson of Gene Pharming for most of the time, he has repeatedly stressed the special relationship that Dutch people have with cattle, which in his view should result in a more careful treatment. This also is the reason why he is prepared to

differentiate among different species of animals, which the Dierenbescherming furiously rejects ('all animals are equal').
Researchers also stress these differences: they have asked for a special treatment of laboratory animals as these animals are used for medical purposes. Their position, however, differs from the position of Herman de Boer. De Boer has stressed that people prefer a better treatment of farm animals with which they have a special relationship. Researchers have stressed that laboratory animals always were treated differently from other animals and that therefore regulation should be less stringent. Their conclusions are the same, the argumentation, however, differs.

The *'no, unless' position of the Ministry of Agriculture, Nature Conservation, and Fisheries* was supported by advisory committees and by experts. These committees and experts have taken a more or less detached point of view, seeking for a way of handling animal biotechnology. Especially the experts have had a major input, stressing new, additional arguments. The scheme shows that the Ministry and its advisory committees have only used a few arguments that were mainly directed at the policy that had to be chosen[23]. They have hardly addressed the case at hand, at least they did not argue for or against it. From this scheme it might even be concluded that although the Ministry has asked for a public debate, and has asked experts to write reports in order to stimulate the deliberations it only had a minor input itself.
The additional input of the experts was mainly directed at the interpretation of the 'no, unless' policy-principle, and in particular of the 'unless' part of it. They have argued about what might be sufficient and insufficient reasons for making an exception on the 'no' (see the justice column).

Acknowledging intrinsic value and animal integrity: the central issue

Whether animal transgenesis as such is morally problematic or not has been considered a question of whether or not the intrinsic value of the animals is violated. The notion of the intrinsic value of the animals was introduced in the debate as a broader concept than the general accepted concepts of animal health and welfare. Intrinsic value namely includes the idea of animal integrity. Animal integrity and therefore intrinsic value has been the core issue of the debate. These

[23] I would like to note that the reports written by the advisory committees did have a major input in the debate, but not by way of citation in the press. The media have preferred to interview individual members of the committees. These members have explained and commented on the recommendations given by the committee at hand. Most of these views expressed individual opinions and were therefore processed as expert opinions.

concepts were put forward by experts and by the Dierenbescherming and were soon acknowledged by all participants that took a 'no' or a 'no, unless' position.

People and organisations in favour of 'yes, if' policy have stressed that the intrinsic value was not at stake. And they react as if the concepts of intrinsic value and animal integrity are imposed upon them. And it is questionable whether they have acknowledged these concepts at all. For them only animal health and welfare are serious arguments. Herman de Boer, for instance, argues that it is allowable to genetically modify animals if no harm is done to animals. So, changing the genetic make up of the animals as such is not considered an issue, but the possible harm done to the animals is. In reaction to their opponents, they have stressed that animal integrity, and so the intrinsic value, will not be harmed.

People and organisations that adhere to a 'no, unless' policy consider the intrinsic value of animals and animal integrity the main reason for this policy. The changing of the genetic make up of animals as such is morally problematic. This means that the questions whether or not animals have intrinsic value and whether or not their integrity is violated have been crucial in their view.

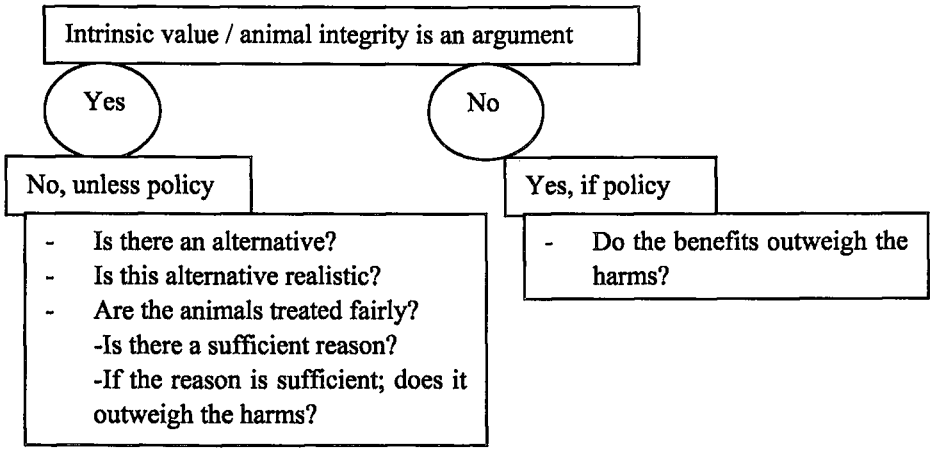
The intrinsic value and animal integrity, however, have not been argued about in the newspapers. In the newspapers, people have only referred to the intrinsic value or to animal integrity, without an explanation. This does not mean that there has not been a debate on these subjects. On the contrary, there has been a serious *expert* debate, with articles in philosophical journals, conferences, workshops, expert seminars etcetera. It only means that the broader public has not been confronted with the arguments for and against these new concepts and therefore was not able to arrive at a considered opinion about a 'yes, if' or 'no, unless' policy. At the most they could arrive at the intuition that animal transgenesis is or is not morally problematic. This means that this opinion formation process might have been facilitated in a better way.
Summarising, I conclude that the positions of the main actors in the debate are determined by their attitude towards animal integrity and intrinsic value. In the next section, I will discuss what this has meant for the structure of the debate.

'Yes, if' or 'no, unless'

Positions are always sustained by reasons. In this particular debate, the different positions in the debate that are determined by different attitudes regarding animal integrity and intrinsic value were related to different ways of reasoning. People

with a 'yes, if' position have stressed the benefits. These benefits are more or less evident. They will only be stressed if there are also reasons for not making transgenic animals, for instance if the animals will be harmed. If animals are harmed, the benefits will have to be balanced against the harm being done.
These benefits come back as 'sufficient reasons' in the column of fair treatment if people adhere to a 'no, unless' position. Within a 'no, unless' reasoning the benefits will have to be strong enough to make an exception on the 'no'. Harms will only come into play if the reasons are potentially strong enough for making an exception. In this view reasons have to be much stronger than in the 'yes, if' view. Exceptions will only be debatable if human health is at stake, or, even stronger, if human lives are at stake (vital medicine and lethal diseases). In figure 5.5, the differences between these two lines of argumentation are summarised.

Figure 5.5: Summarising scheme of the two types of argumentation (yes, if, and no, unless) that are caused by a difference in perception of the moral impact of animal biotechnology.



Consequentially there were two levels in the discussion. One level refers to the most general issues of the debate namely 'Is animal transgenesis as such allowable?' 'Should we continue the experiment?' and 'How should animal transgenesis be regulated?' This discussion continues throughout the debate. Next to this general discussion a number of specific issues were raised. These issues were discussed in the light of the core issue(s). These issues, as we saw, refer to the other three principles, to notions of the good life, or were factual discussions.
The main outcome of the debate on the core issue(s) has influenced the debates on the other issues. For instance, it is obvious that as soon as Parliament decided for a 'no, unless' position as the point of departure for legislation (in May 1990), all participants started to argue about the 'unless' (for or against, about the conditions

for making exceptions et cetera). From this moment on the alternative production-methods became subject of the discussion, as well as the reasons for making exceptions. In the view of the Dierenbescherming a 'no, unless' position implied that if an alternative is possible this should be investigated first. Only if such an alternative does not work out as expected there might be a good reason for making an exception. Gene Pharming has always stated that in vitro (non-animal) produced alternatives will not be of the same quality as the products from transgenic animals and that these alternatives will be very expensive. Whereas the last argument did not put any weight in the discussion (I will discuss this elsewhere), the first one did. The Ministry and its advisory committee on alternatives (Committee Kooreman) have interpreted the 'no, unless' principle quite differently from the Dierenbescherming. In their view, only feasible and effective alternatives should count as a realistic alternative. So, both paths should be developed. Only if the alternative proves to be a realistic alternative should the transgenic path be ended.

Political parties and politics

I did not process the reasoning of the political parties in the matrices. I did so because of the way this reasoning was handled in the media. Reports on political discussions in the newspapers always arrived mediated by journalists. Only once a politician has written an article on animal biotechnology. Politicians were never interviewed. The only reports on their views were the reports on the parliamentary discussions in the papers. These reports always had the character of an overview of the opinions in only a few lines. In practice this has meant that only positions were mentioned and hardly any arguments for or against these positions. So, I will restrict myself to a short analysis of their views

The political parties had another interpretation of the 'yes, if' - 'no, unless' controversy. Therefore, it seemed as if some parties had changed their opinion during the debate. The PvdA (social democrats), for instance, started with the request for a moratorium on animal biotechnology, because it wanted to gain time for a public debate. Shortly thereafter, it has pleaded for the 'no, unless' policy as the basis of the Animal Health and Welfare Law. And later, it wanted to impose restrictions (which is the 'yes, if' way of thinking) on the ground of the harm imposed on the intrinsic value of the animals. The CDA (Christian democrats), too, was formally in favour of a 'no, unless' policy, but often has argued from a 'yes, if' point of view. It seems as if these parties did not really make a difference between a 'no, unless' and a 'yes, if' policy in the way I have analysed these concepts in the former section. This 'confusion' might be caused by their main argument for

adopting a 'no, unless' policy, namely the prevention of undesirable developments, or, in other words, the adoption of a precautionary principle and a preference for a proactive instead of a reactive regulation. It is not the intrinsic value or animal integrity that they were primarily worried about. They just wanted to be able to control scientific developments instead of being taken by surprise by these developments. And they did not yet know what the restrictions would have to be if they would decide for a 'yes, if' policy. Therefore, they preferred a case-by-case approach for defining the (ethical, social, and political) limits of this new technology. In evaluating these cases, arguments pro and con could be evaluated; and restrictions and exceptions formulated. They did not seem to be interested in the formulation of these phrases (whether it is a sufficient reason or a benefit for instance); they seemed to be only interested in the outcomes. My cautious conclusion is that the political parties did not really make a difference between a 'yes, if' and a 'no, unless' policy. In a way they had a point, since *in the end*, if the 'yes' would be completed with a limited list of restrictions, and if it is clear in which cases an exception on the 'no' should be made, there probably will not be much difference between the outcomes. The main differences between these two policies from this point of view are the starting points and the initial arguments, not the outcomes.

So, politics decided about a framework for decision-making, but did not substantiate the conditions or exceptions. This was convenient as public debate was still going on and politics could not be sufficiently concrete about the many issues it had to deal with.

This means that the substantiation of this framework (the Animal Health and Welfare Act and the Decree on Biotechnology) is left to public debate, to the Governmental Council for Animal Issues and in particular to the advisory committee installed by the Minister of Agriculture (i.e. the Committee on Biotechnology in Animals). In practice, this means that substantive politics is developed by way of a *case-by-case approach* (or, in other words, by way of jurisprudence). Van den Belt[24] calls this a form of legal insecurity. He argues that the 'biotechnological actions he [the applicant for a license, ET] is planning to do are subjected to an 'ethical test' of which the criteria are not laid down clearly. This clarity cannot be given, as this case-by-case approach is directed at initiating a

[24] Van den Belt, H. (1998) Hoe liberaal is 'nee, tenzij'? Bespreking van F.W.A. Brom: Onherstelbaar verbeterd. Biotechnologie bij dieren als een moreel probleem. (Van Gorkum, Assen, 1997) [How liberal is 'no, unless? Review of F.J.A. Brom: Irreparable improved. Biotechnology in animals as a moral problem.]. In: *Kennis en Methode: Tijdschrift voor Empirische Filosofie 22/4,* 342-348

process of public opinion formation in which 'new morals' will be formed. The applicant, therefore, is made into a plaything of an obscure process of developing morals in stead of being efficiently subjected to a clear administrative procedure' [my translation, ET]. Van den Belt, therefore, is in favour of laying down conditions or exceptions. He does not seem to acknowledge the complexity and unpredictability of new and fast scientific and technological development politicians are worried about. It seems to be impossible to determine all the restrictions in advance. The alternative indeed is what politicians are afraid of namely running behind the developments, being continuously taken by surprise by unsuspected side effects of new technologies and by public reactions of distrust in science as well as in politics (if the regulation proves to be insufficient). I would say, that the development of a new technology with an unpredictable en uncertain outcome indeed should, for some time, be accompanied with a public debate and so with unpredictable and uncertain regulation. A case-by-case approach will in time lead to a set of restrictions or exceptions. Only then will uncertainty and unpredictability for applicants diminish as the uncertainty and unpredictability of the technology has diminished.

The usefulness of the matrices

Mepham prefers to incorporate all the arguments with respect to an issue in one single matrix. He argues that this will facilitate rational public decision making by providing a framework for rational analysis. Initially, I had chosen to separate the arguments of the different actors, in order to show the differences amongst them. This was mainly a pragmatic consideration. I expected that different actors would lay a different stress on the four principles and on the different affected parties. It turned out that an honest treatment of the lines of reasoning of the different actors means that the same arguments put forward by different actors have to be listed in a different column of the matrix. If I had followed Mepham's procedure, I would have had a problem in filling out the arguments in the scheme, because, I would not have known where to put the reasons in favour of animal transgenesis. These reasons could have been 'benefits' in the column of beneficence or they could have been 'sufficient reasons' in the column of justice as fairness. Since, for actors who are not acknowledging animal integrity and intrinsic value these are benefits, and for actors that are acknowledging animal integrity these can be good enough reasons or not. And, the real controversy, namely whether animal transgenesis as such is morally problematic or not, would not have become as clear as it has become now. In the different matrices I have made, this fundamental difference in perception has become visible. This means that Mepham's aim with the matrix,

namely to facilitate rational public policy decision-making, is in my case much better met if several matrices are made that together better articulate the ethical dimensions of the issue involved. Only by making several matrices for each main line of reasoning, the different ways of valuing an issue have become transparent.

The matrices do not show the developments over time. This omission is inherent to this kind of analysis. I would like to lift out two aspects for which time has played a role. In the first two years, many arguments were put forward as a candidate for an adequate new norm for dealing with animal biotechnology and in particular with animal transgenesis. For instance naturalness, playing God, deliberate 'mistakes', the species barrier, respect for evolution were mentioned. Only in the course of the debate, it proved that these concepts were less adequate than the concepts of animal integrity and intrinsic value. It is sometimes said that all the arguments are put forward in the first few months of a debate and that nothing new is added later. In a way this is true, but what happened in the course of a debate is that the arguments that were put forward in the beginning were better articulated and got different weights. Some found more and more response; others faded away because of lack of response. And in the course of a debate some arguments got better articulated and better specified with respect to specific cases (see the next chapter).
Another influence of time was that as soon as politics had decided in favour of a 'no, unless' policy Gene Pharming and after some time the researchers have formally deferred to this policy. Their input in the deliberations from that moment on got a double message: 'this is what we stand for, but we defer to the formal policy'. Consequentially, the participants increasingly started to argue about the 'unless'. In a way this can also be said about the Dierenbescherming although they have never formally deferred to the official policy. Part of their input in the discussion now concentrated on alternatives for animal transgenesis and on good reasons for making exceptions.

Conclusion

This chapter concerns the positions and lines of reasoning regarding the central issue of the debate. Arguments were classified according to an adapted matrix of Mepham which I have used as a heuristic device. These adaptations are mentioned in second section. Most important are the changes I have introduced in the interpretation of the bio-ethical principles of Beauchamp and Childress that are originally meant for humans and that are now 'translated' into principles regarding the treatment of animals.

The way I have used the matrix allows to reconstruct the different positions in the debate and the underlying lines of reasoning. Gene Pharming has argued in favour of a 'yes, if a certain set of conditions is fulfilled' policy and has put emphasis on the benefits for consumers, patients and producers. The Dierenbescherming has stressed the backlashes for the animals and for species; their 'no' has not been central to the discussion, however. The Ministry of Agriculture and many experts were in favour of a 'no, unless there are good reasons for doing so' policy.
It turns out that the stand that a participant takes originates from a different perception of the moral problem involved. Actors in favour of a 'yes, if' policy did not acknowledge the *intrinsic value of the animals*; and participants in favour of a 'no, unless' position have stressed the intrinsic value of the animals as well as *animal integrity*. Both positions have resulted in different questions with respect to animal transgenesis.

During this debate the meaning of 'caring for animals' has changed in content. It used to mean taking care of the health and welfare of animals; now it also means caring for animal integrity.

In the next chapter, I will choose a different angle for analysing the content of the debate. I will focus on some specific applications of animal transgenesis. I will show that the context in which a debate takes place influences the outcome.

6. Which practice, what norms?[1],[2],[3]

Animals are not always treated equally. Rabbits for instance are differently treated depending on the context in which they are kept: a pet is differently treated from a laboratory rabbit and this rabbit will be differently treated from a store-rabbit. The norms and values for, in this case, rabbit keeping will depend on what the animals are kept for. Some animals, however, are associated with only one context. Cattle for instance are only associated with cattle farming. Therefore it did matter for the debate on animal transgenesis that Herman was a bull instead of another animal. Many Dutch people have special ties with dairy cattle; they value dairy cattle as an element of the Dutch cultural identity and they consider them as fully dependent on human care. This cultural background has undoubtedly caused the huge public involvement in the debate on animal transgenesis. Herman the bull, however, did not only open the eyes of the public for the developments in animal biotechnology, but, Herman, being a bull, also has shaped the content of the debate. As people have special ties with dairy cattle, they also have strong feelings and images about dairy cattle farming. In their eyes, Herman the bull could not be considered as just a laboratory animal. He remained a dairy farm animal all the time, that is to say an individual animal in the context of dairy farming. But he was not an ordinary farm animal either, because of the experiment he was involved in. So, Herman the bull

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[1] Parts of this chapter were already published in: E.P. Theune (1997) De stier Herman en het ontstaan van een nieuwe praktijk. Een inhoudelijke reconstructie van het Nederlandse debat over dierlijke biotechnologie. [Herman the bull and the emergence of a new practice. A reconstruction of the content of the Dutch debate on animal biotechnology] In: L.P.F. Pijnenburg (ed.) *Vijandbeelden in de filosofie.* [Images of enemies in Philosophy] p. 149-156 Wageningen University, Wageningen.

[2] My ideas about practices were shaped by the discussions in the Group of Applied Philosophy at Wageningen University. See for instance: H. Koningsveld (1988) De kwaliteit van zoötechnologie [The quality of zoötechnology]. In: *Kwaliteiten in de dierlijke productie, bijdragen aan het 3e Zodiac - symposium Wageningen* [Qualities in animal production, contributions to the 3rd Zodiac – conference Wageningen] Pudoc.Wageningen; B. Gremmen (1993) *The Mystery of the Practical Use of Scientific Knowledge.* Dissertation Universiteit Twente; S. Lijmbach (1993) 'Het Konijn' [The Rabbit] unpublished paper about the different practices of rabbit keeping

[3] It is interesting that Collin Spedding (2000) has published a book recently in which he also distinguishes different practices of animal keeping and in which different practices have different standards with respect to the handling of animals. My practices are more specific however, as this is adequate for my research (see the first and second section).

did not fit in with the traditional categories of thinking about animals: he was neither an ordinary laboratory animal nor an ordinary farm animal.

This inability to fit in with one of these contexts will be the content of this chapter. In the former chapter, I have taken the arguments at face value. In this chapter, I will show how the contexts from which the participants enter the debate influence the kind of reasons that are put forward and the stresses people put on some arguments and not on others. These contexts can only be detected and analysed when the researcher takes a step back and takes a perspective that is external to these practices. This is what is called an external or outside perspective. These contexts become the more important as specific applications are involved. The different contexts involved can be a source of dynamics next to the dynamics caused by the developing case we have witnessed in chapter 3.
I will start with the introduction of the concept of a practice. Next, I will describe the four practices at stake. Subsequently, I will explain what has happened during the debate and what has been the outcome. And I will end with a concluding section.

The concept of a practice

It is common (but discussed) practice to appreciate animals differently if they belong to different practices of keeping animals. For instance, a rabbit is differently appreciated in the wild, in the fur-industry, and as a pet. The moral status of a rabbit may differ depending on the practice it belongs to.
The concept of intrinsic value that I have introduced in Chapter 5 does not allow for degrees. Something has intrinsic value or it has not, and the intrinsic value is violated or it is not. Moral status, however, is a gradual concept[4], which means that animals can have more or less moral status. This moral status will affect the treatment of that animal. It is a dynamic concept as well: how we value animals may rise (or fall). And this means that the moral status of an animal may depend on historically, culturally, and personally fixed differences among animals, and on our knowledge regarding these animals[5]. So, for the understanding of what has happened in this particular debate, *the context in which the animals were valued* is of great importance.
Many such contexts can be disseminated. In this chapter, a specific kind of context will be central, namely *a practice*. A practice can be defined as a social domain of

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[4] Dr. Tjard de Cock Buning (2000) *De status van het dier* [The status of the animal]. Inaugural speech , Utrecht University

[5] Ibidem

action with its own norms and values about what is good or bad practice within the context of the practice. Such a practice will influence the interpretation of the more general norms and values with respect to the issue at hand as well as the interpretation of the norms and values that are related to notions of the good life within the culture[6].

Alisdair MacIntyre has defined the concept of a practice more specific, namely as:

> '... any coherent and complex form of socially established co-operative human activity through which goods internal to that form of activity are realised in the course of trying to achieve those standards of excellence which are appropriate to, and partially definitive of, that form of activity, with the result that human powers to achieve excellence, and human conceptions of the ends and goods involved, are systematically extended'[7].

This means that norms about justifiable actions and about adequate competence can be disseminated in every practice, and that these norms are developed continuously:

> 'To enter into a practice is to accept the authority of those standards and the inadequacy of my own performance as judged by them. (....) Practices of course, as I have just noticed, have a history: games, sciences and arts all have histories. Thus the standards are not themselves immune from criticism, but nonetheless we cannot be initiated into a practice without accepting the authority of the best standards realized so far.'[8]

Such domains of action can be disseminated on several levels of analysis. One can, for instance, speak of the agrarian practice (or sector), but also of livestock breeding, or dairy farming as a practice. And within, for instance, the practice of dairy farming one can even distinguish different styles of farming. On each level, people have their collective notions about 'this is how we do it', 'this is what we stand for', 'these are our ideals', 'this is a good farmer', 'this is good practice' and

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[6] See for instance: J. Rawls (1971) *A Theory of Justice.* Cambridge, Mass.: Harvard U. Press. J. Rawls (1993) *Political Liberalism,* New York: Columbia U. Press. J. Habermas (1993) On the Pragmatic, the Ethical, and the Moral Employments of Practical Reason, In: J. Habermas: *Justification and Application.* MIT. J. Habermas (1985) Moral und Sittlichkeit, In: *Merkur 1985. p. 1041 – 1052.* J. Habermas (1986) Life-forms, Morality and the task of the Philosopher. In: Peter Dews (Ed.) *Habermas autonomy and solidarity: interviews with Jürgen Hbermas.* London, New York: Verso New Left Books. J. Habermas (1984) Über Moralität und Sittlichkeit – Was macht eine Lebensform >rational<? In: H. Schnädelbach (Ed.) *Rationalität* Frankfurt am Main: Suhrkamp. M. Walzer (1983) *Spheres of Justice. A Defence of Pluralism and Equality* Oxford UK & Cambridge USA: Blackwell.

[7] A. MacIntyre (1981) *After Virtue. A study in Moral Theory.* Notre Dame, Indiana: U. of Notre Dame Press, p. 182.

[8] MacIntyre (1981) p. 190.

so on and so forth. These are aspects of notions of the good life that are not committed to a specific culture or subculture but to a specific practice within a culture. It should be noted that people usually belong to one culture, but can participate in several subcultures and practices, which might cause all kinds of conflicts between the norms and values that are specific to these different subcultures and practices or between these and the more general culture. And because of the internal dynamics of a practice, certain activities might meet a limit within the practice itself as well[9].

There may be other reasons too for starting a discussion on norms and values. For instance, a new technology might create its own practice, or it might cause discussions about the practice this new technology belongs to. In both cases, a discussion may arrive on the norms and values that should be applied to the new technology. From these examples, a *dynamic* concept emerges of practices, and of the norms and values inherent to that practice.

The practices at stake

At the start of the project Gene Pharming has mentioned a very general aim, namely *to change the genetic make up of cattle in order to produce specific proteins in the milk.* The changing of the genetic make up of the animals has been discussed throughout the debate in general terms (see chapter 5). After the birth of the first calf, however, three specific reasons for making these animals were discussed subsequently, to wit:

- The protection of the animals themselves against mastitis (issue 4);
- The development of a technique for producing human medicine (issue 3);
- And the production of specific proteins to be used in specialised infant and/or clinical food (issue 2).

These reasons refer to three different practices, to wit the veterinary practice, the biomedical production practice, and the specialised food production practice. Each of these practices has a sub-practice in which research is done and animal experiments are performed. Next to these practices the dairy farming practice also played a part in the debate, as it was the genome of dairy cattle that would be changed to produce milk containing the proteins wanted. In figure 6.1, these practices are roughly put into a scheme. To better describe the practices at stake, I will use MacIntyre's terms. MacIntyre has characterised a practice as a specific

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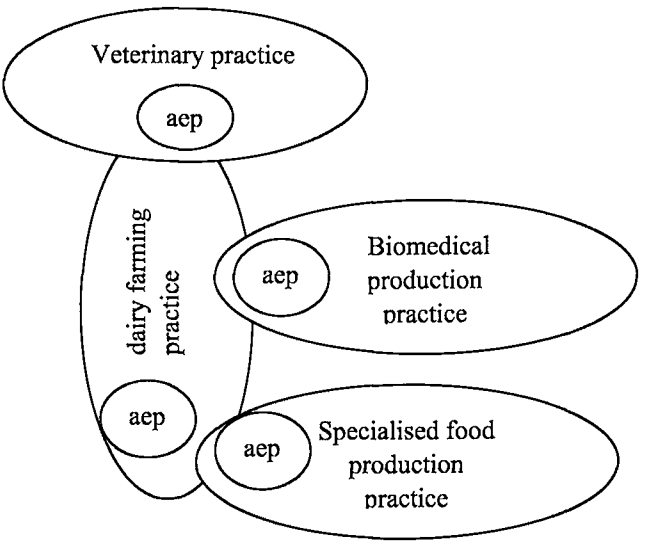
[9] Frans Brom (1997) *Onherstelbaar verbeterd. Biotechnologie bij dieren als een moral probleem.* [Irreversibly improved. Biotechnology in animal as a moral problem] Van Gorkum Assen.

human activity, that produces specific (material or non-material) goods, that has its own goals and aims, and its own standards (norms and values). And there are off course practitioners of the practice. In my discussion, I will also incorporate the consumers (users) of the good as well as the broader public that may have all kinds of views on and expectations of the practice. These additions reveal that in my view practices are no isles in the world but have all kinds of relationships with the broader social world. To become a practitioner means to adhere to the standards of the practice, but for an outsider who maintains relations with the practice or who has political views about the practice these standards are much less compelling.

Figure 6.1: Rough scheme of the practices involved, each with an animal experimentation practice (aep).



In the continuation of this section, I will concentrate on the ordinary activities of the practices. The debate on animal transgenesis will be the subject of the next section. I will not describe the practice in full, but I will concentrate on those aspects that will be relevant for the next sections.

The *veterinary practice* is a human activity that is oriented at producing animal health and welfare (end), by preventing and curing animal diseases (goods). But this does not mean that veterinarians (practitioners) serve the interests of the

animals only. Bart Rutgers[10], for instance, has shown that the views of the owners (users) usually are dominant in the decisions that are made with respect to animals. So, differences in treatment may occur depending on the attitude of the owners towards their animals. This means that the purposes of the practice are dependent on the views of the owners. And so will the standards. For instance, economic standards will be applied to the veterinary treatment of production animals: the owner will make a cost-benefit analysis. Regarding pets, however, emotional ties will dominantly guide the decisions of the owners. Some owners will even apply standards that are almost equal to those for humans. The broader public sees a veterinarian as animal's doctor. Consequently, most people will share the views and standards of pet-owners.
Animal experiments within this context will be directed at the care for the health and wellbeing of the animals (purpose) only. That is to say, they are oriented at a better insight in animal diseases, at the development and testing of medicine, and at the development of and training in (in case of students) veterinary treatment. A discussion inherent to this specific animal experimental practice always is whether animals may be used and hurt to find cures for the diseases of other animals. If the animals themselves may benefit from the experiments, people will tend to be rather tolerant with respect to the experiments.

The *biomedical production practice* is a human activity oriented at the health and wellbeing of humans (end). Medicine, vaccines, and other biomedical products (goods) are developed, produced, and tested by means of biochemistry, micro-organisms, tissue-culture, or animals. Patients and doctors (users) will use these products for preventing and curing diseases. For research and production purposes many laboratory animals, mostly mice and rats, are used. These animals are more or less anonymous, as they have no personal name, are bred for this purpose, lead a short life, and are easily replaced. Animals sometimes are severely harmed in the experiments[11]. The last few years, researchers (practitioners) are increasingly using transgenic animals[12] as a means for producing medicine. Within the practice, human health is the highest good (standard). Animals will be used for medical

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[10] Rutgers, L.J.E. (1993) *Het wel en wee der dieren. Ethiek en diergeneeskundig handelen.* [The weal and woe of animals. Ethics of veterinary practice]. Dissertation Utrecht University.

[11] Veterinaire Hoofdinspectie van de Volksgezondheid (1996) *Registratie dierproeven en proefdieren.* [Registration animal experiments and laboratory animals] Rijswijk. Ministerie van WVC.

[12] Van der Meer, M. (1994) *Transgenese bij dieren. Inventarisatie technieken en toepassingen. Gezondheids- en welzijnsaspecten.* [Transgenesis in animals. Review of techniques and applications. Health and welfare aspects.] Thesis. Group of Laboratory Animal Studies, Veterinary Faculty Utrecht University.

purposes if the research design is adequate and if respect is paid to the three R's of Russell and Burch[13] (standard). This means that animal interests have some weight, as their interests are the source of these restrictions. Most researchers are convinced that in the biomedical practice, human interests outweigh animal interests[14]. The broader public adheres to this view. A minority wonders whether animals are sometimes too easily used, as they utter doubts to at least some of this research. They are primarily worried about fundamental research that has no direct relation with applications in the sense of an improvement of the care for human health and welfare and that cause severe pain to the animals. In short: in the context of this practice, animals are usually seen as 'just' laboratory animals that may be used for all kinds of biomedical research with some restrictions.

The *specialised food production practice* of clinical or baby food production is considered another branch of human activities than ordinary food production or dairy production. Specialised food (goods) is produced for specific groups of users that cannot digest normal food or normal dairy products. One cannot speak of one group of users. For instance, standard infant formula is made to replace mother's milk. Other baby food products are made varying from cookies to canned carrots in order to facilitate parents with easy food. Specific infant formula is made for babies that cannot digest standard infant formula. And all kinds of food products are made for patients that cannot eat or digest normal food. The end of this activity is to produce better food-replacing products (end). It is an industrialised activity and the practitioners usually are (bio-) chemists and (food-) technologists. Standards are the production of safe, healthy, and appropriate food.
Animal experiments will be executed for the testing and controlling of the effectiveness and safety of the products.
Most activities in this branch are not very well known to ordinary people. They only know the cans of infant formula and the baby food products they can buy in supermarkets. They do not recognise most of these activities as paramedical activities. Therefore, they will see these as food business or as agribusiness. Consequently, people have a strong commercial connotation to this practice. And in the Netherlands there is a strong tendency not to allow animal experiments for commercial reasons. So, public support for performing animal experiments will be quite low and even lower the more impact the experiments will have on the

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[13] Russell, W.M.S. and R.L. Burch (1959) *The principles of Humane Experimental Technique.* London. Methuan & Co Ltd. The three R's stand for **R**efinement of the research design as to inflict as little pain and distress as possible, **R**eduction of the number of animal as far as possible, and **R**eplacement of animals by in vitro systems or by animals that will suffer less.

[14] Stafleu, F. (1994) *The ethical acceptability of animal experiments as judged by researchers.* Dissertation. Utrecht University.

animals. These public standards do not cohere with the standards inherent to the practice.

The *practice of dairy cattle farming* is quite a different matter. This is a human activity directed at the production of milk (end) for dairy products (goods). A main standard will be the optimising of farming results and so a good income for farmers (practitioners). Another standard will be a safe and healthy product for the customer (user). Lately some additional standards are imposed on the practice from outside (that is to say from legislation and /or public opinion) concerning the health and welfare of the animals (as such, not as a means for enlarging the production) and concerning the care for the environment. Depending on the farming style, and so the attitude of the practitioner, these additional objectives will have different weights. For an outsider to the practice it seems as if dairy cattle have a good life. And it is obvious that the animals will be kept in good health, since if they were not kept in good health, they would produce less. On the other hand, most people do not know that a cow can live some 20 years, and that she is used up in less than 6 years in contemporary cattle farming, because of the enormous production she has to deliver. Nevertheless, the image with the broader public is that dairy cattle live an easy life. And this is what they deserve in their eyes.
Animal experiments for dairy cattle farming will for instance concern: feed conversion, the 'improvement' of the genetic heritage of the animals[15], the care for the animals, the realisation of environmental demands, the operational management etcetera[16]. In dairy farming the distinction between animal experiments and the farming practices is rather vague. A gradual transition occurs from laboratory experiments, via experimental farming, to farmers that are experimenting. Invasive research, including the making of genetically changed animals, usually will be restricted to a laboratory setting. Genetically changed herds, however, might in the end be found on ordinary farms. In this animal experimentation practice severe animal suffering and major health damage will not be easily accepted, as the results of these experiments will be directly implemented in regular animal keeping. Most research will therefore be done by non-invasive means.

So, animals, and in particular laboratory animals, are differently valued in these practices. In the veterinary practice the animal experiments are directed at animal health and wellbeing and therefore rather easily accepted. In de biomedical

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[15] I will come back to this 'breeding' sub-practice in the next section.

[16] Bijman, W.J. et al (1990) De rundveefokkerij. [Cattle-breeding] In: *Biotechnologie in de zuivelproductieketen. Implicaties voor de melkveehouderij.* [Biotechnology in the dairy production chain. Implications for cattle-breeding] NOTA-Werkdocument W19. Den Haag

production practice, laboratory animals are seen as a means to the much more important end of human health and wellbeing. In dairy cattle farming the norms and values of the wider public with respect to this practice are quite different from the norms and values of most practitioners, who are primarily interested in production. They agree, however, on the standards regarding animal experiments, namely that they should be in line with the treatment of animals in the production practice. Disagreement, however, exists regarding the treatment of the production animals.
In the specialised food production practice practitioners and the wider public have a different view on the practice (paramedical practice versus agri- or food industry) and therefore have different standards with respect to animal experiments.

The interaction of practices[17]

Characteristic of the discussions about the suggested applications of the newly developed technology was the reference to different practices by different participant of the debate. Apparently, it could not be taken for granted to which practice the new activity belonged. In this section, I will analyse the three sub-debates about the making of transgenic animals. I will show how these sub-debates emerged, explain how they proceeded, and analyse what their outcomes have been.

Three reasons for making transgenic animals were discussed during the debate, to wit:
- The protection of the cattle against mastitis (issue 4);
- The development of a technique for producing human medicine via cow's milk (issue 3);
- The production of lactoferrin via cow's milk to be used in infant formula or clinical food (issue 2).

I will first go into the first and the last sub-debate, as the origins, progress, and outcomes are rather easy to explain. After that, I will discuss the second sub-debate that has a less clear outcome.

. The use of animal transgenesis for the protection of the cattle against mastitis

The first discussion was about the use of animal transgenesis for the protection of the cattle against mastitis, an infection of the udders (issue 4). At first sight,

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[17] Bart Gremmen's dissertation and a few discussions with him have shaped my ideas about what happens at the interface of two (or more) practices. See: H.G.J. Gremmen (1993) *The mystery of the practical use of scientific knowledge*. Dissertation Enschede.

mastitis prevention is a veterinary purpose and so a good reason for intervening in the animals. There has been a discussion, though, about:

- The effectiveness of lactoferrin as a means for preventing mastitis;
- The desirability of the creation of herds of transgenic animals;
- The possibility of alternative ways of preventing mastitis;
- The relation of the incidence of mastitis to high productivity farming, and the stimulation of such high productivity farming by controlling mastitis.

We can see that the first and the third question are questions primarily posed within the context of the veterinary practice. The second and the last, however, exceed the limits of this practice, as these primarily refer to the dairy farming practice.

The veterinary practice and the dairy farming practice partly overlap. The veterinary practice is facilitating the dairy farming practice (next to other animal keeping practices) by performing a specific task, namely disease prevention, health control, and the cure of cattle diseases. It was not, however, the research branch of the veterinary practice that initiated the idea of preventing mastitis by way of animal transgenesis. The research-firm Gene Pharming originated from biochemistry and from molecular biology and therefore was more related to pharmaceutics than to veterinary science. Since Gene Pharming wanted cattle to produce its products, it sought contact with the research institution of the Ministry of Agriculture to stable its animals. Mastitis prevention was just one of the possibilities disclosed by animal transgenesis. Gene Pharming was not familiar with veterinary diseases or with the veterinary practice; it only knew that lactoferrin would have an antibacterial effect and it knew that bacteria were a cause of mastitis. Of course, there is a relation between pharmaceutics and the veterinary practice, but there was no relation between Gene Pharming and the veterinary practice. The critiques from people out of or related to the veterinary faculty of Utrecht University (the scientific branch of the veterinary practice) could therefore not be easily refuted. Gene Pharming did not know the norms and values inherent to the veterinary practice and so could not adhere to these. It was an outsider and remained an outsider.

The project of Gene Pharming would lead to a breed of cattle that would be mastitis resistant. So, one might also consider a relation with cattle breeding and in particular the branch within cattle breeding that produces new, better, or healthier breeds. Gene Pharming's kind of objective is familiar to cattle breeding, as breeders will for instance breed for better legs, for better udders, for a better build and so on. The technique of animal transgenesis is in line with other biotechnological techniques used for better and quicker breeding, such as artificial insemination, in vitro vertilisation, and embryo transplantation.

In this branch, however, farmers have a big say. And at present farmers do not want transgenic cattle, for one reason because they are afraid of not being able to sell their meat and milk to the German market that has high purity standards. Therefore, animal transgenesis is not being done in cattle breeding. Therefore, the desirability of the creation of a whole stock (herds) of transgenic cattle is being questioned. So, the objectives of Gene Pharming did not strike with the contemporary norms and values of the cattle breeding practice either.

A third practice, however, is at stake, namely the pharmaceutical practice, a specific branch of the biomedical practice. This practice normally produces medicine (also by means of animals) but does not produce resistant animals. So, linking up to this practice does not seem an obvious possibility either.
To conclude: animal transgenesis for the production of mastitis resistant animals could not hook on to an existing practice, but was measured to the norms and values of the two existing practices it mostly related to. And it failed to meet the standards of these practices.

. The production of lactoferrin via cow's milk to be used in infant formula or clinical food

The production of lactoferrin via cow's milk to be used in infant formula has caused many reactions. Most people who reacted were upset about the use of transgenic cattle to produce a 'commercial' product. Nutricia responded that it will be better for babies if infant formula resembles mother's milk as good as possible. The Dierenbescherming characterised this activity as a billion-dollar market for which the genetic modification of animals should not be allowed. Herewith, it implicitly referred to the Law on Animal Experiments, which does not allow animal experiments for commercial reasons. According to this law only serious biomedical reasons are acceptable for performing animal experiments. Such serious reasons did not seem to be at stake here. As soon as this discussion emerged, Gene Pharming interfered by stressing that the human lactoferrin 'obtained from the transgenic cows will only be used in clinical food, that is to say in food for premature babies and for patients. Consequentially the production of lactoferrin via cow's milk should be considered as a paramedical activity instead of as a food-production activity. So, it hoped to shift the discourse from milk (food) production to biomedical purposes, as experiments within this context may reckon on more support. But it failed. It probably failed because of a combination of reasons, to wit: the motives of Nutricia (namely that the lactoferrin may also be used in infant formula) were already broadly known; the heavy campaign of the Dierenbescherming that stressed that Nutricia was up to making 'mother's milk

from cows'; and the wider public that was hardly familiar with the specialised food production practice to which Gene Pharming referred.

For Nutricia and Gene Pharming, the production of humanised infant formula was in line with the production of clinical food, as these were, in their view, both part of the paramedical practice of specialised food production. The Dierenbescherming, the broader public and the farmers (the practitioners) obviously had a different view. They regarded the production of baby food as in line with the dairy production practice, which has quite different standards for the treatment of laboratory animals than the paramedical practice. People are reluctant in doing invasive animal experiments within the dairy production practice, and so in doing such experiments with the intention of producing humanised infant formula. Within a food production practice, invasive animal experiments are allowed for testing products or diets and hardly for making new products. Products made by way of transgenic animals or plants may not reckon on much support.
So, for the time being, the dairy production practice has prevailed over the specialised food production practice, and the norms and values of the dairy farming practice were applied to the production of proteins to be used in any kind of food including infant formula and even clinical food. Consequentially animal transgenesis for these reasons was not allowed.

. The production of human medicine by way of cows' milk

The most interesting discussion, however, was about the second reason for making transgenic cattle, namely (the development of a technique for) producing human medicine by way of cows' milk. This was an interesting discussion because people usually hardly object to the use of animals for biomedical reasons, including the production of human medicine. But, in these normal cases rats, mice, and other laboratory animals are used for examining biomedical questions or for producing valuable proteins. Now a piece of cattle is used. Herman de Boer, the main spokesperson of Gene Pharming, has always said that the [mature] transgenic cattle should resemble ordinary cattle and that harm is not acceptable. So, in his view cattle should not be treated as ordinary laboratory animals, whereas the purpose of the treatment of these animals very much resembles the purposes for which laboratory animals are used. He grants cattle a special place. He, for instance, refers to a hierarchy among animals: 'it is common sense not to use cattle as a

model for human sicknesses' [my translation, ET][18]. And he was consistent in what he said, as he has objected the production of 'EPO'-cattle[19].

Herman de Boer was not the only one who wanted to apply different standards for cattle and for normal laboratory animals. The KNAW [Royal Dutch Academy for the Sciences] tried to prevent laboratory animals to fall under the Decree on Animal Biotechnology. This Decree should, in its view, apply to production animals only[20]. Its spokesperson Dr. A. van der Eb stated 'why should not we differentiate among animals, since in daily practice people discriminate among animals, and there seems to be an unarticulated hierarchy in what we think we can do with animals' [my translation, ET][21]. This view is also held by the Committee Biotechnology in Animals that has to assess all Dutch animal experiments. This Committee has advised positively about the making of transgenic mice and negatively about the making of transgenic cattle attributing this distinction to the higher moral status cattle have in the Dutch culture[22].

So, it seems as if a double standard is applied: a difference is made between the treatment of laboratory animals and the treatment of production animals (cattle) even if they are made transgenic for the same reason. For an explanation of this double standard, one should turn to a difference in moral status among animals, that is related to the practices to which the animals 'belong'. Some animals may belong to more than one practice, but most animals belong to only one practice. Whether an animal belongs to the one or the other practice need not be caused by the species it is, but is mainly caused by how the animals are used or seen. Especially domesticated animals may function in different practices. But even wild animals can be part of different practices e.g. of hunting (as game), of specific practices of nature management (as functioning in a specific ecosystem) and so can be differently valued depending on the context. Animals that have always belonged to one practice may after some time also become part of another practice.

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[18] NRC 24 June 1992

[19] EPO (erythropoietine) regulates the production of red corpuscles. Bicycle racers sometimes illegally use it for better performance. At first side the production of EPO via the milk of cows does not seem problematic, as the EPO is excreted. It turned out, however, that the EPO also leaks back into the blood of the cattle themselves which may give rise to the same problems as bicycle racers may experience. (Aside: De Boer does not apply the same standards to the animals that were used for making transgenic cattle.)

[20] KNAW et al (1995) *Volksgezondheid en biotechnology* [National health care and biotechnology]. KNAW. Den Haag.

[21] Volkskrant 2 February 1996

[22] Tj. de Cock Buning (2000) *De status van het dier.* [The status of the animal.] Inaugural speech. Utrecht University. Utrecht

Nowadays rats, for instance, are kept as pets, which was unthinkable only a few decades ago.

So, the question arises how Herman the bull was conceived. Let us first start with some observations.
First, the Minister did not want to differentiate among animals in the Decree on Animal Biotechnology, so the arguments in favour of cultural or practical differences were not granted. The Decree makes no difference among animals; it does not even differentiate between worms and mammals. And it sets higher standards for the making of transgenic animals than the existing legislation does for ordinary animal experiments.
Second, from the start of the debate, biomedical research (with or without transgenic animals) and the making of Herman the bull were seen as two different things. Biomedical reasons other than the production of specific proteins by means of animals have not been part of the core debate. This means that most people saw the production of pharmaceuticals by means of transgenic cattle as something different from biomedical research. And, which is more surprising, they regarded this as different from the production of sera or vaccines by means of laboratory animals as well. Transgenic laboratory animals have not been part of the discourse at all.
Third, in the discussion on the insertion of human genes into animal genomes, Dr. P. Borst has argued in favour of such an integration for human health's sake, but his arguments did not have impact on the debate about transgenic animals as if his arguments have skipped the debate. It seems as if the biomedical research practice did not even come to mind in people at the time.

How should this be interpreted? In my view, practices have put a mark on the discourse on animal transgenesis because Herman being a bull did not simply fit into one of the traditional practices. He did not fit in with the practice of dairy farming, for he was not just a production animal. He was not made by ordinary breeding, but in a laboratory. He was not meant to have his daughters producing milk for consumption but milk for the extraction of human medicine. He would not be part of the livestock of dairy cattle, since he was not aimed to mingle with other cattle.
But he did not fit in with the practice of biomedical research either. Cattle do not 'belong' to this practice, only laboratory animals do. Herman's offspring will not live in laboratories, but on farms. The mature animals will lead an ordinary life as ordinary cattle will. They will for instance be fed and milked as ordinary cattle will.

As Herman the bull did not simply fit in into one of these practices there are several possibilities:

- one of the practices is extended or changed as to make Herman the bull fit in;
- or a niche is created in one of the practices in which the new activity may develop; this niche may in time even develop into a new (sub-)practice;
- or both practices merge as to make an overlapping area for these new activities;
- or a new practice is created that fits with this new activity and that creates a new perspective for valuing the new activity.

So, what were the participants aiming at with their inputs in the debate? Let's have a closer look at the reasoning of the main participants (see also Chapter 5). Especially the reasoning of the participants that were in favour of the incorporation of a 'yes, if' principle in the law is very interesting. Gene Pharming, most of the time by mouth of Herman de Boer, has stressed that the animals will be treated like production animals, that a cow remains a cow, and that classic breeding changes animals too. This is summarised in the expression that there is nothing morally new, or that the animals are just like ordinary farm animals. Gene Pharming sees a future in which transgenic herds are at pasture. This means that it has opted for *the farming practice,* with the norms and values inherent to this practice. Farmers and their organisations, however, do not agree with this view. They prefer to the keep milk production practice as it is and consider the activities of Gene Pharming as foreign to their practice.
The experts who are also in favour of a 'yes, if' policy (most of them are biomedical experts) do not share this argumentation, however. They stress that animals also change induced by viruses, that animals are also harmed in animal experiments for medical purposes, and that other arguments against the genetic modification do not hold. In their view, the animals are just like ordinary laboratory animals and the interventions do not differ from other interventions in laboratory animals. So, they explain that the use of transgenic laboratory animals is in line with *the laboratory animal practice*, with its norms and values. This does not encompass the production of medicine by way of milk in cattle, but only medical research in general. Therefore, they prefer different legislation for production animals and laboratory animals.

The Dierenbescherming (who says 'no' against animal biotechnology) has stressed the (moral) novelty of animal transgenesis. It has argued that the lives of the animals will differ from the lives of normal farm animals, as the animals will live under controlled conditions. In its view, animal transgenesis is *not in line with the dairy farming practice.* The Dierenbescherming has most of the time directed its comments at Gene Pharming and not at the experts. In reaction to the experts they

have stressed that all animals should be treated equally. In its view, mice and rats should not be genetically engineered either, as this reduces animals to mere things and does not pay respect to evolutionary processes and inherited characteristics as new genes are introduced into a species. It is in fact saying *that transgenic laboratory animals should not be made either* and in the end that the laboratory animal practice should not be continued at all. This means that they do not want to differentiate among animals and that a context dependent valuing of animals is rejected. It strives at an equal treatment of all animals, which is consistent with the acknowledgement of the intrinsic value of animals: all animal should be paid equal respect.

The Minister of Agriculture ('no, unless') acknowledges that animal transgenesis as such is morally problematic and stresses that harm should be prevented. He does not differentiate between transgenic cattle and other transgenic animals. He does not compare transgenic animals with other animals, but prefers to treat them as a specific category. In fact, he is saying for the making of transgenic animals specific norms and values regarding the treatment of animals should be developed. In the Decree on Animal Biotechnology, the standards are set higher than in the existing legislation for animal experiments. These standards are imposed on the making of transgenic animals. This can be seen as the opting for a new practice, but also as opting for an overlapping sub-practice of the existing practices. In both cases the practitioners are subjected to more stringent norms and values for the treatment of the animals.
The experts in favour of a 'no, unless' policy (mostly animal ethicists) argue that hardly any harm should be allowed, that very strong reasons are needed for changing the genome of animals, and that the burden of proof should be inverted. Just like the Minister, they do not differentiate between transgenic cattle and other transgenic animals. So, in the view of the Minister and the experts transgenic animals are a specific category of animals for which higher standards regarding harms and the reasons for changing the animals should be applied. This means that they do not regard the making of transgenic animals in line with any existing practice, but regard it *a (overlapping sub-) practice of its own,* for which higher standards should be applied than to both reference practices. This accords with the advice of the Advisory Committee Ethical and Biotechnology in Animals that has stressed that animal transgenesis should be regarded a break in trend with the familiar (scientific) handling of animals and that therefore the traditional standards do not apply to this new technique[23].

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[23] Advisory Committee Ethics and Biotechnology in Animals (1990) *Ethics and Biotechnology in Animals*. Wageningen. NRLO

All in all three dominant views on animal transgenesis for biomedical reasons were developed. Gene Pharming and the biomedical experts have opted for an assimilation to the existing practices of subsequently cattle farming and biomedical production; according to the Dierenbescherming all animals should treated equally which means that it rejects any context-depending norms and values for the treatment of animals; the Minister and the animal ethicists prefer to develop specific norms regarding all transgenic animals, which should be more stringent than the norms regarding each of the reference practices. This last view, that animal transgenesis is neither just a continuation of one of the existing practices nor should lead to the overruling of all contextual norms and values regarding the treatment of animals has dominated as the content of the Decree on Animal Biotechnology shows.

Conclusion

The huge public involvement was, as we saw in the Introduction, largely due to the emotional proximity of cattle in the Dutch culture. The assimilation to the animal ethical debate, which was discussed in the former chapter, explains the differentiation that people make between animals in general on the one hand and plants and micro-organisms on the other. Consequently, arguments that refer to the animal-as-an-animal have carried much more weight than other arguments. Animal transgenesis has been considered as a moral novelty, a break in trend. New concepts were developed (intrinsic value, animal integrity) as well as new legislation that lays down these new concepts (the Animal Health and Welfare Act and the Decree on Animal Biotechnology).

This chapter has considered the discussion about several specific applications of the new technology and the bull that was central to the experiments.

We saw that animal transgenesis for the production of mastitis-resistant animals could not hook on to an existing practice, but was measured to the norms and values of the two existing practices it mostly related to. And it failed to meet the standards of these practices. And a new practice with its own norms and values did not develop.

In the case of the production of lactoferrin via cow's milk to be used in infant formula or clinical food, the norms and values of the dairy practice prevailed over the norms and values of the specialised food production practice. Therefore animal transgenesis was not allowed for this purpose.

In the case of the production of human medicine by way of cow's milk, the case was not closed at the moment Herman the bull did not fit in with one of the existing practices. The reason for making transgenic animals therefore was apparently so forceful that rejection would have been too simple an outcome. At the same time the norms and values of either related practice were insufficient. Gene Pharming has argued in favour of an assimilation to and adaptation of the dairy farming practice. It has reasoned that the project still is in the experimental stage of breeding adequate animals, but the production animals will live on ordinary farms and will be treated as ordinary farm animals. Only their milk will be treated differently.
For the Dierenbescherming as well as the Minister of Agriculture an assimilation to an existing practice was out of the question. The Dierenbescherming has argued that all animals should be treated equally which seems to result in a valuation that is practice-independent. The Minister of Agriculture wants to have all transgenic animals treated equally, but makes them into a category of its own with its own legislation. This outcome might, however, also be interpreted as that it considers animal transgenesis a practice of its own, or as an overlapping practice of the existing practices of cattle farming and the biomedical production of medicine. In the 'Besluit Biotechnologie' the new norms and values are set higher than in either former practice. The high standards regarding the purposes of the biomedical animal experimentation practice as well as the high standards regarding the health and wellbeing of the dairy farming practice are applied to the production of medicine by way of transgenic animals. And *respect for animal integrity* is a serious candidate for being a major standard in this practice. This standard is become central to this case as we saw in the Chapter 5, for enabling to cope with this specific treatment of animals that cannot be valued by the traditional standards.

Will this practice hold, or will it just be a transitional stage? Many futures are possible. It is thinkable that transgenic cattle will in time be seen and treated as ordinary farm animals. It is also thinkable that within a few years cattle will be regarded as ordinary laboratory production animals and treated correspondingly. But, it is also possible that the high standards regarding transgenic cattle and the background norm of *respect for animal integrity* will in time be applied to all laboratory animals, that is to all animals that are subjected to invasive experiments. Over the last hundred years, we have seen a tendency to set the standards higher all the time, and this debate on animal transgenesis might have been an acceleration of this process. Even more, the introduction of the concepts of intrinsic value and of animal integrity have brought to mind a new way of thinking about animals. This, however, would imply that practice-bound standards have had their day and that

more general, practice-exceeding, standards regarding animals have the future. Time will learn.

7. Debating in public: the process

In the debate on animal transgenesis, participants have not only criticised each other's points of view and reasons, but also each other's behaviour. Accusations like using sophisms, not revealing true motives, and withholding relevant information were uttered at several occasions. The main participants, to wit the Minister of Agriculture, the Dierenbescherming, and Gene Pharming, have each been criticised. The criticised have replied to these criticisms, thereby taking such criticism seriously. Apparently, the debaters have a set of rules in mind regarding the process of debating to which they will refer if they assume that these rules are violated. And they do not like being accused of violating these rules. These rules and so an evaluation of the kinds of input in the debate by the main participants will be central to this chapter.
Several philosophers have tried to reconstruct these rules for evaluating deliberations. These standards will hardly ever be met fully, if applied to public debates. One may wonder whether these reconstructed rules are adequate for the evaluation of a public debate, or, in other words, whether a public debate can be equated with a deliberation. To my opinion, it can only be partially. This implies that the rules for deliberations cannot be applied directly to public debates. They might, however, be an assistance in finding the rules that are adequate for the evaluation of public debates.
This insight and the adapted set of rules will also be helpful in replying much critique on public debates, as much critique emerges from an equation of public debates and deliberations.

In the first section of this chapter, I will discuss the discursive quality of deliberations. In the next section, I will argue why a public debate cannot be equated to a deliberation. The third section[1] will be used to develop the rules for

[1] A concept for the third section was presented at the workshop 'The social management of Biotechnology' at Tilburg University in 1995. This lecture was transformed into a paper with M. Korthals as a co-author: (1996) From animal welfare to intrinsic value: reconstructing public debate on animal biotechnology. In: R. von Schomberg and P. Wheale. *The social management of biotechnology: workshop proceedings.* Tilburg University. A slightly different version was published with the authors names reversed in P. Wheale, R. von Schomberg and P. Glasner (1998) *The social management of genetic engineering.* Ashgate. Aldershot etc.

public debates that are equivalent (not equal!) to the rules for the discursive quality of deliberations. In the fourth section, I will reconstruct some additional rules from the public debate at hand. In the fifth section, I will reply the critics of public debates in general and this one in particular. In the last section, I summarise the results of this chapter.

The discursive quality of (public) deliberation

When critical theorists like Jürgen Habermas[2], and other authors from this tradition such as Gutmann and Thompson[3], Manin, and, Munnichs, speak about deliberations, deliberative democracy, and discourses, they refer to discussions with a very specific discursive quality. Deliberation is seen as 'a procedure of becoming informed and of reflection on own and other opinions, prejudices, and inconsistencies'[4]. In deliberations, 'individuals acquire new perspectives not only with respect to possible solutions, but also with respect to their own preferences'[5]. Munnichs describes a deliberation as 'a *conscientious* process of exchanging and valuing reasons'[6] (my translation and my italicisation, ET). In his view, the discursive quality of deliberations has to do with the conscientiousness in which the participants exchange and value reasons. What then is a *conscientious* process of exchanging and valuing reasons? An answer to this question is given by Habermas and some other authors in the critical tradition[7] who have reconstructed a set of normative parameters (requirements, criteria) to which deliberations are measured. The outcome of a deliberation will be considered rational (well-considered, conscientious), if these procedural criteria are at least to a certain

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[2] J. Habermas (1962/1984) *Strukturwandel der Öffentlichkeit. Untersuchungen zu einer Kategorie der burgerlichen Gesellschaft* [Structural change of the public sphere. Research into a category of civil society.] Herman Luchterhand Verlag. Darmstad und Neuwied, and J. Habermas (1992) *Faktizität und Geltung. Beitrage zur Diskurstheorie des Rechts und des demokratischen Rechtstaats.* [Between facts and norms. Contributions to a discourse theory of law and democracy.] Suhrkamp Verlag. Frankfurt am Main.

[3] A. Gutmann and D.F. Thompsom (1996) *Democracy and disagreement.* Harvard U. Press. Cambridge and London.

[4] B. Manin (1987) On legitimacy and political deliberation In: *Political theory 15/3, p.* 338-368, p.350

[5] Ibidem

[6] G.M. Munnichs (2000) *Publiek ongenoegen en politieke geloofwaardigheid. Democratische legitimiteit in een ontzuilde samenleving.* [Public discontent and political credibility. Democratic legitimacy in a post-traditional society]. Van Gorcum, Assen. p.77

[7] J. Cohen (1989) Deliberation and democratic legitimacy. In A. Hamlin and B. Pettit (Eds.) *The good Polity.* Oxford,). Peters, see note 8 Several articles by M. Kettner, see note 12.

extent met[8]. In this view this means that deliberations should first and foremost be directed at mutual understanding, since that is what these conditions are guaranteeing.

Jürgen Habermas has reintroduced[9] the notion of the discursive quality of public debates in the sixties. In his first work on the topic[10], he has reconstructed three characteristics of the discussions in the 'Tischgesellschaften, Salons und Kaffeehäuser' in the 18th century:

> 'Die Parität, auf deren Basis allein die Autorität des Arguments gegen die der sozialen Hierarchie sich behaupten und am Ende auch durchsetzen kann, meint im Selbsverständnis der Zeit die Parität des "bloss Menschlichen". ... Die Diskussion in einem solchen Publikum setzt zweitens die Problematisierung von Bereichen voraus, die bislang nicht als fragwürdig galten. ...führt drittens zur prinzipiellen Unabgeschlossenkeit des Publikums.'[11]

These characteristics return in different words and further specified in his later work and in the work of the other authors mentioned. Since the ideas of these authors are very much alike and since Matthias Kettner has done much work on better articulating these criteria over a period of some ten years, I will concentrate on the criteria which Kettner has reconstructed.

In Kettner's[12] view, a deliberation is an argumentation about reasons ('gute Gründe') in which the participants are only oriented at the argumentation itself. This means that the participants will value conflicting reasons by referring to other reasons with the intention of finding or improving a common background of values and so in the end consensus. Each discussion contains reasoning, but this reasoning will not always be a deliberation in the sense described. So, a discussion will not always be a discourse. Kettner has constructed a set of five normative parameters

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[8] B. Peters (1994) Der Sinn von Öffentlichkeit. *Köllner Zeitschrift für Soziologie und Sozialpsychology*, Sonderschrift 34 42 – 76.

[9] In the second decade of the twentieth century this also was a major issue, especially in the USA.

[10] J. Habermas (1962/1984) *Strukturwandel der Öffentlichkeit. Untersuchungen zu einer Kategorie der burgerlichen Gesellschaft* [Structural change of the public sphere. Research into a category of civil society.] Herman Luchterhand Verlag. Darmstad und Neuwied.

[11] Ibidem pages 52 and 53.

[12] For the justification of these parameters see Kettner's article from 1999a named Neue Perspektiven der Diskursethik. In: A. Grunwald and S. Saupe (Eds.) *Ethik in der Technikgestaltung. Praktische Relevanz und Legitimation* . Springer. Berlin etc. These parameters were first introduced in an article called: Scientific knowledge, discourse ethics, and consensus formation on public policy issues. This article was published in R. von Schomberg (1993) *Science, politics and morality. Scientific uncertainty and decision making.* Kluwer. Dordrecht.

that he regards arguably necessary for a reasonable (rational) discussion (discourse) on moral issues:

> 'Parameter 1: Reasonable Articulation of Need-Claims: All participants in a discourse should be capable of reasonably articulating rationally any need-claim they take to be morally relevant.
> Parameter 2: Bracketing of Power Differentials: Differences in (all sorts of) power which exist between participants (both within and outside argumentation) should not be any participant's good reason in discourse for endorsing any moral judgment.
> Parameter 3: Non-strategic Transparency: All participants should be able to convey their articulations of morally significant need-claims truthfully, without strategical reservations.
> Parameter 4: Fusion of Moral Horizons: All participants should be able to sufficiently understand need-claims in the corresponding moral horizons of whoever articulates them.
> Parameter 5: Comprehensive Inclusion: Participants make the following constraint on what their community of discourse can accept as good reasons: that participants must anticipate whether their reasons can be rehearsed by all nonparticipant others who figure specifically in the content of any moral judgment determined by the participants to be taken seriously by everyone.'[13]

Most authors have applied these or comparable criteria to all kinds of discussions. Kettner, however, regards these five criteria as *a prerequisite for a discussion to be a moral discourse.* So, a moral discourse is a discourse on moral issues that fulfils the procedural standards that Kettner has reconstructed. To my opinion, equivalent sets of procedural standards can be developed for other deliberations as well.

In the next section, I will argue that a public debate cannot be equated with a deliberation. In the third section, I will trace to which extent each of the criteria expounded above is applicable to the particular public debate at stake, and whether criteria can be reconstructed that are adequate for public debates. Each sub-section of the third section will start with an explanation of what Kettner has meant with the criterion in question.

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[13] M. Kettner (1999) New ethics, new genetics (see above) p. 143 and 144. NB. A 'need-claim' is what in ordinary language is meant with an 'interest'. I will use the term 'interest'.

The nature of public debates[14]

A public debate cannot be equated with a deliberation, since a public debate is not primarily oriented at mutual understanding or consensus. A public debate should rather be seen as a process in which views and reasons are tested. In the course of a debate, it will become clear which views and reasons may reckon on *public support* and which will not. A debate is a support - seeking activity.
It is obvious that public reasoning will be central in a public debate. Views will be put forward and will be argued for and against. The weight and impact of these reasons will be discussed. Reasons will be articulated, and specified, and so on. In the meantime, information will be clarified and preferences will be sharpened. But this reasoning will not necessarily be the *conscientious* exchange of reasons that is characteristic for a deliberation. And this will be so because the debaters are first and foremost trying to obtain public support instead of mutual understanding. As people are arguing in front of the larger public they will try to convince this public of their views and reasons, and they will try to convince them that other views and reasons are less adequate. They will try to put forward their views as lucid and sharp as possible instead of seeking common ground in a discussion oriented at finding consensus. To summarise:

Deliberation	→ oriented at mutual understanding and in the long run consensus
	→ conscientious reasoning; seeking common ground;
	→ convincing each other
Public debate	→ oriented at gaining public support and impact
	→ lucid reasoning; articulating points of view
	→ convincing the public

This does not mean that a public debate will not have any discursive quality at all. It does, however, mean that the standards will not always be applied as stringent as in the case of a deliberation. Some deviations of the standards will be accepted as normal, but others will not.

Until now, I have spoken about the discursive quality of a public debate, but there will be more than just reasoning in a public debate. Of course, there will be reasoning. But, as the debaters want their reasons to have as much *impact* as possible, they will time the moment at which they put forward these reasons, and they will be strategic in the information they supply (which may include

[14] For the views expressed in this section, I have to pay much credit to Matthias Kettner, with whom I have discussed the nature of public debates extensively.

withholding information). And these ways of doing will be discussed themselves, as a public debate will be *self-reflexive* in this respect.
The debaters will also strengthen the views and reasons of themselves and weaken those of others by referring to the source of these arguments. They will do so by telling stories (narratives). For instance, they will try to show that self-interest has influenced the views. Or they will refer to motives for having certain views and they will in particular do so if these motives have not been made public. Or they will discuss the integrity of themselves and of others. Or they will reveal background information that sheds another light on reasons that were put forward by themselves or by others. This still might be considered an argumentation in the sense of a discussion about reasons, as it helps to assess reasons as good or bad reasons, but it no longer is a conscientious discussion about reasons.

But this extension still does not fully capture the nature of public debates, as a debate is about getting people somewhere, namely to get them in a position that they will give support to a particular view, while discussions and deliberations are about assessing reasons only. Therefore, expressive elements will be explicitly[15] brought in as a means to influence people. Photos, drawings, posters, and documentaries, for instance, will refer to feelings, pathos, and emotions. Such images are not arguments by themselves, but can be regarded as a message within the context of an argumentation and so have an argumentative intention. An image shows a reality and raises the question whether this reality makes a difference to the audience. So, an image is by itself not a reason for doing something, but it wants to give reasons for changing your mind. A public debate will also be *self-reflexive* concerning such images. People will differentiate among types of images and in particular with respect to the intention of these images. For instance, they will make a difference between an advertisement in which some horrible image is used and an equally horrible abortion photo shown by the anti-abortion movement. People have a sensibility for these different uses and draw therefore lines between commercial advertisements belonging to the economic sphere and contributions to a public debate belonging to the public sphere. And they might value the images differently for this reason only. Both types of images are meant to get people somewhere, but are appreciated differently. The first type will be valued as a strategically used sophism, while the second type will be valued as a communicatively used sophism, that is, as a contribution to the debate. But not every use of an image put forward in a public debate will be seen as a contribution to the debate. It might be considered a strategically used image; it may be too much

[15] Of course, expressive elements will play a role in any conversation, but the difference is that in public debates these will be actively put in as a *means* to get people somewhere.

exaggerated and so be too harsh; but it may be too covert and suggestive as well; and it may be too much an advertisement. So, here too the *self-reflexivity* of the debate will be directed at the protection of the public sphere. This is done by evaluating the limits of this sphere and by criticising when these are crossed.

In the next section, I will reconstruct a set of criteria that are derived from the criteria of Kettner and that are adequate for valuing a public debate. In the third section of this chapter (called theatre), I will add some extra rules that are specific for public debates.

Kettner's parameters and the public debate about Herman the bull

Matthias Kettner has discerned five normative parameters for evaluating the discursive quality of deliberations. I questioned whether and how these normative requirements should be interpreted for the evaluation of a public debate. This will be the topic of this section. The first question to be answered will be to what extent did this debate fulfil Kettner's requirements. In other words: to what extent did this debate have discursive quality? And the second question will be whether it will be possible to reconstruct a set of equivalent criteria that is adequate for the evaluation of a public debate. I will discuss each parameter with these questions in mind. I will not follow Kettner's order, though. I will follow a more obvious order from pure reasoning to more procedural aspects.

- Reasonable articulation of interests.

It is, according to Kettner, necessary that all participants are capable of interpreting and articulating their interests rationally. This means that the participants must be capable of giving reasons to substantiate their views and opinions, and to clarify how their interests connect to other interests. This allows other participants to criticise these views and opinions, and the supporting reasons. Because of this criticism, interpretations of interests might change, but this is up to the criticised.
I want to go one step further than Kettner. In my view, each participant should also respond to criticism as good as possible. A reasonable participant cannot ignore criticism. He or she has to answer criticism seriously by providing additional or better-articulated reasons, or by denouncing the criticism.
So, reasoning does not concern reason - giving only, it also concerns listening to and responding to reasons given by others. And this may result in some development in the reasoning over time. This last aspect, however, bridges the gap between reasoning and the fusion of (moral) horizons and will be discussed in the next sub-section.

Reason - giving

It is obvious that the participants of this debate have reasoned to substantiate their views and they have elaborated on their reasons as well. There will be no public debate without reason giving. A fine example is the very first article published on the matter, namely an interview by Jan Bonjer[16] with Dr. Herman de Boer of Gene Pharming. In this interview, Herman de Boer explains why he considers the making of genetically modified cattle a good thing. He mentions five reasons for doing so and two restrictions he puts upon himself[17].

People elaborate on their reasons as well. For instance, after the first calf was born the reasons presented by Gene Pharming were further specified with respect to the positive effects of the newly inserted gene on lactoferrin production in the udders and so on mastitis prevention in adult cows. And each time as there was a development in the research project, reasons were given specific for this development. It should be noted that de Boer also mentioned some restrictions in the interview, which means that he is fully aware that there might be objections to this project and he claims that these objections will be met in the project. So, he is anticipating criticism and therefore already explaining that he himself also imposes restrictions upon himself. So, he was explicitly entering a debate. The same can be said about all other actors that have participated in the debate.

Responding to reasons

The second question, namely whether people also have responded to reasons given by others, is less easy to answer, since at first sight it seems as if people have hardly reacted to one another. People seem to only have stressed their own points of view. This is true for most contributions to the debate, but not for all of them. From a cautious reading of the articles and interviews in the newspapers, it shows that people and organisations have very conscientiously read each other's contributions to the debate. And they have used these contributions to elaborate on their own views. And sometimes they have responded to statements or reasons put forward by others as well, and at some other times they have even reacted straightforwardly to an opponent.

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[16] NRC 9 March 1989

[17] His reasons were: it will enable to make valuable medicine and to produce proteins that can hardly be produced in another way. It might enhance the resistance of cattle against mastitis. And it might improve the effectiveness and quality of food-production. Furthermore it will be economically attractive. The restrictions were: one should not do strange things to cows and one should take care.

A more detailed analysis of the first two years of the debate, in which 44 articles were published, is not very impressive though. It is obvious that people were more interested in putting forward their own views and reasons than in discussing other views. It seems as if they were quite reluctant to get involved in a discussion. Instead, the actors have put forward their own views in front of the broader public, which is their audience. By being as clear as possible, they were hoping to win the favour of the public. And they have tried to weaken the views of their opponents not by directly attacking them, but by *anticipating* their views and criticisms. A good example is Herman de Boer of Gene Pharming who from the very beginning stressed that the firm cared about its animals, that it did not want to harm them or do strange things to them, and that actually the animals were not harmed in either way. This combination of reasons is very convincing as it comes through as an authentic view, and as it refers to the common way of thinking about animals. But, until that time there had not even been the suggestion that the animals might be harmed in their health or wellbeing. The point of the critics, namely, was not that the animals were harmed in their health or welfare, but that they were harmed in their intrinsic value, claiming that the making of a transgenic animal is a moral problem as such. Only later in the debate would conventional harm done to the animals become an item.
This means that it is possible to reconstruct the 'statements' in the newspapers of the first two years as if it were a discussion. But, in fact, it has hardly been a discussion. And from the point of view of the public, it could hardly have been a discussion, as the public was probably not able to grasp the indirect references that were made.

Later in the debate, however, this will change. In November 1992, the debate accelerates: the Dierenbescherming starts its campaign against animal biotechnology. Next to lucid inputs in the debate, it was also play to the gallery. From this time on, also the number of reactions increased. People got angry or annoyed about the input of the Dierenbescherming. Some accused the Dierenbescherming of polarising the debate or using slogans[18], but it answered that it first and foremost wanted to induce a public debate as the developments were going very fast and most people hardly knew what was going on[19]. From this moment on, every article attacking the Dierenbescherming or its view was replied within a few days in the same newspaper. In these replies the Dierenbescherming aimed to dismantle each argument and put forward its own view on the matter. If

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[18] E.g. Wim. P, Zeijlemaker, biochemist and editor of the journal 'Bionieuws' (De Volkskrant 22 December 1992) and Bas van Kleef, editor of De Volkskrant, (De Volkskrant 20 November 1993)

[19] Antoinette Hertsenberg of the Dierenbescherming in De Volkskrant of 31 December 1992

any part of the debate had the outer form of a discussion, it was this; but there was not much movement in points of view. Everybody has taken his stand and has stuck to it. The participants have only *exposed* their views in reaction to other views. For an outsider, however, this probably has been very informative as the reasons pro and contra became very clear.

At the end of the debate (1995) as the Decree on Animal Biotechnology (the specific regulation for animal biotechnology) was discussed, many reasons were put forward by biomedical researchers and their organisations to make an exception for laboratory animals like rats and mice in the legislation. The Dierenbescherming, backed by the Nature en Environment Foundation and the Alternative Consumer Foundation, tried to neutralise these reasons and in particular the reasons for differentiating among species, which gave rise to some interesting discussion.

To conclude: Kettner's *first* parameter was that all participants should reason to substantiate their views (that is to say their interpretation of the interests at stake), which means that they have to try to articulate their views as good as possible. And this is what the participants have done: they have given reasons for their views, have articulated and specified these reasons, and have given additional reasons. And they have listened to reasons put forward by others, sometimes responded to reasons, they have anticipated criticism or developments, and they have elaborated on their reasons in order to meet criticism. There has hardly been reflective criticism on the participants of the debate in this regard. Only the Dierenbescherming has been criticised for being too harsh sometimes, for instance for its accusations, insinuations, and more generally for unnecessary polarising the debate. Here one may find a specific standard for a public debate. One should reason lucidly, even sharply, in order to substantiate one's views; one should listen to and respond to criticism; one should criticise the views and reasons of an opponent as long as this will illuminate the issue at stake. But needlessly attacking an opponent, polarising the debate, or rousing public sentiment is considered one step too far[20]. Where the line has to be drawn will probably depend upon the situation. I will come back to this point in the next section.

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[20] At least in this specific debate. This might be a feature that is more prominent in Dutch public debates than in others. The Dutch 'polder model' is based on the continuation of the discourse and is oriented at consensus, which implies that attacking an opponent too fiercely might lead to being disqualified as a serious discussion partner or might scare of discussion partners that are appreciated for the sake of the debate.

- Fusion of moral horizons

Kettner's fourth parameter has to do with mutual understanding. In a conscientious process of exchanging and valuing reasons people have to look for common ground. People should not just reason in favour of their own views, but they will have to explain their views in a way that others will be able to understand them, and they have to try to understand what others mean within their own moral horizon. Kettner considers such a fusion a prerequisite for exploring the space for consent and dissent.

People develop their opinions and views against the background of a moral horizon, that is to say a notion of the good life that contains the moral norms and values they adhere to. Under normal circumstances, such a moral horizon is hardly articulated. Only when a moral conflict arises do people explicitly fall back on this moral background. A moral conflict may arise out of the confrontation of different moral backgrounds (an external moral conflict) or out of conflicting parts within a particular moral background (internal moral conflict). People draw on their moral background for reasons and views to solve a moral conflict. So, both in internal and in external moral conflicts people refer to their moral horizons. In the case under discussion, there is an external moral conflict. Matthias Kettner has argued that to have a discussion oriented at a moral solution for such a conflict, one needs to sufficiently understand each other's arguments and this is only possible if moral horizons sufficiently fuse with each other. That is to say: in a discussion, people are searching for common ground by formulating and reformulating aspects out of their moral background.

This means that external moral conflicts arise out of different moral backgrounds; such conflicts can only be discussed if these horizons fuse sufficiently; and they can only be solved if these horizons fuse at exactly the point what the conflict was about.

As moral horizons have to do with deeply rooted and hardly articulated moral values, such horizons only slowly change by way of many smaller and larger changes. In such a change, parts of the horizon are articulated (although not necessarily the parts that will change, but it will always be parts that have to do with the change). But it will only be possible to discuss these parts from a shared background of other values.

For a fruitful discussion it is necessary that sufficient overlapping consensus of the moral horizons of the discussants will be found or created. These overlapping parts form a basis from which the colliding parts can be discussed in order to try to make them fuse too.

In the case of animal biotechnology, there was a commonly shared care for the animals. Nobody has argued or even suggested that animals can be used at one's convenience. But a point of discussion was how far-reaching this care has to go. All parties in this dispute agreed that the animals that were to produce the lactoferrin should be in good health and welfare. But the views diverged regarding the animals that had to be used in order to produce these transgenic animals, and regarding animal transgenesis as such. With respect to the use of animals to produce a transgenic animal, the concepts and lines of argumentation of opponents and proponents are within the same spectrum, as they have to do with animal health and welfare. The discussants only differed about how much harm should be allowed.

With respect to the second issue of the making of transgenic animals as such, however, the opponents had a very different view from the proponents. The opponents considered the changing of the genetic make up of an animal a harm of the integrity of the animals. This concept of animal integrity is foreign to the proponents. It does not fit within their moral horizon. A paradigmatic change in view is needed to grasp the concept. Fusion of moral horizons with respect to this conflict seems to be hardly possible. Herman de Boer, however, had a notion of what is meant by animal integrity. He has stated several times and in different words that a cow has to remain a cow. But in his view, this has mainly to do with how a cow looks like (in the eyes of an innocent passer-by) instead of what you know about it (how it is made for instance). Still, this seems to be a beginning of understanding, since in his view it is not animal health and welfare only that is important.

A fusion of moral horizons is necessary for understanding each others views and is a prerequisite for solving a moral conflict. Until a common concept, a common view is found the controversy will continue. In this case, the kernel of the controversy is the acknowledgement or not of animal integrity (authenticity, wholeness). A part of the participants does not recognise this concept while it is crucial for others and there does not seem to be a common ground to discuss this concept as it is more far-reaching than the more traditional concepts of animal welfare, animal health, or animal care. The conflict can be considered a conflict about notions of the good life that are profoundly different with respect to the general attitude towards animals. It is like a paradigmatic difference. Therefore, the conflict seems, for the time being, insoluble. The opponents talk at cross-purposes. And no one is criticising this. People (the audience) will only wonder which position they will take themselves and which will prevail in the end, as this is what will happen in time.

One may wonder now whether this is all that can be said about this parameter. I would say no, as people (the audience) still will have expectations in this regard. They can understand that there are opposing positions that do not converge and they can even understand a lack of willingness to grow towards each other's point of view. They probably do not even expect this in a public debate. They expect the parties to inform them (the public) by positioning themselves, by clarifying positions, and thereby persuading the public and seeking for public support. They expect them to listen to each other and to respond to each other. They expect them to use the reasoning of others to sharpen their own views and to elaborate on their reasons in order to make their position more clear. They expect lucid reasoning and they expect progress (new and additional reasons) being made. They want to be enabled to choose position in this paradigmatic dispute. This gives rise to another rule for public debates: the participants should develop and better articulate their points of view during the debate. When progress stops and nobody can add something new, the debate will be closed as it has no use anymore.

- Comprehensive inclusion

The fifth criterion of Kettner puts a restraint on what are considered good (legitimate) reasons. According to Kettner, reasons will be good reasons if they take into account the people that will be affected by the outcomes of the debate but that did not participate in it. Therefore the participants have to *justify* their views and the effects of the outcomes of these views on relevant others that did not speak up.

These relevant others were explicitly present in the debate. Patients organisations, biomedical experts, and Gene Pharming have pleaded in favour of the patients; the Dierenbescherming has stated that animals too should be considered as relevant others. Several discussants have referred to the feelings and notions of the broader public concerning the handling of animals and their reserves about the new biotechnology. And the parties have criticised each other for having too less an eye for other interests. Margreet van Bladeren of the Rheumatics Patients Association, for instance, has expressed her disapproval of the one-sidedness of the Dierenbescherming. She has accused the Dierenbescherming of neglecting the interests of the chronically diseased people in our society and of oversimplifying what was going on[21]. But on an average, there was only mild criticism in this respect. I suppose that most people thought it obvious that for instance the Dierenbescherming addresses the interests of the animals and that a patients

[21] Algemeen Dagblad 15 December 1992

organisation will put forward the interests of the patients. The Dierenbescherming, however, has reacted to the criticism that it, of course, cared about patients, but that it preferred to look for other means to help them. Gene Pharming has stated that making medicine by way of cow's milk will result in cheaper medicine for patients, but that animal health and welfare should be a condition for the production of these medicine. Only the patients organisations did not publicly care about animals, but this was not carried after them.

So, there seems to be mild pressure on the participants in a public debate to address the interests of relevant others thereby showing that they have taken notice of them. And it seems to be accepted practice that some organisations stand up for the interests of a single group or a single issue, as long as they also acknowledge that this is but a specific view.

- Bracketing of power differentials

Kettner's second criterion has to do with the distribution of discursive power, that is to say the power to express one's views. This distribution influences the possibilities of people to articulate their views in public. It is obvious that discursive power is not evenly distributed in a public debate. Some will have easy access to the media, others will not. The relevant question, however, is, whether this has influenced the possibilities for people to articulate their views. It is obvious that individual people are merely an audience and will hardly have access to the media. More essential is the question whether this has caused that some *views* were not heard. No one in the debate has referred to this point. Apparently, an unequal distribution of access to the media is generally accepted. What probably would not have been accepted is that some relevant views did not get access to the media. Editors may sort out letters to the editor and opinion page articles, and select letters and articles of known experts or other people, and they may interview only some people and not others, but *this should not result in the loss of views*. It is my impression that the relevant views were heard, although some religious views were only heard at the start of the debate and did not come back later. Nobody, however, has complained about suppressing certain views, not in the media, not at public meetings, and not at conferences, which suggests (but does not guarantee) that relevant views or voices were not silenced.

- Non-strategic transparency

This last criterion has been a main item in the debate. People have strategically supplied information. They have withheld relevant information. And they were not always open about their motives. As soon as one party got hold on information

about the other they timed the moment to make use of it in order to damage the image of the other party. For some of these moves, the discussants were heavily criticised, for others, however, not.

Timing information is what most participants did. For instance, both patients organisations wrote their opinion page article just before an important parliamentary discussion and before a court trial of the Dierenbescherming, so trying to influence the political parties and the court. And the Dierenbescherming only started to use the information it had acquired about Gene Pharming planning to produce 'mother's milk from cows', as it knew that Gene Pharming had to admit it, that is to say at the time it had a strong case. I can imagine that discussants did not like this timing of information by their opponents, but they did not criticise it either. This seems to be accepted practice.

The Dierenbescherming most of the time was the party in the offence, while Gene Pharming and the Minister of Agriculture were the defending parties.
The Dierenbescherming only got some fierce criticism on its, sometimes, harsh campaign, which was called polarising, using bad rhetorics, and misleading. It was not criticised for timing its information (planning its campaign), nor for changing its position from 'no, unless' to an absolute 'no'[22] which might have been only changed for the sake of the debate. If it had not changed its position, the debate would probably have ended at that moment. Only a change in opinion did guarantee the continuation of the debate. Nobody felt publicly irritated about it. Nor was it criticised for concentrating on animal welfare issues when it could corner Gene Pharming.
The Dierenbescherming has entered the debate with a new moral issue, namely that the changing of the genome of animals should be seen as a violation of the animals as such. Gene Pharming, however, had said from the start of the debate that it cared about animal health and welfare, that it did not expect any harm for the animals, and that if there were harm they would stop the experiments. At a certain moment it turned out that harm was done to the animals. Then the Dierenbescherming changed its strategy and concentrated on this harm. For the Dierenbescherming, this was in fact a side issue, which subtracted the attention from its main point. Animal integrity shifted to the background of the debate. The Dierenbescherming used this in its own eyes less central issue to corner Gene Pharming. This change of strategy was not discussed during the debate. It is possible that nobody has grasped

[22] So, from this moment on one cannot be sure about the true position of the Dierenbescherming as they used the same reasons to sustain their former position.

this point. It is more probable, however, that any animal issue is considered a just issue to be handled by the Dierenbescherming.
One might conclude that there was a high tolerance for the actions of the Dierenbescherming. Only one strategic action was severely criticised next to the much discussed poster, namely its threat to start a boycott against Nutricia. This was considered one step too far by many. Nobody, however, has argued why it was one step too far. I suppose it was because of the breaking off of communication. The Dierenbescherming stopped reasoning and this seems to be 'not done'.

The tolerance for Gene Pharming was much lower. Gene Pharming was a quite open firm, which was probably due to its close ties to the academic world. It expressed more an expert culture than a market culture. It, however, also was a commercial firm that had to find market partners. These market partners (in particular Nutricia) were not as open as Gene Pharming due to competition and they demanded Gene Pharming to reduce its openness. So, Gene Pharming was open about its general objectives and was willing to enter the debate, but it was not open about its investors and about its short-term objectives. This has been the cause of much criticism of Gene Pharming: several people, and of course the Dierenbescherming, have accused Gene Pharming of not being open about its objectives, of shifting goals, and of hiding its 'real' goal, namely the intention to produce 'mother's milk from cows'.
It is obvious that Gene Pharming was not prepared for criticism. And it certainly was not prepared for the fierce criticism of the Dierenbescherming.

Only after four years of debating, did it transpire that Gene Pharming was up to produce lactoferrin for use in baby-food. Several people, among whom Henk Verhoog, member of the ethical committee that had to evaluate research proposals of Gene Pharming[23], had already earlier expressed their annoyance about Gene Pharming not being clear about its objectives. These people wondered what was really going on. Such statements anticipated the heavy criticism on Gene Pharming and already gnawed at its image. As it became known that Gene Pharming had withheld relevant information from publicity, from the ethical committee and from government, the company was heavily criticised and lost much of its credibility. The Minister even thought of ending the contract with Gene Pharming. This means that, withholding this kind of information was not considered admissible.

The till then invisible financier in the background (Nutricia, later called Numico) had an even bigger problem as its role got known, as this firm is very dependent of

[23] Het Parool 28 November 1992

the trust of its consumers. It was, however, not the secrecy of Nutricia that caused most upheaval, but the intention of producing 'mother's milk from cows'. Artificial baby food already was a touchy issue. Only two decades before, was Nestlé (a Swiss baby milk producer) attacked by consumer organisations for the large-scale introduction of artificial infant formula in third world countries, because mother's milk is evidently best in these countries for hygienic reasons. As the Dierenbescherming[24] threatened with a boycott[25], Nutricia withdrew from the project[26]. Interesting were some other reactions of Nutricia. It asked for a new ethical assessment by the advisory committee and it announced to start a discussion within the company about the use of transgenic products and it promised to use alternatives if there were any. So, it turned out to be very sensitive to the substantive criticism.

At the time that one of the most important decisions had to be taken, namely breeding with Herman the bull (1992), Gene Pharming made an overt strategic move. It organised the support of the patients organisations. Now, Gene Pharming was accused by, for instance, the Dierenbescherming of creating false hope for patients and of using the patients organisations. Later, Herman de Boer of Gene Pharming explained that this may seem populism, but he thought it necessary to resist the campaign of the Dierenbescherming. In his view, it was obvious that patients would be 'a victim too of a threatening moratorium'. Therefore, he claimed that the patients organisations did not feel used, but knew what they did[27]. So, De Boer took serious notice of this criticism and defended himself as being criticised unjustly in this case.

The Minister of Agriculture has been subject to severe criticism for withholding information about the involvement of Nutricia to Parliament and the public. According to Nutricia, the Ministry of Agriculture knew about the sponsoring since 1991[28]. The Minister had a severe problem as Parliament might have decided differently about the project, if this information would have been available at the time. The Minister admits that the Secretary of State handling this issue indeed knew about the co-operation and did not inform Parliament. The contract namely contained touchy information from the point of view of competition, but did not seem relevant for the Herman project, as the advisory committee and Parliament

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[24] Together with the Stichting Natuur en Milieu and the Alternatieve Konsumentenbond

[25] Algemeen Dagblad 11 March 1994 (first warning), Algemeen Dagblad and Volkskrant 4 June 1994 (actual threat)

[26] NRC, Trouw, Algemeen Dagblad 10 June 1994, Volkskrant 11 June

[27] NRC 15 June 1995

had to decide about the production of human lactoferrin for veterinary and later medical purposes[29]. Misleading Parliament is a heavy accusation. The Secretary of State, however, acknowledges to have known about the contract, but claims that he was not fully informed about its content. He was not aware of the primary purpose of the co-operation with Nutricia, namely the enrichment of infant food with human proteins obtained from transgenic cattle. In the contract of Gene Pharming and the ministerial research institution ID-DLO, only bio-medical purposes were formulated. He suggested that this contract now should be terminated[30]. The Minister admits that he did not inform himself well enough, because he assumed that both firms would adhere to the political agreement. Then parliament calls the Minister naive and frivolous, and that is it[31].

Michiel Linskens of the Dierenbescherming concludes several times that both Government and Gene Pharming have neglected an important ethical principle namely that of openness[32]. A differentiation should be made, however, as the Minister has a legal obligation to inform at least Parliament whereas Gene Pharming only has a civil duty to inform the public. This is reflected in the reaction in the press. The lack of transparency of the Ministry was a very heavy issue, whereas the behaviour of Gene Pharming was only disapproved. Still, the civil duty of companies to be open about controversial issues more and more becomes an issue, as companies will be judged about how they fulfil this social duty.

Early 1995, it transpires that at least one member of the CDA party knew about the involvement of Nutricia. The Dierenbescherming accuses the CDA of misleading the public. Mechteld de Jong of the CDA answers that she had to respect

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[28] Algemeen Dagblad 11 June 1994

[29] Algemeen Dagblad 15 June 1994

[30] NRC 16 June 1994, Volkskrant 16 June, Algemeen Dagblad 16 June, Trouw 16 June. NB: The Minister wants the contract of Nutricia and Gene Pharming to be changed in coherence with the contract of the Ministry and Gene Pharming (Volkskrant, Algemeen Dagblad, Trouw, Telegraaf 29 June). At the end of the year the Ministry and Gene Pharming end the contract voluntarily under the condition that the research into the health and wellbeing of the animals in the experiment will go on (Trouw, Algemeen Dagblad, Telegraaf 9 November).

[31] Telegraaf 17 June, Volkskrant 17 June, NRC 17 June. Later Gene Pharming explained why mastitis prevention was mentioned as the primary goal. It wanted to produce biomedical proteins without a specific objective as the technique was still in an experimental stage. The Minister, however, wanted to have a specific objective in order to approve of the project. In consultation with the Ministry, mastitis prevention was chosen as a preliminary objective. On the long run, however, the firm still is primarily interested in human medicine. Next Nutricia came in as it was interested in the lactoferrin that would be produced. It did not want publicity due to considerations of competition.

[32] E.g. Volkskrant 29 June

confidential information, as a lot of money was involved. This affair, however, did not cause as much upheaval as the lack of openness of Gene Pharming or of the Ministry. So, it seems to be less worse than the lack of openness of the firm itself.

Theatre

It is obvious that major failures with respect to the five rules I have discussed above will result in comments and criticism and in damage to the image of the criticised. And we have seen that there are implicit rules for comments and criticisms as well. In this section, I will reconstruct some more rules for debating in public. I have restricted myself to the aspects, and so rules, that emerge from this particular debate. I have called this section theatre, as the elements I have gathered under this heading have to do with the selective presentation of oneself and others. Theatre always will be an element in a public debate. It enlivens the debate and helps to keep people attentive. We will see, however, that there are social conventions that the participants are supposed to respect. In three sub-sections, I will reconstruct three more rules. These rules can be regarded as a substantiation of the rule that people should reason, although this will be 'reasoning with other means'.

- Regarding story telling

Several times an issue was discussed that was beside the main theme of the debate. For instance, a discussion arose in Parliament on whether the inserted gene was of human origin (1991). Shortly thereafter, a point was made out of the request of Gene Pharming to sell the non-transgenic animals. It might be questioned whether these were important issues. Tjard de Cock Buning[33] had a point when he stated that whether the inserted gene is of human origin is not important. In his view, what should be at stake is the transfer of genes from one species to another[34]. The other issue, about what to do with the non-transgenic animals, also was a side issue. Of course, it had to be decided whether the cattle might be sold or whether the cattle was necessary for the experiment, but it does not seem worth public

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[33] NRC 7 May 1991

[34] Aside: If everybody would have agreed that the gene was of human origin, than there would have been two main issues in this debate, an animal ethical one, about animal transgenesis and a medical-ethical one, about the mixing of human and animals. As everybody accepted the explanation of the Minister this last issue is not further discussed in the debate, but it has come back in the debate on xenotransplantation. Peter Vermij (Het Parool 2 December 1992), however, argued that the Minister had used bad rhetorics in distinguishing human and human-identical genes. For the debate on animal transgenesis this has been a good thing, since as soon as medical ethical issues arise, animal ethical issues slide into the background (see Stafleu 1994).

upheaval. But, both issues discussed together created an image of Gene Pharming, namely the image of a firm dealing in an unethical way with animals by handling them as sees fit. The use of human genes gives rise to the idea that legal rules are broken and the selling of the remaining animals gives rise to an image of an unscrupulous commercial firm. It is not sure whether it was the intention to damage the image of Gene Pharming at this stage in the debate. It had, however, this effect. By telling stories, one might damage the image of an opponent. A comparable case is at hand in 1993 with the mosaic[35] cow Ineke that gave birth 'illegally'. And later another side issue, about twenty embryos that were 'bred' in a single cow, has also drawn attention.

In a way, these issues are side issues, in another way, however, these issues all have to do with a general attitude towards animals. The way the Dierenbescherming has handled these issues, thereby damaging the image of an opponent, has not been criticised during the debate. It seems to be accepted practice as a kind of *circumstantial evidence*. The condition, however, seems to be that the stories told are true stories, that is to say they have to be evidence. So, the rule seems to be: the participants may use circumstantial evidence as long as this is true evidence.

- Regarding suggestive reasoning

There were, however, also actions that were deliberately meant for creating a negative image of Gene Pharming. Several opponents of animal biotechnology and in particular the Dierenbescherming accused Gene Pharming of having commercial intentions. This was a true story, but it was not the whole story. Of course, Gene Pharming was a firm operating in the market. Although it was at the time still heavily subsidised by the Ministry of Economic Affairs, it also had been and still was searching for market partners. The transgenic animals were up to producing marketable products for these market partners. But, it may be questioned whether a marketable product is a bad thing just because it is marketable? Or as Postma[36], a spokesperson of Gene Pharming, states: 'It is possible to earn money in an ethically sound way' (my translation, ET). Still, the suggestion that arises from the accusations is a different one. But, our society is also in need of market parties for efficiently producing all kinds of products and this is not considered unethical as such. Only certain attitudes of commercial firms and certain ways of producing things are considered unethical. This implies that establishing that a firm has a

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[35] A cow is called mosaic if only parts of the animal are transgenic. In this case only the placenta was. As a placenta will be destroyed after birth, this will be a border case. But, as the cow was in the experiment, she should not deliver without permission, was the opinion of the Minister.

[36] NRC 5 January 1991

commercial character is not enough. One has to look further. One of the reasons for naming Gene Pharming commercial might be the content of the Law on Animal Experiments[37]. This law forbids animal experiments for commercial reasons. But, this law only roughly indicates what should and should not be considered a commercial reason. The production of pharmaceuticals for humans and animals is not considered a commercial reason, food production is a border area, and the making of other products is considered a commercial reason. So, the activities of Gene Pharming were either non-commercial or border activities, while the suggestion raised in the newspapers was that their only intention was commerce. This means that the intentions of Gene Pharming were put in a bad light by calling them purely commercial. Only insiders will see the difference and only insiders have complained about this *suggestive reasoning.* Criticism on this point of the Dierenbescherming in particular has been expressed several times in the newspapers (see also my discussion of the first parameter in the former section).

Mid 1993, the Dierenbescherming raised its first accusations that Gene Pharming was up to produce infant feeding milk containing the transgenetically produced lactoferrin. Gene Pharming responded that it was a possibility they had mentioned before but did not confirm or refute the accusation. At the end of the year the accusations became stronger. Antoinette Hertsenberg of the Dierenbescherming[38] called Gene Pharming a liar, for not revealing the true objectives of its research, namely the production of mother's milk from cows, a million-dollar market: 'It wants to feed genetically modified milk to our babies' (my translation, ET). The way in which the Dierenbescherming, in this case, formulated its accusations appeals to feelings of fear among the public. It has a demagogic element in it which annoys a number of people (see also my discussion of the first parameter of Kettner in the former section).

Piet Borst[39], biochemist and contributor to the NRC, was the first to reflect upon the negative effects of the polarising attitude of the Dierenbescherming. He suggested that denouncing 'Herman the bull' and Gene Pharming by the Dierenbescherming will result in the avoidance of publicity by Gene Pharming that first was enthusiastic about publicity. He suggests that too much polarisation and too suggestive reasoning might scare of some participants, whose participation is appreciated for the sake of the debate

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[37] This reason is not mentioned in the newspapers

[38] Trouw 24 November 1993

[39] NRC probably summer 1991 (exact date unknown to me, E.T.)

There seems to have been an implicit rule in the debate: the participants should not unnecessary reason suggestively, polarise the debate, or rouse public sentiment.

- Regarding expressive elements

The Dierenbescherming started the year 1994 with a harsh and confronting poster-campaign. It showed the image of a 'Madonna and Child', but the woman is naked and has cow's udders instead of breasts, which you will only see at second sight. The poster in A0 size is exposed in waiting cabins at bus stops and at train-stations. The text was 'NEW – MOTHER'S MILK FROM COWS'. People were offended by the exposition of a woman with animal traits and by the suggestion that scientists were changing the genetic make up of humans[40]. They called the poster disgusting, insulting, or misleading. Apparently, the Dierenbescherming has gone too far in the eyes of quite a lot of people. The Dierenbescherming responded that this poster was meant to stimulate discussion. It claimed that it was not the poster that was shocking, but the developments in animal biotechnology and hence the message of the poster. It also claimed to have revealed the true aims of Gene Pharming, namely the production of mother's milk from cows[41]. Several letters to the editor supported the view of the Dierenbescherming[42]. Some of the opponents of the poster, however, even have appealed to the Advertising Code Foundation, who, however, decided that the poster was not misleading, as its message was clear, namely a warning against genetic engineering. So, the poster did not violate the formal standards for advertisements, but it still was confronting in the eyes of many people. The Dierenbescherming never used such a harsh poster again.

The Dierenbescherming, however, has used other posters and poster-like advertisements in the newspapers in its further campaign, but these did not trigger any reactions by the public. Probably these were not considered as confronting. It seems as if the criticised poster has triggered another message than was meant. The image was so strong that many people draw a conclusion from the poster that was not intended.

Since this subsection is about the impact of images, another image has to be mentioned, although it did not appear in the newspapers, namely an image in a VPRO documentary (1992). If people have seen this documentary they will hardly remember what is said, but they will remember the last scene in which a cat cuddles with the still young bull Herman. Whatever Gene Pharming has said about

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[40] Volkskrant 22 January 1994, NRC 22 January, Trouw 25 January, Volkskrant 29 January, Telegraaf 27 January, Parool 3 February, NRC 10 February

[41] E.g. Algemeen Dagblad 18 January, Trouw 18 January, Volkskrant 18 January, Parool 16 February, NRC 17 February

[42] E.g. NRC 22 January, Volkskrant 29 January, NRC 10 February.

'a normal animal, with just one extra gene' cannot have had the impact of this single image.
So, expressive elements are explicitly put in as a means to influence the public by showing a reality that challenges people to rethink their views. Such a message should be clear and not be very offensive. Otherwise expressive elements may give rise to criticism. So, the implicit rule has been: expressive elements may be used as a means to influence the public, but the message should be clear and the images should not be too offensive.

Doubts about the fruitfulness and sense of this debate

During the debate some participants have uttered doubts about the fruitfulness and sense of debates in general and this debate in particular. Some have asked for a public debate on animal transgenesis even *after* several years of debating[43]. Others have criticised the debate for not discussing the important issues[44] or for being too emotional[45]. People have complained that the debate was only on procedures instead of on the genetic engineering itself[46]. And more in general, it has been said that public debates do not have any impact or even have no use, because such debates always are irrational[47] or because ethical limits always will be readjusted[48]. It is suggested that it is impossible for the larger public to be involved in public debates. And there were many complaints about the quality of the debate[49].

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[43] E.g. the ethicists G. van Thiel, F. Brom and A. Huibers in De Staatscourant of 29 March 1995. Such a statement also was one of the outcomes of the consensus conference that was organised by the Dutch Organisation of Technology Assessment in 1993. The Dierenbescherming, the philosopher Henk Verhoog, and Wim Zeijlemaker, writer of a letter to the editor, have asked for a debate in 1992 (in subsequently De Telegraaf of 7 November, Het Parool of 28 November and De Volkskrant of 22 December). And it was the main reason for the Dierenbescherming to start a campaign on animal biotechnology in 1993.

[44] E.g. the philosopher Tjard de Cock Buning (NRC, 7 May 1991) and the patient's organisations (Algemeen Dagblad, 15 December 1992 and De Volkskrant, 7 April 1993).

[45] E.g. Andries Dijkstra (Telegraaf, 14 May 1991).

[46] E.g. Mr Drs. J. Staman of the Ministry of Agriculture, Nature Management and Fisheries (De Volkskrant, 20 November 1993)

[47] E.g. the philosopher Hans Achterhuis in De Volkskrant of 24 December 1994

[48] E.g. the philosopher Rene von Schomberg in Trouw of 8 January 1993. In his view ethical limits are just changing, and the outcome will always be arbitrary. In my view ethical limits are changing because of a learning process, and so will not be arbitrary. See also my criticism on Von Schombergs's view in *NVBe – nieuwsbrief*, 6 (1), 4-8

[49] During the debate on animal transgenesis most complaints were about a general lack of transparency; the slogans and one-sided information put forward by the Dierenbescherming; the withholding of information and therefore misleading of the other participants in the debate by the Minister of Agriculture and Gene Pharming. These kinds of complaints started at the end of 1992 and were generally uttered in 1993 en 1994.

After having written this book, I can reply most of these critics. I will start with what can be reconstructed as the expectations of the critics of public debates in the media; then I will put forward a more realistic view on public debates; and I will end with a reply to the critics. It is my hypothesis that these critics have too high expectations of public debates, which explains their disappointment in the process and in the outcomes.

A reconstruction of the expectations

One may wonder what people are expecting of a public debate if they come to the kinds of criticism that I have summarised above. From the criticism that was uttered, I deduce that these critics expect first and foremost that people will be seriously discussing *with* each other, that is to say that they will reason conscientiously, that they are seeking common ground and that they are oriented at mutual understanding and in the long run consensus. They want a rational debate, that is to say a discussion about reasons. They expect that is only spoken about the important issues, and not about side-issues and procedures. And they want impact. And they do not expect impact if people are quarrelling instead of trying to meet each others point of view. And they do not see impact because they think that politics will only listen if many people are involved and if their opinions are more or less convergent. What they observe is only limited involvement and are divided opinions. So, they conclude that this public debate, if any public debate, will not have impact.

A more realistic view

Let us start with the last point. If this image of a public debate is compared to what actually happens in any public debate, the judgement cannot be but negative. Even a broad public debate will not *reach everybody* let alone *involve huge numbers of people*. But, in my view, it will be enough if it reaches everybody who is interested in the topic and if it is open for people who want to have a say. The last condition is harder to meet than the first one. In this particular public debate, all news media have very well covered the issue at hand. One can also detect that there were individuals who have participated by writing a letter to the editor, but one cannot know how many people wanted to participate but that were denied entrance for whatever reason. What can concluded, however, is that the letters that were printed did not add new reasons to the debate. And one may assume that newspapers have printed the most interesting letters, which would mean that the letters that were not printed would not have added to the debate[50].

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[50] It would be interesting though to examine how papers deal with letters to the editor.

In my view, the public in a public debate in the media is first and foremost an audience. The participants (the actors) do not primarily want to influence each other, but they perform before the public as an audience in order to convince this public, that is to say to influence public opinion and to gain public support for their views. And they do so by lucid reasoning, by articulating differences, and by campaigning. I assume that they want to influence public opinion in order to have an impact on politics. This is exactly what many critics observe and this is what they criticise.
But is it a bad thing if the discussants are mainly performing before the audience of the broader public? Is not the forming of a well-informed, and therefore critical, public opinion, even if it is divided, a good thing as a result of a public debate? Is not listening to both sides an effective way of forming a considered opinion about an issue? And should not the reasons pro and contra be as clear as possible? And are not people capable of evaluating the quality of these reasons? And should not politicians be influenced by reasons in the first place in stead of by listening to broad majorities?

Public debates are not only about reasons. As I have stated in the former section, suggestive reasoning and campaigning are also part of public debates. Herewith, feelings and the playing on these feelings become more explicit an aspect of public debates. Here we arrive at the criticism that there is *much irrationality in public debates*. But, one may argue that if these feelings cannot be countered by the other party, there will be something in these feelings that cannot be voiced (yet) but that still has to be taken seriously. This means that there are elements in the formation of an (public) opinion that cannot be made rational (yet), but still are there and are powerfully there.
For instance, the notion that you cannot just do everything with animals has been a powerful notion from the start of the debate onwards. At first, this was almost the only thing that could be said about a very powerful feeling concerning the treatment of animals. After nine years of debating and a lot of philosophising, which has led to the implementation of new concepts like the intrinsic value of animals and animal integrity, this view is broadly accepted as a respectful view, but it still is only a bit more substantial than the expression of the powerful feeling the debate started with.
This reveals my idea of rationality. I agree with J. Habermas' pragmatic concept of rationality. According to Habermas, the rationality of an expression or an act depends upon the *criticisability* of the knowledge that is incorporated in this

expression or act[51]. This means that, in order to be rational, it has to be possible to defend or criticise an expression or act. So, a reference to a feeling that other people cannot understand and that cannot be made understandable is (for the time being) irrational. But if it can, with circumstantial reasoning, be made better understandable, it will also grow to be more rational. And this is what has happened during this debate with for instance the feeling that animals have to be treated respectfully and that animal transgenesis might be disrespectful to animals. People have tried to find words and they did find words that can communicate a feeling that could at first hardly be put into words

This points at an important element of what debates are about: namely trials to articulated the notions that are important to people, such as values, first impressions and emotions. In a debate, the *unvoiceable* will get articulated! Therefore, a lot of reasoning, a lot of trials, and a lot of repetitions are necessary to find the words that will make these notions understandable and so *criticisable*. So, the introduction of feelings and emotions should not be considered a degradation of a debate but a challenge for all debaters to examine, to phrase, and to criticise the source of these feelings.
And in my view, there has been this kind of rationality in the debate on Herman the bull. In particular, the trial to put vague notions considering animals into words has made this debate a fruitful one (see also chapter 5), and this has even led to the introduction of the concept of the intrinsic value into the Animal Health and Welfare Act.

But it is not the introduction of feelings and emotions only that may cause people to think that a debate is quite *irrational*, this might also be caused by the relatively small scope of some of the participants. In chapter 6, we have seen that many of the participants have argued from the scope of a particular practice, such as the veterinary practice, the biomedical production practice, the specialised food production practice, and the dairy farming practice. For a fruitful debate about an issue like animal transgenesis that has to do with all these practices, the participants have to be able to exceed the limits of their practice. This, however, is a great thing to be asked from participants as they will sincerely consider the scope of their practice the best one. But, because of the public character of a debate, the participants are forced to deal with reasons that are foreign to their practice. And this is what they have done. The result, however, has not crystallised yet, as I have reasoned in the last section of chapter 6. One may conclude that a new practice is

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[51] Habermas, J. *Theorie des kommunikativen Handelns. Band 1. Handlungsrationalität und gesellschaftliche Rationalisierung.* Suhrkamp Verlag. Frankfurth aM p. 13-24

emerging, but one may also conclude that one of the traditional practices will incorporate this new technology or that the classic practices will dissolve in certain aspects as general norms and values will prevail. In all these cases, however, the case is dealt with and it could only been dealt with by discussing reasons pro and contra. So, in this respect too the debate has resulted in more rationality.

A reply to the critics

By now, I am able to reply most of the critics:

- If people have the idealistic conception of a public debate that I have sketched above, many doubts and criticisms are understandable, but they are not to the point. The fruitfulness and sense of a public debate should not to be measured to the convergence of views and opinions but to the sophistication and rationality of the opinions of the participants and of the broader public at the end of the debate. And this is what we see: all participants have elaborated on their views and reasons and have listened to and responded to other reasons and views (see chapter 6 and this chapter).
- And if one expects that everybody has to be involved in a debate in order to make it a genuine public debate, than there will hardly be any public debates. In my view, however, it will be enough if everybody who is interested in the issue is able to follow the debate (as a spectator), that each voice will be heard, and preferably that everyone who wants to participate can do so. There is no reason to believe that people could not follow the debates or that some voices were not heard. My material does not provide information about the non-participation of people who have wanted to participate.
- If critics are asking for a public debate after several years of debating than what is this book than about?
- The same can be replied to the criticism that the debate was only about procedures. This book shows that there was more than a debate about procedures only.
- If impact has to do with a convergence of opinions only, than indeed an average public debate will not have much impact as a debate will seldomly result in a more or less unified opinion. But, I do not think that this is what public debates are about. In my view public debates are about public opinion formation in the first place and therefore about reasoning and about the rationalisation of at first only partially articulated notions. And public debates have impact because people, and politicians, cannot but deal with the reasons that are put forward (see also chapter 1 and the first part of this chapter).
- I sense a rather sceptical attitude in the criticisms of Hans Achterhuis and René von Schomberg. These two philosophers advance an intriguing counter-position to

mine. The controversy between such a sceptical and my democratic position is extremely difficult to solve conceptually. My book, however, is one piece of evidence in favour of a democratic position. And it shows the importance of empirical work as well!
- That leaves me with the criticism that the participants have 'misbehaved' and therefore distorted the debate. Especially the lack of transparency by Gene Pharming and the Ministry of Agriculture, as well as the suggestive campaigning of the Dierenbescherming have been an item in the debate. It is obvious that these participants sometimes went one step too far in their public performance, but it should be stated as well that they have taken the criticisms on their performance seriously and have replied to them and also have adjusted their behaviour. Transparency has become a serious item in public organisations as well as in firms during the last decade. And the Dierenbescherming has learned that too harsh a campaign may turn against itself (see the first part of this chapter).

Conclusion: criteria for the evaluation of public debates

In the second section, I have made a rough differentiation between deliberations and public debates before an audience. A deliberation is oriented at mutual understanding and at convincing each other. Therefore conscientious reasoning and seeking common ground is essential. A public debate before an audience, however, is primarily oriented at gaining public support and therefore at convincing the public. The reasoning will be lucid and differences will be articulated. If people do not recognise this difference they will not be able to judge a public debate adequately, as we saw in the former section.
The criteria Matthias Kettner has developed for evaluating a deliberation will therefore not be immediately applicable for the evaluation of a public debate as well. As we have seen in the third section, these criteria do play a role in the evaluation of a public debate, but have to be adapted to the specific characteristics of public debates. From the debate at hand, it transpires, that people apply specific criteria for evaluating public debates that are consistent with the nature of public debates. So, people seem to be implicitly aware of the differences between a deliberation and a public debate and will therefore not be as strict in their judgement in case of a public debate. People tackle each other for their conduct while (implicitly) referring to these criteria. The criticised feel called to account, and will defend themselves. An explication of these implicit debating rules might help people to better understand and express what they are doing and what sometimes is going wrong.

I will summarise the criteria that I have reconstructed from the debate at hand:

A. Reasoning

- all participants should reason to substantiate their views
- all participants should listen and respond to criticism
- all participants should criticise the views and reasons of others if this will illuminate the issue at stake

And some extra rules regarding 'reasoning with other means'

- the participants may use circumstantial evidence as long as this is true evidence
- the participants should not unnecessary reason suggestively, polarise the debate, or rouse public sentiment.
- expressive elements may be used as a means to influence the public, but the message should be clear and the images should not be too offensive.

B. Fusion of moral horizons

- the participants do not need to strive after a fusion of moral horizons, but they have to show understanding for other points of view
- the participants should strive after progress in their points of view

C. Comprehensive inclusion

- the participants should acknowledge the interests of relevant others, although they are allowed to argue in favour of a specific interest

D. Bracketing of power differentials

- all views should be heard, which does not imply that everybody should be heard

E. Non-strategic transparency

- the participants may time information
- the participants should not break off communication
- nowadays even market parties should be open about their objectives
- people may seek/use allies, but these should be treated respectfully
- political administrators should fully inform the chosen politicians to whom they are accountable.

8. Conclusion.

In the introduction, I indicated that my motivation for writing this book was to better understand public debates. My guiding intuitions were that debating in public makes sense; that debates may pass off well; that they can have impact; and so be successful. I have chosen to investigate a single, but interesting debate. I had the strong impression that the debate on animal transgenesis, with Herman the bull as its central case, has been a successful debate. It has had continuity. The debate was imbedded in a more comprehensive debate on animal health and welfare to which it has added new substantiations of recently developed concepts. The various aspects of the case were discussed over a period of time which has resulted in a development in argumentation. During this time span the participants have reacted to each other's points of view, reasons, and lines of reasoning. All relevant aspects and considerations seem to have been discussed. The inputs of the various participants were also discussed with respect to the communicative quality of these inputs (that is to say there has been a meta-discussion as well). And the debate has had impact on public opinion formation, on the development of ethical standards, and on policy formation.
In this book, I have substantiated these intuitions by way of reconstructing the debate at hand. In this way, I have gained insight into what has made this particular debate a successful debate. By analysing the characteristics of this debate, I have also got hold of some traits of successful public debates in general.
It may be questioned what the use is of arriving at a better understanding of public debates. It is my conviction that insight in what you are actually doing and what the implicit rules are that guide these actions, will lead to more adequate and better considered actions. This applies at least to myself.

My book started with a number of questions about how to understand public debates in general and the debate on animal transgenesis in particular. I have restricted myself to the debate in the written media as this debate facilitates a broad public opinion and will formation. And I have taken the debate itself as a point of departure. This means that my work is empirically based and that I have adopted an inductive approach. I have tried to let the material speak while having theories and heuristic devices in mind.

My guiding questions in analysing the debate on animal transgenesis were directed at the substantiation of the claims I have made above:

- what has kept this debate going?
  - . what has been the internal dynamics of the debate?
  - . what were the external influences that have kept the debate going?
  - . what has been the role of the participants?
- what has been the development regarding the content of the debate?
  - . have any new concepts been suggested and substantiated?
  - . has there been progress in the positions and the lines of argumentation of the participants?
  - . what has been the influence of the participants on each other?
- what has been the impact of the debate?
  - . have the members of the broader public been enabled to form a considered opinion?
  - . has it had any impact on the development of ethical standards?
  - . has it had any impact on political decision making?
- has the debate passed off well?
  - . were participants receptive to critiques of their behaviour?
  - . have the participants taken the debate and the audience of the broader public seriously?
  - . have all relevant views been heard?

In reconstructing the debate on animal transgenesis, I did not only get a hold on what has actually happened, but also on what has made this debate a successful debate. From this reconstruction, I have derived a number of characteristics of a successful debate. The five chapters that build up the results of my research are aimed at answering one or several aspects of these questions. Chapters 3, 4, and 6 are aimed at answering aspects of the first question (what has kept the debate going). Chapters 5 and 6, and partly chapter 7 are aimed at answering the second question regarding the content of the debate. The impact of the debate is discussed in chapter 5 and 6. Aspects of a reflective attitude are the subject of chapter 7.

Main findings

The internal dynamics (chapter 3)

A media debate differs from other debates, as for the media topicality is a major motivation to publish about an issue. In particular a media debate like the one on animal transgenesis, which has lasted for some nine years, is more complex than

one would assume beforehand. Eleven episodes could be distinguished that were almost all caused by specific events. In almost each round a new issue has popped up for discussion, although many issues came back in later rounds. Most rounds had a well demarcated closure too. Only two round just ended. The Herman project (as *a* case) has been a necessary focal point of the debate and has incited the participants to develop their opinions and lines of reasoning. Immediate causes seem to be necessary to make the debate urgent. The debate has been an ongoing comment on the developments in the project of Gene Pharming ('the urges'). The continuation of the Herman project has been a cause of internal dynamics in the debate. Such a public urge seems to be needed for stimulating a public debate and for the development of a public debate.

The roles of the participants (chapter 4)

A public debate can be made, or not, by its participants. They bear the responsibility of bringing forward the relevant reasons in order to arrive at a well-informed and thus a well-considered public opinion. First and foremost, a good and open flow of information is needed to inform the public, which requires that:

- the actors that dispose of the information (in our case Gene Pharming and the Ministry of Agriculture) have to provide the information to the public (openness, transparency);
- politicians, interest groups, journalists, experts, et cetera have to point out the issues in dispute;
- the media have to spread the information and the contested issues.

In this debate, the Dierenbescherming had a major role in pointing out the contested issues. Compared to individual citizens or individual experts, an organisation like the Dierenbescherming will be better able to hold out long enough to keep a debate going. The duration of the debate as well as the number of aspects discussed reveals that the information flow in this debate has been adequately provided.

Other debates have influenced this pubic debate in the media. Political debate in Parliament has structured part of the debate in the media, as some rounds of the discussion were initiated by the process of legislation and were explicitly directed at influencing parliamentary discussions. The media reports of these parliamentary discussions hardly contained reasoning, unfortunately.

Many expert-meetings have taken place about many aspects of the issue. The results of these expert debates have been communicated to the public by way of interviews and by opinion page articles. The reports of expert committees advising the Minister of Agriculture have had an input in the public debate in the media the same way and also by way of expert comments on these reports. The second

Schroten committee explicitly turned itself to the media for stimulating public debate.

The underlying controversies (chapter 5)

In chapter 5, I have reconstructed three different positions with respect to the evaluation of *animal biotechnology in general.* The most dominant positions were the 'yes, if a limited set of conditions is fulfilled' position of Gene Pharming and its allies and the 'no, unless there are good reasons to do so' position of the Ministry of Agriculture and its allies. The 'no' of the Dierenbescherming and its allies has not been central to the discussion, but has played a role in the continuity of the debate. The two major positions originated from different perceptions of the moral impact of animal biotechnology, namely the recognition or denial of the *intrinsic value* of animals and more specifically of *animal integrity* as a relevant consideration for the appraisal of animal biotechnology. These positions resulted in different questions to be raised with respect to this new technology.

The concepts of the intrinsic value of animals and animal integrity were put forward quite soon after the start of the debate and were further articulated during the debate. These concepts still are integral to the bio-ethical framework regarding animals. The intrinsic value of animals and in particular the 'no, unless' principle are incorporated in the Animal Health and Welfare Act and are basic to the Decree on Animal Biotechnology.

So, the influence of the discussions on the development, articulation, and substantiation of ethical standards regarding the treatment of animals and the impact of these standards on policy formation have become clear. To have such an impact, a development regarding content of the debate is necessary. During this debate, a change in the way of thinking about treating animals has occurred by way of a discussion about the intrinsic value of animals and about animal integrity. The notion of caring for animals has changed in meaning. This change cannot but have wider impact as well.

Interacting practices analysed from an external point of view. (chapter 6)

In chapter 6, I have concentrated on the discussions about some specific *applications* of animal transgenesis in cattle. These discussions have to do with possible contents of the 'if' and the 'unless' discussed in the former chapter. The way in which animals are conceived and treated does not only depend on general norms and values regarding animals, but also on the inherent norms and values of the practices in which they are kept and thus to which they 'belong'. Animal transgenesis as a new technology did not easily fit in with one of the existing practices of animal keeping. Animal transgenesis for the production of mastitis

resistant cattle could not hook on to the existing practice of cattle-breeding nor to the veterinary practice and so could not find approval. Nor was the production of lactoferrin via cow's milk to be used in infant formula or clinical food able to hook on to the practice of dairy cattle-breeding or the biomedical production practice of medicine. In both cases a new practice did not develop either.
The production of human medicine via cow's milk did not fit in with an existing practice as well. Here, however, the discussion went on, as the production of human medicine was broadly considered a valid reason for making transgenic animals. This discussion has resulted in a way of handling the production of human medicine in cattle, but has not (yet) given rise to the subsumption of animal transgenesis under a specific practice. There still are three options: an existing practice might be extended so as to include these transgenic animals; or a new practice may emerge. But it is also possible that these new standards will be incorporated in some general standards concerning animals and that the idea of practices is passed. At the end of the debate (1997) this had not been settled yet.
The attempt to subsume this new technology under an existing practice and the tensions and discussions this has evoked have been a source of dynamics in the debate. The case-by-case discussions about the different applications have set a number of limits regarding these (kinds of) applications.

The process of debating (chapter 7)

Although a public debate is first and foremost oriented towards convincing the broader public, it will have many characteristics of a deliberation as well. To be taken seriously by the public as an audience, the actors have to reason, have to respond to reasons, have to show that they acknowledge other interests, that they understand what others put forward, that they do not exclude other actors and views from the debate, that they are as open as possible, that they are neither making things up nor unnecessarily rousing public sentiment, and that their messages are clear and not too offensive. And this is roughly what we could witness in the debate on animal transgenesis. Therefore, it can be concluded that the participants have been enabled to form a considered opinion.
Most debating rules were respected. But there has been critique as well on the major participants. At several occasions the participants have violated the implicit rules of proper debating. Gene Pharming and the Ministry of Agriculture were criticised for not having fully informed parliament and the public. The Dierenbescherming was criticised for a poster that was considered too confronting.

In addition to criticism of the behaviour of the participants, doubts were uttered about the fruitfulness and sense of debates in general and this debate in particular. In my discussion of these doubts, I have stressed that public debates should not be

mistaken for deliberations. Public debates are first and foremost directed at convincing the public. Mutual understanding and in the long run consensus reached by way of careful reasoning and seeking common ground may be a result of such a debate, but it is not its primary objective. The participants of a public debate are aimed at gaining public support and at impact by way of lucid reasoning, articulating differences and seeking coalitions. Nevertheless, there will be many deliberative elements in a public debate and the inherent rules of deliberations can be applied to public debates, but not too strictly. I have proposed some modifications in chapter 7.

Conclusions

My central claim in this book was that, although this debate has not been perfect, it still is an example of how a debate can be. We have seen that for a debate in the media to have continuity four elements are necessary, to wit: an issue (an urge); a flow of information (and transparency); the pointing out of relevant issues (mostly by an organisation that takes this responsibility); and good coverage by the media. For a development regarding the content, substance for discussion is needed. In this case new concepts have been developed for this new situation in which the genome of animals is changed. These changes of the genome do not always affect the health and wellbeing of these animals, but many people still feel uneasy about them. A discussion has arisen about how this new technology fits in with traditional ways of handling animals. By criticising each other and by putting forward alternative views, the participants have stimulated each other to better articulate their views in front of the public. The debate also has had impact: ethical standards and legislation have been adjusted. A debate can pass off quite well, as we have seen in chapter 7. Violations of the inherent debating rules have been criticised and it is observable that the participants have realised that it is necessary (sometimes they have even promised so) to behave according to these rules.

Supplement 1. List of abbreviations[1]

AHWA = Animal Health and Welfare Act (Gezondheid en Welzijnswet voor Dieren)

AKB = Alternatieve Konsumenten Bond (Alternative Consumers Association)

CBD = Commissie Biotechnologie bij Dieren (Committee Biotechnology in Animals)

CDA = Christen Democratisch Appel (Christian democrats)

CEBD = Commissie Ethiek en Biotechnologie bij Dieren (Committee Ethics and Biotechnology in Animals) (the Schroten Committee)

D66 = Democraten 66 (liberals)

GPV = Gereformeerd Politiek Verbond (small Christian party)

GrL = GroenLinks (left wing environmentalists)

ID-DLO = Instituut voor Dierhouderij en Diergezondheid van de Dienst Landbouwkundig Onderzoek van het Ministerie van Landbouw (Institute of Animal Science and Health of the Agricultural Research Department of the Ministry of Agriculture)

IVO-DLO = Instituut voor Veeteeltkundig Onderzoek van de Dienst Landbouwkundig Onderzoek (Institute of Animal Husbandry Research of the Agricultural Research Department))

KNAW = Koninklijke Nederlandse Academie voor de Wetenschappen (Royal Dutch Academy for the Sciences)

NIABA = Nederlands Industriële en Agrarische Biotechnologie Associatie (Dutch Industrial and Agrarian Biotechnology Association)

NIBI = Nederlands Instituut voor Biologen (Dutch Institute for Biologists)

NIPO = Nederlands Instituut voor Psychologisch Onderzoek (Dutch Institute for Psychological Research)

NOTA = Nederlandse Organisatie voor Technologisch Aspectenonderzoek (Dutch Organisation for Technology Assessment) later: Rathenau Inistute

NRC = Nieuwe Rotterdamse Courant (New Rotterdam Newspaper)

NWO = Nederlands Wetenschappelijk Onderzoek (Dutch Research Organisation)

PPR = Politieke Partij Radicalen (environmentalists)

PvdA = Partij van de Arbeid (social democrats)

RPF = Reformatorisch Politieke Federatie (small Christian party)

SGP = Staatkundig Gereformeerde Partij (Christian fundamentalists)

vCEEGMD = voorlopige Commissie Ethische Evaluatie van Genetische Modificatie bij Dieren (provisional Committee Ethical Evaluation of Genetic Modification of Animals) (Schroten 2 Committee)

vCOGEM = voorlopige Commissie Genetische Modificatie (provisional Committee Genetic Modification)

VVD = Volkspartij voor Vrijheid en Democratie (conservatives)

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[1] My translations, ET.

Supplement 2. Example

D24: NRC 051290 - news item

I: a genetically engineered calf is born	I8
P: this is a good thing to do	P1
R: since it will have an inherited enhanced resistance against mastitis	A1a & A23a
A: IVO-DLO - Dr.ir. P. Booman, and GPE - Dr. H. De Boer	
R: since mastitis is a general cattle disease	
R: since mastitis diminishes milk yield	
R: since mastitis affects the tenability of milk	
R: since mastitis affects the taste of milk	
R: since mastitis affects the productivity of farms	

D25: Het Parool 071290 - background article by Hans van Maanen

I: a genetically engineered calf is born	I1
P: this is morally problematic	P6
R: since this is like making Frankenstein	A24
A: Lekker Dier	P28
P: this should be forbidden	A3
A: Dierenbescherming	P3
P: there are no moral objections	A0
R: since this is in line with traditional breeding technology	
A: no actor mentioned	
R: since this is only faster and more secure than traditional breeding techniques	I8
I: a transgenic calf is born that will produce extra lactoferrin in its milk as to be protected against mastitis	P1 A0
P: this is a good thing to do	
R: since this is a prominent cow's disease	
R: since cows produce too little lactoferrin	
R: since it is possible that cows have lost their ability to produce sufficient lactoferrin	
R: since this might restore the 'natural' level of the production	I1
I: a calf is born	P6
P: it is morally problematic	A0
R: since this is perhaps one step too far	
A: no actor mentioned	
R: since it is unknown how God has meant the cow to be	
R: since this should be discussed first	P7
R: since it might harm the health and well-being of the animals	A0
P: a public debate is needed	
R: since the pros and cons should be evaluated	

Supplement 3. The actors in order of appearance

A0	no actor mentioned, 'opinions', 'critics', 'insiders'
A1	Gene Pharming (GP, fist called Gene Pharming Europe and later called Pharming)
A1a	GP - Herman de Boer (scientific manager)
A1b	GP - drs. O. Postma (business manager)
A1c	GP - Dr R. Strijker (project manager)
A1d	GP - PR-buro (R. Praaning)
A1e	GP - ir. G. Hersbach
A1f	GP - Dr D. Van Beynum (scientific manager)
A1g	GP - Jan Nuyens (researcher)
A2	Ministerie van Landbouw, Natuurbeheer en Visserij (LNV) [Ministry of Agriculture, Nature Management and Fisheries]
A2a	LNV - Minister Braks
A2b	LNV - State Secretary Gabor
A2c	LNV - Minister Bukman
A2d	LNV - mr. P. Ritsema
A2e	LNV - mr. Drs. J. Staman
A2f	LNV - lawyers of LNV
A2g	LNV - Minister van Aartsen
A3	Dierenbescherming (DB) [the Dutch Association for the Protection of Animals]
A3a	DB - drs A.J. (Ton) Dekker (secretary)
A3b	DB - Reilingh (president)
A3c	DB - Antoinette Hersenberg (staff member)
A3d	DB - drs. Michiel Linskens (staff member)
A3e	DB-inspection - mr. D. Th. Van Oers
A4	Christelijke Plattelands Jongeren (CPJ) [Christian Rural Youngsters]
A5	St. Natuur en Milieu (SNM) [Foundation Nature and Environment]
A5a	SNM - Lucas Reynders (president)
A6a	some researchers at the PAN conference
A6b	medical researchers
A7	-- (combined)
A8	the Second House of Parliament
A8a	a majority in Parliament
A8b	a minority in Parliament
A9	D66 (liberals)
A9a	D66 - Tommel
A9b	D66 - Ter Veer
A9c	D66 - Tiesinga
A10	RPF (small Christian party)
A11	PPR (environmentalists) > GrL
A11a	PPR - Ria Beckers
A12	CDA (Christian Democratic Party)
A12a	CDA - van Noord
A12b	CDA - minority
A12c	CDA - Laning-Boersema
A12d	CDA - Reitsma
A12e	CDA - de Jong
A13	PvdA (social democrats)
A13a	PvdA - Swildens-Rozendaal
A13b	PvdA - Huys
A14	VVD (conservatives)
A14a	VVD - Blaauw
A15	a letter to Parliament by some biotechnology firms
A16	Wageningen Agricultural University (WAU, later called Wageningen University)
A16a	ir. E. Kanis (WAU)
A16b	Dr. J. Noordhuizen (WAU)
A16c	Dr. R.R. Wiepkema (WAU, and member of the pCEEGMA)
A16d	Dr. Ir. E.W. Brascamp (WAU)
A16e	Dr. Jaap Visser (WAU)
A17	Dr. V. Pursel

A18 Dr. Wagner
A19 Michael Fox of the Humane Society (USA)
A20 Commissie Ethiek en Biotechnologie bij Dieren (CEBD) [Committee Ethics and Biotechnology in animals] (also called the Schroten Committee)
A20a CEBD - Dr Schroten (president)
A20b CEBD - Dr Tj. De Cock Buning (also vCEEGMD member)
A21 GroenLinks (GrL) (left wing environmentalists)
A21a GrL - Beckers
A21b GrL - Ojik
A21c GrL - Vos
A22 Michiel Linskens (researcher for the NOTA, i.e. the Dutch Organisation for Technology Assessment, later called the Rathenau Institute)
A23 IVO-DLO (Institute for Animal Husbandry Research of the Agricultural Research Department of the Ministry of Agriculture; later called ID-DLO)
A23a IVO-DLO - Dr. Ir. P. Booman
A24 Lekker Dier [Tasty Animal}
A25 Utrecht University, veterinary department (UU)
A25a Dr. A. Brand (UU)
A25b Drs. Bart Rutgers (UU)
A25c Drs. F. Grommers (UU)
A25d Dr. R.A.H. Willemsen (UU)
A25e Dr. L.F.M. van Zutphen (UU)
A26 Nederlands Agrarisch Jongeren Kontakt (NAJK) [Dutch Agrarian Youngsters]
A27 Den Hollander (interviewer)
A28 Werry Crone
A29 Queen Beatrix
A30 Centrum voor Bioethiek en Gezondheidsrecht (CBG) [Centre for Bio-ethics and Health Law]
A30a CBG – Dr. J. Vorstenbosch
A30b CBG - G. Van Thiel, F. Brom and A. Huibers
A31 SGP (Christian fundamentalists)
A31a SGP - Bas van der Vlies
A32 voorlopige Commissie Genetische Manipulatie/modificatie (vCOGEM)[temporary Committee Genetic Engineering]
A32a vCOGEM – Dr. J.E.N. Bergmans (president)
A33 Nederlandse Industriele en Agrarische Biotechnologie Associatie (NIABA)
A33a NIABA - J. Veldhuyzen
A33b NIABA – Dr. G.M.A. van Beynum
A34 voorlopige Commissie Ethische Evaluatie van Genetische Modificatie bij Dieren (vCEEGMD) [provisional Committee Ethical Evaluation of Genetic Modification in Animals] (also called Committee Schroten 2]
A34a vCEEGMD - a majority (5 members)
A34b vCEEGMD - a minority (3 members)
A34c Dr. Henk Verhoog (member of vCEEGMD, also CEBA member, also RUL)
A34d Dr. L. Layendecker (member of vCEEGMD)
A34e Dr Schroten (president of vCEEGMD)
A35 Het Parool
A35a Het Parool - chief-editor
A35b Peter Vermij (journalist of Het Parool)
A36 Andries Dijkstra - columnist Telegraaf
A37 Piet Borst - columnist NRC and biochemist
A38 Trouw - chief editor
A39 J. van de Zwan
A40 Roelof Vennik
A41 Nico Baaijens
A41a Marcel Kuiper
A42 Thijs Visser - bioethicist
A43 patients organisation

A43a Margreet van Bladeren of the Rheumatics Patients Organisation
A43b Cees Smit of the Nederlandse Vereniging voor Hemofilie Patiënten (NVHP) [Dutch Association of Haemophiliacs]
A44 Erica Poot
A45 Jacqueline Schuurmans
A46 GPV (small Christian party)
A47 'Herman the bull' as the hypothetical writer of a poem
A48 Wim Zeijlemaker
A49 Rene von Schomberg, philosopher
A50 P. Van Duyn, former professor in cellular biology
A50a Jos Kooten, physician in training
A51 J. Ten Lindert, ethicist
A52 Dirk van den Brink, ethicist
A53 Mtg. E. Sgreccia, bio-ethicist and prelate of the Roman Catholic Church
A54 >> 43b
A55 the First House of Parliament
A56 A.C. van Goederen
A57 Gonnie Koot, editor of the AD
A58a judge van Delden (court)
A59 Dutch public opinion
A60 a lay panel at a consensus conference
A60a a majority (15) of the lay panel
A60b a minority (6) of the lay panel (former A61)
A62 Wim van Gelder, president of a parliamentary committee
A63 children in an essay contest (four cited)
A64 Johan Geveke (member of the lay panel)
A65 Nederlandse Organisatie voor Technologisch aspecten onderzoek (NOTA) [Dutch Organisation for Technology Assessment] later called Rathenau Institute
A65a José van Eijndhoven, manager of the NOTA
A66 Bas van Kleef, editor of the Vk
A67 Dr. R. Furth
A68 Marian Enderink
A69 two Calvinists heard on the radio
A70 Youp van 't Hek
A71 A.E. Buteyn and M.J. Buteyn
A72 Drs. D.J. van der Graaf
A73 Willem Kuipers
A74 Kees Koopman (n.b. manager of the NIBI)
A75 Irene Jansen
A76 Herman Eetgerink
A77 Ministry of Economic Affairs
A78 Hajo Canter Cremers
A79 Dr. F.L. Meijler
A80 Nutricia
A80a Nutricia - Muntjewerf
A80b Nutricia - J.C.T. van der Wielen (president)
A81 Wim Köhler (journalist of NRC)
A82 Anja Hazekamp
A83 Reclame Code Commissie [Advertisement Code Committee]
A84 Leiden University (RUL)
A84a Dr. Herman de Boer (RUL)
A85 SP (Socialist Party)
A85a SP - Poppe
A86 Alternatieve Konsumenten Bond (AKB) [Alternative Consumer's Organisation]
A87 NRC - chief editor
A88 W. Th. Hermans
A89 Telegraaf - chief editor
A90 Dilian Hos
A91 De Volkskrant (Vk)
A91a Vk- chief editor
A91b Vk - Rik Nijland (journalist)
A92 Algemeen Dagblad (AD)
A92a AD - chief editor
A94 Wim Mey (journalist)
A95 Committtee Kooreman (provisionally advisory committee of the Ministry of Agriculture on alternatives for animal transgenesis)
A96 Campina Melkunie (dairy firm) and other Dutch dairy firms
A97 Bas van Kleef (journalist)
A98 immunologists

A99 K. Glastra van Loon and K. Kuiper authors of a book on Herman the bull
A100 Dr. Hans Achterhuis
A101 Corrie Visser
A102 FinnGene
A102a Jänne of FinnGene
A103 Dr. Paul Krimpenfort - former researcher of Gene Pharming
A104 Koninklijke Nederlandse Academie voor Wetenschappen (KNAW) [Royal Dutch Academy for the Sciences]
A104a Dr. A. Van der Eb (president of the Committee Transgenic Animals of the KNAW)
A105 Elly von Jessen
A106 Ministerie van Volksgezondheid, Welzijn en Sport [Ministry of Health, Welfare, and Sports] (VWS)
A106a Drs. P. De Greeve of the section animal experiments of the Ministry of VWS
A107 Ministerie van Volkshuisvesting, Ruimtelijke Ordening en Milieu (VROM) [Ministry of Housing, Rural Planning, and Environment]
A108 Stichting voor Nederlands Wetenschappelijk Onderzoek (NWO) [Organisation for Dutch Scientific Research]
A109 medical funds
A110 Erasmus Universiteit Rotterdam (EUR)
A110a Dr. Bootsma (EUR)
A111 Katholieke Universiteit Nijmegen (KUN)
A111a Dr. B. Wieringa (KUN)
A111b Dr. H. Zwart - manager of the Centre for Ethics of the KUN (CEKUN)
A112 Nederlands Kanker Instituut (NKI) [Dutch Cancer Institute]
A113 'cattle breeders'
A114 heard on the radio (a rumor)
A115 Marije Gaell, care-taker of Herman the bull
A116 Gist Brocades and Agennix
A117 Organon
A117a Organon - Dr Joop de Graaf
A118 Collagen
A118 Collagen - D. Forster
A119 Tijdsein of the EO (radio programme)
A120 Dutch government / the Council of Ministers
A121 Commissie Biotechnologie bij Dieren (CBD) [Committee Biotechnology in Animals]
A121a Dr. Plasterk (member of the CBD)
A121b Dr. Schroten (president of the CBD)

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05 April, *NRC Handelsblad*, Jan Bonjer, Nieuw front van critici tegen genetische manipulatie dier

26 April, *De Volkskrant*, anonymous[1], Kamerleden wensen verbod op samenvoegen diersoorten

26 April, *Trouw*, Milja de Zwart, Tweede Kamer tuigt dierenwet op alsof ze een kerstboom is

27 April, *De Volkskrant*, anonymous, Braks voorlopig niet van plan in te grijpen in biotechnologie. Minister wil eerst advies commissie afwachten

27 April, *Trouw*, anonymous, Braks wil geen 'scheit'

27 May, *Algemeen Dagblad*, anonymous, Genetisch veranderd vee

22 June, *NRC Handelsblad*, anonymous, Wageningen wil supervarken kweken

22 June, *NRC Handelsblad*, Jan Bonjer, Produktie van een beter beest. Bedrijven azen op toepassing van genetische manipulatie bij boerderijvee

14 July, *De Volkskrant*, Bas van Kleef, Koeien geven straks wellicht moedermelk. Leids bedrijf beproeft DNA - methode

30 November, *Algemeen Dagblad*, anonymous, no title (Binnenland kort)

11 December, *Staatscourant*, anonymous, 'Neen, tenzij' uitgangspunt bij Wet genetische manipulatie. Minister Braks bij viering 125 jaar Dierenbescherming

11 December, *Staatscourant*, anonymous, Voorzitter Reilingh: Dierenbescherming absoluut tegen genetische manipulatie dieren.

1990

08 May, *de Volkskrant*, anonymous, Dierenbescherming tegen wet genetische manipulatie

08 May, *Algemeen Dagblad*, anonymous, no title

10 May, *Trouw*, Milja de Zwart, Nieuwe Hollanditis: zorg over biotechnologie

10 May, *NRC Handelsblad*, anonymous, Commissie wil toezicht op biotechnologie bij dieren

10 May, *Staatscourant*, anonymous, Aanbeveling tijdelijke Commissie van Advies Ethiek en biotechnologie bij Dieren: Voer 'nee, tenzij-beleid' voor recombinant-DNA-technieken

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[1] Anonymous articles usually are news items; articles with a name added to it may be background articles written by a journalist, interviews by a journalist, opinion page articles, or letters to the editor.

10 May, *De Volkskrant*, anonymous, Commissie vraagt publieke discussie over biotechnologie
11 May, *Staatscourant*, anonymous, Dierenbescherming in reactie op het 'nee, tenzij-beleid' voor biotechnologie: Wie waarde van dier erkent verwerpt DNA - technieken zondermeer.
12 May, *De Volkskrant*, Maarten Evenblij, Het kan, maar mag het?
19 May, *Telegraaf*, anonymous, Geen geknutsel met erfelijk materiaal
22 October, *Het Parool*, anonymous, Beperk genetische manipulatie dieren
10 October, *De Volkskrant*, anonymous, Kamer wil op korte termijn regels voor biotechnologie. Staatssecretaris akkoord met vergunningensysteem
05 December, *NRC Handelsblad*, anonymous, Eerste genetisch gemanipuleerde kalfje geboren
07 December, *Het Parool*, Hans van Maanen, Kalf met nieuw gen opent discussie. Vraag naar wat God bedoelde op het moment dat hij de koe schiep
07 December, *NRC Handelsblad*, anonymous, Kamer 'niet afwijzend' tegen gemanipuleerd kalf
08 December, *NRC Handelsblad*, anonymous, Extra weerstand betwijfeld bij kunstmatig veranderd kalfje
11 December, *De Volkskrant*, Bart Rutgers, Blijdschap over geboorte Adriana is geheel voorbarig
11 December, *Algemeen Dagblad*, Pieter den Hollander, Wetgever hobbelt achter Gouden Kalf aan. Roep om grenzen stellen bij manipuleren van erfelijkheid
12 December, *Trouw*, Martin van der Laan, Adriana moet zich nog voorstellen
15 December, *De Volkskrant*, Bas van Kleef, Het paard achter de wagen
18 December, *Trouw*, anonymous, Kabinet kan niets aan experiment met koe doen
22 December, *Trouw*, Werry Crone (poem), Laat de ezel
24 December, *NRC Handelsblad*, anonymous, Kalf Adriana zwaar bewaakt
29 December, *NRC Handelsblad*, anonymous + cartoon,
27 December, *all newspapers*, Kersttoespraak van koningin Beatrix. Koningin waarschuwt in kersttoespraak tegen genetische manipulatie.
28 December, *NRC Handelsblad*, anonymous, Genetische proef geen succes
28 December, *NRC Handelsblad*, anonymous, Kunstmatig 'gen' werkt niet bij proef kalfje
29 December, *Trouw*, anonymous, DNA tegen uierontsteking wil niet aanslaan

1991

05 January, *NRC Handelsblad*, Max Paumen, Discussies om het genetische gemodificeerde kalf
25 January, *NRC Handelsblad*, R.E.P. de Ranitz, Kankermuis
17 April, *Telegraaf*, Parick van Weerdenburg, Vraagtekens bij behandeling nieuwe dierenwet door kamer. 'Er spelen te veel belangen mee'
23 April, *Trouw*, Bas van der Vlies, SGP bang voor het hellend vlak van de gentechnologie
26 April, *De Volkskrant*, anonymous, Manipulatie met genen bij koe voortgezet
26 April, *NRC Handelsblad*, anonymous, Bukman wijst manipulatie met menselijk DNA af

30 April, *De Volkskrant*, Gert Riphagen, Bedrijf wil koeien aborteren na mislukte proeven. Ministerie steekt stokje voor omstreden plannen Gene Pharming
01 May, *Telegraaf*, anonymous, Verbod op verkoop bij experimenten betrokken koeien
01 May, *Trouw*, anonymous, Ministerie weigert abortus proefkoeien
01 May, *De Volkskrant*, anonymous, Beckers eist opheldering over proeven met omstreden koeien
01 May, *De Volkskrant*, Gert Riphagen, Landbouw worstelt met uitleg over mens- en dieridentieke genen
01 May, *NRC Handelsblad*, anonymous, Oppositie wil nieuw debat genetische manipulatie
02 May, *Trouw*, anonymous, 'Niet nog meer regels voor genetische manipulatie'
02 May, *De Volkskrant*, anonymous, Directeuren bedrijf oneens over aborteren koeien bij proeven
02 May, *NRC Handelsblad*, anonymous, 'Spreekverwarring bij genetische manipulatie'
02 May, *NRC Handelsblad*, Wim Köhler, Kalfje geboren uit cel met genetische codering van mens
07 May, *NRC Handelsblad*, Wim Köhler, Genproject met kalveren nooit ethisch beoordeeld
11 May, *The Parool*, editorial, Vraag één
14 May, *Telegraaf*, Andries Dijkstra, Biotechnologie emotionele zaak
Summer, *NRC Handelsblad*, Piet Borst, De vioolspelende koe
01 June, *Trouw*, Hans Schmit, Bescherming welzijn dier na 10 jaar strijd redelijk geregeld
06 August, *Telegraaf*, anonymous, Proef met genen bij koeien gaat door
06 August, *NRC Handelsblad*, anonymous, Biotechnologische ingreep slaat aan bij twee kalfjes
07 August, *Trouw*, anonymous, Proefkalf Adriana gezond
07 August, *De Volkskrant*, anonymous, Verandering genen runderen mag van Bukman doorgaan
07 August, *NRC Handelsblad*, anonymous, DNA in twee kalfjes tegen ontsteking
08 August, *Trouw*, editorial, De arrogantste aller dieren (1)
08 August, *Trouw*, editorial, De arrogantste aller dieren (2)
09 August, *Telegraaf*, A.J. van der Zwan, Genetische manipulatie
09 August, *Trouw*, Roelof Vennik, Manipulatie
13 August, *Trouw*, anonymous, Biotechnoloog toont genmanipulatie nog vóór de dracht aan
13 August, *Telegraaf*, anonymous, Onderzoek moet weerstand opvoeren tegen mastitis
26 September, *De Volkskrant*, anonymous, Dierenbescherming eist gegevens over genetische ingrepen
26 September, *Algemeen Dagblad*, anonymous, Dierenbescherming eist openheid over genetische proeven
14 November, *Algemeen Dagblad*, Nico Baaijens, Veranderde koe, ideale leverancier van eiwitten

1992

29 February, *De Volkskrant*, Broer Scholtens, Schapen leveren medicijnen aan Bayer

24 June, *NRC Handelsblad*, Wim Köhler, De ethische strijd om biotech-fabriek Herman
31 October, *De Volkskrant*, anonymous, Transgeen stiertje mag zich van Bukman voortplanten
06 November, *Trouw*, anonymous, Dierenbescherming ongerust over genetische manipulatie
07 November, *Telegraaf*, Karel Passier, Stier Herman maakt de tongen los. Dierenbescherming voert campagne tegen biotechnologie
25 November, *Algemeen Dagblad*, anonymous, Oproep: Massaal faxen naar Bukman voor stier Herman
27 November, *Algemeen Dagblad*, Marcel Kuiper, Stier Herman
28 November, *Het Parool*, Peter Vermij, 'Dier wordt ding met DNA'. Stier Herman dankt leven aan een dwaas kamerdebat
02 December, *Het Parool*, Peter Vermij, Besluit over Herman herzien
05 December, *Algemeen Dagblad*, Michiel Linskens, 'Superstier' niet gelukkig
12 December, *NRC Handelsblad*, F.J. Grommers, Dansen rondom de genetisch gemanipuleerde Herman.
15 December, *Algemeen Dagblad*, Magreet van Bladeren, Herman is er voor ons welzijn
16 December, *NRC Handelsblad*, Ward op den Brouw, Kamer bespreekt voortplanting van stier Herman
16 December, *Trouw*, Hans Schmit, Genoeg alternatieven voor Herman
16 December, *Algemeen Dagblad*, Michiel Linskens, De Dierenbescherming denkt ook aan het welzijn van de mens
16 December, *Het Parool*, Peter Vermij, Proeven met stier Herman mogen doorgaan
17 December, *NRC Handelsblad*, Erica Poot, Herman
17 December, *De Volkskrant*, Thijs Visser, Er is iets mis met de ballen van Herman
17 December, *Algemeen Dagblad*, Jacqueline Schuurmans, Herman
17 December, *Algemeen Dagblad*, Rein Strijker, Er is geen alternatief voor Herman
18 December, *Trouw*, anonymous, Herman mag zijn nageslacht. CDA stemt verdeeld over genetisch experiment met stier
18 December, *Telegraaf*, anonymous, Herman mag vader worden
18 December, *NRC Handelsblad*, anonymous, Experimenten met genetisch veranderde fokstier toegestaan
18 December, *Algemeen Dagblad*, anonymous, Stier mag zich voortplanten. Verzet tegen toestemming voor experiment
19 December, *De Volkskrant*, anonymous, Dierenbescherming bitter over fok Herman
21 December, *Telegraaf*, Rob Hoogland, Herman
22 December, *De Volkskrant*, Wim P. Zeijlemaker, Dierenbescherming slaakt slechts kreten tegen biotechnologie
31 December, *De Volkskrant*, Antoinette Hertsenberg, Biotechnologie

1993

08 January, *Trouw*, Rene von Schomberg, Geen zaak voor politiek. Debat Kamer over 'Herman' voorbeeld van schijndemocratie
20 January, *Trouw*, P. van Duijn, 'Herman': Nederland moet naar andere regelgeving

22 January, *Trouw*, Jos Kooter, 'Herman': nuttig is niet hetzelfde als ethisch goed
29 January, *Trouw,* J. ten Lindert, Terecht pottenkijkers bij biotechnologie. Helemaal geen 'onmogelijke situatie' bij wetenschappelijk onderzoek
27 January, *De Volkskrant*, anonymous, Respect voor kankermuis
30 January, *Het Parool*, anonymous, Stier Herman
30 January, *Algemeen Dagblad*, anonymous, 'Niet fokken met stier Herman'
02 February, *Trouw*, Dirk van den Brink, Onze kleinkinderen zitten met missers gen - manipulatie
20 February, *De Volkskrant*, F. Grommers, Dierenarts is soms net een soort monteur geworden. Nieuwe hoogleraar in relatie mens - dier bezorgd over inzet vakgenoten bij manipulatie met beesten
05 March, *Trouw*, anonymous, Milieuclubs: fokvergunning stier Herman moet geschorst
25 March, *Trouw,* anonymous, Dierenbescherming: prelaat hard tegen euthanasie, te laks voor 'Herman'
07 April, *De Volkskrant*, Cees Smit, Doorfokken met stier Herman biedt patiënten uitkomst
08 April, *De Volkskrant*, anonymous, Organisaties willen stop op experiment met stier Herman
16 April, *De Volkskrant*, Antoinette Hertsenberg, Herman is geen stier met gouden horens
21 April, *Trouw*, anonymous, Bukman ontkent onenigheid met Alders over mestbeleid
21 April, *Het Parool*, A.C. de Goederen, Stier Herman
21 April, *Algemeen Dagblad*, Gonnie Koot, Campagne tegen biotechnologie ongenuanceerd
23 April, *Algemeen Dagblad*, Antoinette Herstenberg, Nooit in het belang van het dier
29 April, *De Volkskrant*, anonymous, Biobedrijf mag doorgaan met proefstier Herman
29 April, *NRC Handelsblad*, Joost van Kasteren, Biotechnologie is mooi, maar lang niet alles
12 May, *Trouw*, Antoinette Hertsenberg, Politiek laat verboden vruchten rijpen
13 May, *Algemeen Dagblad*, anonymous, Bedrijven willen collageen winnen uit koeiemelk
17 May, *Algemeen Dagblad*, Gonnie Koot, Genetisch veranderen dieren roept twijfels op na debat
17 May, *Het Parool*, anonymous, Vrees voor kunstmatige natuur door manipulatie
18 May, *De Volkskrant*, anonymous, Bedrijf wil nieuw eiwit gaan maken met transgene koe
21 May, *Het Parool*, Antoinette Hertsenberg, Gene Pharming slechte verliezer
31 May, *Het Parool*, Peter Vermij, Nieuwe stap in omstreden proef. Experiment met stier Herman tegen de afspraken
31 May, *Het Parool*, Peter Vermij, Familie Herman is er schrikbarend aan toe
26 June, *Algemeen Dagblad*, anonymous, Geen zebrapadden, uilezels, pelihanen alstublieft
03 July, *De Volkskrant*, Johan Geveke,
08 July, *Trouw*, Michiek Linskens, Geen oog voor leed dier
10 July, *De Volkskrant*, Jose van Eijndhoven, (missing)
10 July, *De Volkskrant*, Antoinette Hertsenberg, Werd debat over genetische manipulatie gemanipuleerd?
24 August, *De Volkskrant*, anonymous, 'Twintig embryo's in koe' bekritiseerd
23 October, *De Volkskrant,* anonymous, Stier Herman voor het eerst vader. Overdracht menselijk gen in kalfje nog onzeker

23 October, *Algemeen Dagblad*, anonymous, Dochter voor stier Herman. Het nog naamloze roodbonte kalf maakt het uitstekend. Herman krijgt nog 54 nakomelingen
10 November, *Trouw*, anonymous, Stier Herman heeft transgene nakomelingen
11 November, *De Volkskrant*, anonymous, Stier Herman verwekt transgene kalveren
20 November, *De Volkskrant*, Bas van Kleef, Manipulaties rond een stier
24 November, *Trouw*, Antoinette Hertsenberg, Het échte doel met Herman. Ministerie van Landbouw negeert wetgeving en Eerste Kamer. Lactoferrine voor 100 dollar per kilo uit gistcultures te maken

1994

18 January, *Algemeen Dagblad*, anomynous, Poster voedt discussie over manipulatie
18 January, *Trouw*, anonymous, Vrouw met uiers als middel tegen genetische manipulatie
18 January, *De Volkskrant*, Frans Eggermont, Geneesmiddel zoekt een ziekte
22 January, *De Volkskrant*, Marian Enderink, Koeietepels
22 January, *NRC Handelsblad*, Youp van 't Hek, Godver
22 January, *De Volkskrant*, Gerbrand Feenstra, (missing)
25 January, *Trouw*, A.E. Buteyn and M.J. Buteyn, Moedermelk
27 January, *NRC Handelblad*, B.J. van der Graaf,
27 January, *Telegraaf*, Herman Eetgerink, Smerig
29 January, *De Volkskrant*, Willem Kuipers, Mannen
29 January, *De Volkskrant*, Kees Koopman, Biotechnologie
29 January, *De Volkskrant*, Irene Jansen, Moedermelk
03 February, *De Volkskrant*, anonymous, Rijk steunt omstreden experiment met dieren
03 February, *Het Parool*, F.L. Meijler, (missing)
04 February, *Algemeen Dagblad*, anonymous, Rijk steunt omstreden experiment met dieren
10 February, *De Volkskrant*, anonymous, Voorwaarde bij lening ontstemt biotechfirma
10 February, *NRC Handelsblad*, Hayo Canter Cremers, Lactoferrine kan geen middel tegen vele kwalen zijn
10 February, *NRC Handelsblad*, anonymous, Bedrijf: geen ethische toetsing stier Herman
16 February, *NRC Handelsblad*, anonymous, 'Stier Herman niet de toekomst'
16 February, *Het Parool*, Antoinette Hersenberg, Dierenbeschermers ontmaskeren de genenmelkers
17 February, *NRC* Handelsblad, Antoinette Hersenberg, Genetische manipulatie
25 February, *Staatscourant*, anonymous, Geen ethische toetsing nodig voor krediet aan farmaceutisch bedrijf
25 February, *NRC Handelsblad*, anonymous, Nutricia wil samenwerken met Gene Pharming
26 February, *NRC Handelsblad*, Karel Knip, Gene Pharma en Nutricia ruziën over babymelkpoeder
26 February, *Algemeen Dagblad*, anonymous, Gene Pharming beschuldigd van misleiding
01 March, *Algemeen Dagblad*, Gonnie Koot, 'Echte' moedermelk is in de maak
01 March, *NRC Handelsblad*, Wim Köhler, Biotechnologie voor medicijnen uit melk, later voor babyvoeding
02 March, *Telegraaf*, Anja Hazekamp, Babyvoeding

11 March, *Algemeen Dagblad*, Antoinette Hersenberg, Nutricia neemt risico door pact met genenmelkers
19 March, *Het Parool*, anonymous, Postercampagne met koeieuier mag
25 March, *Algemeen Dagblad*, anonymous, Gene Pharming mag doorgaan
01 April, *Algemeen Dagblad*, anonymous, DNA-stier Herman krijgt gezelschap
19 April, *Algemeen Dagblad*, anonymous, Het dier als lelijk eendje in de politiek
07 May, *Algemeen Dagblad*, Jos Bienemann, High tech melk goed voor elk
26 May, *Algemeen Dagblad*, anonymous, (foto of demonstration: 'Nutrilon of Nutrigen' [Nutrilon or Nutrigen])
02 June, *NRC Handelsblad*, Wim Köhler, Nutricia stond heimelijk aan de wieg van stier Herman. Nutricia: geen gebruik in babyvoeding. 'We houden alle mogelijkheden open, maar praktisch nut heeft dat nog niet'
03 June, *Algemeen Dagblad*, anonymous, Nutricia 'sponsor' van stier Herman
03 June, *Trouw*, anonymous, Nutricia betaalde stilletjes mee aan proeven met stier Herman
04 June, *De Volkskrant*, Maarten van Calmthout, 'We hadden band met Nutricia moeten kennen' Lid ethische commissie verrast door betrokkenheid zuivelbedrijf bij Gene Pharming
04 June, *Algemeen Dagblad*, anonymous, SP wil duidelijkheid over stier Herman
07 June, *Algemeen Dagblad*, anonymous, Boycot dreigt voor Nutricia
07 June, *De Volkskrant*, anonymous, 'Nutricia moet banden met stier Herman verbreken'
10 June, *NRC Handelsblad*, anonymous, Nutricia: 'Herman' uitgesteld
10 June, *Trouw*, anonymous, Nutricia maakt knieval voor Dierenbescherming
10 June, *Algemeen Dagblad*, anonymous, Nutricia zwicht voor Dierenbescherming.
11 June, *Algemeen Dagblad*, Wim Meij, 'Ministerie wist van sponsoring Herman' Experimenten met stier Herman gaan door
11 June, *De Volkskrant*, Maarten van Calmthout, Nutricia verbreekt relatie met stier Herman
11 June, *Trouw*, anonymous, Nutricia maakt knieval voor milieubeweging
11 June, *Trouw*, anonymous, Experimenten Herman gaan gewoon door
11 June, *NRC Handelsblad*, editoral, Herman voor het blok
15 June, *Algemeen Dagblad*, anonymous, Gabor onthield Kamer informatie. Betrokkenheid Nutricia bij stier Herman verzwegen
16 June, *NRC Handelsblad*, W.Th. Hermans, Stier Herman
16 June, *NRC Handelsblad*, Antoinette Hersenberg, Stier Herman
16 June, *NRC Handelsblad*, anonymous, Gabor: Gene Pharming onvolledig over proef met stier Herman
16 June, *De Volkskrant*, anonymous, Gabor overweegt opzeggen contract voor stier Herman
16 June, *Algemeen Dagblad*, anonymous, Gabor voelt zich bedrogen door Gene Pharming
16 June, *Trouw,* anonymous, Landbouw onthield informatie over stier Herman
16 June, *Trouw*, anonymous, Bukman ter verantwoording. Kamer wist nooit van commerciële proeven met Herman
17 June, *Telegraaf*, editorial, Herman
17 June, *Algemeen Dagblad*, anonymous, Toekomst van stier Herman onzeker. Bukman laat contract met Gene Pharming doorlichten

17 June, *Algemeen Dagblad,* anonymous, Staat wil van stier Herman af. Juristen: Contract met Gene Pharming ontbinden
17 June, *Trouw,* Dillian Hos, Bukman komt makkelijk weg in fokstier - debat
17 June, *De Volkskrant*, anonymous, Landsadvocaat bekijkt contract Gene Pharming
17 June, *De Volkskrant*, editorial, Gene Pharming
17 June, *NRC Handelsblad*, anonymous, Bukman laat onderzoek naar contract - stier Herman doen
18 June, *De Volkskrant*, Frans Eggermont, 'Zegen voor mensheid waarmee we nuttige dingen kunnen doen'
18 June, *Algemeen Dagblad*, editorial, Zorgen om Herman
18 June, *Trouw*, editorial, De manipulatie van Herman
20 June, *Algemeen Dagblad*, anonymous, Ministeries werken langs elkaar in zaak – Herman. Naam Nutricia was onleesbaar in contract
21 June, *Algemeen Dagblad*, anonymous, Vragen over Herman
23 June, *Algemeen Dagblad*, Wim Meij, Gene Pharming was onvolledig over Herman - project
24 June, *Algemeen Dagblad*, Wim Meij, Nutricia getergd door golf van kritiek
25 June, *De Volkskrant*, anonymous, Commissie bepleit voortzetting met stier Herman
25 June, *De Volkskrant*, Frans Eggermont, De race tussen koe en schimmel
25 June, *De Volkskrant,* Frans Eggermont and Broer Scholtens, Herman treft geen blaam
28 June, *NRC Handelsblad*, Wim Köhler, Argumenten tegen genetisch manipulatie snijden geen hout
29 June, *NRC Handelsblad*, anonymous, Gene Pharming mag experiment met stier Herman voortzetten
29 June, *De Volkskrant*, Michiel Linskens, Voor stier Herman is het nog te vroeg
29 June, *De Volkskrant*, anonymous, Bukman tegen verbond op proeven met stier Herman
29 June, *Algemeen Dagblad*, Gonnie Koot, Experiment met stier Herman wordt niet verboden
29 June, *Telegraaf*, anonymous, Herman gaat door
30 June, *Trouw*, anonymous, Proef met Herman mag doorgaan, mits voor medische doeleinden
30 June, *De Volkskrant*, anonymous, Proef met Herman voor medisch doel mag van Kamer
14 July, *Telegraaf,* Monique Harmsen, Biotechnologie vreest afhaken investeerders. Kleine groep actievoerders schept vijandig klimaat
30 July, *De Volkskrant*, anonymous, Gene Pharming zoekt verbeterde 'Herman'
23 August, *NRC Handelsblad*, anonymous, Campina in produktie van lactoferrine
23 August, *De Volkskrant*, anonymous, Campina gaat melkeiwit produceren. Zuivelbedrijf heeft voor produktie lactoferrine geen genetische manipulatie nodig
24 August, *Algemeen Dagblad*, anonymous, Ook Campina gaat lactoferrine maken
24 August, *De Volkskrant*, Bas van Kleef, Melkindustrie ontdekt de wonderen van lactoferrine
15 September, *Algemeen Dagblad*, anonymous, Conflict over nakomelingen stier Herman
15 September, *Telegraaf*, anonymous, Gene Pharming eist geld van ministerie LNV
15 September, *Trouw*, anonymous, Eigenaar van stier Herman wil contract met landbouw kwijt

15 September, *NRC Handelsblad*, anonymous, Biobedrijf dreigt contract stier Herman op te zeggen
15 September, *De Volkskrant*, Bas van Kleef, Gene Pharming wil af van instituut overheid. Verzorging Herman leidt tot onvrede
17 September, *De Volkskrant*, anonymous, Resultaten dochter vallen tegen
17 September, *De Volkskrant*, Bas van Kleef, Partijen ruziën over stier Herman. Verzorging nakomelingen zou slecht zijn. Conflict stier Herman.
17 September, *Algemeen Dagblad*, Gonnie Koot, Ruzie om stier Herman loopt op
01 October, *NRC Handelsblad*, anonymous, Vergunning nodig voor genetisch experimenten
01 October, *De Volkskrant*, anonymous, Genetische proef met dieren vereist vergunning
31 October, *Staatscourant*, anonymous, Biotechnologie bij dieren vereist straks vergunning
09 November, *Trouw,* anonymous, Rijk niet meer samen met Gene Pharming in proef met Herman
09 November, *Algemeen Dagblad*, anonymous, Landbouw en Gene Pharming verbreken contract stier Herman
09 November, *Telegraaf*, anonymous, Stier Herman moet door ruzie verhuizen
03 December, *NRC Handelsblad*, anonymous, Gene Pharming neemt belang in Fins Bedrijf
07 December, *Algemeen Dagblad*, Gonnie Koot, Stier Herman naar Polsbroek
15 December, *Algemeen Dagblad*, anonymous, Molifantjes in het lespakket
24 December, *De Volkskrant*, Hans Achterhuis, Het hedendaagse heilige

1995

19 January, *De Volkskrant*, anonymous, CDA'ers wisten van stier Herman en Nutricia
29 March, *Staatscourant*, G. van Thiel, F. Brom and A. Huibers, Genetische manipulatie moet op politieke agenda
08 April, *De Volkskrant*, Bas van Kleef, Oprichter neemt afstand van beleid Gene Pharming. Ruzie Gene Pharming
14 April, *De Volkskrant*, Herman A. de Boer, Koeien mogen geen chemische fabriek worden
22 April, *De Volkskrant*, Corrie Visser, Zielige dieren
22 April, *De Volkskrant*, Michiel Linskens, Wat is het verschil tussen een muis en een koe?
23 May, *Algemeen Dagblad*, anonymous, Stier Herman wordt opa
27 May, *De Volkskrant*, Kees Fens en Michael Zeeman, De zee klotst voort
15 June, *NRC Handelsblad,* Frank Westerman, 'Spijt is een onproductief gevoel'
21 June, *De Volkskrant,* anonymous, Gene Pharming sluit collageen - contract
30 November, *De Volkskrant,* anonymous, Organisaties tegen strenger toetsen genproeven op dier
28 December, *NRC Handelsblad*, (missing)

1996

11 January, *NRC Handelsblad*, Elly von Jessen, Manipulatie
11 January, *De Volkskrant,* anonymous, Pharming staakt experiment met Finse proefkoe

17 January, *NRC Handelsblad,* Jan Libbenga, Bij biotechbedrijf Genzyme zijn twaalf geiten goed voor één fabriek
27 January, *De Volkskrant*, Maarten Evenblij, Herman moet naar de slacht leve Ike
02 February, *De Volkskrant*, anonymous, Kabinet wil tests op proefdieren ethisch toetsen
02 February, *Trouw,* anonymous, PvdA: Proeven met ratten zonder ethische toetsing
07 March, *NRC Handelsblad*, Koos van Zomeren, De onbereikbare koe
04 April, *NRC Handelsblad*, Wim Köhler, De intrinsieke waarden van een knock out - proefdier
03 May, *Telegraaf,* anonymous, Nutricia gedwongen tot stop proeven met lactoferrine
25 May, *De Volkskrant,* Maarten Evenblij, Als het dier – zijn maar beleefd kan worden
24 May, *NRC Handelsblad*, anonymous, Nutricia onthoudt zich een jaar van genetische manipulatie
22 June, *NRC Handelsblad*, Marije Gaell, Hollands Dagboek
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05 September, *NRC Handelsblad,* Ben van der Velden, Actiegroepen als nieuw bedrijfsrisico
14 September, *De Volkskrant*, Rik Nijland, Menselijk collageen is nog lang geen koeienproduct
17 September, *NRC Handelsblad*, anonymous, Veel extra, jonge hoogleraren in de scheikunde (nb over sturing technologie, ET)
30 November, *NRC Handelsblad*, anonymous, Vergunning nodig voor genetisch modificeren dier

1997

08 February, *De Volkskrant*, anonymous, Castratie van stier Herman ditmaal gelukt
28 March, *Telegraaf,* Rob Huisman, Nutricia verandert naam uit angst voor 'recalls'
10 April, *De Volkskrant*, Rik Nijland, Pharming begint met fokken van gemanipuleerde koeien
12 April, *De Volkskrant*, Rik Nijland, Genetische toetsing

Samenvatting
(Summary in Dutch)

Een spraakmakend kalf
Een reconstructie van het debat over dierlijke biotechnologie

Al jaren wordt er veel gesproken over publieke debatten, over het belang en over de wenselijkheid ervan. Er wordt ook veel onderzoek naar gedaan. Dat onderzoek richt zich met name op het analyseren van de inhoud, dwz de argumenten, de argumentatie lijnen en de ontwikkeling in de argumentatie, van die debatten. Daarmee is nog niet expliciet geworden, echter, hoe debatten nu eigenlijk begrepen moeten worden. Wat zijn publieke debatten eigenlijk? Wat gebeurt erin? Waar zijn ze op gericht? Hoe worden ze beoordeeld? Dat soort vragen heeft centraal gestaan in dit onderzoek.

Ik heb me daarbij gericht op een bepaald type publiek debat, namelijk het debat in de media. Via dit debat is in potentie de gehele bevolking bij het onderwerp betrokken. Het is dus het breedst mogelijke publieke debat. Het is ook een heel specifiek soort publiek debat, omdat het niet primair gericht is op consensus, maar op het overtuigen van het bredere publiek en het verwerven van publiek draagvlak voor de eigen opvattingen en daarmee invloed op de politiek. Dat heeft consequenties voor de wijze waarop gedebatteerd wordt. Het gaat om aansprekend redeneren, om uitleggen, articuleren, onderscheiden enzovoort. Het bredere publiek is in de eerste plaats een publiek van toeschouwers: zij luisteren, voelen zich al dan niet betrokken, en vormen zich een beter overwogen mening over de kwestie.

Bovendien heb ik me gericht op een specifiek geval, namelijk het debat over de transgene stier Herman. Deze door Gene Pharming ontwikkelde stier heeft een nieuw gen waardoor zijn dochters menselijk lactoferrine uitscheiden via de melk. Ik heb niet nagegaan of dit debat exemplarisch is voor andere debatten. Wat ik wel heb gedaan is dit debat zover mogelijk uiteenrafelen om daarmee voor anderen zichtbaar te maken wat er in dit debat is gebeurd en hoe het begrepen zou kunnen worden. Daarmee geeft mijn werk handvatten om andere debatten toegankelijk te maken en te begrijpen.

Voor mijn onderzoek heb ik me beperkt tot de ongeveer 300 artikelen die over transgenese bij dieren zijn verschenen in zes nationale dagbladen, te weten het

Parool, Trouw, de Volkskrant, het Algemeen Dagblad, de Telegraaf en het NRC Handelsblad. Enkele keren heb ik, om het verhaal compleet te maken, ook artikelen uit de Staatscourant en Intermediair (een weekblad) erbij betrokken. Uit deze artikelen heb ik de argumentaties gelicht. Daarbij heb ik mij niet alleen op uitspraken gericht die betrekking hebben op het onderwerp, maar ook op uitspraken die de deelnemers over elkaars gedrag doen (metakritiek en metaopmerkingen). Daardoor kon ik naast de inhoudelijke argumentaties ook het proces van debatteren-in-het-openbaar in mijn onderzoek betrekken.

Het tweede hoofdstuk van mijn proefschrift is een enigszins gestructureerde samenvatting van wat er in de 9 jaar die het debat duurde is voorgevallen. Voor degenen die niet bekend zijn met het debat vormt het een introductie ertoe en voor alle anderen is het een opfrisser.

In hoofdstuk drie maak ik zichtbaar hoe het debat zich ontwikkeld heeft. Allereerst blijkt het debat eigenlijk uit twee subdebatten te bestaan, namelijk een debat over transgenese bij dieren (het veranderen van het genoom van dieren) en een ander, meer algemeen debat, over de Gezondheid- en Welzijnwet voor Dieren (Dierenwelzijnwet) in voorbereiding. Voor beide debatten vormde de stier Herman een belangrijke impuls. Zeker het publieke debat *in de media* ontwikkelde zich aan de hand van de ontwikkelingen in het project van Gene Pharming. Na de geboorte van het eerste kalf en na iedere nieuwe ontwikkeling in het project barstte een discussie los. De casus (de stier Herman) zorgde voor levendigheid; er was blijkbaar iets materieels nodig om de gedachten en dus argumentaties aan te scherpen. Zulk soort directe aanleidingen zijn kennelijk nodig om een debat urgent te maken. Een debat in de media heeft daarbij nog een specifieke dynamiek doordat de belangrijkste motivatie voor de media om iets te publiceren de nieuwswaarde ervan is. Dat betekent dat het debat zich ontwikkelde als een commentaar op de ontwikkelingen van het project van Gene Pharming. Zo'n zich ontwikkelende casus zorgt keer op keer voor nieuwe aanleidingen om meningen en argumenten aan te scherpen, te herwaarderen en verder te ontwikkelen. De casus, en natuurlijk de commentaren van mensen en organisaties erop, zorgde zo zowel voor dynamiek als voor structuur in het debat over dierlijke transgenese. Het debat over de Dierenwelzijnwet had echter een eigen dynamiek, namelijk die van het proces van wetgeving. In dit subdebat zorgde de casus vooral voor extra stof voor discussie.

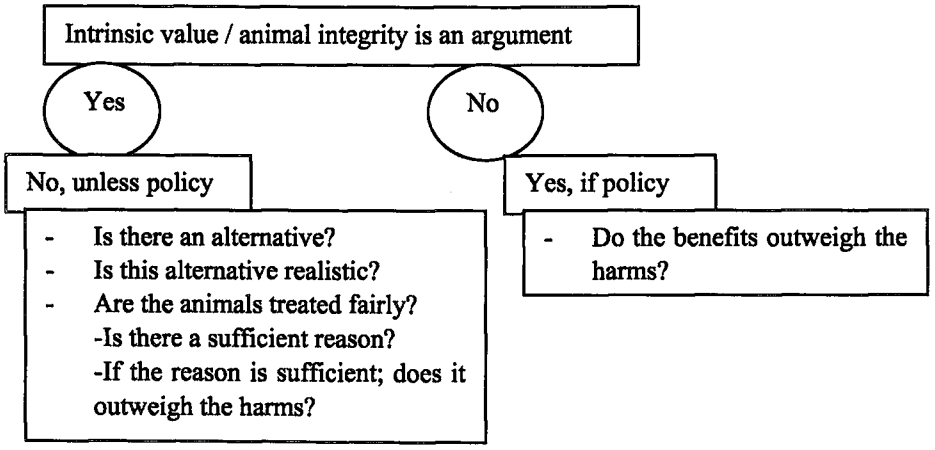
In het vierde hoofdstuk staan de deelnemers aan het debat centraal. In het vorige hoofdstuk zagen we de ontwikkelingen in het project van Gene Pharming (de casus) steeds voor nieuwe aanleidingen voor discussie zorgden. Maar een publiek debat wordt gemaakt, of niet, door de mensen, organisaties, deskundigen,

bedrijven, enzovoort die de problematische elementen uit de casus onderkennen en publiekelijk aan de orde stellen. Verder zijn er media nodig om hun zorgen, commentaren, enzovoort te publiceren.
Gene Pharming was zelf een belangrijke deelnemer in het debat. Zij stond voor haar project en was vrijwel steeds bereid haar project publiekelijk te verdedigen als maatschappelijk van groot belang. De Dierenbescherming was haar belangrijkste tegenspeler, namelijk die van verdediger van de belangen van de dieren. Zij greep iedere aanleiding aan om publiciteit te zoeken, kritiek te uiten, kamervragen te laten stellen, enzovoort. Daarmee was zij een drijvende kracht achter het debat. Centraal in haar reacties stonden steeds vragen als: mogen wij dieren dit wel aandoen? Heeft het dier dan geen eigenwaarde die we moeten respecteren? Is dit geen aantasting van de integriteit van dieren? Het Ministerie zat in een lastig parket. Enerzijds was zij belanghebbende, omdat zij de dieren van Gene Pharming huisvestte op een van haar instituten (ID-DLO), anderzijds was zij ook verantwoordelijk voor de voorbereiding en uitvoering van wetgeving ten aanzien de behandeling van dieren.
Het ligt voor de hand dat kritische burgers of individuele experts een debat niet gaande kunnen houden; in de regel is hun adem daarvoor niet lang genoeg. Het zijn vooral de kritische maatschappelijke organisaties die dat wel kunnen. In dit geval was dat de Dierenbescherming.
De inbreng van experts blijkt afhankelijk van hun respectievelijke vakgebieden. Dierethici, filosofen en dierenwelzijnexperts zetten overwegend kritische kanttekeningen bij ingrepen in dieren; bio-medici en andere onderzoekers die transgene dieren maken of gebruiken trachten juist het belang van transgene dieren aan te tonen. De opinies van deskundigen zijn daarom zeker niet belangeloos. Via hun beroepsgroep zijn ze reeds verbonden met bepaalde maatschappelijke belangen. Hun inbreng verliep via interviews en via ingezonden stukken op de publieke opinie pagina's van de kranten. Het publieke debat in de media werd mede gestructureerd door de debatten in het parlement, omdat sommige discussierondes gericht waren op het beïnvloeden van de politiek.

In het vijfde hoofdstuk analyseer ik de controverse die ten grondslag lag aan het debat. Met behulp van een aangepaste matrix van Mepham classificeer ik de argumenten van de drie belangrijkste deelnemers aan het debat als versterking of afzwakking van een van de vier door Beauchamp en Childress uit de dagelijkse praktijk gereconstrueerde ethische principes van 'geen kwaad doen', 'goed doen', 'respect voor autonomie of eigenheid', en 'rechtvaardige behandeling'. Argumenten die niet onder een van deze vier principes geclassificeerd konden worden heb ik benoemd als waarde (d.w.z. een aspect van het goede leven benadrukkend) of als moreel relevant feit.

Gene Pharming neemt een 'ja, mits' positie in; zij vindt dat transgenese in principe moet worden toegestaan, maar dat aan een aantal randvoorwaarden moet worden voldaan. Zij legt de nadruk op de voordelen ('goed doen') voor consumenten, patiënten en producenten, terwijl de Dierenbescherming die absoluut tegen is ('nee') vooral de nadelen ('geen kwaad doen') voor de dieren en voor soorten benadrukt. Het Ministerie dat transgenese in principe wil verbieden tenzij er goede redenen zijn om specifieke toepassingen toch toe te staan ('nee, tenzij' - positie) stelt zich terughoudend en afwachtend op, maar onderkent de morele problematiek. De positie die de participanten innemen blijkt samen te hangen met het al dan niet erkennen van de intrinsieke (eigenwaarde) waarde van dieren en ook de integriteit van de dieren. Een 'nee' of 'nee, tenzij' positie wordt alleen ingenomen als de intrinsieke waarde en de integriteit erkend worden. Wordt deze niet erkend dan neemt men ook een 'ja, mits' positie in. Het blijkt dat afhankelijk van of een deelnemer een 'ja, mits' of een 'nee, tenzij' beleidsprincipe hanteert argumenten anders geclassificeerd moeten worden. Deelnemers die een 'ja, mits' positie innemen, onderstrepen de voordelen van transgenese bij dieren en wegen deze voordelen af tegen de mogelijke nadelen. De voordelen verschijnen echter als goede redenen om een uitzondering te maken in de context van 'een rechtvaardige behandeling' bij deelnemers die een ' nee, tenzij' positie innemen. Bovendien worden dan ook nog andere vragen gesteld (zie figuur 8.1).

Figuur 8.1: Samenvattend overzicht van twee typen van argumentatie ('ja, mits' en 'nee, tenzij') die samenhangen met een verschil in perceptie van het morele belang van dierlijke biotechnologie.



In hoofdstuk zes kies ik een andere invalshoek om naar de argumentaties van de deelnemers te kijken. Ging het in hoofdstuk vijf om de vraag hoe en onder welke

voorwaarden biotechnologie, of meer specifiek transgenese, bij dieren zou mogen worden toegestaan. In hoofdstuk zes gaat het om de verschillende toepassingen van transgenese bij dieren. De vraag naar wat eventueel goede redenen zijn staat nu centraal. En dan blijkt dat transgenese bij dieren in verschillende praktijken van diergebruik anders wordt beoordeeld. Het is (nog steeds) staande praktijk dat de beoordeling van dieren, en dus ook wat met dieren mag worden gedaan, afhankelijk is van de context waarin het oordeel wordt geveld. Konijnen worden anders behandeld afhankelijk van of zij als huisdier, als productiedier of als wild worden opgevat. Zo zijn er ook verschillende praktijken in het spel als het gaat om het maken van transgene koeien die lactoferrine via de melk uitscheiden, namelijk de melkveehouderij, de biomedische productiepraktijk, de gespecialiseerde voedselproductiepraktijk, en de veterinaire praktijk. Echter, transgene koeien horen niet vanzelfsprekend bij een van deze praktijken. Als ze worden gemaakt vanwege hun resistentie tegen mastitis (uierontsteking) dan horen ze noch vanzelfsprekend bij de melkveehouderijpraktijk noch bij de veterinaire praktijk, maar worden tegelijk wel beoordeeld naar de maatstaven van deze beide relevante praktijken. Een oordeel dat vanuit beide perspectieven negatief uitvalt.

Het maken van zulke dieren omdat ze humaan lactoferrine uitscheiden dat kan worden verwerkt in melkpoeder voor baby's of in vloeibaar voedsel voor patiënten met maagdarm infecties, werd in de eerste plaats bezien (en afgewezen) vanuit het perspectief van de melkveehouderijpraktijk. De gespecialiseerde voedsel-productiepraktijk kwam niet eens serieus in beeld.

Over de productie van lactoferrine als testcase voor de productie van medicijnen via koeienmelk is de discussie echter nog niet gesloten. Ook hier paste Stier Herman niet vanzelfsprekend in een van de bestaande praktijken, maar hier was kennelijk het doel zo krachtig dat het daarmee niet 'einde discussie' was. Er ontstond getouwtrek over welke van de beide relevante praktijken (de veehouderijpraktijk en de biomedische productiepraktijk, en de bijbehorende normen en waarden) dominant zou moeten zijn. Gene Pharming argumenteerde dat Stier Herman beoordeeld zou moeten worden volgens de normen en waarden van de melkveehouderijpraktijk. Zowel de Dierenbescherming als het Ministerie van Landbouw vonden dat transgenese bij dieren voor welke reden dan ook beoordeeld zou moeten onafhankelijk van enige bestaande praktijk. Dat opent twee perspectieven: of dierlijke transgenese ontwikkelt zich tot een eigen praktijk met eigen normen en waarden, of dierlijke transgenese ontstijgt het denken dat is ingekaderd door praktijken met als consequentie dat meer algemene normen en waarden ontstaan voor de behandeling van dieren ongeacht de context en ongeacht het specifieke doel.

In het zevende hoofdstuk ga ik in op het debatteren zelf. De belangrijkste deelnemers aan het debat werden elk op enig moment ook besproken en bekritiseerd in het debat. En de bekritiseerden namen deze kritiek serieus. Ze reageerden erop; ze deden er wat mee. En daardoor kunnen wij weer veel leren over wat de impliciete referentiepunten voor wat een goed debat genoemd kan worden. Al eerder zijn door verschillende auteurs zulke referentiepunten gereconstrueerd van zuivere argumentaties. Daarmee kunnen echter, volgens mij, debatten via de media niet zonder meer gelijk worden gesteld. Debatten via de media zijn namelijk niet in de eerste plaats gericht op het elkaar overtuigen, maar op het overtuigen van het publiek om daarmee publiek draagvlak en dus invloed te verwerven. Dat betekent niet dat de argumentatieregels opeens geen rol meer spelen, maar dat ze een andere status krijgen. Een deel van de metadiscussies gaat over de momenten waarop de debatdeelnemers te ver gaan en dus bepaalde normen van beschaafd debatteren overschrijden. Bovendien worden ook nog andere aspecten bediscussieerd die ook een rol blijken te speken in publieke debatten in de media. Denk hierbij bijvoorbeeld aan allerlei theatrale elementen zoals foto's, tekeningen en posters; het plaatsen van andere deelnemers in een minder gunstig daglicht door informatie te onthullen; of aan suggestief te redeneren. Sommige van deze acties werden wel geaccepteerd terwijl andere te ver gingen en dus kritiek opriepen. Ik eindig het hoofdstuk met een aantal criteria waaraan debatten getoetst blijken te worden door de deelnemers zelf.

Daarvoor ga ik echter nog in op een aantal kritieken op dit debat. Uit die kritieken blijkt dat veel critici te hoge (idealistische) verwachtingen hebben van publieke debatten in de media. De vruchtbaarheid en zinvolheid van publieke debatten moet mijns inziens niet worden afgemeten aan de convergentie van de meningen van of de gerichtheid op consensus door de participanten, maar aan de kwaliteit en rationaliteit van de argumentaties van de participanten. En dat is wat ik heb aangetroffen: alle deelnemers aan de het debat hebben hun opvattingen en redeneringen verder ontwikkeld, ze hebben naar anderen geluisterd en hebben daarop gereageerd door hun argumentaties aan te scherpen of hun handelen aan te passen.

Het is ook onterecht te veronderstellen dat iedereen mee moet doen aan een debat om er een geslaagd debat van te maken. Het is voldoende als iedereen die geïnteresseerd is het debat kán volgen en eraan kán meedoen als hij of zij dat wil. De kritiek dat niet alle participanten zich altijd even netjes hebben gedragen, is terecht, maar het is ook zichtbaar geworden dat de participanten zich die kritiek hebben aangetrokken en hun gedrag hebben aangepast. Transparantie is mede dankzij dit debat in de jaren '90 een serieus thema geworden binnen zowel maatschappelijke organisaties als het bedrijfsleven.

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