

# Keeping the Cares Together.

*How animal technicians deal with ethical dilemmas in the laboratory.*

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# 1. INTRODUCTION

In my initial work with this thesis people would ask me what I was going to write about. Somewhat vaguely I would answer along the lines of - Animal technicians working with research animals. The responses that followed were usually things like: “Do you have the stomach for that? I don’t think I could,” “People working with research animals care about the animals. Or at least, they say so,” “They do important work, but I am happy I don’t have to do it,” “I don’t understand how they can do that stuff to animals.” Much of the discomfort expressed was connected to the prospect of inflicting pain on the animals through experiments. But I am not one to criticize such responses. Presenting my idea of writing about research animals, I also made it clear that I did not think I had the stomach to do participant observation. As I worked on my sketch and read about the field, I often thought back to my own and others’ responses. What were we thinking I would see or meet? Many ‘outsiders’ have a stereotypical idea of the field of laboratory animal science as a closed and calculating enterprise, letting the animals go through ordeals all in the name of science, devoid of affection and love for the animals. When I entered the field of laboratory animal science I was more or less ignorant to what it was all about. I had read some stories about the advances of medical research, but also about what this entailed for the animals. I left it at that and lived happily with my ignorance. However, deciding to investigate and write about this field demanded that I would have to address my ignorance.

What intrigued me from the start were the dilemmas inherent in this field<sup>1</sup>. On the one hand they were doing medical research benefitting the population. On the other hand they used animals and exposed them to suffering which would not be

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<sup>1</sup> When I refer to the field of laboratory animal science throughout the thesis, I am, unless explicitly stated, talking about medical research. There are two reasons for this: (1) the laboratory where I conducted my fieldwork is engaged in medical research, and (2) research for the cosmetic industry is not allowed in Norway.

allowed on humans<sup>2</sup>. Talking to others about this, I came to realize that feeling ambivalent towards laboratory animal science was a shared experience. I could only imagine, I was thinking to myself, the extent of dilemmas and tensions the animal technicians were living with in their jobs. But, much to my surprise, the animal technicians where I conducted my fieldwork stated that their experience of their work situation was not one filled with impossible dilemmas. Of course, as in most jobs, there were challenging situations, but not to the extent that they felt their actual job was problematic on an ethical level. They just did not think about their job in terms of ethical dilemmas. This intrigued me. Working in a situation ‘most people’ acknowledge as difficult and characterized by dilemmas, how could the animal technicians experience it as seemingly friction free? And could this be true – were there really no tensions there? And if there actually are tensions in the work at the laboratory, how do they address these so that they come to experience their job as without (insurmountable) dilemmas?

In order to get some basic knowledge before conducting my fieldwork, I asked the Veterinary School of Science if I could attend the *Grunnkurs i forsøksdyrlære*. This is a course made mandatory by the Landbruks- og matdepartementet (LMD) for animal technicians working in laboratories. As such it represents the official view on the field of laboratory animal science, in which the animal technicians are socialized. The curriculum defines the field as: “The scientific, legally approved and ethically acceptable study of animals for biomedical purposes (...)” (Hem et al 2007:3)<sup>3</sup>, a definition they are borrowing from Scand-LAS<sup>4</sup>. This is an organization for people working with research on animals. Hence, more than being a conveyor of an official view of the field, this course is also conveying how the field conceives and makes sense of itself. As I

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<sup>2</sup> Animal welfare organizations have pointed at the paradox that because the animals are so much alike us, we use them as our models in experiments. At the same time they are inflicted pain, which we would consider to be torture if done to humans (<http://www.dyrevern.no/fakta/dyreforsok>).

<sup>3</sup> <http://www.scandlas.org/definition-las.asp>

<sup>4</sup> Scand-Las is the Scandinavian Society for Laboratory Animal Science. It was founded in 1970 and has today around 350 members. It has standing working groups on education, health monitoring and pain, stress and discomfort, as well as policy (<http://www.scandlas.org/aboutscandlas.asp>).

was about to learn at the course, the field does acknowledge that there are tensions and dilemmas connected to its work. The definition however also implies they have found ways to deal with these dilemmas making the work they do ethically acceptable. I believed that if I shared this background knowledge and understanding of the field taught at the course with the technicians I would be better equipped to understand how they come to experience their job as one without insurmountable dilemmas. However, as I got closer to the practices through my fieldwork, two things became clear to me: firstly, the practices appeared to be much more hands-on and messy than the technicians portrayed them to be, and ‘outsiders’ imagine them to be. This messiness produces a range of dilemmas that can be framed in ethical terms. For example, whose demands should prevail – those of a protective rat mother with five days old babies and instincts telling her to keep them in her nest for some more weeks, or research in need of the rat babies in experiments benefitting humans? Consequently, I found that the animal technicians are indeed encountering tensions in their work. Secondly, the ways the animal technicians dealt with the tensions seemed to be different from how the course addressed them. Two understandings of and ways to relate to the field were present.

The aim of this project is thus to explore how the animal technicians relate to and understand the field of laboratory animal science and the animals. In this respect I want to investigate how they can address the tensions and still not identify their job as one infused with ethical dilemmas. I realized however that if I was to understand this, it was necessary to analyze the understanding of the field made available to the animal technicians through the course, as this apparently fell short of their needs in the laboratory. This approach will allow me to see how the way the technicians relate to and make sense of the field and their job, is being continuously produced to fit their context in the laboratory.

Extensive literature has been produced about human-animal relations in general, and, more specifically, in the context of the laboratory. Guerrini has a historical focus when she writes about the development of the use of animals for

experiments. In *Experimenting with Humans and Animals* (2003) she explores the use of living beings in science and medicine and how the understanding of animals' capacity to feel pain has evolved. She further shows how the ethical values of science are closely connected to those of the society in which the scientist works and lives. How we view and understand animals is also a recurrent theme in human-animal relations literature. In the well known article *Sacrifice and the Transformation of the Animal Body into a Scientific Object* (1988) Lynch explores how the term 'sacrifice' is used by experimental biologists in the killing of laboratory animals. Although devoid of its religious connotations in the laboratory setting, the term 'sacrifice' is used as part of a series of procedures where the naturalistic animal body is transformed into an abstracted analytical object. Other important contributions in representing the laboratory rodent have come from, amongst others, Rader (2004), Birke (2003), and Haraway (2008). During the twentieth century the laboratory rodent has come to be the key model for humans. In this process they have become de-naturalized and abstract. At the same time they have been juxtaposed with dirt and vermin as well as having come to symbolize the eradication of disease (Birke 2003). According to Franklin (1999), the realm of human-animal relations are characterized by differentiations rather than consistency. He states that:

“While the claim is often made that animal sentiments or tender-hearted romanticism have extended progressively into the twentieth century, this is difficult to reconcile with twentieth-century demands for meat, modes of meat production, habitat loss, the sustained popularity of hunting and fishing sports and the expansion of animal experimentation. This is the paradox that lies at the centre of a sociology of modern human-animal relations (...)”(Franklin 1999:2).

This care-exploitation paradox in human-animal relations is, as will be evident in this thesis, very much present in the animal technicians' work. In *The Sacrifice* Birke et al (2007) address the complex and changing role of the laboratory animal in the scientific culture of the US and UK. They further explore the rise of different scientific identities - a process involving actors inside and outside the laboratory, such as animal technicians, researchers, animal rights activists and the general public. They depict the job of the technicians as being a buffer between

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science and the animals' welfare – a description I became familiar with in the laboratory. Although they recognize ambivalence as a key theme for both researchers and technicians with respect to the use of animals in experiments, they also note how the two groups are divided by different positions in power structures, as well as their relationships with the lab animals. However, the way this affects how the technicians legitimize their position in the field is only superficially problematized. I will argue that, more than anyone, the technicians are placed in the crux of the tensions in the laboratory. Being designated to take care of the animals on the one hand, and also the research, which entails using, potentially harming, and eventually killing the animals, on the other hand, is likely to do something to how they understand and relate to their field and the lab animals. Druglitrø writes in her dissertation (Forthcoming) about the construction and organization of this 'skilled care' within a logic of standardization prevalent in Norway in the 1950s and 1960s<sup>5</sup>. Skilled care required both a trained eye to see the animals and monitor their health, and the capacity to master different technologies. This background is important to understand how the animal technicians have been placed in this position between different demands. The process of standardization in the laboratory required a greater specialization and division of labor, which also led to the specialization of the animal technicians to perform a specific form of practice. Yet it is tempting to claim that the fact that there are animal technicians to take care of and care for the lab animals might be a way for the researchers to distance themselves from tensions in the field. Having someone to take care of their animals makes it easier for the researchers to create distance between their actions and the idea of the animals as sentient creatures. Yet little is being said about how the technicians deal with this position – how do they legitimize their role in the field of laboratory animal science as someone who loves animals, and at the same time are expected to harm and kill them?

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<sup>5</sup> See section 2.1 for a more thorough presentation of the development of skilled care.

Before embarking on this question, I will in the remainder of this chapter provide a short historical review on the field of laboratory animal science, as well as give an outline of the theoretical framework and the production of data. However, from the outset it is imperative to emphasize that I have no political or moral agenda. I do not wish, nor do I have the knowledge, to evaluate or judge whether conducting experiments on animals for the benefit of medical research is ethically valid or not. On the contrary, I believe that having close to no knowledge of the field upon starting my project has enabled me to approach it with an open mind.

## 1.1 SHORT HISTORICAL REVIEW

Humans have used animals for a long time. Many of the uses have been contested, like hunting, circus, industrialized meat production, as well as the use of animals in laboratories. But opposition against the use of research animals also has a long history. Birke et al (2007) note that with the changes in social attitudes towards animals, such as acknowledging their sentience and ability to feel pain, the people using animals have also been forced to seek more justification for their actions. They further contend that few of those using animals for experimentation take the issue lightly and justify the use by connecting it to a greater good like medical advance. Opponents, on the other hand, question the link to medical progress and believe that some of the lab animals suffer (Ibid.).

Social and cultural changes due to developments like industrialization and urbanization, gradually changed humans' attitudes towards nature and animals. This also affected how the use of animals for research was regarded (Birke et al 2007). Although animals have been used in scientific research for thousands of years (Thomas 1983, Birke et al 2007), it was not until the seventeenth and eighteenth century, following the increased number and the seriousness of the experiments, that some considered animal suffering as a moral issue (Guerrini 2003). Towards the nineteenth century the basic principals of the modern animal

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welfare position were established; that humans and nonhumans can suffer pain, and this entitles them to both legal and moral rights (Ryder 2000:72).

By the eighteenth century almost all European countries had their proponents for greater humanity towards animals, and during the nineteenth century most of them enacted legislation on the subject (Thomas 1983:182). The first attempt by a national government to regulate and limit cruelty in animal experimentation was made through the Cruelty to Animal Act in 1876 in Britain (Guerrini 2003, Birke et al 2007). With this Act the antivivisection movement in Britain, which developed during the nineteenth century, had only just begun. More or less radical movements were established, fighting for restriction, regulation and/or abolition. They argued that the experiments were not worthwhile and only generated needless pain since they could not demonstrate to the public any practical medical advances (Guerrini 2003). In Norway the first animal protectionist movement was established in 1859 and the first animal-protection legislation came in 1842 (Ryder 2000:196). The end of the century saw a heated debate in the national assembly concerning vivisection and the authority and practices of the laboratory and medical science. While the scientific community and their proponents proclaimed the connections between animal research and the welfare of society at large, this was not so evident to people in general. The defence of animal research became tied to demands to its practical use outside the laboratory (Asdal 2006:299).

Guerrini notes that the advent of microbiology and the triumphs of bacteriological research in Europe in the late nineteenth and early twentieth century, which promised to eradicate human disease for good, had an enormous public impact. The antivivisectionist's focus on pain seemed beside the point and the movement lost influence. Still, researchers were apprehensive of negative antivivisectionist publicity, and they were advised to highlight the use of anaesthetics in their articles to distance the reader from the act of experimentation. However, this strategy also gave rise to a culture of detachment from the experimental subjects (Guerrini 2003:112-113). The intense activity in

the animal welfare movement before the First World War was succeeded by an attention towards human welfare, and it was not until the 1960s that activity in the animal welfare movement rose again (Ryder 2000).

In the second half of the twentieth century, there was a rise in public regulation of animal experiments. Guerrini notes that, during the 1960s, new theories on animal rights and animal liberation revived debates relating to the antivivisectionist movement and produced changes in scientific practice. With his utilitarian based philosophy Peter Singer brought pain back into focus. Tom Regan on the other hand focused on rights, based on the notion that mammals possess attributes that give them the same inherent value, thus rights, as humans. These debates, lending a voice to the changes in general opinion, paved the way for stricter regulations of animal experiments. However, actual regulation has been, and still is, more influenced by *The Principles of Humane Experimental Technique* (1959)<sup>6</sup> by Russell & Burch. Today most European countries, and the United States, have national laws regulating animal experiments. Even with the same aim the laws differ greatly in their detail, reflecting national values and specific historical, social, and political circumstances (Guerrini 2003).

The intention with this brief historical review has been to provide a backdrop to the everyday work situation of the animal technicians. Placing the technicians in this context is important to prevent drawing a picture of the laboratory as a closed unit within society, detached from the debates and trends regarding animal welfare in general, and research animals specifically. But it also places them right in the core of the debate, between science and medical advancement on the one hand, and animal welfare on the other. It is interesting to look at the animal technicians within this care-exploitation paradox. How do they justify their practice in the laboratory towards the animals in a context where science and medical advancement is the precondition for the whole field of research on animals, but where the objective of their job is still to take care of them and

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<sup>6</sup> Russell and Burch proposed what they called the 3R's: Replacement, Reduction, and Refinement. I will get back to this in more detail in section 2.5.



ensure their welfare? Before I attempt to answer this question, I will provide an outline of my theoretical and methodological approach.

## 1.2 THEORETICAL FRAMEWORK

“Pools of order are illusory, but even such illusions are the exception. They do not last for long. They are pretty limited. And they are the product, the outcome, or the effect, of a lot of work – work that may occasionally be more or less successfully hidden behind an appearance of ordered simplicity” (Law 1994:5).

The field of laboratory animal science is a complex enterprise producing knowledge considered valuable by many. At the same time it is also thought by many to be a problematic field due to its use of animals. Most of us can deal with these tensions from a distance or with plain ignorance. Not so for the people engaged in this field. In order to be able to detect the tensions experienced by the animal technicians, and to further help me understand how they deal with these tensions, I have chosen to use Law’s (1994) concept of modes of ordering. It is a tool to understand different ways to think and act which exist simultaneously, an advantageous approach in that it captures the complexities of the social world. As ordering modes are believed to always be a process, it is a dynamic concept opening up how the modes reshape themselves and interact with each other (Ibid.).

The illusory pools of order are dependent on a lot of work, as the quote in the beginning stated. As a consequence, modes of ordering opens up a way to look at all the work involved in keeping the temporary order. For my informants this work involves how they relate to, interact with, conceptualize, make into routines and rationalize, and so on. It not only produces a pool of order, it also is a way to address and resolve possible tensions. This is important for my thesis, as the main objective is to look at how the animal technicians understand their job within the field of laboratory animal science, how they experience tensions in their job and in relation to others, and, ultimately, how they deal with these tensions. To do so, it is important to look at their actual practices and interaction

with the animals. In order to understand the work behind what Law calls ‘the appearance of ordered simplicity’, which I understand to be the way the technicians say they experience the field of laboratory animal science as one not characterized by ethical dilemmas, I believe the concept of care is useful. The advantage of looking at how care practices are performed is that it looks behind the ordered simplicity, capturing both the actual complexity of situations animal technicians are facing, and how challenges in care are constantly negotiated in response to different demands in order to perform good care. This again allows us to see tensions or paradoxes inherent in the situations, thus opening up a way to analyze how the careful negotiation and arrangements intrinsic to good care make sense to those performing it. The concept of care will be more thoroughly presented in Chapter 3 when we will be entering the laboratory. For now it suffices to say that it pays close attention to the non-verbal, to practices, and the multiplicity connected to care (Mol et al 2010). I choose, however, to go into more depth with modes of ordering here. For reasons I have already touched upon and which I will return to shortly, I will operate with two modes of ordering. For the reader to understand the benefits of this approach, and to understand my basic argument (that telling stories which draws the pattern of a separate mode of ordering is in itself a coping strategy) as well as the content and the maintenance of this ordering mode, I find it necessary to present this theory from the start.

### **1.2.1 MODES OF ORDERING**

With his concept of modes of order, Law refuses the notion of ‘a social order’. First of all he refutes the idea of an order arguing that orders are never complete. Rather, he claims, they are ongoing processes - a continuous effort - which may be overturned. Social orders are therefore better seen as verbs – as ordering. Secondly, Law discards the idea of *a single* order as if there was a root order. Instead he is concerned with the incomplete and plural processes of social ordering, calling for a comparison between various ways of thinking and acting

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that co-exist at the same time and place. Lastly, Law also argues that what we call social is materially heterogeneous. Talk, bodies, texts, animals, technology and more are all parts of the ‘social’. Ordering, therefore, occurs not just in speech, but is also embodied, performed, represented (Law 1994:1-2). Thus, modes of ordering refer to the plural and incompleteness of social orders because they are always in a process (Law 1994, Mol 2008).

Admittedly inspired by Foucault’s writings on discourses, Law criticizes him for treating the discourses as already in place, as reproducing themselves. The problem with this, according to Law, is that Foucault does not address how the discourses might reshape themselves in new embodiments, nor does he say much about how the discourses might interact when they are performed and embodied. Law, however, argues that a mode of ordering is always limited. Rather than offering a totalizing hegemony, a mode of order can only generate unstable pools of apparent order. To Law then, both the changes in the modes of ordering and their interaction are related, and thus, not mutually exclusive (Law 1994:22).

Thus, modes of ordering is a tool to study different ways to think and act which exist simultaneously (Law 1994). The stories told at the *Grunnkurs i forsøksdyrlære* and the stories told by the animal technicians in the laboratory are clues, both to how they would like to order the field of which they are part, and on how it is being performed and embodied. Thus, Law contends that how stories are told gives clues to patterns that may be attributed for certain purposes to the recurring socio-technical networks (Ibid.:19/83). The patterns, the ordering modes, both give context to problems and solutions, but also construct the problems and the solutions (Ibid.:83). Thus, the social world is a process which shapes its own flow – movement and organization of movement are the same (Ibid.:5).

There are many patterns to be found in the ordering of the social, and they do not have to divide themselves up in a specific way. According to Law, how the patterns are divided is rather an empirical matter (Ibid.:83). For my purposes, in

this thesis I will be talking about two modes of ordering: the *Standardization* mode of ordering at the course, and the *Keeping the cares together*<sup>7</sup> mode of ordering amongst the animal technicians at the laboratory. When putting the standardization and care labels on the ordering modes it is important to clarify that these are not concepts that strictly belong to one mode or the other. On the contrary. As will be evident in the thesis, care and standardization go hand in hand in both ordering modes and are key concepts for the whole field in general. However, their uses are somewhat different and the labels serve to highlight the focus of the ordering. Another advantage (arguably) in labeling the modes of ordering with concepts that apply to both is that it gives an indication of how little independence a mode has. In other words, it indicates the interaction between the ordering modes and how they reshape themselves and each other, as Law pointed out. The modes of ordering are always in process and they are constantly developing as they go.

I argue that both modes of ordering that I will address share the same goal or interest; to maintain the field of laboratory animal science and to produce reliable knowledge. In that respect it could very well make sense to talk about one mode of order which would include the whole field, and to look at the work that is being invested to maintain this illusion of an order, as Law would put it. However, I have chosen to talk about two separate ordering modes for two main reasons. First of all, looking at my empirical material, the course and the technicians speak about the field in different ways. Even though they are part of the same field, and the modes share many patterns and characteristics, I believe that the stories they talk about draw somewhat different patterns. And this leads me over to the second reason. The objective of this thesis is to look at how the technicians deal with tensions they might encounter in their work. As a

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<sup>7</sup> I am borrowing the phrase 'keeping the cares together' from Janelle Taylor (2010). Writing about her mother who suffered from dementia, Janelle Taylor looks at recognition and its linkages to care and what those linkages imply to the rest of us. Rather than making an individual's claim to social and political recognition dependent on her ability to recognize people, Taylor asks how we can grant her mother recognition. Taylor connects this recognition to the care present in her mother's practices and on how she tries to 'keep the cares together' as something that makes life worthwhile.

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mandatory theoretical course for technicians working in laboratories, the course represents the official view on the field of laboratory animal science, a view the animal technicians are socialized into by attending the course. However, something happens to the *Standardization* mode of ordering the technicians ‘carry’ with them when they encounter the practical work in the laboratory and the actual interaction with the animals. New patterns in the ordering of the social are being produced and maintained. A different mode of ordering can also be understood as not just another way to understand the social, but in itself as a way to deal with dilemmas and paradoxes. It can be viewed as an active and dynamic way of making sense of the present you are part of. Thus, I believe that talking about two modes of ordering makes me better equipped to understand how the animal technicians themselves understand and make sense of the field of laboratory animal science, and how they experience and address potential tensions and dilemmas.

Choosing a focus inevitably involves ignoring or neglecting other possible ways to focus. Looking at power relations between the modes could be highly relevant and important. As would looking at the field as one mode and at how the actors together, though in different ways, struggle to create a sense of order. However, it would be outside the scope of this thesis to embark on these questions. In this thesis I will present the *Standardization* mode of ordering at the *Grunnkurs i forsøksdyrlære* as one ordering mode of the field of laboratory animal science. I will then continue by focusing on the routines and practices the technicians are engaged in and on how their narratives indicate how they want their field to be ordered. Thus, movement and the organization of movement will be understood as coping strategies to deal with potential dilemmas and tensions. With this as my starting point I believe modes of ordering and care will provide me with a viable theoretical framework to pursue the goals of my thesis. I will now proceed to present my methodological approach.

### 1.3 PRODUCTION OF DATA: fieldwork, interpretation and informants

During my six weeks of fieldwork I would arrive at the laboratory around 8.30 every morning, usually around the same time as the animal technicians. Even though they did not enter the laboratory for another 15 minutes, they all met for this pre-workday breakfast period. In an informal way they would plan the day, assigning chores like technical procedures which would come on top of the normal everyday routines. Once breakfast was consumed, we would proceed to the changing room. The changing room was divided into two compartments separated by a physical knee high hurdle. In the first compartment we would get undressed. We would then climb over the hurdle into the second compartment where we would put on clean work clothes including socks and hair protection. At last we were fit and ready to enter the laboratory and the animal house. Now that the day was already planned and the tasks distributed between them, the technicians would pick up the equipment they needed, like cages and needles, and get on with the day. This morning routine became important to me for two reasons. First of all it let me know what was happening where with whom. This way it was easier for me to ask permission to observe whether it was daily routines or technical procedures. More practically, it was important as I was dependent on the technicians to get access to the different rooms since a key card was required<sup>8</sup>. Around noon we would go back to the changing room, reverse way and procedure this time, and gather in the break room for lunch. The technicians would talk about the workday thus far: were there any special information or requests from any of the researchers? Maybe some updates on the animals' health conditions? What was the status of the rooms? They also

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<sup>8</sup> The laboratory/animal house consisted of a corridor. On the right side, there were two doors leading to two separate smaller corridors. The first door led into the dirty zone. The second door led into the clean zone. Dirty and clean refers to the status of the animals. To get into the clean and dirty zones, a key-card and code was needed. On the left side of the main corridor were the labs and the washing room. At the end of the corridor was the SPF-ward. Yet another change of uniform as well as a shower was required to enter this ward. To get into the infection-ward, the big animals-ward (for pigs, rats, dogs) or back into the break room and offices, you had to go through the changing room and the changing of clothes-procedure. Both the infection ward and the big animals ward required yet another change in clothes as well as a shower when leaving the ward.

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engaged in everyday conversations. An hour later the workday continued, starting with yet another shift in the changing room. Around 14.45 the day was over and we would all go home.

While planning my fieldwork I had some concerns regarding whether or not there would be a laboratory willing to open up their doors to me. Knowing they have strict hygiene rules and procedures, I thought that might pose a problem. On the contrary. I got in touch with two different laboratories to see if I could go there to do my fieldwork. The first laboratory to respond was definitely interested, but due to refurbishing it was difficult for them to commit to having me there. The other laboratory remained silent. However, during the course at NVH, we made a fieldtrip to this laboratory. After the tour around the laboratory, I started talking to one of the animal technicians. She confirmed having seen my email where I asked if I could come and went to talk to the veterinary in charge to find out what had happened to it. It turned out that because of internal circumstances at the laboratory, their positive response to my request was never sent to me. At this point, when I again presented my idea to the veterinary in charge, I received nothing but open doors and interest in my research. There were some conditions though. First of all she wanted to present my research to the animal technicians first, leaving it up to them whether they wanted me there or not. To me this was a relief. I knew they would be my informants and that I would follow them during my days, so it was important that they did not consider me too much of a nuisance or someone who was forced upon them. This was also in line with the principle of informed consent. Not only was it in this respect important to obtain voluntary participation; it also involved informing the animal technicians of the overall purpose of my research (Kvale 1996). Making sure the technicians were properly and continuously informed about my research was important to ensure a more symmetrical relationship between us. As a researcher coming to study 'them', I can easily end up placing myself above and outside the technicians, objectifying them in the process. With this in mind Law calls for reflexivity, which he sees as an extension of the principle of symmetry: there is no reason to think that I, as a researcher, am different from those I study (Law

1994). The second condition put forward by the veterinary in charge was that both the technicians and the laboratory would remain anonymous. Laboratory animal science is a contested field in society. Although the hostility in Norway is not as militant as in Great Britain, the technicians still feel a sense of threat directed against their job, as well as a fear of being misunderstood with regards to the job they are doing and its relevance to society. Thus the names I am using throughout the thesis are not real ones and the laboratory will always be referred to as just 'the laboratory'.

Denzin and Lincoln (1998) emphasize that qualitative research is an interactive process shaped as much by the research subjects as the biographically situated researcher. Thus there are no objective observations, only observations socially situated by the observer and the observed (Ibid.:24). Trying to make sense of how animal technicians relate to dilemmas in their work is an interpretative quest. It is the result of the dialogues and interactions I had with the technicians on the basis of how they talk about their work - the animals, the endeavors of medical science and the society outside the laboratory. This project is about exploring how the animal technicians are constantly engaged in creating pools of order and thus reproducing their own profession. My data is my own constructions of the animal technicians' constructions of what they and their compatriots are up to, to use the words of Geertz (1973:9). This thesis, then, is my attempt at making a pool of order. It is a product and not a neutral observation (Law 1994). Bearing this in mind, I will continue with some remarks on my role in the field.

Entering a field of which you have no knowledge is a somewhat nerve-wracking business. While being aware of the anthropological goal not to affect the unfolding events (Finstad 2000), I was also aware of the fact that I could not tell whether the animal technicians changed their behavior because of my presence. In my struggle to figure out my role in the laboratory, and to understand the technicians and make sense of their practices, I soon realized that my presence did matter to the technicians. This was most clearly expressed when several of



my informants asked me during my stay, “So, do you think we are abusing animals?” Briggs (1970) notes that, in the field the anthropologist is not the only one doing the interpreting. She is also being interpreted by her hosts. In light of the controversies connected to the field of laboratory animal science in society, and the feeling of having to defend themselves and their job, it was clear that the technicians were trying to make sense of me, my interest in them, and my intentions with my research. In this respect, while describing structures and relations, I as a researcher am also part of the same structures and relations (Clifford 1986:3). Getting to know each other and to establish a relationship of trust was therefore of great importance. It was thus essential to be open about the project, explain my intentions and that my goal with the project was neither political nor moral. On the contrary, my goal was to understand their experiences and perspectives.

That said, what does an ethnographer do in her fieldwork? What role(s) was I comfortable having (Law 1994)? I knew I was allowed to enter the whole laboratory<sup>9</sup> and observe what was going on. During my weeks at the laboratory I spent a lot of time with the nine women working as animal technicians. Although two of them did not want to be interviewed, and some were more talkative than others, they were all welcoming and open, sharing their thoughts and chores with me. Their background with regards to education was somewhat varying, but everyone had attended and completed the mandatory course at NVH or its earlier equivalent. They all had a shared enjoyment of working with animals and they all felt that, by working in the laboratory, they are part of something important. Spending time with the technicians allowed me to be attentive to both what they said and their actions within the context of the laboratory (Stewart 1998:26). Many of the daily tasks in the laboratory are routines that are repeated on a daily or regular basis. Being able to closely observe the performance of these routines was important as my intention was to investigate tensions and how they were dealt with. Through observation I could listen and pay attention. Moreover, in

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<sup>9</sup> This did not include the SPF-ward. Due to reasons of hygiene, as few people as possible are allowed in here.

line with Wikan's (1992) plea for resonance, I could go beyond the words and see (inter)action that, to the technicians, might just be an inherent part of routine practices and as such silenced, but to me would be important clues to the concepts that “ (...) spring alive from the shifting aspects of being in the world and acting on it” (Wikan 1992:471).

However, observation does not always leave the researcher with interesting data. It also gave me extensive time to hang around in the laboratory worrying that I was not at the right place at the right time, thus missing out on action, important stories and details (Ibid.). The thought of not gaining enough (whatever 'enough' entails?) material stressed me, and I often found that hanging around without being in the way, annoying or disturbing the technicians, was hard work that left me exhausted. As a result I was very grateful whenever the animal technicians would invite me to participate in their chores. At times, I have to admit, I felt I was wasting my time cleaning and changing the cages for the mice. Being alone in a room filled with mice, I reckoned I was destined to miss out on the action. But I was relieved to have something to do, not to mention being able to actually help the technicians and not just distract them from completing the planned tasks of the day. So I eagerly grabbed the opportunity to participate. However, during the course of my fieldwork I learned to appreciate this practical experience for another reason. If I wanted to share their world, I needed to attend to it in the same way as them, thus engaging in their daily routines and events (Ingold 1993). One of my roles in the field was thus that of a participant observer. I experienced that being allowed to participate in the daily tasks, created a closer symmetry in the relationship between me and the animal technicians. Rather than making myself a passive observer taking notes, thus setting myself apart from the action, I became immersed in the joint action in a shared environment (Ingold 1993:223). For this reason I soon left behind both pen and paper in the lunch room. It just did not feel right to be making notes about 'them' like they were some objects I was studying. Rather, writing down the events of the day was a task for the evening at home.

In addition to the role of participant observer, I had the role of interviewer. From the start I wanted my presence at the laboratory, and consequently with the interviews, to interfere with the animal technicians' workday as little as possible. Therefore I wanted to leave it up to the technicians to decide when they could afford to spend time on an interview. However, I soon found out that this strategy did not work. Expecting someone to deliberately stop working to let me interview them, a situation I believe most people find somewhat uncomfortable, clearly was unrealistic. Thankfully, one of the informants got in charge and mildly 'ordered' the informants who had previously agreed to an interview to meet me. It was still done in a way so that it interfered with their work as little as possible. The interviews were conducted in three different rooms, all at the laboratory premises. As the technicians knew their own facility, which room was in use and when, they picked the location. All of the interviews were conducted at the end of my fieldwork in November 2010. While I followed the course at The Norwegian School of Veterinary Science, I conducted one interview with the professor. Also in this case the informant chose the location for the interview as he was familiar with the premises. This interview was conducted in September 2010. Conducting semi-structured interviews allowed me to gain in-depth information and insight in topics I was interested in. I aspired to create a dynamic interview situation so that the interviewees would be motivated to talk about their experiences and thoughts, and I would be enabled to follow up on these thoughts and stories (Kvale 1996).

## 1.4 THESIS OUTLINE

Having outlined my approach, I hope the following chapters can provide the reader with a viable and rigid argumentation and analysis. The animal technicians stand in the crux of the tensions present in the laboratory. Giving a comprehensive picture of how the animal technicians understand their use, their interaction with, and their relation to the laboratory animals, to see this in connection with how they understand the field they work in and their role within

it in relation to the society outside the laboratory, is important in order to understand how they deal with the dilemmas they are faced with in their job. Chapter 2 in its entirety is dedicated to the mandatory course *Grunnkurs i forsøksdyrlære* at NVH as this is understood to represent the official view on the field of laboratory animal science as well as conveying the ordering mode of the field itself. The aim of the chapter is to investigate how this theoretical course conveys the demands of science and animal welfare. This chapter is thus meant to function as a contrast to the practical work at the laboratory. By looking at the mandatory course as a central actor intervening in the formation of the students' identities as animal technicians and as making a mode of ordering of the field available to them, the aim is to shed light on the dilemmas that become apparent in the practical work of the technicians, and not least, in their interactions with the animals. This takes us over to Chapter 3 where we enter the laboratory and the workdays of the animal technicians. Here I will focus on the routines and technical procedures that present the dilemmas the technicians encounter in their work, and show how they constantly have to negotiate between the demands of science and animal welfare. In Chapter 4 I will connect these dilemmas and the outcome of the negotiations with how the technicians rationalize their position in the field of laboratory animal science. Focus will be on three main areas: the conceptualization of the laboratory animal, the technicians' way of relating to medical science, and lastly, on how they situate the work they do in relation to society outside the laboratory. Finally, a summary of the arguments and a conclusion will be offered in Chapter 5.

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## 2. ESTABLISHING 'LEGITIMATE KNOWLEDGE' FOR SKILLED STAFF

During the preparations for my fieldwork and in my initial quest to learn more about laboratory animal science, I asked the Veterinary School of Science permission to attend the theoretical course *Grunnkurs i forsøksdyrlære*<sup>10</sup>. The course would introduce me to the field as well as equip me with the same basic theoretical knowledge as the technicians in the laboratory. As a course made mandatory by the Landbruks- og matdepartementet (LMD), it can be understood to represent the official view on the field of laboratory animal science.

Representing the official view, the course also functions as a legitimate arena for determining the social space with its corresponding tacit and non-tacit rules and regulations in which the laboratory animal science is conducted, and as an agent of specific knowledge, ideas and values. However, more than just conveying the official view of the field, the course can be understood to represent how the field itself makes sense of what their enterprise is all about. Within this perspective, the lectures, the curriculum, the fieldtrip, and classroom debates and conversations, are all part of the ordering work to maintain and reproduce a certain mode of ordering in which the animal technicians are socialized. Clearly the process of socialization occurs not only on the course, but is a constant ongoing process in the practical work at the laboratory as well. Still, the structured and theoretical presentation of the field of animal research presented in the course creates a common frame of understanding shared by everyone in the laboratories. In this sense, the course seeks to produce both a particular kind of people and a particular kind of knowledge, and "...acts as [an] agent(s) of selective tradition and of cultural 'incorporation'" (Apple 2004:5). Attending the

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<sup>10</sup> This course is one of several courses in the two-years study to become an animal caregiver. Even though laboratories today prefer to hire someone with the two-years education, it is this specific course that qualifies you to work in a laboratory. As it is mandatory, everyone has to take this course even if they have already worked at the laboratory for a while. The course is thus targeted both at people who might already be socialized into the field of laboratory science through work and at students who might feel alien to the thought of animal research and have no prior knowledge of the field.

course thus provided me with an insight into how the field itself addresses tensions within it and makes them ethically acceptable.

Although *Grunnkurs i forsøksdyrlære* is a short course lasting only four weeks including the exam, it touches upon many topics such as ethics, law, animal welfare, health monitoring, biology, micro biology, and good laboratory practice, to name but a few. As stated in the study plan for the course, the purpose of the course is to provide the students with knowledge about the use of research animals in Norway, and the current regulations concerning animal experiments. The topics of the course revolve around and are tied together through two main fields of knowledge - animal experimentation as a science and animal welfare, with the 3R's<sup>11</sup> underpinning both<sup>12</sup>. This forms a basis for what is taught and it also prepares the students on a theoretical level for what they will meet in the laboratory. Thus a certain 'legitimate knowledge' or a knowledge 'you must have' is being (re)produced and given cultural legitimacy (Apple 2004) through the course. In other words, this is both the official take on how the laboratory animal science enterprise should be understood and experienced, as well as it conveys the ordering mode of the field itself. I will refer to this ordering mode or 'legitimate knowledge' as the *Standardization* mode of ordering.

As will become apparent below, this mode of ordering has been informed by different interests, such as the research community and animal protectionist groups. Still, the *Standardization* mode of ordering advanced through the course comes across as coherent and consistent. This chapter is devoted to this ordering mode because it constitutes the understanding of the field which the animal technicians are socialized into and 'carry' with them into the laboratory. I believe that understanding what this coherent take on the field of laboratory animal science entails will provide a contrast to the apparently more complicated practices in which the animal technicians are engaged in at the lab, and the

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<sup>11</sup> 3R's: Replace, Reduce, Refine. See section 2.5

<sup>12</sup> <http://www.nvh.no/Venstremeny/Studier-/Dyrepleier/Studiet/>

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tensions this complexity may entail. I will approach this ordering mode mainly by analyzing the *Grunnkurs i forsøksdyrlære* because it represents a source of professional socialization which the technicians share. Also, by establishing an understanding of what is being conveyed to the technicians as ‘legitimate knowledge’ or facts, it becomes possible to understand how the animal technicians continuously produce and work to maintain a mode of ordering suited to their practices and reality in the laboratory. This then becomes a system that enables the animal technicians to interpret their practices in a way that means they do not feel they experience any dilemmas connected to their job.

In my analysis of the course I will focus on how animal welfare and medical science are established and presented as a consistent whole through standardization. I will further look at how this affects how the ‘lab animal’ and the animal technicians’ role are understood. In order to better understand the *Standardization* ordering mode conveyed by the course, I will, however, make some detours in order to present the ordering mode with more depth. I will thus start with a short presentation of the course initiation to understand what interests informed and helped to shape it, and, how the course was created as part of establishing a standardized system or industry for the production, distribution and husbandry of laboratory animals.

## 2.1 ESTABLISHING SKILLED CARE AS A STANDARD FOR GOOD CARE PRACTICES

In her dissertation, Druglitrø (Forthcoming) shows, in line with STS and feminist theory on care practices<sup>13</sup>, how the skilled care of research animals can be understood as a complex care practice entailing many goods<sup>14</sup>. The establishment

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<sup>13</sup> I will return to the concept of care in section 3.1.

<sup>14</sup> Mol, Moser & Pols (2010) use the term ‘goods’ to describe the goal of care practices, which is directed towards doing good. Pols (2003) introduced the term ‘modes of doing good’ to study the flexible content of care practices.

of skilled care sought to ensure both the scientific standardization and the welfare of the research animals as a standard for caretaking in the animal house. Skilled care was thus constructed and organized by the logic<sup>15</sup> of standardization promoted in Norway in the 1950s and 1960s. Skilled care contributed in turning the research animal into a complex object of care, simultaneously a resource and a sentient creature, as well as making the animal technicians part of the scientific team.

The criteria that were applied to skilled care within the logic of standardization, were, according to Druglitrø, directed towards the maintenance of a hygienic regime both in the animal house and the laboratory, the homogeneity and standard of health of the research animals, and ultimately the production of scientific knowledge. Skilled care further entailed a good understanding of the animals as well as mastering different technologies, such as cage systems and standardized feed, and procedures, such as blood sampling. As the technology became part of the care practices and restructured the work at the laboratory, the animal technician was constructed as a central part of the scientific team, and it became both a scientific and social goal for the animal technicians to ensure reliable knowledge production.

The need for skilled staff and modern production and housing facilities was a consequence of the growing use of standardized lab animals and the introduction of standardized hygienic regimes in the field of laboratory animal research during

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This is an extension of Law's 'modes of ordering'. Pols uses 'modes of doing good' to highlight the normativity in the different logics or modes.

<sup>15</sup> Druglitrø borrows the concept of 'logics' from Annemarie Mol 2008:8. Rather than using 'discourse' or 'ordering', Mol uses logic to indicate that she is studying the rationale attached to the practice she is studying.



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the 1950s and 1960s. In the absence of competence and skilfulness, the international organization *International Council for Laboratory Animals* (ICLA), established in 1956, expressed a need to establish a new expertise for care taking and handling of research animals. ICLA promoted a logic of standardization which intended to capture local knowledge and transform it into universal standards, as well as allowing for the need to adjust these universal standards to the socio-political and cultural conditions in each country. These standards of animals, technology, method, and infrastructural arrangements were to be implemented in the different local settings. This way the international research community could refer to these standards, recognizable across national borders, when research results were to be legitimized.

Since the establishment of ICLA the biomedical community in Norway had been part of the organization's efforts to standardize the field of research animals at an international level. From the outset, one of the main agendas for ICLA was to educate technicians in skilled care. It was believed that by offering education and courses, a professional identity would be established which could contribute to the legitimization of the animal technician as a central part of the research team, and in turn, help standardize the research enterprise. Through courses, the goal was to educate animal technicians who possessed knowledge, experience and an innate aptitude in the handling of animals. Druglitrø comments that the innate aptitude in the handling of animals was not about 'tender love'<sup>16</sup>, but about sound husbandry based on reasonable principles. The innate aptitude would ensure animal welfare. But although sentimentality was not considered as a definition of good husbandry, it was considered to be an important quality in an animal technician as it signalled an interest in the animals.

Skilled care was thus established as a way to care for something in a good way. On a macro level, skilled care was supposed to maintain a standardized regime

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<sup>16</sup> Mol, A. 2008:5. Mol tries to expand the concept of care so it does not only involve 'tender love' and 'kindness, dedication and generosity', but also involves technology. Thus, the seemingly contradictory states of care will become apparent in the specificities of care in the day-to-day care taking. I will come back to the concept of care in chapter 4.

and ensure reliable knowledge production according to scientific and social objectives. However, Druglitrø further shows how skilled care also was directed towards a micro level - with concrete practical tinkering and relation with the animal demanding attentiveness and knowledge of good animal husbandry. Skilled care is about 'taking care of' and 'caring about'. This is what Harbers (2010) calls an 'economy of care'. 'Taking care of' and 'caring about' is about protection and concern - a dual sense of care. By using Harbers notions of an economy of care, Druglitrø shows that it is possible to understand the different cares that have contributed in shaping skilled care as an expertise in the animal house and the laboratory. This expertise is about caring for the network as a whole which (also) implies care for the life and welfare of its constituent elements.

Although inspired by the work going on internationally, Druglitrø shows how questions connected to skilled care had been on the agenda in Norway for some years, irrespective of the international development. Apart from being an issue in the research community, skilled care was also an area within the field of laboratory animal science in which the Animal protection group *Foreningen til dyrenes beskyttelse* (FDB) was interested. In 1951 they appointed the *Committee for research on animals*, having two main goals: making the veterinary authorities part of the control body supervising the scientific experiments on animals, and to establish an education or training for animal technicians/animal care takers. Rather than rejecting the use of animals for research as animal abuse, FDB acknowledged its necessity. The animal protection proposed by FDB thus set them apart from other critics of experiments on animals, such as anti-vivisectionists who demanded total abolition of animal experiments. The realization of this specific understanding of animal protection was by FDB connected to the skills of veterinary medicine, and entailed keeping the animals healthy, ensuring humane killing, and making sure the people working with them had knowledge about the right way to keep and use the animals. Two of the three members in the Committee for research on animals were themselves doing

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experiments on animals, making the protection of animals an integrated part of their professional relationship with animals. Thus, as Druglitrø notes, the combination of scientific research and promoting animal protection did not seem to be in conflict for the members of the committee.

By getting involved in the questions regarding research animals by promoting the interests for animal welfare and science as uniform, and not in conflict, FDB could locate animal protection in areas where ‘humane viewpoints’ could reach, such as the breeding, the care taking, feeding, and cage systems. These improvements would be both cost efficient to the animal house and improve animal welfare. This practical union of economy and humanism coincided with currents in the UK, where the release of *The UFAW Handbook for the Care and Management of Laboratory Animals*<sup>17</sup>, released back in 1947, underlined, according to Kirk, the symbiotic relation between the health standard of the animals, the discourse of standardization, and animal welfare (Kirk in Druglitrø Forthcoming). With this reasoning, FDB defined itself away from the anti-vivisectionists’ zero tolerance by facilitating animal protection in practical life. An important aspect of this specific understanding of animal protection was that the correct handling of the animals, in order to make them feel safe in their environments, became essential in the production of tame, healthy, and attractive animals. Druglitrø further comments that, from FDB’s perspective, the use of animals for research did not entail an abusive relation between master and servant. Rather, it was regarded as part of a natural, symbiotic relationship between humans and animals where different species are mutually dependent on each other for their sustainment (Ibid.).

It was not until 1960 that the FDB-involvement concerning the establishment of an education for animal technicians paid off. Although courses were offered during the 1960s, the institutionalization of the course as a national education at

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<sup>17</sup> The animal protection organization Universities Federation for Animal Welfare (UFAW) released the handbook as an introduction and guide to the keeping and caring of research animals. It was celebrated in Great Britain as a practical combination of economy and humanism.

the Veterinary School of Science was not in place until 1993 (Druglitrø Forthcoming), with the first students starting in the fall of 1994. It started out as a one year course, but has since grown to be two years. This is an education to become an animal care taker, and the *Grunnkurs i forsøksdyrlære* is only one of several courses the students take. In order to work as an animal technician today only this one course is required. The course is thus targeted both at people who might already be socialized into the field of laboratory science through work, and at students who might feel alien to the thought of animal research and who might not have any prior knowledge of, and possibly no ambitions to work in, the field of laboratory science. Today there is a tendency for the laboratories to hire animal care takers. However, at the lab, the formal education makes no difference in respect to the tasks one can perform or the responsibility one has.

The intention with this brief presentation of the initiation of the course has been to demonstrate the interests that informed and shaped it. In this respect the course can be understood to resonate with the demands being voiced in the society, and as such, represent the official view. This would be in line with Guerrini, when she argues that “... the values of science are the values of the society it inhabits” (Guerrini 2003:xi). However, the presentation also reflects the intention within the field to establish a standardized system of the production, distribution and husbandry of laboratory animals. As such, the establishment of the course can be understood as part of the ordering work behind the *Standardization* mode of ordering. As part of establishing a standardized system, the course thus maintains and (re)produces this ordering mode.

## 2.2 INTRODUCING THE COURSE AND THE LABORATORY ANIMALS

The curriculum of the course consists of two compendiums, *Kompendium i forsøksdyrlære* (Hem, Eide & Smith 2007) and *Laboratory Animal Science: photocopy collection* (NVH 2009), which together with the lectures will form the

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basis of my analysis. The introduction states that the purpose of animal experiments is to shed light and find answers to biological and medical questions related to the health of humans and animals. Laboratory animal science revolves around both attitudes and knowledge. The stated goal of the compendium is to “... teach you something about laboratory animal science – and maybe more importantly – to act according to attitudes which maintain the interests of the research animals” (Hem et al. 2007:3, my translation). Interesting in this context is how the two spheres of science and welfare are balanced. The seemingly contradictory tasks of, on the one hand caring for the animals and providing a good life for them, and, on the other hand, the requirements for scientific research are infused with ambiguity. How is it possible for a laboratory animal to have a good life? How is a good life for an animal framed in the logic of standardization? In Chapter 3 and 4 I will take a closer look at how the animal technicians deal with this ambiguity. Birke et al suggests that professional socialization for animal technicians (and lab workers in general) “ ... entails learning how to switch between objectification (keeping the animals at a distance) and identification with them” (Birke et al. 2007:96). In the remainder of this Chapter I will take a closer look at the way the *Grunnkurs i forsøksdyrlære*, as a form of professional socialization, deals with the ambiguities inherent in the field of laboratory animal science and sets out to prepare the animal technicians for the practical work they will face in the laboratory.

During lectures, the students were taught that, like any other science, laboratory animal science aims to perform experiments which produce good science and which can be reproduced. If it cannot be reproduced, both the experiment and the animal(s) used have been wasted. The students are thus taught that standardizing both the environment and the animal plays an important role by limiting the variables, possibly reducing the number of animals used. Complete standardization is however difficult because of hidden variables, for, as the professor said during a lecture, you have the “known knowns, known unknowns, unknown unknowns”. For each experiment a scientific evaluation is needed to decide which factors can be standardized. The rest can be mitigated through

statistics, for instance increasing the amount of animals needed for an experiment. The course thus emphasizes the importance of controlling everything you can control, which in laboratory animal science involves refinement of three areas - the environment, the animals, and the method<sup>18</sup>. I will now have a closer look at what this control entails.

## 2.3 THE ANIMAL MODEL

The compendium states that a good animal model gives good science. “The research animal is a very complicated construction with several regulating mechanisms. The animal must be able to answer what we ask and it must give the same answer every time” (Hem et al. 2007:4, my translation). This makes the selection of the right species very important, making it necessary to have a general knowledge about the biology of the animals. In the history of vivisection the species of the animal model had less importance than the price and how easily they could be obtained because the focus was on the functions of a living creature. In the twentieth century primates have been considered ideal experimental models for human medicine because of their similarity to humans. However, this similarity poses some medical challenges – the fear of zoonosis – and has also appeared more ethically problematic to the general public (Guerrini 2003). During an interview, the professor at The Norwegian School of Science (NVH) reflects on the use of different species as research animals. He notes that within the scientific community there is a debate regarding the use of apes in research. The similarity between primates and humans is ethically problematic, but depending on the research, it also gives the most reliable animal model. He further reflects on the use of traditional pets, such as dogs and cats. Purely from a welfare point of view, he argues that the use of these animals might even be better than the use of mice and rats. Everybody knows instinctively how to read

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<sup>18</sup> As the method is decided by the researcher and hence is not directly part of the animal technicians' work, I will focus here on the refinement of the animals and the environment.

their signals, ensuring better care. However, he also points out the general resistance in society against using what are commonly perceived as pets in research. Although he claims that using such animals is not a sign of hostility towards animals, he also notes that there are certain areas in society we should hesitate to touch. “What might it do to our own self image to use such animals?” he wonders. The debate regarding which species to be used for research was also commented on during a lecture by a guest lecturer. He ascertained that in Norway today we do not use primates because we are sanctimonious. Because of this, we leave it to the Chinese and Americans to do the research we do not want to do ourselves. “Hopefully the rest of the world will not do like us – it will not become a pleasant world,” he finishes.

However, the social value of an animal is not the only factor that affects the choice of animal model. The professor comments that if one is about to conduct a – for the animal - stressful experiment, one will choose an animal as far down the chain of evolution as possible. Fish are regarded as inferior to mammals. Or put in other words: “Dogs have a higher Bambi factor, as you know”. However, most of all, the curriculum stresses the importance of the animal model as an essential part of refinement, which will ensure good research. However, as another professor at the course noted, despite the variety of specialised animal models they are often not good enough, which is a problem for the whole research community. That is why it is important to know your model well, including its flaws and errors. A possible consequence of not knowing the animal model one is working with is demonstrated in the compendium by the much referred to thalidomide tragedy in the late 1950s. The medicine was tested for acute toxicity on mouse, rat, and marmoset, and was approved for human use only after clinical experiments on humans. When the medicine was released on the market, it was prescribed mainly to pregnant women, as it was believed to release morning sickness. Instead it resulted in deformed babies. Using the ‘wrong’ animal model led to a failure to detect the consequences the substance had on foetuses (Hem et al. 2007). The curriculum further conveys that with better knowledge of the animal model this tragedy could have been avoided.

Finding the right animal model as part of refinement ensures reliable results which can be reproduced according to scientific standards. Another consequence of good research is that fewer animals are needed since the experiment is not wasted (Ibid.).

Finding the right animal model is thus scientifically, ethically and economically challenging, providing several reasons why some animals are preferred as animal models and others are not. Many species are used worldwide, but since the end of the nineteenth century, rodents, and especially mice, have grown to be the most frequently used animal in laboratories<sup>19</sup>. This was also the case in the laboratory where I conducted my fieldwork. There are several reasons why the mouse is perceived by researchers as an ideal experimental animal.

“They are easily tamed, and their small size makes housing and feeding cheap and simple. Their prolific reproduction habits make it easy to develop a mouse colony, and because they breed several times a year, they are especially suitable for genetic experiments that require tracing several generations. In addition, mice get many of the same diseases humans do” (Guerrini 2003:132).

Despite all its favorable characteristics “(...) the selection of this nocturnal, and, from a human perspective, unruly and destructive species as the primary inhabitant of the highly controlled, rule-bound, broad-daylight laboratory of science” (Shapiro 2002:441) was not obvious or without considerable irony. Using the development of a standardized laboratory mouse as an example, I will now briefly look at the history of the laboratory animal and on how it has become a standardized tool of the laboratory. Even though the *Grunnkurs i forsøksdyrlære* focuses on research animals in general, I believe the historical development of the mouse, which has had a parallel development with the rodent in general, will be able to shed light on how the laboratory animal has been transformed into a standardized research tool. This is important because it shows how the idea of the animal as an object it is possible to exercise control over has

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<sup>19</sup> Fish is currently the most used research animal in connection to aquaculture industry in Norway ([http://www.nifes.no/index.php?page\\_id=&article\\_id=3263&lang\\_id=1](http://www.nifes.no/index.php?page_id=&article_id=3263&lang_id=1)). However, worldwide and also in the lab where I conducted fieldwork, the mouse is by far the most commonly used animal, and therefore I will treat it as such throughout the thesis.



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developed and become an integrated part of the standardized system. Through the course the animal technicians are socialized into this notion of the laboratory animal. The history of the laboratory animal will be able to shed more light on how the use of specific animal species is tied to cultural considerations connected to society outside of the laboratory.

### **2.3.1 STANDARDIZING THE ANIMAL MODEL: The mouse - “from pest to pet to productive element of the scientific community”<sup>20</sup>**

As we could read from the comments from the lecturers at NVH, the debates regarding the animal model are reflections of the tension between human and animal subjects within a cultural and social context. In reference to scientific experimentation the animal model has to make the laboratory results obtained from it generalizable to humans. But at the same time, they cannot be so much like us that we ethically oppose using them as subjects of experiments. In this regard social assumptions have shaped scientific considerations and uses of animals (Rader 2004:22). In the early twentieth century the vivisectionist debate about the use of animals in research focused on the use of ‘innocent’ dogs and cats by ‘malicious scientists’. The ethics behind this focus was driven by the animal’s social worth because cats and dogs had a positive place in society as pets. Mice on the other hand had a long lasting cultural identity as pests (Ibid:35-36). Rader notes that in recent case studies of standardization in the history and sociology of science it is stressed that in order to achieve standards, intense negotiation over what material, organizational, and conceptual categories can and should be deliberately controlled and therefore taken for granted, is required. The lab animals are hence the result, and not the cause, of consensus between early twentieth century experimental biologists (Ibid:15). Thus, the history of the transformation of the mouse is a story about standardization. ICLA advanced, as

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<sup>20</sup> Staats 1965:1 in Birke et al. 2007:30

already mentioned, international standards concerning animals, technologies, methods, and infrastructural arrangements. In this respect they promoted, according to Druglitrø (Forthcoming), a vision about ‘the ideal laboratory animal’ which would be a truly standardized research animal produced through genetic standardization and gnotobiotic<sup>21</sup> technology. As long as both the methods for production and the housing conditions followed standardized principals, ‘the ideal laboratory animal’ would be ‘the same’ laboratory animal no matter where it was produced (Ibid.:Chap. 3).

The prolific reproduction habits of mice and rats made it easy to turn them into standard models. The process of standardization included a careful management of the animals’ breeding and environments - in other words it was a case of bringing the animals under control (Birke et al 2007). The mouse was developed into a standardized laboratory organism during the period from 1900 to 1955. The Jackson Lab was at the forefront of producing the inbred<sup>22</sup> mouse, bringing it into the laboratory as a genetically stable research organism for both the biological and medical sciences (Rader 2004). Inbreeding ensures the standardization of the mice which means they are essentially alike. Some inbred mice also had a greater susceptibility to cancers, making mice central to cancer research by the 1930s (Guerrini 2003:132). However, in the beginning, Rader notes, researchers would obtain their mice from mouse-fancier organizations that domesticated *mus musculus* and selected for certain standard physical features. Even though mouse fanciers made mice as pets more common during this period, it did not increase the public’s emotional attachment to the species. Their cultural identity was still that of undesirable pests. However, mouse fanciers breeding mice transformed mice into something of human utility, and both the practical and ethical thresholds for using mice were lowered. There was no longer a need to trap mice in their natural environment; they could be obtained from a breeder.

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<sup>21</sup> Gnotobiotic technology is the breeding of animals that are completely free from infections and have only known strains of bacteria and other microorganisms present (Druglitrø Forthcoming, <http://www.med.unc.edu/ngrrc/about-us/about-us>)

<sup>22</sup> Bred within a closed community to emphasize certain genetic factors

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Also, the mice were used in the genetic procedure of breeding, causing no pain to the animal. Since pain was the main concern to animal activists before 1920, the use of mice in research did not arouse the activists' concern (Rader 2004:36). Thus, the availability of the inbred mouse increased and new scientific uses for them, first in genetics, later in medicine, were defined. The new mouse strains were publicized as useful tools for research, which also stabilized the mouse metaphorically (Birke et al. 2007).

During the 1930s animal production was transformed into an industrial, standardized, mass-production. This production was sensitive to a variety of user needs in different disciplinary and institutional contexts. Making the mice accessible to researchers transformed "... the inbred mouse into a standard animal, both in terms of being 'widely available' and 'widely used'" (Rader 2004:174). The life of a lab animal is hence determined by the requirements of science (Birke et al. 2007). The increased laboratory presence of the inbred mouse also became more significant as it could be marketed as a broadly useful animal – to the American public they were useful tools in the fight against cancer, and for cancer policy they were instruments of rational research coordination (Rader 2004:174). Within the research community, the mouse was now perceived as the right animal to use for a wide range of research problems (Birke et al. 2007).

Today, the mice used are highly specialized research tools and researchers can look through catalogues of mice and other animals and order the right animal for their specific research (Guerrini 2003:132, Birke 2003). In order to reduce experimental variability, genetic variation within strains needed to be minimized (Birke 2003). This search for reduction in variability has gone even further with the creation of a more specialized mouse using the modern techniques of genetic engineering, such as 'knockout' mice<sup>23</sup>, transgenic mice<sup>24</sup>, and ultimately the

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<sup>23</sup> A particular gene is 'knocked out' or disabled to mimic what happens in genetic diseases where specific genes are not functioning (Birke et al.:2007:49)

specific pathogen-free strains (SPF)<sup>25</sup> (Ibid:2003, Guerrini 2003). According to Druglitrø, the SPF-animals were developed due to challenges the researchers were facing both in Norway and internationally. Researchers could report that the access to animals was often characterized by an ad hoc practice because the laboratories were unable to plan for which and how many animals they needed for a research project. Another problem reported was the quality of the animals offered by the breeders who often lacked the relevant knowledge about the needs present in the biomedical research. The result was an inconsistent quality and quantity of animals. Lane-Petter, a prominent figure in the field of laboratory animal science in Great Britain, named the SPF-animal as ‘the ideal research animal’ or as the ‘real standard’. Through inbreeding it had a known genetic composition, and it had to be given the right and balanced nutrition to stay healthy and normal (Druglitrø Forthcoming). Further it was important to keep it away from infections, as these added unknown variables to the experimental system (Kirk 2005 in Druglitrø Forthcoming). This was done by securing and controlling the animals’ environment. These practices were referred to by Lane-Petter as a hygienic regime, ensuring healthy animals. In order to construct and maintain the characteristics of the ideal research animal, genetic uniformity, in combination with a stable environment, which had to be maintained by skilled animal technicians, was central (Druglitrø Forthcoming). The development of the ideal research animal was about creating the ‘right tool for the job’(Clarke & Fujimura 1992 in Birke et al 2004:172). In other words, the development of the

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<sup>24</sup> Transgenic mice carry particular genes for particular traits (often traits expressed in another species such as humans) (Birke et al.:2007:50)

<sup>25</sup> SPF-animals are animals free from specific, potentially illness inducing micro-organisms and parasites. They are created by breeding genetically standardized animals through inbreeding, then removing the fetuses together with an intact and chemically sterilized uterus in an isolated room. The fetuses are then removed in sterile surroundings through a caesarean, where it will continue its life. This ensures that it is only exposed to micro-organisms already existing in the laboratory (Druglitrø Forthcoming).

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laboratory rat/mouse has been the materialization of the demand for standardization (Birke et al. 2004), a process of domestication which Lockyard has termed *laboratorization* (Shapiro 2002:441).

The development of the lab animal occurred together with the development of science and the scientists. With the establishment of experimental biology at the end of the nineteenth century, standards were set. Most important was the requirement that procedures needed to be regulated and controlled, making the experiments replicable. A corollary to this was the demand for increasingly standardized laboratory equipment – the animals being part of this equipment (Birke et al. 2007). The specialization of the animal model may be viewed as a more efficient way to use animals for research, because, as the compendium (Hem et al 2007) states, knowing the model and controlling its genetics may produce better experiments, resulting in fewer animals used, as well as making the experiment reproducible. The question is what does standardization, as a means of doing good science, entail according to the course, and how does this affect how the animal is understood.

### **2.3.2 THE LAB ANIMAL – A CAREFULLY CALIBRATED MEASURING INSTRUMENT**

“Several different factors influence the research animal. The interpretation of the research results may therefore be very difficult. That is why standardization is important. Standardizing the animal and the animal’s environment” (Hem et al. 2007:4, my translation).

The curriculum states that, as a biological measuring instrument, the animal has to be calibrated as carefully as possible so that it can answer the questions posed in the experiment, and also provide the same answer every time. In this respect it is important to be in control of the genetics, which means it has to be possible to reproduce the genetics of the animal (Hem et al. 2007). This is important because in order to reproduce an experiment, it is vital to reduce experimental mistakes caused by uncontrolled genetic variation. A transgenic animal is made through trial and error and is considered to be a good research tool that makes it

possible to test quite specific hypotheses. They are the biological test tubes of cell biology (Hem et al. 2007). This form of standardization is seen as a refinement of the animal model through increased knowledge of the ‘tool’ is increased, which again is believed to reduce variability in the research.

However, refinement of the research animal through its standardization entails more than just genetic engineering. It also involves the handling of the animals and good techniques when performing different procedures. “Incorrect handling, deficient anaesthetics and techniques which will torment the animal are ethically unacceptable. In addition it may give measurement errors, so the experimental results will not be reproducible” (Hem et al. 2007:5, my translation). Through the lectures it was emphasized that research needs people – animal technicians – who are trained to read the behaviour of the animals to discover whether they are sick, unhappy, content, etc. To be able to detect their condition and create a feeling of security for the animals means that socializing with them as a part of their job becomes important. So while standardization requires de-individualization in order to prevent variation, it also in turn requires attention to each individual. Good care is the care that promotes standardization and reliable models to be used in science, or with Holmberg’s words: “In ‘real life’, in laboratory practice, good handling is a means of meeting good scientific standards (..)” (Holmberg 2008:329).

Although the compendium stresses that the animals are living creatures with the ability to feel pain as well as fear (Hem et al. 2007:4), the words that are used to describe the animals are taken from the laboratory and the technological field. Rather than talking about sentient creatures, the animals are attributed mechanical traits through ‘mechanomorphisms’ (Hearne 2007:232), thus being referred to as a thermometer, a test-system, and a carefully calibrated measuring instrument. This ‘mechanomorphism’ is further illustrated when, during a lecture, a description from NASA technology was turned into an analogy, saying: “Animals are complex, tightly wired organisms”, explaining tightly wired with “if one part fails, a part connected to this will fail too, like a domino effect”. Like

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NASA technology the animal too is a complex tool – it is also technology. “The ‘identities’ of lab animals, at least to humans, are thus profoundly shaped by the development and demands of experimental science” (Birke et al. 2007:33). Birke et al contends that looking at how lab animals are portrayed can give us an idea of how the animals are understood (Ibid:13). In light of this - the focus on standardization as a means for doing good research, and the ‘mechanomorphisms’ present in the curriculum - it becomes evident that the notion of the lab animal, conveyed through the course, is not so much of a sentient being as of an instrument to be used for scientific endeavors.

## 2.4 CONSEQUENCES OF STANDARDIZATION

With the continued standardization of the lab animal has come the need to standardize its housing, both its physical space and how it is taken care of<sup>26</sup> (Rader in Birke et al. 2007:31). The course literature points out that the environment, as with the animal, has to be strictly defined if the animal is to function as a measuring instrument since the animal’s biological responses are a result of a combination of genetics and environmental influences (Hem et al. 2007). The environmental factors thus need to be under strict control in order to mitigate variability, both to obtain a result and to be able to reproduce the experiment. Such environmental factors are temperature, humidity (RH), light, sound/noise, air pressure, air quality, smell, bedding, animal density, and acclimatization. The consequences of not having the environmental factors under control might be huge, and fatal, to the experiments and the animals. Conditions that are not optimal for the animal might change its behaviour, which in effect makes the animal itself into a variable (NVH 2009:45-55).

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<sup>26</sup> This would be the skilled care Druglitro (Forthcoming) writes about in her dissertation and what the course tries to prepare the student for.

While, on the one hand, a standardized environment is of great importance for reduction and refinement<sup>27</sup> (Hem et al. 2007), on the other hand the environmental standardization, as it is adjusted to the preferences of the animals, comes to be understood as animal welfare. It might seem paradoxical that in order to create ‘natural’ conditions for the animals, strict regulations and strictly defined ‘unnatural’ controlled conditions are needed<sup>28</sup>. Birke et al. are more specific about the effects sub-optimal conditions might have for the animal, stating that spending a substantial part of your life in a cage will have a profound effect on most animals, with considerable implications for animal well-being (Birke et al. 2007). This is a condition Wemelsfelder describes as ‘boredom’, according to Shapiro. A caged animal will become bored and will no longer demonstrate species-specific behavior which also entails the loss of species-specific identity. In the process of turning the animals into specialized scientific tools they are *deanimalized* (Shapiro 2002)<sup>29</sup>. The whole process of *laboratorization*, of being eventually sacrificed for research, can be understood as a transformation - from ‘naturalistic animal’, with commonly experienced species-specific characteristics, to ‘analytic animal’, a product of human intervention which reduces the naturalistic animal to preserved fragments and statistical frequencies (Lynch 1988). The whole rhetoric of science conveyed by the curriculum is, according to Birke et al., helping to obscure the (naturalistic) animals (Birke et al. 2007:62), because along with the demand for standardization in science comes a process where diversity disappears and individual variation comes to be seen as a nuisance (Ibid:26). This is demonstrated by one of the slides from the lectures: “The object of animal

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<sup>27</sup> See section 2.5 on reduction and refinement as part of the 3R’s.

<sup>28</sup> Birke and Smith point out that even though science claims to study nature, what enters the laboratory, including the animals, is highly artificial (Birke & Smith 1995:38). Further, sighting Knorr-Cetina, they note that: “... ‘raw’ materials which enter the laboratory are carefully selected and ‘prepared’ before they are subject to ‘scientific’ tests...To the observer from the outside world, the laboratory displays itself as a site of action from which ‘nature’ is as much as possible excluded rather than included” (Knorr-Cetina in Birke & Smith 1995:38).

<sup>29</sup> It is important to note that today substantial efforts are made to alleviate the suffering animals can experience during a lifetime in cages, and the welfare is enhanced by enriched housing arrangements such as objects for play and species-specific social arrangements (Shapiro 2002).



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production and husbandry in the laboratory must be to produce animals which show standard responses to experimental manipulation” (NVH 2009:57). Apart from how the animals are referred to as instruments etc., this *deindividuation*, to use Shapiro’s term, includes features such as the large number of animals used, the short time they are alive, the press for genetically identical animals, the need to kill them, and the production of animals bred for research. In the experimental situation it will be assumed that there are no individual differences. Within this view, any particular animal is replaceable, which is consistent with the experimental approach emphasizing control and reduction of variability. The animals become interchangeable parts (Shapiro 2002:450-452). The production of scientific knowledge using animals is thus built on the assumption that standardized animals become a source of generality (Birke et al. 2007:43). It is outside the scope of this thesis to evaluate whether the standardized animal model is capable of ensuring generalizability to human clinical conditions, or whether animal experiments are replicable. It is sufficient to say that this is a source of disagreement. However, for laboratory workers it is paramount to believe that generalizability is possible.

We have seen that, through the *Standardization* mode of ordering promoted by the course curriculum and lectures, the course produces and reproduces the rhetoric of medical science and its emphasis on the need to standardize both the animal and the environment. This is important in order to produce good science. In this process of standardization, the animal is perceived as a tool and thus both *deanimalized* and deindividuated. At the same time it ensures that fewer animals are needed because they are not wasted on badly designed and planned experiments. However, while the specialization of the mouse, or the lab animal in general, may be viewed as a more efficient way to use animals for research, the ethical implications for the animal’s autonomy have at the same time been neglected (Guerrini 2003:150).

While animals can be viewed as carefully calibrated tools, it is never possible to escape the ‘animalness’ of the laboratory animal. This is why the environmental

and husbandry conditions need to be carefully adjusted and adapted to the needs of the individual animals. Laboratory animal science was earlier described as:

“...about both attitudes and knowledge: Never forget that the research animal is a living creature with the ability to feel both pain and fear. The research animal is a very complicated construction with several regulating mechanisms” (NVH 2007:4, my translation).

The three R's by Russell & Burch (1959) are appreciated as a guide to maintain the welfare of the animals without compromising their use in research. The three R's stand for: **R**eduction – of the number of animals used, **R**efinement – of method, model, and environment, **R**eplacement – of in vivo experiments with in vitro where possible (Hem et al. 2007:3). They have been very important in the research enterprise, and even today, national regulations are inspired by these guidelines (Guerrini 2003). I will now look at how the 3R's are presented in the course as a bridge between animal welfare and the needs of the research.

## 2.5 THE 3R'S AND THE FLUIDITY BETWEEN ANIMAL WELFARE AND GOOD SCIENCE

In the curriculum the transition between animal welfare and good science is fluid and often seems to be regarded as two sides of the same coin. Animal welfare is good science, but somehow good science also seems to become animal welfare. This is pointed out in a subtle way when the professor comments during a lecture that measures to ensure cleanliness, like wearing special clothes and equipment like gloves and facemask, does not create distance. On the contrary, they can help you be more active with the animals because you do not have to worry about infections<sup>30</sup>. A slide from the lecture on laboratory health monitoring reads:

“Why monitor animal health?”

Reasons:

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<sup>30</sup> Another reason why the animal technicians and other people working in the laboratory should wear protection like facemask is to protect themselves from allergens.

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- Sick animals may be in pain
  - Sick animals may suffer discomfort
  - Use of sick animals leads to experimental error
  - Experimental error leads to repeat experiments
  - Repeat experiments use more animals
  - Repeat experiments cost money
  - Repeat experiments lose time” (NVH 2009:29)

This fluidity between animal welfare and good science is ensured by the three R’s. During the interview the professor also implied this fluidity:

P: That was interesting, I received a mail last night from a researcher in connection with a debate on what the lectures should contain. And he said that...he did not want that...the 3R’s would lead to an elimination of animal experiments. But then I think he misunderstands what the 3R’s stand for. They are alternatives in the widest sense of the word: replacement alternatives, reduction alternatives, and refinement alternatives. The R of refinement accepts indirectly that some experiments must still be performed, and I think that these 3R’s, and not the least the word alternative, are misunderstood by very many. NORECOPA<sup>31</sup> struggles a bit with this, that...people think that NORECOPA wants to reduce the number of animal experiments in Norway to zero...but we are concerned about promoting all the 3R’s. And one of the R’s will reduce the number of animals, but the other R, refinement, is aimed at improving conditions as long as experiments are performed.

H: ...improving conditions for...?

P: For the animals.

H: For the animals.

P: And for science, that the results are more reliable. (Interview with the professor)

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<sup>31</sup> NORECOPA: The Norwegian Consensus-Platform for Alternatives – Replacement, Reduction and Refinement of animal experiments (<http://www.norecopa.no/sider/tekst.asp?side=19>).

As follows from the nature of animal experiments, the ethical dilemma lies, not in whether an animal is killed or not as this is a presupposition for such research, but in the amount of pain involved in the experiments. This is exemplified by the professor, when during a lecture he states:” - Complete anaesthetization, no pain, put down while still anaesthetized – so what?” ‘The amount’ refers to both the number of animals in which pain is inflicted and the severity of the pain felt by each individual animal. As mentioned during a lecture, pain is experienced on an individual level, not on a group level, and the compendium emphasizes: “Remember that the research animal too has the ability to feel pain and fear” (Hem et al. 2007:3, my translation). Hence the reduction of animals used is according to the three R’s since it entails fewer lives lost and less potential pain experienced.

We have already seen that refinement expressed in good planning and standardization of the measure instrument (the animal), including genetic engineering and keeping an attentive eye on each individual animal and its environment, will all lead to better experiments and a reduction of the animals used and the pain involved. Reduction of potential pain is thus closely linked to refinement. As Druglitrø noted, the logic of welfare that applies in the field of laboratory animal science does not oppose the use of animals. Rather, it entails a specific understanding of animal protection where keeping the animals healthy and having knowledge about how to keep, use and kill the animals prevails (Druglitrø Forthcoming). As mentioned, the environmental conditions are adjusted to the needs of the animals. Too high or too low humidity might, for instance, cause negative physical reactions in the animal, so it is avoided. This is obviously good animal welfare. However, next slide says: “But even more importantly: Air humidity is a common source of unintentional and unwanted experimental variation” (NVH 2009:48). The focus, then, is on producing good science, and animal welfare becomes a tool to reach this. This is in line with Holmberg and her writing based on a university course in non-human laboratory animal science, which she attended in Sweden:

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“The course’s focus on good handling works as a means of doing good research, as a strategy of including animal welfare as a legitimate agenda, while keeping intact traditional scientific norms – such as standardization” (Holmberg 2008:316).

The technical aspects within the medical logic and the welfare aspects are deeply entwined in the 3R’s guideline for good laboratory practice. “Showing consideration for the research animal and treating it with compassion, gives good conscience and in addition reproducible and trustworthy answers” (Hem et al. 2007:5, my translation). Refinement and reduction are thus closely linked to the specific understanding of animal welfare prevailing in the field of laboratory animal science.

Thus far we have seen that the course advances a picture of the field of laboratory animal science as an area where scientific standardization meets animal welfare without the two becoming mutually exclusive. Rather, they have been closely linked through the 3R’s, helping to create and justify a hegemonic ideal where science and animal welfare can function side by side, within the framework of science. Simultaneously, since science is dependent on the standardization produced by welfare, a legitimate space for animal welfare is created, even though the particular animal welfare conveyed through the curriculum for the main part is expressed through technology, such as the environmental conditions mentioned<sup>32</sup>. While standardization objectifies the animals and turns them into tools, another aspect of standardization requires an attentive eye on each animal to avoid individual variation and conditions that do not maintain animal welfare.

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<sup>32</sup> Mol et al states that caring practices include technologies, such as the cages, the feed etc. Technology and care are mutually dependent (Mol et al 2010:14). I will return to the concept of care in section 3.1.

## 2.6 ETHICS

As a truly inter-disciplinary course, the lectures consisted of a wide variety of topics. However, right from the beginning the ethical dilemmas of the field of laboratory animal science were stated. Several examples were given:

- The research process consists of reverse veterinary practice by taking healthy animals and making them sick.
- Considerations for the animals' natural instincts and needs
- The relationship to the media and society in general
- The requirements of science
- The desire for better health care and treatment

While acknowledging the resistance that exists amongst some groups in society, the authors of the compendium of the course also state their position. They are in favour of animal experiments, but do have their objections. They are also, where possible, in favour of alternatives and the use of analgesics even if it might be economically expensive. While they object to using animals to demonstrate known processes, they are in favour of using live animals for the purpose of teaching where necessary (Hem et al. 2007:3).

Chapter 9 (Hem et al. 2007) discusses ethics and attitudes towards animal experiments and the use of animals in education. Its aim is to contribute to a consciousness concerning the use of animals for research. The chapter states that, although humans are part of the food chain, they are set apart from other species through their ability to ethically evaluate their actions. It further points out how people often operate with a double standard at an individual, social and cultural level in relation to animals. This inconsistency is reflected in our attitudes and actions towards animals within the same species (e.g. a rat in the sewer versus a rat as a pet), but also between species, often dependent on the animal's appearance and general characteristics. Even the law reflects this

inconsistency, where cats and dogs are given greater protection than other animals. Based on the notion that there is an important division between humans and animals, the medical ethics of research are based on the idea that we can do things to animals that we cannot do to humans. As a conclusion to all of this, the chapter points out that nobody would argue that there aren't similarities between animals and humans. Then again, nobody would say that humans and animals are equal in all ways and therefore should always be treated in the same way. As defenders of animal research, it is claimed that medical research is important and has given many positive results both for humans and animals, and further, is an investment for the future (Hem et al. 2007).

The course literature further states that animal experiments are necessary for medical research and medical development. Even good alternatives cannot replace animal experiments completely. The ethical view conveyed through the curriculum is that animals have a value in themselves, not just because humans value them, but that humans have a greater value. Still, animals should not be inflicted with unnecessary pain. Following this mode of thinking a cost – benefit evaluation is evoked to measure the pain and suffering inflicted on the animal versus the benefit for humans. In other words we are talking about a conflict of interests (Hem et al. 2007:26-30).

While acknowledging that animal experiments pose ethical dilemmas and is a controversial issue, the ethical viewpoint conveyed in the course is portrayed as being in line with what most people think, while also more ethically consistent. One way the curriculum does this is by encouraging the reader to pursue the statement that animals have the same value as people. It further states that if you follow this line of thought to its most extreme consequence you will achieve one of two outcomes: either to demonstrate that people defending such a view will have to admit, ultimately, that they can not defend the principle, or, demonstrate the inconsistency between ideal and practice with the people who claim equal value between humans and animals (Hem et al. 2007:28). By pointing out the double standard at an individual, social, and cultural level in relation to animals,

somehow animal experiments, and the people working in the laboratory, seem to be more ethically consistent than ‘most people’ through precisely this acknowledgment of human superiority over animals<sup>33</sup>. This is in line with Michael and Birke describing different shared coping skills for laboratory workers, stating that “... there is a clear implication that the speaker’s own practices are somehow morally better than those of others outside of the lab (Michael & Birke 1994 in Birke et al. 2007:98).

### **2.6.1 CREATING ‘OTHERS’**

The moral consistency conveyed in the course literature is further emphasised by pointing out that society is dependent on this research and the security it gives the population. Animal experiments are just a continuation of what the society demands, whether the population is aware of it or not. In other words, it is based on necessity and in the best interest of ‘most people’. This is not to say that people involved in animal experiments do not see the ethical dilemmas in their field, but that they see a greater good connected to it. Because of the implicit relevance to ‘most people’, the field and the scientists are projected not as something ‘barbaric’, a term used both during lectures and in the curriculum, but rather as something normal. This comparison to people in general was also seen during a demonstration of different procedures performed on a rabbit. While showing the good condition the rabbit was in, it was also pointed out that you would not see a rabbit like this in such a great condition in someone’s home. Because of their ignorance people would not be able to take care of the rabbit the way that was recommended. However, the people in the laboratory have the competence needed to take care of the animals in the proper way. Here again the link is made to people outside the laboratory and their lives. Implicitly the link is made to the inconsistency in people’s ideals and practices, and the laboratory and the researchers stand out as humane and not barbaric. This way of placing

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<sup>33</sup> While at the same time the moral inconsistencies of the field, such as refraining from doing experiments on monkeys in Norway, is under-communicated.



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oneself, the research animals and the field of laboratory animal science in the bigger picture of society, was elaborated on by the professor during the interview when I asked about whether what is considered ethically problematic is always connected to the presence or non-presence of pain:

P: Some technicians, I think, reflect on the fact that the animals are bred, but if they feel they have given the animals optimal care...then I think many of them compare it to the life a rabbit lives in peoples home, where nobody looks after it at all for maybe more than an hour a day and it gets a little bit of care in the evening, for instance. And they think about wild animals and the struggles they are exposed to, then I think it might be a smaller problem, that they feel that the animals have a good life while they are alive. But even if you breed animals in a laboratory, then I think it might be more visible to the technician that you produce many you do not need. What do you do with all those extra animals?

During a lecture it was emphasized that comparing something problematic, like experiments conducted on animals, with something possibly worse, like the way animals are kept in meat production, was not a productive way to improve animal welfare. Still the professor here follows this kind of reasoning as a tool to legitimize their practice and at the same time place themselves as part of society and not on the outskirts of it. This is consistent with Michael & Birke (1994) who state that the scientists and technicians who take care of the animals and perform the experiments defend, explain, and justify their practice through a number of different discourses where they define the self and the 'other'. By creating negative 'others' to whom they compare themselves and their practices, a positive space is created for them to inhabit. These discourses thus demarcate a moral haven, "...a socioethical domain within which things are 'done properly'" (Birke et al. 2007:158). Frommer and Arluke describe a similar mechanism amongst animal shelter workers. Blaming the abandoners for the death of their pets, the workers were enabled to take the moral high ground and judge the actions of the previous owners, claiming they would never make the same mistakes or decisions. In this way the animal shelter workers could separate themselves from the wrongdoers, thus appearing all the more kind and helpful (Frommer & Arluke 1999).

## 2.6.2 SELECTIVE OPENNESS

Further, the importance of being open in relation to the media and animal welfare organizations is emphasized on several occasions. Entering into a dialogue provides the possibility to show how they work according to the 3R's. With a reputation for hiding what they do in their laboratories, being direct and open counters this preconception by directly and indirectly saying that there is nothing to hide, what is being done is legitimate, important and something to be proud of. The science produced is necessary for society, and it is produced with animal welfare in mind. This rhetoric works to disarm opposition in the public.

However, on a direct question from a student on what to do if an animal technician is fundamentally against a specific experiment, the professor answers that the correct thing to do is to discuss it internally and talk to the person in charge at the laboratory. They are encouraged not to take it to the animal welfare organizations, as "...they tend to make it bigger and create a commotion and then bring it further to the media, where the case will be sensationalized". Further, the students are recommended to not search the web pages of the most extreme animal protectionist movements, such as Animal Liberation Front (ALF). It is probably fair to say that most people regard this as an extreme organization; hence the intention might just be to say it is a waste of time. However, in both cases the professor explicitly marks the boundaries of the legitimate knowledge and the legitimate arena in which the knowledge should be produced. Underlying this openness, there seems to be a need to administer the information and presentation as a strategy to avoid being portrayed as a 'barbaric scientist', as the professor put it. Holmberg and Ideland (2010) understand this controlled transparency as one (of several) strategy(s) used with the effect of controlling information and public debates – strategies they conceptualize as selective openness. This trend of controlling the flow of information was further supported when, during an excursion to a laboratory, the answer to why the windows were shaded, was that: "-Wrong people might look in. Not everyone likes to see what we do." While the eagerness to be open helps to legitimize what goes on in the laboratory, the need to control reveals a fear of being misunderstood.

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## 2.7 THE ANIMAL TECHNICIAN'S DUAL FUNCTION

Where does all this leave the animal technician? During the course the students are socialised into the official ordering mode, which I have called the *Standardization* mode of ordering. They learn to share the common platform of what animal research consists of and a set of knowledge that is considered appropriate for an animal technician to possess. The aim of the course is to equip students with the skills necessary to conduct their work in the laboratories in a satisfactory way, within the existing regulations and laws. Through the curriculum, the course thus preserves and distributes what is perceived to be the 'legitimate knowledge' in the field (Apple 2004).

Through the course it becomes apparent that the work situation for the animal technicians can be expected to be divided into two main categories in which they are expected to be doing good (Pols 2003) - meeting the needs of animal welfare while being part of a scientific research team. Following Holmberg and Ideland (2010), animal technicians can be analyzed as border-crossers because they have this dual function. The animal technician's job is to give the animal an acceptable life, but simultaneously this should ensure reproducible results. It becomes the technician's job to balance the need to focus on the standardization of the animals through maintaining the standardized routines and environment (turn them into objects, de-individualize them), and also to see the animals as more than this (turn them into subjects, individualize them) in order to optimize them as tools. This emotional and practical division of labor is by Birke et al. understood as 'the technicians' burden' (Birke et al. 2007:99).

The curriculum at Grunnkurs i forsøksdyrlære is not so much about what the animal technician can expect to be the everyday practices at the workplace as it is an introduction to the field of laboratory animal science in general. The rhetoric of medical science and progress constitute the framework, whilst also allowing space for animal welfare based on a specific notion of animal protection entailing the use and killing of animals. Through the employment of the 3R's it is

proposed that the seemingly opposite notions of medical progress and animal welfare can pull in the same direction, towards the same goal. Animal welfare, as defined by the 3R's, is channeled through much of the daily practices which the animal technicians can expect to be doing, such as the maintenance of the environment as described, but also the caring for and the handling of the animals. However, as this is a theoretical course about the field in general, and not a practical course about the specific tasks of the animal technician, there is little talk about the role of the animal technician in the course literature. Still, on many occasions during lectures the animal technician's relationship to the animals was stressed. They were told they could expect to be the buffer between the researchers and the animals, and to be on the barricades for the animals. As buffers, they were further encouraged to be active in setting the standard of the daily routines in the laboratory because they knew the animals and had their best interests in mind, as opposed to the researchers, who often only came in for a specific experiment and did not have daily contact with the animals. Therefore they are encouraged to be critical to what happens around them. This implies that much of the wellbeing of the animals rests on the animal technicians. However, when asked if it might be problematic that the same person is in charge<sup>34</sup> of both the science and the welfare in the laboratory, the professor is hesitant to give the technicians too much power:

P: Yes, well, then the person in charge has to be authoritative enough. Sometimes say to the technicians: "Now this is going too far, we actually have considerations to the science, to" ...yes...another thing which makes it so that we actually have to accept second best here, is that the animals have to suffer to a certain degree...because we have to follow for instance a protocol which is a part of a EU cooperation, and if this research is to be published at all, then we have to follow the guidelines we have been given that might not be the way we usually do things, but, and if we do not do it, then this experiment is wasted, and that is at least...waste of time...and animals, yes. So, it is important that the technicians should be heard, but I think that they should not lead the department. So, it is the person in charge who should do that, who

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<sup>34</sup> Norway is the only country in the world with a system where the person in charge of the laboratory has the right and duty to decide which applications for research are accepted in the laboratory. This does not include controversial experiments or the person's own experiments. However, in general, the person in charge is responsible for both the scientific validity and the ethical aspects of the applications. In addition come the economic and human resource factors

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has the greatest legal responsibility. But they have to talk to the technicians, if not they will do a bad job, they will not be motivated, if you do not have them on your team, you will be fighting uphill all the way.

Restraining the power of those who are set to take care of the animals, and intertwining science and welfare, in effect places animal welfare within the frame of science. It also entails that the animal technician should not only be a buffer between the animals and the researcher, but also between science and animal welfare.

## 2.8 CONCLUDING REMARKS

Going through the course curriculum and lectures it becomes apparent that standardization is a key concept in the field of laboratory animal science. It is about creating a strictly controlled animal model with a strictly controlled environment. This is a precondition for good research. The standardization needed in order to control the animal model is one that both objectifies and de-individualizes the animals, and keeps an attentive eye on each animal to avoid individual discrepancies. As the standardization is attuned to the preferences of the animals, the standardization also comes to be understood as animal welfare, making welfare a tool within the *Standardization* mode of ordering. This intertwining of the medical science and animal welfare, conveyed through the course, is difficult to separate, mainly due to the employment of the 3R's. In many ways welfare and science have come to be represented as pursuing the same goal.

*Grunnkurs i forsøksdyrlære* is a theoretical course functioning as an introduction to the field, as a conveyor of the official view, and as representing and reproducing the *Standardization* mode of ordering, rather than preparing the technicians for the practical tasks in the laboratory. In this sense, the course not only conveys the importance of standardization for the field. It also, according to Holmberg (2008), standardizes the participants of the course. Within this

*Standardization* ordering mode, informed both by animal welfare and medical research in which the animal technicians are socialized, the animal technicians are placed as buffers between the animals on the one hand and the researchers and research on the other. Their task is to ensure the standardization of the animals inherent in their routines and practices, to identify themselves with the individual animal in order to read its behavior and general condition and at the same time, perform procedures which entail the use and killing of the animals they take care of - the animal technician's burden. However, with the presentation of research and animal welfare as working towards the same goal, potential dilemmas between the two, which might occur in the practical work at the laboratory, tend to be under-communicated. Turning to the laboratory, I will now look at how the animal technicians deal with these potential dilemmas. While still relating to the *Standardization* mode of order and the 'legitimate knowledge' conveyed at the course, much work is channelled into a separate 'illusory pool of order' – one that is more suited to the challenges in the practical interaction with the animals. The following two chapters are about this ordering mode, which I have chosen to call *Keeping the cares together*, and on the stories the animal technicians tell as these offer clues to how they struggle to create an order to the field of laboratory animal science. This is important because I argue that the constant process of ordering in itself is a way to address potential dilemmas and tensions experienced in the laboratory, as well as the content.

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### 3. THE TECHNICIAN'S BURDEN<sup>35</sup>

H: What ideals do you have regarding your job, what do you want, and do you feel that you manage to live up to those ideals?

R: Yes, it is to take care of the animals. And we should take care of the researchers so they can get as much as possible out of the animals for their projects. And we should be able to go home and have an ok day afterwards and not have a bad conscience or, yes, that everybody should be ok, whether it is animals, researchers or us who work here.

H: And you feel that you manage to take...?

R: Yes, I think so, definitely.

When I introduced myself to the animal technicians at the laboratory, I explained that I wanted to spend some time there because I found it interesting to look at how people maneuver in a field with two seemingly conflicting objectives as animal welfare and science. Their response was that that was exactly the situation. As animal welfare and medical science also were the main themes in the course curriculum, I was curious about how they were understood by the animal technicians in the laboratory and in what way they were possibly being understood differently from, or similarly to the course. Ragnhild's answer in this excerpt of the interview illustrates what they are trying to accomplish at work. But it also reveals that there is a potential tension or dilemma between the different goals – taking care of the animals, taking care of the researchers and taking care of themselves. Still, she feels that they manage to live up to their ideals.

In Chapter 2 we read how the field of laboratory animal science is being presented in the *Grunnkurs i forsøksdyrlære*, as it functions as a theoretical introduction to the field. Standardization stands out as a key concept, both to assure good and reliable science, and to ensure the welfare of the animals. The course encourages the technicians to identify with the animals, read their

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<sup>35</sup> Birke et al 2007:99

behavior and see them as individuals, whilst also ensuring standardization of the animals through their routine tasks and by maintaining a standardized environment. The course comes across as a relatively coherent intertwining of these demands. However, as a theoretical course, it says little or nothing about how the animal technicians should balance the demands attached to their job in situations where multiple considerations are involved. This balancing is something the technicians have to learn in their practical routines and procedures at the laboratory.

This chapter is devoted to these routines and practices carried out by the animal technicians in the laboratory. Looking at specific situations, where multiple needs pull in different directions, will help to reveal the non-coherence between what is being taught in the theoretical course and what is going on in practical life. While the course promotes an understanding of welfare and medical science as intertwined and thus pursuing the same goal, it becomes apparent in the practical work performed by the animal technicians that this coherence and consistency is not always as cohesive. Often the technicians find themselves in situations where the needs of the animals are at odds with the needs of the research. Thus, paying attention to practices and routines at the laboratory will help to unravel the complexities of the job and some of the ethical dilemmas the technicians might find themselves in. After all, it is within this reality that the animal technicians must find ways to live with the type of interaction with the lab animals their job involves.

In order to make sense of the complexities of their job, I will use the concept of care. First of all, care is a concept the technicians themselves would use to describe their job. They take care of the animals and they care for the animals. But they also care for the research and the researcher, trying to help them produce reliable knowledge. And in all of this, they care for themselves in a job that at times can be morally challenging. Secondly, the concept of care includes emotions, technologies and practicalities. It is thus a concept which captures the complexities of the job in all its materialities and emotional engagement. Before



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entering the laboratory and the practices and routines of the animal technicians, I will therefore firstly present the concept of care.

### 3.1 CARE

As has now become familiar, the animal technicians are expected to perform skilled care by taking good care of the animals to ensure their welfare, but also to ensure good conditions for research, thus taking care of medical science and research. Working as an animal technician is in other words to work with care practices. Care practices seek to do good. However, it is not obvious what ‘good care’ entails. Therefore there is an issue of what good care is, when it occurs and to whom. The care practices can be understood as part of the ordering work which constitutes the mode of ordering that helps the technicians make sense of their work in the laboratory.

The care I will address in the context of animal technicians working in laboratories is of a multiple character. Firstly, always present in the practices and situations are many objects of care – or care multiple (Law 2010) – the animals, the research, the researchers, and the animal technicians or the self. The animal technician caring is choreographed<sup>36</sup>, involving the ordering and distribution of bodies, technologies, gestures and subjectivities (Ibid. 2010:67). Sometimes care for the different objects go together, other times they collide. With the simultaneous caring for multiple objects, the coherence between the practices that care for the different objects are made chronically uncertain (Ibid.). Care becomes an arena in which there are constant negotiations or tinkering. Referring to Mol’s notion of tinkering, Law states that she treats it “...as a set of constantly unfolding and only partially routinised practices for holding together that which does not necessarily hold together” (Ibid.:69). Hence, seeking a compromise

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<sup>36</sup> Law borrows the notion of choreography from Charis Cussins who used it in relation to the intricate organisation that goes into the routines of practice (Law 2010:67). Law understands the veterinary caring to be choreographed in analogous ways, and I believe this analogy is useful also in animal technician caring.

between care multiple depends on talk and practical tinkering or attentive experimentation. As care is situational and relational, it becomes "...a matter of permanent consideration of the pros and the cons of a certain situation" (Harbers 2010:154), intimately linking care and tinkering. In the daily routines at the laboratory, there are complex relations between the objects of care and what constitutes good care, and with their knowledge and experience the animal technicians have to maneuver within this care multiple. In this respect, skilled care can be understood as a complex care practice (Druglitrø Forthcoming).

Secondly, care in itself is best understood as materially heterogeneous practices involving subjectivities, instruments, technologies and texts (Law 2010.). Mol et al deny the care/technology dichotomy. They insist that caring practices include technology, and vice versa, that technology is a part of caring and can perform good care (Mol 2008, Mol et al 2010). At the laboratory, the care performed is both the commonly understood 'warm' care such as petting and stroking, but also what is by many seen as 'cold' care including technologies such as tubes, cages and environmental enrichment. Care as materially heterogeneous practices is thus closely linked to care multiple. Tinkering in relation to (good) care practices therefore involves carefully adjusting knowledge and technology in each specific situation (Druglitrø Forthcoming). Druglitrø notes how this understanding of care and tinkering opens up the multiplicity connected to care practices where you have to coordinate between different objects (Ibid.).

Thirdly, in the context of the animal technicians, it is also fruitful to look at the distinction between *taking care of* and *to care about* (Harbers 2010). Writing about production animals, capitalist logic and care, Harbers uses these different modes and degrees of care to describe an economy of care which involves both protection and concern. "Taking *care of* was always coupled with having to *care about* diverse factors" (Harbers 2010:148). Holmberg (Forthcoming) borrows these concepts from Harbers when she writes about layers of care in the laboratory. 'Taking care of' makes animal welfare instrumental as a means of performing good science (Ibid.), putting research and researchers at the center of

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the care even if the actions are directed towards the animals. ‘Caring about’ on the other hand, she continues, is the affectionate level of the relation between the research animal and the animal technician. How they strive to make life in a cage and in the laboratory as little stressful as possible, how they cuddle them and talk to and about them as individuals – all are connected to the emotions involved in the relations and interactions with the research animals. According to Holmberg this interactive level of caring about can shed light on the dilemmas of the exploitation/care dialectics present in the laboratory (Ibid.:18). Harbers further shows how care at a macro-level can be interpreted in terms of economic necessity, but at a micro-level it can not (Harbers 2010). Transferring this conceptualization of care to the laboratory, Druglitrø comments that:

“It is about caring for and caring about, where the relations between people and animals, people and people, and people and things are integrated in routines and habits which are directed towards maintaining and protecting a system and the different elements constituting it” (Druglitrø Forthcoming:Chapter 4, my translation).

As mentioned in Chapter 2, Druglitrø shows how, at a macro-level, care is supposed to maintain a standardized regime and ensure reliable knowledge production according to scientific standards, whereas at a micro-level care is directed towards the concrete practical relation with the animals. She further claims that Harbers’s notion of economy of care, which encompasses both maintenance and consideration, includes the different modes, degrees and levels of caring which have contributed in shaping and constituting skilled care as an expertise in the laboratory (Druglitrø Forthcoming).

### **3.1.1 KEEPING THE CARES TOGETHER**

In contrast to the *Standardization* mode of order conveyed by the course as a coherent whole where care for the one object implicitly became care for the other, keeping a close eye on care in its multiple forms as it is played out in

practice can reveal the non-coherence<sup>37</sup> inherent in the field that the technicians are left to deal with in their job. With the concept of care, focus is thus moved from the theoretical understanding of standardization presented through the course and shifted to the non-verbal practices prevalent at the laboratory, allowing us to see the complexities and the dilemmas of the practices and the routines. This, I hope, will further create a foundation for understanding how the animal technicians think about the work they do and the specific interaction and relationship they have with the laboratory animals.

Apart from being integrated in routine practices and the technology they use, standardization *per se* is not a main focus for the animal technicians. As standardization is embedded in their daily tasks and embodied through training, the technicians are of course very much aware of its importance. Still, I will argue that this is not something they relate to in the sense of making it a main objective for their job. What they do relate to, however, is care in all its multiple forms. Thus, rather than talking about a *Standardization* mode of ordering to describe the animal technicians' job at the laboratory, I will talk about a '*Keeping the cares together*' ordering mode. I find this term useful because it not only refers to cares of multiple character in which the technicians are engaged, but also to how they are constantly working or ordering to create an (illusory) order that can make sense of their job and the animals they interact with. Law notes that veterinary care "...is the art of holding all those versions of care in the air without letting them collapse into collision" (Law 2010:69). Or in other words, collapse into dilemmas. And this, I argue, is true for the animal technicians' practice too. The animal technicians' job is the constant tinkering with care in all its multiplicity, preferably without letting them collapse into dilemmas. Even though the end result of the job the technicians do is to ensure standardization, I believe that separating the *Standardization* mode of ordering and the *Keeping the*

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<sup>37</sup> Law notes that he prefers to talk about coherence and non-coherence rather than consistency and inconsistency. He writes: "The word consistence bears a heavy weight because it draws on the particular demands of logics or discourse. It is intolerant of difference or multiplicity. These are easily turned in to signs of inconsistency or incompatibility. (...) But coherence – or non-coherence – is more permissive. (...) Non-coherence may be what keeps the system held together" (Law 2004:99).

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*cares together* mode of ordering is useful in order to understand the complexity of the animal technicians' job and some of the consequences of the maneuvering between the cares. Another effect of contrasting the two ordering modes is that it highlights the animal technicians' way of ordering their field and making sense of it. In Chapter 2 we read how skilled care was constructed and organized by what Druglitrø calls a logic of standardization, which is informed by both the demands for medical science and animal welfare. These demands also apply to the *Keeping the cares together* mode of ordering, which is reflected in the multiple character of the care present at the laboratory. However, my claim is that, in the actual interaction with the animals, tensions between these demands become apparent. This requires a different way of relating to the field of laboratory animal science in general, one which is suited to their practical interaction with the animals, the welfare and the medical science. This is what I will be trying to show through the *Keeping the cares together* mode of ordering.

For analytical purposes I will present the ordering work of *Keeping the cares together* in two separate chapters. In the following chapter, I will use the concept of care to look at the practices. As I have already argued, this enables me to see the complexity behind the ordered simplicity, and the tinkering involved in maintaining the experience of a pool of order. This focus informs us on how the animal technicians reach arrangements between the different demands that work in the laboratory and for themselves. But it does not tell us why they do not come to experience these arrangements as dilemmas in situations where intended and actual focus do in fact collide into tensions. In this respect it is important to look at how they understand and relate to the field of laboratory animal science and the animals, as this serves as a frame of reference for the job they do. This will be addressed in the subsequent chapter. However, it is important to remember that even though I separate the ordering work that maintains the *Keeping the cares together*, they are interrelated and constitute each other. While the understanding of the field provides a frame of reference for the practices, the practices they are expected to do in the laboratory also, in part, determine how they understand the field.

## 3.2 HAVING A TRAINED EYE

During the establishment of skilled care and the professionalization of the work conducted by the animal technicians, it became evident that the technicians were expected to cater for many needs, which also entailed different ways of viewing the research animals. On the one hand they were, as part of the research team, expected to see the animals as models to be standardized. On the other hand they were expected to identify with the animals, read their behavior, interact with them and see them as individuals. This would both ensure animal welfare and complete the process of standardization. The latter was a skill to be developed through the practical work at the laboratory. Lynch (1988) comments how laboratory practice is rich with such skills on how to handle an animal to ensure 'good' experimental subjects. Since this skill is constantly developed in the interaction with the animals as living, holistic creatures, it is considered too idiosyncratic to be mentioned in scientific reports (Ibid.:280). Even though positive natural science cannot get done without such knowledge (Ibid.:280), and the handling of the animals is often said to be the most likely factor in generating variability to the experiment, this specific knowledge is turned into tacit knowledge (Holmberg 2008). Tacit knowledge, or having a trained eye, is intimately linked to seeing the animal and results in individual contributions from the animal technicians in the regime of standardization. In other words, even though the course teaches the technicians the virtue of standardization from a scientific and animal welfare perspective, that this is inherent in their practices and routines and as such also standardizes the technicians, Holmberg (2008) further contends that the technicians are left to complete this standardization. They do so with their trained eye which they develop through practical work at the laboratory by seeing individuals and not just animal models. In her biography on the geneticist Barbara McClintock, Keller describes how McClintock's way of 'seeing' and 'feeling' the organisms were central to her research. Keller goes on to define this seeing:

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“Inevitably, “seeing” entails a form of subjectivity, an act of imagination, a way of looking that is necessarily in part determined by some private perspective. Its results are never simple “facts”, amenable to “objective” judgments, but facts or pictures that are dependent on the internal visions that generate them. In ordinary life, these private perspectives seldom emerge as discrepancies; the level of shared vision required for people to cooperate is usually met. But science and art alike make tougher demands on intersubjectivity: both are crucially dependent on internal visions, committed to conveying what everyday eye cannot see” (Keller 1983:150).

For the animal technicians this means that in the interaction with the animal they have to develop the skill to see that which is not obvious to everyone.

Furthermore, it is a skill which is important for the care and tinkering they perform at the laboratory. To summarize, having a trained eye is a combination of species-specific knowledge and seeing the animal as a model, it is the empathetic skills acquired through interaction with the animals, thus seeing the animal as an individual, and it is knowing how to act based on this complex knowledge acquired through experience and personal skills (Holmberg 2008, Holmberg Forthcoming). Moving over to the routines and practices which constitute the technicians’ workday, the importance of having a trained eye in the *Keeping the cares together* mode of ordering becomes evident. Having this expertise in mind, it is time to enter the laboratory.

### 3.3 CARE IN ROUTINE TASKS

On many occasions, the animal technicians would state that their job is to make sure the animals are doing fine. Looking at the daily tasks and routines performed by the animal technicians, it becomes clear that ‘doing fine’ has a twofold meaning: it is about the animal ‘doing fine’ as an individual of a certain species, and it is about ‘doing fine’ while being used in research. Either way, making sure the animals are ‘doing fine’ is an integrated part of the animal technician’s skilled care and forms a foundation for interaction with the animals. The love for animals is something they all comment on as a big motivation for the job.

R: To us it is more than just to have a job, it is because we want to protect and take care of the animals. And that is really our main task, it is to take care of the animals. In order for them to have as good a life as possible now that they are here.

Animal welfare is about care for the animal and the five freedoms<sup>38</sup> are demands that should be met in order to secure this welfare. The notion of animal welfare describes the individual animal's state with regards to how it copes with the environment in which it lives<sup>39</sup>. For research animals, their environment includes the cage in the laboratory in which they live, the experiments done to or on them, and the specific needs of their species. The animal welfare which appears in the routine practices performed by the technicians, is based on the five freedoms, but is also informed by a specific understanding of animal protection where the use of animals is not rejected. Rather, what is important is the correct techniques and knowledge of the use of the animals<sup>40</sup>. This requires special measures when it comes to the care for the animals. Keeping this in mind is important as the main goal for the technicians, expressed both at the course, but also by the animal technicians themselves, is to take care of and be on the barricade for the animals.

The most basic needs of the animals are seen to through the daily supervision. Every day every cage is checked to make sure there is enough food and water. Once a week all the cages are changed, by moving the mouse by its tail from the dirty cage to the clean. The course at NVH teaches you to lift the mouse onto your lower arm and then put it down in the cage. This reduces the time the mouse is held by its tail and the discomfort this involves. Many of the technicians at the laboratory explained that they knew about this lifting technique, but further commented that, given the amount of animals they were taking care of every day, it would be much too time consuming for them to follow these guidelines.

Adjusting the lifting technique to the realities of the laboratory (big laboratory

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<sup>38</sup> Freedom from hunger, thirst and malnutrition, freedom from extreme cold/heat, freedom from pain, injuries and disease, freedom from anxiety or fear/distress, freedom to express normal behavior (Dyrevelferd i Norsk Husdyrhold).

<sup>39</sup> [http://www.dyrevelferd.info/view\\_article.asp?id=33](http://www.dyrevelferd.info/view_article.asp?id=33)

<sup>40</sup> See section 2.1, p.24



with many animals means busy days) reveals some of the complex considerations the technicians constantly have to make. Making sure they have time to see to all the animals, even if it entails a less than optimal lifting technique for the mice, is prioritized over an optimal lifting technique.

If injuries or pregnancy and newborns are detected during the supervision of the animals, they will be dealt with. Pregnancy will be noted on a sticker, which is put on the card belonging to the cage so it is easy to see. This makes it easier to keep an eye on when the mouse gives birth. When newborns are detected, the cage is left alone to avoid extra stress for the mother. On the card attached to the cages all necessary information about the animals is written down, such as date of birth, when they have been ear marked and with what numbers, when they have been separated from their mother, when and what procedures have been done to them, and if they have suffered an injury caused by fighting, in which case the animals will be separated. This weekly routine, which occupies most of their time at work, goes beyond just supplying food and water. It creates a contact with the animals which is considered important. It is a chance to actually look at each individual and make sure they are ok. This is considered by many to be good caretaking.

H: What does good care for the animals entail for you? What do you think about then?

M: What I think about then, is that you actually look over the animals. It is not just about putting them in a clean cage and giving them a water bottle and that's it. You give them a clean environment, you actually look over the animals, check that they are healthy. If they have injuries, you will write it down and pass the message on, make sure you have looked at every single mouse and that they are doing fine. That is what I think is proper care. Then I feel that I have done my part in the caretaking.

What becomes evident here is that good caretaking is not just about sentimentality or 'tender love', or what is commonly referred to as warm care. This is in line with what Druglitrø noted<sup>41</sup>, saying that the innate aptitude in the

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<sup>41</sup> See section 2.1, p.25

handling of animals within the scientific logic is about sound husbandry based on reasonable principles.

Further, the animal technicians also express some thoughts about whom they are really caring for.

H: What does providing good care for the animals entail?

L: That I have changed the cages and they have gotten food and something to drink.

H: So it [good care] is in the daily routines?

L: Yes, it is. But you notice this, we have started taking 3+<sup>42</sup>, you could say that when you change their cage, they become very stressed, because they get new smells and a new place and that can be very stressful for the animals. You can see this on older males going together [in the same cage]. If you change a new cage for them and there are new smells, they begin to fight, right? And if they have lived there for two – three days it is completely quiet again because they have gotten used to their own smell. And the longer, the worse [dirtier] they have it, the better I think. But I feel it when I enter one of the rooms and I am going to change and it is 3+, “but here I think it is a bit...”, then I will do it [change all the cages], but it is a little to please myself, right? Because now I have done a good job because now I have changed you.

H: Do you think these are routines you will change if there is even more research on this, that they would rather be in their own smell?

L: I don't know. Now it is, there has been some talk about this in relation to, our former boss touched on this too, that when you change their cages, it was just as if someone would take away all our belongings, our computer, our mobile, our purse, we would actually have to start over again. To rebuild things. But what I usually do, as long as their nest is ok and nice, I put it back in [to the new cage], then they have that smell.

Lise is quite explicit here when she says that good care for the animals is changing the cages, even if she is well aware of research saying differently. She acknowledges that cleanliness is a way to care for herself, because it gives her a feeling of a job well done. Tina complicates the picture even further:

T: I take care of the animals so they can be in a nice and clean environment that they can thrive in and be ok. Even if the mice might want it to be very dirty. Out in the wild they live in a little dirty hole where

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<sup>42</sup> This is a system where every second week they only change the cages in which there are 3 mice or more. With only one or two mice in a cage, the cage does not become very dirty. By skipping the changing routine for these cages every second week, the mice are exposed to less stress while the technicians save time on unnecessary changing.

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there is lots of dirt... so in that respect, the mice lives unnaturally in here, for it is clean, and you can say, that is because of the research, we try to keep it clean. And also for the researchers, that it should be nice, or good for them when they come to do technical work with their animals. That they don't put their fingers into [the cage] and there is lots of mouse dirt.

In this weekly routine which revolves around the animal, even though they are familiar with research showing that excessive changing of the cages is experienced as stressful - why do they still hold on to it? Especially considering that, firstly, they often experience a lot of time pressure at work, secondly, the repetitive movements handling the cages causes stress and pain in muscles and joints, and thirdly, and maybe most importantly in this context, they all say their main task is to care for the animals, to ensure their welfare. This seemingly straightforward task of changing the cages is in reality a situation of care multiple – the mice, the research, the researchers and the self (Law 2010). And the task involves doing good in ways that do not necessarily pull in the same direction. Good care for whom or what (Mol 2010)? What actually seems to be happening in this routine task is that the animal technicians project their own and science's preference for cleanliness onto the animals (“...so they can be in a nice and clean environment that they can thrive in and be ok”), which facilitates the shift in focus regarding the object of care. In reality the researchers, the research and the animal technicians become the main objects of care. Thus, a consequence of struggling to keep the cares together is that while engaged in the practical work of changing the cages and taking care of some of the animals' basic needs, the animal technicians can still hold on to the experience of this routine task as being there for the animals even though focus does not rest where it was intended. This routine of taking care of the animals thus makes animal welfare instrumental as a means of performing good science (Holmberg Forthcoming).

### 3.4 ENVIRONMENTAL ENRICHMENT – CREATING ‘NATURAL CONDITIONS’

Another important part of this routine task is to provide some kind of environmental enrichment, as it is intended to create as natural conditions as possible in captivity. This technology can be understood as forming part of caring practices (Mol 2008, Mol et al 2010). Preferably there will be a house in every cage where the animals can hide, be in the dark and feel safe. In every cage there will also be a piece of paper for the animals both to play with and to build a nest with. While I was there they talked about a device they were presented with at a conference which was a development of the plain paper concept. It was a ‘ball’ of paper to put in the cage. The mice would spend some time opening the ball, which gave them a mental challenge. Eventually the paper that came out of it was used to build a nest. This gave the animals something to work with over an extended period of time. The animal technicians, who had seen this, reported that the mice seemed to enjoy this device, and they decided to order some to try them out. They never received this equipment while I was there, but it gives a picture of the thoughts that were being put into the welfare of the animals and the effort in providing ‘natural conditions’. When asked if she felt that her job was about creating equal conditions for the animals in order to standardize them, Tina declined, and went on:

T:...but I think like this, all the animals should be ok and all the animals should get the biggest possible freedom to move as they can within limits, and that they have houses that are dark to them even if it is daylight in the room, and that they have something they can chew on, the rabbits have chewing sticks, they get hay, we give them some apples and pears sometimes. These things can make it easier for them to live as a research animal. Of course, they have no other experience, but it is in their instincts.

The environmental enrichments are measures taken so the animals can express their natural behavior. But the realities of living in a laboratory are often ill suited to their natural needs and attentive experimentation is practiced so the animal technicians can provide the best care for the animals:

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H: Do you feel that it [animal welfare] is possible, like with the rabbits, when they are in their cages, that they can't jump around like they normally would ... do you think about that? It's not practically possible to give them natural environments.

M: No, that is not possible. We have talked about it, using one of the rooms as a free-range space<sup>43</sup> for the rabbits, where they can run freely. But then again you have to consider that they will fight, then they will get injuries, and for rabbits who are many in captivity, that doesn't work. We did try to have two-three rabbits together in three open cages, but it only ended in fighting. So, while they don't get to move, that is why we have that house in there, so they can jump on top of the house and get a break and jump down again. So in a way they get to jump. And the standard measures for the rabbit cages are so that they should be able to stand on two feet and stretch and they can do that. So I think that, as well as you can, you try to fulfill the wishes one has for rabbits. Their natural goals, to jump and stand up straight. So I think at least one tries that. Even if, ideally they would be, if they could, on the floor and running freely, at least we try to do as good as we can out of what we have.

Rabbits have a natural pecking order, but in captivity, the weak animals have nowhere to go and hide, and severe injuries can occur from the fighting. Different goods are weighed up against each other and the quality of the care depends on compromises reached between them (Mol 2010). In this case, the ideal of natural conditions has to give way for the safety of every individual. Both solutions would be the result of good care. However, the solution they end up with is reached through practical negotiation based on experience and knowledge. And again this is a situation with many objects of care. If the rabbits were left on the floor in a group, the injuries could potentially be so severe that they could have an effect on the research. If the experiment failed because of this, valuable money and time would have been spent. Therefore, care for research and researchers will inevitably affect the solutions since part of their job is to create and maintain good conditions for research.

### 3.5 HEALTH MONITORING

Many of the technicians express that the most important knowledge they can contribute in the laboratory is that of health monitoring. With their trained eye

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<sup>43</sup> In Norwegian: løsdrift

and frequent contact with the animals they can tell if an animal is sick or pregnant, a skill which the researchers often depend on.

### **3.5.1 BREEDING**

As many researchers depend on breeding to get more animals for their projects, it is usually up to the animal technicians to keep an eye on the process of mating and giving birth, and in many cases they are in charge of the whole process. This was also a situation where many researchers revealed their lack of knowledge regarding the mouse species. Some research projects had mice too old to reproduce successfully, but the researchers would still put them up for mating. The animal technicians would predict a bad outcome and suggest alternatives, like borrowing a mouse from a different project if someone had one to spare. In any case, the animal technicians would offer their knowledge and discuss the situation with the researcher and continue to monitor the mice and check for pregnancies. To see if a mouse is pregnant is not an easy task for an untrained eye. Often the technicians could tell after one of the three weeks of pregnancy, if not, they would let her stay with the male another week. If pregnant, the mouse would be put in a separate cage with no house. This way she could not hide, and the technicians could keep a better eye on her and tell when she gave birth. This is important for several reasons. Some research projects need to know the exact age of the mouse. But it is also important that the mouse can not hide so the technicians can see how many babies she has given birth to, and also monitor whether she eats her babies or not. This happened quite frequently in one of the rooms while I was there. They wondered if it could be due to explosions connected to construction work nearby, which took place some months in advance. Why this room was more affected than others, they could not say for certain. Other forms of stress, being a bad mother, or just being old were other reasons the animal technicians gave for why the mothers could eat their babies. Referring to the wild and how this phenomenon also happens there, although difficult to ascertain how often, the animal technicians viewed this behavior as

proof that laboratory animals are still just animals with their instincts intact and therefore impossible to understand 100%.

Once the mice have given birth, the animal technicians will leave them alone for some days and not change their cage. They do this to avoid the extra stress it entails for the new mother. While care is most commonly recognized as something that happens in close relation to the object of care, this is a situation where the actual separation is an expression of care for the animal (Law 2010). However, there is yet another way to understand this act of care. Avoiding stress for the new mother is important so she does not eat her babies. If that would happen more than once, she would be considered an unfit mother and not be used for breeding again. The babies are important for the continuation of the research, making mothers who are fit for breeding equally important. Hence, making sure the babies survive by using suitable mothers is also a way to care for research. When the babies are big enough after some weeks, they are separated from the mother. They do this according to when it would usually happen in the wild. However, sometimes, due to a specific research project, the researchers need the babies earlier.

L: I am doing a bit of rat breeding now where they want the babies on day five. And there too, they took all the babies, but I saw after five days that the rat mother gets completely hysterical. And it is easy to see. So then I asked if she could be allowed to keep one baby, and that was approved of.

H: By the researchers?

L: Yes, well, in a way he had no choice - I asked my boss. I think it becomes a bit terrible. And what easily happens also, is that if you take their litter all the time, eventually they don't become pregnant. Then they stop to... and actually there are already some in there who have. Right? We have seen that they haven't become pregnant yet. And they are young and healthy still, so they should easily be going for another year. But when you take away all their kids like that, you can see it on them. They get stressed and fly up and down and run here and there and so on. So they have been allowed to keep one baby.

H: And this has helped?

L: Yes, I think so. You notice it. With those cages you have to stick your hand in in order to feed them properly, and then, when you took out the babies, they simply got a bit aggressive. But I see also now,

even if they have one baby left, they really take care of it. Then they are over and pick it up straight away and carry it around.

H: Yes, you are not allowed to get it.

L: No, and I can understand that, right?

In this situation, the researcher had left the breeding to the animal technicians and therefore did not know how many babies his rat mother had given birth to. This allowed Lise space to tinker between the objects of good. Because of the researcher's physical separation from the rat mother, the babies, and Lise, Lise could direct her care towards the rat. Still, with only one baby left, Lise experienced more aggressive behavior from the rat. Because the research is the foundation of the laboratory - the reason why there is a laboratory - caring for research will always be part of every decision. Leaving all the babies, even if that produces better animal welfare, is not an option. In difficult situations like these, Lise has to find a way to keep the cares together by negotiating between the different needs, the different goods, to find a solution which she can be content with and which allows her to hold on to the experience of being there for the animals. Taking care of research and the rat mother is intertwined with caring about the rat mother and the self.

### **3.5.2 SICK ANIMALS**

When talking about health monitoring, the animal technicians very often talked about how to detect a sick animal, and when to decide when it is time to put it down. Many of them felt that the most valuable knowledge they possessed was the ability to tell when an animal was sick.

H: What knowledge do you have that you think they need? How do you contribute?

L: Telling when they are sick. You actually need to have a trained in your eye to be able to understand. And I see that a lot of people who say "do you think this one is sick?" I can tell straight away. And it's like, I'm telling you, very specific characteristics. They sink down in the neck, they kind of get a pit in the neck, the back stands in an arc, and then they stand a bit on their hind legs. You look at the fur to see that it is clean, but, it doesn't stay together anymore, it goes in every direction - and when this happens they



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are very sick. And you can see it a little around the eyes - and this you can see very quickly. And this they [the researchers] have to get trained to see. Because there are several research projects here where you say that this isn't good, and they say that "- but we are only going to.. -But look now. -But does it really look that bad?"

H: And do you get the last word then?

L: Yes. And like I tell you, if you are in doubt - because if you open up a cage and all the mice in it are healthy, they will spin around. If there is one who doesn't spin around, who sits in a corner and doesn't care about you - then it is really sick.

H: Because it should think that you are a predator?

L: Right. And then there are sometimes when you can just nudge them. Nothing happens. And then they are really sick! So there are some things they [the researchers] don't think about. You have to be taught everything.

Even if some of the technicians express that the researchers should learn and should develop a trained eye to detect a sick animal, Lise comments later in the interview that it is the animal technicians' job to look at how far you can push the research without too much suffering. But suffering is not the only concern in this situation, as Marit explains:

M: My expertise means I monitor how the animals are doing. For if the mice are sick, it will affect the research and affect the results they get. So my knowledge is, in a way, to keep an eye on and know what a sick mouse should look like, know what to look for in the different mice and rats and rabbits. So even if I don't contribute in the actual experiment, it is my responsibility to pay attention to ensure that everyone is doing fine, and let the researcher know that "-Ok, this animal is starting to get sick. Either you have to put it down or you have to know that it can affect your results later". So here, in a way, is where my knowledge is connected to the research.

Caring for the research and caring for the animals always go hand in hand for the animal technicians. Sick and miserable animals produce bad science (Holmberg 2008, Holmberg Forthcoming). At the same time, in order to produce good science, there has to be some compromises between the wellbeing of the animals and the researchers' needs. There is constant tinkering between taking care of and caring about in this situation of care multiple.

### 3.6 CARE IN TECHNICAL PROCEDURES: having a trained eye – coupled with hands on techniques

In a laboratory, caring for an animal's wellbeing is not just connected to the five freedoms. As they are animals being used in research, the welfare extends to the technical jobs the technicians perform on the animals. As with the daily care taking of the animals, the animal technicians also consider the technical tasks as situations where contact with the animals is created. What seems important is not necessarily what they do with the animal, but that the interaction stretches over some time. Over time, the animals can get used to a technician's specific way of treating and holding them. At the same time the technician gets used to each individual animal and its temper. This mutual 'habituation' will reduce stress and make the animal easier to handle (Holmberg 2008). "Working with laboratory animals in bio-medical research requires both knowledge and a feeling for the animal" (Öbrink & Waller 1996:13 in Holmberg 2008:318). I understand the concept 'feeling for the animal'<sup>44</sup> as an active interaction with the animal where you read the animal and its signals and behavior and based on this adjust your behavior towards it. Thus, having knowledge and a feeling for the animal within the frame of medical science is to have a trained eye. Although many of my informants did not use this concept in words, they did recognize their love for and interest in animals as important for their caretaking, seeing this as a prerequisite in order to 'read' the animal's behavior and signals properly. This combination of knowledge and a feeling for the animal became evident to me when I was allowed to follow Bodil while she was working on an experiment on rabbits. This experiment was an immunization project, so the twelve rabbits would be injected every second week. After three months they were put down by drawing as much blood as possible before a lethal injection. During the injections they were mildly anesthetized to make them quieter and less stressed. While the technicians drew their blood, the rabbits were fully anesthetized. For this project Bodil needed knowledge and understanding with regards to what was required to

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<sup>44</sup> In Norwegian: dyretekke

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produce good research. She needed to know how much to give of each drug to each rabbit, where to set the needle, and at the end, the specific amount of blood that was required. But all this had to happen with as little stress as possible for the rabbit. As they are easily stressed this is not easy. Therefore Bodil emphasized the need to take her time with every rabbit and let the whole procedure take as long as necessary. When they feel in danger, rabbits like to hide. As a result Bodil would wrap them in blankets and be especially careful to cover the eyes. Like the ostrich hiding its head in the sand, the rabbit feels safe when it cannot see. Bodil recognized them as individuals – as the fat one, the dirty one, the one who liked to be cuddled, the scared and the angry - and she would try to treat them accordingly within the frame set by the experiment she was working on.

### **3.6.1 NATURALISTIC AND ANALYTICAL ANIMALS**

My experience in the laboratory showed me that the technicians were very much aware of the animals throughout the procedures in which they used them. Based on ethnography of a neurosciences laboratory and discussions with researchers, Lynch (1988) writes about how ‘naturalistic’ animals are turned into ‘analytical’ objects through technical procedures. He contends that:

“While ‘analytical animals’ are creatures of a generalized mathematical space, the ‘naturalistic animal’ is a phenomenon in the commonsense life world. The ‘analytical animal’ therefore becomes the *real* animal in a scientific system of knowledge, while tacitly depending upon the ‘naturalistic animal’ for its practical foundation” (Lynch 1988:267).

Following this, a ‘good animal’ or a ‘bad animal’ does not just refer to the behavior of the animal, but the quality of the data produced from it (Ibid.). The discrepancy between Lynch’s findings and my observations might be due to his focus on researchers while my focus is on animal technicians. The animal technicians enjoy doing technical work, are interested in learning more procedures and seek to be involved in the research at the laboratory. But, in contrast to the researchers who focus on the data produced from the naturalistic

animal, the animal technicians are not interested in the final product - the actual blood sample or tissue - that is the 'analytic' animal. They are actively engaged in practices which transform the animal, from breeding and rearing to technical procedures. However, it is not part of their job, or their daily routines, to relate to the 'analytic' animal. It is the animal technicians' job to relate to and stay focused on the 'naturalistic' animal. I observed that, in these technical procedures like blood sampling and injections, even if the animals are used as scientific objects, it is a situation where the technicians are highly aware of the naturalistic animal they are handling. A mouse will always view humans as predators, and when handled, they will try to bite as a defense mechanism. The technicians of course knew this and developed different techniques to avoid the biting, such as holding it with a cloth. Bodil's attempts to reduce the stress of the rabbits, are another good example of recognizing the naturalistic animal with its species-specific characteristics.

Still, the technical procedures are more complex than just focusing on the naturalistic animal and its needs. Again this was demonstrated in the experiment with the rabbits that Bodil was involved in. On the last day of the experiment, where the rabbits were to be killed by drawing their blood, there was quite a bit of stress and anxiety connected to the procedure and the fear of failure. Since this was an experiment where there was no second chance – if the rabbit dies before the blood is collected, no more blood will come – it was important to get it right straight away. While it would be correct to say that Bodil is producing the analytical animal, her anxiety was not connected to whether the animal would successfully be transformed from naturalistic to analytical. She was caring about the research, knowing that if she failed, much work, time, and money would be wasted. She was caring for the animal through good techniques, making sure it was not in pain. She was caring for the animal so it could be used, ensuring its life was not wasted. And she was caring for the animal by letting it perform as a tool, complementing it for a job well done when it died and she had gotten - or

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been given – what she needed<sup>45</sup>. More than simply a case of transforming the animal from the naturalistic to the analytic, this is an example of care multiple.

### 3.6.2 THE IMPORTANCE OF GOOD TECHNIQUES

The animal technicians compared the closeness created through the interaction during technical procedures with the closeness they achieved through changing the cages. Especially if they were involved in an experiment which lasted over some time, they felt they got to know the animals as individuals and recognized them for their characteristics and treated them accordingly. In effect, the interaction each technician has with the animals destandardizes them and turns them back to individual, ‘naturalistic’ animals (Birke et al 2007). They also acknowledged that this particular closeness was achieved through good techniques, which required training. This training can also be understood as another part of the habituation - a process of getting a habit or a routine of ordinary practice (Holmberg 2008). This form of ‘habituation’ can further be linked to Bourdieu’s (1984) concept of habitus as “...the embodied set of dispositions of taste and practice” (Holmberg 2008:325). The techniques and practices the animal technicians have developed in their interaction with the animals have become their habitus.

H: But are you able to remember it is an animal you are dealing with? Even when the mouse is shoved into a tube..?

T: I do. Because many [people], when they are draining a mouse, they think that we will shove that mouse into the tube and take one of the legs out. And then they bend the leg over the edge and outwards to get the best grip possible. But you have to hold so that the mouse is not in pain. You have to hold that leg straight up so it points straight up.

During my weeks at the lab, I was allowed to learn how to take blood tests on mice. This was a great experience in order to understand the importance technique plays in the procedures. You start by lifting the mouse out of the cage

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<sup>45</sup> I will return to the utility value of the lab animals in section 4.1.

and, based on the ear marking, note which one it is. Then you want it to go into a little tube so you have control over it, but also so the mice can feel safer.

However, getting it into the tube was easier said than done and the technicians had separate ways of doing it. Most commonly they would hold it by its tail and put it on their thigh with its nose pointing downwards. With the other hand you hold the tube and try to convince it to crawl in. Doing it this way is easier since it is the mouse's natural instinct to move downwards, and it will also naturally seek enclosed spaces. Once the mouse is securely in the tube, you try to maneuver one hind leg back out, getting a firm grip on its leg. While you work on this you have to make sure you do not hold the tube against your body, because this will stop the flow of air to the mouse. At the end of the tube, where the nose is, there is a little hole for air to enter. Which leg you choose depends on habit and what feels comfortable. You try to hold the leg just above the knee so the leg is fairly straight and the vein visible. You then shave the leg so it is easier to see the vein and to make sure hair and particles are not scooped up as part of the blood test. For an untrained hand, the shaving is a nerve wrecking experience. The foot is tiny and feels fragile, and the razor blade is very sharp. Added to this the mouse constantly tries to pull its foot back and out of your grip. The big fear is that you might cut the leg off, even if the technicians who taught me the techniques assured me that was not going to happen. When the hair was removed, a needle was used to stick a hole in the vein so blood would come out which was scooped up by small containers. If there was not enough blood, you would have to stick the needle in again. This would mean more pain and stress for the animal and, therefore, something you would try to avoid.

I experienced the procedure as stressful, both for the mouse and myself, and messy and very difficult. I also found it difficult to keep in mind through the whole process that I was dealing with a living creature. I got so caught up in what I was struggling to do, that the bigger picture – that of the living mouse – seemed to slip. When I talked to the technicians, they recognized that how they handle the animals might affect the results they produced. Birke et al. contends that the

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day-to-day practices in the laboratory rely to a great extent on tacit knowledge – a knowledge which has not been formalized, but is part of how the animal technicians interact with the animals. Therefore there can be great variation in how the animals are handled and the effects of this are poorly understood. As a consequence, this interaction with the animals can introduce variability into the experiment, despite all of the efforts put into standardization (Birke et al 2007). In interviews all the technicians said that they are either performing experiments when they do technical work, or that they are doing science. Still, while doing the procedures this is not what is on their minds. Their focus is on the animal they are working on. Even when they feel satisfaction from being paid compliments by the researchers for good tests, they do not have this in mind during the test itself. What is important is to be quick, eliminate as much stress as possible for the animal and be gentle.

H: That you learn the techniques and the way of handling – is it for the animals or is the goal to produce good results, that is, within...

L: No, I talk for myself now, but for me, it is for the animal. What they [the researchers] get in their blood samples, I don't really think about that. I do that job for them and then I just make sure I don't have to stick that mouse 15 times in the thigh to get blood from it. You have to be as gentle and quick as possible.

H: So you manage to remember that it is an animal you are dealing with?

L: Yes, yes, yes! And what they get as results on their blood tests, I don't think about that, when you put it like that. What I think about is how many times I shall stick it in and how many times I have stung [the animal]. And: “-Now I don't want to anymore, now they have to be content with this blood, if not, never mind”. It is important when you, when you are being trained. When you sit down and you shall teach someone to: “-Pay attention, now I do this and this because ...” And it is the same as when the mouse should go in the tube too. Many will just put it [the tube] on the table like this and then they start. Then the mouse has many choices to not go into that tube and then they get very stressed, and then I try to like teach them that “-Put them downwards because they want to go downwards and then you take the tube, and then they just enter the tube very quickly”. Crawl into the tube. And then you don't need all that jumping. It was the same thing with the drawing [of blood] of the hamsters. You think it through before you do it. Instead of “-Oh no, now, what should we do now?” and I think for them [the hamsters], they hadn't had blood taken from them before. They had been stung by a needle before, but not shaved or put in the tube. And then I am thinking that first we take what is most awful straightaway and that you are two [animal technicians] and line up with needles and such so that you get things done quickly and then you are done. That you plan, I think it is quite ok to be able to plan a bit before you do it - think, what...

The awareness of the animal in the technical procedures seemed to grow as the technician became more experienced and comfortable doing technical work. The stress felt by beginners was reduced as, after a while, the technique was in their hands, which they felt would improve the animal welfare. Handling with care during technical work thus becomes a means of meeting good scientific standards (Holmberg 2008), but above all, for the animal technicians, the careful tinkering entailed in the technical work becomes a means to ensure animal welfare and to care well, and to see the individual and interact with it as such. This is in line with Harbers and his writings from the farm where he grew up:

“Caring well for the animals was not determined by us humans exclusively on the basis of elevated moral principles taken from animal ethics – such as welfare or fundamental rights. On the contrary, good care arose in everyday practice, in interaction with the behavior of the animals themselves” (Harbers 2010:150).

Even if the principals of animal welfare and the 3R’s are important at the laboratory to ensure good conditions for the animals, I think it is fair to say that good care in the laboratory, as on the farm, arises in the everyday practices and in the interaction with the animals. Good care is an arrangement that works in a given situation (Winance 2010). This becomes evident when Lise talks about the pigs:

L: The first time I came along and was going to inject a needle on a pig I had hardly been here before, it was one of the first days or weeks and I was coming along because there was an animal technician who was going to inject the pig. She had been going to the school and knew this, but she was scared to death. [She] was standing outside the pig pen and the pig was running around and I was thinking: “-Oh my God! Hang on, we’ve got a bucket in there”, and [I] just pulled out the plastic bags and [went] in to the pig and just shoved that bucket over its head. Yes, I did, for it had to be standing still, and [I] said: “- Now inject [it], and inject fast”, because it was only to empty the syringe. It was supposed to happen really fast. But there was so much [happening] before that, so it became totally hysterical and then I [my attitude is] like this – you just go for it, and that’s the way it is. Better for them [the pigs] too. Dark for a little while, but dark for two seconds instead of it running around for ten minutes. And he became more and more stressed. So I’m a bit for actions like that too. And it was the same thing with Sara the other day. She called out and was upset because she couldn’t inject it. They were two. “Use the bucket. Get it done”. That helped.



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## 3.7 CARING IN KILLING

So far we have seen that in the daily routines at the laboratory, care is evident in many ways - from catering to the daily needs and the gentle and efficient handling during technical work, to practical considerations concerning research. However, an important part of the daily tasks is the killing of the animals. For a sick research animal, the way to avoid suffering is death. Some of the animal technicians expressed how they preferred to put the animals down themselves rather than finding them dead in the cage. The technicians felt that the animals deserved to escape their suffering, and since they have the knowledge and skills to see when an animal is sick, they can help the animals out of their misery. Frommer and Arluke (1999) report on a parallel mechanism where they examine how shelter workers and individuals who surrender companion animals, use blame displacement as a mechanism to deal with their guilt over euthanasia of previously valued animals. One such blame displacement mechanism was 'blame the victim', where the shelter workers would cope with euthanasia by viewing it as necessary for the animals' sakes. By assuming that the alternatives to euthanasia - living as a stray or staying with uncaring owners – were worse, the shelter workers enabled themselves to see euthanasia as merciful, thus absolving themselves from the feeling of guilt connected to killing (Ibid:12). In the following I will take a closer look at how the animal technicians use distance as a coping strategy in relation to killings.

### 3.7.1 CREATING DISTANCE

Usually the animal technicians find the sick animals when they change the cages. On the other hand, some of the animals are simply killed when the experiments are done and there is no more use for them, while others are produced and live only to be killed and dissected. Either way, the animal technicians recognized it as an important part of their job and they felt that they were the ones who could do it properly. Still, they all reported that killing the animals was the hardest part of the job and not something they enjoyed doing. Or as Victoria expressed it,

killing the animals is a necessary evil<sup>46</sup>. Some said that they had still not gotten used to killing the animals and would prefer never to get used to it. They believed this would help them keep their sensitivity and remind them that they are dealing with living creatures. However, most of the animal technicians reported that they have become accustomed to it - it has become just a part of their job, even if not one they particularly enjoy. Those who said they had become used to it explained it as a way to create some distance between the animals and themselves.

B: If you were to let every mouse you put down for some reason or every rat you put down for some reason sink completely in every time, you wouldn't be able to work. Because it becomes too much, at the end you have to say that you are still very, very fond of the animals, but you need some distance too, and in a way look at the bigger picture (...).

Another important aspect in handling the killings is to be able to ensure a good death. It is considered a good death when it is free from stress for the animal and when the technicians believe that the animal has not understood what is happening. However, a good death for the animal also includes the experimentalists' feelings (Holmberg 2008), that it is "...aesthetically acceptable for the operator" (Close et al 1997 in Holmberg 2008). The most frequent ways of killing is neck dislocation and gas. In general they all agree that neck dislocation is the best option for the mouse<sup>47</sup>. Done correctly, the mouse is gone immediately and will have no notion of its fate. With gas, dying is slower, "...a bit more tenacious torture, if one can call it that. But there again you don't have to actually know that you have dislocated a neck, there is something in that" (Marit in interview). Marit acknowledges that deciding on the best technique depends on whether the point of view belongs to her or to the mouse. But killing with neck dislocation requires precision and strength.

H: On the other hand, sometimes you have to kill many...

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<sup>46</sup> In Norwegian: baksiden av medaljen

<sup>47</sup> This is rarely done on bigger rodents such as rats because it is much more difficult to do it correctly and also demands more force

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M: Yes, and then you can't be doing neck dislocation, then you will lose your concentration and then there will be some you miss who actually will suffer before they die. So that is something to think about. Because, if there are one or two mice, you can do a neck dislocation. I would think that everyone at the laboratory can do that, if there is only one or two, but you don't do it if it is more than ten [mice] because then you lose your concentration. Because you become a bit tired when you have to use some muscle, the best [thing] for the animals then is actually the gas. Of course, if you can drug them down [as a way to kill them], but this means that you afflict pain on them by sticking a needle in their abdomen. Because then you physically have to stick a needle in their abdomen and that makes them jump and then you take them with the gas, then it is quick. So there are pros and cons.

It seems that the actual feeling of physically killing something is the reason why neck dislocation is difficult to do. The hands-on experience brings the action closer. Using the gas creates some distance between the animal technician turning on the gas and the animals being killed and the killing as such. However, 'tenacious torture' is not a pretty sight, which I guess is why I hardly ever observed them staying with the animals as they were dying. Most of them would turn the gas on slowly so the mice fainted. Discussing the killing of mice, Holmberg notes how it seems to be easier to kill an anesthetized mouse than one which is fully awake. An animal "...who is asleep looks dead and can thus be treated as such" (Holmberg 2008:328). Although they refer to research<sup>48</sup> when asked why they start the procedure by putting the gas on slowly, one wonders if killing it by turning the gas full on is easier when the mouse has already fainted because it looks dead and at peace. Once the gas is on, the animal technicians would leave the gas box and do something else and come back when it was time to turn the gas off. They would leave the mice in the box for a while to make sure they were properly killed. Sometimes they would forget that they had dead mice in the gas box, only to remember hours later or when someone asked. By using the gas, they manage to create an important distance in several ways: physically – they do not physically kill the mouse, spatially - they can physically be somewhere else while they die, and temporally – they can forget about it. Examining slaughtering in French abattoirs, Vialles (1994) describes a parallel

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<sup>48</sup> Research shows that the animals experience less stress if the gas is put on slowly as the slow reduction of O<sub>2</sub> makes them faint before they feel any panic.

sense of distance. Through sharing the disturbing jobs between them, actors are able to distance themselves from the whole action in which they are involved. Having one individual killing the animal and another bleeding it, creates doubt regarding who is performing the actual killing. The separation of jobs dilutes the responsibilities and potential feelings of guilt (Ibid.:45-46). The killing in the laboratory is, in contrast to the slaughterhouse, not a procedure divided into different tasks shared between the technicians, but performed individually by each technician, leaving them very much aware of their own killings. However, creating some kind of distance between oneself and the killing seems to be a common emotion management strategy for dealing with this disturbing job.

### **3.7.2 BALANCING EMPATHY AND DISTANCE**

Based on two case studies, Holmberg states that the killing of research animals is both a sensitive topic and surrounded by many rituals (Forthcoming). This can be expressed in words, but also through the actual killing - in actions. She further describes an episode where an animal technician has to put down two rats. The gas box is located in a designated room, and she takes care to close the door to keep it quiet. She puts both the rats in the box, together with some bedding material. She then covers the box with her jacket before pressing the on-button. All these measures are taken in order to create a good death for the animals, devoid of stress. The animal technician is also clearly emotionally engaged in the episode (Ibid.). During my fieldwork I never witnessed rituals like these in the killing process. On the contrary: although, as already mentioned, the technicians expressed the difficulties in words, the action was performed rather straightforwardly, as if there were no greater feelings attached to it. In the beginning this surprised me. The gas box was in the noisiest room of them all – the washing room. Usually they would collect several mice in one cage to put in the gas box, which excluded the possibility of including personal bedding. Although some said that they would neither put only one mouse in the box at the time, nor too many, in practice they did what made sense in each specific

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situation. When neck dislocation was performed on sick or old animals and if it was not part of an experiment, it was done in the room while they were changing the cages. It became a task just like giving additional food. If they love animals so much, how can they kill them with such ease? I believe that this straightforward approach to the actual killing was a coping strategy. Creating certain rituals around processes the way Holmberg describes, can be understood as a coping strategy – as a way to legitimize an action. Care for the animal, but also the self, plays a pivotal role here. However, creating rituals also in a sense makes the procedure more significant. Treating it matter-of-factly and as just another task, on the other hand, can make it into just that - a task like any other, one that is manageable. Rather than being ritualized, the task is ‘routinized’. Making it common creates another form of distance. This distance, I believe, is experienced as professionalism by the technicians.

S: But as soon as it [the dog] is on the table, you have to be a bit more professional, it is a job that has to be done. If I don't do it, then someone else will do it. And it is better that I can do a good job than someone who maybe doesn't care should do a bad job, for instance. But there are many who ask me “ - Do you love animals? - I love animals very much. -But how can you work with research animals then?” But that is not a problem - after all you care about them!

Writing about veterinarians who had to kill farm animals due to the foot and mouth epidemic in the UK in 2001, Law (2010) notes that learning how to balance empathy and distance is part of the professional training as practices for retaining sanity. Arluke also addresses the importance of creating distance when he writes about workers in animal shelters. He describes how the workers employ different emotion management strategies in order to distance themselves enough to be able to kill, but not so much that they have to abandon the sense of themselves as animal-loving people (Arluke 1994:148). Such strategies could, amongst others, be to focus on the animal's feelings, thus distracting themselves from their own discomfort, and to focus on the methodology of killing (Ibid.). This is very much in line with what my informants expressed. When putting animals down caring for the self, or self-protection, seems to become especially important. On the one hand they do not want to be indifferent to killing, on the

other hand they cannot identify too much with the animal about to be killed (Ibid.). “ Care here, is about responding, but not responding too much. It is about being there, about sensitivity, and yet it is also about distance” (Law 2010:64).

As shown, killing well and with care involves many dimensions. It can be care in the form of alleviation from suffering, but it can also be part of research, and as such, care for the good of the research. Either way it demands as little stress as possible, both for animal and human. Good methods and techniques play a crucial role here. But equally, if not more important, is caring for the self in the process of killing. This is done by finding a balance between caring for the animals through knowledge and good techniques on the one hand, and through creating distance between the technician performing the killing and the actual action on the other. This, I believe, is what killing well and with care entails.

### 3.8 CONCLUDING REMARKS

Going through some of the daily events in the laboratory, it is possible to see the complexity of the care involved. While rules, regulations and formal ethical codes can set some important standards, care is very much shaped by each specific situation, and in the interaction between the performer and the objects of care. However, what is important to notice is the multiplicity involved – in every situation there are several objects of care. But what entails good care for one object, might not be good care for another. Care in the laboratory is therefore attentive and constant tinkering to reach compromises that work. Care is an ongoing process expressed through practices, talk, technology and feelings. It is playing by the book, but also knowing when not to. It is knowledge combined with a feeling for the animal. Thus, “...instrumentality and morality are not mutually exclusive” (Harbers 2010:165).

I have thus far argued that the caring practices of the animal technicians have revealed non-coherence or dilemmas inherent in the *Standardization* mode of ordering between the demands of animal welfare and medical research. The

interaction with the research animals situates the technicians in the crux of these tensions where they negotiate between the different demands to find arrangements that work. Even though, as Holmberg (Forthcoming) suggests, the strategy of including animal welfare as a means of doing good research can be understood as a legitimate agenda and not just as a justification of the killing, the caring for the animals seems to fall short to the caring for the research. For at the end of the day, caring for the animals and building a relationship to them still happens within the frame and needs of medical science. It is not difficult to imagine that for someone who is a confessed animal lover, this poses some dilemmas and challenges. Yet the animal technicians feel they manage to be there for the animals and to be their protectors. In the following chapter I will take a closer look at how the animal technicians address the discrepancy between the intended and the actual focus.

## 4. KEEPING THE CARES TOGETHER

“No one should be here without a reason, and no one should be put down without a reason”.

(Bodil in interview.)

During my weeks at the laboratory I was involved in many of the routine tasks. Changing the cages was definitely the most time consuming task the animal technicians did and I was allowed to participate. For me it was a great experience to understand the typical day of an animal technician - the interaction with the animals, the responsibility it required, and how they stay focused during this repetitive work. But it was also a great opportunity to understand how the technicians viewed the animals and how this affected the relationship and interaction they had with them. In this chapter I will investigate how the technicians think and talk about their work. Applying the concept of care to the practices at the laboratory revealed their complexities and the tinkering that went on to produce care that would fit the situation. However, without leaving the technicians in a situation of unresolved dilemmas, close attention to these practices also revealed tensions between the intended and actual focus of the tasks. In this respect it becomes apparent that the animal technicians think about the field of laboratory animal science in a specific way which helps them make sense of the job they are doing. This chapter will therefore focus on the conceptualization of laboratory animals, the technicians way of relating to medical science, and lastly on how they situate the work they do in relation to society outside the laboratory, as all three are believed to be important mechanisms in the ordering work of *Keeping the cares together*.

### 4.1 CONCEPTUALIZING THE ANIMALS

Before I started my fieldwork, except for the unseen mice sneaking around in our cabin, which I did not feel too comfortable with, I had been nowhere near a rodent in 20 years. However, handling the mice in the cages did not bother me



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much. Once I got over the difficulty of catching their tails and the initial anxiety that they might bite me, this routine felt quite easy to do. However, as I was inexperienced, I did not pay much attention to the information on the card attached to the cage. In the steady flow of changing the cages, lifting the mice over from one to the other, I did not keep track of how many there were in one cage. All I noticed was that there were many. Before I put the dirty cage away, I saw the tip of a tail, which I thought was strange as I could not remember any of the mice having a damaged tail. So I investigated further, and found, to my horror and half buried by the bedding, a dead mouse. Since at the time it was not part of an experiment, it had most likely died of natural causes. However, I screamed and ran out of the room, lifting my knees high and shaking my hands. Some of the technicians came towards me, wondering what was wrong. I laughed at my own overreaction and explained that there was a dead mouse in the cage and they quietly removed it in a plastic bag. To me, through its death, some of the mouse's cleanliness, orderliness and predictability as a lab animal had disappeared and transformed the mouse into something almost dirty, natural or unpredictable. On another occasion, I was allowed a second try at taking a blood sample. With a bit more confidence than the first stressful and fumbling time, I got to work with determination. However, probably due to my stress and lack of skills, the mouse escaped my grip and ran away. To me the situation seemed to be out of control and very stressful. The mouse had gone from manageable and domesticated to unmanageable and wild, very much like the unwanted mice at my cabin. While the technicians quietly asked me to try to catch it, I more or less froze and needed help. Not until it was back in the cage, had it – to me - regained its manageable status.

How you experience the animal, and interlinked, how you conceptualize it, will affect how you relate to it, and vice versa, as my personal anecdotes from the laboratory try to exemplify. For my purpose I will use the word conceptualize interchangeably with understanding. Conceptualization then is an interpretation of a phenomenon based on experience, reasoning and imagination. Therefore, based on the particular interaction the technicians have with the lab animals

within the field of laboratory animal science, more specifically, the laboratory as an institution, and with an identity as animal lovers as well as possessing a shared ‘legitimate knowledge’ conveyed by the course, the technicians come to understand or conceptualize the research animal in a specific way. The two episodes above were nothing out of the ordinary at the laboratory. With 5000 animals there, finding a dead one was not a major event. Everybody could tell stories about escaping mice, and I witnessed animal technicians on their knees trying to catch a hamster on the run. Of course, the technicians are professionals, they are used to the animals and do not react as I did to these episodes. Still, I believe the episodes can serve as examples of how context specific the construction of animals are, whether they are wild, pets or lab animals. An animal is not just an animal, and the specific human – animal relation will be affected by this. Thomas contends that

“...all observation of the natural world involves the use of mental categories with which we, the observers, classify and order the otherwise incomprehensible mass of phenomena around us; and it is notorious that, once these categories have been learned, it is very difficult for us to see the world in any other way” (Thomas 1983:52).

Studying veterinary students, Druglitrø points out that while the students share contemporary conceptualizations and the same sense of social distance to animals as people in general, they also have to interact with the animals in areas others do not have access to (Druglitrø 2006). This also applies to the animal technicians. The laboratory is one such area, requiring novel ways of conceptualizing animals. In Chapter 2 we saw that a consequence of the demand for standardization resulted in a deindividualization and deanimalization of the lab animal. It is thus turned into a tool for the benefit of research. Chapter 2 further showed how education has socialized technicians into this specific view on lab animals as tools. Moving into the laboratory, we could read in Chapter 3 how the multiple character of care reveals the paradoxes inherent in the practices at the laboratory, entailing both an emotional and instrumental dimension. The chapter went on to focus on the constant tinkering between all these versions of care without letting them collapse into dilemmas the technicians cannot make

sense of. This tinkering and caring is part of the ordering work behind what Law (1994) calls an appearance of ordered simplicity. Also important in Chapter 3 was to show how the animal technicians constantly (have to) relate to the naturalistic animal rather than the analytical. Even though the technicians use the animals as instruments in their technical procedures, they are also expected to see them as naturalistic to ensure standardization. Furthermore, as proclaimed animal lovers, this is also a perspective of the animals that the technicians prefer to have. As a consequence they do not have the ‘luxury’ of simply objectifying the animals as instruments, something which would facilitate a sense of distance between themselves on the one hand and the animals and the procedures they are doing to them on the other. Harbers concludes along the same lines in his writings on farm animals:

Instrumentality and morality are not categories that supplant one another. Animals are not either an object/thing or a subject/living being – property or person. What an animal actually is - its significance, its status –is only expressed in the contextual, historical environment-based relationship between humans and animals (Harbers 2010:164).

Based on this I suggest that interaction with the animals necessitates a more complex way of understanding them which includes the objectified tool conveyed through the course, but also incorporates the animals as individual subjects. To analyze this I will make use of a discursive perspective focusing on how people use different culturally available sets of statements or interpretative repertoires. According to Wetherell and Potter (1987, 1993 in Holmberg & Ideland 2009) people use these repertoires to construct versions of reality in relation to the social context. The repertoires are not constructed as entities intrinsically linked to social groups. Nor is it the case that some people are found to always use a certain repertoire while other people make use of another. Rather, as a response to the ever-changing situations people are faced with during a lifetime, different “...interpretative repertoires are used to perform different sorts of accounting tasks” (Potter & Wetherell 1987:156). Holmberg and Ideland use the concept of repertoire to understand how informants talk about transgenic mice in two different ways – as ordinary on the one hand and as a means of

scientific breakthroughs on the other. They contend that by using different rhetorical comparisons, such as ordinary laboratory mice or other animals like pets, the informants legitimize the transgenic enterprise. In this process the transgenic mice come to be understood as ordinary and extraordinary at the same time (Holmberg & Ideland 2009). In the case of the animal technicians I will suggest that they make use of two different repertoires as a response to the technician's burden. As they are expected to relate to the animals both as entities to be used for research, and as individual sentient creatures, two culturally available sets of statements are needed to construct a reality that fits the social context. I will use the concept of interpretative repertoires in order to investigate how the technicians' understanding of the laboratory animal affects the complexities of keeping the cares together. In other words, while still keeping a close eye on the practices, the focus will be set on how the animal technicians conceptualize the lab animals they interact with in order to shed light on how they deal with the tensions inherent in the care/exploitation dialectics. This particular conceptualization is facilitated by a specific understanding of the protection of animals where the use of animals is not rejected, but regarded as necessary.

#### **4.1.1 NOT WILD, NOT PET, BUT LAB**

When I talked to the animal technicians, all of them agreed that there were differences between the animals in the laboratory and their pets at home. When talking about this, Victoria felt that she could care equally well for the hamster in the laboratory as for the hamster she used to have as a pet. The difference to her was in the situation, as she put it, which would give the animals different purposes. Tina expressed similar thoughts, although her emotional commitment was of a different character. In her house she would not tolerate mice and would kill them with a broomstick if she saw them. In the laboratory she gave them food and water, talked to them and made sure they were comfortable, and when

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she killed, she would do so with care. The different situations change the moral standing of the animal. Herzog (1988) notes how the animal's moral status in the laboratory depends on the function the animals have. 'Good' mice are in their cages, ready to give their lives for science, whereas 'bad' mice are escapees. Herzog argues that the moral judgments we make about other species and how we label them, influences what we perceive as ethical. "Labels are, in part, the result of the role that the animal occupies relative to humans; conversely, the label influences the behavior and emotions directed toward the animal" (Herzog 1988:474).

An implication of the understanding of animals as belonging to separate categories is the construction of different identities or 'ways of being' connected to these categories. Ingold states that:

"... any qualitative transformation in environmental relations is likely to be manifested similarly both in the relationships that humans extend towards animals and in those that obtain among themselves in society" (Ingold 1994:2).

Thus, due to environmental changes and the subsequent conceptualization of the animals, different characteristics are necessary for a wild animal to perform its wildness compared to those of a lab animal performing its 'lab-ness'. What makes a pet a pet and a lab animal a lab animal is a social construction.

Following Berger and Luckmann, Shapiro notes that:

"...social construction refers to the consensus, whether explicit or implicit, that a group of people arrive at as to the meaning to them of an object or a class of objects. The term "construction" emphasizes the active role that people and institutions play in conferring that meaning and emphasizes the degree to which that meaning derives from and is made intelligible by the social contexts in which the actors and objects reside" (Berger & Luckmann in Shapiro 2002:440).

This leads us to the question – what is a laboratory animal to the animal technicians?

### 4.1.2 A MANUFACTURED TOOL

When asked in interviews, the animal technicians all found it difficult to say what a laboratory animal is. They agreed it was different from unwelcome mice in their house and from their pets. As mentioned, some defined them according to the situation in which they would encounter the animal. Others again defined them by the fact that the mice are designed for a life of experimentation in a laboratory. Therefore they are clean, but also fragile. Because of the importance of cleanliness - both in the lab and in the actual animals due to the genetic engineering and the many standardizing procedures affecting their lives - the technicians cannot have rodents at home for fear of contamination. Tina contrasted the animals in the lab to her dog, saying the research animals are 'square', meaning they have controlled, standardized hygienic lives, where her dog can run around, eat what it fancies and roll around in the dirt. Ragnhild reasoned along the same line - that the animals have been bred in the right way under special circumstances in order to make everything equal. This is in line with how the course conceptualizes the research animal, as we could read in chapter 2, where the process of standardization has manufactured a *deindividualized* and *deanimalized* lab animal as a tool to achieve specific ends. Vialles writes about a parallel understanding of the animal in the slaughterhouses in France, commenting that from the point of view of consumption, the animal is simply a machine for producing meat (Vialles 1994:51). The animal's nature is thus *counteranthropomorphized* (Milgram in Arluke 1988), which is the attribution of inanimate qualities to living things. This type of objectification of the animals was visible in the laboratory on the occasions when there were too many animals and their numbers had to be reduced. The term used was always that they needed to tidy up, not to kill or put down, even if this was the literal meaning of the actions needed. The term 'tidying' gives connotations to the type of ordinary practices everybody performs when inanimate things are messy. Tidying is nothing out of the ordinary. The research animals are clearly perceived and represented as somehow different from wild animals or pets, belonging to another category. Sofie expresses it this way: "It's its life. It is the meaning of its

life. [It has been] bred at the laboratory and it will be used for research and the ones who are outside are lucky”. Materially, then, the lab animals differ from other animals in the way they have been bred, but also how they live (Birke et al. 2007). Consequently the laboratory becomes the natural environment for the animals where the specific ecological setting is run by technology, research funding and a wealth of innovation (Holmberg & Ideland 2009:179)<sup>49</sup>. Thus, it is not the meaning of the lab animals’ lives to run around in the forest or in the sewer, or to end up on someone’s dinner table. The meaning of the lab animals’ lives and their natural conditions are there, in the laboratory, being part of experiments as research animals, or, as Arluke (1994) puts it, fulfilling its institutional role.

#### 4.1.3 BEING USED AS AN OBJECT AND A SUBJECT

A corollary of being a tool that can be tidied away is that it should also be used. During my weeks at the laboratory it became apparent that the utilization of the animals was important to the animal technicians. The animals’ value was measured in terms of utility, and the more they were used, the better<sup>50</sup>. Breeding animals and then not using them is considered wasteful, meaningless and not right.

H: So, what makes it ok, or what should one say, is that they have an ok life while they are here and that they are used for something; then it is ok?

M: Yes, because then they have gotten a kind of value, that they actually have been used in a way, that they haven’t just been born and put down, but have been used. We have some which have been here for a

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<sup>49</sup> During a lecture at the *Grunnkurs i forsøksdyrlære*, the professor noted that the animals live as normal before an experiment. The question “What Is normal?” imposes itself. Clearly, for a lab animal, normal does not imply sewers or forests, but cages and a strictly standardized environment. Normal thus consists of a different natural environment, one which is considered suitable for a research animal while it is maintaining the animal’s basic needs. This is in line with footnote 26 in chapter 2 stating that everything that enters the laboratory is highly artificial. What is normal is hence based on what is perceived as a natural environment in the laboratory, a ‘natural’ which Knorr-Cetina conveys as a site of action where ‘nature’ is as much as possibly excluded. As a consequence to this, Holmberg and Ideland note that: “Through an emphasis on the laboratory as a natural environment [...] animal welfare arguments concerning the ‘unnatural’ environment of experimental animals seem weak” (Holmberg & Ideland 2009:179).

<sup>50</sup> Normalizing the use of animals is subtly implied by Marit during the interview when she states that using animals for research is not an abuse of animals and that people always think the worst. Without reading too much into the statement, setting ‘abuse’ indirectly up against ‘use’ has the discursive effect of normalizing the use of the animals.

year without being used. I think that is sort of unnecessary, they might as well have been somewhere else instead of being in our laboratory in a cage for a year. But the ones which are actually being used, I think [is ok].

In this way of thinking about the animals, it is imperative to get as much use out of them as possible. If they have finished an experiment and the animals are still alive they will check if someone can use them or if they can practice different techniques on it, such as neck dislocation or tube feeding. Using the animals this way is according to the 3R's, which was also mentioned by the technicians.

The importance of using the animals is, however, not only understood in relation to being a tool serving human interests. It also becomes a way to help the animals, so to speak, in performing their 'lab-ness' - in achieving their purpose in life. Talking about how they always try to use the animals, Tina explains how they at least can draw blood from a leftover rat which has not been used for an experiment. That way the rat has accomplished a mission. In other words, the rat is not just objectified as a passive tool to be used, it is considered to be an active agent in the realization of itself and the meaning of its life as a tool. It becomes a subject. Within this dual way of reasoning, the lab animals can be understood as boundary walkers "...constantly balancing on the fine line between nature and culture, organism and innovation, reality and model, science and technology" (Haraway 1997 in Holmberg & Ideland 2009)<sup>51</sup>, and I would add 'subject and object'. As an object within laboratory animal science the animal gains its value and recognition as an instrument and through the knowledge produced by its use. But how is the animal recognized by the animal technicians as an active agent – a subject – within this field? And how does being used come to be perceived as important for this animal agent? And lastly, how does this way of viewing the animals become important to the technicians?

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<sup>51</sup> Haraway writes about transgenic animals, but I believe this is valid for all animals in the laboratory



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#### 4.1.4 THE CO-WORKER

A consequence of regarding the research animals as belonging to the laboratory, as constituting an active part of it, was that on many occasions several technicians commented on how the animals helped and contributed to the medical progress. Not only are they helping the researcher in gaining data, they also help humankind in general by their contribution to medicine (Birke 2003). In line with this way of conceptualizing the animals, one implication of being literally designed for this life, is that, as tools, they become co-workers. As Tina commented: “It is its job to be a research animal and to produce data”. This notion of co-worker is also expressed through how they perceive interaction with the animals. Some time ago, the workload at the laboratory was divided between the animal technicians, making everyone responsible for their own rooms. Some of the technicians felt they knew their own animals better, which made it easier to do technical procedures on them. But they also felt this was because the animals knew them better. The animals had learned how their individual animal technician worked and handled them. Writing about lab rats, Birke et al (2004) recognize the animals as actors and as subjects of a life who are, together with humans, engaged in mutual decision-making to co-create behavior. They note how the animals’ behavior has played a crucial role in the development of modern science (certain strains of rats were selected for specific traits) and in the making of scientists (the handling of the animals is an important part of laboratory training for humans). The daily intra-action thus co-creates both animals and humans to produce the practices of science (Birke et al. 2004:175). Although not all of my informants expressed any preference for using their own animal or not, the sense of mutual adaptation may still be indicative of how the animals are experienced – as active subjects performing their status as tools. Marit expressed this by saying that the mice she worked with in an experiment had “in a way been able to use themselves”. The mouse is thus an active agent performing its selfhood, which is to be used.

#### 4.1.5 THE OBJECT/SUBJECT DIALECTICS

In the laboratory, then, it is as though the meaning of the lab animals' life is to live there and be part of an experiment, and that this is how they accomplish their mission. In this respect, the animal technicians help the animals fulfill their potential to become the best they can be as a lab animal. This facilitates and justifies their use because the animal comes to be perceived as performing its 'lab-ness' when helping out in experiments as tools. The object/subject dialectics - being a tool and wanting to perform as a tool fulfilling itself -- thus constitutes the research animal's 'lab-ness'. Referring to Tuan, Arluke (1988) notes that in order to possess complete power and control over an animate being, the animate being needs to be reduced to an inanimate and mechanical nature. But the animate nature can never completely be defeated and will retain a will. Thus the objectification of the laboratory animal is never complete. Neither is it realizable, Arluke argues, as for many it would be psychologically unsatisfying. Arluke sees this effect in relation to how some lab animals are turned into pets. This did not happen at the laboratory where I conducted my fieldwork. However, I believe the discursive effect of turning the animals into subjects serves as a parallel as it is a way to acknowledge the animate will in the animal. It is not my intention to claim that talking about the animals both as objects and subjects with regards to how they are seen as tools, are intentional strategies. Rather, I will argue that switching between these interpretative repertoires is essential in dealing with the ethical concerns the animal technicians may have in using animals for research. Switching between seeing the animal as an object, where the animal is regarded as a tool and hence valued for its utility, and as a subject, where the animal technicians indirectly can help the animals become the best lab animals they can be, justifies and facilitates the use because the actual use creates value to the animal, as well as to the higher good of medical science<sup>52</sup>. The importance of this was illustrated when I talked to the animal technicians about killing and whether or not there were situations when it was harder to kill an animal. Most of my

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<sup>52</sup> I will return to this in section 4.2.

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informants said it was harder to kill babies or animals that had not been used or were healthy, compared to killing animals that had been used.

H: What is most challenging with this job here?

M: Work related or psychological?

H: Both.

M: Psychologically I think the hardest thing is when I have to put down healthy mice, or babies or healthy mice. I don't think it's ok to know that it doesn't get a life afterwards, it hasn't been used or anything, and then one should just put it down. I think that's a bit heavy. I think in a way it's a better that they get used when you first have them here. But ... so then I try to, in a way, not to think about that so much, I try to distance myself a bit from it because if you begin to think about that it 's actually a mouse which has been bred and then it's just put down straight away without anything happening to it, it feels a bit wasted. So I think that part is a bit heavy. Then it's the killing in itself which is the toughest part, as long as it's not illness related, because then, in a way, I think it's ok. So then I can defend it.

Although they preferred if the animals were used as much as possible without compromising its welfare before it was killed, 'only' being used for breeding sufficed in making it easier to put it down. Unused animals or babies hence are problematic to put down for the animal technicians because they have not yet been fully transformed into lab animals as tools. And they have not been allowed to fulfill their potential as helpers in the quest for medical progress. Writing about workers in animal shelters, Arluke (1994) comments how seeing death as the alleviation of suffering functions as an emotion management strategy. He further states that this strategy does not work for animal researchers who instead need strategies to blind themselves from suffering. As mentioned in Chapter 3, it is apparent that the animal technicians are very aware of much of the suffering the animals go through, and they see it as their duty to kill animals in pain. In this respect seeing death as the alleviation of suffering does work as an emotion management strategy. However, as already indicated, the technicians are often faced with situations where suffering is not the only reason to kill. In these situations the specific view of the animal - firstly as something which gains value by being used, secondly as something that fulfills its potential by being used - becomes important as an alternative emotion management strategy. Where

suffering can not justify the killing of the animal, the use of it can. This explains the difficulties the animal technicians report when it comes to the killing of babies and healthy animals – they are not suffering and they have not yet been used and this carries implications for the animal and the technician.

The interpretative repertoire the animal technicians use, where the animal is seen both as an object and a subject, is part of, along with care in practices, the ordering work in which the technicians are engaged. I suggest that this understanding and way of relating to the laboratory animals is crucial in keeping the cares together. Within the *Standardization* mode of ordering, standardization played an important role in making the different demands pull in the same direction. In the *Keeping the cares together* mode of ordering the understanding of the lab animals seems to play this part since the use is perceived to benefit both research and animals. Further, I am suggesting that understanding the laboratory animals as subjects within their natural environment in the laboratory, ready to help humanity and medical research, as well as realizing their potential, might be a key to understanding how research can hold such a prominent place in the animal technicians practices, in spite of the intended focus on the animals, without leaving the technicians with feelings of unresolved tensions. What has yet not been addressed is how the technicians understand and relate to medical science. This is important because, after all, medical science is a precondition for the work the technicians do and for the production of the animals. Further, it is within this understanding of medical science that they try to make sense of their job. In other words, it is within this understanding of medical science the animal technicians are doing their ordering work of keeping the cares together.

## 4.2 MEDICAL SCIENCE

In chapter 2 we saw how entangled the medical science and the animal welfare modes of ordering presented at the *Grunnkurs i forsøksdyrlære* were. The ethical viewpoint conveyed through the curriculum put the field of laboratory animal

science into the bigger picture, defending the use of animals for research based on a specific worldview. However, both in the literature and through lectures the emphasis was on the concrete and practical understanding of animal welfare and medical science. The focus rested on how to create favorable conditions to produce good science, making standardization a key concept. When I asked the animal technicians about the required standardization at the laboratory, the technicians confirmed that they were aware of these measures, but as they were already in place, they did not think much about it. They changed the standardized cages, fed the animals the standardized feed, and gave them the sterilized water and so on, according to good scientific protocol. But never did they mention that they performed these tasks in order to produce good conditions for science. Their focus was on the animals, making standardization an implicit part of their daily routines. Still, the significance of medical science was very much in evidence amongst the animal technicians in the laboratory. If the concrete understanding of the medical science emphasized in the course, through standardizing measures and the 3R's, was not experienced as important to the animal technicians, how do they relate to medical science?

#### **4.2.1 BEING PART OF A SCIENTIFIC COMMUNITY**

Several of the technicians expressed that they consider themselves to be contributing to science. They experience their job as being part of something important. During my stay at the laboratory I asked some of the researchers what they were doing, what their project was all about. Every time I was struck by the technical explanations they gave me and on how inaccessible their answers were. The technical answers made it difficult to understand the necessity or importance of the specific project. As a way to keep the animal technicians involved in what is going on in the laboratory, upon starting, every researcher has to present his/her project to the staff. Some also come back after the project is completed and published to let the staff know how it turned out. Both these initiatives were appreciated by the animal technicians. However, when I explained my

difficulties in understanding the explanations the researchers gave me, several of the technicians would report on similar experiences.

L: ... And I think that is ok here, or actually at [the other laboratory she used to work in] too, because I knew they were doing research on cancer there, right? But there you were a bit more ignorant to what they were doing. But in a way, we're not like that here because when they start up with new experiments they have to come in and prepare us, have a project meeting and tell us what they are going to do and so on. And afterwards, often they come back again and tell us: "-You know, this went really well and they have received great response, and now we have gotten this far", and it is really rewarding to sit and listen to that.

H: Do you understand what they [the researchers] say? I asked some of these researchers what they are doing and they gave me these super technical explanations, and it seems that they haven't really told me anything. Instead, they could just have told me they are doing research on cancer, which would have been good enough. Do you understand the explanations?

L: No, not always. It's not always [clear]. They do diabetes here too, and it is about these eye cells and everything they go around talking about, and present at these project meetings, and it's not always we [understand], like, yea, right, it's not.

H: But you feel important research is going on here? That it contributes to something? Or are there occasions when you think: "-What are they doing?"

L: No, I don't feel that way. [...]

This excerpt indicates that complete understanding of the technicalities connected to each project, which in effect is supposed to justify the importance of the experiments conducted at the laboratory, is not necessary for the animal technicians. What is essential to the technicians is that they can see results from their work, which Sofie expresses this way: "... and I think it is very exciting to see some results, that it becomes something, that we are not just doing it for fun". Hence, the results make the animal technicians feel the job is meaningful. In spite of the lack of understanding of (some of) the research, they still feel that what is going on in the laboratory is important and something of which they are part. One aspect of being part of the scientific team is the identification it allows with the team and the results it produces.

H: Do you think that down here [at the laboratory] you are part of a bigger scientific team? Do you feel part of, in a way, this world?

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T: Yes, I would say so. Because many things are published which we have had helped with, if only in breeding or maybe only taking care of the animals, or if we have taken blood samples of them every second week or if we have immunized them or injected them ... yes, I feel that. “-Yes, I know something about that because I have been part of that”. So if there’s something on Schrödingers katt<sup>53</sup> or something, they address these things or it is on the news, I think: “-Oh, I know that”.

So at one level the feeling of belonging to a scientific community legitimizes the job on a personal level as well as providing a bigger community of which one can seek identification and a sense of belonging. Birke et al. (2007) comment on how the enterprise of scientific research has experienced a greater division of labor between researchers and animal technicians following the increased standardization, in spite of being engaged in the same pursuit of scientific research. Still, both technicians and scientists concurred in the boundary-making leaving both groups inside science and inside particular moral boundaries, apart from ‘others’. Later in this chapter I will return to who these ‘others’ might be and the effect their creation has. The point to be made now is the feeling of being part of a community searching for the same goal.

On another level the feeling of belonging to a scientific community legitimizes their job in relation to society in general, as the knowledge produced through research is considered to be relevant to most people. Talking about the importance of finding justifications to be able to deal with the challenges of putting animals down, I ask Bodil what her reasons are:

B: Here [at the laboratory] it is that it [the research] does actually ... helps in finding medication, helps in finding treatments so research can move forward. And I think about the people with illnesses that might be really awful, if they could get a cure. Imagine how much better they would be. And yes, so you have sacrificed this many animals for that. But then people can live a normal life for maybe ten times as long as planned, makes it so you can defend it to yourself too.

This excerpt highlights three ways of connecting or making relevant what happens at the laboratory with the outside world. Firstly, there is a sense of direction connected to medical science - it is moving forward. On many

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<sup>53</sup> Schrödingers katt is a popular scientific show on national television.

occasions medical science was understood by the animal technicians in terms of progress. Talking about how difficult it can be to put some animals down, Lise comments that: “- ... that is actually what it takes, if we want to get anywhere”. Bodil reasons along the same lines, stating that the experiments are very important: “- All medication has been tested on animals before they are released on the market. And we would be in the Stone Age had we not been doing what we do”. Birke comments how this kind of rhetoric partly draws on arguments put forward by proponents of animal-based research, emphasizing a view on medicine as progress which has been dependent on the use of animals. The lab animals’ image as our helpers is facilitated by how they have become constructed as essential to the creation of all medical advances (Birke 2003). Secondly, the excerpt highlights the relevance of the research to people in general. Tina supports this way of reasoning when she tells me why she does not have a problem with being part of animal experiments:

T: ... we had some posters hanging on the wall for a while with a big picture of a rat and it said that...it’s better to sacrifice a rat than a whole bunch of kids to find out about types of medicine and stuff like that. So I don’t have any problems as long as it is medical research. Because I’m thinking it could be me needing it or my kids needing it.

Later in the interview Tina states that:

T: I don’t do this [my job] to be mean to the animals, but to help humanity - that the researchers can help humanity.

Experiencing their job as helping humanity clearly serves as a great motivation for the animal technicians. Some of the informants even stated this as their main motivation for working at the laboratory, or as equally motivating as the desire to work with animals. Birke et al (2007) comments how the focus on potential medical benefits can be understood as a coping strategy. However, the results and the progress benefitting humanity was not just a motivation, it came to be experienced as a higher purpose:

H: But that it [your job] is connected to this research, that is, the medical research, do you think that gives it [your job] a higher purpose than [working] in a clinic?



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B: It is definitely so. That you get... this is for something very, very important. So even if it is very important when you work with the animals of private persons too...

H: To that private person that is very important.

B: Yes, but that it is for medical research is really important too. So you feel that you hopefully can contribute to finding more solutions to problems in the world. Or in Norway, illnesses and yes.

So while their job is practical in all its routines and technical procedures, the greater purpose of the job is lifted up to something more important, exceeding themselves and the laboratory. It is within this frame the animal technicians understand and see the lab animals as something to be used and as someone wanting to be used. And it is within this framework that being used places value on the animals. The third point I want to make based on the excerpt from the interview with Bodil is how the focus on results and progress as benefitting humanity comes to function as an effective defense mechanism. Marit expresses it this way:

H: For instance the tread mill project, do you think that killing ... do you think that is difficult?

M: Neck dislocation? I don't like neck dislocation in itself, so I find that part a bit difficult. But at the same time I know we put them down because it is an experiment where they will look at organs, so I think in a way I can defend that, because it is necessary, this is useful for the research.

Thus, in situations where they find themselves doing something they are not completely comfortable with, the usefulness of the research helps them to defend the actions to themselves. Arguably then, the usefulness of the research can come to function as an effective coping strategy, or legitimizing mechanism, because the animal technicians perceive the whole field as part of something more important than the practicalities of everyday routine work at the laboratory.

The way the animal technicians relate to research for medical science comes to be both a legitimizing and a defense mechanism. Being part of a community conducting research on behalf of humanity connects the practicalities of their work to a higher purpose. In this respect, research for medical science both defends and legitimizes the job the animal technicians do in difficult situations.

The understanding of medical science research creates a framework around the technicians' conceptualization and use of the lab animal, adding motivation and reason both to the 'be used' and 'wanting to be used' concepts. This framework may shed light on how the technicians can leave so much room for science even when their stated focus is on the needs of the animals.

## 4.3 SITUATING THE LABORATORY IN RELATION TO SOCIETY

So far the focus has stayed within the laboratory. From the animal technicians' perspective we have learned that they do not experience their field as one full of ethical dilemmas. This chapter has shown how this is possible based on how the use of the animals is valued, both for the benefit of research understood as a greater good and as a way for the animals to realize their 'lab-ness'. However, as part of society in general, the animal technicians are faced with opinions and beliefs from 'outsiders' who are not necessarily socialized into and sharing the views prevalent at the laboratory. Rather, it might seem paradoxical to outsiders to hear animal technicians say they love animals and still choose to have a job which requires using, harming and killing them. The animal technicians experience that the world view they hold and the legitimizing mechanisms they recourse to within the laboratory, which to them make sense of their job, might fall short in confrontation with outsiders. In such confrontations other mechanisms are needed to address the tensions inherent in their job, which will be the focus of the next section. Making sense of these encounters with outsiders is also part of the ordering work in *Keeping the cares together*.

### 4.3.1 CONTROLLING INFORMATION

As mentioned earlier, animal experiments have been around for a long time and is now a well-established institution. Holmberg and Ideland (2010) refer to EU- and Swedish surveys when stating that animal research is now widely accepted

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by the public<sup>54</sup>. However, they note how the activity is often portrayed – especially from an ‘inside’ perspective by people working in the laboratory - as being under threat. This sense of threat came to the surface on a few occasions in the laboratory while I conducted my fieldwork. During an introductory meeting for new researchers at the laboratory, one of them asked why there were no pictures of the animal technicians on their webpage. The leader of the laboratory agreed that it could be useful to have pictures of the staff, but explained that it was a question of security. Since someone with bad intentions might also check their web page, having pictures of the staff there could put them in danger. Tina confirmed this feeling of threat when she stated that protecting fellow workers was one of the reasons she did not tell everyone she meets about her job.

Nevertheless, on several occasions during my fieldwork, and also in the interviews, I would ask whether the animal technicians experienced any problems or hostility when telling people what they do for a living. A common theme in the answers was the fear of being misunderstood rather than the fear of threats. Most of them would start off by stating that they had no problem with telling people what they do. Further into the conversation though, it would be specified that whether or not they would tell was dependent on the situation and the people. Although they do not feel ashamed of what they are doing, they still feel that the discussion which would usually come about when they informed someone of the nature of their job, was “...a battle one was not always up for taking”, as Bodil put it. Openness is thus potentially restricted, dependent on the situation, for fear of misunderstandings or threats. This was experienced as frustrating and provoking. When I asked Tina if it bothered her that she felt she had to protect herself and her colleagues, she answered:

T: I don't know if it bothers me, but it's maybe a bit annoying that one type of people...it's ok, I am very fond of animals too and animal protection and stuff like that. But that they can't see that this is for medical research. Because I mean, everybody uses paracetamol when they have a headache or are hung-over and things like that, or go to the doctor and get a prescription for something during the year, use

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<sup>54</sup> I think it is fair to assume that these attitudes are reflected in the Norwegian public too.

nasal spray when they have a cold and things like that. And those are things that have been researched in a place like this. If not right here, then somewhere else. And then I become a bit provoked, because I think that everyone uses paracetamol or ibux or something else similar to it, and that has been researched through a type of animal house some place, somewhere. And the fact that I can't tell the whole world that I work in an animal house, it might be a bit provoking, that people can't tolerate that, that this is my job. I am not doing it to be mean to the animals, but to help humanity - that the researchers can help humanity.

In a situation where the animal technicians experience their job as both caring for the animals and humanity, being misunderstood as animal abusers is experienced as provoking. However, encountering the public might also constitute a situation in which the animal technicians are faced with the moral problems embedded in the use of animals for research, but where their usual legitimizing mechanisms seem inadequate. In line with the findings of Birke et al. (2007) the animal technicians are not self-stigmatized, meaning they do not feel bad about what they do for a living. Birke et al. further contend that when people working with research animals do feel bad it is when they perceive actual or threatened disapproval (Birke et al. 2007). Citing Arluke, they point out that controlling information thus becomes a common strategy people adopt when confronted with disturbing social experiences (Arluke 1991 in Birke et al. 2007:158).

H: How do you identify yourself with your job, what do you think that you are working with?

M: I think that I'm doing research. The part I explain when others ask me what I do, is to say I'm doing research. And then research animals, but then animals in research. People know I'm an animal care taker, most people get surprised when you say you work in a hospital, because they don't think about that part at all, I didn't either until I started studying. When I talk about it in general, it's research I'm doing. It's a part of research I'm doing. I'm a part of research, helping there, doing research, not primarily animals or research animals.

Most of the animal technicians have entered the field because of their love for animals. However, working for medical science, perceived as a higher goal serving humanity, comes to be a main motivation for the job, even when the expressed focus of their work is still on the animals and their wellbeing. In spite of the fact that it has usually been the interest in animals which got them into the job, working with animals is not the part of the job they initially communicate when meeting people outside the laboratory. Marit exemplifies this when she

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says she is working with research. At one level, this can be understood as referring back to the experience of being part of a scientific team searching for the same goal. Yet, it might also be understood as a strategy of selective openness, with the effect of controlling information (Holmberg & Ideland 2010). Obscuring the fact they work with laboratory animals is a way to control the flow of information and to avoid being confronted with any of the dilemmas they might encounter in the laboratory outside the sphere where they have already established well functioning legitimizing mechanisms. Ragnhild is in line with this way of controlling information when she rejects any problems in telling people about her job: “-But that’s clear, it’s much easier now, you can say you work at the hospital with research, that’s lots [research is many different things], that’s what we do”.

#### **4.3.2 CONSTRUCTING ‘OTHERS’**

Another way to make sense of what they do is, according to Arluke, to employ a strategy of creating ‘others’ outside of science (Arluke 1991 in Birke et al. 2007:158). When establishing a discursive space for a particular identity through the use of ‘others’, “... people come to define themselves and their identities, in short, by differentiating themselves from various others – it is a widespread habit that can serve to present one’s own practices in a positive moral light” (Birke et al. 2007:158). As noted earlier in this chapter, the scientists and the technicians engage in boundary-making, demarcating the insiders from the outsiders, in which the outsiders should be morally deviated. This is effectively done through the creation of ‘others’. Implying that they do their best through establishing morally deviating ‘others’, is, in effect, also a way of acknowledging that there is a moral problem in using animals for research, according to Birke et al (2007). This rhetorical move provides, as mentioned, a connection between the disparate groups constituting the laboratory – the researchers and the animal technicians. A second effect of the rhetorical move is that it creates a socio-ethical domain, outside of which you will find the people who do not do things right for the

animals (Ibid.). Similarly to the course, the animal technicians thus create moral havens through the use of ‘others’.

H: Do you think it’s difficult, in relation to the outside world, to say that you are involved with research animals? Do you meet any negative...

M: I don’t think it’s difficult to talk about it, not at all, because I think I can defend it as long as it’s medical research. If it had been cosmetic, I wouldn’t have been working with this because it’s not something which is necessary, it’s in a way for our sake. But medical research, that ‘s in a way defensible. And I do meet people who are against research animals, everybody [the technicians] does, I guess, but then it’s up to you to defend that we are actually here for the animals, that we shall make sure they are doing fine. And that research is important, it’s important with laboratory animals. If you are going to test everything on humans, there will be a lot of commotion. It’s important that you can use animals that are similar in construction and physiology, and mice and rats are, and we are actually trying to get [alternative] models so you don’t have to deal with animals. So you try to explain that part too. That it’s not abuse of animals [using them for research], you try to use as few animals as possible, explain the 3R’s and what they involve. But of course, there will always be someone who will be argumentative about research animals, who say it’s only stupid, it’s negative, you can’t find anything positive about it. I don’t bother arguing with those. When I have said my opinion, then that’s it, then others can have their attitudes. But I don’t think there’s any difficult talking about it. I’ve nothing against saying I’m working with research animals. Not at all. I have to in a way be a bit proud of my job too. If you can’t talk to people that you are involved with research animals, then you shouldn’t be doing it either. There is something about that: you should actually be proud of what you are doing and know you are doing something important. It’s not abuse of animals. People always think the worst. Genetic modification of animals with an extra ear on the back and stuff...it’s not something we have here at all. There aren’t a lot of extreme experiments in Norway like that, but that’s what people are thinking about. And because the animals have open eyes during operations, people think they are awake. But all animals have open eyes, so do humans, we often place a piece of tape over the eyes so they do not dry up. We do the same with the animals. We don’t use tape, but a cream on the eye so it doesn’t dry up. And again it is important that we can show that we actually test for reflexes, that we actually know what to look for on animals in narcoses. Explain that they are not actually awake during operation. That stuff doesn’t happen here in Norway. And if it’s a painful experiment they are put down on the table. Then they do not wake up. They will never wake up from experiments which will induce pain, so in that respect that will not affect the animals.

Revealing that they work with animals is dependent on the situation and the people they encounter. Marit acknowledged that there are times and situations where she would meet people who just did not agree, people she would then not be bothered arguing with. In the right situation, though, explaining what their job

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actually entails seems to become important since many of the informants commented on how ill-informed the public is regarding what goes on in the laboratory. Many of the animal technicians saw the public as influenced, either by horror stories conveyed by the media or, by the animal welfare organizations' scare tactics. In this respect, the story about the mouse with a human ear on its back – the earmouse - was often cited as a reference to the public's (lack of) knowledge about the field. Brown (2006) suggests that the earmouse can be understood as an iconic reference through which people articulate their differing and highly contested views on bioscience rather than being viewed as an indicator of scientific illiteracy. However, by 'othering' the general public as scientifically illiterate and ignorant, the animal technicians can avoid public engagement and controversies (Holmberg & Ideland 2010) by defining who is worth having the discussion and confrontation with. This view of technical illiteracy has come to be known as the 'deficit model', and is a way to dismiss the public as having little to contribute to discussions about science because they are unfamiliar with the technical details of the events with which they are concerned (Brown 2006:504). Ragnhild told a similar story:

R: If you think about these organizations which talk about research animals and stuff, then they put out pictures of rabbits with bad eyes and such. But these are pictures that have been around for many years. I remember I entered the Operapassasjen some time – this was in the 80s or something. There was a campaign with pictures and they were saying that "here they are miserable, they had to stand in this apparatus". But I knew that they were sitting in that temperature sensor one day a week. That's what they did. [The rest of the time]they were jumping around in their cages. So much of what is – it's a bit like scaremongering... they do the same all the time, these animal protection organizations. But at the same time you need them to keep an eye on things.

The construction of the public<sup>55</sup> is full of contradictions. While being perceived as a threat, yet acknowledged for their necessity, the information conveyed by

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<sup>55</sup> Michael & Birke (1994) make a distinction between 'Publics in General' and 'Publics in Particular'. Based on their findings, the scientists divide the public into antivivisectionists and the general public where "... animal rights activists are represented as anti-human, deceivers, and terrorists, while the general public, by comparison, is viewed as uninformed and too emotional" (Birke et al 2007:130). In my discussions on the publics as an 'other' I will not make this distinction as the animal technicians used the same discursive resources to construct the public, whether they referred to animal protection activists or the general public. This might be due to the fact that in comparison to the animal protectionist movements in for instance the UK, the Norwegian counterpart has been much less militant

the animal protection movements is portrayed as ill informed and only used to scare the public. The movements are thus constructed as belonging to a rather confused and incoherent ideology (cf. Forsmann 1992:124 in Holmberg & Ideland 2010:6). This is reflected in Ragnhild's story about an encounter with one such movement:

R: ... I have experienced a couple of demonstrations, for instance. I have been to courses where we have had security people around us. Not being allowed to go out and things like that. Then you might think more about it [whether you are working with something which is ethically problematic]. But not really, not here, no.

H: But what do you think then? When you have been in situations where you have security people around you and you are not allowed out?

R: No, I rather think that they are ignorant. We were in (...) two years ago, I guess. Then there were many demonstrations. "-Ok, you should be in school." That's what we said. "-Why are you not in school?" Because they were not older than that. And then they returned in the evening with masks, right, and started to... and in daytime they started...I was in the swimming pool and I was the only one from the congress and the rest of the people there were just ordinary people who were there to swim. So then it was more, then we think that..and later they came back with masks and had gotten hold of more [people], and then we think that they didn't really know what they were doing, there were so many other people in that hotel who didn't have anything to do with us at all. Why on earth would they come into the swimming pool when there are kids and stuff there? And it was the same way in the evening. We were not allowed to leave and the police were standing around the whole thing. And then it said like "SCAND-LAS kills". SCAND-LAS is an organization, it's nothing about animal experiments. It's nothing, it's just an organization for us who work with it. Everything was wrong in the setting. They had misunderstood a little bit. It wasn't the firms that kill, but a Scandinavian organization, and that just doesn't make sense. And they were actually not able to see the connection there.

H: So it's about being misunderstood?

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and aggressive. Thus, I think it is fair to say that from a laboratory worker's perspective, the activists as a threat are viewed less as terrorists, and more as conveyers of ill-informed propaganda.



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R: Yes, mm. Right, when there are 13-14 year olds standing there and like, yes, and then they don't really know. And people went over to try to talk to them, they don't really know what they are talking about, many of them.

Ignorance was a theme that came up several times when talking about the public. A common strategy when confronted about their job was to ask whether or not the person asking them was using contraceptive pills or pain killers, in which case the technicians found that people had to admit that they did. This is a powerful strategy which connects their job at the laboratory to the public in general and makes it relevant to them. The public is implicitly made an accomplice. The strategy thus creates a moral haven where the people within the laboratory become morally consistent compared to the people outside the laboratory. A parallel strategy is to compare the use of animals to other situations where humans interact with animals (Holmberg & Ideland 2009). Most commonly, my informants would compare the research animals with pets. Quite often the care the lab animals received was compared to the neglect many pets experienced.

V: Of course, animals enter, but they do not get out. So in that respect it is [a closed unit]. Because I do think there are animals here who can have just as good a life as...of course, here they get vaccines and have pain inflicted on them to a certain degree in some of the experiments here too. But, for instance, to give a mouse or a hamster to a little kid who will play around – I think that can be just as traumatic for the hamster as life here. Living in the same cage, they have a house and food and water and are being looked after every day.

This strategy not only portrays the good life of the animals in the laboratory. It also portrays the animal technicians as more knowledgeable and attentive care givers than pet owners, who are inconsistent and ignorant.

Another way of creating 'others' is to differentiate oneself from others dealing with animals in a professional way (Michael & Birke 1994). Thus, creating a self-identity as morally superior does not only happen in relation to the general public, but also within the field of laboratory animal science. My informants all shared the opinion that they would not work for the cosmetics industry because it was not regarded to be contributing to the betterment of humankind. This attitude

not only reflects their moral superiority compared to those who perform experiments on animals in the name of cosmetics. It also reflects how important the medical science is as a legitimizing mechanism. Another ‘other’, less frequently invoked by my informants, was foreigners. In some cases they could refer to foreigners coming to their laboratory who would seemingly operate under different – lower – standards and therefore needed to be told and shown how things were done in this laboratory. In other cases this was illustrated by reference to countries like China and Japan. The technicians would claim that, as opposed to their animals, the animals in those countries were not treated well. The routines and the technical procedures at the laboratory were compared favorably to those in other countries. One such routine was the blood sampling. In Norway the leg is used. In Denmark they use the eye. This was regarded by the animal technicians as a more stressful technique for the animals as they had to be sedated first. They also contended that there was a higher risk of blindness or other injuries using the eye technique. Another difference in the routines, and which the technicians renounced, was the growing use of tweezers when lifting the mice from one cage to another. Using this device, they stated, would have an impact on the control you have on your movements.

Differentiating and comparing oneself to ‘others’ thus serves to establish the discursive space for a particular identity. In line with the findings of Michael and Birke (1994), my informants use the contrast between themselves and the different ‘others’ to present their own practice in a positive moral light and to present a morally more consistent identity. When confronted with disturbing social experiences, creating ‘others’ also serves as a way of distancing themselves from tensions and dilemmas associated with the use of animals for research as something happening somewhere else. In confrontation with outsiders, controlling information and creating ‘others’ seem to be important strategies for making sense of their work, with the effect that their specific care-use-relation to the animals is left unspoiled.

## 4.4 CONCLUDING REMARKS

This chapter has focused on three aspects of the ordering work behind the *Keeping the cares together* mode of ordering. Firstly, focus was set on how the animal technicians understand the research animal. Seeing them and using them as both active agents and tools facilitates and justifies their use because it becomes a way to realize the animals' 'lab-ness'. Secondly, this happens within an understanding of medical science as a greater good. The combination of these two aspects opens up space to identify with and care for multiple objects – the research and the animals - simultaneously, without seemingly experiencing potential dilemmas embedded in the routine tasks. Within this way of reasoning, the animals are made dependent on the laboratory and medical science for their existence, just as the laboratory and the medical science have become dependent on the animals. Lastly, focus was set on how the technicians make sense of their job towards outsiders. Faced with tensions inherent in their practices when confronted with people outside the laboratory, the technicians experience that, at times, their understanding of the lab animal and medical science falls short. Thus, controlling information and creating 'others', with the result of presenting their practice in a positive moral light, become important coping strategies.

## 5. CONCLUSION: webs of significance he himself has spun<sup>56</sup>

According to Law (1994) there are many ways of ordering the social world. He understands this ordering of the social as an ongoing process and therefore states that pools of order are illusory and are the effect of a lot of work. This work can be hidden behind an appearance of ordered simplicity – the idea of a social order. This thesis, then, has told the story of the ordering work of the animal technicians. One way of ordering, or making sense of, the field of laboratory animal science is conveyed through the *Grunnkurs i forsøksdyrlære*. As a theoretical course representing the official view of the field it focuses on the standardization of the animals and the environment according to the needs of the animal as a means to address the different demands coming from medical research and animal welfare. This way the disparate demands come to be understood as pulling in the same direction towards the same goal. While this is a legitimate way to include animal welfare in the laboratory (Holmberg, Forthcoming), it also downplays possible tensions between the demands. I have shown that many of the tensions arise in the practical work at the laboratory with the animals. Based on this I have argued that the animal technicians are in the crux of the care-exploitation tensions present in the laboratory, even though they do not describe their job that way. The aim of this thesis has been to understand how the animal technicians deal with these tensions between the demands of medical science and the demands of animal welfare that they encounter in their job. In order to find answers to this question it was paramount to understand how the animal technicians make sense of the field of laboratory animal science, since this field constitutes the framework for their practices and as such justifies the job they are doing.

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<sup>56</sup> Weber in Geertz 1973:5

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The complex care practices constituting the animal technicians' job require constant tinkering and negotiation to find arrangements that work. And the arrangements that work are the ones that do not collapse into insurmountable dilemmas. Even though the animal technicians identify the animals as their main focus, it became evident through their practices that research set the framework for their solutions. I have identified three main aspects to how they deal with this discrepancy between their intended and their actual focus. Firstly, the care-exploitation dialectics inherent in their interaction with the animals shape how they come to view them. The lab animals are not just tools to be used in research. They also come to be understood as agents with a potential to be realized. Secondly, this conceptualization of the animals runs parallel to how they understand and relate to medical science as a greater good. This way it is not only the technicians who are working for a greater good, the research animals do too. I have proposed that this might be the key to how the technicians deal with the tensions between intended and actual focus in their practices. In this way of making sense of the laboratory enterprise, focusing on research also becomes a way to focus on the animals – to let them accomplish their mission, realizing their potential. Making sense of your social world also happens in relation to outsiders. Thus the third aspect I focused on was how the animal technicians legitimize their job in relation to society outside the laboratory. They do this by controlling the information they give and by creating 'others', which in effect present them in a favorable moral light.

Law states that:

“Stories are part of ordering, for we create them to make sense of our circumstances [...]. And as we create and recreate our stories we make and remake both the facts of which they tell, and ourselves. So it is that we seek to order, and re-order, our surroundings. [...]. This means that histories may be treated as modes of telling and ordering. They mix and match from the available collection of cultural bits and pieces. And as they circulate they tell us at least as much about day-to-day ordering struggles as they do about 'real' history” (Law 1994:52).

Both speech and practice forms part of the ordering of the social. They mirror each other, and they create and re-create each other. Thus, the telling of stories,

the practices, and the negotiation to find arrangements that work, are all part of the ordering work. For the animal technicians the arrangements that work are to keep the cares together and not let them collapse into dilemmas.

And what is to be learned from all of this? I will point at two aspects, both connected to sensitivity. First of all, although I have argued that the technicians stay focused on the naturalistic animals, some of my informants did admit that at times, when they were really busy, it might be challenging to remember that they are dealing with living creatures and not just objects. Staying sensitive to the individual naturalistic animal is therefore also connected to a time aspect. But it is also connected to the numbers involved. Seeing each animal and responding to its behavior requires time. Building big animal houses and laboratories with thousands of animals, challenges the animal technicians ability to stay focused on each individual research animal.

Secondly, if it is right what I claim - that the care-exploitation interaction with the animals necessitates a specific way to relate to the animals which not just facilitates making sense of dilemmas, but also presupposes that you remain sensitive to the naturalistic animal rather than the objectified analytical animal – it might be fruitful to tear down some of the division of labor in the laboratory. This is already happening through the technical procedures the technicians conduct on behalf of the researchers, but maybe it is time to let the direction go the other way: get the researchers involved in the care taking of the animals to help them stay sensitive to the naturalistic animal all through their research.

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