

Working with mice in immunological research. Attachment, emotions and care

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Abstract

This essay describes and reflects upon some typical features of the animal-researchers relation in the settings of scientific animal experimentation. The relationship between researchers and “their lab-animals” is highly ambivalent. On one hand animals are reduced to some kind of technological tools, data bearing analytical animals. On the other hand they certainly remain living natural animals cared for and object of emotional attachments. Scientists are building up a certain emotional distance towards their lab-animals, but nevertheless keep some kind of emotional relationship with them. After a description of routines with mice in an immunology laboratory, I will focus on the relevance of the living body of the used mice for the characteristic ambivalence of the scientists’ perception of them.

Keywords

Immunology, animal-experimentation, animal attachment, body, laboratory practices

Introduction

The main purpose of my recent research on an immunology-laboratory was to elaborate a thick-description of ethical concern in the everyday working experience of researches working with animal experimentation. Here I want to draw my attention towards this typical ambivalence of scientists relationship to laboratory animals by referring to field-data – narrative interviews and observation notes, I’ve collected at an immunology research group at the University of Salzburg between 2005 and 2007 as part of my research project: Social Frames of Ethics in the Scientific Practices of Life-Sciences; financed by the Austrian Program of Advanced Research and Technology (APART 11084) of the Austrian Academy of

Science (ÖAW). A pre-study on ethics in the everyday working experience of scientists and scholars highlighted the dilemma scientists do have with animal-experimentation (BISCHUR et al., 2003). Although they do not hesitate to justify their “using up” of animals with common utilitarian arguments, they nevertheless communicate their personal concern about their instrumentalization of animals for research (BISCHUR, 2006). Observing animal-experimentation quickly reveals the ambivalence of the scientists’ animal perception: reducing the animals to tools of research practices, into some kind of scientific objects as being bearers of data; and at the same time the scientists still are concerned with living animals, who behave like ordinary natural animals (LYNCH, 1988;

BIRKE et al., 2007). "It is that ambiguity that facilitates the unease many lab workers voice about using animals; for all that standardization and control underlie scientific experiments, variability creeps in and brings with it an animal much closer to the naturalistic. This animal is harder to categorize as a tool of the trade." (BIRKE et al., 2007, p.54).

The first part of the essay will present some common features of animal-experimentation: the rationality of biological research practices and its transformation of animals into scientific tools and the routines of distancing from the animals. The second part of the essay then will turn towards the living-animal in scientific animal-experimentation and how its bodyness intercepts the scientific situation and forces the researcher to permanently change their attitude towards the animals used.

Routines with mice

Biologists construct an organic model as experimental basis of research. As AMANN (1994, p.25 and 27f) maintains those models are constructed in the laboratory for replacing the so-called natural objects. The laboratory produces a "second nature" as locally stabilized environment for epistemic purposes, which AMANN (1994, p.29-30) calls a "laboratory". It becomes a transformed kind of "nature", which suits scientific standards and is subject to scientific control. Biochemists are working with, what is called "cell-cultures", which actually are cultivated, transformed, nurtured living materials. They are essentially as objects as well as tools for biological research and inhabit the refrigerators of biological laboratories. As they are living materials (cells, antibodies, antigens, enzymes, etc.) they are part of nature. As they are kept in cultivation, they are cultural products. It works similarly with laboratory-animals. The immunologists, observed in this case-study, for instance, are using mice-models. Mice are bred and transformed into bearers of immune responses. Thereby the mouse as a scientific model itself serves as a kind of representation. It represents the natural processes of immune response. The construction of models allows the scientists to study a certain natural phenomenon under the more or less controllable conditions of the specific cultural setting of the laboratory. It enables them to transform nature by acts of transformation, which reduces the natural complexity and variety by controlled standardization of the processes studied. This is all about constructing an organic model for the natural phenomenon of the immune-response. Mice are transformed and manipulated to be a living model for testing immune-response. The mice used are especially standardized inbred mice for scientific use (RADER, 2004; BIRKE et al., 2007). In some cases mice are further manipulated by genetic technology. Those genetically transformed "transgenic" mice have either lost the ability to produce some kind of cells or molecules (knock-out) or in the opposite are able to produce some special additional features, as fluorescent cells for example (knock-in). The mice are actually constructed and manipulated organic models for the representation of immune responses in mammals.

[1] *"We'll get a new tool", comments G. while explaining to me, why they just now try to breed a new mouse: the father lacks B-cells; the mother has got Langerhans-receptors, which do react to a certain treatment by which those cells vanish.*

This first example is taken from my observation notes and illustrates the way scientists refer to animals as tools. This typical statement is similar to a craftsman referring to her/his new machine: *"We'll get a new tool"*. This specific mouse will be used by the scientists to understand the effects of an immunization on Langerhans-cells. Moreover it gives them a tool to control those effects more efficiently, as they are able to knock out specific cells. This is one of the more radical examples of transformations common to lab-mice in immunological research. Generally we may say that mice are transformed into some kind of scientific objects (KNORR CETINA, 1988, p.87; AMANN, 1994, p.24). If we take a closer look at the status of animals in biological experimentation we need to distinguish between different kinds of objects in scientific practices. "The first can be called the scientific object under investigation, or the 'epistemic thing'. The second can be referred as to the technological identity conditions, or the technological object(s). The discrimination of these two types of things is a functional not a material one." (RHEINBERGER, 1992, p.310). RHEINBERGER (2002, p.24) uses the term of "epistemic things" for those things of the research practices, which are actually the object of concern. In biology those things may be organic structures, organic processes or functions. The specific task of the research done by the group of biologists of this case study is the development and evaluation of DNA-vaccines, which is a new system of producing vaccines by using only parts of the pathogen's DNA. They are interested into the immune-response in general and not into the mice. They are merely used to establish an immune-response. In most cases of biological research the animals or plants used in experiments are not the epistemic object. They rather are used for experiments. Hence, the animal in experimental biology has to be acknowledged as being merely a necessary technical tool. They need the mice as a tool for inducing an immune-response.

In order to explain the way animals are used in life-sciences, it is useful to turn towards the three dimensions of the characteristic transformation by which 'natural' animals are made to become "an instrument of scientific production" (KOHLENER, 1993, p.281): an historical, which is the history of certain animals of being found to be the natural source of systematic breeding for laboratory use (KOHLENER, 1993; 1994; RADER, 1998; 2004; HOLMES, 1993; TOCHER CLAUSE, 1993; BIRKE, 2003) one of choices, which are rational choices of individual scientists and scientific communities to choose 'the right tools for their job' (TOCHER CLAUSE, 1993; HOLMES, 1993; KOHLENER, 1993; BURIAN, 1993; CLARKE et al., 1992; STAR, 1992; PECK GOSSEL, 1992; KEATING et al., 1992); and one of laboratory

practice, which turn the use of animals as tools into a work routine of perceiving them as ‘analytical animals’ (LYNCH, 1988).

KNORR CETINA (1997, p.10) argues that technological objects in scientific practice “are simultaneously things-to-be-used and things-in-a-process-of-transformation: they undergo continual processes of development and investigation”; hence, they should not be acknowledged as mere instruments as they are not (all the time) ready-to-hand. In other words: they are subject of the “mangle of practice” (PICKERING, 1993; 1995). We may conclude that mice in the biological laboratory are tools of the research but at the same time they surely are epistemic objects, as they are objects of accommodation and transformation. In this sense, KNORR CETINA (1997, p.10) claims that all technological objects – including animals – should be analysed as epistemic objects. They are specially bred for the laboratory (RADER, 1998; 2004) and they are used in experimental actions (LYNCH, 1985). Thereby those animals are not only killed and their organs dissolved, furthermore they undergo a kind of reconfiguration, as AMMAN (1994, p.31) maintains. Hence, it may be concluded that referring to the attitude scientists do have towards their animals during experimentation, they surely are some kind of instrument. They are used as described above; though they may be objects of concern themselves, as they remain resistant to the scientists’ control and undergo a treatment of adjustment through which they are getting disciplined.

This perception of animals is clearly at odds with an everyday perception of animals. The perception of animals in the context of life sciences’ laboratory practices in itself inherits a basic ambivalence, which runs through all aspects concerned with animal experimentation; from the scientific conception of experiment and the actual research practices to the scientist’s emotions and ethical reflections. Animals are analytic material and natural creatures. “While the ‘analytic animal’ is a creature in a generalized mathematical space, the ‘natural animal’ is a phenomenon in the commonsense life world.” (LYNCH, 1988, p.267). Hence, “[t]he analytic animal is ostensibly an artefact – a product of human intervention.” (LYNCH, 1988, p.269).

This can be illustrated by yet another example:

- [2] 1 G: You see, the plate you’ve seen today, which I
2 have washed. This once has been a mouse.
That has
3 been twelve mice, which are on it there.
4 Cells from twelve mice. Now a plate is all that’s
left.
5 And on the plate; and the cells I even can’t see
them.
6 Then you are concentrated and don’t think at
all at the twelve mice.
7 D: yes, yes.
8 G: Now, today I think about the twelve mice, how
they’re frosted in the
9 deep-freezer and I have to take them out again.
That’s the only thing,
10 which still really [interests] me in the mice ...

- 11 (we are laughing together)
12 G: I simply have forgotten to cut up the ears.
13 (spoken with laughter; not understandable)
14 D: yes
15 G: It’s like that: As soon as the animal is dead,
then I can,
16 then I can work in peace;
17 then I can concentrate on what I do.

All that is left of the mice is a plate with a row of samples of cells taken from them. Without a microscope you even can’t see the cells anymore. They appear simply as small quantities of fluids. Moreover, those fluids still undergo further transformation through which the cells are counted and appear as graph in publication. By the help of inscription devices (LATOURET et al., 1986, p.45-53) animals are made to graphemes (RHEINBERGER, 2002, p.113-115). And it is only the incident of having forgotten to cut their ears that she still has them in mind (This research investigates immune-response in the skin and the function of Langerhans-cells in it. For this purpose this researcher treats especially the ears of mice. After killing the treated mice, she cuts their ears in order to prepare slices of the mice’s epidermis and photographs them as reference for her work). This very well represents the way animals being transformed into mere data of a biological process. “As soon as the animal is dead,” the scientist clearly has transformed them into an analytical object and now can “work in peace”, “can concentrate on what she has to do.” A close look at the last lines of [2], make us to take notice of an ambivalence in that statement. It is only the sacrifice of the animal, the act of killing which finally turns them into an object and as long as they remain living animals, working with them keeps up a certain degree of worry and unease. The objectivation of the animal, in which they are reduced to some kind of instruments, can be explained by the general displacement of the body in the self-understanding of natural sciences. The act of killing itself is the very threshold on which the bodyness of the animal finally exits the stage of science. As long as they are living animals, they remain to be natural creatures as well. The sacrifice ends up their concern with the ambivalence of dealing with the animals. The killing, the sacrifice of animals marks as special moment of scientific work. It starts a new stage of the transformation of the natural animal into an analytic object. The living animal now has been transformed into slices of organs and plates of cell-cultures. Now the scientists do not have to be concerned with wriggling and biting animals anymore and can concentrate on the following tasks; namely transforming the corpses into graphemes of immune response – images, scales and graphics. Michael LYNCH (1988) described the ritual language of *sacrifice* as way, scientists are dealing with this kind transformation, through which “natural animals” are made to become an analytical object through being killed. The killing of mice, as the researchers kept telling me, is itself a certain kind of routine action and their ethical concerns on the killing is often regarded as technical problem rather. It is about the scientists’ skill of killing.

[3] Asking two post-doc scientists about their experiences with their first killings of mice, they responded by the following sequence:

- 1 S: Well, you, you simply must not permanently thereby somehow
 2 D: yes
 3 S: 'cause if
 4 [1]
 5 D: 'cause then you're going
 6 S: yes, exactly
 7 R: yes
 8 S: well
 9 [1]
 10 R: The more, the more you're anxious about it, the the more you [cause
 11 S: [yes
 12 R: to the animal [pain only
 13 S: [problems
 14 R: if you're not [doing it quickly, yes
 15 S: [It simply has to be [quickly and
 16 R: But unfortunately that's, too, something, you've to learn. At the beginning you can't do it that well.
 17 [0.5]
 18 R: Naturally this is not that pleasant for the animals, but after you've practiced for a while and simply know the grip technically,
 19 R: then you've no problems with it anymore, when you don't have the feeling that that the animal is suffering.

This part of an interview with two post-doc researchers at the laboratory tells us three different aspects of the way they are responding to their actual practice of killing mice. The first sequence – from line 1 to 9 – contains their quite restraint response concerning their own feelings with doing it. Without saying it plainly they simply assert that you must not reflect upon it and your own feelings while you are doing it. You have to distance yourself from it. In the next sequence – from line 10 to 15 – they give a rational argumentation for this restraint of feelings and reflection; because it has to go quickly in order to produce no pain. You must not hesitate. This explanation for the restraint of feelings about and reflection upon it, leads them to accentuate the aspect of killing-skills; “that’s something you’ve to learn”. And you have to learn it by doing. “Once you’ve got the technical grip of it” – your personal problems with it will vanish (BIRKE et al., 2007, p.100). In fact, observing the killing of mice inside the laboratory is not that spectacular at all. Usually it is even hard to grasp the moment of killing, because it works fast and usually without comments. It is an act of high concentration on technical skills. Scientists often talk gossips or sometimes even turn on the radio while they are working in the lab. During killing they usually don’t speak but are focused on their tasks.

However, it has to be acknowledged, that this kind of referring towards animals as tools, does not remain the only way of reference towards them. The following sequence of an interview with a PhD student shows how both kinds of animal perception are actually remaining:

- [4] 1 A: ah, no. Well, I see them as animals and not as objects
 2 A: ahm
 3 (2)
 4 A: and I, yeah, as said, I stroke them and I find them lovely, too, and I watch them.
 5 A: But I can, nevertheless, at the same time – ahm – keep or build up a certain distance, if it's necessary, but ...

This scientist responded to my question about how she actually refers to animals during her work with them by recalling her natural perception of animals: (1) “No – I see them as animals ...” After claiming this, she holds on for a short moment (2-3) before she explains more precisely how she actually is related to the mice (4) – “they are lovely like pets”. However, she clearly recognizes herself the ambivalence of her attitudes by saying (5) that she can, nevertheless, built up and keep a certain distance towards them *at the same time*. Hence, the perception of animals in the context of life sciences’ laboratory practices in itself inherits a basic ambivalence, which runs through all aspects concerned with animal experimentation; from the scientific conception of experiments and the actual research practices to the scientist’s emotions and ethical reflections. For using animals as models of immunological research they take up an attitude of technical distance towards their animals by “bracketing” their everyday perception of animals as natural animals. As the term “bracketing” underlines, the natural attitude towards animals remain ready-to-hand throughout their dealing with animals, in order to be able to react to the living animal adequately in case. Switching between distancing and emotional identification with the animals is an important skill that has to be trained as part of the scientific socialisation (BIRKE et al., 2007, p.95) “In this sense, they must deal with ambiguity on a daily basis.” (BIRKE et al., 2007, p.96).

The living animal – Disturbance, emotions and care

The first chapter gave a description of some elementary structures of scientific animal-experimentations and an overview of the cultural setting of an immunology laboratory, which is the social background of those activities. The main topic is, as we have seen, the general ambivalence of the perception of and in dealing with animals, which are used for scientific experiments. This is an ambivalence, which poses emotional problems for the scientists themselves. They have to cope with their switching between distancing from and attaching to “their” animals. They have to get along with their ambiguous relationship to “their” animals, treating them as “scientific objects”, as tools of their scientific work and – often in the very next moment – caring for “the natural animals” with some kind of emotional feelings. This ambiguity sets a permanent uneasiness.

Now I want to present some observations of the actual way scientists change from one attitude to another.

- [5] A. *has problems with two mice. They are restless and nervous; bite and run away. On of the mice dies during the injection, possibly because of a heart attack; A. is shattered.*

This is an example of an animal dying “out of schedule”. Such an animal is a loss of data (LYNCH, 1985, p.277). The use of animals is justified by the production of useful data and knowledge. However, in an instance like this the individual mouse, which died, is useless for the research. This loss is felt differently by the scientists. It is a loss of data, a loss of time and work, and a loss of a living creature for which the scientist feels sorry. Although such incidents may occur from time to time, they question the experiment as well as the researchers’ skills.

Beside the loss of the dying animal we recognize the behaviour of the animals during the treatment. They are nervous. They are restless and stressed. They behave resistant to the treatment of the scientists. They may bite, wriggle or jump out of the tube. The mice simply tend to behave as natural animals rather than as scientific material. In short, we may claim that living lab-animals are shrewd. Simply by behaving as they naturally are, the mice show themselves resistant towards their being used. Beside the epistemological resistance of the scientific material (PICKERING, 1995), the shrewdness of the living lab-animal breaks the usual routines of scientific work. This is a second type of resistance in the experimental life-sciences, which in addition of breaking the routines, invokes the scientists’ emotions. They are shattered and are reflecting their emotional attachment towards the mice.

- [6] 1 D: *And if you give an injection?*
 2 G: *When I inject them, that’s a awful, well injecting, you know, when I*
 3 D: *inject for instance or [???*
 4 G: *for me it’s an incredible bodily and psychic, ah, act of violence.*
 5 G: *[laughs out of embarrassment]*
 6 G: *It really is an act of violence, because – for me as well.*
 7 D: *mh*
 8 G: *I’m so shattered then.*
 9 (1.5)
 10 G: *Since they’re alive and then they wriggle and then run and then you’ve to take them and prick them into their stomach and they run the injection into themselves, well the needles, which you had stacked into their stomach already – with their foot out again, and then you’ve to prick them again and then you’ve to do it three times, maybe. Then you’re absolutely, shattered because [???]; it does hurt them.*
 11 D: *mh*
 12 G: *It does not fight without reason.*
 13 D: *yeah*
 14 G: *It’s gruel.*

Those accounts very clearly demonstrate this second type of resistance in biological laboratory practice. The animals announce themselves as a living organism with their own will, their own purposes. Whereas the first type of resistance does not break the cultural setting of scientific practice, the shrewdness of animals does at least for a short moment. This shrewdness of the living breaks the scientists’ attention to a certain degree. It shifts their attention from their action towards the animal as a living organism “as it is viewed and acted upon in the world of everyday life” (LYNCH, 1988, p.267). Whereas in laboratory practice the “animal is treated as an object in, and for, the technical procedure” (LYNCH, 1988, p.268), the natural behaviour forces the performing scientists from time to time to switch their animal perception towards one of the “natural animal”. LYNCH (1988, p.268) describes this common-sense perception of animals as such:

For a commonsense reasoner (and for a scientist acting as a commonsense reasoner), the animal is assumed to possess a subjective basis of behaviour. The animal is holistically viewed as a living being, a subject for-itself as well as in-itself. Interaction with animals in the naturalistic mode, such as between a pet and its owner, is rich with actual and assumed elements of reciprocity, emphatic understanding, and emotional attachment.

The scientists cannot fully detach themselves from their everyday perception of animals as being natural animals. The laboratory animals actually recall from time to time their being natural animals by showing their natural shrewdness and thereby breaking the scientific perception of them. In the relevance-system of their scientific action the animal is a tool, it is an analytic animal, a bearer of mathematic data. In showing its own living interests the animal asks for a different kind of perception. As scientists they are shifting to an everyday relevance-system, in which the animal has to be taken as natural animal. This has to be conceived as a kind of situation inside scientific work routines, which imposes some kind of ethical attention to the scientists dealing with animals. As WIEDER (1980, p.77) showed, we can observe that scientists need to refer to the animals they are working with as both – as objects or tools and as fellow subjects. “The elaborate and lengthy contact between investigator and chimpanzee deepens the investigator’s experience and the chimpanzee as subject. [...] Workers in the laboratory for behavioural research on chimpanzees thus experience an open tension between behaviorizing and life-worldly tendencies.” (WIEDER, p.1980). In the case of lab-mice in experimental biology the tension between individualized perceptions of the mice as “animate organisms” and as an objectified object is as well part of the laboratory culture. The mice are being made biologically unified as inbreed-stems. They are anonymized to groups and numbers as they are usually not named like pets (BIRKE, 2003, p.215). Nevertheless, the scientists still recognize them as individuals as well, as they are caring for them for several weeks or months. They simply can’t help having a kind of relationship with them, if they work with them from the very beginning

of an experiment. Although they routinely are “bracketing” their animal attachment during their working with them, it is still present and can easily be actualized if necessary while the scientists objectify the animals and are distancing themselves during their scientific practices with the animals. This ambiguous relationship towards lab-animals remains as latent but permanently present element of disturbance, as for instant BIRKE (2003, p.215) reports: They look at you; “they become a little too like real animals”.

The perception of animals in the laboratory start to change as soon as you are concerned with the actual practices with animals.

“Other understandings about animals, rarely communicated in accounts of laboratory methods, pertained to rats as holistic living creatures. These understandings were communicated informally, and were not validated through rigorous testing. They were part of the everyday life of the laboratory, consisting of various sorts of tacit ‘know-how’, recipe knowledge, and experimental craft that enabled practitioners to deal with the contingencies of ‘handling laboratory rats.’ (LYNCH, 1988, p.266-267).

We’ve seen how laboratory work with animals demands a twofold way of perceiving and dealing with them. While the scientific task of animals experimentation requires a distance towards the animal resulting in an analytical, objectifying attitude towards them, using them as tools of producing data on biological processes, the living animal in the laboratory demands for their perception as being a “natural animal”. What actually is at stake here, is the moment of resistance inherent in the mere presentation of the living inside the laboratory. As long as the scientists are confronted with the perception of a living animal, it is simply not possible to disregard the “natural” perception of animals altogether. The existence of the living itself poses some kind of resistance towards the scientific appropriation of animals. The resistance of the creature announce itself as a kind of shrewdness of the individual animals used as models and breaks the scientific relevance. The mice show themselves as living animals. They may bite, wriggle or jump out of the tube. The mice simply tend to behave like natural animals rather than as scientific material. In addition to this kind of breaking the routines, the animals’ behaviour invokes the scientists’ emotions. They are shattered and are reflecting their emotional attachment towards the mice. The animals announce themselves as a living organism with their own will, their own purposes. Whereas the first type of resistance does not break the cultural setting of scientific practice, the shrewdness of animals does at least for a short moment. It shifts the scientists’ attention from their scientific tasks towards the animal as a living organism “as it is viewed and acted upon in the world of everyday life” (LYNCH, 1988:, p.267).

Again, we take a closer look at problematic situations of laboratory work. In the following sequence two Master students at the laboratory are engaged with injecting mice.

- [7] *Two master students have got trouble with mice which they do have to inject. The mice were more resistant than usually. One of them is catching and holding one mouse, while the other prepares the injection and injects the mouse. After some while one of the mice tries to run away. A. holds it hard.*
- 1 A. „I’m sorry for that.“
 - 2 L. “Are you talking with me or the mouse?”
 - 3 A. “The mouse.“
 - 4 L. „Aw – c’mon!“

We clearly can observe here, how the researchers have to get along with the behaviour of mice. The mice are trying to run away, they wriggle and sometimes even may bite. In short, laboratory mice still behave like “natural mice” and thereby impose a situation in which the scientists have to cope with them as “natural mice”. A. reacts to the situation by starting to talk with the mouse and expresses her being sorry for being rude to it, while L. reminds her colleague to set back and regain a scientific attitude – “Aw – c’mon!”. It is the perception of the mice’s bodies as animated, living Bodies of individual animals, which actually is intercepting the scientists’ shop work with animals. In recognizing the individuality of the animal as a Body with its spirit, its will to live, the scientists step back – at least for a moment – and have to respond to the animal as a “natural animal”. The empathic feeling with the suffering of animals during animal experimentation is based on a basic *co-affection* of it. The original way of sympathy can be understood as a *being-hit* (“Getroffen sein”) (WALDENFELS, 2006, p.289). In this sense the empathy with the pain and suffering of the animals is originally a bodily apperception of it; literally *suffering with it*. The sensual apprehension of a body is the starting point of the constitution of intersubjectivity as the pre-giveness of a *mutual being for one another*. This co-constitutes the world (HUSSERL, 1995; BISCHUR, 2003, p.108-115; WIEDER, 1980, p.78-81). As WIEDER (1980, p.81) points out, “[t]hat which is bodily given appresents to us a subjectively charged, intersubjectiv surrounding world.” Although Husserl’s analyses of the constitution of intersubjectivity is concerned with the appresentational perception of other humans as being our co-constituers of the world, the appresentational perception of (at least) the higher animals as being not merely physical bodies but animated bodies gives raise of an original perception of fundamental ethical demands for animals as well. It is the perception of the living body of animals which actually raises emphatic feelings for laboratory animals during scientific practices.

Scientists candidly, and even avidly, discuss these practices in casual conversation, although they typically present the stories as a mildly humorous sideshow to laboratory activities. For my purposes, however, the stories reveal an empathic orientation to lab animals as living, holistic, creatures with needs to be attended, and reactions to be monitored. (LYNCH, 1988, p.280).

Based on this kind of empathic feelings with the animals used, scientists gain a natural way of caring for

the animals they are actually working with. The next – and last example – from my field-notes illustrates this kind of routinely caring for.

[8] *G. narcotizes a mouse and puts the still living mouse into the fluorescent-microscope and photographs the ear. The photographs of different times of the treatment gives her a row of data representing the status of the Langerhans-Cells during the whole treatment. While she makes photographs with different foci she notes the exact data of the foci on a sheet. Then she takes the mouse out of the microscope and holds it in her left hand caressing it tenderly, while she holds the computer-mouse in her right hand for saving the photographs and naming them according her notes on the sheet. Her reason for holding and caressing the mouse is, to warm it up. The problem, she told me, is that narcotized mice are loosing temperature very quickly.*

The care for the animal during that practices with the mice does not arise from an ethical reflection of the situation. The scientist here does not step back from her scientific activities. She even does not at all interrupted her activities at the very moment in which the care for the animal is needed. She simply is caring for the mouse while she goes on with her scientific task; holding the mouse in one hand, caressing it and using her other hand to work on the computer for naming the photographs correctly and saving them at the computer. It seems important to stress this simultaneousness of those two ambivalent attitudes during scientific practices, in which scientists are caring for their animals but, nevertheless, keep going with their scientific tasks.


Conclusion

The human-animal-relation in experimental life-sciences inherits a basic ambivalence. On one hand the animals necessarily are reduced to objects, tools of the scientific enterprise. Animal experiments transform animals into scientific objects by a chain of standardization practices. The mice are industrially breed and hereby purified to standardized in-breed stems. They are advertised and sold like goods. They are treated and further transformed for the special needs of a laboratory's research tasks. Scientists observe and treat them for their scientific purposes several weeks until they get sacrificed, dissected to prepare cells and organs for measuring the signs indicating the progress of the treatment. All that is left in the end are scales and graphs as indicators of – in my case – the effects of immunization. In short, the scientific practices reduces the individuality and the bodyness of the animals until they sink into oblivion. On the other hand observing biologists working with mice shows a contrasting picture at the very same time. We watch them caring for mice, speaking with them, caressing them, finding them cute. We may recognize their emotional attachment to “their” animals. They show some degree of pity and grief for them. How can we explain this ambiguity of perception and relation

towards animals with the situational context of everyday laboratory practices? For answering that question I turned to the role of bodies and body perception. The perception of the animal as being a natural, living, holistic creature has its foundation on the perception of the animals body as being an animated body. According to phenomenology the body has to understood as unity of the material body and the mind/soul. If we want to understand the living, we need to recognize the unity of the intentionality and the physical existence (HUSSERL, 1989; WALDENFELS, 2000; MERLEAU-PONTY, 2002). Furthermore, scientists stressed to me that working with animals is far more a personal emotional problem than one of a rational ethical discourse. Of course both are relevant and both are of concern. However, the individual, personal burden for the scientists is, to cope with their emotions involved. And again, it is the perception of the living bodies of mice that gives raise for emotional attitudes including a certain kind of empathy. It is the body-image of the living mice that invokes the shift towards a perception of the animals as “natural animal”. Simon WILLIAMS (2001, p.61) explains that the “body-image is crucial to the way in which we think and feel, experience and express our emotions”.

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