Body politics in the Swiss pigsties. Production diseases and the dream of a germ-free life (ca. 1945-2000)

Introduction

If you open a book on animal health and disease today, it likes to start with the statement that health is a crucial performance factor in animal husbandry. This contrasts with the view of the animal body until about the mid-20th century, where health was not associated with performance but was defined by the absence of disease symptoms. Later, a view of animal health prevailed that advocated a more permeable relationship between the normal and the pathological, following the concept of optimal health developed by the WHO in human medicine. Health was no longer defined by the mere absence of disease, but was seen as a prerequisite for full performance, which was now considered almost infinitely improvable.

After an independent veterinary medicine had emerged in the 19th century, zoonoses had been the central subject of state veterinary medicine, which was oriented towards public health, in addition to the healing of individual animals (above all horses). Zoonoses refer to infectious diseases caused by bacteria, parasites or viruses that can be transmitted reciprocally between animals and humans. Important means in the fight against zoonoses were quarantine measures, the so-called "culling" (read: killing) of infected animals and entire animal populations as well as strict control of animal traffic.

Surprisingly, however, in the post-war era, it is no longer diseases caused by specific pathogens, such as bovine tuberculosis or foot-and-mouth disease, that are of greatest concern to veterinarians. Rather, so-called “production diseases”[1] increasingly dominate concern for farm animal bodies. These are multifactorial, often diffuse clinical pictures. They have non-specific causes and do not necessarily lead to the death of the animals. Larger farms, higher stocking densities and the introduction of indoor housing favoured the occurrence and spread of these "non-specific" diseases or disease syndromes, which are mainly characterised by respiratory and gastrointestinal symptoms. In the face of these production diseases, it became less and less important to cure specific, clearly defined diseases in the barn and more important to make living (or dying) productive, thus shifting the focus from individual bodies to animal collectives - the herds.

Regarding industrial factory farming, one can often read sentences like the following (Junius introduction to the Anthropocene by Eva Horn and Hannes Bergthaller, p. 142): "Industrial factory farming offers a paradigm for the ever more finely meshed management of biological processes, which is what a biopolitics of the Anthropocene is all about: in breeding animals, the most modern techniques of reproductive medicine are used, their growth is optimised through precise control of living

[1] On this internationally used term see Böhmer 2021, p. 46.

conditions and the administration of hormones." But as simple and purposeful as these processes may seem, even if one were to assume that the sole aim of animal production today is to use animal life as efficiently as possible, or rather to produce it industrially, the question immediately arises: How is this done specifically? What are the "most modern techniques of reproductive medicine", what are the most productive living conditions and which chemical substances optimise the fattening animal organisms best? Or to put it more casually: General statements on biopolitics quickly risk becoming tautological; at the very least, the concrete biopolitical practices in the barn are much more complex, contradictory, ambiguous, adversarial and contingent. Supposedly purposeful processes always entail distortions in practice. The concern for pig carcasses not only solves health problems, but at the same time keeps creating new ones. Regarding health, questions such as the following arise: Is it better to optimise living organisms through medicines, medicinal feed, stall construction measures, prevention or through breeding methods?

Hannah Landecker's approach of a "metabolic history" seems somewhat more refined than the concept of biopolitics and governmentality. Even if not all of her theoretical moves are immediately understandable to me, her emphasis on the mutability of metabolisms alone seems like a tempting invitation to look a little more closely into the barn and at the digestive tract of pigs and its transformations over time, especially with a view to the so-called production diseases caused by intensification and massification. Production diseases, co-produced as it were by intensification and massification as unintended side-effects of the increase in production and efficiency, repeatedly threatened to undermine these processes and had to be managed rather than cured.

A source-saturated analysis of the agency of animals must keep in mind that intensified production methods affected the various farm animal bodies, such as horses, cattle, pigs and chickens, quite differently. They therefore require a separate, differentiated gaze. In view of a seemingly uniform and inevitable intensification, massification, medicalisation and industrialisation, I would therefore like to try in the following to make these seemingly contradictory perspectives tangible by looking into the "pigsty of modernity". What interests me most is the concrete agricultural husbandry, breeding and nutrition of pigs as well as the production of health and disease in the barn. Important for my work, therefore, are not only the histories of medicine, agriculture, the body and the environment, but also the contributions of human-animal studies (which, after domestic, wild, zoo and circus animals, have now also increasingly set out on the trail of farm animals). The barn has served as a laboratory for my historical actors. The pigs' bodies oscillate between practical and testing environments and are in a constant state of change. Recent book titles such as “Fascist Pigs” (Saraiva 2016), “Capitalist Pigs” (Anderson 2019), “Communist Pigs” (Fleischman 2020), “Schwein und Zeit” (Pigs and Time, Amir 2018) and “Porkopolis” (Blanchette 2020) make it clear that pigs are important actors in a wide-ranging political-economic network; unfortunately, the specific pigs and their intestines do not usually come

into view. So now to the real-life pig metabolisms in the field of tension between agricultural production, health policy and the environment with the main question in mind: How is health not only reinterpreted but practically transformed, from an absence of symptoms of illness to a decisive performance factor in practice?

Healthy feeding with Waste: Antimicrobial growth promoters

Since the late 1940s pigs have not only been medicated, but their performance has been optimized by chemical and pharmaceutical substances. Antibiotics were an integral part of the diet. Since pigs were involved, it was obvious to use the logic of waste utilisation for this.

In the 20th century, we can observe on the one hand a decrease in the feeding of organic "waste" (such as kitchen scraps, whey or discarded potatoes) to pigs, and on the other hand an increase in the feeding of cheap waste products from industrial and medicinal production. The three main classes of growth promoters introduced since the 1940s were arsenic, antibiotics and hormones. Feeding these substances was intended to promote the growth of plants and animals. The waste products from antibiotic production used as growth promoters in animal production have aroused a great deal of public interest, including historical interest (Kirchhelle 2020). Waste is produced during the fermentation of antibiotics; the feeding of barrel sludge from antibiotic production to animals initiated the use of low-dose antibiotics as growth promoters in veterinary medicine. They were intended to optimise the relationship between food input and output. The enrichment of the feed with ever new additives was thus not primarily intended to produce health, but rather performance (see Christen 2018 und Landecker 2021).

Since I am more concerned with "risk in the stable" than "risk on the table" (Creager and Gaudillière 2021), these so-called "growth factors" should be placed in a broader context of agricultural practices and veterinary responses to the diseases caused by intensive farming (Woods 2019). In this process, the farmers and veterinarians (who themselves often come from farming families), the feed manufacturers and advisors, the animal breeders and fatteners, and especially the engineer-agronomists will also be taken into account in terms of historical sources. For changes were not only initiated by scandals and pressure from outside or from the public, as a popular narrative suggests, but were also initiated within the agro-industrial knowledge society.

The pig is different

As was already evident by the end of the 1950s, the new miracle drugs sulphonamides and antibiotics were by no means sufficient to get a grip on the disease incidence surrounding intensified pig production. This also had to do with the fact that the veterinarian's heart never beat particularly high when it came to pigs. In the mid-20th century, the discipline was dominated by the "buiatrics". These

veterinarians focused on large animals, were clinically oriented and primarily focused on the individual animal. According to Hermann Keller, a formative figure in Swiss pig medicine, it was possible to "deal with cattle in a civilised manner", in contrast to the "rebellious and screaming swine people" (Schweinevolk). Moreover, pig medicine was less concerned with the individual animal than with herd problems, i.e. so-called "stable epidemics" that threaten the entire livestock in a barn. Therefore, the structural and cultural change in pig farming caught practising veterinarians quite unprepared (Keller 2001). There were particularly big problems in the respiratory and digestive systems of pigs.

Moreover, there is not simply the pig per se. Pigs, their bodies and their metabolisms have also changed in different ways in different production and social systems. With massification, pigs moved from women's to men's hands and pig farming became pig production. Until well beyond the middle of the 20th century, pigs were part of the home on many farms and - like poultry - were looked after and fed by women in Switzerland. This quickly changed with the advent of the so-called pig pyramid. The "pig pyramid" or "breeder pyramid" refers to the fundamental change in pig production since the 1950s. For the pigs, in the course of so-called "internal restocking" (i.e. the detachment of living resources from the cultivated land or the farm's own fodder base), the open land became increasingly remote. Now soil-independent pig farming differentiated into breeding, piglet production, multipliers and fatteners. And not only the housing of piglets, weaners, feeder hogs (Läufer), gilts, boars, mother pigs, in-pig sows, breeding sows, finisher hogs became specialized, but also a lifecycle feeding tailored to the weight and age class of the pig was introduced.

Looking at feeding, one of the crucial steps in pig nutrition and fattening is the transition from on-farm feed and from waste to feed from feed mills specially developed for pig fattening. The development of special piglet feed played a central role in this. Although the early weaning of piglets made possible by these feeds was the most demanding in terms of feeding technology, an increase in piglet production (the so-called "turnovers") was made possible by these (now mostly automated and fed in liquid form, see Settele 2020). Pig production was also increasingly detached from its seasonality by the new feeding means and techniques. The bodies of the pigs kept in specialised stalls were not only homogenised, but also increasingly synchronised through biotechnological reproductive control. At the same time, the stalls were now less and less littered with straw, but the floors were replaced by new types of concrete elements, so-called slatted floors. As far as hygiene was concerned, a decisive advantage was seen in the massing of the animals: Because only in the masses the pigs cleaned their stalls themselves by pushing their own excrements through the slatted floors.

Performance tests and the genesis of the specific pathogen-free pigs (SPF)

With the massification of the pig population onto fewer farms, chronic barn diseases such as enzootic pneumonia, haemophilus pleuropneumonia, rhinitis atrophicans or swine dysentery became more

frequent. Parasitic diseases, such as mange, also played an important role. As antibiotics and other wonder drugs just weren't enough to fight these diseases, which were initially classified as "stable epidemics", the establishment of a pig health service was suggested in Switzerland in the 1960s from different sides.

The problem of health had already become obvious when the breeding organisations had tried to put up fattening experiments and found that illnesses made all attempts to measure and standardise weight gains impossible. The two most important breeding associations, the *Edelschwein-Zuchtverband* and the *Zuchtverband für das Veredelte Landschwein*, started to carry out such fattening performance tests on their own in the late 1950s, since there were neither state nor cooperative or otherwise organised fattening and slaughter performance testing institutes in Switzerland (in contrast to e.g. Denmark, which had already set up extremely large experimental farms). When reading the reports of the veterinarian H. R. Schmid from Säriswil, Bern, on the "veterinary supervision of a fattening performance test for pigs, with special consideration of the digestive and respiratory diseases that occur" in the Swiss Archives of Veterinary Medicine from 1960, one cannot help but feel pity - for the poor pigs but also for the veterinarian caring for them. It comes as little surprise to the reader that after countless pages listing all the (unexpected) health problems that arose during this experiment, he urgently called for the establishment of a pig health service (Schmid 1960). Without at least some standardization of health of the experimental pigs, the whole undertaking simply made no sense. It is important to emphasise that the impetus to establish a pig health service came not only from veterinary medicine, pig breeding associations and the Federal Veterinary Office, but also from feed mills, feed producers and veterinary companies.

Here again the question arises: How exactly were the pigs, or rather the pig herds in particular, to be "sanitised", as was said? One possibility was to remove the carrier bag with all the disease-free piglets it contained from the anaesthetised sow a few days before farrowing - "sacrificing the sow". After this "hysterectomy", the piglets were removed from the uterus, weaned and reared without any contact with other pigs. In incubators they were not given colostrum, i.e. mother's milk, but a mixture of cow's milk, hen's eggs, mineral salts and vitamins, so that the piglets did not pick up any pathogens through their food. This procedure was called SPF-method (Specific Pathogen-Free).

The idea and practice of breeding germ-free organisms came from the production of laboratory animals. As Robert Kirk (2012) has shown, these were apparently bred with the goal of sterility from the late 1940s onwards. While the model of germ-free animals failed, the method of specific pathogen-free animals became accepted as a means of standardising their health in agricultural practice. Until now, at least as far as I can see, only Abigail Woods has briefly acknowledged the importance of the SPF method for (English) pig farming (Woods 2019, 7-9).

While the majority of farmers in central and eastern Switzerland wanted to bring their *Veredelte Landschweine* (refined country pigs) to top performance through this "SPF model", which originated in America, the farmers in western Switzerland and around Bern, together with the *Edelschwein* breeders' association and the *Ökonomische und Gemeinnützige Gesellschaft*, tried to establish a rehabilitation programme based on the so-called Swedish model. This method was based on farrowing the high-bearing sows separately from the herd in huts outside the farm, in the open air, and rearing the piglets there without contact with the original herd. The often emotionally charged discussions about the value of the various sanitation procedures threatened to divide the breeders into several camps. After lengthy disputes, it was possible to set up a swine health service (*Schweinegesundheitsdienst*, SGD)[2] for the whole of Switzerland (based on the American model), and the SGD veterinarians were to act as advisors in the farms of the fatteners and multipliers. Clamped into a finely balanced network of animal owners, breeders, fatteners, herd veterinarians, cantonal veterinarians, feed mills and feeding experts, they were sometimes seen as "barn bailiffs". It was mostly the privately or cooperatively organised companies such as large feed mills (e.g. KLIBA), the UFA (Union des Fédérations Agricoles) or the "Veterinaria" company, which was active in the field of veterinary medicine, that set up the first experimental stables for the production of SPF pigs. However, the hysterectomy or hysterotomy procedure was perceived as "inhumane" and "unnatural" and rejected by many pig farmers. Often, dead piglets were deposited by unknown persons at night in front of the entrance to SPF stations (Keller 1973, 155).

Fattening and slaughter performance tests: From fat pigs to meat pigs

In 1967, a fattening and slaughter performance testing station (*Mast- und Schlachtleistungsprüfungsanstalt*, MLP) opened in Sempach. This experimental station was intended to improve not only the efficiency of feed utilisation (i.e. fattening performance), but also the quality of the meat produced by the pigs (i.e. slaughter performance). The critical consumers of the 1960s no longer wanted fat meat, but increasingly leaner meat and valuable cuts of meat. For this reason, not only were feeding experiments translated into growth curves, but the quality of the meat was tested on live animals, for example, using ultrasound methods. All this with the aim to change the lean-meat percentage, for the most important goal of the MLP was to convert so-called fat pigs into meat pigs, i.e. from bacon to ham suppliers with as many valuable pieces of meat as possible. Thereby, the SPF pigs and with them the pig health service (called “the blue ones”, "Die Blauen") and the agricultural engineers (called “the green ones”, "Die Grünen"), who ran the fattening performance institute and developed the evaluation methods and algorithms, were by no means in agreement. Thus "The Greens",

[2] On the establishment of animal health services in Switzerland, see especially Böhmer 2021, p. 45-49.

i.e. the agricultural engineers, often openly expressed their joy that the SPF pigs achieved lower performance than the other pigs (no farmer, according to the "Greens", would be so stupid as to sacrifice his best pigs to the "Blues").

What seems to me to be particularly exciting about the genesis of the SPF pigs and the establishment of the MLP are three more points:

1. The development of the theoretical analysis criteria was also dependent on the distinction between the test environment and the practice environment (in the concrete example, it was a matter of feeding the pigs, which had to be adapted in the test environment - i.e. the Sempach fattening station - to that of the practice environment - i.e. in this example the ETH test barn in the Chamau in Zug). In the practical environment, the animals were not only fed differently in terms of quantity towards the end of their lives (the pig farmers no longer fed their animals ad libitum, i.e. as much as they could eat, towards the end of fattening, but rather somewhat more restrictively for fear that the pigs would become too fat, which could lead to financial losses due to deductions by the butchers or slaughterhouses). This feeding method had to be reproduced in the test environment. What could also lead to interferences in the test results were, for example, the pig herders (not only in practice, but also in the test environment) (Rebsamen 1972).

2. The barn was increasingly the only environment for the SPF pigs. While the SPF boars were no longer allowed to attend boar shows because of the health hazards, the specifically pathogen-free pigs also gave a big boost to artificial insemination as a new form of reproduction, which had become established in the field of livestock breeding since the 1930s, now also in the field of pig reproduction. This meant that the pigs no longer had to be exposed to dangerous environmental influences and, above all, potential pathogens (such as reproductive diseases or parasites) for reproduction. They now only changed stalls when they moved from their rearing to the fattening farm as feeder hogs (Läufer) weighing about 20 kilograms. Thus, the producing pigsty itself had become a quasi-laboratory where specific pathogen-free pig organisms transformed input into output as smoothly as possible under clinical-hygienic conditions.

3. In practice it was by no means easy to re-breed the pigs - as desired by the MLP - from fat pigs to meat pigs (and especially towards the so-called valuable meat cuts). And with the change from the shorter, fatter to the longer meat pig, not only their appearance and metabolisms changed, but also their character, so to speak. The meat pig was much more nervous and susceptible to stress than the fat pig.

Stress in the industrialized hog house

The breeding of the lean-meat pigs solved some problems on the sales front, but also contributed a good deal to the new problem of stress in the barn. As Robert Kirk (2014) pointed out in a ground breaking essay, the diffuse disease phenomenon "stress" was not only diagnosed as a so-called

"managerial disease" in the carpet floors of large companies, but also in the cow, pig and chicken stalls. In the case of pigs, stress in the barn led not only to a drop in performance and to diarrhoea, but above all to so-called cannibalism. This means that the pigs bit each other's tails off. How should the SGD, the fatteners, and pig medicine in general (which in the meantime had developed into an independent sub-discipline of veterinary medicine) deal with this complex problem, which was not a well-defined disease? It was possible to deal with the problem by making changes in the way the animals were kept in the stables (such as installing play facilities in the stables), by prevention (for example, docking their tails or grinding their teeth) or with medication (such as neuroleptics, e.g. Serpasil CIBA), feeding tranquilisers or so-called "stress feed" (in Germany called “safety feed”). For example, the Basel-based chemical company Geigy saw this as a lucrative field of activity. Alternatively, one could try to cope with the stress through new methods of breeding hygiene. But how exactly does one address stress by breeding? In the 1970s, the halothane test was introduced into breeding selection to this aim. When young pigs are briefly anaesthetised with the anaesthetic gas halothane, the muscles of some tense up, while others remain relaxed. This method of identifying particularly stress-prone animals excluded them from further reproduction. The re-breeding for stress stability led, among other things, to a decisive weakening of the population size of the landrace breed (Schwörer 1982).

Between experiment and vertically integrated production: The statistically optimisable collective body and a “manure war”

Compared to the 1950s, three things in particular had fundamentally changed regarding pig husbandry at the beginning of the 1970s: While a guide to "modern" pig farming in the 1950s (Greenslade 1956) had still said that pigs were hardly affected by diseases, diseases had become omnipresent in intensive pig production (Gerwig et.al. 1970). Moreover, the question of "indoor" or "outdoor" no longer arose for the vast majority of pig farmers. And while earlier pig farmers had been strongly reminded that pigs were individuals and should be treated as such, pig farming was by the 1970s completely dominated by thinking in terms of large groups, herds or flocks. The different directions in pig medicine seem to have overlapped on these fundamental points. For example, French (Fortané 2017), English (Woods 2013) and Swiss veterinary preventive medicine shared with pharmaceutical-chemical animal health their epistemological foundation in herd or flock medicine. This observation contrasts to a certain extent with human medicine, where health has been increasingly individualised and placed in the responsibility of each person in the post-war era.

The herd thus had not only a new epidemiological, but also a very practical explosive power via veterinary medicine's new epistemological orientation towards large numbers. The sheer accumulation of the practically-economically as well as statistically-probably-theoretically necessary animals in a stable began to threaten the environment. In particular, the substances not converted into output by the

animals, which accumulated under the slatted floors as slurry, became more and more of a problem. This is illustrated by the example of Geigy's experimental farm. In the 1960s, Geigy had started building an agricultural research station in St. Aubin (Fribourg). On 130 hectares, the aim was to test substances in animal collectives that allow a statistical statement to be made. In addition to the experiments on animal health and plant protection, Geigy's Centre de Recherche Agricole in St. Aubin was (like every other agricultural experimental station) also a producing farm. This led to difficulties when Geigy tried to encourage the farmers of the Société de laiterie de St. Aubin to get manure from the research station. The Institut Agricole de l'Etat de Fribourg, for example, opposed on the grounds that there were no analyses of the toxic content of this slurry. (This is how Geigy was later involved by the commune of St. Aubin in public wastewater management - in particular the construction of a sewage treatment plant).[3]

And if you talk to Alfred Rebsamen, the long-time director of MLP, an agricultural engineer and biometrician with a doctorate, and try to explore his complex world of thought and ask him what his most complex task was, you will get the answer: "Liquid manure". There had been heated arguments about this manure. In the mid-1970s, there was even an actual "manure war" in Switzerland. Migros, a retailer, together with the feed producer PROVIMI, had begun to produce about 100,000 fattening pigs per year through vertically integrated hog production. This means that Migros controlled the production of "its" pigs from the barn construction to the feed, a basic breeding and testing farm, a technical service for cleaning the barns, through its own slaughterhouse to its sales outlets. Through advertising, Migros could also turn all kinds of screws on the consumption side. Only the slurry that the pigs excreted remained, which the farmers refused to take from the company. It had been transformed from a fertiliser, i.e. a "soil food" and thus a central means of agricultural production, into a production waste, a burden and a threat to the environment. This reminds us that agriculture, as a way of dealing with living resources, is and remains a soil-based activity and that reproductive factors are always at work in production. Here, we have a “metabolic rift”, a process essential to industrial agricultural production whereby a by-product such as manure, which might have restored soil fertility in a virtuous closed loop, gets disconnected from the healthy metabolism of the land and becomes waste. (By the way: Migros put up a fertilizer plant to transform the liquid manure into fertilizers – what they labelled in their social balance as “recycling”.)[4]

Beyond the manure, Migros' breeding and testing farm in Chesalles-sur-Moudon (VD) with its thousands of pigs raises another question: What is an experimental barn, or rather, what distinguishes such a barn from an agricultural production barn? According to Migros, their barn in Chesalles only served "basic breeding" and was therefore not a production farm. But what exactly does that mean

[3] See Novartis-Archiv, Firmenarchiv Ciba-Geigy, Division Agrarchemie, CRA St. Aubin.
[4] For OPTIPORC see Archiv Migros-Genossenschafts-Bund, Zürich.

when dealing with living resources, where production and reproduction are actually intimately linked? Migros took the view that only the pigs from this barn that could no longer be used for breeding were sold to fatteners; fattening alone was a production aspect, which was, however, done by the farmers. Why was the distinction between a research farm and a production farm so important in this case? According to proposals made when Article 19 of the Ordinance on the Determination of Maximum Numbers of Animals on Farms was revised, from 1983 it would no longer have been possible to keep more than 7,000 animals on a single farm in Switzerland. Until then, "basic breeding farms" as experimental stables affiliated to a recognised breeding programme were exempt from the restrictions on maximum animal numbers. From Migros' point of view, however, population genetics and probability calculations required that at least 10,000 pigs were kept centrally in one place under identical conditions. According to Migros, this was the only way to obtain statistically reliable statements for breeding decisions in their crossbreeding trials with four pig breeds. For this reason, their adherence to the experimental barn (at least as a regulatory way out) made sense in their eyes.

The environment of SPF pigs: from stable to area diseases

In the attempt to comprehensively control pig production, health and hygiene, the most important thing seemed to be to keep the pigs as hermetically sealed off from the environment as possible. These pigsties had to be as completely isolated as possible from the threatening environment. Not only the more or less natural environment and the cultivated land, but also the farmers and especially the veterinarians all seemed to be a potential health hazard for the specific-germ-free pigs and had to undergo thorough hygienic procedures before they were allowed to enter a barn. In addition, the so-called “Rein-Raus”-System (the whole herd in-/out at the same moment, "clean-out procedure") was introduced across the board. This means that the stables were thoroughly disinfected after each turn. For reasons of biosecurity, a new distance measure for the boundary fence, which we are all too familiar, was also devised: a fence had to separate the pigsty from its environment by 1.5 metres. And even the feed was now "sanitised". Only the fattened pigs on their way to the slaughterhouse and the manure came out of the barn.

Despite this, reinfections occurred. While there were heated arguments in the late 1960s and 1970s about reinfections, which were actually considered impossible, epidemiological studies in the mid-1980s shed new light on these reinfections. Now, aerogenic transmissions were considered to be the reason for infections transmitted from one barn to another. The fact that such reinfections had never occurred in Nebraska, from where the SPF model had been adopted, had to do with the agricultural topography. There, the individual pigsties were simply much further away from each other than was the case in Switzerland. In this small-scale country, an epidemic in stables had become an epidemic in areas. And that also meant that individual livestock farmers could not protect their pigs from enzootic

pneumonia and actinobacillosis on their own. Now whole swathes of land had to be cleared of these pathogens at the same time (Scheidegger et.al. 2015).

Conclusion: Breeding comes to the laboratory and the splitting up of father and mother lines

While many farmyard epidemics had mutated into epidemic diseases, breeding increasingly moved from the stables to university labs. Until the 1980s, the experimental stations were still rooted in biometrics and population genetics, but thereafter a switch to qualitative genetics can be observed. Important for this fundamental change was the blood group laboratory at the Swiss Federal School of Technology (ETH). It also has been a central nucleus for important research in the realm of resistance breeding, especially E. coli resistance to reduce the use of antibiotics (Neuenschwander et.al 2019). Another major change in pig production since the 1980s was the splitting up of the so-called father lines and mother lines. This has led to a severe narrowing of the genetic pool, particularly regarding boars. While there are about 220 boars for the father line, there are only 20 boars left for the mother line in Switzerland. Not only has inbreeding become an important problem, but also the central upbringing of the boars is a main threat for their health. The mother line has become a registered trademark under the name of Primera®; the father line under the name of Premo®.

To conclude this very brief overview, I would like to return to the question of what interdependences there have been between pigs and laboratory animals (or have pigs turned into laboratory animals?). Pigs have been used to produce insulin for almost exactly 100 years (now produced by biotechnological means), and transgenic pigs have become producers of hearts for xenotransplantation. While this has raised fears that we could turn into pigs, it is probably no coincidence that KLIBA, the feed mill mentioned above involved in the SPF process, is now a leader in the production of hygienised feed for laboratory animals.

This leads me to the question: How important is the concept of hygiene in the old, collective sense? The farm animal body has ceased to be an individual organism and has become a collective one, independent of the soil and capable of statistical optimisation. Through the intensification of livestock farming since the 1950s, which required a new medical management of masses in the most controlled and standardised environment possible, health has become the most important premise for performance – embodied in SPF pigs, the pig health service, hygienised fodder, highly specialized and hermetically closed production stables, countless experimental barns, E. coli resistant guts, and trademarked breeding lines separated according to sex, reproduced by artificial insemination (and sometimes even embryo transfer). In this context, health is no longer a somewhat fixedly conceived precondition of performance, but can itself be optimised ever further in order to maximise performance. Particularly where it remains invisible, namely in the metabolism of living organisms.

References / Short Bibliography

Amir, Fahim 2018: Schwein und Zeit. Tiere, Politik, Revolte, Hamburg: Nautilus.

Anderson, Joseph Leslie 2019: Capitalist Pigs. Pigs, Pork and Power in America, Morgantown: West Virginia University Press.

Auderset, Juri / Moser, Peter 2018: Die Agrarfrage in der Industriegesellschaft. Wissenskulturen, Machtverhältnisse und natürliche Ressourcen in der agrarisch-industriellen Wissensgesellschaft (1850-1950), Wien/Köln/Weimar: Böhlau Verlag.

Bjorkdahl, Kristian / Druglitro, Tone (Hg.) 2016: Animal Housing and Human-Animal Relations. London: Routledge.

Blanchette, Alex 2020: Porkopolis. American Animality, Standardized Life, and the Factory Farm, Durham/ London: Duke University Press.

Böhmer, Maria 2021: «A mamelle seine, lait sein». Milchhygiene und Eutergesundheit in der Schweiz, ca. 1950–1980, in: Schweizerische Zeitschrift für Geschichte 71/1 (2021), S. 34-54,

Christen, Raphael 2018: Resistenz und Rückstand. Auflösung der Assoziation und der Einfluss auf die Gesetzgebung, unpublizierte Masterarbeit Universität Zürich.

Creager, Angela N.H. / Gaudillière, Jean-Paul (Hg.) 2021: Risk on the Table. Food Production, Health, and the Environment, New York/Oxford: Berghahn.

Fitzgerald, Deborah 2003: Every Farm a Factory. The Industrial Ideal in American Agriculture, New Haven CT/ London: Yale University Press.

Fleischman, Thomas 2020: Communist Pigs. An Animal History of East Germany's Rise and Fall, Seattle.

Fortané, Nicolas 2017 : Naissance et déclin de l'écopathologie (années 1970 – année 1990). L'essor contrarié d'une médecine vétérinaire alternative, Regards Sociologiques, 50-51, pp. 133-162.

Foucault, Michel 2006: Die Geburt der Biopolitik. Geschichte der Gouvernementalität II. Vorlesungen am Collège de France 1978/1979, Frankfurt am Main: Suhrkamp.

Gerwig, Claude, W. Rothenbühler, H. R. Schmid und H. Sonderegger 1970: Schweineproduktion. Lehr-und Handbuch für Schule und Praxis, Bern: Buchverlag Verbandsdruckerei AG.

Greenslade, J. A. 1956: Modern Pig Breeding, London: Pearson.

Keller, Hermann 2001: Der Tierarzt und das Hausschwein und wie dieses „anders“ ist, Abschiedsvorlesung vom 1. Februar, Departement für Innere und Veterinärmedizin: Universität Zürich.

Keller, Hermann 1973: 10 Jahre Herdensanierung mit Spezifisch-Pathogen-Freien (SPF)-Schweinen. Erfahrungen aus dem Zentrum Zürich, Habil. ETH-Zürich.

Kirchhelle, Claas 2020: Pyrrhic Progress. The History of Antibiotics in Anglo-American Food Production, New Brunswick (NJ): Rutgers University Press.

Kirk, Robert G.W. 2014: The Invention of the ‘Stressed Animal’ and the Development of a Science of Animal Welfare, 1947-86, in: David Cantor and Edmund Ramsden (eds), Stress, Shock, and Adaptation in the Twentieth Century. Rochester: University of Rochester Press, pp. 241-263.

Kirk, Robert G. W. 2012: Standardization through mechanization: germ-free life and the engineering of the ideal laboratory animal, in: Technology and Culture 53, S. 61-93.

Landecker, Hannah 2021: Trace Amounts at Industrial Scale. Arsenicals and Medicated Feed in the Production of the “Western Diet”, in: Gaudillière, Jean-Paul und Angela N. H. Craeger. Risk on the Table. Food Production, Health, and the Environment, Berghahn: New York und Oxford.

Landecker, Hannah 2019: A metabolic history of manufacturing waste: food commodities and their outsides, in: Food, Culture & Society 22/5, S. 530–547.

Landecker, Hannah 2016: Antibiotic Resistance and the Biology of History, in: Body and Society 22/4, S. 19-52.

Latour, Bruno / Woolgar, Steve 1987: Laboratory Life. The Construction of Scientific Facts, Princeton: University Press.

Lynteris, Christos (Hg.) 2019: Framing Animals as Epidemic Villains: Histories of Non-Human Disease Vectors. Palgrave Macmillan.

Neuenschwander, Stefan, Don Hu, Peter Vögeli 2019: Resistenzzucht – Tierwohl verbessern und Antibiotikaeinsatz reduzieren, in: Swissporcs Info 1, 27-29.

Rebsamen, Alfred 1972: Ein Beitrag zur Frage der Übertragbarkeit der in einer Prüfumwelt erhobenen Nachkommenleistungen des Schweines auf die Verhältnisse der Praxis, Diss. Techn.Wiss. ETH Zürich.

Saraiva, Tiago 2016: Fascist Pics. Technoscientific Organisms and the History of Fascism, Cambridge MA/London: MIT Press.

Scheidegger, Rolf, Estermann, A. und Sidler, X (2015): 50 Jahre Schweinegesundheitsdienst (SGD), in: Schweizer Archiv für Tierheilkunde 157(12), S. 657-664.

Schmid, H. R. 1960: Die tierärztliche Überwachung eines Mastleistungsversuches für Schweine, mit besonderer Berücksichtigung der auftretenden Verdauungs- und Respirationskrankheiten, in: Schweizer Archiv für Tierheilkunde 102, S. 650-666.

Schrepfer, Susan R. / Scranton, Philip (Hg.) 2003, Industrializing Organisms. Introducing Evolutionary History, New York/London: Routledge.

Schwörer, Daniel 1982: Untersuchung der Fleischbeschaffenheit und Stressresistenz beim Schwein anhand des Tiermaterials der MLP-Sempach, Diss. ETH Zürich.

Settele, Veronika 2020: Revolution im Stall. Landwirtschaftliche Tierhaltung in Deutschland 1945-1990, Göttingen: Vandenhoeck & Ruprecht.

Theunissen, Bert 2020: Beauty or Statistics. Practice and Science in Dutch Livestock Breeding, 1900-2000, Toronto/Buffalo/London: University of Toronto Press.

Wittmann, Barbara 2021: Intensivtierhaltung: Landwirtschaftliche Positionierungen im Spannungsfeld von Ökologie, Ökonomie und Gesellschaft, Göttingen: Vandenhoeck & Ruprecht.

Woods, Abigail 2019: Decentering antibiotics: UK responses to the diseases of intensive pig production, c1925-65. In: Palgrave Communications 5/1, S. 1-11.

Woods, Abigail / Bresalier, Michael / Cassidy, Angela / Mason Dentinger, Rachel (Hg.) 2018: Animals and the Shaping of Modern Medicine. One Health and its Histories, London: Palgrave Macmillan.

Woods, Abigail 2013: Is Prevention better than Cure? The Rise and Fall of Veterinary Preventive Medicine, c. 1950–1980, in: Social History of Medicine 26, S. 113–131.