



Famines During the 'Little Ice Age' (1300-1800). Socio-natural Entanglements in Pre-modern Societies. Dominik Collet/Maximilian Schuh, Heidelberg Center for the Environment (HCE), 19.02.2015—20.02.2015.

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Famines During the 'Little Ice Age' (1300-1800). Socio-natural Entanglements in Premodern Societies

The convenors Dominik Collet and Maximilian Schuh of the Heidelberg Center for the Environment (HCE) invited natural scientists and humanists to discuss historical famines. Collet emphasized that interdisciplinarity might start with reading and citing each other, but it is dialogue that drives productive cooperation. Discussions focused on successful integrative concepts, reasonable archive selections and working research designs. The workshop took place at the Center for Interdisciplinary Research (ZiF) in Bielefeld.

Why famines? By way of comparison famines are *â*lowâ events with a natural, social and technical dimension. The time frame of the so called 'Little Ice Age' (LIA) was a subject lively discussed â sometimes even completely denied due to global spatiotemporal differences. However, one of the intended reasons for choosing the 'Little Ice Age'-concept was to overcome boundaries between the late Middle Ages and modern age.

In the opening presentation ULF BUENTGEN (ZURICH) talked about reactions of the ecosystem on climatic changes in the historical past. Although there is information for a global climatic decline in the 6th century and 1816, dendrochronology can only provide regional data about climate conditions. Questioning the theory of a European *â*wildlife reservoirâ of *Yersinia pestis*, the 14th century Black Death-bacteria, Buentgen discovered evidence that years of wet conditions in central Asia led to an increase of the Mongolian gerbil population, the natural host of the bacteria. Through medieval trading routes

Yersinia pestis was introduced into Europe. But since this introduction is a recurring phenomenon, Buentgen believes the theory of a European wildlife reservoir to be questionable.

KATRIN MOELLER (Halle) examined strategies of solidarity during hunger crises and flooding of the German river Saale at the turn of the 18th to the 19th century. The presentation pointed out several crisis topoi. While inundations were perceived as a sudden event of no anthropogenic origin, famines were rather seen as a consequence of social injustice and pauperization than of crop shortages. During famines people tried to increase their survivability through strategies of reasonable food distribution within the family. These strategies were mainly defined by rationality as opposed to divine will. As a consequence of the Enlightenment, survivability was seen as a successful strategy of individual mental strength.

HELI HUHTAMAA (Bern/Joensuu) analyzed data of dendroclimatology and historical sources concerning food prices in Finland from 1550 to 1900. Huhtamaa constitutes a connection between warm season temperatures, maximum latewood density series and harvest fluctuations. 80 percent of oat, rye and barley crop shortages can be traced to summer-frost. Grain tolls to the Swedish crown and wars intensified the food crises which could have easily resulted in famines. Due to Finland's fragile agricultural system of the time and the fact that an increasing amount of farmers were turned into fighters, war was a major cause for intense famines.

JUERG LUTHERBACHER (Gießen) talked about climate-reconstruction methods via reliable proxy data. While the current global warming is a measurable phenomenon, the so called 'Little Ice Age' is far from being an unambiguous, stable period. Winter and spring conditions seem to have been cooler; however, there is no clear evidence of an average LIA-temperature. Analyzing natural and cultural sources, Lutherbacher studied global climatic conditions of the past. Based on the mild winter/wet summer-theory after a tropical volcanic eruption, Lutherbacher identified additional trends. Eruptions of weaker intensity but higher frequency could lead to harsh winters in Europe. The Irish famine of 1728-29 seems to be connected to unfavourable summer conditions in 1725. One coping strategy was migration: The Irish culture was brought into a new natural & North American & environment.

FRANCIS LUDLOW (New Haven) asked whether extreme events raised violence. Irish annals cover accounts from 500 to 1600 of extraordinary quality. At first sight there is no link between natural circumstances and violence in the annals. Nevertheless, in combination with oak-tree-ring data, matches appear. While many violent acts can be traced back to heavy alcohol abuse, there may be a connection between violence and scarcity induced resource competition. Crop failures caused violent acts against individuals and against the Irish elite. Overall, Ludlow sees a high potential of medieval chronicles to illuminate human relationships with the environment when augmented by natural archives.

RUDOLF BRAZDIL (Brno) presented hydrological and historical data from Bohemia and Moravia. The density of Brazdil's data impressively revealed natural triggers for cultural change. Droughts in spring or summer were a major problem causing crop failures and famines. Heavy precipitation and inundation aggravated the situation in the aftermath. Poverty, robbery and mortality increased and even accounts of cannibalism turn up in the sources. Conflicts of the ruling powers coincided with the battle of Marchfeld (1278) and further stressed already tense situations. A major peak in mortality and criminality appears in the years of 1770-72. People were forced to seek new ways of coping with the crises. Changing their subsistence patterns from livestock farming to the cultivation of potatoes was an effective strategy of survival. Thus the social-political situation was changed by natural factors.

GUIDO ALFANI (Milano) analyzed famines as 'killing events'. Since the days of Roman antiquity un-

til the 1800s the average population of the Italian peninsula totalled around 15 million. Looking at average or 'normal' mortality rates, Alfani finds that epidemics tend to coincide with a high level of population density. However, plagues were not the only causes of death. In times of acute population pressure meteorological events unfavourable to wheat and its harvest strengthened the famines from 1500 to 1700. Malnutrition favoured the spread of diseases like typhus; wars intensified food shortages and mortality. Nevertheless, for a 'killing events' conclusion the efficiency of markets needs to be considered.

BRUCE CAMPBELL (Belfast) talked about plagues and mortality in England. Presenting an impressive data examination containing price and harvest rows, Campbell explained the general set-up in the 1340s. The precipitation was subject to fluctuating conditions. Climate was changing. Europe and Asia were facing ecological instability. Farmers could not count on the weather next year. The medieval scribes documented harvest shortfalls three times in a row. The volatile natural circumstances triggered deadly diseases in the English agricultural society. Although the Black Death caused tremendous mortality rates, it seems to have occluded the considerable bad weather impact.

ANDREA FADANI (Ulm) offered a visual perspective on famines presenting objects from the 'Museum der Brotkultur'. Hunger is a part of European history: 'Without food, no civilization'. Since antiquity famines have had a deep impact on society, on strategies of survival, on ways of food distribution and on crises management. Famines forced local authorities to formulate instructions on how to behave, addressing God as the *ultima ratio*. Bad weather may have caused unfavourable circumstances but it was the political and social landscape that could turn them into revolutions radicalizing society. Paintings, medals and even small bread stored in display cases became memorial objects for successful survival strategies. Foundations of agricultural universities reveal the diversity of contemporary coping methods.

VINITA DAMODARAN (Sussex) examined the premises of the depopulation in 17th century India. Are environmental changes the roots of conflicts? There is evidence for natural circumstances and their connection to 'aman made' famines. Damodaran combined navigation books of the East India Company (EIC) with tree-ring-analyses, studies of el Niño and the ENSO phenomenon. From 1765 to 1858 Bengal was facing a dozen of food shortages. One reason was the

dropout of the monsoon, but it was a question of distribution that was driving the famine. Neither the Moguls nor the EIC considered the needs of the subcontinent's population in an appropriate way. However, more ecological knowledge is needed to analyze the resilience of a community.

ANDREA DE VINCENTI (Zurich) talked about famines in 18th century Switzerland from a pedagogical perspective. In the perception of the contemporaries, famines were caused by moral decadence. It was God's punishment for misbehaviour. In comparison to their adult relatives, children were thought to be yet 'uncorrupted'. So the pastoral approach combined charity and education. This included respect for local religious authorities, the implementation of new ideas and agricultural techniques. Hard work was a strong element in the pastoral argumentation. Food shortages could be related to individual laziness making the individuals responsible for their own misfortune.

'What is a crisis and when does it end?' was the driving question of STEVEN SERELS (Berlin). His presentation dealt with food insecurity and food-gathering in pastoral economies in the late 1700s in Ethiopia and the Sudan. The environment was dominated by semi-arid climate and the monsoon. Through trade the Ethiopian highlands and the Nile Sudan were connected to the Red Sea. This economical system was ruled by non Muslim pastorals. At the end of the 18th century society had to face the extension of the Sudanese desert and plagues of locusts. Coping strategies were migration and religious conversion. Muslim scholars sent missionaries to the regions teaching a renunciation from the traditional pastoral power. The discussion that followed revolved around the combination of markets and crises, their interrelation and lack of moral standards.

KATHRIN PINDL (Regensburg) examined everyday life by analyzing data from charity institutions like the St. Katharinenspital in Regensburg. Recipes and indication of ingredients reveal conclusions about the pre-modern socio-economical situation. Pindl studied purchasing data during the 18th century concerning market prices. The famine of 1771/72 can be traced by *nihil*(none) entries in the sources. Through diet based data the aim is to reveal a new perspective on coping strategies, on mentality, religious and economical objectives, on patterns of consumption, official decrees and storage policies during food shortages.

The concept of the colonization of the east was lively discussed by historians in the past. The environmental

impact on the decisions to go east has not been studied extensively yet as ANDREAS RUETHER (Bielefeld) pointed out. Did unfavourable natural circumstances force people to leave their homelands? Push-pull-forces need to be examined for conclusive evidence. Since the 800s migration can be observed; however, this is not indicative of the circumstances left behind. Migration was not a sudden, uncontrolled escape, it was an organized movement. Emigrants consisted of ordinary people but there were dikers, millers and experts on drainage systems too - professionals welcomed by local authorities. We need to enlarge the focus on additional sources such as landscape paintings to counteract the lack of other sources detailing environmental circumstances and to study migration as a coping strategy.

JESSICA DIJKMAN (Utrecht) asked why do famines persist in one region while they vanish in others? Her case study was the village of Berkel. At the end of the 16th century Holland was facing major inundation, challenging people's strategies of survival. Examining contemporary sources such as burial documents, tax registers and accounts of charity facilities in Berkel, Dijkman found evidence for an organized strategy to restrain hunger. Clothing and bread was dealt out to the poor. Some people even received financial compensations based on their year's salary. Primarily this was an urban way of facing famines but it gradually spread to rural areas. Since famines almost disappeared after the 16th century the poor relief system seemed to be a favourable strategy in the Netherland's rising versatile economy.

Famines appear in many records. Natural proxies, chronicles, price lists and grain catalogues mark the diverse complexity. A complexity framed by terms of the 'Little Ice Age', 'climate', 'market' or 'relief'. The workshop pointed out different conceptions about these terms. While all lectures illustrated the connection of nature and culture, there still is a need for working concepts. The presentations contained large amounts of statistics and diagrams. These schemata may seem reliable but there are uncertainties.

In the future, physicians should be consulted to better understand the consequences famines have on the human body and the aspect of hunger as a tool of warfare should be considered as well.

Climate was argued to be the system of ecological change. Human adaptation to these changes is a historically slow process involving learning methods and testing strategies of survival, oscillating between notions of attributing catastrophic events to divine purpose and sci-

ence as a coping method. There is a long way to go, but finally disciplines are taking the path together.

Conference overview:

Section 1: Research Approaches and Designs

Ulf Buentgen (Zürich), A tree-ring perspective on 'Little Ice Age' summer temperature variability.

Katrin Moeller (Halle), Halle und die Hungerkrise von 1805. Ein Plädoyer für neue Krisenmodelle in der wirtschaftshistorischen Forschung der Vormoderne / Halle and the famine of 1805. New models for early modern economic history.

Heli Huhtamaa (Bern/Joensuu), Exploring climate-driven food crises in Finland during the Little Ice Age with written dendroclimatological evidence.

Juerg Lutherbacher (Gießen), From proxies to integrated, statistically based 'Little Ice Age' climate reconstructions and potential for past famine studies.

Section 2: European Famines

Francis Ludlow (New Haven), Dynamics of extreme weather, Subsistence crises and violent conflict in medieval Ireland.

Rudolf Brazdil (Brno), Famines in the Czech Lands during the 'Little Ice Age'.

Guido Alfani (Milano), Italian famines. An overview

(ca. 1250-1800).

Bruce Campbell (Belfast), Climate and disease. The famine of 1346-7 and near-famine of 1349-52.

Andrea Fadani (Ulm), Hunger remembrance in a museological context. Any linkage to environmental changes?

Section 3: Global perspectives and coping strategies

Vinita Damodaran (Sussex), Climate signals, environment and livelihoods in seventeenth and eighteenth century India.

Andrea De Vincenti (Zurich), Educationalizing hunger. Perceptions of the famine of 1771/72 in Zürich and coping strategies.

Steven Serels (Berlin), Reconstructing patterns of human-environment interaction and collective organization in the African Red Sea World at the end of the 'Little Ice Age'.

Kathrin Pindl (Regensburg), Crises and strategies of subsistence in pre-modern Regensburg. Hospital grain accounts as sources for economic history.

Andreas Ruether (Bielefeld), Theory of migration vs. colonization concepts. The role of climate and famine in the medieval eastward expansion.

Jessica Dijkman (Utrecht), Dearth and poor relief in Berkel (Holland) at the end of the 16th century.

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