

**A 244**

**Mauro Agnoletti:**

**Historical research and landscape analysis. The case of Tuscany (Italy)**

Between 1999 and 2002 a research project entitled “Analysis and Management of Forest and Rural Landscapes” has been carried out for the Tuscan Regional Government. One of the goals of the study was to assess a method in order to make historical investigation a necessary tool in planning and management of landscape resources. In landscape study, history is of fundamental importance in identifying the dynamics of the agro-forest systems as determined by the combination of human activities and natural evolution. From the ecological standpoint the regressive study must determine: where management activity falls along the ecosystem’s trajectory; which are the disturbing factors that affected evolution and the direction in which the system is heading. From the anthropic standpoint we must consider the role played by man in that evolution, clarifying the effects of his actions and defining the historical-cultural value of the landscapes identified.

Six study areas were identified to organize the research and process the data covering the following points: identification of the natural and human factors responsible for landscape changes; definition of structural typologies and evolutionary models; definition of the historical and cultural value of landscape resources; determination of the economic value of landscape resources; definition of management and protection criteria. The studies will focus on the following aspects:

The study areas have been selected following some general features: represent the main geographical areas of Tuscany (Apennine Mountains, hilly areas, coastal areas); have considerable landscape values; be documentable examples of integration between human activities and natural processes. The study has analyzed approximately 5000 hectares of the territory of Tuscany, investigating landscape changes in each study area from 1832 to 2000, using the first cadastre of Tuscany (1832), the aerial photographs of 1954 and 1998, as well as field surveys. The quantitative results show that almost the half of the territory analyzed has deeply changed its features in the last two hundred years (51%). The most relevant changes concern the extension of forest land (21%) and deforestation (10%), followed by the increase of arable land (8%). Most of the changes occurred between 1832 and 1954 (77%). According to these data, woodlands are the most relevant factor in the landscape dynamics, as 37% of the total changes occurred from 1832 to 2000 relates to them. The project has collected and processed a large number of data on the dynamic of landscape structure, economic and social evolution and ecological features of the study areas. One of the most dramatic changes detected concern landscape diversity, decreased by more than 70% in some areas. The landscape has become more uniform because of the extension of monocultures in agriculture and forestry, and for the natural extension of forest on abandoned land, reducing the complexity of the landscape mosaic. The findings of the project show that the same landscape patches may have a very different value in the different areas, according to local historical, ecological and socioeconomic context.

**A 010**

**Carlos Aguiar:**

**A brief history of northern Portugal natural forest**

Natural forest history is a starting subject in diachronic landscape or territory man use analysis and in the objectivation of human’s impact on the landscape, vegetation and soil. So, is not surprising that information on this subject is dispersed through multiple sources and was produced with disparate methodologies. Palinologists produced pollen sequences very useful in the interpretation of climatic fluctuation and in mountain vegetation history; anthracology studies gave an overview on the availability and some types of wood use

through time; geographers correlated actual land use with climate and geomorphology, which by themselves are fundamental factors in natural forest plant assembling; traditional historians frequently speculate about forest resources availability and the traditional land use of forests; phytosociologists developed models of actual and “Natural Potential Vegetation”, and correlated them with perturbations and environmental factors. Based on this information, with a bias in vegetation science, is produced a brief synthesis a Holocene the forest vegetation history in Northern Portugal.

#### **A 219**

**Inês Amorim:**

##### **Work Division and Social Environment: The Portuguese Fisheries**

The main issue of the communication is finding the social conditions of the process of organisation of work in the fishery sector in Portugal by correlating two perspectives: work division and social environment, which means, the interaction of many aspects:

1. work and social and cultural hierarchies  
2. ways of identification created by work  
3. perception of the occupational titles by the fisher workers themselves  
4. economic growth, state interventionism and fisher profile.

To evaluate this and others elements we must discuss the importance of a micro level analyse, creating strong basis in order to make comparisons between regions and periods in historical and comparative research.

#### **A 009**

**Amélia Andrade:**

##### **The king and the forrest in medieval Portugal:a domination and usufruct relationship**

Using king's administration documentation, this paper intends to clarify the Portuguese medieval kings forest strategies, specially in northern Portugal, a region of population and natural contrasts, where the royal authority generally found a intense resistance (opposition) due to a strong implantation of nobility and clergy, traduced on the occurrence of undue forests appropriation, in this territory more frequent than in the rest of the kingdom. In a diachronic vision it is intended to elucidate the initiatives taken by the royal power to ensure the control and usufruct of this rich natural resource in order to counter not only its appropriation but also its depletion, especially in association to the agriculture and pastoral activities in the more populated areas.

#### **A 092**

**Marco Armiero, Barca Stefania:**

##### **Nature without capitalism: the commons in Modern Italy (19th-20th centuries)**

This paper will consider the subsidence of historical research on the common property in modern Italy from an environmental point of view. From this perspective, the change in the form of the property rights is not just a juridical matter, but includes the whole system of production and re-production. In regards to production, the transition from commons to private property implies wide changes in the modes of resource use (subsistence vs. market economy; vernacular vs. scientific knowledge; organic vs. fossil energy etc.). In regards to re-production, the privatization of the commons generally involves a more intensive exploitation of resources and a reduction in the quantity (i.e. the amount of the soil) and quality (i.e. the variety of functions) of nature. The historical evidences about the commons seems to demonstrate, in spite of Hardin's thesis, the existence of a “Tragedy of the Private Property”, resulting in a loss in terms of diversity. We want to stress the last concept; dealing with commons means dealing with diversity in, at least, two ways: i) the social and economic diversity represented by a non capitalistic form of possession/use/access to the resources ii)

the ecological diversity represented by the plurality of functions of the resources. The communal lands in Southern Italy, the “comunanze” (community of lands) in the Central Italy, the collective ownership in the Alps, the irrigation canals in the Po Plains, the natural fishponds in Comacchio (near Venice) or in Sardinia, some costal areas such as the sea of Taranto or the gulf of Naples: these are all examples of alternative ways of possessing and using nature, which in some cases have withstood the pressures of private property. It is not our intention to replace the “myth” of market economy with another one. Commons are not a lost paradise where men and nature lived together in perfect harmony; yet, they are not a complete tragedy, the only cause of poverty, depletion of resources, underdevelopment etc. The point is, a part from mythology, to understand what the commons have really been, we must look at: 1) the geographical and ecological contexts 2) the political and institutional means of their life (and death) 3) the connection between local and global conditions 4) the ideas of nature and society. Using such analysis on same historical cases about commons in Italy, we aim to understand the reasons for their success and for their defeats (which were not necessarily failures).

## **A 188**

**Sari Autio:**

### **Soviet economic policy and silviculture in the northern forests in the 1930s**

Soviet economic policy in 1930s and Stalinist industrialization process were based on the idea that nature was an inexhaustible resource which had an endless flexibility. Soviet industrialization was an attempt to catch up with the west in the shortest possible time. To succeed in this project, the Soviet economy needed to achieve the fastest growth rate possible. According to Stalin's idea the of mastery of nature, it was, ideologically, possible for humans to dominate and to transform nature, i.e. nature has mainly of an instrumental value.

Because of this attitude silviculture and reforestation were more or less meaningful actions in the Stalinist economic policy although timber was one of the main incomes in the Stalinist industrialization process. Example of the Scandinavian neighbours from the late 19<sup>th</sup> century indicated that unplanned and massive forest cuttings might lead to shortage of timber and thus diminished timber export and forest income. To avoid this, in 1931 Soviet leadership made a decision to create forest protection zones to protect especially the vulnerable southern forests. In 1936 the area of protected forests were extended by creating thre water protection zones where cuttings were prohibited. The main target of this was to prevent erosion especially near the rivers and lakes.

In my paper I will concentrate on the role of silviculture and Soviet actions to protect forests mentioned above in the Northwestern and especially Soviet Karelian forests and the attitudes towards these protection actions in the Soviet leadership during the 1930s. While Southern forests were protected by the decision of the Soviet leadership, the cutting targets in the North were heavily raised by the same leadership. This lead to overcuttings in many areas in the northwestern and northern part of the Soviet Union.

Past defines economic and environmental situation in Russian Karelia today and decisions made in the past still gives a basis for the decision-making of today in the environmental matters. Thus Stalinist economic policy in the northern forests of the Soviet Union is fascinating target for environmental historical research.

## **A 130**

**Maibritt Bager:**

### **A marine environmental history of the Baltic Sea, c. 1500-2000**

The interaction between the abundance of fish and the exploitation of marine resources in the Baltic Sea has been an important structural element of the economy of the costal societies in

the region since the early middle ages. However, present knowledge of the size of the fisheries and the human impact on the marine ecosystems due to exploitation prior to 1900 is poor. Fisheries data (landings) in the Baltic Sea have only been systematically recorded since the 1920s whereas the stock dynamics of most commercially important species (e.g., cod, herring) are available since only the 1960s or 1970s.. This paper identifies and describes potential archival sources of fisheries data that may be useful for investigating multi-decadal scale variability in fish landings. It presents examples of some long-term datasets for the period of 18th–19th centuries for local fisheries such as those conducted by inhabitants of fishing villages and manors. These datasets have been derived from historical archives. The information recovered to date includes landings of fish species (e.g., cod, herring, perch, roach, whitefish) of different habitats (open sea, coastal) preferences, and human factors that could serve as indirect measures of fishing effort. This information is available for various areas of the Baltic Sea: Bothnian Sea, northern and central Baltic Proper, Bornholm Basin and the Belts. This material and additional material not yet recovered will provide a new perspective from which to consider factors affecting long-term variations in yields and abundance. The marine environmental history of the Baltic Sea hereby combines ecology, production and culture in making truly interdisciplinary history. The study is a part of the History of Marine Animal Populations programme.

**A 173**

**Giuseppe Barbera, Giuseppe La Mantia:**

**The history of landscape and species-richness changes within the suburban area of Palermo**

The history of Palermo strictly depends on the that of the plain and the mountains surrounding it. The landscape of this fertile plain, the so-called "Golden Valley", has been by historians as a tree-dominated mythical garden. Throughout the centuries, Golden Valley not also has been a meeting-point for the original elaboration and the cultural synthesis of different agricultural civilisations, but also played a role of biodiversity-reservoir thanks to the presence of varying habitats, and an ideal site for agricultural and ornamental species acclimation and diffusion experiences.

Since Neolithic Age people preserved several tree species by deforestation and wildfire because of their fruits. Native trees exploitation was integrated by the arrival of several allochthonous cultivated trees, which arrived in Sicily during Roman Period. The most intense development of agronomical techniques and the diffusion of new plants was during Islam domination (X<sup>th</sup>-XII<sup>th</sup> centuries).

In the following centuries, Golden Valley landscape underwent significant transformations. An continuous expansion of an increasing number of citrus species and varieties deeply changed plane's landscape and, thus, species-richness.

Thousands of years of human impact have strongly transformed the original vegetal landscape, so that even on the top of the higher mountains very little remains of the primary evergreen and of the mixed evergreen-deciduous mediterranean forests. Also if most part of the hills and mountains were affected by deforestation during centuries, they still give hospitality to many peculiar plants and formations. At the beginning of the XVI<sup>th</sup> century mountains were totally deforested: timber was used to provide fuel for the mills that extracted sugar from the cane, widely cultivated wherever water was available.

Residual patches of the ancient forests still survive today only in the most unsuitable areas, protected against wildfires, so that in some very scattered residual areas it is still possible to record a high level of species-richness. Both garrigue formations and perennial xeric *Ampelodesmos mauritanica*-dominated prairies share a high level of species-richness.

As a consequence of agronomical activities' evolution and of natural vegetal landscape vegetation change also animal species-richness has been subject to strong change.

**A 177**

**Giuseppe Barbera, Giuseppe La Mantia:**

**The relation between Historical Change and Species-Richness Reduction in Sicily**

Human impact in Sicily generally induced a strong reduction of natural landscape surfaces; nevertheless, within several agro-ecosystems resulting from this transformation (both vegetal and animal species-richness has been conserved. The most affected landscape units were woodland and shrubby formations. During the last century urbanisation, the afforestation processes and the change of agricultural activities determined a further reduction of species-richness and caused a severe fragmentation of remnant serial vegetation. Once again, the most affected units were natural woods and some sub-natural formations, as garrigues, prairies, shrublands, especially along the coast.

Because of the nearly total lack of information, it is very difficult to link environmental changes with species-richness reduction along a timetable, but it is possible to draw some models on the effects of historical and socio-economic events on the reduction of some vegetation units through some study cases, putting in evidence also faunistic changes.

**A 181**

**Sabine Barles, Lestel Laurence:**

**The nitrogen question: urbanisation, industrialisation and river quality, Paris (France), 19th century**

During the 19th century, Paris agglomeration experienced several simultaneous changes whose impact on the river Seine and on the urban and suburban environment as a whole was great. The Seine department population grew from 630 000 inhabitants in 1806 (580 000 of which in Paris) to 3 670 000 in 1901 (2 710 000 of which in Paris). Furthermore industry (mainly the chemical industry) developed in the urbanised area. As metabolic requirements of the city and urban material flows increased, the river Seine was highly in demand, especially in and downstream from Paris. Scientists, public authorities and citizens did not ignore this situation and one of the main scientific concerns was the nitrogen question, whose study is particularly stimulating for the environmental historian. The extraordinary and increasing amount of urban nitrogen was actually considered both as a problem and as an asset. A problem because as associated with organic matter, nitrogen appeared as a part of urban and water pollution, responsible for human diseases and fish reduction; an asset because as involved in industrial and fertilizers production, urban nitrogen was considered as an essential and valuable raw material. The interest in nitrogen led to the first nitrogen balance and nitrogen flow accounting, and to its measurement in the first systematic water analysis. In the meantime, the meeting of interests led to the search for nitrogen losses reduction for hygienic, environmental and economical reasons (not always with the expected results). Therefore, the river protection against nitrogen compounds cannot be understood without taking into account the whole nitrogen question. On the contrary, during the 20th century and especially the inter-two wars, the economical issue disappeared as new sources of nitrogen were found, the hygienic issue seemed less relevant as hygienic conditions were considerably improved in the city; then the environmental issue is not important enough by itself to lead to new and relevant river protection against nitrogen pollution.

**A 229**

**Mariano Barriendos:**

**Flood Events Research in Historical Time: How to Analyze All Physic and Human Factors Involved from Documentary Sources?**

The study of large flood events in different spatio-temporal scales is a research field with interesting perspectives in the light of future scenarios of global change but also the events recorded in different geographical areas during previous years. Historical documentary sources can provide good data series and detailed information with temporal distribution of these climatic hazards, the direct causes and processes, and characteristics of most damaging events, by impacts, duration or magnitude.

The experience begins in 19<sup>th</sup> Century with large works of data event collections, i.e. the work of Maurice Champion in France. Other works are developed with not a direct objective in flood data collection by local historians or civil engineers. At the end of 20<sup>th</sup> Century historical climatology has made available long flood data series and its climatic interpretations.

Present research is focused on climatic patterns and meteorological processes that explain the direct causes of flood events: torrential rainfall events, continuous rainfall over large sectors, rapid snow-melting processes or breacking ice dams. Information available from direct descriptions contained in documents seem enough to achieve it. But flood events are more complex phenomena, in similar way than drought events, because of intervention of human factors in the whole process.

From environmental history, researchers in interdisciplinary initiatives have the opportunity to cross information contained in historical archives to understand as good as be possible the complete factors and their interconnections concerning the flood phenomena. Different spatio-temporal scales in which the researchers can focus the work is a good argue to introduce in all the elements involving flood events in different social and historical contexts:

- Climatic and meteorological patterns.
- Land use and its management and evolution.
- Public works and its objectives, limitations, evolution.
- Social actitudes and perceptions.
- Human and economic impacts

The final objectives would be not only environmental reconstruction but also applied results: improvement and support in management of emergency situations, public works and urban planning, environmental and risk education.

In order to reach these objectives environmental historians must identify, select and test very different documentary sources to collect information about:

- Land use in basin scale (administrative and treasure authority records).
- Old and modern cartography for bed river configurations.
- Public Works files for characteristics and dimension of old infrastructures.
- Finally, direct descriptions of flood events from private and administrative sources.

With this information, according to available resources, applied studies could be developed in basin scale or in local scale. By the moment, however, a coordination of criteria and methods is needed to generate analysis in different scales but as comparative as be possible.

**A 002**

**Klaus Barthelmeß:**

**An international campaign against whaling and sealing before World War One**

In 1909 the Swiss explorer and amateur scientist Dr. Paul Sarazin initiated a campaign against the ever expanding whaling and sealing industries of the world. These were the main issues to which the work of several organizations - such as the International Committee for the

Protection of Nature (1913) - founded by Sarazin was dedicated. Sarazin's campaign reflects a paradigmatic change within part of the international scientific community, while other scientists and policy-makers struggled to implement early concepts of sustainability. The paper analyzes national and international efforts to regulate whaling and sealing, presents the history of Sarazin's protection campaign and analyzes its underlying paradigm and methods.

**A 198**

**Silvana Bartoletto:**

**The consumption of fuel in Naples between the 19th and 20th century**

The city of Naples has always been a centre of consumption and drainage of resources and energy because of a high ratio between population and available resources. Through the reconstruction of the consumption of fuel between 19th and 20th century, the paper tries to identify the times and the ways of the passage from renewable sources (firewood and charcoal) to non renewable resources (fossil fuels). Doing the historical estimates for a city asks for specific methodological decisions with regard to systems boundaries of the social unit and specifically for imported or exported flows.

**A 207**

**Christoph Bernhardt :**

**Floods on the Rhine 1800-2000**

The paper reconstructs floods on the Rhine over a 200-years period on three levels: Firstly, quantitative data on floodings are presented and analyzed which show specific patterns over space and time and ask for complex explanations of the social contexts of flooding. Secondly the contemporary interpretations are presented which show the transformation of preindustrial environmental fears to risk awareness in the industrial age, which in fact meant a loss of sensitiveness in the context of massive interventions in the river course. Concepts of water engineering and environmental protection from the second half of the 20<sup>th</sup> century will be regarded as signs of another turning point towards a „postindustrial“ environmental risk consciousness. A third chapter will analyze strategies of risk management in the fields of regional and transboundary politics and water engineering, with a special focus on upriver-downriver conflicts. As a result, a conclusion will be given about the changing role and perception of floodings in the regional societies along the Rhine over time.

**A 147**

**Fredrik Björk:**

**Not a Sweet Story. The Beet-Sugar Conquest of Sweden 1875-1940**

The period from 1875 to 1940 is not only a period signified by rapid urbanization and industrialization; in Sweden this period could also be described as the beet-sugar conquest of eating habits. During this time, a tenfold increase in the consumption of sugar made a staple food out of what had been an expensive and luxurious spice. By the 1930s, sugar accounted for about one-third of the energy content in Swedish food consumption. For centuries, sugar had been a colonial product, but the sugar that sweetened the coffee sipped in rapidly increasing amounts by late nineteenth-century Swedes, had its origins in the soil of southern Sweden. The rapid expansion of the beet-sugar industry was a key feature of the industrialization of food production in Sweden; a process which resulted in the relationship between food production and consumption becoming extended and vague. How and why did sugar change from luxury to staple food? This question must be addressed in two ways. Not only must the quantitative change in sugar consumption be investigated, but we have also to consider the changing cultural and social meaning of sugar as a parallel process. The early Swedish beet-sugar industry were pioneers in the use of chemical fertilizers and emphasized

the use of science in food production. As the content of sugar in beets grown by independent growers was considered insufficient, factories issued contracts, where the conditions under which the beets would be grown were stipulated. Not only were the use of fertilizers meticulously stated; Chemical fertilizers were even supplied to the growers at purchase price. Though sugar consumption rose rapidly, production rose even faster, leading to a significant surplus. The sugar industry, which already co-operated closely, formed Svenska Sockerbolaget Aktiebolag (SSA) in 1907. At the time, it was the largest corporation in Sweden; operating major railways in southern Sweden and holding stock in the arctic coalmines on Spetsbergen. The narrative of the transformation of sugar from luxury to staple food was a cornerstone of SSA's propaganda. In this narrative, science and technology played vital roles in the refinement of nature. The manufacture of "pure, white and beautiful" sugar was portrayed as vital to modern society, and to the greatness of the nation. In the advertisements and in the propaganda films that SSA produced, there is an educative, slightly arrogant atmosphere, defining how a capable housewife should make use of the blessings of the land. In this paper, I will make an attempt to outline how we can link the changing social and cultural meaning of sugar to the changing network of ecological relations in which it is embedded.

**A 107**

**Gary B. Blank:**

**Indirect and direct impacts of Coal Mining on Forests in Central Appalachia 1890-1990**

Observers of coal mining's rapid growth in western Maryland around 1900 noted negative effects. Demand for mine props and railroad ties to service the mines led to wholesale timber extraction. Cutting practices proved wasteful and were conducted without apparent regard for future growth. Extracting high volumes of coal at low prices eliminated demand for wood fuel and led to wastage of unmerchantable wood. Thereafter, logging slash and waste wood created dry fuel conditions conducive to uncontrollable forest fires, retarding forest regeneration. Decades of such forest abuse followed the coal mining boom, before gradual implementation of forest conservation measures gained momentum. Then deep mining declined and gave way to surface mining, stripping overburden rock and soil, leveling mountains, hence forest cover. Inadequate mine reclamation regulations and the problematic exercising of historic mineral rights created another assault on the forests of central Appalachia in mid-century. Efforts to reforest strip-mined areas have proven difficult. Throughout this history, incentives to manage private forests sustainably have been limited, and only acquisition of cutover lands by the state led to widespread recovery of forests in this region.

**A 248**

**Eunice Blavascunas:**

**Cultural Memory in the Green Lungs of Poland**

This paper (poster) examines material aspects of Poland's Bialowieza Forest as its conservation past is being updated for a European Union future. The Bialowieza Forest is portrayed as a "primeval" environment, yet plays a pivotal role in major historical events (i.e., the Russian partition of Poland, and Nazi occupation of Poland), only some of which are included in the authorized narratives of the Bialowieza National Park. By working with theories of memory and historicizing, I will examine the ways in which "green narratives" advance deeply ambiguous relationships with the past for the political imperatives of European unity and nature conservation.

**A 217**

**Louise Bodri, P. Chiozzi, V. Pasquale, M. Verdoya:**

### **Last 1000 years climate reconstruction inferred from geothermal measurements in Italy**

It has long been recognised that borehole temperature profiles contain information about the Earth's changing climate. Temperature-depth data from a suite of boreholes in Italy were used to infer the variations of ground surface temperatures (GST) over the last 1000 years. The reconstructed GST variations for this period have not exceeded the range of 3-3.5 K. Obtained GST histories include cold conditions before the year 1000 A.D., followed by a long warm period which continued until the 18 century, significant cooling culminated near the 1940-1950, and extensive warming since then. The study confirms certain incoherence of the climatic history in Italy, revealed by historical and proxy sources, with the results obtained for other parts of Europe.

The combination of borehole temperature profiles with available time series of surface air temperatures provided a 19th century preobservational mean temperature (POM) - that is about 0.1 K above the 1930-1970 mean temperature at the Adriatic side and is somewhat larger (0.2 K) for the boreholes of the Tyrrhenian-Ligurian side. The distribution of POM temperatures shows a strong influence of local climatic patterns caused by the particular Italian orography and the location of the country in the Mediterranean Sea.

### **A 063**

**Maitseo Bolaane:**

#### **Translations of European Knowledge systems into African contexts: History of tsetse fly (Trypanosomiasis) control and its impact on the wild conservation in Botswana: 1930s-1970s.**

The aim of this paper is to examine the relationship between the history of tsetse fly/trypanosomiasis encroachment and control; its long term policy and wildlife conservation in northern Botswana. The economic potential of the Okavango Delta system in northern Botswana has been a subject of considerable interest and debate. The advance of tsetse fly, deadly to animals and human alike has always been viewed as the major hindrance to the economic development of the Delta area and the north-west district (Ngamiland) at large. The history of tsetse fly control in Botswana therefore is of significance to pattern settlement of the people of the Okavango and the establishment of game parks in northern Botswana. Tsetse fly became fierce in northern Botswana particularly in Ngamiland in the 1940s and thus called for drastic measures of control and translations of European knowledge from experts and the Bechuanaland Administration. Much of the revenues spent in Ngamiland by the Colonial Government were in trying to deal with the fly. Therefore, the paper shall explore the effects of the tsetse fly on the economy of the delta and the efforts by the colonial and independent states to eradicate this 'plague'. It is in the interest of this paper to further examine the active role by certain officials, mainly European entomologists and veterinarians who came up with definite plans for tsetse fly control which later had an impact on wildlife conservation in northern Botswana. An attempt has been made to compile and summarise available information on the occurrence and control of tsetse flies in Botswana particularly in the north in order to provide a historical background to this paper.

### **A 103**

**Rudolf Brázdil, Hubert Valášek, Zbyněk Sviták:**

#### **Historical data of economic character as a source of information for the study of hydrological and meteorological extremes**

Systematic observations of hydrological and meteorological extremes are limited to the existence of the national meteorological networks. This data does not include information

about its impacts. Moreover, series of extremes are relatively short from the point of view of great temporal and spatial variability of these events. In the pre-instrumental period an information about extremes is derived from traditional documentary evidence such as chronicles, annals, memories, letters, newspapers etc. There exists a big potential in utilisation of economic records in statements about the weather damage in the frame of individual manors which were a basis for paying of smaller tax. In the Czech Republic many such records are included in archival funds of individual estates covering a period since the 17th to the 20th centuries. The paper concentrates on utilisation of such data source on the example of the three manors in Moravia, namely those of Pernštejn, Dolní Kounice and Mikulov. Investigation of this information with respect to frequency, seasonality, severity and impacts of the mentioned extremes is shown.

#### **A 215**

**Henri Bresc:**

#### **Equipements hydrauliques, societes et paysages en Sicile et en Provence (XIe-XVIIe siecles)**

The paper develops the themes of the intersections between technologies, environments, and social structure in two Mediterranean regions, Sicily and Provence. It shows that demographic pressure, but also political and social hierarchies and available machinery differently shaped the adaptations to ecological constraints in places whose climate and geology were similar.

#### **A 061**

**Karen Brown:**

#### **Trees and Beasts: European Approaches to South Africa's Sylvan Environment in the 19th and early 20th Centuries**

This paper uses the locale of South Africa's natural forests to explore both the interpretation and impact of European cultural and scientific ideas on the conservation and development of silvatic resources in other parts of the world. By doing so, it aims to contribute to the growing body of literature on the transferral of intellectual ideas and environmental practices from Europe to the colonies. In South Africa the extent of naturally wooded areas was (and is) sparse, yet forests constituted an important source of timber, fruit, browse and medicinal herbs serving the needs of indigenous African communities, European settlers and commercial contractors. By the end of the 19th century, unmitigated hunting by Europeans had denuded much of southern Africa of its indigenous megafauna, ensuring that forests functioned as one of the last remaining refuges for a range of wildlife. From the 18th century European travellers and scientists versed in Linnaean principles of taxonomy investigated the country's rich biota and began to classify the new varieties they encountered. For some such scientists this research provided the opportunity to explore how local communities, such as the Xhosa and Zulu, interpreted their environment, demonstrating both similarities and differences in cultural approaches to the woodlands. By the mid 19th century, forest clearance became the subject of a European critique of both African and settler land use, as scientific commentators associated arboreal destruction with desiccation, erosion and the ultimate inability of the land to support human life. Pessimistic Malthusian and Darwinian ideas gradually gave rise to a more conservationist approach to natural resource management within the four colonies which came to form the Union of South Africa in 1910. This approach incorporated the sometimes contradictory biocentric concern for protecting biodiversity, alongside a more anthropomorphic and materialist compulsion to conserve desirable varieties of commercial timber for future generations, as well as ensuring the survival of preferential game to sustain the western, masculine ideal of the recreational hunt. Starting with the Cape Colony, the final decades of the 19th century witnessed the first official attempts to conserve

trees by adopting Franco-German precedents for silvatic reclamation and regulation. This was complemented by the introduction of European hunting laws aimed at protecting selected fauna, as well as attempts by conservationist in the Cape to create the country's first wildlife reserves within the Transkei forests. This statist and interventionist approach to both timber and wildlife management provides an important example of the transferral of European environmental regulations to other parts of the world, which in turn, were adapted to suit local topographical and climatic conditions, as well as fulfilling the socio-economic agendas of South African governments.

#### **A 195**

**Matthias Bürgi, Stuber Martin:**

#### **Making forest history relevant for conservation practice – a case study on litter harvesting in Switzerland**

Forest litter harvesting is among the most important agricultural uses of forests. As forest litter was mainly used in the stables to for dung production, the intensity of forest litter harvesting was directly linked to the demand for litter and the availability of alternative material to be used for dung production (e.g., straw, sedges, reed). In the late 19<sup>th</sup> century, modernisation of agriculture and globalization of the grain market caused a shortage of straw in the Swiss lowland areas, which led to a sharp increase in demand for forest litter. Even before 1800, in the mountainous regions of Switzerland, forest litter had already been similarly indispensable due to the introduction of potatoes and a decline in crop cultivation. At around 1900, in the lowland areas and in the 1960s in the mountainous regions, improved means of transportation, enabling cheap import of straw, set an end to the period of intensive harvesting of forest litter. However, the effects on forests as an ecosystem will last much longer than the actual practice of litter harvesting. Interpreting these effects in the context of nature conservation raises the question whether local re-introduction of forest litter harvesting might be desirable. In 2003 a series of experiments has started which will help to answer this question.

#### **A 081**

**Rita Merete Buttenschon:**

#### **Woodland pastures and livestock – reintroduction of a former livestock management systems into present day nature resource management.**

Woodlands were an important fodder resource for livestock husbandry in the early agricultural systems of the temperate to sub-boreal climate zones in Europe. In these regions livestock played a major role in the livelihood of the largely rural population. The woodlands provided a stable and nutrient sufficient grazing, browse and winter fodder source for the livestock. Woodlands also provided timber, fencing and fuel. In the lowlands, and regionally in the uplands of the temperate region expanding populations, town development, and evolving industrial activity led to deterioration of the woodland pastures, and the woodland element disappeared from large areas. This was mainly due to over-timbering, but the effect of this was maintained by over-stocking of the gradually impoverished soils. In their prime the woodland grazing and associated leaf-fodder-harvesting and timbering systems provided a cyclical dynamic between closed woodland, fragmented woodland and open land. Seen in the nature resource perspective the remnants of the systems provide a large part of the present day biodiversity in the temperate forest zones of Europe. For this reason the woodland grazing systems have come into focus in connection with nature resource management. Ongoing research is trying to establish the management details of a number of the systems and metamorphose them into applicable management systems for nature conservation and extensified agri-systems. Inter alia for animal welfare reasons the systems, even if they were

known in detail, would have to be modified. A long-term research project has looked into two major aspects of woodland pasture systems in Denmark: woodland development from open semi-natural habitats and abandoned arable land under grazing with different livestock species and the influence of grazing and browsing on shrub- and woodland. Grazing provides larger areas of suitable seedbeds for woody species and will over a span of a few decades result in the development of fragmented species rich woodland pastures. The woodland develops in phases – first being colonised by grazing pioneers (species protected against browse, e.g. *Crataegus* spp., *Juniperus communis*, *Malus sylvestris*, *Prunus spinosa*). Eventually climax woody species will establish within the shrub of grazing pioneers. The speed of the woodland development inter alia depends on animal species, grazing season and stocking rate. Pasturing in closed woodland results in a higher influx of light to the field layer, a spatially more diversely compartmentalisation and a higher diversity in the field layer with a promotion of many woodland species. Research on the combination of coppicing and grazing in oak shrub suggests that periodic timbering may be one of the key measures in maintaining the fragmented woodland-grassland systems over longer spans of time. At the same time the coppicing appears to promote nutrient cycling and provide substantial amounts of nutrient rich browse. Grazing with livestock along with former timbering systems re-establishes the cyclic dynamic balance between woodland, fragmented woodland and grassland over time and space. Accordingly, woodland grazing is an obvious tool for management of the biodiversity associated with the prehistoric and historic woodland pasture heritage. However, much knowledge of the historic woodland pasture systems is lacking for the full understanding and the application of the systems into modern nature resource management. Further research disclosing the ecological functionality of the systems and the details of the practices actually used in the former systems is in dire need – the area of historic woodland pasture rapidly diminishing due to lack of proper management.

## **A 240**

**Dario Camuffo:**

### **Change in sea-level and storm surge frequency at Venice from proxy: the problem and the impact on the historical buildings**

A key problem for Venice is the relative sea level rise with the consequence of an increasing frequency of surges flooding the city (locally named *acqua alta*). The flooding tides are governed by climate change (sea level rise and atmospheric circulation), meteorological triggers (Sirocco surges and air pressure field), land subsidence, sea surface oscillations (*seiches*), astronomical forces, anthropogenic factors. The increasing frequency of surges has reached an unsustainable level. Paradoxically, the strong decrease in gale Sirocco frequency (almost 50% in the period 1950-1990) was not sufficient to reduce the flood tides in Venice that on the contrary are increased by more than 100% in the same period. This does not necessarily imply a future scenario without Sirocco, but only that the data availability is limited, and the analysis has been performed in a time period (40 years) that may be short in comparison with the natural variability of this phenomenon. An accurate series of the flooding surges has been obtained combining instrumental observations (1872-2000) with documentary data for the last millennium. This is only a part of the information: the other key variable is the sea level rise. During the instrumental period (1872-2000) the tide gauge measured a 31-cm rise. However, the most recent period is uncertain: change in trend or temporary fluctuation? The answer needs a wider temporal scale. The phenomenon over the last three centuries has been investigated by using a proxy of mean sea level: the height of the green belt of the laminaria alga which lives in the tidal range and its front indicates the average high tide level. In the first half of the XVIII century, this indicator was accurately drawn by Canaletto and his pupils in their ‘photographic’ paintings made with an optical *camera*

*obscura*. Near the half of the XIX century, the invention of the photography gave another opportunity of knowing the position of the algae belt on buildings. An analysis of the algae belt displacement before the instrumental monitoring of the tide level allows to establish the long-term trend of the relative sea level rise and to distinguish between natural and recent anthropogenic contributions. This result is fundamental in view of deciding measures to save Venice and its historical buildings. The Venice palaces were originally protected against groundwater rise by a belt of non-permeable Istria stone, but now the protective belt has sunk with the city for the combined effect of natural and anthropic factors. Now the flooding waters reach brick and plaster which are rapidly destroyed by salt crystallisation cycles.

A 155

**Stephane Castonguay:**

**Standardizing Diversity : International phytopathological conventions and the entomological unification of the world, 1881-1929**

Between 1881 and 1929, numerous countries negotiated and ratified a series of international conventions to relieve national agricultural industries from two burdens. First, by defining phytosanitary practices to be enforced by national plant protection services, these conventions attempted to prevent the introduction of agricultural insect pests and plant diseases into national territories from which they were previously absent. Second, by standardizing these practices, the conventions attempted to circumscribe the biological basis of foreign plant quarantine and to eliminate barriers affecting the international exchange of plant products and agricultural commodities. One can understand the adoption of these conventions - from the Berne Convention against the phylloxera in 1881 to the Rome International Convention on Plant Protection in 1929-, as the culmination of three interrelated internationalisation processes. First, the improvement of transportation furthered international trade, and facilitated the commercial exchange of agricultural and industrial commodities between countries in the second half of the nineteenth century. Second, this increase in international trade accelerated the biotic exchange - the deliberate introduction and acclimatisation of exotic plant and animal species, as well the accidental distribution of microbes, insects and other pests. Third, the period between 1880 and 1914 was a key moment in the history of the internationalism in science with the organization of international scientific congresses and their institutionalisation through the foundation of the International Associations Union or the International Organization of Intellectual Cooperation. These three processes were far from being new, but their acceleration and interpenetration during the period under study suggest that the phytopathological conventions epitomized the coalescence of an international economic, biotic and scientific community. It is my contention that what actually coalesced was a bio-geopolitics wherein plant pathologists and economic entomologists from South America, North America, and the British Empire questioned the so-called internationality of the environmental and economic specificities of Continental European agriculture, embodied in "international" conventions. In this paper, I analyse the formation of exclusive bio-geopolitical entities based on local crop protection practices, histories of species introduction and agricultural development. Scientific, biological and economic networks in Europe, in the Americas and in Imperial Britain articulated distinct regional entities that clashed over attempts at standardising phytopathological activities of governmental services. In that respect, agreements focusing on one insect in particular such as the Phylloxera in the 1880s and the Doryphora in the 1930s in Europe, or on locusts in South America in the 1920s were more successful in their implementation and enforcement than the conventions of the International Institute of Agriculture. Based on a territory shared by crops and pests and countries, these local agreements rightfully recognized the diversity and specificity of rural

landscapes and local agricultural practices. Although an international phenomenon, the dissemination of insects and diseases provided a field of cooperation among scientists, agricultural producers and diplomats on a strictly regional albeit transnational basis that pitted bio-geopolitical entities against each other.

**A 136**

**Sandra Chaney:**

**Protecting "Valuable Property of the People": Conservation in East Germany, 1950-1970**

The German Democratic Republic inherited a tradition in conservation that provided foundations for postwar efforts to protect nature. During the 1950s and 1960s, conservationists worked to preserve this established tradition while purging it of its "bourgeois elements" and modifying it to reflect the priorities of state socialism. By the latter 1950s, they had developed an ideologically acceptable approach to caring for the land, "socialist Landeskultur." Socialist Landeskultur promised to contribute to human progress by using technology to maximize the economic productivity of forests, soil, and water, and other resources. By placing primacy on using nature for economic production, however, socialist Landeskultur offered little ideological support for protecting nature from development. Despite promises that socialism would create optimum conditions for conservation by eliminating capitalism and private property and by introducing centralized planning and communal land ownership, East German conservationists encountered resistance in setting aside some of the country's unique cultural landscapes for public recreation and enjoyment. This essay examines conservationists' efforts in the 1950s and 1960s to protect "valuable property of the people" in the form of reserves, nature parks and national parks, and seeks to explain why some attempts succeeded, but many more did not. As several examples illustrate, East German conservationists quickly discovered that state socialism limited their flexibility in responding to the question of how, why, and for whom their treasured natural spaces ought to be protected. In the mid-1950s, for example, a leading East German conservationist urged government officials to reverse a decision allowing Soviet troops to hunt in a prized nature reserve in Rostock District. Other conservationists questioned the Interior Ministry's chain of over sixty "special hunting areas" (some that included nature reserves) that were set aside for use by party elites or were given outright to loyal officials. Ignoring an international trend, the regime also opposed conservationists' campaign to designate the Sächsische Schweiz (1955) and Lake Müritz (1960) national parks. Because the country had a limited number of scenic landscapes set aside for public recreation, those few that existed were adversely affected by the increase in tourism in the latter 1950s. In response to this growing concern, and bolstered by a growing body of literature insisting that outdoor recreation enhanced worker productivity, conservationists and the official tourist service developed plans for a system of large landscape reserves (Landschaftsschutzgebiete) for public recreation on 14 percent of the territory of the GDR. Beginning in the early 1960s, district governments approved proposals for several recreation areas, Lake Müritz park among the first (1962). By the late 1960s, East Germany had protected landscapes on an estimated 18 percent of its territory, but few were adequately preserved and most were not easily accessible by East Germans living in the country's most heavily industrialized regions. This latter concern was only partially addressed with the reclamation of strip mining areas near Leipzig, Halle, and in the district of Cottbus in the early 1970s. Ironically, the state that promised effective conservation did little to protect nature for its own people.

**A 126**

**John Clark:**

### **Bugs, chemicals and the 'Balance of Nature' in the Nineteenth Century**

The origins of mass applications of inorganic chemical insecticides are closely linked to the growth of large-scale commercial agriculture in nineteenth-century North America and Britain. Significantly, the early history of these insecticide applications highlights an ad hoc approach rather than carefully planned campaigns. In particular, emergent experts most often responded to particular incidences of imminent 'pest' problems with recognized human poisons. This paper draws upon one prominent example of the fears and strategies surrounding the movements of an insect 'pest' in the late nineteenth century. As a menace from the New World, the Colorado beetle carried considerable cultural freight. By examining the American, Canadian, British and European responses to the threat of an 'alien' species, this paper will locate the growing reliance on insecticides within the politics of expertise in the natural world. Nineteenth-century experts and commentators saw the Colorado beetle (*Doryphora* [now *Leptinotarsa*] *decehlineata*) as the most visible manifestation of the possible dangers of increasing mass monocultural production and international trade and movement. Moreover, they met this threat with the mass application of inorganic insecticides. Extending an early-nineteenth-century gardening aesthetic to a nascent farming industry, they most often resorted to this drastic interventionism in the name of the restoration of the 'balance of nature'.

**A 143**

**Charles Closmann:**

### **"The Currency of Contamination: Industrial Wastewater and the German Hyperinflation in Hamburg, Germany"**

This paper examines the impact of the German hyperinflation on the quality of water in the Elbe River during the early 1920s. Historians have debated the economic and social effects of the hyperinflation for many years but they have paid scant attention to its environmental effects. Focusing upon salary levels or measurements of social discontent, some scholars have argued that German industrialists promoted inflationary spending policies in order to reduce their own labor costs and to stimulate export trade. The result, according to these scholars, was prosperity for the captains of industry and financial ruin for middle class businessmen, bureaucrats, salaried workers, and others who depended upon fixed income payments. According to this argument, the middle class increasingly looked to Hitler and the Nazi Party for solutions to their falling incomes and loss of social prestige in German society. Other scholars contend that hyperinflation benefited both major employers and wage laborers by boosting productivity, wages, and employment levels. These scholars emphasize the stabilizing impact of hyperinflation on a socially fragmented society. Yet thus far they have not examined the impact of hyperinflation on such fundamental aspects of life as air pollution or the quality of drinking water for most citizens. As such, their work lacks the potential insights to be gained from an environmental perspective on this important debate. The following paper will use such a perspective by examining the impact of inflation on water quality in the Elbe, near Hamburg. Drawing upon internal memoranda from the Hamburg Health Department and Hygienic Institute, this essay will show that inflationary policies both stimulated export trade and led to an increase in the level of chemical pollutants in the Elbe during this era. In addition, this paper will use contemporary accounts by fishermen and others to illustrate how chemical pollution harmed the region's commercial fishery, led to deterioration in the quality of drinking water, and caused increases in respiratory ailments. As a result, this paper suggests not only that hyperinflation had negative effects on human health, but also that a close study of environmental quality can shed new light on important economic, social, and political questions.

**A 037**

**Peter Coates:**

**The The 'Little Foreigner': The Controversy over the 'English Sparrow' in the United States (1860s to circa 1900)**

Many scientists increasingly believe that the impact of invasive non-native (a.k.a. exotic, alien) species of flora and fauna is now second only to habitat loss as the major cause of the depletion and extinction of indigenous species. The impact of 'bioinvasion' and how to counter the 'homogenization' of regional and national ecosystems as processes of economic and ecological globalization intensify are a rapidly emerging area of scientific, governmental and public concern. There's a sense in much of the contemporary literature on the subject - specialist and popular - that today's 'alarm' over non-native species is unprecedented. Another prominent feature of today's discussion is the extent to which criticism of non-native species is grounded in cultural and racial bias rather than concern for biodiversity (witness, for example, allegations of 'botanical xenophobia'). This paper seeks to provide a historical perspective on a highly topical and emotive issue - especially the degree of convergence between attitudes to non-native creatures and hostility toward human immigrants - by investigating an illuminating historical case study: the controversy over a bird that is generally recognized to have been one of the most successfully transplanted of all Eurasian species: the 'English' (European) sparrow. Directly addressing the conference theme of 'dealing with diversity,' this paper will examine the 'avian invasion' of a bird imported in the 1860s as a biocontrol agent (to rid the shade trees in the cities of the northeastern United States of an infestation of caterpillars), but also for sentimental purposes (to help recreate a familiar world). The acclimatization of the sparrow engendered a debate over its character and behaviour that was extraordinarily acrimonious and long. Few issues grabbed the attention of American ornithologists, naturalists and outdoorsmen between the 1870s and 1890s as powerfully as the 'sparrow-question.' Debate (conducted in the leading newspapers and 'outdoor' magazines) focused on the legitimacy of the status of the 'bullying Britisher' and 'Irishman of birds' as a naturalized citizen of America's avian nation. Human qualities were projected onto the sparrow by both sides. Its opponents imposed undesirable attributes associated with nationality and class onto a bird which they accused of 'swamping' and 'crowding' out native avifauna. The bird's defenders rejected the claim that the bird was a threat to biotic diversity, perceiving it as a symbol of a faunal melting pot in harmony with the pluralistic character of the American nation. When seen as an example of the twin processes whereby the non-human world of nature is humanized and human society is naturalized, it is easier to explain the depth of feelings aroused by a small, common and unremarkable bird to which few of us today would give a second thought.

**A 174**

**Barbara Colaninno:**

**Arboreta, an Unknown Diversity**

The Renaissance has been an important period for Italy both for the artistic and scientific currents. This period (1543-1544), has also, led to introduction of botanical garden, academic institution, based on the *Hortus Sanitas* of the convents, aimed to the cultivation and conservation of plants serving university and scientific research.

This plants collections have been augmented, over time, introducing the so-called "Arboreta", mainly constituted by tree species. Since the beginning Arboreta tried to fulfill two main goals :1) to study the ecological adaptation of tree species, to different environmental conditions and 2) to estimate their growing rate, both for economic and aesthetic scope . The Arboreta of Vallombrosa (1869); the Arboreto of Arco (1872) and the Arboretum Taurinense(1927) are good examples of the different functional role Arboreta. Specifically the Arboretum

Taurinense represents an interesting example of urban tree collection having didactic and scientific functions

The Italian Arboreta are well known for their great historical and cultural value, but quite unknown for their attitude to preserve biological diversity. For example the Arboreta of Vallombrosa embraces more than 1200 species belonging to the Castanetum, Fagetum and Picetum climatic forestry zone. The Arboretum of Badia Prataglia collects almost 110 species, while the Arboretum of Arco 150 species coming from the Mediterranean region the temperate warm and subtropical climate. The Arboretum Appenninicum collects the Appennins flora and exotic species of similar climate. The Arboretum Taurinense has about 400 species coming from all part of world and mainly by the Piedmontese hill. Despite their essential role, the Italian Arboreta have not been improved, neither quantitative nor qualitative, in the past years. Italian Arboreta are now requested not only to provide scientific and economic functions, but also to promote environmental education, biodiversity conservation historical, cultural requalification.

#### **A 168**

**Frank M. Coleman:**

#### **Picking the 'Locke' of Nature's Nation: The American Construction of Nature Meets the International Community**

This paper discusses the idea of nature on which American political community is premised and the effect of this construction on the global commons.

The American construction of nature (since Locke) is focused on two ideas: first, nature as an inert, inexhaustible, material substrate, and, second, an imperial self who, in conformity with this construction, beholds the commons, universally, as a site wherein appropriation without ecological footprint, adverse effects on competing population or needs, or government oversight, is a possibility. This vision of the commons and the human subject is inscribed by Locke on the American landscape where it has since become the defining consensus of 'nature's nation.' Examples of Locke's influence on representative spokesmen of the American cultural landscape in the 18th and 19th centuries are: William Bradford and Thomas Jefferson (colonial), Ralph Waldo Emerson (transcendentalism), Frederick Jackson Turner (the frontier). Contemporarily, Locke's construction of a distinctively American landscape is evident in the "cowboy capitalist" rhetoric and policies of the present Bush administration and the decontextualized patterns of appropriation typical of the advertising industry.

This paper is concerned with the adequacy of theoretical responses to the effect of Locke's construction of nature on the global commons. Resistance of American leadership to the Rio treaty, the Johannesburg conference, and Kyoto protocols is well known. Less familiar are the > intellectual sources from which this resistance springs and the long term effects. At the core of Locke's teaching is a rejection of a model of nature imposing outer limits on the consumption of natural capital; additionally, a corresponding emphasis is placed on the national community as solely organized for the purpose of production and consumption of inexhaustible nature. Hence the heirs of Locke in America reject the opinion of resource economists, conservation biologists and environmentalists on ideological grounds. Indeed, these same heirs insist that only by further application of the errors of the past can the less developed countries join in the material satisfactions and (the ultimate irony) the environmental "successes" of "nature's nation." Picking the "Locke" of this reductionist approach to nature is a necessary, preliminary task of releasing both American and the global commons from the present impasse.

#### **A 073**

**Peter Collier:**

## **Land Use in Lowland Britain in the Early 19th Century**

The use of tithe surveys as valuable sources of information on past land use has been demonstrated for marginal and upland Britain (Pearson & Collier, 1998; 2002). This paper extends the use of tithe surveys to lowland Britain in the same period. Two areas have been chosen, a number of coastal parishes on the Sussex-Hampshire border around Chichester Harbour and Wickham, an inland parish in Hampshire. One factor both areas have in common is proximity to a major urban centre, Portsmouth. With a population of more than 45,000, Portsmouth was the 9th biggest town in England and the most important naval dockyard. It, therefore, generated a large demand for food, animal fodder and fuel, which would have been met, in large part, by the surrounding countryside. The coastal parishes around Chichester Harbour would also have helped meet the demand from the smaller urban centre of Chichester. The movement towards agricultural improvement, often referred to as the „agricultural revolution“, started in central eastern England and gradually diffused westward. It, therefore, had an earlier impact on agricultural practices in the parishes of Sussex and Hampshire, generally by 1750, than it did in Wales. A largely parallel development was the move towards land consolidation (usually referred to as the enclosures). Again, this had an earlier impact in Hampshire and Sussex than it did in Wales, with Wickham's open fields enclosed by 1726 and parishes around Chichester Harbour being subject to enclosures before 1600 plain Analysis of the patterns of land ownership, tenancies, land use and land value for these lowland parishes demonstrates the impact of both the agricultural changes and the proximity to a major urban centre. In looking at the differences between the Chichester Harbour parishes and Wickham, it also demonstrates the role played by maritime activities, such as fishing in the economies of coastal parishes.

**A 145**

**Alix Cooper:**

### **Aliens in Germany: Exotic Trees and Local Landscapes in Eighteenth-Century Nuremberg**

The goal of this poster session will be to examine attitudes towards "indigenous" and "exotic" species in the European landscape over the course of the early modern period, using the famous German trading city of Nuremberg as an example. In the case of Nuremberg, we are fortunate to have an especially wide range of sources for studying the environmental history of the exotic-native issue. That is, in addition to such important sources as written descriptions, maps, financial records, archaeological investigations, and the patterns of the landscape today, we have also inherited a rich archive of visual depictions of the area's countryside, in the form of the numerous illustrations produced by the city's thriving engraving and book-publishing industries. During the first half of the eighteenth century, a series of important works were published on the introduction of exotic plants, especially fruit trees, into the "cold climates" of Northern Europe. Johann Christoph Volckamer and Christoph Jakob Trew, in particular, wrote and published extensively both on local natural history (Volckamer compiled a "local flora" of Nuremberg) and on climatic issues in exotic plant introductions. In my proposed poster session, I would like to take a close look, at another of Volckamer's works, his *Nuernbergische Hesperides*, a lavish folio volume offering its readers copious advice on the cultivation of species from the Mediterranean and from the Indies, with accompanying illustrations depicting exotic plants amidst local Nuremberg-area landscapes. In my poster session, I would like to draw on my research, which combines environmental history, history of science, and cultural history, to explore the attitudes towards native and exotic species revealed in this and similar works, and to compare them with other evidence we have from this time period. My hope is that the variety and

interest of these visual sources, together with the contemporary relevance of the topic, will make for a highly effective poster session.

**A 082**

**Gabriella Corona:**

**Environmental implications of the decline of common property in Italy (XIXth and XXth)**

An important tradition of studies has interpreted the decline of common property and the success of private property during the XIXth and XXth centuries as a fundamental transition to modernisation and to the economic and social development. But the environmental problems have changed the way by which we look at common property. This category brought a new analytical vitality into the international debate that has seen the environmental question as a problem of natural resources management. The debate has developed especially in American studies (economic, juridical, agronomic, political and sociological) as a result of the publication of the famous article by Garret Hardin *The tragedy of commons*. In Italy a part of historical studies has looked at the subjects of this debate and has interpreted the decline of common property as the decline of the institutions that protected natural resources before the advent of modern urban and industrial systems. This protection has guaranteed by a series of rules provided by formal and informal norms: control of technical uses, equilibrium between population and resources, indivisibility of territory, limitation to pasture etc. My project is directed to analyse three aspects of the process of transformation of common property during XIXth and XXth century: - the environmental effects of the decline of common property (deforestation, landslides, drought especially in Sicily, alluvions ); - the difference of these effects between north and south of Italy; - the evolution of juridical and legislative conscience about environmental function of common property by the last decade of XIXth century.

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**A 056**

**Darren Crook:**

**Human and climate impacts on water resources in Lake Erhai, China: Learning from the past: A methodological framework for dealing with diversity.**

This paper presents an example of a methodology employed to examine the historical human and climate impacts on water resources in Lake Erhai, Yunnan Province, China. This is work that fits within the International Geosphere Biosphere Programme (IGBP)/Past Global

Changes (PAGES) Focus 5 Initiative 'Human Impacts on Terrestrial Ecosystems (HITE)'. The methodology presented here utilizes both multi- and interdisciplinary techniques to answer questions about the social and natural systems dynamics of a lake catchment system. Lake Erhai was chosen because of the potential offered by the site to combine the use of archaeological evidence, long documentary records and sedimentary archives to provide a suite of evidence for identifying both proximal and distal causes of environmental change, whilst also measuring the effects of those changes. A summary of the results presented here poses questions about systems dynamics and examines sub-system responses to individual and the combined effects of human and climate impact. The results demonstrate in a very general sense how and when environmental thresholds have been crossed, which enable us to investigate and quantify the various systems responses to change, such as landscape modification and human adaptation. The second half of the eighteenth century was identified as a critical period for the onset of rapid environmental degradation in the northern part of the catchment. From this it is established that premodern Chinese irrigated farming cannot be defined as indefinitely sustainable without major qualification.

**A 148**

**Geoff Cunfer:**

**Energy in history: the advent of fossil fuels and the demise of slavery in the nineteenth century**

Poster proposal: In the nineteenth century two dramatic transformations occurred in world history. One was the almost global elimination of slavery, an institution thousands of years old. The other was the emergence of fossil fuel based industrialization as the driving force in the world's economy. These two revolutions were not unconnected. Viewing these changes from the vantage of energy dynamics, this poster argues that it was only the exploitation of fossil fuels—especially coal in the nineteenth century—that allowed nations the luxury of abolishing slavery. This poster evaluates human systems from the ecological vantage of energy inputs, flows, and outputs. The study focuses especially on the experiences of Great Britain, which outlawed slavery in the 1830s, and on the United States, which suffered a vicious Civil War that pitted a coal-based industrializing North against a slave-based agricultural South in the 1860s. In the U.S. case, it is instructive to compare the relative power of the North and the South in the 1770s before the discovery of fossil fuels and then again in the 1860s. At the time of the American Revolution in the 1770s the leading economic and political power in the new nation came from the South. Virginian George Washington led the military. Virginians Thomas Jefferson and James Madison crafted the Declaration of Independence and the U.S. Constitution, respectively. All three went on to serve two terms as president. In fact, southern slave-owners won 10 of the first 12 presidential elections in the new nation. By the 1860s, however, the dynamics had changed, in large part because northerners had begun increasing their production and consumption of coal. It is possible to interpret the northern victory in the U.S. Civil War and the resulting abolition of slavery as a consequence of the ability of northern industry to deploy coal energy more effectively than southern agriculture could deploy human slave energy. This poster assumes that human systems are governed by the same physical and biotic forces as all living populations of plants and animals. Our ability to survive and thrive is dependent on our success at capturing and deploying energy. The acquisition of stored underground energy reserves dramatically increased the physical power available to society, and that change inevitably undermined long-standing institutions for deploying energy, most prominently the system of slavery. Considering the long history of slavery in the world, and the short duration of fossil fuel economies, one might hypothesize that the eventual depletion of coal and oil supplies in the future could lead to a revitalization of slavery around the world.

**A 251**

**Adriaan M.J. de Kraker:**

**Reconstructing winter temperature between 1670 and 1730 in the Holland and Belgium by using written documents on shipping: new evidence and an old methodology reconsidered**

This paper focuses on climate reconstruction and methodology. In particular it deals with the reconstruction of the number of days of ice coverage in coastal Belgium from 1670 to 1730, based on documentary sources on canals, sluices, bridges and shipping on canals and rivers between the Belgian cities of Antwerp, Ghent, Bruges and the French town of Dunkirk. The results are to be compared to similar series of the number of days of ice coverage, which have been reconstructed for the Amsterdam-Haarlem canal area for the same period. The Amsterdam-Haarlem series has been used to reconstruct winter severity in degrees Celsius. Because of the minor difference in latitude between the area of the Flemish reconstructed time series of the number of ice coverage days and the Amsterdam-Haarlem canal area, an attempt is made to show whether this close connection may also result in the reconstruction of winter severity for coastal Flanders. If this attempt turns out to be successful, winter severity in Belgium and the Netherlands may be reconstructed much more accurately over longer periods and in a much larger area using similar historical records for more hinterland areas.

**A 080**

**Martina de Moor:**

**Regulating the commons during the transition from traditional to modern agriculture, Flanders, 1750-1900**

Although common land has been considered in the past as being a functional part of a larger agro-system (among others: Fresco, 1986), its interaction with the changes in the rural economy have so far been interpreted solely in an uni-directional way. Common land has thereby been viewed as a source for 'secondary' agricultural production, or simply 'inputs' into the primary products for human consumption, in the form of wood for construction and heating, fodder for cattle (acorns, grass etc.), sods, and manure. The study of the influence of the so-called agricultural revolution has been largely limited to the intellectual thought which accompanied the changes: Physiocrats and their followers regarded commons as under-productive and thus as a to-be-discarded remnant of a distant past. This paper will examine how the commoners themselves looked at these changes and how they influenced the management of common resources. Were the farmers aware of the upcoming changes? If so, did they revolt against these or did they, on the contrary, try to integrate these into the management of the common? Which strategy did the commoners themselves see as adequate to deal with these changes, and how did this influence their participation in the commons? And –not least- did changes in agriculture threaten the sustainability of the common in the long-term? On the basis of qualitative and quantitative case-material for Flanders –a region playing a leading role in the agricultural developments at the time- the presentation will focus on the interaction between the local changes in agriculture and the responses of the commoners to these. This will provide analyses not only on the aggregate level of the common and villages concerned but also on the lower family level, hereby focussing on the specific strategies families from different social-economic segments of society followed.

**A 078**

**Mathias Deutsch, Karl-Heinz Pörtge:**

**Extreme / disastrous floods in Thuringia (Germany) 1500 –1900 A.D.**

Since the mid-nineties, an interdisciplinary work group („Historical floods / Historical flood protection measures“) of the Department of Geography at the University of Erfurt and the Institute of Geography at the University of Göttingen has been studying historical flood events for the period between 1500 and 1950. Spacial focus was set on rivers i.e. river sections in what is now the Free State of Thuringia (with a total area of 16.251 km<sup>2</sup>).

Therefore, parts of the catchment areas of the rivers Elbe, Weser and Rhine are examined. The present research has two main aims: on the one hand, general findings on the nature of the flood events will be gathered with the help of various sources (such as printed as well as hand-written chronicles, historical flood maps, water level marks etc.). The question as to whether or not there were periods of higher or lower flooding activity in the last centuries is of most interest here. The second aim is to assess when exactly particularly dangerous floods incurred and what kind of losses and damages were incurred.

During the course of the research, so-called “Historical flood chronologies 1500-1900” were set up for 12 rivers i.e. river sections in Thuringia (these included the rivers Saale, Werra, Gera and Weiße Elster). These chronologies contain many details on single events (date, flood course, extent of damages and losses). What is striking is that during the period from 1500 to 1900 there had always been outstanding and disastrous flood events as revealed by an evaluation of the chronologies. Floods occurring on an inter-regional level were in most cases winter floods (such as those of February/March 1595, January 1682, February 1784, February/March 1799, and November 1890 for example). They were usually caused by sudden snow-melt and heavy precipitation. What is also worthy of note is that in all the Thuringian catchment area sections examined, the flood waves passed within a few hours or at most within one or two days of each other.

In contrast, inter-regional summer-floods were relatively rare (e.g. those in July/August 1752 and in June/July 1871). An aggregation of disastrous inter-regional summer and winter floods in the research area between 1500 and 1900 has not yet been confirmed.

Disastrous local floods were mostly events that were caused by heavy local precipitation. They always caused disastrous damage and terrible losses such as the outstanding floods of May 29<sup>th</sup>, 1613 (at the River Ilm, Weimar area), of May 28<sup>th</sup>, 1790 (at the River Gera, Erfurt area) and June 3<sup>rd</sup>, 1889 (at the River Gräbnitz, Greiz area). Looking at local historical floods, neither could any significant periods of higher flooding activity be found for the research period, nor were there any trends with regard to the occurrence of these floods. As a result, the widespread opinion still held today – especially by many people living close to the rivers – that *their* stream or river shows regular flooding patterns and is subject to flooding every 30, 50 or 100 years, is wrong. Instead, extreme discharge events occur on an irregular basis. Applying this to recent flooding events, this means that, provided there are corresponding rarely occurring hydro-meteorological conditions, disastrous floods may occur at any time, even if no such events were recorded during the last 80 or 100 years (i.e. in times of modern gauge and/or discharge recordings).

## **A 206**

**Andreas Dix:**

### **Landslides as an environmental hazard**

Instead of the fact that Milan Špůrek published already 1972 a “Historical catalogue of slide phenomena” landslides are still a neglected category within the historical assessment of natural hazards.

One of the reasons is, that average landslides are spread across wider areas and don't cause such spectacular damages like earthquakes and floods. Nevertheless, single events can affect single settlements or smaller areas seriously.

Due to these facts, landslides are a good example of environmental hazards. The historical analysis of this phenomenon with a long term perspective may enlighten the development of perceptions and strategies of preindustrial and early industrial societies towards this risk. In a first part, the paper will give a short view of the recent research on natural hazards. Under the aspect of the analysis of perceptions of early societies and their ways of protecting against and to live with landslides, the concepts of adjustment and adaptations will be discussed. As a result, the concept of "vulnerability" of a society will be analyzed under historical perspective.

Secondly and seen from this point of view, these concepts should be presented in a case study of landslides in the Region of Rheinhessen (SW-Germany) during the last 200 years.

#### **A 104**

**Petr Dobrovolný, Rudolf Brázdil:**

##### **Chronology of strong winds in the Czech Lands during the 16th-20th centuries**

Strong winds are after floods the most disaster hydrometeorological event causing loss of human lives and material damage. Information from the period of systematic wind measurements might be extended from documentary evidence about winds. It contains mainly information about strong winds with some damage on buildings, churches, gardens or forests. The main groups of strong winds are analysed according to their origin with a division into gales on the one hand and strong winds connected with convective storms (including tornadoes) on the other hand. The accuracy of documentary evidence about strong winds and their impacts in the pre-instrumental periods are discussed. The chronology of strong damaging winds in the Czech Lands for AD 1500-2000 is presented. Selected cases of "gales of the century" are described as possible analogues of recent and future severe events.

#### **A 192**

**Robert Dodgshon:**

##### **Farming and the Decline of Biodiversity in The Scottish Highlands, 1700-1880**

The decline of biodiversity in a heavily farmed countryside like that of the UK can be seen to have passed through a number of different phases, each with its own mix of practices and ecological effects, from the re-seeding of pastures as early as the seventeenth century down to the application of herbicides and pesticides over the past 50 years or so. This paper will look at the reduction in biodiversity that took place in the Scottish Highlands between 1750 and 1880 following the spread of commercial sheep farming. It will define the sort of habitats that existed in the traditional township, from weed-infested or herb-rich arable fields to the habitats that dominated hill and mountain pastures beyond the head dyke. It will examine prevailing strategies of farming and resource use and will try to show how communities had a vested interest in preserving as diverse a range of habitats and biodiversity as their landscape ecology would sustain, though one side effect of the expansion of arable over the 17th and early 18th centuries was a significant reduction in the land managed as hay meadow. The second half of the paper will look at how the clearances for sheep that spread through the region from the 1750s, replacing townships that had a strong subsistence arable component to their field economy with specialised commercial sheep farms. Data will be presented showing that the clearances were not simply about the replacement of cattle with sheep. Townships carried mixed stock before the clearances and continued to have mixed stock after they were cleared. But now, sheep were by far the dominant stock. The increase in sheep numbers was achieved by a dramatic increase in the density of stocking. Mono-grazing by sheep, the hall mark of the clearances, actually did not appear until the third quarter of the 19th century when a new surge in prices encouraged many farmers to expand sheep stocks still further, partly at the expense of removing their remaining cattle. This phasing enables us to break the

ecological effects of the clearances into two phases. During the first phase, covering the late 18th and early 19th centuries, when the number of sheep stocks were increased significantly but when most farms still carried a herd or fold of cows and their followers, the main effect was a sharp reduction in the amount of heather on hill pastures. During the second phase, in the mid-late 19th century, when mono-grazing by sheep became widespread, the main ecological effect was the degradation of some hill pastures, with species rich pasture giving way to species poor pasture, dominated species like *Molonia* or by mosses.

#### **A 230**

**Paul Dostal:**

#### **A Climate Reconstruction of the Regio TriRhena (Upper Rhine Valley, Southwest Germany) with Direct and Indirect Datas prior Instrumental Measurement**

The research and teaching programme of the Graduate College is centred on the landscape of the TriRhena region (the plain of the Upper Rhine and the surrounding uplands). Man's influence on the formation and development of this landscape has been very much greater than was previously thought that, at least, is the hypothesis motivating the Graduate College's work. The natural and anthropogenic changes to the environment that occurred in the TriRhena region over the period of time from Neolithic times (7 500 BP) to the present-day can only be analysed effectively when specialists from different disciplines work closely together; research methods from both the natural and the cultural sciences (for instance, history and archaeology) need to be used.

A part of this research program is the reconstruction of the climate for this region with historical sources prior the instrumental measurement of meteorological parameters.

With the application of historical records it is possible to reconstruct the climate before instrumental measurements began. These historical records are made up of, for example weather descriptions, information about the wine harvest and other agricultural products, as well as their price fluctuations. Using this data it is possible to calculate meteorological parameters creating an index of temperature and precipitation values. Temperature and precipitation for the period before instrumental measurement is estimated by using the Duodezil distribution.

Another method for a "weather-backcast" is the Gumbel Bivariate Exponential Distribution. With this method concomitants of climate anomalies are estimated e.g. heavy rains or inundation.

Aim of the work is to develop charts, if the actual climate change is an anthropogenic or a natural appearance due to long term temperature and precipitation scales.

#### **A 164**

**Jacobus A. Du Pisani:**

#### **Environmental history, remote sensing and change detection: an interdisciplinary approach to the study of land degradation**

The paper deals with methods used in and results gained from a research project on desertification in the Lehurutshe district of the North West Province of South Africa. This district was identified as a hotspot with the highest status of desertification. Research sites have been selected in such a way that comparisons between the environmental impact of different land use systems can be made and the results can be compared with research on degradation in nearby Botswana. A unique approach is being developed by combining change detection through remote sensing (aerial photographs and Landsat TM and MSS satellite imagery) with historical research on human activities. In this way data on land degradation can be linked more accurately with data on human activities to determine how demography, migration and settlement, and land use practices impacted upon the environment over a period

of time. Methods developed in recent studies of land use and land cover are being used and adapted to the specific needs of the project. A spatio-temporal inventory of desertification will be established and outputs will be housed in a GIS. Historical archival research, oral interviews with local inhabitants and ground truth data, obtained during field visits, will be used to supplement and interpret the collected data. A PAR (Participatory Action Research) approach is followed, involving close collaboration with local stakeholders, and the value of indigenous knowledge is recognised. Knowledge obtained will be integrated with settlement models, land use practices, restoration ecology of degraded rangelands and resource management to optimise strategies to combat desertification and to promote sustainable rural development. The purpose of the paper is to indicate how environmental historians can collaborate with researchers from other disciplines to develop new methodologies for research on environmental issues and how such collaboration enhances the possibility of finding solutions that will result in sustainable development.

### **A 039**

**Regina Duarte:**

#### **Facing the Forest: European Travellers through the Mucuri River's Valley, Brazil, 19th century**

From the analysis of the traveller's reports who were at the Mucuri River's Valley (Minas Gerais, Brazil) or at its borders, we focus the imaginary representations constructed about a great area of Mata Atlântica, almost untouchable until the middle of the 19th century. The doctor Robert Avé-Lallemant and the naturalists Maximilian Prinz von Wied, Auguste de Saint-Hilaire and Jacob von Tschudi discussed two subjects intensively. The first one refers to the Native American people who inhabited the area, presented like a big obstacle for the conqueror. The second one is the forest, of which exoticism and impenetrability approximated it, in their imaginary, to the Indians botocudos, to whom were attributed violent attitudes and cannibal costumes. In this controversy, they evaluated the possibility of colonising and the effective conditions to occupy the territory.

### **A 021**

**Michel Dupuy:**

#### **The Erzgebirge a symbolic mountain in the history of air pollution**

The Iron Mountain symbolised the passage between the air pollution as a local to a regional problem. They symbolised that the air pollution ignored the frontiers. They symbolised the effect of pollution on the forest, on the landscape in the eighties. The first attention about the effects of atmospheric pollution on the Erzgebirge date from 1922. But it was only in the fifties, that for the first time in Central Europe, German scientists proved that the air pollution could extend until 50 km. The pollution didn't stay in the valley but reached the crest of the Iron Mountain. The air pollution became a regional and an international problem with the situation of the Iron Mountain, on the frontier between Czechoslovakia and East Germany (GDR) between two communist states. In the Iron Mountain, the air pollution came from the industry in Bohemia and the damages were on the two sides of the frontier in the forest. The pollution became a political and diplomatic issue. East Germany could not accuse Czechoslovakia, because the Czech could accuse them of "Revanchist" in reference to the second world war. Each country had to find its solutions, filter for the Czech Industry and resistant tree in East Germany. But in the eighties on the crest the forest was destroyed. Since 1981 appeared in West Germany the phenomena of the "Waldsterben" (acid rain). The forest of this country and soon of Europe was menaced by the air pollution. The newspapers, magazines, foresters used the image of forest from the Erzgebirge with these of the Harz and the Black Forest (Schwarzwald) to alarm the population and the politics. GDR tried to

minimise the damage and this mountain for external reasons: to demonstrate that GDR controlled air pollution to the West and for internal reasons because of the green opposition inside the country. Since 1991, the air pollution through the sulphur dioxide reduced but a new pollution came: the ozone by the circulation with new kinds of damage.

#### **A 046**

**Aline Durand:**

#### **Landscapes in Southern France (IXth to early XIVth centuries): Data From Historical, Bioarcheological and Paleoenvironmental Analysis**

G. Bertrand wrote in 1975 that «the historic interpretation of the natural world in its relationship with agrarian structures and societies remains the most ill-understood problem, most rarely tackled and above all most ill-defined in the whole of rural history». Since, in France and Spain, an increasing number of palaeoecological analyses are beginning to restore the ecological dimension within the history of farming societies, especially during the ten last years. These studies define the landscape both as a biological reality and as a social construction. They have demonstrated that natural milieu, in the meaning of primitive forest, is a myth. So they have led to an entire re-evaluation of landscape history during the Middle Age. The paper will contribute to distinguish in broad lines the anthropisation of the plant landscape in southern France (IXth to early XIVth). The idea is to measure peasant's pressure on the environment and to characterize these patterns. Up to now, all paleoenvironmental data reveal the opening of the environment and the development of species that appear in relation with agriculture and the need for fuel for domestic purposes and for craft or industry. Near the year one thousand, forest clearance episodes are characterized in pollen or charcoal assemblages by a fall in the tree pollen or charcoal curve. The rhythms and regional features of this global phenomenon will be described. During four centuries, landscapes of southern France had been completely changed; also the types of ligneous environment management. Thus, since the year one thousand, the rural economy turned into new features. The approach adopted here, consists of an attempt to sequence written, archaeological and environmental data. It emphasizes the idea that medieval landscapes of southern France are not similar and uniform, but, since the Carolingian period, provide a large panel of very different vegetal formations. These analyses allow us to step back from making obviously simplistic generalisations. This approach allows us also to follow the gradual process of "mediterraneisation" of medieval landscapes and lands. This observation involves to ask a question: what about the climate? Which role does it play? This subject will be discussed on the basis of recent theories.

#### **A 117**

**Per Eliasson:**

#### **Environment has a History! - Environmental History in School education**

Swedish teachers have been working with Environmental History in schools since 1985 and since 1995 there are a programme inside the UNESCO/ASP sponsored Baltic Sea Project, involving schools in all the nine Baltic countries. The last three years over forty Swedish schools has been working with a project named Environment has its History! The Swedish Research Council has financed and promoted this project in order to encourage communication between researchers and schools. Ten researchers of environmental history have been working together with these schools sharing their results as well as their methodological skills. The result is a number of local environmental history investigations from the beaches of Skanör in the South to the iron mines of Kiruna in the North. Some examples of this work is studies of old industrial sites in order to discover pollution of the soil, the consequences of sugar beet production historically and when the sugar refinery

closes, lead pollution as a result of old military training grounds, working environment and soil pollution in old tanneriers and a rubber tire factory. These experiences has been shared in the BSP programme of Environmental History in the Baltic region. Courses for teachers has been held in Russia, Denmark, Sweden and Latvia. Schools have been working with for example the history of oil-shale industry in Estonia, history of land-use during the 20th century in a farming district in Latvia, mining and landscape changes in Poland and Germany, the history of sugarbeet production and landscape changes in Denmark and a joint project between Finland and Sweden about the threats to the rare pearl mussle caused by changes in land-use. The experiences of the Swedish projects are presented in a book from Malmö university (*Miljön har en historia!* 2002) financed by the Swedish Research Council. The Baltic projects are going to be presented in a similar book in 2003. The theoretical base for these projects are the emancipatory use of history. The platform is this: Students working with environmental history starts from environmental questions of today they doesn't study the past independent from the present Students working with environmental history have a perspective of the future they are not satisfied only with a better understanding of the present situation but wants to create action competence for the future Students working with environmental history can accomplish practical results they doesn't use their results only inside the school but present them to the community in order to change the situation Students working with environmental history use the chronology as an important tool both in explanations and in narratives therefore they avoid to look at questions as "eternal" Students working with environmental history starts from conflicts about the environment thereby they avoid both a onesided natural science, as well as a moralistic, perspective Students working with environmental history starts with studies of the local environment in order to draw conclusions about other areas from their results they doesn't start with the great trends in world history in order to illustrate this on a local scale.

## **A 119**

**Jens Ivo Engels:**

### **West-German environmental movement during the 1970s**

Modern environmental movements are of major importance to the political development of western societies in the recent decades: environmentalism constitutes one of the outstanding examples of the so-called „new social movements“. The latter are considered to have changed political action and political culture in most of the high industrialized countries since around 1970. Having been studied until today mainly by sociologists and political scientists, historians are beginning to explore this field of research. Among its European counterparts, West-German environmentalism seems to have been one of the most succesful. Therefore it seems apropiate to take a closer look on West Germany in the context of the panel on European environmentalism during the 1970s. I will try to elucidate the German case, highlighting the following aspects: - Diversity. It has to be outlined that West-German environmentalism combined very different social and ideological forces. This meant forcefulness in protest and sometimes weakness in organization. - The role of the state. Government politics are crucial to the understanding of environmental activism. In 1970/71, the new federal government issued an official program on environmental protection, being designed in a technocratic manner. The „Umweltprogramm“ (initially based on a certain consensus) established environmental politics as a field of national political debate and legislation. It stimulated media interest, scientific research, and even the foundation of environmental groups. Furthermore, it demonstrated that nature/ environmental protection were not „conservative“, but „progressive“ aims. - The paradigm of protest. Pre-1970 advocates of nature protection and protection against pollution mostly advocated a political strategy of cooperation with the authorities. Since around 1970, however, environmentalism is

connected with the attitude of harsh criticism against politicians and the economy. This development reinforced cooperations between regional resistance movements on the one hand and national organisations on the other. Protest attracted members of the younger generation who were willing to express their discontent with established politics. - The role of the media. The importance of mass media for the green movement has been described several times. A certain strand of media coverage, however, prepared the German public since the mid-1960s to conceive the protection of the environment as a conflicting issue. - Continuity. Nevertheless, environmentalism is characterized by many continuities to traditional nature protection and the fights against pollution. On the one hand, many environmental problems had been discussed since several decades and solutions had been put forward. On the other hand, a good part of the activists' political assumptions remained the same, e.g. the idea that society has to respect the laws of nature, the conservationists'/ ecologists' self-portrayal as acting unselfish for the interests of the common good, the attitude of „if you're not for us, you're against us“ with respect to the political process.

### **A 032**

**Anton Ervynck, Wim Van Neer:**

#### **Medieval Overexploitation of Terrestrial and Aquatic Animal Resources: Archaeological Evidence as a Welcome Confrontation with Historical Data**

Even when historical information is available, research data from environmental archaeology are vitally important for the understanding of many aspects of the relationship between humans and the environment. Because of their different origin and the different ways in which they are biased, much insight can be gained from the confrontation between the independent sources of historical and archaeological information. Moreover, archaeological data can be abundant for periods or regions that were hardly documented in the historical record, and they can illustrate phenomena about which the writers stayed silent (be it because of ignorance or because of lack of interest). These statements are illustrated by a number of examples from environmental archaeological research from Belgium, illustrating the medieval use and abuse of terrestrial and aquatic (both freshwater and marine) animal resources. The first approach is fairly simple and illustrates the depletion of an important number of animal species through the evaluation of the abundance of their remains amongst the consumption refuse from medieval households. Following this line of analysis, the extinction of large game (mammals and birds) and the decline of the freshwater fauna can be followed throughout the medieval period. The introduction of allochthonous species can be seen as a reaction against the depletion of the autochthonous ones. A second method refines the first one and consists of the investigation of the demographic characteristics of animal populations. Especially growth rate and adult body size reflect the pressure acted by humans upon the medieval terrestrial and aquatic fauna. In that way, the decline of game populations and the overfishing of marine species can already be detected before final extinction began. Thirdly, the health condition of the exploited animals can be studied, a useful approach when the fate of the domestic livestock is taken as a research theme. It can indeed be demonstrated that at least medieval pigs suffered from a shortage of food supply, linked with overexploitation of the forests, and with conflicts originating from other uses of the woodlands, such as for forestry. Finally, it should be noted that the case studies developed will not be used as part of an ill-considered promotion campaign for archaeological projects. Attention will also be paid to the constraints and weaknesses of the approaches presented.

### **A 029**

**Anu Eskonheimo:**

## **Gender Based Conceptions on Land Degradation and Rehabilitation in the North Kordofan State of Sudan**

Land degradation, as many other environmental problems, occurs as the consequence of people's efforts to use natural resources. The main direct reasons for land degradation are generally believed to be: Removal and cutting of the vegetation, overgrazing, overcultivation and poor irrigation management. Extreme climatical conditions such as droughts and winds aggravate the problem. Reasons behind unsustainable management practices are often extremely complex including issues such as poverty, population growth and confusion over land user rights.

This paper examines environmental literacy in North Kordofan State of Sudan concentrating on land degradation and rehabilitation. The concept of land degradation refers to the reduction in the soil's capacity to produce both in terms of quantity and quality. The concept of rehabilitation refers to people's activities, which are aimed to repair and protect the damaged environment. In this paper it is examined particularly how local people perceive the signs indicating environmental degradation and why they think the degradation has taken place. In addition, the local conceptions about rehabilitation are analysed.

Although the complexity of the factors behind each individual's environmental literacy is acknowledged, this paper examines particularly the impact of gender and especially the gender roles. The gender based tasks in people's daily lives result that women and men interact with their social and natural environment differently. For example, amongst the seasonally migrating transhumant population in Sudan it is normally the men who herd the livestock. The women have various other tasks such as collecting water and firewood.

The aim of this paper is not only to examine conceptions concerning the land degradation and rehabilitation, but also to illustrate how the gender roles have affected those conceptions. The analysis is based on two case studies representing different production systems and life-styles, namely settled farmers and the transhumant people. The material from the field was collected during September 2002 - December 2002.

### **A 093**

**Alexis Franghiadis:**

#### **Commons and change: the case of the Greek 'National Estates' (19th – early 20th centuries)**

The Greek War of Independence (1821-1830) led to the creation, in Southern Greece, of the "National Estates", a vast reserve of agricultural land, which formerly belonged to Ottoman landlords. The 'National Estates' amounted to about two-thirds of total cultivable land of the New Kingdom. They acquired, in practice, a quasi-common status and were liable to unrestricted and low-cost exploitation by the peasantry. Despite repeated government efforts at privatising the 'National Estates', this state of things persisted until well into the 20th century and was instrumental in shaping the Modern Greek society and economy. This paper aims at examining: § The political-military, social and economic reasons which led to the establishment and perpetuation of this novel land tenure system, including: - the decisive role of peasant participation in the Revolution, - low demographic density, due to historical reasons, - labour-intensive cultivation, and, consequently, slow depletion of available land reserves. § Its effects on the ecological, demographic, social and economic development, including: - low level of rent and decline of big land ownership, - rapid increase of the agricultural population, - migration from over-populated mountains and islands to the sparsely populated coastal plains, - agricultural development based on the peasant farm and on traditional Mediterranean crops, well adapted to local climate and soil conditions and friendly to the environment. The case of the Greek 'National Estates' is, I think, an interesting object of study for comparative purposes, due to its peculiarity. Unlike common rights of access to

resources in other European countries, which dated back to earlier centuries, the creation of the 'National Estates' was contemporary with the bourgeois and industrial revolutions and with the unprecedented expansion of international trade during the 19th century. The Greek case shows how, contrary to Hardin's thesis, under certain circumstances, common property not only may have positive ecological and social impact, but also be compatible with demographic and social change. The pattern of agricultural development in question, in fact, permitted to the peasantry to participate and profit from the increase of international trade during the 19th century. This occurred through the development of traditional Mediterranean crops with strong international demand, without threatening the reproduction of the peasant 'mode of production'. Contemporary economists and nowadays-economic historians have often deplored the missed capitalist development and lack of spectacular technical 'progress', which accompanied this pattern of development. But, when in the 1920s the Greek governments faced the enormous challenge of socially incorporating the newly acquired northern provinces and settling a million Asia Minor refugees, they did not hesitate to reproduce in Northern Greece the Southern Greek social prototype, by introducing a radical land reform. The followed policy proved successful, in the long run; this instance shows that the reinforcement of private property is not always the only solution to real problems of the real world.

#### **A 070**

**Borna Fuerst-Bjeliš, Sanja Lozić:**

#### **Man and the Environment in the Coastal Dinarides (poster)**

The aim of the research is to trace the human impact on the environment through the way of life, corresponding subsistence economy as well as to define the degree and the mode of change through time. The research is based on the authentic historic textual and cartographic records (mainly cadastral records and maps) from 18th century till present. The attention is given to the evaluation of optimal possibilities of sustainable development and preservation through the geological evaluation. Each particular area, regarding the economic type, has its opportunities, constraints as well as environmental impact. The relation between the environmental constraints and opportunities defined the type of subsistence economy of the coastal Dinarides region. The coastal Dinarides represent bordering zone between seaside area and the inland. The general climatic and ecological picture of this area very clearly determines pastoralism as the most convenient and most adaptable form of the subsistence economy. Herding as well as agriculture, is directly dependent on characteristic type of climatic and vegetational zones with particular complementary relationship between the lower Mediterranean - Submediterranean area and high Dinaric carstic mountainous area, offers extraordinary conditions for developing herding of the traditional transhumanic type. Transhumance, traditional in the region of Dinaric carst, dates back to prehistoric times and as the socio-cultural and geographic determinant of the Dinaric region, generally has been dominant in all phases of historical-geographical development up to the 20th century. As a consequence of the occasional and temporary human presence and pressure on the environment in the investigated area during the centuries, the relative balance between carrying capacity of the environment and the human impact have been maintained till the process of immigration in the 17th century. The main phase of the environmental manipulation have begun at the 17-18th century, as a consequence of the increased number of population and cattle, the establishment of the first sedentary settlements and introduced agriculture. The environmental impact resulted in the intense deforestation and accelerated soil erosion. The recent phase of the environmental impact is characterized by the general process of the depopulation, followed by abandoning of land to the natural succession and slight reforestation. Each of this phases has left some traces of its existence in today's

landscape, which have high scenic and aesthetic diversity and value that is very attractive for tourism as the sustainable mode of development.

**A 074**

**Matej Gabrovec, F. Petek:**

### **Changes in Land Use in the Neighbouring Border Zones of Slovenia and Austria**

In the countries that were part of the Austro-Hungarian monarchy in the 19th cent., a precious source is available for studying the then land use, i.e. the Franziscean cadastre. Based on this source numerous studies were made on the changes in land use in the past two centuries. Though, due to the time-consuming gathering of the archival data the investigations were limited to individual villages and smaller regions only. Radical progress was made by Czech geographers who gathered the data at the level of cadastral communes for the entire state territory. Nevertheless, comparisons between individual countries have not been made so far. Such comparisons would certainly be interesting because the countries which were formed on the territory of the former Austro-Hungarian monarchy had thoroughly different political systems and legal orders after the First World War, and even more different after the Second World War. This, of course, resulted in great differences in their economic developments. All these conditions were manifest in different developments of rural areas and different changes in land use. The aim of the investigation was to answer the question of how strong the impact was of different economic and political systems on various processes related to changes in land use. The changes in land use are influenced not only by sociogeographical factors but to a great extent also by natural conditions. In many a place the latter are even more important. The discussed central European countries differ considerably in many physico-geographical features. Therefore, comparisons of changes in land use at the state level could not provide a proper picture since the different physico-geographical factors would surely veil the differences that are due to political and economic factors. Thus, ideal for comparison are the neighbouring border zones, situated on locations where the present state border crosses the natural regions and does not represent a divide between two different landscape types. In various administrative units, the detailed classification of land categories was not thoroughly uniform. Besides, there are also differences of even several tens of years between individual countries as concerns the time of origin of their land registers. So, ideal for the comparison are the border zones where the present state border does not coincide with the then administrative borders. The border zone that suits ideally to all the quoted recommendations stretches between Šentilj and Dravograd in Slovenia and between Spielfeld and Lawamünd in Austria. This is partly mountainous and hilly area. The state border of 1920 does not follow the former district- or municipal borders; furthermore, it even crosses the former cadastral communes. The physico-geographical features of the two compared zones are very similar on either side of the border. The border to a large extent does not run along the rivers or brooks, nor the divides. The data on land use in the border cadastral communes of the above quoted two zones were taken from the Franziscean cadastre and from the land register of the selected later years. On the basis of these data we tried to establish whether the changes in land use were equal on either side of the border or, due to different political circumstances the types of the changes differed as well.

**A 223**

**Christine Garwood:**

### **The Alkali Inspectors and the Ethics of Environmental Regulation in England, 1864-1906**

During an age varyingly characterised as one of 'improvement' and 'reform' environmental protection emerged as an acceptable facet of public policy and state intervention in Britain.

One example of this shift was the alkali legislation 1863-1906, enacted to protect landowners' property from the pervasive pollution emitted by the heavy chemical industry. The alkali acts were enforced by a small group of chemically trained government inspectors, whose state-sanctioned role as arbitrators between environmental and industrial interests meant that they were frequently faced with the conflicting demands of national economic prosperity, individual liberty and environmental necessity. As a result, their enforcement choices often involved the complex re-evaluation of a diverse range of moral, cognitive, aesthetic, professional, political and economic values. This paper will focus upon these ethical considerations and the decision-making strategies of the early alkali inspectors. Although the enforcement issue has been partially addressed elsewhere, the complex 'behind the scenes' decision-making process has been neglected and the intentions, assumptions and strategies of the alkali inspectors remain obscure. New historical sources (such as the inspectors' precedent books) now permit a more rigorous analysis of the precise ways in which the inspectors exercised their professional judgement. In particular, this paper will focus upon their perceptions of the chemical smoke pollution issue and their reactions to the competing ecological and economic imperatives at the heart of environmental regulation. In so doing, it will provide insight into the nature and extent of environmental sensibilities in nineteenth-century Britain and highlight the 'conflict of interests' theme central to environmental history and policy making.

**A 098**

**Alison Gates:**

**An Environmental History of Acclimatisation in Australia: the idea and practise of deliberate plant introductions.**

The environmental history of plant introductions and, in particular, the role of the acclimatisation societies in that history, forms the major concern of this study. This paper will discuss the way in which the acclimatisation movement contributed to the development of environmental concern within Australia and abroad. Australia inherited much of its acclimatisation theory from Europe and the relationships that were established between acclimatisation societies in Europe and Australia were important for the nature of plant introductions as well as the development of institutional networks which continue to benefit the scientific community. The story of the acclimatisation movement in Australia is one of rapid growth and popular support followed by equally rapid decline and it is a story that has remained largely untold. In Australia today, the retrospective opinion of the acclimatisation movement and its societies is largely one of contempt. The scientific community as well as the popular press lament the deliberate introduction of plants and animals that have had serious detrimental consequences for the Australian environment. However, the intentions of the acclimatisers as outlined in their objectives and minutes from various meetings are in many respects not dissimilar from the intentions of modern conservation and environmental groups. The international story of acclimatisation is not homogenous. In many parts of the world, acclimatisation societies still exist. Australia, although geographically isolated from Europe, established and maintained important relationships to further the cause of acclimatisation, and whilst the relationships have evolved, the acclimatisation movement has not. This paper unravels some of the history of those relationships and discusses their consequences.

**A 064**

**Dan Gilfoyle:**

**Explaining 'Lamziekte': Stock Disease, Environment and Veterinary Science in Southern Africa , c. 1880-1920**

This paper analyses the explication of the stock disease 'lamziekte' (botulism associated with pica) by veterinary scientists and farmers in southern Africa between 1880 and 1920. In particular, it examines the transfer and establishment of veterinary laboratory science in a colonial setting and its relation to popular belief and practices. Settler farmers were long familiar with this frequently fatal disease, which was characterised by the 'unnatural' symptom of cattle eating the carcasses of other animals. Pastoralists accounted for the incidence of this disease in terms of environmental change, particularly changes in the pasture and its nutritional content. They also distinguished between several forms of the disease. 'Progressive' farmers further linked the incidence of disease to poor farming methods which, they argued, had caused the impoverishment of the soil and the degradation of the pasture. They also devised means, such as the use of food supplements and seasonal transhumance, of avoiding the disease. State attempts to foster the pastoral industry after the South Africa War brought 'lamziekte', now perceived as a serious obstacle to development, more urgently to the attention of government veterinary scientists, who began a systematic investigation of the disease. These scientists, who had trained in Europe, absorbed popular ideas about the disease but also submitted it to the methods of 'metropolitan' laboratory investigation. Eventually they revealed a complex set of causes and explanations, which incorporated the chemical analysis of soil and pasture, nutritional science and bacteriology. This in turn enabled veterinary scientists to provide guidelines on the prevention of the disease. A study of 'lamziekte' raises questions about the relation between popular accounts of disease based on observation in the field and explanations derived from laboratory science, in particular bacteriology and chemical analysis. In the case of 'lamziekte' it can be argued that laboratory science complemented and refined popular ideas about the relation between stock disease and environment rather than replacing or revolutionising them.

**A 235**

**Monika Gisler:**

**Interpreting Earthquakes in 18<sup>th</sup> Century Switzerland: Dealing with Diversity between Science and Theology**

The century of Enlightenment was devoted to the idea of a harmonious world designed by God. No space was left for a perception of nature left by God to an arbitrary fate. This secularized form of belief, called "theological optimism", expanded after 1700 from England to Europe. According to the idea of the "natural theology", God created a world in harmony, *mundus optimus*, for the benefit of human beings. The design of this world is purposefully oriented. The perception of nature as the best possible for human beings was characterized by the doctrine of God's devotion to the entire well-established creation. This change of perspective appreciates the order of nature as fundamental. This is generally understood to be a distinguishing aspect of the Enlightenment in Europe. Teleology and optimism are additional characteristics of the specific profile of the Enlightenment in Switzerland.

In the concept of a good and optimistic world, no room was left for negative incidents such as earthquakes. As a result they were re-interpreted to enable their integration into the vision of a good world. The world was then described as teleologically structured, according to the wise plan of God. Therein the arbitrary must have a purpose on a higher level, the negative must be positive, the useless must serve a use. The teleology of the negative was then successful, when nature itself let loose its threats. However, natural phenomena became evil when they evoked fear. After having been understood and rationalized, they lost their threatening potential and could be integrated into the optimistic vision of a "good world". The attempts to interpret earthquakes by 18<sup>th</sup> century natural philosophers in Switzerland can therefore be read as attempts to decipher God in nature: if the intentions of God in processes and rules of nature became understandable with the help of science, God's will could be

calculated. Simultaneously, this would justify scientific research – it could no longer be considered an invasion into the sphere of God.

This concept, called physico-theology, is an attempt inspired by science to explain God's providence by reference to his work in nature and not primarily through the biblical word. The proof of God's existence by physico-theologists meant to discover the divine wisdom and providence of God. In my talk I will highlight that – when interpreting earthquakes as natural phenomena – physico-theologists – represented by natural philosophers and theologians – did no longer intend to undertake natural theological interpretation of scientific understanding. Their attempts must rather be read in the context of a science that represented new standards for arriving at the “truth”, releasing itself from tradition, but needed to legitimize religiously. The physico-theology accepted the results of the new scientific research in order to emphasize simultaneously the position of God as an initiator behind the laws. As a synthesis of science and theology, physico-theology tried to demonstrate that even determined mechanical approaches, if they would only be used correctly, would see God as the active conductor of the world. Accordingly, physico-theology used science theologically in order to demonstrate the providences of God.

The personal conflicts of both scientists and theologians are therefore a main topic when discussing scientific models of interpretations of earthquakes. Their discussions dealt with patterns of reason and belief. This had long been ignored or rejected as apologetic by a scientific history that focused first if all on the modernity of these researchers. In my talk I claim that history of science is not to be understood in a positivistic meaning as the history of progress anymore. By contrast, with Steven Shapin (1987, 1996) I prefer to speak of a conceptualized history of science that involves the social and cultural exogenous factors of knowledge-production and scientific development. As a consequence, the dialectic production of scientific knowledge with the respective religious background may then no longer be read as anti-modernized or pre-scientific but rather as dealing with diversity.

## **A 076**

**Rüdiger Glaser:**

### **1000 years of Climate and Floods in Central Europe**

Flood events such as the one along the Rivers Danube and Elbe in the summer of 2002 usually cause discussions about the influence of global warming. Since the mid-19th century, climate development in Central Europe has been evaluated on the basis of official and standardized measuring data. The findings give evidence that the frequencies of strong precipitation events generally increase and that the temperature has risen more than 1 K in some regions. The question arises of whether the changes within this relatively short period of about 150 years are part of a long-term natural development or a sign of the human impact on climate. Up to a certain point past climate research can provide answers to these questions. Descriptions of the climatic impact on society and environment enable us to judge present conditions on a broader time scale. Documentary records providing this information date back more than 1000 years in various regions of Central Europe. Together with information obtained from geological records it was thus possible to reconstruct high-qualitative time series for climatic parameters (temperature, precipitation) as well as for natural hazards (floods, thunderstorms) in various parts of Central Europe. Flood series have been reconstructed for the Rivers Elbe, Weser, Pegnitz, Main, Danube and various parts of the Rhine. Taken together, this information allows us to draw a multi-layered picture of climate development and its impacts. In this paper, the series mentioned above will be presented together with an extensive discussion of their reconstruction. While dealing with historical data, one has to be aware of the subjective nature of written sources. Critical source analysis therefore applies a wide range of historical methods, e.g. interregional comparison by means

of source synopsis. Statistical approaches help us to validate the quality of the reconstructions and to combine the historical data with recent measurements. The results give clear indication that natural disasters in Central Europe have always happened. Yet, the appearance of these disasters drastically changed during the past millenium. Medium-term increases and decreases within a range of 30 to 100 years were normal. By looking at these phases, we have to assume that during some periods and in some regions natural disasters happened more frequently than during the past two centuries. The climatic parameters show clear variations as well. Yet, some of the recent developments might in fact be unique within the past 1000 years. In brief, the impact of climate and its extremes on humankind, i.e. the “human dimension”, will also be discussed. Apparently, the perception and management of floods have drastically changed. Thus, the vulnerability of society proved to be an important factor for the discussion of natural hazards.

**A 094**

**Manuel Gonzalez de Molina, Ortega Santos Antonio:  
Common Property in Environmental Historical Perspective. An approach from the  
study of the case of Spain**

In this paper we offer an approach to the historical development of the common property in the context of the Modern Spain from environmental history point of view. The progressive process of breaking and loss of economic, social and environmental functionality of the resources handle in common, has and important relevance for the rural and urban societies in the last two centuries. This breaking-process of the symbiotic relation between human societies and environment may force us to search causes not only in the institutional dimension, or changes in forms of property, we must face up to the loss of agrarian functionality of this common goods for the amount of the dynamics of agroecosystems. We propose an approach based on three elements that may provide a basis for a global view of the common property in the Mediterranean area, proposing a comparative model for all the papers presented: a. Changes in the forms of property and tenancy of the public lands. In the Spanish case, it took place a transition from communal forms to municipal-state forms of property of common goods. b. Due to this interventionism, the use of natural resources was transformed, dissapearing the tradicional methods of ecosystem management and knowledge, under the pressure of productivist models of biomass extraction. Common goods were inserted as raw material in the wide context of the industrial-productive-commercial system of the Nation-State. c. Lastly, the “agrosilvopastoril” system was destroyed, intregrated system that interact grazing, forest and croplands for the functioning of the agroecosystem, the needs of energetic and food consumption of the rural societies were satisfied not by the human appropriation of common goods. Human groups were forced to come up to the market for acquiring goods and raw materials, before collected in public lands. A second part in this paper, a historiografical revision about the study of common property in the Spanish case, study the several tendencies from the preponderance of a positive point of view about the role of the state and the forestry administration. In the opposite, another tendencies consider the transformations in the history of the common goods a key element in the descomposition of the reproductive basis of peasant economies in the last two centuries But are all these factors interact to provoke that we have called “dislocation of common property” (Ortegas Santos, 2002). This concept is a methodology, from an interdisciplinary approach, that incorporates social, economics, politics and judicial variables like a platform to study the multicause origin of the extinction of common property. We consider three level of analysis in this platform, three ways integrated, which allow us to understand this complex historical process: 1. “Judicial Dislocation”: transition from common property to private-municipal-state form of property by the way of legal process and “Desamortización” [sell of public lands] of 1855, unlawful apropiations of

lands, later recognized by Court to the large landowners, or the building-up of the municipal limits as an indirect way of allocation of common goods. 2. “Productive Dislocation”: parallel process to the previous, and this is revealed by imposition of industrial and commercial forms of management by the local and state power, with the “logical” reduction of neighbouring, peasant uses. 3. “Social-Environmental Dislocation” must be understood like the reply, conflictive response emerged from the communities to defence the comunal uses of the public lands, useful for the functioning of the agroecosystem, to refuse the extended commercial-state model of management of common goods.

**A 038**

**Manuel Gonzalez de Molina, A. Ortega Santos:**

### **A definition and a typology of Environmental conflicts and its application to Modern History**

In this paper we propose a “new” reading of environmental conflicts like a mechanism of access and distribution to natural resources, environmental damages, and environmental services. Also they are a interesting tool for studying the natural resources management and understanding evolution and dynamics of social and ecological systems. Environmental conflicts become a indirect indicator of the way in which each society has managed its environment and established a specific relation with nature. Firstly we shall discuss definitions of environmental conflicts and its applicability to History. Any definition must answer at least three questions: i) All environmental conflicts have the same nature only because one o various natural resources are implied, only because one or various environmental damages are involved?; ii) Have environmental conflicts any relationship with class conflicts?; and iii) How do environmental conflicts affect the metabolism of human societies? Or how do environmental conflicts impact on dynamics of natural and social ecosystems? The second aim of this paper is to propose a historical typology of environmental conflicts taking into account four main variables: i) which mode of natural resources use is promoted by social agents; ii) the way in which they express their protest (collective, individual, spontaneous, organised, etc.) ; iii) the territorial scale of conflict (local, state, global, etc.); and iv) the impact on natural and social system dynamics. We defend that each mode of natural resources use “promotes” specifics environmental conflicts and it’s reflected on the four variables considered . Some examples for each classificatory category of conflicts will be provided. Environmental History has a essential objective to evaluate natural and social ecosystems: how sustainable is or has been a social systems through time. So, we’ll end this paper arguing that we have to distinguish three kinds of environmental conflicts from sustainability point of view: i) Conflicts of environmental dimension, where one o more natural resources, environmental damages and services are involved, but these not are the centre of dispute; for example unions struggles for employment may drive to permit a pollutant factory; ii) In environmental conflicts natural resources, environmental damages or environmental services are in the centre of dispute; they reflect two o more mode of natural resources use face to face, but the protest is nor directed by any green ideology; iii) Environmentalist Conflicts are environmental conflicts directed by a green ideology in broader sense, both expressed in scientific language (like environmental movement) or in traditional ways (like some traditional cultures). All conflicts may drive to a more sustainable natural an social ecosystem, but environmentalist conflicts and environmental conflicts as well walk on the road of sustainability.

**A 150**

**Marcus Hall:**

### **Of Wildlife and Wilderness: Restoring Two Natures in the Swiss Canton of Ticino**

Europe's demographic shifts and changing economies since the early twentieth century have been leaving marginal agricultural lands open to the forces of nature, producing areas with thick shrubbery and dense forests. Along with this spontaneous vegetation, wild animals are also reinhabiting these abandoned landscapes. In some Alp lands, rodents, birds, and deer are returning, along with top-order predators like lynx, wolves, even bears. This paper explores the links between predator treatment and wilderness attitudes, focusing on the Swiss canton of Ticino. Although wolves in Ticino were generally loathed and feared a century ago, many of today's environmentalists, hunters, and other urban folk welcome the return of these predators, even if a handful of agriculturists still distrust them. Wilderness, on the other hand, has never been held in high regard in Ticino, now or in 1900. The process of rewilding has therefore become acceptable if applied to animals but not to landscapes. This linked history of wildlife and wilderness reveals that there may be irreconcilable differences between conserving biota and conserving habitat. By implication, nature conservation groups might bring more results by working to save species instead of spaces.

**A 028**

**Minna Hares:**

### **Understanding the Language of Nature - Forest Conservation at the Community Level in North Thailand**

Local ways of understanding environment have a significant role for the state of the forests in Thailand. This is due to the national logging ban on all the natural forests in 1989, which made local people as the main users and managers of the forest resources. The conceptions of the forest can be considered as a result of environmental literacy, which is defined as holistic understanding of the natural environment and its interrelatedness with human systems. Environmental literacy is a result of observations, experiences and education, and affected by socio-economic and cultural factors. This research examines local conceptions related to sustainable use of forest and its conservation, including valuations and how the changes in forest are seen. In northern uplands, ethnic minorities form a noteworthy part of the local people. Therefore, environmental literacy of forests is investigated among selected ethnic groups in rural areas of the Districts of Mae Chaem and Chomthong, the Province of Chiang Mai, north Thailand. This paper is based on data gathered through interviews in January-March and September-November 2002. Ethnic groups under study are the Karen, the Hmong, the Lua and the Thai. These groups typically inhabit different altitudes, and thus, different forest types in this mountainous area: The Karen, the largest ethnic minority in Thailand, live in the middle elevations of uplands, between 600 and 1,000 metres above the sea level. The Hmong, the second largest ethnic minority, occupy mostly high elevations from 1,000 to 1,600 metres above the sea level. The Lua, who are regarded as the first inhabitants of north Thailand, inhabit mainly the middle elevations. The Thai occupy the lowland areas. All the ethnic groups examined seem to have conservation orientation as a common feature. People consider forest not only significant but fundamental for their livelihood, and they think that protection of forests is essential. Importance of environmental education and knowledge is often emphasised among the villagers. Conservation is seen important but there are dissenting opinions of means how to preserve the forests among the stakeholders, even within one village. Particularly people inhabiting the uplands think that they are capable to conserve the forest by themselves, and they do not want to have any new conservation areas in their lands. Local environmental literacy has sometimes been valued to such an extent that it has been regarded as a key to sustainable forest management. However, this is not always the case, but anyway, in this paper, it is argued that an essential ingredient of sustainable forest management besides knowledge is respect to forests that most forest dwelling communities have.

**A 132**

**Ute Hasenoehrl:**

**Conflicts between economic and conservation interests concerning hydroelectric power plants. The case of the river Lech (Germany)**

Efforts for water regulation, straightening of rivers and the construction of hydroelectric power plants were intensified in Western Germany after the Second World War in order to solve energy problems, make shipping easier and increase agricultural productivity. While channelization and regulation of rivers were conducted throughout the country, activities to utilise waterpower for energy production concentrated on the southern part of Germany where flow velocity of rivers is highest. The proposed paper focuses on the federal state (Land) of Bavaria whose efforts to make use of the “white coal” far surpassed those of the other German states and where protests against the destruction of scenic landscapes for economic reasons were most determined. Bavaria’s electricity supply had relied on the import of thermal energy from the lignite regions in Eastern Germany. When the import of brown coal had stopped after the Second World War, Bavaria – with only scarce deposits of coal of its own –initiated a vast energy program based mostly on hydroelectric power. While the construction of hydroelectric power plants at rivers already partly regulated and industrialised like the Main in northern Bavaria met almost no resistance, the violation of scenic white water rivers in the foothills of the Alps caused strong protests from conservationists, especially after the immediate energy shortage had already been solved. One of the most controversial projects has been the regulation of the river Lech for energy production. The dispute whether or not to alternate and therefore possibly destroy some of the most beautiful and scientifically interesting parts of the river for economic reasons protracted for over two decades. The arguments brought forward here from both the energy company BAWAG – responsible for building and maintaining the power plants at the Lech – and conservationists alike are representative for similar conflicts on the subject of water regulation: The industry emphasised economical necessities, technical difficulties of alternatives and the validity of existing contracts. On the other hand, conservationists referred to the singular beauty of the landscape, the need to preserve rare species, alternative methods to produce energy and the priority of natural values over short-lived business interests. The case of the river Lech differs from other conflicts, however, in its fierceness. While the industry tried to achieve their goals through threats, bribery and illegal building activities, conservationists attempted to use public opinion as a means of exerting pressure. Acting uncoordinatedly in most cases, different conservationists groups and scientific institutions here united their efforts (‘Notgemeinschaft Oberer Lech’). As a result, the conflict of the river Lech became known beyond the boundaries of Bavaria causing international attention. The proposed paper aims to further analyse why the case of river Lech developed into a trial of strength between economic and conservation interests, which considerations motivated the actors and which methods they chose to realise their intentions.

**A 167**

**John Hausdoerffer:**

**Giving Up Dominion: Rethinking Nature and Freedom in Jeffersonian Political Thought**

Upon what is American freedom premised? In 1972, Edmund Morgan claimed that early American principles of freedom were, paradoxically, predicated on the systematic use of African slaves in the mid-18th century. Similarly, I propose that the principles of freedom articulated in Thomas Jefferson's, Notes on the State of Virginia, are premised upon a construction of nature that affirms unjust assumptions of power over environmental and racial bodies.

Jefferson employs his concept of nature to critique aristocracy, monarchy, and slavery--the antitheses of his view of individual freedom. He uses nature to argue for an expansion of opportunities found in the commodities of a landscape that he defines as abundant. Jefferson constructs an image of nature as evidence that there is enough physical nature to support his claim of infinite American principles of freedom. However, he also constructs a nature that legitimates dominion over that landscape in the name of this vision of freedom. Moreover, Jefferson's nature justifies the removal blacks from his society, and exempts his race from the moral obligation of welcoming an oppressed group of humans into his "free" republic. He imbeds race into the environment in a way that serves his white, agrarian, republican ideal. Thus, Jefferson's multifaceted construction of nature drives a racially and environmentally dominant definition of freedom.

In order to rethink global and environmental ethics, we must rethink the relationship between freedom and nature. This paper aims to initiate this process through discussing the following questions: How does American exploitation of global environments and cultures rearticulate the Jeffersonian connection between freedom and nature? What might environmental ethics look like in the light of a redefined relationship between nature and freedom? In short, this paper endeavors to envision a definition of freedom and an environmental ethic liberated from Jeffersonian constructions of nature.

**A 016**

**Ricardo García Herrera, Dennis Wheeler, Gunther Konnen, M. Rosario Prieto, Phil Jones:**

**CLIWOC: a co-operative effort to recover climate data for oceanic areas (1750-1850)**

Since at least the time of Christopher Columbus mariners have kept logbook accounts of their voyages. As well as acting as a diary one of the principal functions of a logbook was to assist in safe navigation. By 1750 the keeping of logbooks was almost universal amongst the officers of European ships. Although not prepared with this purpose in mind, the logbooks and the detailed observations that they contain are today of great scientific value. They include wind force and wind direction, the data being then used to determine the drift, or 'leeway', made by the ship. Mariners tended also to keep a careful note of other weather phenomena such as rain, thunder, fog and snow even though they had little direct influence on navigation. The recovery of the observations contained in those logbooks can contribute decisively to an improvement in our understanding of oceanic climate variability on the decadal to century time scales. CLIWOC (Climate Database for the World Oceans) is a project funded by the European Union (January 2001 to December 2003). The principal objective is to realise the scientific potential of logbook climatic data and to produce a database of daily weather observations for the world's oceans between 1750 and 1850. Importantly this database will be freely available to the scientific community. Other objectives are a) to contribute to the understanding of the nature of climatic change over the oceans for the century after 1750 when logbooks become abundant, b) to link with existing data bases that cover the period since the middle of the 19th century, c) through the more detailed information from the North Atlantic region to refine our knowledge of the behaviour of the NAO for a time before any marked anthropogenic influence on climate could have been made and, d) to stimulate a wider interest in the value of historical documents, but especially logbooks, in climatic research. The CLIWOC partners are: University Complutense of Madrid (Spain), University of Vigo (Spain), University of Sunderland (UK), KNMI (The Netherlands), NIWI (The Netherlands), CRICYT (Argentina) and University of East Anglia (U K). Staff from CDC of NOAA (USA) and the Hadley Centre (UK) act as advisors. The panel will provide a description of the main CLIWOC outcomes and results. Thus, the first presentation will describe the type of raw data used, how they were measured and the spatial

coverage of the project. The problem of translating the old observations into their modern equivalents will be solved through the construction of a dictionary, which will be described in the second presentation. The details of the databases and their potential will be provided in the third, with preliminary insights into the changes in oceanic climate variability of the period compared to the recent past in the fourth presentation.

#### **A 095**

**Paul Hirt:**

#### **Centralization to Decentralization in Electric Power Production Systems in the United States**

Until the 1990s, the electric utility industry in America in the 20th century has been characterized by a steady increase in size, scale, and centralization: bigger generating plants, higher turbine pressures, longer distance electrical transmission, increasing utility company consolidation, and larger and more integrated service areas. Some of these trends, however, slowed and even reversed in the last decade or so of the 20th century. The post-WWII trend toward very large, centralized nuclear and coal-fired power stations, for example, virtually came to a halt during the 1980s. The trend of the 1990s and the first decade of the new century has been toward smaller-scale distributed generation predominantly using highly efficient natural-gas-fired turbine power plants, plus an increasing use of wind power and an increasing interest in other distributed renewable energy sources. The trend is undeniable, but its causes are a topic of debate among scholars and policy makers who differ over the relative importance of technological, political, economic, and social influences. Drawing in particular upon examples from the Northwestern U.S. electric utility systems, this paper will briefly review the century long trend toward centralization, the recent reverse trend, and the factors contributing to these trends. I will also review and evaluate the literature that attempts to explain these shifts.

#### **A 047**

**Richard C. Hoffmann:**

#### **Ecological Footprints of Medieval Cities**

Ecologists, historians, and others have in recent years much rethought how cities work in their wider environments. Wackernagel and Rees (1996) conceived the 'ecological footprint' as the amount of land needed for natural biological processes to provide the material and energy used by present-day city dwellers and to absorb their wastes. The concept is flawed, not least for its misapprehension of urban life and consequent false comparison of modern cities with a mythical self-sufficient preindustrial peasant. No city is or was self-sufficient; all leave 'footprints,' which is to say impacts on extra-urban landscapes. But, especially for preindustrial cities, which really did rely on the flow of solar energy, the footprint remains a useful metaphor for tracking environmental consequences of urbanization, though it must be operationalized in more historically sensitive ways. Ecological models are helpful guides. Environmental historian J. Donald Hughes (1998) distinguished "the preindustrial city as ecosystem," a web of especially intense interaction among living organisms and their nonliving surroundings. Biologist Stephen Boyden (2001) recognized human culture as a principal determinant of what he calls 'urban metabolism,' the impact of metabolic flows on biotic systems, and the sustainability of urban communities. Armed with these conceptual tools, scholars can better recognize how even medieval European cities, precursors tied more directly than their modern descendants to the productivity of their environs, extended urban space and influence over broader landscapes. The paper would thus reconnect medieval urban culture to physical and biological realities and identify it as a force which shaped sometimes even distant landscapes. It starts with the urban demand for extra-urban goods. Merchants

went out to find and peasants came in to supply necessities they could sell to townspeople. Typical policies of medieval urban authorities tried to assure abundant and cheap food and fuel by encouraging flows from outside city walls. Tracking these supplies back to identifiable areas of origin reveals urban impacts on neighbouring or distant economies, ecosystems, and cultures. To meet their culture's metabolic requirements medieval townsfolk transcended their communities' bounds both on purpose and with unintended, even unrecognized, consequences for themselves and their environment. Time confines the paper to food (of plant and animal origin) and energy (firewood, charcoal, peat, mineral coal), though organic and inorganic raw materials (fibres, construction materials, etc.) and waste disposal also deserve notice. Examples and case studies from Mediterranean and northern Europe during the thirteenth through fifteenth centuries suggest both cultural variables and some effects of Europe's mid-fourteenth century passage from a high to a low pressure demographic regime, while townsfolk everywhere raised their share of regional populations and economic activity. Cereal grains for Florentines and Gentenars, beeves for Viennese, salt herring for Parisians, and fuel wood for Londoners thus all belong to the story being assembled. Already in the Middle Ages urban demand shaped European landscapes. This recognition helps historians understand the dynamics of medieval environmental relations and provides a meaningful benchmark for present-day concerns with environmental consequences of economic and social change.

**A 087**

**Tomomi Hotaka:**

**Tropical landscapes in German cities: A study on European modern urban culture of greenery**

The natural environment in many countries and islands has been drastically changed by European colonial politics and culture in the 18th and 19th century. On the other hand, being influenced by the import of foreign vegetation and the introduction of non-European natural environment, European attitudes towards natural environment had also been changing. But the impact of greenery from non-European countries on the urban attitudes towards greenery in Europe has hardly been investigated. In this presentation, exploring German cases from the 19th until the beginning of the 20th century, I will highlight this impact to provide a new research perspective of the modern urban culture dealing with greenery: \* German horticulture was enriched with diverse vegetation from various foreign countries throughout the 19th century. Decorating rooms with plenty of exotic plants became popular among middle classes. \* Foreign horticulture also inspired to produce innovative new cultures of greenery mixing foreign and indigenous culture of greenery. For example, the development of glasshouses provided new space and options to enjoy nature in cities. Glasshouses allowed people to enjoy rich tropical greenery during all seasons and functioned as urban recreational facilities such as exhibition rooms, hotels and cafes until the end of the 19th century. The new taste in gardening and in flower arrangement was also a significant novelty in urban culture of greenery. The introduction of Japanese simple and asymmetric garden art in the latter half of the 19th century caused to reevaluate naturalness and develop some new simple arrangements fit for German housing at the turn of the century. \* In short, the urban culture of greenery in Germany had become richer and more diverse, profiting from the influence of foreign culture of greenery. On the other hand, the attitude toward nature in cities, which used to be closely related to the local city's life style and economy, did not keep specific indigenous relations any more. Instead the urban culture of greenery has become rather common and general beyond various regions and countries. \* But, counter movements such as Wandervoegel and Heimatschutz, which criticized the urban landscapes and, instead, highly admired of traditional landscapes in the countryside, had become more active than ever from the turn of

the century. Indeed, they sharpened the contrast between the traditional attitude toward natural environment in the countryside and the new urban attitude. But this very understanding led to little expectation of traditional landscapes in cities and consequently helped the new culture of greenery ensure their development in cities. Summing up, it can be said that European modern urban culture dealing with greenery has been developed in the dynamics of the tensions and interrelations between the new attitude towards nature influenced by foreign culture of greenery and the opposing reaction against it.

**A 004**

**Donald Hughes:**

**Are There Common Themes in World Environmental History?**

After completing my recent book, *An Environmental History of the World: Humankind's Changing Role in the Community of Life* (now out in paperback from Routledge), I consider the question of whether there are themes that apply to all the case studies, from ancient to modern. In this paper, I examine three possible answers in the affirmative: (1) Local vs Global; (2) Diversity vs Monoculture; and (3) Growth vs Ecosustainability.

**A 194**

**Katja Hürlimann:**

**Consequences of «social diversities» on forests in eastern Switzerland in the 18th and 19th centuries**

In this talk we will be deliberating the consequences of social diversities on the forest in early modern times. The emphasis will not, therefore, be on biodiversity but on social differences and the ruptures and changes among ruling authorities, as well as social and economic differences. The correlations between social structure and its transformation, and between social action and changes in the forest (or of single trees) will be discussed using examples from eastern Switzerland in the 18th and 19th centuries.

From the Middle Ages onwards, the city of Zurich had been gaining territorial dominance in the region of eastern Switzerland. Nevertheless, in the province which fell under its own governance (the area which later became Canton Zurich) the city never completely succeeded in imposing all its sovereign rights until after the revolution of 1798. Well into the 19th century in many places, variable political and ruling structures had direct consequences for the way in which the forest was treated. Some of the forests in less accessible prealpine regions situated within the sovereign territory of the Zurich region (for example, the Tössstock) were entirely deforested. The governance of these areas was of no geographical or political consequence and they were leased - without any restrictions being imposed - to charcoal burners. Over a long period of time in the 19th century in Rafz, for example, (a Zurcher community north of the Rhine), opposition from the village population prevented the ruling bodies from Zurich from taking control over their communal forests.

Similar correlations also manifest themselves in social and economic structures. The profits from the forest - and particularly access to the forest - were determined by social differences. Not all villagers who had the right to use the common property («Allmend») could do so, as not all owned livestock.

**A 124**

**Eva Jakobsson:**

**Understanding Lake Vänern. Scientific perspectives on Sweden's largest lake, 1600-1900**

Understanding Lake Vänern. Scientific perspectives on Sweden's largest lake, 1600- 1900

With its water surface of 5650 km<sup>2</sup> Lake Vänern is Europe's third largest and Sweden's largest lake. Lake Vänern has not yet had its history written. Perhaps this could be explained by the fact that historians find it unfamiliar to define a lake as an object for historical research. However, for an environmental historian it is familiar to discuss water bodies (rivers, aquifers, wetlands) as research objects. In an environmental history perspective lake Vänern is a physical, a mental as well as a social construction changing over time. A lake could be described as a risk on one side, and at another as a resource. As risk themes one could mention shipwreck losses, floods and the lake as a recipient for towns and industries in the drainage basin. As a recourse Lake Vänern has for hundreds of years been a place for domestic as well as commercial fishing. The lake has also been very important for navigation. During the 1900's Lake Vänern became important for water supply, as a recreation lake (20 000 islands!) and as a reservoir for hydro power industry. Beside these perspectives there is a further perspective - the scientific – which I will focus on in my paper. The paper derives from a larger project on the hydrological science history of Sweden that I have been working on for a couple of years. The scientific topic longest discussed in connection to Lake Vänern is the question of the apparent, but unpredictable water-stage fluctuations. Over time different explanations, like an underground tunnel connecting to a Swiss lake, have been presented to explain these fluctuations (the lake can raise for a couple of years until it falls under some years). However, the key concept to make a solution of the dilemma was to place the lake in its drainage basin. The solution was the understanding and definition of the lakes comprehensive drainage basin, stretching out and into the Norwegian mountains. By its diffusion it contains different types of drainage regimes, making the water level fluctuation unpredictable.. The interest for these water stage fluctuations, that have troubled riparians and navigation interest, has given us one of the oldest continuous series of water level measurements reaching back to 1807. To find a solution of the flood problem scientist and engineers have discussed how to take control of the lake. Since 16th century a series of proposals with the purpose of lowering Lake Vänern or taking control of the outlet has been presented. The problem has still not found its answer. As late as last year, after some years of flooding during the 1990's, a tunnel from Lake Vänern to the sea was proposed. Some words on a possible presentation in Prague: Even if this is an individual proposal I would prefer to make this presentation oral and not as a poster. Perhaps you could find a panel that my paper would fit into or perhaps in some kind of open panel.

**A 241**

**Antje Jakupi:**

**Reconstruction of landscape, niches, and anthropogenic licenses in terms of plant and animal species**

The area under investigation, the “Oderbruch”, represents a former floodplain of the river Oder which is situated 50 km north-east of Berlin (Germany) and covers an area of about 800 km<sup>2</sup>. Today, 250 years after its drainage in the middle of the 18<sup>th</sup> century, it is an intensively used agricultural landscape with a portion of waters up to 3 % and very little remains of former floodplain forests and floodplain meadows. The state before melioration is not recognizable any more and in literature it is mostly described as „wilderness“ with an almost “fabulous richness” regarding both, species number and individuals.

However, historical maps, archival records, contemporary literature and statistics of fisheries, agriculture and hunting are forming a diverse source of material which sketches landscapes, habitats, species stocks, their abundance and productivity in the 18<sup>th</sup> century “Oderbruch”.

I would like to demonstrate possibilities and results of reconstructing historical conditions using two different biological levels of habitat and species diversity. Contemporary high-

resolution planning maps which allow the reconstruction of habitats and plant communities before melioration, serve as an example. Another example concerns the fish species diversity and historical yields of pike with regard to their relevance to estimate fish-biomass and the capacity of the limnic habitats in the “Oderbruch”. Moreover, lists of plant species of about 1800 AD outline the plant communities 50 years after melioration.

To sum up, these two levels of reflection give a lively insight into the efficiency but also into the limits of the ecosystem “Oderbruch”. It becomes clear that the change of species diversity or abundance was induced by the arising or disappearing of anthropogenic licenses and niches through the change of land use. Therefore, reconstructing historical biodiversity allows ecological reflections, as well as reflections on the contemporary evaluations of the living conditions of the people in the “Oderbruch” which were often misunderstood.

## **A 020**

**Maria Cristina Joanaz de Melo:**

### **Natural resources in Portugal, Spain and France in the 19th century: water and forest policy, between 1834 and 1910.**

In the 19th century, the increasing demand for forest goods, water and minerals obliged European governments to change from a strict management of state land properties to national policies that would cover national territories. Sources of energy such water and woods, were considered as strategic resources that should be controlled by central power. On the other hand, in the second half of the 19th century were demanding serious hydraulic works to avoid the destruction of food supply. Controlling and managing water became a matter of state, a social question, and a moral duty for European governments. Both in Portugal and Spain, the political thinking and procedures concerning forest goods and water uses changed from a non-existing concept of an independent policy regarding these resources at the beginning of the Constitutional Monarchy in 1834 to a party appropriation of forest and water management at the beginning of the 20th century, functioning as a political dividing line between the left-wing and right-wing parties. The study of the development of Portuguese and Spanish policy towards natural resources in Portugal and Spain will show us a case of policy making, in which the degree of importance of adapting external political models from more developed countries in the conduction of internal policies. From the sixties on the implementation of economic and legal policies towards natural resources, resulted from the internal need of the country, and not mainly from the copy of foreign models, that didn't take into account the Portuguese reality. What is interesting to observe in the Portuguese case is that how a public opinion that was willing to reach the same standards of leaving from the “civilised” countries, influenced governmental decisions that copied those external models, and did not invest in understanding the real needs of the country. Following French legislation and adapting the same technology that was developed in France, to the Portuguese geography without having into account the geography of Portugal, was an idea that almost reached a consensus among politicians that were not acquainted with agriculture. In Spain, although the French paradigm was also the one to follow, the heritage of the Habsburgs administrative law allowed a different policy towards common property and public resources. Comparing the process of development of natural resources between Portugal, Spain and France, we can observe that the Portuguese one is an example of an unadjusted attempt to introduce the most updated technology imported from central Europe, to be adusted into a natural environment that was unable to support it, as well as to people with no education that was not prepared to receive education and change secular habits of living insipte of technology and know how being available.

## **A 193**

**Elisabeth Johann:**

**More about diversity in European forests: the interrelation between human behaviour forestry and nature conservation at the turn of the 19<sup>th</sup> century**

Far into the 19th century, the European forests were to a large extent in the service of human nutrition covering the demands of the farmsteads which would not have been able to exist without this aid. The agricultural utilization of the forest face was dropped only when the crop yield could be increased many times better by improved techniques. This development forced a substantial migration of rural people towards industrial sites. In consequence a rapid expansion of industrial agglomeration centres took place followed by an increasing job specialization and environmental pollution. At the beginning of the 20<sup>th</sup> century in Germany only half of the population still lived at the place of their birth. By that means they became separated from their former traditional way of living and lost the close relationship to nature. This alienation determined a remarkable social change resulting also an alternation of human behaviour towards nature.

When at the end of the 19<sup>th</sup> century the urban population became aware of the visible deterioration of natural resources man's attitude to nature changed thereby coming into conflict with the modern industrial society. The "return to nature" as proclaimed in art became apparent also in the spirit of the whole period and in the conduct of life. The further the cultivation of soil and industry developed, the more an extensive stay in the open was considered necessary as beneficial for body and soul. Along with the appreciation of natural phenomena on the whole and its cultural historical and scientific importance the idea the nature conservation was taken up by different social groups in Central European countries simultaneously.

Forests and their management were seen as having an interrelated place in nature since the beginning of the 19<sup>th</sup> century. Nevertheless the forest in its original composition of species was endangered to a high extent by modern forest management systems securing a sustained high interest. From these considerations it was desirable from a scientific, aesthetic and ethical point of view that forestry turned away from the sober view of pure profitableness and did not deny nature conservation its rightful place.

Up to now only a very few papers have been published dealing with the contribution of foresters to this social discourse. As well only very little is known about how divergently the question of responsibility related to the protection and conservation of forests was put up for discussion among foresters and within forestry itself taking into account a bundle of measures, which could be taken by forest management in order to comply with the social claims. According to the opinion of forestry the term natural monument in its originally narrow meaning should be extended to specific cases of landscape protection (recreation forests, forests with beneficial values). The paper deals with the diverging proposed arguments, examines the broad effect of the ongoing discussion onto other groups of stakeholders and puts the question, how and to what extent the ideas of landscape protection were put into practice.

**A 202**

**Astrid Kander:**

**Energy Consumption in Sweden 1800 – 2000**

The energy consumption per capita and year in Sweden was reduced during the agrarian mode of production, from around 50 GJ in 1800 to 40 GJ in 1890. During the industrialisation phase energy per capita increased and was around 170 GJ in 2000, but the rate of increase varied a lot between periods and sometimes decreases took place. The role of structural and technical changes for these changes will be highlighted in the paper, with special attention to the industrial sector.

**A 209**

**Alexei Karimov, Irina Merzliakova:**

**Russian Historical GIS for Environmental History**

It is still a problem to make the Russian historical maps and environmental history data available worldwide. The international academic community used not many of the Russian archival maps and documents. Even ten years ago the Russian archives were hardly available for the non-native researchers. Almost all of the archival maps despite of their age and scale were classified. This was an obstacle for research in various fields and badly influenced at the comparative study of the Russian history, geography and cartography in the international context. The reforms of the last ten years opened the archives and map collections in them for research.

In the Russian archives there are stored hundreds of thousand of large and medium-scale maps and related manuscripts describing administrative boundaries, nature and economy of the country on the very detailed level. They belong to XVIII - XX centuries surveys of forests, land property, military surveys etc. Without any exaggeration there is an immense data on environmental history: land use and agriculture, forests, wildlife etc. Every historian uses these sources to study localities. But the task to fulfil a detailed countrywide research based on these maps still exceeds human power.

The purpose of the project on Russian historical GIS, that is in pre-pilot phase now, is to develop an Internet based tool for the academic researchers and students to analyse spatial and statistical data on various aspects of the Russian history: demographic, land use, environmental etc. The basic component of the system will be the interactive GIS of administrative boundaries since the administrative reform of Catherine II (1775) that summarized the long-term period of modernization of administrative control over the regions. Statistical data attached to the administrative units of various level could be analysed on-line and visualized in spatial form. Some preliminary results of the project could be seen at <http://www.ihst.ru/~bounds>.

We consider compiling the framework of the Russian administrative boundaries to be the decisive step to applying digital methods in Russian environmental history and historical geography. This would provide the academic community with the spatial data and technological framework for the analysis of their own spatially related data. Which is more important, it will provide a framework that other researchers may use to add their digital maps and data. This will solve technological problems common for the users and creators of digital historical data sets. Though all these goals may be too ambitious to be fulfilled within a single project, starting the whole initiative may have a very broad promotional influence on the state of research.

**A 116**

**Gatis Karlsons:**

**History of Latvian Salmon (16- 20 centuries)**

The report is intended to show the case study on Latvian salmon not just because it is one of the most valuable fishes, but also because it is a vivid example of human intervention. From the sixteenth century till 1862 Latvian salmon catches in Daugava comprised 1500- 2000 pieces annually. Salmon fishery took place also on Gauja and Salaca rivers and, in smaller quantities on Lielupe and Venta. But during the last decade of the nineteenth century salmon catches were reported for river Salaca and soon after salmon catches declined dramatically and just about 145 numbers were caught in 1901. According to those time scholars A. Sapunov, M. Mulhen and B. Heinemann, intense fishery along the migration route caused the decline in salmon stock. The Government Commission of the Tsarist Russia made a decision

on the salmon and sea trout fishing regulation. As a result the salmon fisheries were banned in Daugava and Gauja rivers. To compensate losses in the natural salmon recruitment artificial production of salmonidae larvae was initiated. Nevertheless natural losses were not fully compensated. While during the period of 1924- 1940 catches in Gauja and Salaca rivers were relatively stable (300 and 2000 pieces per annum respectively), catches in Daugava river comprised just around 850 pieces or not more than half of caught in previous centuries. The paper will examine not only the overfishing as a reason of salmon stock decline. Attention will also be paid to industrial growth related factors (discharge of industrial waters, building of dams etc.) and social issues relating to fish stock decline.

**A 144**

**Martina Kaup:**

### **Inner Colonization, Geopolitics and Spatial Planning in 20th century Germany**

The aim of this paper is to show how ideas about a German environment shaped the racial politics of spatial planning in Eastern Europe during the German occupation. After Germany had lost its overseas colonies in the Versailles treaty, two strategies emerged to make up for this loss. On one hand, there are attempts to regain the colonies. Other voices urged for increased inner colonization. In the 1920's geopolitics gained increasing support both at the geography departments of German universities and in popular thought. One of the major proponents was the former general Karl Haushofer, who became a professor of geography in Munich. He developed the idea of a German expansion to solve the problem of overpopulation and gain more living space, "Lebensraum". Either opening the whole world for German settlement or redistributing the space in Europe to those who can really make use was widely seen as the only way to solve this problem. France, the traditional enemy in the west, was joined by the new nations in Eastern Europe, which enjoyed French support. Historical developments were used to justify the German claim for expansion. The connections between German geopolitics and nazi politics of expansion are well known and documented. The influence of geopolitical thinking on spatial planning has found little attention because it was largely focused on foreign policy. The new science of spatial planning intended to improve the German spatial structure. In the rural areas the main focus was on providing space for settlement programs and population policy. In some areas, this included attempts to improve the social and natural environment. Geographers, spatial planners and landscape architects all developed their ideas about the characteristics of a "German" landscape, often in contrast to Polish or Russian landscapes. German spatial planners had the opportunity to utilize the eastern European countries occupied by German troops as a lab for their ideas to improve an environment. But the price the native population paid for the "improvement" of their homeland, the loss of their homes, repulsion and on the Jewish part of population, deportation and death, is never mentioned in the books of contemporary planners.

**A 246**

**Svenbjörn Kilander:**

### **Exploitation of Immaterial Values in a Northern Region of Sweden: Tourism in West Jämtland 1880-1920**

It is no exaggeration to say that industrialisation, and the rapid economic development associated with it, led to a radical remoulding of Swedish society, economically, socially, politically and culturally. However, industrial expansion and the economic miracle accompanying it also had a price, exacted from both individuals and the environment. As early as the turn of the century, there was a surprising awareness of the negative consequences of industrialisation. Even at the time, expressions such as 'this nervous age'

were used, and phenomena such as stress in the society, the ever increasing tempo and cut-throat competition were discussed, as well as the fact that both the inner and outer peace of individuals were threatened. The 19th century became widely known as 'Our Nervous century', which is also the title of Paolo Mantegazza's book, often quoted in Sweden, and translated into Swedish in 1888. Even if these intangible elements related to the quality of life were felt to be under threat in the industrial society, the new era also introduced a feeling that a higher quality of life should be made available on a large scale through commercial exploitation. I am, of course, thinking of all the sanatoriums and the whole concept of tourist destinations that developed at such a speed in this region, West Jämtland. During a period of no more than ten years a long line of small and large hotels, guest houses, sanatoriums, homes for convalescents, children's holiday homes etc. were established along the 101-km-long stretch of railway line between Mörsil in the east and Storlien in the west. In my research project I intend to focus on parts of this phenomenon. I shall firstly analyse the development of tourism and sanatoriums that took place in West Jämtland from the 1880s and during the following decades, in the light of social and economic history. Secondly, in the light of medical and history of ideas, I shall examine the view of West Jämtland as a 'place of refuge' for the victims of industrialisation. My principal aim is to analyse the development of industrial society from a different standpoint than that traditionally adopted. It should thereby be possible to investigate aspects of Swedish industrial society that have not previously been considered by historians to any great extent. This will be analysed in the light of Pat Hudson's division into 'black countries' and 'green countries', where West Jämtland's contribution to modernity falls into the latter category. It is thus from the perspective of Sweden's industrialisation that 'tourism' in the region between Mörsil in the east and Storlien in the west in the period 1880-1930 will be analysed. Our knowledge of this part of our history is surprisingly limited. However, it is not simply to fill the odd gap in our knowledge that this draft has been proposed. On the contrary, no analysis of Sweden's 'black countries' can be complete without a complementary analysis of the 'green countries'. Neither can our 'green countries' be understood or explained if they are not seen in relation to Sweden's 'black countries'. One part can only be analysed successfully when taken in relation to the whole.

**A 159**

**Andrea Kiss, Rudolf Brázdil:**

**Visual Daily Weather Records as a Documentary Source for Climate: Reconstruction of Slovakia in the Pre-instrumental Period**

In the Hungarian source material of the late medieval - early modern times (fourteenth-seventeenth centuries) the majority of the available weather information refers to the northern part of the former Hungarian Kingdom / today's Slovakia. Therefore, the existing historical climate reconstruction is mostly based on the information of the northern, mainly highland areas while, due to the Turkish occupation and the destruction of the wars, until the late seventeenth century, information is much more rarely available for the lowland areas of the former Hungarian Kingdom. Thus, it is a very important task to study the climatic conditions of the present Slovakian area separately and see what conclusions can be drawn on the basis of a new, extended and still developing database. Visual daily weather observations and early instrumental weather records belong to the most important data sources of the climate reconstruction of Slovakia in the pre-instrumental period. Some of them were presented as incomplete and also with some errors in the compilation of weather records edited by Antal Réthly, in Hungarian. Our research started with systematic collection, verification and climatological interpretation of the following original, contemporary records: a nobleman's diaries - visual daily weather records - the earliest known diary with longer continuous daily

observations: Zsigmond gyalui Torda: the period of observations: (1558)-1561-1568 - - referring mainly to Pozsony/Bratislava, Kassa/Košice, Nagyszombat/Trnava, Eperjes/Prešov etc. - daily records in the diaries of other noblemen b.the Jesuit order - visual daily weather records (occupation, place of observations, period) - the university of Nagyszombat/Trnava: diary of György Dobronoki and István Keresztes, referring to the period of 1636-1640 - the university of Kassa/Košice, referring to the period of 1677-1681 the friary of Lőcse/Levoča, referring to the period of 1673-1679 and 1686-1706 - the friary of Pozsony/Bratislava: 1690 - information in other Jesuit diaries c.daily visual observations of Johann A. Reimann and Georg Buchholtz (in Eperjes/Prešov and Késmárk/Kešmarok), as part of "Sammlungen" (1717-1726) published by Johann Kanold in Breslau and "Nachrichten" (1727-1730) by Elias Büchner in Leiptzig d.early instrumental measurements: July 1717 - June 1720 and visual observations in Eperjes/Prešov These records are used for interperation of monthly temperature and precipitation patterns in Slovakia as shown on the example of the Jesuit records from Kassa/Košice and the Reimann measurements as well as the records from Eperjes/Prešov. The European context of Slovakian data is shown and further perspectives of historical climatological research in Slovakia are outlined in the presentation.

## **A 151**

**Irene Klaver:**

### **Cows Revisited: The Re- Wilding of a Dutch Icon**

Since the 1980's a new concept has become central to the Dutch National Nature Policy Plan: "New Nature." In practical management, New Nature implies a shift from nature conservancy of Dutch cultural landscapes to an active creation of places where nature can be allowed to take its own self-regulative course. Giving cultural land 'back to nature' always happens within a larger realm of cultivated land; smallness is not an obstacle to this natural management but its reason for being, the condition from which such a program began. Unhindered by a history of the great American frontier, with its romantic notion of authentic wilderness, the Dutch approach allows for interventions in a natural management strategy, based on place-specific elements, such as size and location of an area. I will focus on the history of the use of large herbivores in Dutch restoration projects, specifically on a particular cow-species called Heck cattle. This cow was the result of an active retro-breeding program started by the brothers Heck who directed the Zoo in Berlin in the nineteen thirties and were heavily subsidized by the Hitler regime to "re-invent" the "original" European auroch.

## **A 242**

**Johannes Klose:**

### **The cultural history of birds in Brandenburg (Germany): An example of the perception of biodiversity**

The speech will deal with the objectives and results of my PhD research. In the research project, I investigate the meaning certain bird species, and birds in general, used to have for people in Brandenburg at different stages in the past. By analysing the changes of bird perception and valuation against the background of the socio-economic conditions of the 17<sup>th</sup> to the early 20<sup>th</sup> centuries, the approach aims to gain a general understanding of the valuation of birds. The records of the former Prussian State Archive, which have been analysed so far, reveal five main aspects of bird perception: Birds may have been valued as a resource, for their utility as insect and pest exterminators, for their aesthetics and, because of ethical considerations – or they may have been feared as game predators and crop devastators. I will argue that in history, the diversity of bird species was not an aspect worth discussing, neither by the people, nor by the authorities. Rather, the perception of birds – expressed in the records – reflects the predominant needs of the people as well as the socio-economic development of

society: Whereas in the early times, the aspects of resource utilization and pest control were to the fore – mainly due to the low agricultural yields and the bad nutritional situation – utility thinking became predominant in mid-nineteenth century when famines had finally been overcome. Only at the end of the nineteenth century have ethical aspects come to play a major role in bird conservation aims.

#### **A 018**

**Gunther Konnen:**

#### **CLIWOC project extends the pre-instrumental meteorological databases back in time with quantitative data over the oceans.**

Instrumental meteorological ship observations start only after 1800; the COADS world database begins in the 1850s; its extension by the Maury collection around 1800. For the study of low-frequency climate variability this is still rather late. Non-instrumental observations whose quantitative character is largely underestimated are wind direction and wind force. One may even wonder why wind direction is called a non-instrumental observation, as the measure technique (just looking to a flag or to the waves) up to recently hardly changed. Pre-1800 wind observations over the oceans, in combination with a few pin-pointing land pressure data, enables reconstruction of the large-scale atmospheric circulation with an accuracy larger than is generally thought. CLIWOC aims at extending back the existing databases back in time till 1750. Not surprisingly, the partners are from the former imperialistic countries (and enemies) Spain, England and the Netherlands, all of them maintained trade routes to remote countries. Together with the Argentinean partner, hundreds of ship logs 1750-1850 originating from the three countries as well as from France are collected and digitized. The union of the ship routes of participating countries covers the North and South Atlantic as well as the Indian Ocean. We made a user-friendly database with the CLIWOC data, which is suitable to be integrated with the COADS database. Apart from numerical information, it also contains images of the logs and some nautical information relevant for nautical historians. The construction of the database involved a number of problems, including the language problem, conversion and terminology problems, and zero-meridian problems. Now the project is nearly finished, we believe that the database can give an important contribution to the understanding of low-frequency climate variability, as it extends COADS into the pre-industrial era. In the presentation, a demonstration will be given of some features of the CLIWOC database.

#### **A 160**

**Ferenc Kovács, János Rakonczai:**

#### **Analysis of the 200-year Environmental Changes of a Strictly Protected area in the Kiskunság National Park, Hungary**

Analysis of the 200-year Environmental Changes of a Strictly Protected area in the Kiskunság National Park, Hungary Kovács, Ferenc - Dr. Rakonczai, János Dept. of Physical Geography, Faculty of Sciences, University of Szeged, Hungary Objectives In this study, the standardization possibilities and related problems of databases of different types and times are discussed through the example of a sample area located in the Great Hungarian Plain. One goal of the project is, therefore, to create a wetland database of risk-processes and erosion factors. With the application of this database it is possible to model the long-term changes of a given landscape, and an information system can be developed for practical applications. Methods Maps of the historical military surveys of the eighteenth and nineteenth centuries, areal photos from the 1950s, together with detailed, multispectral satellite images of the late 1990s were digitalized and interpreted. On the basis of the historical military survey maps, cadaster maps and the topographical maps of 1961 and 1981 it was possible to determine and

analyze the shoreline and waterlevel changes and the alterations of certain geomorphological features (e.g. alkaline bands). Through the above-mentioned results, we made an attempt to demonstrate and value on one hand the 200-year changes of a "quasi-natural" landscape with special emphasis on the antropogenic impacts of the last decades. Results In case of the determination of hydrographical changes, the shoreline changes of the wetland areas are discussed. From the eighteenth to the late twentieth century, the persistent watercover of the wetlands 90%ly decreased. The greatest changes occurred after the inland-water drainage and river regulation works of the late nineteenth century. However, the last 40 years had great impact on the landscape, too: the already low ground-waterlevel values are still decreasing. As a result of this process, a great increase of alien weeds took place in the sample area. Due to the wet weather conditions of the 1990s, the shoreline of wetlands rapidly increased; these changes, however, do not have significant impact on the already-changed, degraded vegetation. Concerning the overall tendencies, the open surface of waters can easily disappear within a 60-70-year period. Miklapuszta located on the Great Hungarian plain, with its special alkaline micromorphology (with its 80-100 cm high alkaline bands), is also endangered: within an approximately 100-year erosion period, the average value of alkaline band-decrease was 20 m. With the analysis of the multispectral images and applying vegetation index, we also examine the actual, dynamic changes (including land use) of wetland areas. Proposal The above-mentioned negative changes of recent times suggest the urgent need for change in environmental policy. In ideal case, new images and analysis are made in every 2-5 years: in this case the application of infra-red images have special importance. Although the application of satellite images is important, due to their resolution, some of the local micro-processes cannot be followed merely with the help of such images. Another future task is to build up a monitoring and information system to follow and analyze the above-mentioned changes.

## **A 072**

**Fridolin Krausmann:**

### **Land Use and Societal Metabolism in 19th Century Austrian Villages: The Franziscean Cadastre as a source for modelling pre-industrial land use systems in Central Europe.**

How sustainable was pre-industrial agriculture? How can we describe the interaction between a local population, their mode of production and ecosystems in agricultural societies. How did this interrelation change during the process of industrial modernization? The paper proposes a methodological framework to tackle questions like the above by analysing the structure and functioning of pre-industrial land use systems based on the concept of societal metabolism, i.e. the flows of materials and energy through society. In this attempt the Franziscean Cadastre serves as a source for modelling energy, material and nutrient flows in agricultural systems at a local level. The Franziscean Cadastre was the first complete land survey of the Habsburg monarchy. It was established for tax calculation between 1817-1856 and covers an area of over 500,000 km. It provides data on various levels of scale ranging from single land-parcels, farmsteads and municipalities to the national level and represents a huge and valuable source for comparative European environmental history. Three Austrian villages in different agro-ecological zones serve as case studies for a comparative analysis of biophysical aspects of the different types of farming systems ranging from cropland farming in the Austrian lowlands to Alpine grassland farming. Besides addressing methodological issues, the paper presents empirical results and aims at contributing to the discussion of relevant topics in ecologically informed environmental and agricultural history. Among others this includes the issues of soil fertility and nutrient management, the multifunctional role of livestock in pre-industrial agriculture, the exploitation of forest resources and the question of productivity.

**A 114**

**Alexey Kraykovskiy:**

**The natural riches of the region – the legends and the reality. The case of the salmon fisheries of the Russian North**

Due to the numerous memoir papers by the foreign travelers visited Russia in the 16th – 17th cc. the legend has been created. It says, that this time has been a kind of the Golden Age for the salmon fisheries of the Russian North, when the enormous catches were obtained, incomparable with the data of the 19th c. This idea can be found in a number of books, devoted to the Northern Russian fisheries. At the same time the historical documents show us the picture, which is very far from any Golden Age. According to the sources found in the archives, the catches have fluctuated very strongly, but never have richened the rate of the 19th c. From the other hand, the documents have shown another conflict between the theory and the reality. It is evident, that the inhabitants of the Russian North in the 17th c. were sure, that the only cause of the fall of the catches is the human activity. So, the decrees have been published to cut the activity of the fishermen down to increase the salmon resources of the region. At the same time from the documents one can see, that in the 19th c. the catches were much higher, than in the 17th c., and there was no over-fishing there. Thus, I suppose to investigate two problems: 1. The conflict between the legends about the natural riches of the region and the statistical data taken from the archival sources. 2. The conflict between the hypotheses about the causes of the particular situation with the natural resources, given by the contemporaries, and the latest data, concerning the resources mentioned.

**A 154**

**Nina Kruglikova:**

**Environmental Posters as an Effective Way of Raising Environmental Consciousness: a Historical Approach.**

Though environmental posters to raise public awareness about nature issues have no long record, it is only natural to say that they have their own historical development. First of all, it should be observed that according to the way of producing an impact on grassroots' consciousness The material provided and investigated clearly indicate that the former tended to dominate in the earlier times. They are characterized by a large text element, that plays a leading role in poster interpretation. The aim of such posters is to spread valuable knowledge and form the recipient's point of view as regards environmental issues. The environmental posters of propaganda are considered to prevail at present. They have the following typical features to attract people's attention: conciseness, lucidity, sense of purpose; the pivotal idea finds its expression in a slogan expression. As a rule it is a successful combination of poster slogan and artistic composition that reaches the desired pragmatic effect. Environmental posters of agitation normally appeal to one's heart with the help of emotional lexis, compared to environmental posters of propaganda, which aim at one's mind employing logical argumentation to achieve the desired goals. In the words of the first Russian theoretic and expert on poster art D.Moor "poster is a laconic, energetic, thinking worker, who is versatile and prolific in the methods of his/her work". Thus, my investigation involves the analysis of 'these methods of work', including a special language, images and styles of presentation of environmental posters used for the purpose of persuasion and manipulation of the audience. It also focuses on environmental poster art as an artistic-verbal form of mass communication from a historical perspective. My overall strategy is to use an analytic framework based on a linguistic analogy, treating key visual figures and language peculiarities as interdependent elements. The study under consideration seems to be expedient in terms of environmental history as the study of environmental posters is also a study of people's treatment of nature as posters are regarded as signs of the time they belong to.

**A 212**

**Emmanuel Le Roy Ladurie:**

**During the early Maunder minimum: the " rainy and cool" 1661 French famine**

The famines are obviously a result of climatic forcing. In Northern France they are often linked with very cool and rainy springs and summers « rotten summers », influenced by excessive arrival of depressions coming from the Atlantic ocean. But famines can also be aggravated by momentary situations of war, with collateral destructions, and also by situations of fiscal pressure (correlated with war, by the way) which impoverish peasants and also consumers in general, making them more vulnerable to unfavorable climate and resulting bad harvests. Therefore, it would be interesting to expurgate this phenomenon of overdetermination ( of famines) , overdetermination induced by war , taxes, and possibly by plagues , themselves in many cases being not correlated with climate ; one should try to find « pure » famines, where the critical linkage between climate and reduced crop is not polluted by external factors, ( such as war, taxes ) polluted also by epidemics themselves independent of famines ; one would like to find a situation of non-pollution by external non-meteorological factors ; that is the case with the 1661-1662 famine in Northern France : it erupts inside a period where Louis XIV has no war at all with the other countries of Europe, « Everything was quiet in all places » as he said. Moreover, this famine which has « produced » 500.000 northern french deaths, is possibly linked with a big volcanic eruption which exploded in the immediately previous years. It is characterized equally by a cold and very rainy spell during the surrounding years. This cold wet spell by the way generates a glacial alpine advance during the 1660's, with the usual delay of some years due to the normal slightly late reaction of the glacier . The surrounding meteorological situation of the concerned years is seemingly typical of the little ice age, of which at all events it is part and parcel. Last but not least, it takes place during the early period of the Maunder minimum, which starts itself in 1645 and will last during the following years and decades. For all those reasons , the 1661-1662 french famine seems worthy of being mentioned and even studied by me ( in a future relevant paper) more or less broadly, during the Prague Symposium of 2004. This study would of course follow the lines of the above-mentioned argumentation.

**A 137**

**Thomas Lekan:**

**Seeking the Middle Ground: Landscape Preservation and Local Knowledge of Nature in the Rhine Valley, 1880-1939**

This paper explores the ecological significance and symbolic meaning of landscape preservation in Germany, using the Rhine Valley as a case study in the use of regional Heimat (homeland) ideals to fashion local forms of environmental stewardship. It explores two incidents - the Siebengebirge nature conservation campaign of the 1880s and 1890s and the Rhine landscape protection zone designation of 1937-1938 - to examine how cultural landscapes became objects of environmental concern in the absence of pristine nature. Whereas the American wilderness tradition focused predominantly on protecting supposedly "pristine" nature reserves, German nature protection and "homeland protection" (Heimatschutz) advocates strove to protect or restore the entire cultural landscape that had emerged through centuries of human occupation. The objects of concern included not only forests, meadows, and heaths, but also historic architecture and cultural artifacts. The goal was to create an aesthetically integrated ensemble that balanced nature and culture, a middle ground that protected "wildness" within the contours of "second nature." Until recently, scholars have viewed such landscape preservation efforts as merely aesthetic beautification (or worse, reactionary neo-Romanticism) that had little to do with "real" ecological issues.

Though preservationists largely neglected issues of water, air, and soil pollution, however, their efforts to protect local natural landmarks and scenic areas created a less dichotomous view of nature and culture than the American wilderness tradition. German nature conservationists found nature more readily in their own backyards, envisioning unremarkable groves of trees and indigenous species as part of their Heimat. Aesthetic insight broadened to encompass more readily identifiable "ecological" concerns, such as habitat destruction, urban sprawl, and environmental restoration, much sooner than in North America. The German Heimat tradition based on local knowledge of nature, in other words, did not reflect naïve Romanticism. Instead, it offered a model of environmental stewardship more attuned to local conditions, individual emotional investment, and the possibility for long-term sustainability than the American wilderness ethic. The concept of home and cultural landscape were nonetheless not immune to radical right-wing and racist ideological appropriation, as the fate of landscape preservation under National Socialism demonstrates. Nazi efforts to create a Rhine Gorge landscape protection zone sought to "racialize" the cultural landscape ideal by claiming that races "stamped" their topography with innate biological characteristics. Landscape preservation in this vein helped to sanction Blood and Soil ideology by proposing a close connection between race and space. After World War II, Rhineland nature conservationists abandoned such aesthetic-nationalist justifications for preservation in favor of scientific ecology, which offered a presumably more objective and neutral program of environmental protection and restoration. Politics, rather than ecological insight alone, played a key role in the demise of cultural landscapes as objects of environmental perception and care.

**A 239**

**James H. Lide:**

### **Water and the French Colonizing Mission in Morocco**

Western imperialism can be seen as a system of spatial control, an effort to master, tame, and ultimately transform foreign landscapes. Massive engineering projects to alter colonial countryside provided the one of the most tangible demonstrations of Western power, and nowhere is this more apparent than during the French protectorate in Morocco in the first half of the twentieth century. Between 1906 and 1956, French colonial administrators embarked on a series of ambitious programs designed to regulate all aspects of how Moroccans made use of their natural resources. In particular, French planners envisioned a radical transformation of the Moroccan countryside spearheaded by a grandiose scheme to control every drop of water that flowed in Morocco's rivers. This paper examines how French administrators set out to supplant the confusion of competing claims on Morocco's water resources with a Western ordering system designed to promote their more "rational" exploitation. As a first step, the Moroccan countryside was subjected to a painstaking investigation that provided an absolute inventory of every available source of water, leaving nothing outside the regulatory power of colonial authorities. These efforts to identify and catalogue Morocco's water resources enabled colonial authorities to impose a set of regulatory procedures, the first and most important step in creating the market for water needed in a capitalist system of ecological exploitation. Underlying this goal was utopian ambition of diverting all available water to more productive use, which in the French colonial lexicon became defined as being set aside to promote colonial settlement and the creation of large irrigated colonial farms. The imperialist logic that connected the rationalization of Moroccan water with French colonial interests was clear. Whatever flowed into the ocean was not being used for irrigation. And since modern irrigation was the key that would unlock Morocco's economic potential, it was deemed to be the only "rational" approach to exploiting Moroccan water. As a final step, therefore, French colonial administrators set out to construct

a vast system of dams and irrigation canals in an effort to achieve their long envisioned dream of controlling every drop of water in the colony. And although their efforts ultimately failed, they did lay down the blueprint for Morocco's future development, a blueprint still being followed today despite the myriad of social and environmental problems that it has engendered.

**A 059**

**Marilyn Livingstone:**

**Environmental stress in England before the Black Death**

The Nonae was a tax levied by Edward III in 1340 at a time of financial and political crisis in England. Due to its unique format, The Nonae records provide a not only wealth of material about the extent and value of glebe estates and tithe commodities, but also a considerable amount of material about the environmental conditions in various parts of England. To justify low tax assessments, parochial juries described difficulties created by adverse weather and disease as well as by excessive taxation and the effects of war. Such evidence confirms the work of historians such as Mark Bailey, who has examined the effects of storms and bad weather on the East Anglian coast. The broad spread of the Nonae records (which exist for parishes in all but four English counties) offers the opportunity to widen the geographical evidence base beyond East Anglia to include the north-east coast of Lincolnshire and Yorkshire, as well as the south coast and numerous inland areas. Evidence of economic and/or environmental stress on land is provided for nearly 1,000 parishes across 30 counties. The paper will illustrate the richness of the Nonae for the study of environmental conditions in England at a key period between the Great European Famine and the arrival of plague. The data about environmental conditions have been analysed and mapped to demonstrate the effects of such conditions on the agricultural economy in different parts of England. The amount of land affected and the loss of value in agricultural production will be illustrated and put into a larger economic context. This will shed new light on the consequences of environmental degradation for the late English economy before the Black Death.

**A 220**

**Ernesto López Losa :**

**Informal Property Rights and Common Management in the Northern Spanish Fisheries until the Twentieth Century**

This paper deals with the role played by the Maritime Guilds in the development and management of the fisheries conducted from the Northern Spanish shore until the first half of the 20th century. It contends that thanks to a particular institutional framework, Guilds were able to build up a management model since medieval times based on the exclusive use of the fishing resources. The basic features of this model of exploitation and management stem, on the one hand, from the unique behaviour of the fishing resources and, on the other hand, from the particularities of the fish market in the country. Nevertheless, it is also related to an historical model of organization and relationship between society and nature. Finally, the social and economic consequences of the process of institutional change that eliminated the exclusiveness are analyzed.

**A 111**

**Ernesto López Losa :**

**Environment, Society and Fisheries. An Approach to the Spanish Experience**

This paper evaluates the performance of the Spanish fisheries during the 19th and 20th centuries. It contends that the Spanish fishing industry has been historically shaped by the ecological conditions of the surrounding waters, in particular by the narrowness of the

Spanish continental shelf. These circumstances engendered an outward looking perspective on fisheries development, in particular during the 20th century, which contrasted with the attitudes of nations possessing greater ocean resources closer to home. Owing to the Spanish situation, its fishing industry became increasingly bound by the more stringent environmental and institutional constraints dating from the 1970s, which prompted a dramatic decline in catches after a twenty-year period of intensive growth. The paper explores the experience of the Spanish fisheries by examining the interrelationship between environmental limits, social structures and political decisions, and their impact on a national model of fisheries exploitation that was predicated on geographical expansion.

**A 166**

**Timothy W. Luke:**

**From Nature in the Raw to a Processed World: The Changing Modes of Managerialism in the Modern 'Resourcification' of the Environment.**

This paper examines how changes in the modes of industrial production and consumption within the American economy have led to an on-going, but changing, approach to the natural environment. The liberal values of America's early European settlers led them, like John Locke, to see the new continent as a "storehouse to the world." Nature in the raw was constructed as easily accessible materials to be appropriated locally through labor as farmers, fishermen, hunters, or woodcutters. Once nature as "raw materials" was transformed into reserves of private property, it was reconstructed in the 19th and 20th centuries into "natural resources" for large industrial combines and scientific experts to manage as national reserves of depletable, but also renewable, resources. At the close of the 20th, and the opening of the 21st centuries, a new scientific regard for a diverse and serviceable ecosystem on a global level was turning the world environment into a fully processed world in which "ecosystemic biodiversity" was becoming a key resource for human and nonhuman beings. This paper begins to sketch out this evolution in the modes of environmental intervention from a local-level materials management to a national-level national/natural resources management to a global-level biodiversity management approach to the "resourcification" of nature. How Nature is socially constructed, technically developed, organizationally controlled, and discursively directed all change with the changing modes of resourcification for different modes of production and consumption.

**A 127**

**Anna Majchrowska:**

**The History of Research on Changes of Land Use and of Forest Area in Poland**

The poster will present the history of research on land use change in Poland, in particular the history of studies of changes of forest area. The main sources of data – a wide range of old topographic and thematic maps – used in research will be examined. Methods applied will be described and the results obtained by various authors compared. The results of studies from many parts of Poland will be compiled to give a complete picture of land use and forest area change in Poland in several moments during last two centuries.

**A 089**

**Federico Marazzi:**

**The Water Resources of a Medieval Abbey: First Results from San Vincenzo al Volturno**

This paper discusses how a large and well-funded early medieval monastic community dealt with nearby hydrological resources, particularly with the river Volturno and with springs in the upper Volturno valley. The paper shows that the Rule of St Benedict had a powerful

impact on environmental thinking and action in one south Italian context during the eighth and ninth centuries, but that ecological constraints likewise forged monastic adaptations in agriculture, industry, and 'domestic' contexts.

**A 213**

**Charlotte Masemann:**

**From Cabbage to Coriander: Garden Produce and its Consumers in Medieval Ghent and Lübeck**

Research on medieval food production has focused on crops that are easily quantifiable and for which large bodies of data exist. This has led to a concentration on grain production, and livestock. My recent research in Ghent and Lübeck has revealed food production that is more diverse and on a much smaller scale. The focus of this research has been the gardens within and outside the cities from 1250 to 1550, as revealed by both documentary and archaeobotanical evidence. This paper not only adds to the general discussion on the agriculture, food production, and consumption of medieval Europe. It also shows that fruit and vegetables and wild plants made up a larger part of medieval production and consumption than hitherto supposed. By using the diverse resources of documentary and, especially, archaeobotanical evidence, this paper develops a picture of a more diverse, socially inflected pattern of cultivation and consumption than previously suspected.

**A 234**

**Franz Mauelshagen:**

**Different Cultures of Disaster? – Mutual Impacts of Religion and Natural Disasters in Modern Times**

Focusing on cognitive patterns of interpretation, we tend to pay all our attention to the impact of Religion on the experience of disaster, thus forgetting about the impact of disaster on Religion. Looking back into history, there are many examples showing that periods of disaster accumulation – often caused by intensified seismic activity in certain regions of the globe – effected considerable changes in religious piety. New rituals were introduced, apocalyptic predictions were inspired and/or falsified, artists invented new expressions of piety in painting or sculpture etc. Religious change can be observed in the 6th century, when, in the time of Justinian, Constantinople was struck by earthquakes and the plague consecutively within a few years. The consequences of the Black Death for 14th and 15th century art have been discussed by many scholars over the last forty years. Recent anthropological studies, dealing with Italy, have described something like an 'earthquake culture'. This opens up a completely new view on the relationship between natural disasters and culture and, particularly, between disaster and religion. Religion is a complex and highly mutable cultural construction, very much determined by individually or collectively doing certain things, i.e. practice. This may be overlooked if we only take ideological elements like religious dogma or the exegesis of holy texts into consideration. If it is possible to explain certain regional patterns of religious practice (including magic) by the experience of disasters the first thing we need is a mapping of geographical and climatic characteristics. This would allow us to contextualize local specifics of different types, religious as much as patterns of natural disasters. The paper will focus in examples from the 16<sup>th</sup> and 17<sup>th</sup> centuries.

**A 003**

**Clapperton Chakanetsa Mavhunga:**

**Political Borders as Unlimited Game Havens: The Culture of the Transfrontier Idea in the South-Eastern Lowveld**

This paper looks at the proposed transfrontier national park between south-western Mozambique, south-eastern Zimbabwe and north-eastern South Africa. It argues that the idea is not a new one: in the pre-colonial period, the now-separate national parks of Gonarezhou (Zimbabwe), Gaza (Mozambique) and Kruger (South Africa) were once one single ecological zone. This transfrontier aspect also applied to the local people who were related and shared common culture and citizenship. The Portuguese referred to it as Chinguine (1600s-1880s), the Boer hunters traversed it as part of the Zoutpansberg (1840s-1920s), while its local, notably Karanga inhabitants called it Gonarezhou. This hunting culture created heroes and villains, who speak of it as an area without boundaries. The demarcation of the area into a Portuguese-controlled Portuguese East Africa, a British controlled Rhodesia, and the southern part into South Africa, had the effect of redefining the citizenship of both people and animals, putting paid to the transfrontier idea. In the first part of the 20th century, the two colonies of South Africa and Rhodesia seriously considered proposals to create a transfrontier national park joining the Kruger and the Gonarezhou, but these plans came to nought owing to the political and security implications. In the event, it was only in the 1990s that the idea was re-proposed and has now been approved by the three governments. Obviously, this short summary leaves out some of the cultural aspects of the Transfrontier idea. It is argued in this paper that there is too much concern for the movement of animals back and forth to create one of the biggest eco-tourism ventures in the world. Yet there seems to be little concern about the cultural impact past demarcations have had on the local populations. Another strand of argument is that: Would it not be better for southern Africa to abolish border restrictions on the movement of people from one country to another first before this is extended to animals? This aspect of enquiry is important considering that in the pre-colonial period the peoples on either side of the border had a common culture, were kinsmen, and spoke similar languages. It is against this background that the paper argues that the philosophy of the Transfrontier idea is that wild animals are just nature; I argue that wild animals are an embodiment of nature. One cannot resettle one without affecting the other.

**A 176**

**Antonia Mazzilli:**

**Variations of the natural spaces in urban and suburban territory**

This study comes from the requirement to recover the value of the naturalness in urban and periurban territory through a carried out territorial surveying with *G.I.S.* (Geographic Instrument System) in a part of suburban neighbourhood "*Japigia*" in Bari (Italy) between a coast stretch that shows oneself on the Adriatic Sea and the Apulia hinterland. The choice of this area comes from the requirement to give a contribution for a possible plan of environmental requalification of the neighbourhood.

The diachronic study of the area chosen to the inside of the neighbourhood, for means of the cartography available, through the interpretation of the orthophotos of the aerial flights of the 1943, 1955, 1974, 1987, 1999 and the reading of P.R.G. 1976 with the support of the G.I.S has concurred to use the superimposition of the various thematic plans. Results show the main physical characteristics and of use/occupation of the ground. The various typologies of landscape units have allowed to follow the total evolution of the territory object of the search and also to know the morfologic variations of *open spaces*.

The process of urbanization and industrialization of the last decades has compromise seriously those leaves of territory, understandings like expansion areas, that are to the margins of the town but that they closely turn out connected to it; zones strongly characterized from an elevated heterogeneity as far as the use of the ground: yards, uncultivated, small wood, rubbish dumps, kitchen-gardens. The town is expanded not more in concentric way but radial; the green spaces, create a system of green wedges.

There is a progressive simplification of the urban landscape, its fragmentation, to an impoverishment of the natural habitats, some elements of mediterraneity that characterized them have been erased.

These *open spaces* lose their function of ecological corridors and connection between the coast area and the hinterland and became areas of strong degradation where illegal building industry has been encouraged.

In spite of this situation, there is a mosaic of partial natural biotops in which autochthonous, exotic and naturalized species are together with in good level of the biodiversity.

The long uncultivated stretch of territory marked by Valenzano stream and the secular olive trees, places in one suburban zone of the neighbourhood (previewed from the P.R.G. of 1976 like building) are examples to rehabilitate this urban context.

## **A 231**

**Mischa Meier:**

### **Prophecy and Disaster: Eschatological Expectations, Natural Disasters and the Transformation of Religious Beliefs in the 6th Century**

Natural disasters were well known phenomena in Antiquity. During the sixth century their relevance however underwent a change. As common chronological systems had calculated the end of the world to come about around 500 AD, the long series of natural disasters which occurred since the beginning of the sixth century was interpreted as a sign of that approaching end. In the context of strong eschatological expectations and together with the fact that the imminent end of the world did not take place, ongoing natural disasters had important implications for the process of transition from the East Roman to the Byzantine Empire. Older well-known and widely disseminated chronological systems came to lose validity and new systems developed. In common perceptions, the powers of the famous Holy Men had obviously failed as they were unable to prevent major disasters. Hence the search for new objects of worship: the rapid diffusion of the cults of Christ, the Virgin and of deceased Holy Men. The worship of these intercessors was practised through images, marking the beginning of the famous Byzantine cult of icons. Gradually the functions of the Holy Men underwent a change: formerly intercessors with God, now they intervened between the emperor and his subjects as the emperor himself assumed an amplified religious aura in order to place himself above and beyond the new and severe Kaiserkritik, one more consequence of the natural disasters of the sixth century.

## **A 149**

**Aysem Mert:**

### **Human Perceptions of Nature as the Basis of Environmental Ethics: Looking beyond Humanity**

The relationship between the human civilisation and nature is often perceived as one of domination. Yet, within the environmental philosophies context in both Eastern and Western cultures, various environmental ethics have emerged -some challenging the "domination paradigm". On the other hand, especially since 1970s the Western world has witnessed various currents of environmentalism, acting in the political realm and having both ethical and social implications. The "anthropocentrism versus ecocentrism paradigm" gives us an effective criterion for producing a typology among these different shades of green: the dynamics of the human-nature relationship, i.e. perceptions of nature. This paper sheds light to how human-nature relationship has been constructed by different environmental ethics, concentrating on three anthropocentric and two ecocentric philosophies the green spectrum comprises of: Free Market Environmentalism, Ecological Sustainability, Aboriginal Animism; Land Ethics and Deep Ecology. In each of these philosophies it is essential for

scientists to fathom the origins of perceptions of nature, and the ethical principles (e.g. individual interest, North-South equity, intergenerational equity or interspecies equity). The parallels between each of these philosophies and human perceptions of the surrounding environment would reveal the future of ecological ethics, and human valuation of nature.

## A 224

**Mara Mills:**

### **Writing Against Diversity: Ecological Indices and the Production of Difference**

According to the *Oxford English Dictionary*, the word "diversity" dates to the 16<sup>th</sup> century. However, the index of diversity in ecology, originating in the 1940s, represented the first attempt to provide a mathematical definition for the term. Further, the consolidation of diversity as a statistical concept fueled scientific interest in its precise signification; whereas prior to 1940 the word diversity was used loosely as a synonym for variety—if at all—by the 1960s, hundreds of articles in science journals each year addressed some aspect of "the diversity problem." By 1971, however, after thirty years of debate over the mathematical definition of diversity, ecologist S.H. Hurlbert demoted it to a "non-concept."<sup>1</sup> Nevertheless, a variety of diversity indices continue to inform population biology, as readily evidenced by a glance through any textbook of ecology.<sup>2</sup>

This paper proposes to trace the unlikely movement of diversity indices in their passage from linguistics to biology and later to "the human sciences." The earliest major ecological indices credited their inspiration to linguistic theory of the 1940s and information theory of the 1950s. For instance, C.B. Williams (1943) noted his indebtedness to *Yule's Statistical Study of a Literary Vocabulary*, explaining that his own index of diversity was the reciprocal of Yule's "characteristic," an estimate of the total number of nouns known by a given writer. Despite uncertainty among ecologists regarding the function and value of the diversity index, by the late 1960s many sociologists and anthropologists had adopted it outright for their studies of *human* populations. Calculating within the frame of industrialist capitalism, both the biological and sociological proponents of the index of diversity were able to produce a very particular type of order; one based on group difference, hierarchy, and competition.

Thus, this paper also examines the complex relationship—mathematically and metaphorically—between diversity and segregation. At the 1976 International Biometric Conference, G.P. Patil and C. Taillie argued that "diversity, like any other concept, remains elusive until it can be quantified" before they set about evaluating the diversity indices of the previous thirty years.<sup>3</sup> Epistemologically, variation has generally been pictured as the template, or information set, on which natural selection somehow acts. However, as I will argue in this paper, statistical concepts such as the index of diversity actually *produce* difference as a key object of study for biology. Rather than an input, always already in nature, data becomes differentiated in the process of its output from statistical models. Finally, indices of diversity have tended to naturalize social hierarchies as well as turn variation into an operand, or a potential tool for social manipulation. On the one hand, the traffic of diversity between the natural and social sciences has often relied upon hazardous anthropomorphism. On the other hand, "difference" fuels the division of labor, the functioning of databases and indices, and the process of evolution.

## A 187

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<sup>1</sup> Hurlbert, "The non-concept of species diversity." *Ecology* 59, pp. 67-77.

<sup>2</sup> Howard Odum's 1994 *Ecological and General Systems*, for instance, lists twelve common indices.

<sup>3</sup> Patil, G.P. and C. Taillie. "Biological Diversity: Concepts, Indices, and Applications." *Proceedings of the 9<sup>th</sup> International Biometric Conference 2* (1976), 385.

**David Moon:**

### **Were the Steppes ever Forested? Science, Economic Development and Identity in the Russian Empire in the 19th century**

Over the 19th century there was a long-running debate in the Russian Empire over whether the steppes of today's southern Ukraine and southern Russia had ever been forested, or whether they had long been open grasslands.

The clergyman-turned-scientist Ivan Palimpsestov and others believed that the steppes had once been covered in trees. They relied heavily on descriptive writings by people who had visited the steppes in past centuries. They argued that the trees had been removed by the Tatar and Mongol nomadic pastoralists, who had controlled the steppes prior to the start of large-scale Slav, agricultural settlement in the 18th century, and by the Slav settlers.

The counter-argument was put forward by a number of scientists, for example Karl Ernst Baer and Vasilii Dokuchaev. They used a wider range of sources and methodologies to reconstruct the past environment of the steppes, including descriptive accounts, place names, and, crucially, analysis of the soil. By 1880s Dokuchaev had demonstrated conclusively that the organic matter in the black earth (chernozem) which covered most of the steppes had been formed from decomposed grasses. Trees had been restricted to small islands in the steppes. Thus, the paper will examine the development of 'modern' science in the Russian Empire. The debate also concerned the economic development of the region. The imperial government sought to transform the steppes from semi-arid grasslands sparsely populated by nomadic pastoralists into a productive agricultural land inhabited by large numbers of Slav farmers. Once the steppes had been conquered militarily, however, the Slav, agricultural settlement was hindered by shortages of trees and moisture. The settlers needed trees to supply timber for construction and firewood, but it was also widely believed - on both sides of the debate - that woodland made local climates less extreme and moister. The point of Palimpsestov's argument was that if the steppes had once been covered in trees, they could be reforested, and the woodland would have a moderating influence on the climate, making it more suitable for arable farming. Dokuchaev shared this wider aim, but sought to provide a solid scientific basis for the sustainable agricultural development of the steppes, including plans for limited afforestation. Thus, the paper will investigate the role of plans for economic development in the debate.

The debate, it will be argued in this paper, also concerned the identity of the steppes. The heartland of the Russian state and settlement lay in forested lands around Moscow. Over the 19th century, there was considerable anxiety among educated Russians over the growing pace of deforestation throughout Russia. Thus, forests were important to Russians' sense of identity, together with their ethnicity, language, religion and predominantly agricultural way of life. Thus the paper will consider the extent to which those who argued the steppes had once been forested were trying to give them a 'Russian' identity prior to the Russian conquest and Slav, agricultural settlement of the region.

**A 221**

**Stephen Mosley:**

### **The Destruction of Daylight': Sun, Smoke and Health in Britain and the United States, 1880-1940**

It is widely acknowledged by urban historians that lack of sunlight in the large coal-fired cities of Britain and the United States was a major environmental problem by the last decades of the nineteenth century. High levels of smoke pollution from both industrial and domestic sources enveloped cities such as Chicago, Glasgow, London, Manchester and Pittsburgh in a permanent smoke haze that blocked out up to 80 per cent of their sunlight. Yet to date there has been little detailed historical research and analysis dealing with this important issue. In

this paper I examine the diverse effects of the “destruction of daylight” in cities and their hinterlands, focusing in particular on the belief that “sun-starved” urban populations were deteriorating physically, mentally and morally.

This notion first surfaces conspicuously during the 1880s in Britain, when explanations were being sought for a perceived decline in the nation’s economic and imperial power. Rivals such as Germany and the United States, with impressive rates of population growth, and reputedly breeding healthier citizens, were expanding their interests across the globe. It was by no means certain to contemporaries that Britain, where health investigators had begun to reveal the extent of “diseases of darkness” such as rickets in industrial towns, had the requisite human resources to adequately protect its overseas territories from their advances. Anti-pollution activists capitalised on these growing anxieties by arguing that smoke-filled skies endangered Britain’s global primacy by impairing the development of “a manly, vigorous, enterprising race” which would hold its own against foreign competition. In 1899 such fears were greatly heightened when at smoky Manchester 8,000 out of 11,000 men who wished to enlist in the British army to fight in the Boer War were rejected as unfit for active service. Clear proof, or so it seemed, that air pollution was a major factor in causing “physical inefficiency” in the British people.

The restoration of sunlight to Britain’s “malurbanised millions” was increasingly thought to be the next great task for its public health reformers. A task that acquired an added importance in medical circles when it became widely known that sunlight was a bactericide. The challenge was to be taken up by the London-based Sunlight League, founded in 1924 by the famous eugenicist Caleb Saleeby. In this paper I will briefly examine the work of this influential institution. According to Saleeby, the “future of the race” now rested with the robust descendants of “British stock” in the United States and Canada. However, by 1920 over 50 percent of all Americans were city dwellers, and the adverse health effects resulting from loss of light began to feature prominently in anti-smoke campaigns in the United States. To conclude, a comparative analysis of British and American concerns over the “destruction of daylight” in industrial cities will show that, despite some distinctive differences, by the inter-war years the anti-pollution activists of both nations had come to share very similar ideas about sun, smoke and health.

**A 233**

**José Mouthaan:**

**Early Modern Perceptions of Natural Disasters: The Earthquakes of 1688 and 1692 in the Kingdom of Naples and the Dutch Republic**

In early modern time, perceptions and explanations of natural disasters formed a particularly complicated issue since the concept of *natural disaster* as such did not yet exist. Because knowledge of nature was not sufficient to provide comprehensive natural explanations for the causes of, for example, earthquakes, volcanic eruptions, storms, and floods, these phenomena were not necessarily perceived as *natural*. In fact, in a culture highly influenced by religion, catastrophes were prevailingly ascribed to God’s discontent regarding the sinful behavior of people on earth. Considering the important religious contrasts in early modern Europe, I will investigate perceptions of natural disasters in the context of the two most important confessional secessions of that time, namely Catholicism and Protestantism.

Around 1690 the European continent was ‘shaken’ by several earthquakes. The seismic shocks not only caused considerable material damage but also gave rise to great anxiety among inhabitants of countries that were directly involved. In this paper I will deal with perceptions of and reactions to earthquakes in two apparently divergent countries, namely the ‘Catholic’ Kingdom of Naples and the ‘Reformed’ Dutch Republic.

The Kingdom of Naples was the first country to be affected by a disastrous earthquake. On the fifth of June 1688 a large part of the Kingdom, in particular the towns of Naples and Benevento, were severely damaged. Four years later, on the 18th of September 1692, the Dutch Republic was struck by a similar event. Although the damage in the Republic was much less compared to the destruction caused by the Neapolitan earthquake, in both countries the disaster evoked vehement reactions. As well as in the Kingdom of Naples as in the Dutch Republic the disasters were to a large extent ascribed to divine wrath. In both countries, a large number of texts appeared in which the earthquakes were interpreted as a divine punishment of sinful behavior on earth.

Despite this shared perception of earthquakes as tools of divine judgement of sins, opinions of how to react to God's wrath differed widely. Whereas the Neapolitans tried to come to good terms again with God by means of large processions, confession, and appeals to saints – conduct that was strongly regulated by the ecclesiastical authorities –, Dutch authors exhorted their readers to 'introspection'. According to these authors, the earthquake in the Dutch Republic formed a portent of a future – and more severe - punishment that could only be averted by repentance and sincere remorse for people's personal sinful behavior. In some of the Dutch texts, the Neapolitan responses to the earthquake of 1688 were even strongly criticized as 'popish superstition'.

Although religious interpretations of the disasters prevailed in both countries, at the same time, a number of books appeared in which the earthquakes were explained in natural terms. In these books, earthquakes were not ascribed to sinful behavior, but to natural processes. However, especially in the Kingdom of Naples the earthquake occurred in a period in which the relationship between natural philosophy and religion was characterized by strong tensions.

## **A 156**

**László Mucsi:**

### **Land Use Changes Due to Agrarian Compensation in Hungary in the 1990's: Case Study From the Great Hungarian Plain**

In this study the pattern and consequences of land use change around the village of Nagyszénás on the Great Hungarian Plain are discussed. Recent political changes including agricultural privatization and compensation in the 1990s have led to the proliferation of smallholder farms in some parts of the area. These new holdings have changed previous patterns of production, but the transformation has produced a range of environmental and demographic problems as well. Some indications suggest that the current pattern of landholding will continue to change over the next 10 to 20 years. However, these changes must be considered in the context of long-term agricultural change in the Carpathian Basin dating back to the early eighteenth century. Today's patterns are shaped in part by both the manorial system of the eighteenth century and the collective farming and cooperatives of the mid-twentieth century. Land use changes in the 1990s have not appeared on detailed maps yet; therefore, not only the field survey and the help of the local authority were needed but also remote-sensing and GIS methods had to be applied during the examination. For this research, the Landsat TM digital satellite images were used (1986, 1992, 1995) in ERDAS Imagine 8.4. Before application, the vector maps were digitized and raster maps were corrected into the Hungarian EOV (Unified National Projection) system. Moreover, for the earlier phases of landscape development and settlement changes, the historical maps of the first (in 1783) and the third (1894) military surveys were also examined. As a result of the compensation process, the agricultural spatial structure of the Great Hungarian Plain has fundamentally changed. The large agricultural estates have mainly disappeared. In the area of the former large fields, small lands (with some hectares) became the prevailing feature of the landscape, as it was also typical for a few years after the Second World War. Most of the

landowners are old and the technical level of the machines is low. These circumstances have strong influence not only on the existing land use methods but also on the land market of the area. Keywords: land use, agrarian compensation, GIS, remote sensing.

#### **A 200**

**Timo Myllyntaus:**

#### **Finland, 1800–2000 – An Odd-Man-Out? Industrialization with a Postponed Transition to Fossil Fuels**

The paper examines the growth and composition of energy consumption primarily in the 19th and 20th century. It is based on research results of a project that estimated the energy production and use in Finland since 1800 and calculated a national energy balance including both commercial and non-commercial energy sources. The paper claims that Finland industrialised on renewable energy sources. Only during the 1960s, in a mature phase of modernisation, the country actually switched from indigenous energy sources, fuel wood and hydropower, to imported fossil fuels. Why did imported fuels make a breakthrough so late as post-war years and why did they thereafter manage to replace indigenous sources in a very short time span? That is a pivotal question in the paper.

#### **A 118**

**Simone Neri Serneri:**

#### **Environmental movements in 1970s' Europe: the Italian case-study**

In the Seventies, environmental movements acquired a mass dimension in the major European countries, as a consequence both of the relevance and urgency of the environmental issues and of changes in the public opinion and the patterns of political mobilisation. The new environmental mobilisation signified a relevant enlargement of the mass basis of the traditional conservationist associations and, moreover, the development of a large network of local and national association, whose radicalism testified the close influence of and the connections with the 1968's mobilisation. The peculiarities of the Italian context don't clash with these main features and, on the contrary, contribute to explain the divergence between political environmentalism and the traditional party-system as much as the critical relationship with the left parties. Also in Italy – as in most European countries – the nuclear issue played a central role, because it largely gave rise to these divergences and because it acted as catalyzer for the aggregation of the movement on a national level and the gain of attention in the public opinion. Focusing on these points, the paper will analyse: a) the main steps in the developing of the Italian environmentalism as a mass-based movement between the first half of the Seventies and the early Eighties; b) its cultural and ideological background and the setting of its political agenda; c) its special features as a collective movement; c) its impact on the political and institutional system. The research is based upon a large recognition of the historical and politological literature and upon a survey of the press of the main environmentalist associations.

#### **A 133**

**Yngve Nilsen:**

#### **Also submit as an individual paper A 075**

#### **The state owned energy company Statkraft and the reconstruction of nature**

In a most recent lecture, the American historian Thomas P. Hughes introduces the concept of ecotechnical system as a system of both human made and not human made components mutually interacting. This paper will use this concept as a theoretical framework in the study of the Norwegian state owned power company Statkraft as a landscape entrepreneur. In Norway, hydropower is the only large scale source of electrical energy. The biggest producer

is Statkraft. Until 1986, the company was subordinate to The Norwegian Water Resources and Energy Directorate (NVE). From the early post war period, Statkraft had a crucial role to the rise of a Norwegian power intensive industry, and the company's activity expanded rapidly. From the mid 1960-ties, the large scale development of water power became increasingly controversial, from an environmental perspective. The first organised resistance was primarily based on aesthetical considerations and put forward by tourist organisations. Later, biologists from the universities had an important influence on the debate, claiming that the stability of the natural, vulnerable ecosystems was heavily affected by the large hydropower projects, thus threatening biodiversity. In some ways, Statkraft, and its superior governmental body NVE, were behaving pro-active towards the new, environmental criticism. One important way was the establishment of a new administrative unit, an office for landscape planning, in 1965. The office's first employee, and its leader through twenty years, was a landscape architect, with experience from planning public parks and gardens. The aesthetical considerations were the important ones during the first years of the Landscape Office's history. For instance, surplus blast blocks resulting from tunnel excavations and other construction projects, had to be shaped and covered in ways that made them look like natural components of the landscape. From the early 1970-ties, the office, which was now expanded into the Environmental and Landscaping Department, was employing a more mixed crew of experts, including biologists. Long term cooperation projects with university scientists were also established. Correspondingly, the department experienced the breakthrough of a more ecological approach to landscape planning. Not only the landscape, but also the aquatic environment, were now to be readjusted as "living nature", as stable biotopes, independent of human maintenance. We may say, as a compromise of the hydropower engineers' destroyed nature and the ecologists' untouched nature, the Landscape Department offered the constructed nature. Was the issue solved, then? The performance of an ecotechnical system is not only dependent on its various components, but also on what decides its rhythm. Is it the periodical, natural variations or the less periodical human induced variations? This dichotomy became particularly apparent with the liberalisation of the Norwegian power supply from the early 1990-ties. Since then, variations of water levels in the regulated water systems, the taproot of the rhythm of these systems, have been decided by the short term development in the energy markets. This, in turn, has become a threat to the biodiversity, once advocated by the Landscape Department.

## **A 252**

**Øyvind Nordli, Arnfinn Engen:**

### **Methods of climate reconstruction by grain harvest dates**

Instrumental observations are sparse in many parts of Europe before the national meteorological institutes were founded in the late 19<sup>th</sup> century. Proxy data has therefore been used for climate reconstructions in order to amplify our knowledge of climate variations and long-term trends.

A promising proxy source is farmers' diaries that contain biological information. The start of the spring work is related to spring temperature and snow depth in late winter, and the first date of harvest is closely related to spring/summer temperature. Correlation varies from about 0.8 to 0.9 or occasionally even better.

Around AD 1900 breeding of barley and oats started (Nordli 2002). The newly developed varieties were sent to the farms and taken into use. When used for temperature reconstruction purposes the "scale" is changed, if the new varieties reach ripeness earlier than the varieties they replace. Therefore, the transfer functions leading from harvest dates to temperature series are derived before AD 1900, while not before AD 1860 due to larger inaccuracies of the early instrumental observations. Thus, the period 1860 – 1900 turns out as the optimal period for establishing of the transfer functions.

Before breeding of the cereals started, there were some local varieties of the cereals. When the climatic differences were corrected for, the largest variation of ripening occurred for the oat cereal, but some local differences were also detected for barley, while the ripening of rye seems to be more stable.

Studies of the diaries have also started to check whether or not the grain fields were changed from one year to another. Most often the fields are situated at slopes of different steepness and orientation to the sun. If the crop is moved from one field to another, this might change the radiation energy and affect the time of ripeness. A potential risk occurs that the changed ripeness may be interpreted as a climatic shift.

It will also be discussed whether or not changed agricultural methods have had any influence of the start of the grain harvest. Around AD 1900 new agricultural methods were taken into use at many farms: Wet areas were drained and stones were removed from the fields making them more uniform. This eased the way for mechanical cutting machines that were also introduced in an increasing rate. The knowledge of how to fertilize the fields also emerged. By the use of the grain harvest data and the methods discussed above, we have succeeded to reconstruct spring/summer temperature in three climatic regions, south-eastern Norway since 1749, western Norway since 1734 and Trøndelag since 1701. The reliability of the reconstructions is discussed also by comparison to other proxies like historical frontal positions of western and central Norwegian glaciers.

#### **A 185**

**Jan Oosthoek:**

##### **Reforestation Scotland. The Flow Country debate and the rise of local conservation initiatives in Scotland, 1978-1999**

In July 1999 Forest Enterprise published its commitments on working with local communities in order to manage their local woodlands. Emphasis was placed on the regeneration and preservation of native woodlands and the expansion of broadleaf woodland and Caledonian pine forests. This statement marked the end of a long process of redefining forestry in Scotland during the last two decades of the 20th century. There were two related developments during the 1980s that made a reconsideration of forestry policy in Scotland unavoidable. Firstly, tax relief and grants resulted in a rapid expansion of forestry and great environmental damage in parts of Scotland, especially in the Flow Country. Changes in the law stopped the planting of the Flow Country. This was mainly the result of a large public campaign against commercial forestry staged by conservation organisations such as the Royal Society for the Protection of Birds and the Nature Conservancy. Secondly there was pressure from the same organisations on the Forestry Commission to plant more native broadleaf trees. This resulted in 1985 in the introduction of a Broadleaf Policy by the Forestry Commission. This paper examines the Flow Country debate and the broadleaf policy as catalysts for the emergence of local conservation initiatives, especially community forests, during the 1990s and considers what this means for the future of Scottish forestry.

#### **A 044**

**Lars Östlund:**

##### **Potash production in northern Scandinavia in the 18th and 19th centuries and its ecological consequences**

During the 18th and 19th centuries potash (potassium carbonate;  $K_2CO_3$ ) was produced in the forests of northern Scandinavia and exported to the industrially developed parts of Europe. The raw material for the production was deciduous species (*Betula* sp and *Populus tremula*), which formed a minor component of the coniferous dominated boreal forest at that time. The production was done locally by farmers, who identified suitable areas for burning potash far

from villages and settlements. Trees were cut and logs were gathered in large piles which then were burnt and the ash subsequently collected. After that a simple evaporation process in large cast-iron kettles and calcination took place and the high quality potash could be sold to merchants to a fair price. The production of potash was important for the farmers who could use the forest resources for their own benefit. The potash production ceased during the latter part of the 19th century due to competition from other ways of producing this raw-material and due to substitution of other chemicals. The intensive use of the old and large deciduous trees in northern Sweden during the potash campaign resulted in loss of important ecological niches and was the start for the large scale transformation of the boreal forests.

**A 178**

**Bernardo Pace:**

### **Naturalization of Unproductive Areas in Mediterranean Area**

The Mediterranean landscape has been characterized from a difficult equilibrium between the climate and the vegetation. Man has been the actor of the various changes that have characterized and characterize the presence or absence of the vegetation in some contexts. Urban environmental is one of the four total human ecosystem which subordinate continuously to the anthropic action comes (Naveh and Lieberman 1986). The changes of the economic activities have carried, in the last years in to the urban areas, industrial activities. Often these activities go on not more than few years, with consequent degradation of these areas now abandoned. In a lot of mediterranean areas there is a contrast between land-use and the site-use. The requalification, "rinaturalization" and rehabilitation by vegetation of these areas represents a important subject to develop urban agglomerate more sustainable. The study takes in account an abandoned industrial area of Bari, city in South of Italy. The connection of natural resources and green areas could represent a good chance to improve urban ecosystem, ecological space and urban quality.

**A 041**

**José Augusto Pádua:**

### **"Moved by a Blind Greed": Scientific Travellers and the Critique of Predatory Extractivism in the Amazon Forest**

When the Europeans first arrived in what is now known as the Brazilian territory, in the sixteenth century, they discovered two major tropical forest complexes: the Atlantic Forest, originally measuring some 1 million square kilometres, and the Amazon forest, originally encompassing some 4 million square kilometres. The colonial occupation of the Atlantic Forest was much more intense, specially trough export-oriented monocultures and gold and diamond mines worked by African slaves. The plantation system was also essayed in the Amazon coastal areas, but with much less intensity. The scale of the European presence was much smaller, basing its political domination on the military control of some strategic positions along the rivers and the creation of small riverside towns habited by a population of detribalised Indians and mestizos. The economic life of these towns was based on the extractivism of fishes, turtles, and tropical plants. When the scientific travellers started to visit the region, in the 18th century, their rationalistic critique of wasteful and environmentally destructive practices and technologies was not directed towards deforestation, which was not perceived as a major problem in the Amazon before the last decades of the 20th century, but to the predatory aspects of the extractivist economy. They blamed the irrational depletion or even annihilation of important natural stocks of useful fauna and flora. The paper will analyse the historical evolution of this critique, focalising the views of three Brazilian naturalists that visited the Amazon coming from other regions of the country: Alexandre Ferreira, in the second half of the 18th century, João Coutinho and Domingos Penna in the second half of the

19th century. Through an historical reading of their scientific writings we can detect the permanence of destructive methods in the hunting of turtles and manatees and in the extraction of plants for the making of drugs, food and other industrial uses, including an early warning against the environmental consequences of the “rubber boom” that started to dominate the Amazon economy and society after 1860.

## **A 128**

**Antti Parpola:**

### **Changing Perceptions: The Finnish Forestry Propaganda Bureau 1940-1960**

As modern forestry practices arrived in Finland at the end of the 19th century, forestry companies acquired large tracts of forests into their ownership. On these newly acquired lands, modern forestry practices such as clearcutting and one-tree monocultures were introduced. Industry profits soared, but the traditional outlook of Finland's coniferous forests was transformed. This led to large-scale protests from the public, as a result of which most of the land acquired by forestry companies was returned to their previous owners. The enmity between forestry companies and the public continued well into the 20th century, and it was to change only after World War II. In the aftermath of the war, forestry companies founded a special Forestry Propaganda Bureau (FPB) to promote modern forestry practices among the public. The FPB propagated the forestry sector and the profits provided by it as a guarantee of national independence, and the forests as the only natural resource, the "green gold," of an otherwise poor nation. The efforts of the FPB were to lead to a resounding success. The bureau's message of the forestry sector as a solid and independent economic foundation was well received in a country struggling with post-war poverty and crippling war reparations to the Soviet Union. As a result of the FPB's efforts, the Finnish perception of its forests was to change from that of national icon to that of economic profit. This view remained largely intact until the conservation struggles of the 1980's. In this paper the role of the Forestry Propaganda Bureau in changing a nation's perception of its environment is discussed, and the tools with which this was achieved are analyzed. Special emphasis is placed on the FPB's use of historical arguments in negating a historically unfavourable public opinion and in creating a more favourable one.

## **A 218**

**Marc Pavé:**

### **A Lasting Organization of Fishing in French Mediterranean Sea: The “Prud’homies” (1715-1850)**

Coastal fishing is a very fluctuating activity for natural and social reasons:- the resource is alive and natural, so its population and abundance vary- the sea environment is opaque and unstable- the navigation is subjected to weather forecast uncertainties- the fishing has to be done again each day for fresh fish supplying- prices change from day to day. The fishermen partly limit uncertainties thanks to their empirical and technical knowledge: “ a good fisherman is a crafty fisherman”. But access to the resource and the marketing remain problems in such an unpredictable activity. In the French Mediterranean Sea, this activity is regulated by the original system of prud’homies (fishermen labour relations boards). They are old since they began during the 14th century in Marseille. Today, the whole Mediterranean fishing is regulated in this way. This system proves thus its durability. The fishermen regularly elect amongst them between two and four prud’hommes (industrial arbitrators). Their powers are very extensive since they are the rulers of the community, arbitrate fishing affairs and administrate the common properties. They call together the fishermen when regulations have to be decided. In the transitional period from 1715 to 1850, public authorities organized a very substantial coastal fishing regulation, extending the 1681's

Ordinance “concerning the merchant marine”. Yet the French State did not call the prud’homies into question, nor during the French Revolution which considered them as free associations and encouraged them to expand: they were three from 1715 to 1789 and 23 in 1850. Moreover, during the Ancien Régime, their judicial verdict could be judged on appeal only by the Council of State and from 1790 they would be without possible appeal. The public authorities always confirmed the autonomy of the institution and got a little involved, in apparent contradiction with their politics of fishing. The bureaucrats considered it as an old and convenient instrument to settle conflicts. So they rarely intervened. The prud’homies only had few visible dissensions, but above all they very rarely concern the regulation of fishing. Nevertheless, no fisherman called the system into question. The secret of this astonishing durability probably lied in the organization of fishing, whose fundamental principle was to allow for all techniques to subsist. It established a calendar and delimited fishing grounds where every fisherman could fish. It deducted a tax from the benefits, which in a part was used by friendly societies. Fishing conflicts were rare and the courts rarely punished. This system combined competition and cooperation so that some could get rich and nobody would lose anything. It was a factor of identity and it ensured the control of marketing. It seemed to suppose that the fishermen own their boats. So, before the numerous environmental uncertainties, the mutual agreement and the self-government allowed an activity exploiting a natural resource to subsist without the occurrence of “tragedy of commons”.

**A 186**

**Jill Payne:**

**Informal networking as a platform for environmental protection and change in Scotland, 1960-90**

In twentieth century Scotland, aspects of landscape protection policy reflect the influence of unofficial networking between a small number of well-connected individuals with contacts within government circles. Since the former played active roles within the National Trust for Scotland (NTS) and the Association for the Protection of Rural Scotland (APRS), protection policy has quite often borne the stamp of these two organisations in a way that is out of proportion to the degree of official input they were allowed. Equally, NTS and APRS policy recommendations have sometimes been the result of intense negotiation between council members and their contacts with links to development bodies such as the North of Scotland Hydro-Electric Board. There are a number of instances in which the official standpoint of the NTS and APRS changed significantly as a result of compromises with representatives of these development bodies.

This paper will provide examples of how single individuals could both consciously and unconsciously bring their personal ideas and convictions to bear on issues that would ultimately become blueprints for landscape protection policy at a national level. While this situation need not detract from the integrity of the policies that it may have influenced, there should be recognition that, even in the relatively recent past, NGO policy decisions did not necessarily reflect general consultation and consensus.

**A 035**

**Juan Diego Pérez Cebada:**

**Public Opinion and Water Pollution Problems in Paris in the End of C.**

Both strong demographic growth and the installation of great industrial complexes in the periphery of the European metropolis put to a test traditional waste water evacuation systems. The dramatic increase of domestic and industrial spills became a serious public health problem both for citizens and institutions.

It is in that context a French mining company, with international connections, presents to the authorities in 1883 a project for the building of a copper pyrite transformation plant in Saint Denis, a village in the outskirts of Paris. *The Committee of the Riverside Neighbourhood of the Seine*, with the enthusiastic help of the townhalls and the support of experts and neighbourhoods, immediately starts a mediatic campaign. This campaign turns out to be a very successful one, and results in the withdrawal of the project, in spite of the great pressure the company subjected regional and national institutions to. The intense debate in the media, which frequently presented international pollution examples in this sector in order to support their respective claims, is an undeniable proof of the relevance of social conflicts related to pollution at the end of the 19<sup>th</sup> c.

#### **A 049**

**Boerge Pflueger:**

##### **The Analysis of long time series of Sea Ice at the South Cape of Greenland by using historical Ship-Logbooks and historical Ice-Charts.**

Most of the recent climate-models which are analysing the effects of the increase of carbon dioxide and other greenhouse gases predict a significant warming of the Arctic, with a strong decrease of sea ice. Also, several trend analyses of the younger period have been carried out, many of them also showed a decrease. It is assumed that sea ice should be an indicator for thermal increase. One of the problems with trend analysis is the fact, that the observation period of arctic sea ice is very short. Consequently it is not known if the recent changing in the ice formation is just a short event or a longer trend. To be able to distinguish between natural variances of the ice edge and human influx, some undisturbed information on sea ice are necessary. Many nations made ship observations of the sea ice for trading or military interests. Therefore, it is possible to get sea ice information of some areas from the last century. Older ice charts are not available. This work prolong the time series of the distribution of Sea Ice at South-Greenland into the pre-synoptic period by using historical Ship-Logbooks. The Danish "Kongelige Grønlandske Handel" sent hundreds of ships to the Danish colonies at Greenland. Each of the ships kept an own log-book, and a lot of these manuscripts survived for centuries in archives. The log-books contain information about the course, weather conditions such as rain, wind, and color of the sky, things that happened onboard, and also sea-ice sightings. It is very difficult to get useable information from one single log-book, as often the observations are rather poor, but together with other ship observations, it is a rich source. In this study, the ice observations are put into a Data-Bank together with original citations, following the HISKLID (Historical Climate Databank) example of University of Wuerzburg. With this Data-Bank and other available Ice Information it was possible to produce a time series of approximate 225 year of the summer-ice edge of the "Storis" of Kap Farvel, the Drift-ice at the South Cape of Greenland.

#### **A 024**

**Guido Nicolaus Poliwoda:**

##### **The one in a millenium flood of August 2002 and the role of documentary data**

The historical research of natural disasters is based on documentary data for the reconstruction of past climates. "Most man-made climate-related, textual (...) information is stored in documents. Thus, documentary data, is the most appropriate blanket term to be used for this kind of evidence. A climate historical source is an unit of information such as a manuscript, a piece of printed matter (books, newspaper etc.) picture or an artefact (e.g. flood mark or an inscription on a house) which refers to weather patterns or impact of climate. A source may contain several kinds of documentary data. Historical climatology attempts to reconstruct weather and climate as well as natural disasters for the last millennium prior to the

creation of national meteorological networks (i.e. in Europe about AD 1860). This is mostly done using documentary evidence including early instrumental data. Historical climatology also investigates the climatic vulnerability of past economies and societies as well as past discourses and social representations of climate.” (Pfister 2002). My thesis deals with social impacts, the floods of the river Elbe had caused in Saxony. The most disastrous floods ever happened in Saxony since 1500 (1784,1799,1845) mark the time horizon of this research. These floods were induced by climate anomalies. Referring these anomalies to the Little Ice Age – especially to the “Dalton Minimum”? Are there consistent links between climate impacts and social responses? Ice-jams and ice-floods caused enormous damages along the river Elbe, so in February/March 1784. An efficient disaster management by responsible officials did not exist in fact. The situation went out of control. This traumatic experience made the state develop diverse protection measures (e.g. demolishing the ice by the army, installation of a warning system). The disaster of 1784 became the turning point for a preventive disaster management (e.g. precautionary instructions to all officials, advising the riparian property owners to a flood protection plan, improving issues in public health). Local and national authorities started to mitigate the losses of the victims. The total damage amount stressed the financial system of the Saxon State over its capacity. In solidarity with the victims of the floods the society (priests, members of the church, legal advisers and judicial officers, ordinary citizens) started private donation campaigns, which were published in the “Leipziger Zeitungen”. From the end of the 18th century until 1830 Saxony developed into one of the most industrialising countries in Europe. The new economies were located on the banks of the river Elbe (using the power of water). One could argue that in managing a series of disastrous floods - with all economic and social implications - Saxony took its innovative role in the Industrial Revolution because of the social responses the society took on from 1784 onwards.

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**A 120**

**Brendan Prendiville:**

### **Environmentalism in France and Britain**

Environmentalism is a now a world-wide social movement whose short history is checkered by relative successes & failures. However, these ‘successes & failures’ of national movements are often as much determined by the cultural & political environments in which they take place as the objective state of the natural environment in the countries concerned. France & Britain are no exception to this & in this article we shall attempt a comparison between the environmentalist movements in each country with a view to demonstrating the combination of structural & cultural factors that explain their varying fortunes. In France, the shock waves of 1968 spawned an environmentalist movement which became highly active in civil & political society in the following decade. In terms of institutional politics, the first environmentalist candidate stood in the presidential elections of 1974, leading to the eventual creation of the ‘Les Verts’, 10 years later. In terms of civil society mobilisation, French environmentalism set

off the same year on a long struggle against the government's nuclear programme ; a struggle which continues to this day. In Britain, the different political culture gave rise to other forms of activity. Although the British ecology party was the first in Europe to be created in 1973, the political system is such that any electoral success was, & is, unlikely. Moreover, the dominance of the Labour Party in Britain has always been a block on alternative politics being heard. However, outside the corridors of power, the environmentalist stage was littered with associations in civil society putting increasing pressure on national & local government. Indeed, during the Thatcher years, the environmentalists were often seen as one of the main opposition forces in the absence of a strong institutional left. In both countries, the backdrop to this environmentalist activity is a longstanding conservationist sector which facilitated its emergence. The first militants were often, although by no means exclusively, conservationists frustrated by the conservatism of the nature 'protectionists' who refused to accept the social & political dimensions of ecology.

#### **A 019**

**Maria Rosario Prieto, R. García-Herrera, E. Hernández:**

#### **Early Records of Icebergs in the Southern Ocean from Spanish Documentary Sources**

The use of documentary records to reconstruct climate is a technique increasingly used within the last years. Particularly, Spanish documents are an invaluable source for the past characterization of climate and its variability in the former Spanish colonies, mostly in the American Continent and in the Philippines. The records of icebergs sightings in the Southern Ocean reported in the literature are very scarce for the period prior to the 20th century. The first reports seem to have been provided by Captain Cook in 1770s, during their expedition voyages. The aim of this paper is to present reports of icebergs sightings in the Southern Ocean from Spanish logbooks during the second half of the 18th century. The settlement of the Spanish in Peru and Chile since the mid 16th century originated the need of communication between the metropolis and the colonies. Most of it was established through the Atlantic fleets, which connected annually Spain with the Atlantic coasts of Mexico, Panama and Central America. This system was connected to the Pacific coast via Panama, where passengers and cargo had to travel by land from Portobello to the Pacific ports and from there to Callao or Valparaiso. However, the Southern route through Cape Horne, though discovered very early by Magellan (1520) when travelling around the world, was only used by individual ships that rarely risked to travel southern of 58-60° S to cross from the Atlantic to the Pacific side and then proceed northward. The most frequented route linked Cadiz with Valparaiso and Callao. During most of the 16th and 17th centuries only a small limited number of ships, the Registros del Sur (Southern Registers) were allowed to travel between Cádiz (Spain) and Callao (Peru). The ships passed through the Magellan Strait, while at the end of this century, the Drake Passage was preferred because it was demonstrated to produce a safer and faster travel. This was mostly used after the second half of the 18th century, when the royal monopoly for the trade between Spain and the American colonies was finished. Thus the Free Trade Rule (Reglamento de Libre Comercio) in 1778 opened the trade to a number of different ports in Spain, Argentina, Chile and Peru. This produced a dramatic increase of the transatlantic trade between Spain and Southern America and in the transit through the Drake passage. All the logbooks corresponding to the period 1740-1800 were exhaustively examined to obtain every possible record on icebergs. From them, all the logbooks covering total or partially the route Cadiz-Montevideo-Valdivia-Valparaiso-Callao and return were chosen. A total of 5 iceberg reports have been found. They will be described, specially those corresponding outbreaks associated to two big episodes: one occurring in 1770 and the other in 1794. Finally, their climatic significance will be discussed.

**A 236**

**Grégory Quenet:**

### **The State Facing Natural Disasters in France 18th-20th Centuries**

The 19th century represents the archetype of modern State policy facing natural disasters. In fact, historical studies (J. Delumeau, Y. Lequin, 1987; Fr. Ewald, 1986) use to insist on the following main aspects: the decrease of natural risk in comparison with human dangers (industrial, technological, military etc.); the continuous progress of political and scientific powers available to control natural forces; state responsibility to protect citizens against risks and to enhance its control over people's life, reaching as far as to what M. Foucault called "biopouvoir"; and, last but not least, the decline of religious interpretations allowing new fears to appear, which went along with a clear difference between popular attitudes and upper class knowledge.

Recent events and analyses show that this one-way history is in reality more complex and diverse. Natural hazards are still a problem and, in a certain sense, even a bigger one as the vulnerability of modern societies seem to have increased due to higher population density, more fragile installations, psychological shocks etc. State policies are challenged by extreme events and crises, on the point of responsibility, symbolical meaning, and local action. On the other hand, the definition of a modern state attitude, beginning in the 18th century, increasingly seems to be vulnerable to criticism (G. Quenet, 2002). It is true that, in France, Enlightenment philosophers debated about happiness and the way to protect populations against natural disasters. But the monarchy was more concerned with tax problems and stayed away from places hit by disaster.

My paper will not present a synthesis, dealing with state management of natural disasters in France from the 18th to the 20th century, but it intends to analyse this long-term problem following three basic ideas. First, I will specialize on earthquakes, because these rare and complex events were a real challenge for the common political and social machinery – a research strategy, which allows to discover hidden mechanisms. Second, the archeology of state policy until the 18th century is an important key to understand what is special about the 19th and 20th centuries: the succession of these two periods has not been examined in detail because it is supposed to be characterised by a logical evolution of state power. Third, local studies are necessary if we are to understand relations between the state, local authorities and populations. For all these reasons, my paper will focus on the Provence region where major earthquakes occurred in 1708, 1812, 1909 and 1913. All these events are well documented.

**A 001**

**Lajos RÁCZ:**

### **Environmental history of Hungary during Modern Epoch**

I try to show main environmental processes of Hungary since 16th century. For this analysis we have to accept two preconditions: physical environment and society there are interdependent relation; carrying capacity of the Carpathian Basin was very high therefore environmental crisis generally can develop in special situation, social-political and economic troubles coincide with physical environmental anomalies.

I will analyse the environmental transformations in Hungary from the 16<sup>th</sup> century to the end of the 19<sup>th</sup> century. I'm interested in relationship between self-controlled processes of the physical environment and activities of the human society. I will analyse two periods of the Modern Epoch:

1. **Turkis wars:** In the middle of 16<sup>th</sup> century the Turkish Empire occupied southern and central parts of Hungarian Kingdom. In the space of two decades constructed double lines of forts in the central belt of Hungary, Hungarian forts were up against Turkish crests. In Hungarian Plain weren't rock for fortification therefore

military engineers applied woods for construction of forts its' called pile-forts. For construction and reconstruction of forts cut down forests of Hungarian Plain and sandy area of plain lost his vegetation and temporary become desert (windy sands). There was sorrow speciality of Turkish wars a period of continuous warfare summertime attacked troops of sultan and wintertime followed on counter-attack of Habsburg Empire. There were two environmental crises period during Turkish wars when physical environmental anomalies coincided with continuous warfare: 1593-1606 and 1664-1711.

2. **Regulation of rivers:** During Little Ice Age one of the most important environmental problem was a large marshland in plains of Carpathian Basin. Regulation of rivers was crucial element of Hungarian modernisation program of 19<sup>th</sup> century. There were three targets of this program: improving of communication, increasing of arable land and controlling regime of watercourse. Regulation began in the middle of 19<sup>th</sup> century and finished in 1908 and eminently affected water system of Hungarian Plain. This was the largest water regulation works in Europe and his balance was very antinomic. Communication improved and became safer, but quality of new arable land was generally very bad. New water engineering system produced new risk factors: increased level of floods and River Tisza lost 90 % of fish-stock and collapsed ecosystem of Tisza (vegetation, mew, birds) really this was a environmental-ecological catastrophe in the Carpathian Basin.

#### **A 204**

##### **Ravi Rajan:**

##### **Clarence Glacken: Pioneer Environmental Historian**

Clarence Glacken is known for his book, *Traces on the Rhodian Shore*. Although *Traces* is more than 600 pages long and took a life-time to write, it was only one of Glacken's odysseys in to environmental history. In the four decades from his graduate student days at Johns Hopkins University to his retirement as a Professor of Geography at the University of California, Berkeley, Glacken erected a complex and fascinating theory of the development of environmentalism, which was kept from public view only because of his introverted nature and his commitment to perfectionism. This paper is an attempt to identify some of the key themes in Glacken's work. It has three parts: his view of history, especially on the importance of the history of ideas; the three themes of his early work: the Idea of a designed earth; Environmental Influence; and Man as a Geographical Agent; and the central issues underlying his unpublished sequel to *Traces*, especially, the importance of the concerns about posterity and aesthetics. The paper draws extensively from the unpublished and largely unused manuscripts and letters of Clarence Glacken at the Bancroft Library, University of California, Berkeley.

#### **A 006**

##### **Santiago Riera:**

##### **Land use changes and palaeoenvironmental impacts in Serra da Estrela (Portugal) during the last 350 years**

Serra da Estrela is the highest mountain range in Portugal. After 5,000-4,000 years BP, the area has been largely exploited by men, inducing deep changes in landscape : forest retreated and heathland expanded as a consequence of fires. The palaeoecological record from Alto do Peixao mire (1750 m a.s.l.) has furnished a new perspective of the complex landscape changes during the last 350 years (1650 AD to the present), caused by human activities (grazing, tree plantations, etc) as well as climatic oscillations. This study uses palaeoecological records as

well as historical, statistical and demographic sources with the aim to calibrate palaeoindicators and to explain the causes of the landscape shaping.

**A 096**

**Georg Rigele:**

**Thermal and Hydro Power in Lower Austria**

The characteristics of power generation in Austria's largest federal province from the late 19th century to the present - electrification from the bottom: private electricity generation even in remote rural locations and small municipal utilities (1890s-) - regional system building by public utilities and industrial generators (1900s-) - electrification from the top: the public electricity company of Lower Austria (1922-) and Austria's nationalized electricity industry (1947-) - introducing economies of scale - power generation in the liberalized European energy market - special focus on environmental conflicts from the 1960s to the present, including the decision of the Austrian voters against nuclear power in a plebiscite in 1978.

**A 011**

**Orlando Rodrigues:**

**The tragedy of the extinguished commons: public forest and land property rights in the North of Portugal (XIX, XX centuries)**

The village communities of the North of Portugal have combined a system of private property and common property regimes during a long historic period. In the early years of the XIX century the question of the commons gains notoriety. They believe that these lands are non-productive lands, and the attractiveness of the physiocratic ideas justify this particular attention. We discuss the problematic relationship state / commons and we sustain that there are clear reasons that explain the so resilient character of this property regime.

**A 232**

**Christian Rohr:**

**Living with the Calculable Disaster. On the Perception, Interpretation, and Management of Floods of the Danube River (13<sup>th</sup> – 16<sup>th</sup> c.)**

After the devastating flood of August 2002, which also caused severe damage to the city of Prague, floods and their management seem to be an even more relevant field of research for cultural history and for environmental history in general. Nevertheless, only few case studies about floods in the Middle Ages have been published (e.g. Odile Kammerer and Odile Redon, eds., *Le fleuve*. Saint-Denis 1999), mainly focusing on France.

In this paper, emphasis will be given to a 'mentality bound approach', which asks for the perception, interpretation and management of floods. It will be shown that these aspects are influenced by the expectation of floods. Contrary to many other natural disasters, such as earthquakes, floods were almost common to people living near the riverside. Towns, located around rivers, were confronted repeatedly with two different 'faces' of the water way: the axis of trade and wealth could turn into a threatening enemy, causing enormous or, at least, some damage to their property.

This study will particularly examine the reactions of people living close to the Danube river in 'Austria' between the 13<sup>th</sup> and 16<sup>th</sup> centuries. How did they experience these floods? What were specific interpretations of these days? Can they be called 'irrational'? How did they manage the floods (prevention, consequences)? What changed within the period of the late Middle Ages? Were 'public reactions', like the legislations of city councils, always equivalent to 'individual reactions'? Did people in the cities and in the countryside learn from experience

and change their living and working places in the course of consecutive flood events (a question, which has arisen again since the flood in 2002)?

The paper will be part of a major study on 'Man and Natural Disasters in Late Medieval Austria' (to be concluded in 2004), and thus it will also include a general theory of examining natural disasters from the perspective of cultural history. From a general point of view, the perception, interpretation and management of floods can be compared with other kinds of natural disasters by asking similar questions as I have done in an article dealing with earthquakes in late medieval Austria.

**A 161**

**Florian Ruhland:**

**Little Venices in pipes: Water and environment in pre-industrial cities in Central Europe and what we can learn from it**

This paper deals with water supply and sewerage as a part of the environment of pre-industrial European cities in the perspective of historical geography. The starting-point is the attempt to reconstruct (and deconstruct) the urban environment in Central Europe before the 19<sup>th</sup> century, about which our knowledge is quite poor. A lot of long-established myths, images and prejudices exist about the pre-industrial urban environment and about the way citizens dealt with it in the Middle Ages and early modern times. But they are not appropriate, because it seems that quite a lot of them are perceptions made up in the environmental crisis of industrializing cities in the 19<sup>th</sup> century, when modern centralized water supply and sewerage systems were introduced.

The results of a lot of disciplines and sub-disciplines must be taken into account, which represent plenty of approaches to the city and its environment. They range from urban ecology, urban geography, urban (environmental) history, urban archeology to urban engineering. But as urban ecology has been able to just develop partial models even of contemporary cities, historical investigation can't be holistic, but must be rather reduced to a core.

Water in the urban sphere is investigated in this paper under the main question, how the infrastructure of water supply and sewerage changed the "natural" urban environment and the urban cultural landscape, and why this infrastructure was shaped the way it was. Case studies are the cities of Prague and Nuremberg. An elaborated system of water supply with wells and pipes, in which water was pumped from rivers or the ground, developed from the late middle ages down to the early 19<sup>th</sup> century. These early water works and the connected networks of pipes can be described as "proto systems", a term introduced by Martin Melosi for early 19<sup>th</sup> century America. Very instructive and by then not exhausted sources of information about the pre-industrial urban water networks are plans from the 17<sup>th</sup> and 18<sup>th</sup> century as well as municipal books of pipes (in Nuremberg: "Röhrenmeisterbücher") and municipal books of wells (in Nuremberg: "Brunnenbücher"), which exist since the 15<sup>th</sup> century. These sources show, how the networks were adapted both to the local topographical and hydrographical conditions and the economical requirements. Taking into account the smaller surface areas of pre-industrial cities compared to the cities of today the length of the networks is impressive. Following André Guillerme who has stated that pre-industrial cities in northern France looked like "little Venices", a lot of cities in Central Europe could be described as "little Venices in pipes". A future perspective is to compare more cities than Prague and Nuremberg with the technology of a GIS.

Realizing a crisis of current centralized water supply and sewerage systems even in humid regions of the world one could think about a reconsideration of some characteristics which contributed to the stabilization of the pre-industrial use of water in cities without neglecting its limits and disadvantages. This didactic aspect of water in pre-industrial cities

could be important with the current plans of rebuilding urban infrastructure in western societies and with the building of urban infrastructure in less developed countries.

**A 189**

**Daniel Samson:**

**Regulating Forests and People: Colonial Forestry in Mid-20th-Century Newfoundland**

The period from 1934 to 1949 was a great interregnum in Newfoundland history. Poised on the brink of collapse, the island dominion of the British Empire was within weeks of economic collapse before Britain stepped in to guarantee its international debts. The price was high, as the dominion had to surrender self-government, and accept rule by an appointed body of six colonial officials. The suspension was to be temporary. In 1949, however, after the economic prosperity of the war years, the island became a province of Canada rather than resuming self-government. Much of the basis for that economic prosperity - low unemployment, industrial diversification, infusions of Canadian and American capital, and a healthy dose of state-planning - developed into a formula for future action.

Before 1934, Newfoundland was probably as close to a completely *laissez-faire* state as existed in the western world. With no local government, and all dominion government centralised in St. John's and almost completely dominated by that city's great fish merchants, any form of regulation was an anathema to the "merchantocracy". In a country where fish accounted for 60 per cent of exports and 70 per cent of employment, there was no government department responsible for any component of the industry. It was a true open-access resource. The state did, however, step in to encourage economic diversification, most notably in the forest sector. Initially, that entailed nothing more than giving out leaseholds for much of the island. But the colonial planners of the 1930s, attempted to push the island toward greater regulation of its forest resources.

This paper examines the expansion of state-led forest conservation and regulation in the period of the commission of government and the first few years of the provincial history of Newfoundland. Resistance to such programmes was great. There was some resistance from business, but for the most part the large pulp companies did not yet see any need for conservation measures, and moved forward accordingly. Where the resistance was greatest, however, was in communities along the coast where for the past 200 years fishing villages had had unregulated access to the forest, and were now seeing both government and business denying them free access to the forest. What is truly fascinating, though, is the recognition on the part of state-planners that regulating forest access could be an effective part of the process of disciplining and regulating a population that it deemed too individualistic. Be they development agents from the colonial office, or Department of Forestry officials from Ottawa, outside experts agreed that scientific management practices could be made a part of not only modernising Newfoundland's forest economy, but also its political culture.

**A 183**

**Gloria Sanz-Lafuente:**

**Economy and Nationalism: Forest engineers and the protection of the woodland during the Franco's Dictatorship. 1939-1960**

This paper deals with the image of the nature, with the concepts of preservation among the forest engineers in the practical field of the science of forestry during Franco's dictatorship in Spain and on the practical consequences of these concepts. It stresses the importance of professional traditions and the education of this professional group as well as the influence of dictatorial nationalism and of economic necessities in the making of the key concepts of nature and forestry. In this respect, the study focuses on the highly relevant review "Montes", on other contemporary publications and on the central texts of the legislation of the

Dictatorship in order to show the persistence of a conservative and nationalist image of nature and preservation policies.

First it is presented the persistent influence of a Nineteenth-century rooted image of the nature in the courses of instruction for future professionals in Spain. Nature was not considered as a changing system with relations among its parts but as synonym of „nation“. In this respect the image of a „Spanish Forest“ with „Spanish plants“ persisted for a long time. The felling of autochthonous species and the defence of new plantations with fast-growing species – especially pine and eucalyptus-, as well as the disregard of regional and local differences were basic approaches of the science of forestry.

On the one hand this key concept was widely diffused by many empirical forestry studies and scientific analyses, a concept, which was mirrored in the proclamations of numerous scientific conferences and the pilot papers of professional associations in Spain. On the other hand, it is obvious that in this period also critical studies emerged among the scientists of forestry. However, these deviating approaches were not able to win recognition in the academic and scientific milieu. Moreover, both dictatorial nationalism and timber industry contributed to disseminate these “national” approaches with the aim of increasing national woodland, to enforce the concentration on some selected species and to rationalise the exploitation of these resources

After studying this approach of forestry and of woodlands’ preservation in the foresters’ academic and scientific milieu the paper focuses on the forestry politics of Franco’s Dictatorship. The analyse of the legislation concerning the preservation of the forests shows a close relation between political measures and the prevailing scientific approaches. From the period of economic autarchy in the thirties and forties to the era of economic development in the sixties forestry politics of Franco’s Dictatorship introduced only slightly changes, missing any reflections about regional diversity and local uses. Moreover public institutions like the Dirección General de Montes, Caza y Pesca Fluvial contributed to disseminate in the curricula a conservative, nationalist and over-simplified image of the protection of the forests through the celebration of the "Day of the Tree". To sum up, it is pointed out, that during the dictatorship on the ideological level a mistaken identification between nature and nationalism persisted, and on the practical level a one-sided increase of the plantations with economically profitable species has been enforced.

## **A 201**

**Heinz Schandl:**

### **The transformation of the energy system in the United Kingdom from 1750 to the present day**

In our paper we portray the UK society, beside having many features, as a system that permanently has to organize an exchange of energy and matter with its natural environment. The energy basis of all social and economic activities around 1750 solely stemmed from biomass resources such as firewood, crops and feedstuff. Only a small amount of energy was delivered from other sources such as wind and water. This solar energy basis was rapidly transformed starting around 1800 when reasonable amounts of fossil energy carriers could be mobilized to energize the UK economy. The historical transition of the energy system went through different phases from the solar to the coal regime and finally the oil and gas regime. Currently, electricity is playing an ever more important role. These changes in energy utilization went alongside the capitalisation of the UK economy and had major effects on land use, forest management, foreign trade and were related to specific effects and pressures upon the environment. On the basis of yearly data we can show an advantage of the UK economy during the 19th century in terms of available energy, which went hand in hand with large exports of coal. These exports eventually enabled other economies to catch up in terms of

their energy resource basis. Our data also shows that the UK economy always has been and still is a net importer of nutrition and feedstuff. This was possible due to the economic advantage and the purchasing power of the UK economy. Not only did the quantity of energy utilized rise dramatically, also the quality of energy changed. Beside the aspect of primary energy resources the paper discusses different steps in the chain of use of energy from primary to useful to final energy. Primary sources of energy will be allocated to specific uses of energy taking into consideration the different efficiency of energy conversion processes due to different prime movers such as the steam engine or the internal combustion engine. This disaggregation of the primary energy data allows for discussing qualitative aspects of energy such as the capacity of energy to deliver work. Although presenting historical data the paper uses a methodology well in line with the state of the art of energy accounting both with regard to methodological decisions and categories used. Finally, we discuss links between the energy basis of the UK economy and the related economic performance.

**A 101**

**Tina Schmid:**

### **The spatial imprint of lifestyle changes**

It is no astonishing association to relate human consumption of any resource to the question of space. Especially food consumption has, since the first appearance of the concept 'carrying capacity' on the academic agenda, been central to the discussion (Malthus, 1798; Boserup, 1965; Ehrlich, 1968; Meadows et al, 1972). The idea of an ecological footprint and the carrying capacity of a certain area have been formerly made focus of several different authors (Wackernagel and Rees, 1996). But as well in a more specific historical and geographical context, the relation of food and space is a most intriguing one. Looking back, the human consumption has changed not only in quantity but as well in composition. These changes led to an alteration of the supply- and deposition- hinterland. The broader question would therefore be: how did lifestyle changes over time, in this case the consumption pattern, alter the area, which is needed for the supply of every individual in quantity, quality and location? Focusing on a Swedish city and its history of consumption, supply and deposition for the activity of nourishing, this study tries to describe and analyse the factor of space within this development for the 19th and 20th century. It aims to answer, which changes there are in the use of area and how much area is needed to sustain the consumption of a local population in a certain cultural circumstance. How do distance and extension shift within a historical context - where does the actual impact of consumption take place? In which way does the interplay of city and hinterland/region change? Does a differing perception and definition of space and the dynamics within these systems transform the outcome of such an investigation? Furthermore it will try to establish the factors behind these changes and why they developed in this way. Is the outcome of these historical changes at all related to any form of environmental degradation and how does the regional biodiversity change as a result of lifestyle changes?

**A 134**

**Dieter Schott:**

### **Cities and Rivers in Germany and Britain: Explorations into a complicated relationship within environmental and urban history**

There is almost no major European city without a significant river. Rivers have been essential for the foundation and growth of many cities. But the ambivalent nature of the location close to a rivers has recently become all too clear with the disastrous floods in Central and Eastern Europe in August 2002 affecting Prague and seriously damaging Dresden as well as many other towns and cities close to the Elbe. Only two years ago similiarly disastrous floods affected many British towns and cities. The paper will analyse the location of a city on a river

not simply as a natural asset but will show the complex relationship of cities and their rivers. Since the late 18th century we can observe an increasing scope and scale of attempts undertaken by cities to manage and utilise their rivers. These attempts have been supported and facilitated by technological innovations as well as mental and cultural re-interpretations. The paper will identify major steps in this transformation process of riversides in German and English cities from the middle of the 19th century till the end of the 20th century. It will ask who the principal actors behind these transformations were, which aims they pursued, what perceptions on the relationship of city and river they advanced and how and to what extent they succeeded in realising their objectives. Different types of cities and river locations will be included, among them the inland port city of Mannheim on the Rhine, the maritime port of Hamburg on the Elbe and the English inland city of Leicester with a smaller but nevertheless in the 19th century economically significant river. There will also be a reflection how far changing usage patterns of rivers and riversides correlated with economic structural change and change in cultural values and environmental perceptions.

**A 199**

**Niels B. Schulz:**

**The transformation of the socio-economic energy system in Europe: A comparative analysis of the development in the United Kingdom and Austria**

We present a comparative analysis of the socio economic energy system of the United Kingdom and Austria from the early 19th to the end of the 20th century. Comparing the UK and Austria implies to contrast two national economies that a) were in a rather different state of economic development at the beginning of the 19th century and b) followed a different pathway of industrialisation. The UK was the leading industrial economy throughout the 19th century. It was characterised by a rapid and discontinuous industrialisation process, starting in the early 18th century. The increasing consumption of coal was an essential feature of the UK pathway to industrialisation from early onwards. Austria, on the contrary, has often been termed an economy of retarded industrialisation, following a rather slow and continuous industrialisation process, and a late introduction of fossil energy, after 1850. We build up a consistent and detailed dataset on extraction and trade with primary energy for a time period ranging from 1830 to 2000. Methodologically our data is organised in the framework of material and energy flow accounting (MEFA). This does not only consider technical energy, but includes all forms of energy that enter the socio economic system. This is relevant for a long term analysis to recognize the transition from a solar, biomass-based to a fossil fuel based energy system. We present a comparative analysis of this dataset, discussing the development of important headline indicators within the MEFA framework like Domestic Energy Consumption (DEC), Direct Energy Input (DEI) and imports and exports of energy carriers. We will focus on the qualitative and quantitative differences and similarities of the transformation of the energy system in the two economies, relating the changes in consumption patterns of energy to economic development and changes in efficiency of energy use. Furthermore, as the transformation of the socio-economic energy system can be conceived as a process of de-linking the energy system from land use we will also address the issue of the changing relation of land use and energy.

**A 139**

**Anton Shkaruba:**

**System analysis of the urban historical dynamics: application of cemetery studies**

Cemeteries are unique formations in the cities. Throughout all cities' history, the urban population needed places for burial; thus cemeteries fix all events of urban dynamics both in times of prosperity and decay. Cemetery studies may greatly contribute to the environmental

history of settlements. This is particularly relevant because some data that is collected in graveyards may not be obtained from any other sources, e.g. municipal reports or historical records. It is crucial for the studies of recent urban history of former Soviet cities, because of the lack of reliable officially published statistic. Thus, the study is aimed at exploring applications of cemetery studies in the former Soviet city to its social and cultural dynamics over the second half of 20th century. Three case studies have been performed in the city of Mogilev in Belarus. Their programme comprised of the mapping of planning patterns, temporal zones, family burial places, and vegetation cover in the cemeteries. The mapping was supported by interviews, and unpublished data of both various municipal offices and burial companies. The data has been compared and revised in terms of spatial and development patterns of city space, and adjusted to the main tendencies of municipal management. The Soviet cities cemeteries had lost their parish and monastic status. Another typical process of the period is the gradual loss of religious and national features of graveyards; however, this can be found in the names of some cemeteries, e.g. Polish, Jewish, The Resurrection. Thereby correspondence of deceased to their former addresses/living site locations becomes rather occasional that also resulted from the demolishing of some of the city's cemeteries. However, earlier the main graveyards that have been situated around the downtown, they still exist. Thus, the belt of old cemeteries, confined within the city core can be delineated in the map of present Mogilev. The second belt of cemeteries is situated within the city periphery and suburbs. It consists of rural graveyards and graveyards founded near industrial estates and hospitals. During 70s-80s two new cemeteries were added to the second belt. Internal structures of the cemeteries are well corresponded to the described spatial pattern. The study has provided us with numerous evidences on close links between the geographical location of cemeteries, purposes of their foundation, and their spatial and functional patterns. They have been analysed from different perspectives, e.g. physical characteristics, ownership and purpose, sacredness and the site's ability to promote or protect the individuality of the deceased and symbolical meanings. CLD (causal-loop diagram) techniques have been applied to evaluate the study outputs. When compiling CLDs, an analysis of system dynamic of cemetery-city space interactions, and identification of main actors, driving forces, and system links were performed. Thus, the list of indicators has been created and verified. Further research is planned to obtain and analyse quantitative data, which will provide a basis for mathematical modelling of social, environmental, economic, and cultural interactions of cemeteries with urban environment.

## **A 055**

### **Harri Siiskonen:**

#### **The breakthrough of chemical crop-protection in Finnish and Swedish farming**

The transformation of agriculture from a subsistence way-of-life to a commercial business started in the nineteenth century, particularly in the United States. The great leap from mixed organic farming to commercial farming took place in the industrialized countries soon after the Second World War. Important preconditions for commercial farming were the new innovations made in agricultural chemistry during the war. The large-scale adoption of agricultural chemicals had a profound effect upon the organization of agriculture; it destroyed the framework of the previous system of mixed organic farming that was based on a combination of animal and field husbandry. Since the Second World War specialization in a limited range of products, which are all destined for market, have been characteristic to European farming. Pests have been controlled by crop-protection chemicals which reduce the need for crop rotation. Farmyard manure has been replaced by chemical fertilizers, making it unnecessary to keep livestock. Due to technical, political-economic, and organizational changes farms have become fewer in number while larger, more heavily capitalized,

specialized, and rationalized The objective of my paper is to examine the transformation of agriculture from mixed organic farming to specialized commercial farming in Finland and Sweden by analyzing the adoption of chemical pest control methods among farmers. The topic is approached from two points of view: 1) how the new crop-protection chemicals were introduced to farmers by pesticide dealers, agricultural specialists and agricultural authorities, and 2) how the new crop-protection methods were adopted among farmers. The study is based on the leading Finnish and Swedish agricultural magazines and on pesticide guidebooks published.

**A 110**

**Robert Skenderović:**

**The Relationship between Population Development and Environment in Slavonia (North-East Croatia) in 18<sup>th</sup> Century According to “The Secret Maps”**

The environmental history is closely related to the history of population. The development of population is strongly determined by the environment. The aim of this paper is to present the impact of environment on the development of population on the case-study of Slavonia. As the primary source for this paper it will be used “the secret maps” made by the Hofkriegsrat in Vienna at the end of the 18th century. As the part of “the secret maps” there is detailed description of maps (Beschreibung). Beschreibung contains the detailed description of forests and waters in Slavonia, therefore it is good source for research of the water history and the forest history. Using the secret maps and Beschreibung it will be presented the reason of slow and limited development of population in Slavonia during that period. “The secret maps” were made for military purpose. Vienna's headquarters was interested in forests, roads, sources of drinkable water and other waters (rivers, springs, lakes, swamps) as the natural barriers. Nowadays, these maps are good source for the environmental history.

**A 045**

**Christoph Sonnlechner:**

**Standardized Land-Use Patterns as a Means of Creating an Empire? Rethinking the Carolingian Integration of Conquered Territories by Having a Look at Local Agro-Ecosystems**

During the early Middle Ages the center of European politics shifted from the Mediterranean to the northwest of Europe. The proposed project suggests having a look at environmental factors for explaining this shift. Recent studies made clear that the introduction of new plants like rye and oats into European agriculture took place during the early Middle Ages. These plants grew best in the climate north of the Alps, where they found ideal growing conditions due to humidity and suitable soils. The introduction of these cereals combined with the emergence of a land-use system based on small economic units (mansus, colonica ...), very often to be detected in the form of the bipartite seigniorial system, seems to have created an extremely successful and relatively stable system of farming. The proposed paper will focus on land-use strategies in late Merovingian and especially Carolingian times, ca. 700-900. It is assumed that after the breakup of the Roman empire land-use systems in Europe became more decentralized due to the lack of a central authority. Very specific types of localized agriculture emerged, forming highly sophisticated agro-ecosystems. With the rise of the Carolingians, a lot of former independent European regions like Provence, Bavaria, Saxony and Aquitaine were (re-)conquered and integrated into the Carolingian empire. The paper will exemplarily demonstrate how two new territories, Provence and Bavaria, were integrated by the implementation of the Frankish land-use systems. It is believed that a central system of land-use, the bipartite one, based on the mansus established first in the Paris-Basin led to an agricultural surplus necessary for successful warfare and conquering of land, but also for the

cultural development in the Carolingian Renaissance (Renovatio). Land was the interface between man and nature and the most valuable resource in a solar based energy system. The so-called 'mansus-system' ('Hufenverfassung) was needed, and therefore pushed, by the central Carolingian authority to provide decision makers with an overview and to recruit people. On the other hand, the mansus seems to have been a very flexible physical, social and ecological unit, to be applied to several natural environments from plains to mountains. Perception of land by early medieval people and institutions on the one hand, and understanding of agricultural practices and production systems on the other hand, will be dealt with, examining interactions between society and nature as being observable in the establishment and change of agro-ecosystems. Such an approach will enable us as well to retrace the development of European landscapes in a very crucial period of (re-)structuring and expanding settlement.

## **A 108**

**Gerhard Stadler:**

### **Petrol mining in the cultural landscape in Lower Austria**

The Lower Austrian Weinviertel is an area determined over centuries by viticulture and agriculture, which was reshaped through petrol mining in the 20th century. Austro-Hungary has been provided with major petrol sources in Galicia. At the change of the 19th to the 20th century the Habsburg Monarchy was counted amongst the biggest petrol mining countries in the world and was ranked third by the output behind the USA and Russia. When in 1914/15 the Galician petrol fields became theatre of war a search for replacement started in other parts of the monarchy. The exploration in the northern Vienna basin started in summer 1915 in the area of St. Ulrich. First drills however were dry, but the findings of the geologists induced to optimistic prognosis. In the year 1930 the first rich drill was made at Windisch Baumgarten. Those of the so-called Northfield at Neusiedl at the Zaya followed the development of the regions around Zistersdorf. Beside some Austrian enterprises several foreign companies participated in the erection of the mining installations in the Weinviertel. Drilling derricks grew out of the crop fields and the vineyards, followed by pipelines, shipping and railway stations. After the Austrian "annexation" to Germany most of the mining rights suffered compulsory expropriation. During the reallocation of the concessions German enterprises were favoured. In World War II the Northfield evolved to the centre of the petrol mining of the German Third Reich. After the war the installations of all petrol enterprises were confiscated by the Soviet occupying power, disassembled, and shipped to the East. In the year 1947, however, the soviet petrol policy had changed: new equipment and machines now came from the USSR to Lower Austria, where until 1955 the mining was almost exclusively done for the occupying force. The end of the occupation and the restitution of the confiscated petrol companies lead to a renewed phase of investments in the Lower Austrian petrol mining. However, most of the developed occurrences e.g. in the Northfield were depleted. The further extension of the petrol mining in Lower Austria therefore focussed on the Matzener Field, which had been explored since 1949 and emerged to be the greatest petrol field of Middle Europe, counting amongst the giant fields of the world. Although as of today new drillings are seldom in the Weinviertel, and the oil is pumped virtually soundlessly out of the available petrol fields, and mining activities are rarely recognized, land and people have irreversibly changed: the geological mutations in the drilled horizontal layers remain indiscernible, the drain pumped reservoirs, the drilling holes, and the petrol spoiled soil. On the surface one can only see sporadic drilling derricks and oil rigs, like in the Northfield, where the drilling derricks, that are typical for this region, remind of the time of the petrol pioneers. Also remaining are the service roads, tank farms, the pipelines, the distillation facilities, and refineries. The humans, who left their home and farmyards when the petrol mining began to

flourish, giving up their fields, in an attempt to make their luck in the new petrol industry, are not needed anymore today.

**A 077**

**Heiko Stangl:**

### **Historical Floods in the Dutch Rhine Delta**

The rivers and their hazards have always been of major importance in the Netherlands. Human settlement, trade activities and cultivation close to the water reached a considerable level as early as the Medieval Optimum. City accounts from Deventer and Arnhem, dating back to about A.D. 1350, provide valuable information over many centuries. The financial consequences of flood events concerning dike protection and repairs are especially mentioned in these records. Monastic chronicles or weather diaries written by individuals give further information about the extents and often even about the causes of flood events. Time series for flood development on the Rhine branches Waal, Nederrijn/ Lek and IJssel in the Dutch Rhine Delta will be presented in this paper. The results show clear variations of flood frequencies on various time scales. Yet, periods with frequent floods and periods with few floods did not always occur simultaneously. This is especially remarkable as the hydrological regime of all the three Rhine branches is almost exclusively controlled by the discharge of the Lower Rhine, whose flood series will also be discussed. The reason for this may be found in historical documents as well as in a wide range of secondary literature. Generally, the evolution of flood events is subject to a wide range of influences – not only to climatic parameters but also to other geophysical aspects such as the morphometric structure of the river basin or to social aspects. These factors apparently have been of special importance for the Netherlands. For centuries, human interventions (e.g. by dike construction) as well as natural events (such as displacements of erosion bases following catastrophic storm floods) have been of substantial influence. Based on statistical tests and qualitative comparisons, we have tried to identify possible fracture points in historic flood development. In some cases, these phases seem to be connected with singular events documented in historical records. Sometimes, climatic change seems to have caused a significant change of flood frequencies, while for other phases, we were not able to identify a definite reason within the multitude of potential factors. Moreover, in the case of the Waal it is possible to compare flood frequencies based on documentary data with the recent development reconstructed from standardized instrumental measurements. For this Rhine Branch, both the absolute values and the recent changes of the flood frequency seem to be within the range of the historic development. We thus may assume that floods in the Rhine Delta have been a substantial hazard for more than 600 years and that during some phases and in some regions disastrous events might have occurred more frequently than within the past two centuries.

**A 214**

**Dmitri Starostine:**

### **Environment Imagined and Real: Representations and Misrepresentations of Landscapes in Cistercian Documents**

Charters, plans, and other documents from Cistercian monasteries stand out because of their interest in representing land- and waterscapes. Filled with precise descriptions of valleys, forests, creeks, and bogs, they suggest representation of environments was critical to the order's abbots and monks. Yet they also pose a dilemma: in depicting land- and waterscapes, did monastic scribes follow the peculiarities of topography or did they impose a vision of what the ideal Cistercian monastery and its domain should look like? Examining how environments were portrayed in the cartularies of Clairvaux and Cîteaux, and the patterns these documents established for other Cistercian monasteries, this paper will demonstrate the

intricate balance between real and imagined land- and waterscapes in this order's representations of environment. It will also emphasize the importance Cistercian patterns of imposing spatial organization on environment had for other Benedictine monasteries.

#### **A 243**

**Peter-M. Steinsiek:**

#### **Approaches and archival sources for transforming historical data into reliable ecological information**

According to Leopold von Ranke (1795–1886 AD), one of the most important German historians in the 19<sup>th</sup> century, the main task of history is to describe “how things actually looked like”. This is, however, extremely difficult: Historians need to detect relevant historical sources first, before they can start to evaluate the information in there critically. This means that the historian has to take into consideration that each document which comes into the archives is characterized by the selective perception of its author and by the chances of tradition (e.g. losses by the impacts of fire, annulments by archivists etc.). Therefore, a research project dealing with the reconstruction of historical species diversity, has to consider the role the historical data play in the research process attentively. Our aim is to reconstruct mentally how the historical species stocks of a marshy landscape in Eastern Germany looked like. Wild animals and plants only used to be mentioned in the records, when they were estimated to be either very useful or harmful for the people. There are generally no quantitative data. Moreover, proper lists containing the names of species which lived in certain habitats are extremely rare. A large spectrum of sources like hunting regulations, laws on the control of locusts, sparrows and wolves, county inventories and other descriptions needs to be investigated. However, only single entries can be expected. In order to gain a larger knowledge out of this sparse information at least in part, the historically relevant ecological site factors must be reconstructed first. On this basis it is possible to develop hypotheses on certain plant communities for example and to derive the historical existence of certain species which cannot be proved directly by archival records. Precise historical maps can be taken as excellent sources of information. They allow to associate the plant communities, we have derived before, to the respective mapped habitats. By this means, the historical situation might be compared with present conditions, too. This picture can be drawn only with the help of modern ecological knowledge and the modelling of the historical species stocks, by combining historical methods with up to date ecological know-how.

#### **A 165**

**Myra Steyn:**

#### **Indigenous plant usage amongst the Basutho in the Mountain Kingdom of Lesotho. Part 2: Alleviating malnutrition and food shortages amongst the Basutho by promoting a return to historical wild plant consumption.**

Since obtaining independence in 1966, successive governments in Lesotho have struggled to obtain food security for this small mountainous and land-locked kingdom in Southern Africa. Between 1966 and 1994 the geographical setting of the country (i.e. being completely surrounded by South Africa) worked to the advantage of the Lesotho government and ensured a constant supply of foreign aid to enable the country to withstand political and economic pressures from apartheid South Africa - foreign aid that also enabled the government to address the problem of food security. However, the fall of apartheid and the establishment of a multiracial democracy in South Africa in 1994 impacted negatively on the political importance of Lesotho and led to a sharp reduction in foreign aid in the course of the 1990s as international donors redirected aid to South Africa. This state of affairs along with consecutive droughts in the 1990s negatively affected food security in Lesotho which in turn

resulted in widespread malnutrition and food shortages in the rural areas that constitutes more than 80% of the country. While the immediate cause of malnutrition is poor feeding practices and food shortages are exacerbated by persistent droughts, harsh climatic conditions, poor infrastructure and lack of governmental actions, both malnutrition and food shortages in Lesotho can also be attributed to changed patterns of food consumption amongst the Basutho. Lesotho's incorporation into the world economy and interaction with the Western culture radically altered the Basutho's historical wild plant consumption and led to the substitution of edible indigenous wild plants (that grow in abundance throughout the country) with alien, exotic vegetables that did not adapt well in the country's harsh climate and that are expensive to cultivate.

In order to address widespread malnutrition and food shortages amongst the rural population in Lesotho, a joint project was launched at the University of the Free State in South Africa between the Departments of History, and of Microbiology, Biochemistry and Food Science. Proceeding from the viewpoint that the reintroduction of historical wild plant consumption can contribute greatly to alleviating both malnutrition and food shortages amongst the Basutho, the project focuses attention on the history of wild plant consumption amongst the Basutho, the nutrient values of edible wild plants and ways to reintroduce wild plant consumption through modernised recipes and cooking methods in order to satisfy the contemporary Basutho pallet.

Part 2 of the presentation, entitled "Alleviating malnutrition and food shortages amongst the Basutho by promoting a return to historical wild plant consumption" will focus attention on the nutritional importance of reintroducing historical wild plant consumption amongst the Basutho. Particular attention will be paid to the nutrient values of edible indigenous wild plants in Lesotho, the development of new recipes to reincorporate indigenous wild plants into contemporary food consumption habits, and ways to promote historical wild plant consumption amongst the rural population.

**A 163**

**Phia Steyn:**

**Indigenous plant usage amongst the Basutho in the Mountain Kingdom of Lesotho. Part 1: The history of wild plant consumption amongst the Basutho**

Since obtaining independence in 1966, successive governments in Lesotho have struggled to obtain food security for this small mountainous and land-locked kingdom in Southern Africa. Between 1966 and 1994 the geographical setting of the country (i.e. being completely surrounded by South Africa) worked to the advantage of the Lesotho government and ensured a constant supply of foreign aid to enable the country to withstand political and economic pressures from apartheid South Africa - foreign aid that also enabled the government to address the problem of food security. However, the fall of apartheid and the establishment of a multiracial democracy in South Africa in 1994 impacted negatively on the political importance of Lesotho and led to a sharp reduction in foreign aid in the course of the 1990s as international donors redirected aid to South Africa. This state of affairs along with consecutive droughts in the 1990s negatively affected food security in Lesotho which in turn resulted in widespread malnutrition and food shortages in the rural areas that constitutes more than 80% of the country. While the immediate cause of malnutrition is poor feeding practices and food shortages are exacerbated by persistent droughts, harsh climatic conditions, poor infrastructure and lack of governmental actions, both malnutrition and food shortages in Lesotho can also be attributed to changed patterns of food consumption amongst the Basutho. Lesotho's incorporation into the world economy and interaction with the Western culture radically altered the Basutho's historical wild plant consumption and led to the substitution of edible indigenous wild plants (that grow in abundance throughout the country) with alien,

exotic vegetables that did not adapt well in the country's harsh climate and that are expensive to cultivate.

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Part 1 of the presentation, entitled "The history of wild plant consumption amongst the Basutho", will provide background information on the joint project (in which particular attention will be paid to the importance of historical research into indigenous knowledge systems to address contemporary problems), and the history of wild plant consumption amongst the Basutho. Particular attention will be paid to both indigenous wild plant usage and consumption in Basutho history and the gradual changes in food consumption patterns amongst the Basutho that resulted from their interaction with Western cultures since the late nineteenth century.

#### **A 253**

**Mark Stoll:**

#### **Rachel Carson's *Silent Spring* in America and Europe: A Comparative View of Its Reception and Impact**

In the sixties and seventies worries about the environment were to a large extent fuelled by books like *Silent Spring* (about DDT), *The Population Bomb*, *Blueprint for Survival*, *Small Is Beautiful*, and *The Limits to Growth*. In three papers we would like to answer the questions how these books came into being and how public opinion in Europe reacted to two of these books: *Silent Spring* by Rachel Carson, which was published in 1961, was quickly translated, and produced major impact in several (but not all) countries; and *The Limits to Growth* by Dennis Meadows, which was published in 1972.

The paper deals with the biographical background of the author of *Silent Spring*, Rachel Carson (1907-1964), the way the book is written, the reactions for and against her book in Europe, the political impact of the study (especially government regulations in the West) and the way *Silent Spring* changed our view on the environment and the chemical industry.

#### **A 100**

**Stephanie Summermatter:**

#### **The 1868 flood. Reactions and subsequent prevention exemplified by the Wallis (Switzerland) case study**

The phenomenon "natural disaster" sheds light on the relationship between man and nature. Disasters only happen where nature has been humanised, i.e. disasters involve the interaction between disastrous incidents and a vulnerable population. Therefore a natural phenomenon can only be analysed in terms of how the affected population perceives it.<sup>1</sup> For this reason I will not primarily focus on the event itself, but rather on people's reaction to it, where one has to examine the level of creativity as well as the level of prevention. This case study concentrates on the 1868 flood in the Swiss Alps. The attention will be centred on the canton Wallis. The aim of this paper is to examine the broader context of the 1868 flood. Therefore the canton's situation before the disastrous event took place is considered. Furthermore, light is shed on how such events were dealt with prior to 1868. However, the main focus is on the

subsequent developments in hydraulic engineering as well as forestry. A matter of special interest is the cooperation of various institutions, i.e. since the relationship between the local and the federal governments was rather strained at the time, the interaction between these two bodies is examined in some detail. The flood event of 1868: For many centuries the Wallis has been exposed to numerous hazards like earthquakes, floods, landslides, seracs, avalanches and other calamities. The 1868 flood is regarded as one of the most serious, if not the most serious natural disaster in Switzerland in the 19th and 20th centuries. Since five cantons (Graubünden, St. Gallen, Tessin, Uri and Wallis) were affected and the total damage amounted to 14 million Swiss Francs at the time, it was a matter of nation-wide interest. The cost of the damage in the Wallis alone was a total of approximately 2 million Francs. This makes the canton the fourth most affected. Considering the fact that the Wallis was not only struck by the 1868 flood, but also by other calamities prior to this date, one has come to the conclusion that the canton suffered very badly. The way the challenge posed by the 1868 flood was handled by the canton's population is the main focus of this paper. The importance of this calamity and the prior floods of the 1860s cannot be overrated in the search for how new strategies for coping with floods as well as measures to prevent further disasters were introduced. Creative level - fund-raising: The cantons affected by the 1868 flood could not handle the situation on their own. Hence, the federal government, which was still in its infancy at the time, took on the coordination of the crisis management for the first time in its history. Its task was to organise fund-raising on a national level as well as the distribution of the money among the affected cantons. Of interest is the question on what organisational experiences the government could draw on and what kind of innovations were applied for the first time. However, another matter of importance is the query concerning the distribution of competence between the federal and the local governments and the question of how the cantons made use of their room for decision making. Preventive level - hydraulic engineering and forestry: In order to take the appropriate steps, one's knowledge on a scientific-technical level is essential. However, whether certain measures can be implemented is dependent on the historical, political and the social context.<sup>2</sup> The Wallis concentrated its efforts in relation with flood prevention in the first half of the 19th century on the creation of new legislation. Only in the light of the extreme events of the 1860s was it possible to coordinate preventive measures in the whole catchment area. After the 1860s calamities, the canton started his work on the Rhone's melioration with the help of the federal government (from 1860). However, the 1868 flood clearly showed the deficiencies of the project which included neither river training measures on the Rhone's torrents and affluents nor reforestation. One consequence of the 1868 flood was that the money for these works was eventually made available and preventive legislation was passed. The factors which made all this possible will be examined in more detail. 1 Pfister, Christian 2002: Einstieg. In: Pfister, Christian (ed.): Am Tag danach. Zur Bewältigung von Naturkatastrophen in der Schweiz 1500-2000. Bern: 13-25, here p. 15. 2 Cf. Heinrichs, H.; Peters, H.P. 2002: Die Entwicklung von Vorstellungen zu Klimawandel und Naturkatastrophen in der Öffentlichkeit - konzeptionelle und methodische Überlegungen. In: Tetzlaff, Gerd; Trautmann, Thomas; Radtke, Kai S. (eds.): Extreme Naturereignisse - Folgen, Vorsorge, Werkzeuge. 2. Forum Katastrophenvorsorge, 24.-26.9.2001. Deutsches Komitee für Katastrophenvorsorge DKKV. Bonn/Leipzig: 390-395; here p. 392.

## **A 065**

**Sandra Swart:**

**'Horses! Give me more horses!': white settler identity, horses and the making of early modern South Africa, 1655 -1900.**

Although species of the genus equus - like the zebra and ass - have been present in Africa since earlier times, the horse (equus caballus) is not indigenous, but was introduced into the

continent. Significantly, horses were the first animals to be imported at the Cape in 1655. They were imported from Java during Van Riebeeck's reign in the Cape. The Dutch East Indian Company sold the first horses to the Free Burgher settler community in 1665. A definite 'breed' of horse, which became known as the Cape horse, was developed, invested with the anxieties and pride of settler society, working as a metonym for their own identity. Horses, like other African livestock breeds, have developed in response to a wide range of climates, environmental stress, and particularly anthropogenic demands. This paper asks who lost power and who gained power as modes of production, based on the introduction of the horse, changed? It investigates the transformation in human labour, social relations within settler society, that was beginning to define itself as separate to the metropolitan homeland, Holland. It explores how gender roles and social institutions were refracted and reflected through horse breeding and the social ideas surrounding horses. The discussion pursues this vein up to the iconography and socio-historical role of the equid in Boer society. Themes include the horse as 'hero' (functioning as an icon and instrument of nation-building); horse as symbol of settler masculinity (following the historical trajectory from the Republican commando system, whose members were invested in an identity predicated, in part, on an organic equestrian skill). The making ('invention') of the Boerperd and Nooitgedacht as South African breeds are also traced, in terms of the socio-political and economic thrust behind their promotion, dating back to the creation of the 'Cape horse' as symbol of settler identity and independence from the metropole.

**A 008**

**Sandra Swart:**

**The 'ox without horns' - the history of the Basotho pony and the transformation of Sotho society**

This paper looks at the introduction and transformative effect of the horse in the tiny mountain kingdom of Lesotho in southern Africa. Horses had been introduced to the Cape by white settlers from 1655, and were integral to their identity as Europeans, used both symbolically and in a material sense to affirm white difference from the indigenous population. From the time the Sotho overcame socio-political and economic hurdles and acquired the first horse, the 'ox without horns', in 1825, they re-invented themselves as an equine society. Horses were not private property, their re-sale was controlled by chiefs and supreme ownership vested in the community. Within the time of a mere two decades, they had transformed Sotho material culture, defence capability, gender relations and social structure. The very cosmology of the Sotho was transformed: they were horsemen. The human dialogue with the environment is arguably nowhere clearer than in an agroecological investigation of history. This paper traces the development of the breed of horse, the 'Basotho pony', exploring its anthropogenic and natural selection, attempts at colonial 'scientific' breed improvement, and the controversy surrounding its arguable extinction. Payne and Wilson (1999), among others, have urged the investigation into breed histories, like that of the Basotho pony, is vital in the preservation of endangered domesticated breeds. This research project contributes to the knowledge base of traditional farming practices and agroecological change, the changing historical use of domestic animals, necessary in community based management of animal genetic resources. Comparisons are made with the two other 'indigenous' breeds - the Nooitgedacht and Boerperd, in terms of diversity. The research contributes both in terms of fresh historical data and applied methodology. Its inter-disciplinary approach breaks boundaries in incorporating into history, for example, current genetic research on the phylogenetic development (the patterns of lineage branching produced by the evolutionary history of the organisms) of the horse because of both natural and artificial evolution. The

introduction of equids into Sotho society is contextualised globally, with parallels drawn, for example, with the American Plains Indian (like the Sioux, Comanche, and the Blackfeet).

### **A 031**

**Peter Szabo:**

#### **More Than Little, Less Than Much: Woodland in Medieval Hungary**

This paper will address a simple question: How much woodland was there in the medieval kingdom of Hungary? A simple question as it may be, answering it involves a number of methodological problems and carries important consequences about the availability of woodland, thus the intensity of its management. In an ideal case (as far as ideal can go in medieval sources), one has a single, unified source that describes different land-uses in one's chosen geographical unit at a given point in time. In Hungary, no such source exists until the eighteenth century. The only available medieval documents are the so-called estimations. These were rather special conscriptions of landed and other property, a curious local institution that produced documents in larger numbers in the fifteenth century. Research has been aware of them for decades, however, because of the problems of interpretation and the fact that they are entirely unsearchable systematically in the archives, no one has examined them in depth. The paper will provide details about the legal procedure, survival, number, spatial distribution, and contents of estimations. With all the efforts at gathering them, estimations cover only one percent of the whole kingdom, and large parts east of the Danube provide no data. This area, the Great Hungarian Plain, must not be hurriedly filled with percentages extrapolated from over the Danube, because ecologically it is an entirely different world. The natural vegetation of the Plain, contrary to most of North-Western Europe is not woodland, but woodland-steppe. The second part of the paper will focus on the meaning of woodland-steppe, and, in lack of written sources, will try to involve palaeoenvironmental and ecological discussion to establish the amount the woodland in the Plain at the end of the Middle Ages. The paper will conclude that the present uneven distribution of woodland has its origins in the medieval period (or possibly earlier), and that woodland was sparse enough in certain parts of Hungary to induce intensive management. By the same token, the paper will challenge the age-old view that medieval Hungary was very wooded. It will also be outlined that partly governed by the limited availability of woodland, its management coincided with the general medieval traditions of interactions between trees and humans.

### **A 085**

**Enric Tello, Ramon Garrabou:**

#### **Social Metabolism, Land Requirements and Land Availability. A Case Study in the Mediterranean Europe (Catalonia, 1716-1950)**

We look at the agrarian landscape as an expression of the social metabolism with Nature, constructed by human societies through history. We use the idea of land requirement or "ecological footprint" –that is, how many agrarian, pastoral and forest land was actually needed to sustain human consumptions— to understand the land use patterns and equilibriums achieved by human societies in different periods of time, and to identify when and why these equilibriums go into several socio-ecological crisis and conflicts, that lead to change landscape patterns. Through the study of consumption budget, energy balances and land productivities, we try to identify and confront the land requirement and availability in our area of study from the XVIIIth to the XXth centuries, considering the prevailing entitlements, inequities and conflicts that led to the main agrarian and landscape changes. Thanks to the insertion of a broader commercial network, in the Catalan county of Vallès the land requirement fell from two or more hectares per inhabitant in the XVIIIth century to just one and a quarter in 1850. The land availability was enough in 1850 to meet that requirement, and

to obtain a small surplus. But in 1950 it was not. From 1850 to 1950 the consumption budget was increasingly disconnected to the local energy and agrarian resources and sustained by a global ecological footprint.

#### **A 054**

**Erik Thoen, Tim Soens:**

##### **Energy: Tensions between Ecology and Economy in Flanders before 1800**

Before the 19th century energy-use had great influence on ecology, even more than today. Often it influenced the visible nature directly, in particular near places where energy was consumed, in the landscape. Therefore, it rightfully is one of the major themes in environmental history. Nevertheless, as in many other areas, for Flanders the use of energy has rarely been linked to the environment. If at all, it has been done only in a most general way without taking into account the structural aspects of the important relationship between economy and ecology. The study area of this paper is the former county of Flanders, in the west of Belgium, bordering on the North Sea. While changing importance over time, two important energy sources were available in this area before the industrial period. A large peat surface was situated in the coastal regions until the end of the Middle Ages. More inland, firewood was available to some extent, although the large woodlands had disappeared by the High Middle Ages. Coal was never found in Flanders, despite intensive searches in the eighteenth century. Concerning energy, a great shift took place at the beginning of the industrial period; this was in Flanders in the 19th century. As a consequence of the use of finite (fossil) energy sources, energy became cheap as compared to energy in the pre-industrial period, when energy was very expensive. Therefore one should assume that in the pre-1800 period, man took good care of the energy sources and of the landscape where energy sources occurred. This paper will investigate to which degree this was true for Flanders. The main thesis is that the way energy and 'energy landscapes' were governed must be brought into relation directly with the power and property structures in these areas as well as with the general economic needs of the people living there. Changing property structures and changing so-called 'agro-systems' caused changes in energy production and 'energy landscapes'. This thesis will be illustrated by some test cases on micro-level, both for the peat area in coastal Flanders and for firewood producing inland Flanders.

#### **A 112**

**Jon Th. Thor:**

##### **The History of the North Atlantic Fisheries Project. Aims, Achievements and Future Prospects**

The History of the North Atlantic Fisheries, 1100 1980, is an ambitious research project undertaken by historians from both sides of the North Atlantic. The book aims to reconstruct the history of the North Atlantic fisheries from both a regional and an international perspective. The first step was taken when NAFHA (North Atlantic Fisheries History Association) was launched at a conference held in the Westman Islands (Iceland), in 1995. Since then, along with the holding several fisheries history conferences (proceedings published in the journal *Studia Atlantica*, the multinational group of historians engaged in NAFHA has been preparing the general history, the first volume of which is to be published in 2003 or 2004. This paper seeks to present, therefore, the aims, achievements and future prospects of the project, with special consideration to research done to date bearing upon the role of environmental and social factors in the historical configuration of the fisheries of the North Atlantic.

#### **A 222**

**Peter Thorsheim:**

### **Conflicting Visions of Air Pollution in Nineteenth-Century Britain**

Most people today would likely agree that the air of Britain was heavily polluted in the nineteenth century. Images of smoke-belching chimneys and murky fogs come readily to mind, making the conclusion seem both obvious and straightforward. Yet contemporary perceptions of Britain's air during that period were actually far more complex. Although many, if not most, nineteenth-century Britons believed that the air they breathed contained impurities, they held conflicting ideas about what made it so. Some contemporaries believed that coal smoke made the air unhealthy, but others viewed smoke as a beneficial disinfectant and maintained that the real danger came from miasma, i.e. gases given off by decomposing organic matter. Attention to the diverse ways in which past inhabitants of Britain conceived of pollution and to shifts in such perceptions over time underscores the importance of considering environmental problems from a historical perspective.

This paper contributes to recent work by environmental historians and other scholars who argue that studies of pollution must consider not only its tangible reality, but also its place in people's minds. In other words, the study of pollution's history requires much more than efforts to understand the chemical reactions that produced it or its consequences for human health or the environment. Equally important are the attitudes, ideologies, and perceptions that shape the practices that produce pollution and structure people's understanding of it after it is produced.

Drawing on a wide array of sources, this paper argues that an important shift occurred in both elite and popular perceptions of air pollution in Britain during the nineteenth century from one focused on miasma, to one focused on smoke. Important as these changes were, significant continuities existed as well. Despite the differences between conflicting paradigms of pollution, the nature of the risk in both cases was thought to derive from the incomplete oxidation of matter: decay in the case of miasma, combustion in the case of smoke.

**A 007**

**Anselm Tiggemann:**

### **"The eye of the needle" of nuclear energy in the Federal Republic of Germany – The history of nuclear waste disposal from its beginnings to Gorleben 1955-1980**

When talking about nuclear waste disposal in the Federal Republic of Germany, the first thing that comes to mind is a small town near the former border to the GDR, called Gorleben. The village was specified by Prime Minister Ernst Albrecht, on February 22nd 1977 as a site for a "centre", that comprises a final storage facility as well as the world's largest reprocessing plant. In 1979, the protests lead to the failure of the project. After further protests the intended final disposal in the salt dome in Gorleben is at present being put to the test as well. Therefore nowadays Gorleben has symbolic character both for nuclear power in Germany as well as for the protest movement against it. In Gorleben, local, regional and federal issues and developments in the field of nuclear energy are mirrored. The performance will explain how this happened and will compare aspects of the German Politics of final nuclear waste disposal with those of other countries. In the first part, the importance of questions of disposal in German nuclear technology up to the mid-seventies will be traced. The specific German concept of combining reprocessing irradiated nuclear fuel and nuclear waste disposal at a single facility was met by great opposition at the height of the nuclear energy controversy in the second half of the seventies. This will be the main point of interest in the second part. The third part will deal with the failure of the projects in Gorleben. The last part will be a comparative analysis of nuclear waste policy in Germany, the United States, Great Britain and

France. New research results will be offered in different ways: 1. The cultural dimensions of nuclear technology - the historian Joachim Radkau of Bielefeld suggested that the nuclear controversy is the single most controversial public discussion in German history to date - will be analyzed for the first time regarding the politics of siting a nuclear waste repository. 2. The performance is a case study involving German social history of the seventies. It contributes to the research of the new social movements, especially the anti-nuclear movement.

#### **A 013**

**Erik Törnlund:**

#### **Exploitation of landscape - Forest Industry, Timberfloating and Transformation of Rivers in Northern Sweden 1850-1980**

The aim of the paper is to describe and discuss driving forces and technology behind the transformation of rivers in boreal Northern Sweden during the era of timberfloating 1850-1980. One important factor behind the development of the export-orientated forest industry, which played an essential role in the industrialisation of Sweden at the second half of the 19th century, was the available watercourses that could be used to transport the timber, from inland forests to the forest industry on the coast. The introduction and practising of large scale timberfloating effected this natural watercourses by the construction of different kind of floatway structures, for example splash dams and flumes in the tributaries, large timbered booms and stonepires etc along the main water courses. This have resulted in a fundamental change of the rivers and its ecological characteristics. Keywords: Timber floating, Floatway structures, Rivers, Forest history, Transport history, Northern Sweden.

#### **A 245**

**Aud Mikkelsen Tretvik:**

#### **Exploitation of material and immaterial resources - Complementarity between districts of Trøndelag (Mid-Norway) 1850-1920**

Modernization and structural change are key concepts for this period of Norwegian history. The structural changes implicated a new and more intensive exploitation of material resources, of energy resources, but also of the immaterial resources like fresh air, clean water, beautiful sceneries and peace and quiet surroundings in the mountainous or other less populated areas of the region. From the 1850s onwards, Trøndelag experienced all the common features of industrialization and modernization: agriculture became intensified and the first steps towards mechanization were taken, roads and railways were constructed on a large scale, water power plants were built, industrial enterprises were established and business in old mining resorts were taken up again, not at least initiated by foreign interests and foreign markets. People moved from the countryside to the towns and new industrial areas (plus emigration overseas in thousands). Lots of people were broken up from their natural surroundings and replaced mostly in urban areas. The traditional relationship between man and environment was disrupted. It is on this background the development of tourism should be studied. The interests in skiing and mountain rambling in Norway from the 1850s and 1860s onwards must be understood from the point of view of the modern town dweller, in perhaps insanitary surroundings, or at least living at a too far distance from a natural and more healthy environment. Another important background is the national movement in Norway paying more attention to the natural qualities of the country represented by mountains, fjords, rivers and waterfalls. English travelers had already discovered the Norwegian nature. They came here to climb and walk mountains and fish salmon in the rivers. Many of them wrote books and articles pointing out the natural qualities of the scarcely populated areas like the bestseller of W. Mattieu Williams "Through Norway with a knapsack" (1859). This author must be considered the first foot-

tourist in Mid-Norway. There are all the same contrasts to the neighbouring district of Jämtland where my Swedish colleague is doing his research. West Jämtland was more or less a remote resort of Sweden to which people from the more industrialized parts of Sweden, the so-called 'black countries', could take their refuge. The Norwegian counterpart was not so thoroughly divided in 'black countries' and 'green countries', but experienced more of an intermingling of industrial enterprises and tourist destinations and sanatoriums in the same districts. That is, the geographical distance between mining/industrial areas and tourist resorts could be short. Nevertheless, it seems one was able to keep up a mental distance between the two radically opposite ways of exploiting resources. There is also another important dimension to this. One sees clear traces of conflicts between the local societies and the tourist groups coming from the towns, and partly also within the local societies. The local authorities seem to have a more responsible attitude towards management of natural resources, while the ramblers, hunters and fishermen from the towns were more eager to exploit the resources without any consideration of sustainability. The 'division of labour' between the different districts of this region was a fascinating thought, but not without complications.

#### **A 196**

##### **Frank Uekoetter, Marc Cioc, Joachim Radkau: Round-Table on the Nazis and the Environment**

In recent years, the history of environmental issues during the Nazi era has emerged as one of the most important topics in German environmental history. Being, respectively, the editor of a volume on the subject and the organizers of a conference on nature protection in Nazi Germany, the participants of this panels plan to present an overview of this research: how has our knowledge on the subject improved during the last years? Which issues have emerged as the central themes in this field? Is there something like a coherent vision of environmentalism in Nazi Germany – or rather a set of different policies? How should we evaluate the general state of knowledge, and what directions should research take in future years? And how have German environmentalists dealt with the Nazi experience after 1945?

These are the general questions that we plan to address in this panel. We have chosen to organize this session as a round-table, rather than a panel with three papers, in order to invite a discussion of the general theme. We plan to have three introductory statements of 10-15 minutes, leaving much time for an open discussion with the audience. (As LOC head, Dr. Leos Jelecek has agreed to the round-table format.) The discussion may also include comparisons to other countries. At the aforementioned conference on nature protection in Nazi Germany, the issue of authoritarian policies of nature protection was under intense debate. The argument was that Nazi Germany institutionalized a special brand of authoritarian nature protection. However, while the general description of nature protection as authoritarian is doubtlessly true for Nazi Germany, it is somewhat less certain whether it was a German peculiarity. This is one of the reasons why we would like to put much emphasis on discussion in our session: it would be interesting to see how events in Germany compare with developments in other countries, especially countries with totalitarian regimes. Are there similarities between the environmental history of Nazi Germany and that of fascist Italy or communist states in Eastern Europe? Is the history of environmental issues in Nazi Germany typical of environmentalism in totalitarian states? We are eager to discuss these questions at a conference which will (hopefully!) attract a lot of environmental historians from Eastern Europe.

#### **A 053**

##### **Richard Unger:**

## **The Myth about Coal: Energy in England before the Industrial Revolution**

Estimating the total volume of energy sources in Europe before the Industrial Revolution presents serious difficulties. Presumptions about the comparability of solar energy converted to foodstuffs and solar energy converted to wind power and solar energy converted to fossil fuels creates counting errors which then make difficult the assessment the causes of and the environmental effects of changes in energy used. Using coal for heat did not automatically mean that less land was needed for farming just as the use of wind to power mills did not mean the freeing of land for the cultivation of different crops. Energy sources tended to be tied to certain technologies and so changes in energy use tended to indicate changes in the goods produced and ways in which those goods were produced. Estimates to date made for total energy use and in turn on the environmental effects of energy production and use have tended to be just the totalling of calories with little effort to assess how those calories might be used and so how develops in energy requirements might be translated into adjustments in the relationship between people and nature. The change to coal from wood as the principal source of thermal energy in England in the sixteenth century is a standard feature of histories of the Industrial Revolution. The roots of the rapid economic development after about 1780 are often traced to the growth in coal production in the Northeast of England and in coal use in the reign of Queen Elizabeth I. The reliance of England on coal is exaggerated since the change occurred largely in coal producing areas and in the metropolis of London. Coal had properties which made it highly effective for some uses but not acceptable for others. Abundant coal did promote the development of energy-dependent industries in England over the long term. But English consumers continued to use other energy sources and through the years to the eighteenth century. In England as in other countries around the North Sea adjustments in the mix of energy sources, as reflected in use and the costs of types of energy, had varying influences on the environment. The trade in coal which developed from the sixteenth century on meant that environmental effects could be and were transmitted from one part of the North Sea region to the others. The prices of coal and of wood in England and in other countries around the North Sea combined with coal shipment figures from Newcastle-upon-Tyne and other northeast coal exporting ports form a basis for discussion of energy sources. Global estimates of total useable energy produced and employed, taking cognizance of what calories could be used for what, form the basis for assessing the environmental impact of use of the varied sources of energy.

### **A 052**

**Petra J.E.M. Van Dam, Milja Van Tielhof:**

#### **The Subterranean Forest in the Netherlands. Ecology, Technology, Society.**

The Netherlands Energy transitions have attracted the attention of environmental historians for a long time (Sieferle 1982, 2001; Wrigley 1988). One of the great themes is how the transition to coal freed land from producing wood as a fuel. The basic idea is that the introduction of fossil fuel made more land available for agriculture. This energy-transition happened in the Netherlands later than in England, in the 19th century, but to some extent with more drastic results. In the west and east of the Netherlands large quantities of peat were available. Peat is a semi-fossil fuel: it does not contain so much energy per weight unit as coal (it is rather like wood), but its geological formation reminds of coal. Yet in other respects it was much like wood, for producing peat consumed enormous amounts of land surface, in particular in the low-lying areas of Holland. Mining peat destroyed land surface in extensive areas 'for ever', that is until the peat mires were drained again, starting in the seventeenth century with the aid of wind- and or fossil energy - ironically. Despite its devastating effects on the landscape, peat mining continued well into the nineteenth century. Never a shortage of peat energy occurred, although the regional water boards in the west set up a land protection policy including

elaborate rule and control systems. Although present, coal was not mined in the Netherlands until the nineteenth century, but was imported from Great Britain, Belgium and Germany. Coal mining had to wait until new techniques were developed for deep mining in the region of Limburg. Yet, remarkably, in some sectors of the economy the transition to coal was already made long before the nineteenth century. As Richard Unger showed in 1984 this happened in the brewing industry in the sixteenth century. Even city hospitals used coal already in that period. Thus, coal was not cheap, but apparently it could compete well with home-dug peat. So the transition from semi-fossil to fossil fuel did not occur in all sectors of the economy simultaneously. What determined the choice of energy? Pure costs, chemical properties, availability of thermal technology? When peat resources became exhausted locally, did industries move, did one move the peat or was it time to change to coal? And if one changed to coal, what new thermal technology was required? All such aspects leads us to argue that energy transitions differentiated according to user-groups and to geographical areas. We take into account how geographical distribution of (semi)fossil fuel and social and technical developments influenced the occurrence and structure of energy transitions. We discuss two case-studies of industries that were heavily dependent on peat in the Middle Ages: the brick and the salt industry in Holland and Zeeland between 1300 and 1800.

#### **A 254**

**Guillaume Vera-Navas:**

##### **"The Limits to Growth" of the Club of Rome: its making and international impact**

In the sixties and seventies worries about the environment were to a large extent fuelled by books like *Silent Spring* (about DDT), *The Population Bomb*, *Blueprint for Survival*, *Small Is Beautiful*, and *The Limits to Growth*. In three papers we would like to answer the questions how these books came into being and how public opinion in Europe reacted to two of these books: *Silent Spring* by Rachel Carson, which was published in 1961, was quickly translated, and produced major impact in several (but not all) countries; and *The Limits to Growth* by Dennis Meadows, which was published in 1972.

The paper consists of three parts. First part deals with the making of *The Limits to Growth*. It gives an biographical background of the father of the Club of Rome, Italian Aurelio Peccei (1908-1984), who constructed his famous Club in the late sixties. Second concerns the way the first report to the Club, *The Limits to Growth* came into being. The third reports about international reactions, and the views pro and con, and the reputation of the book as a zero growth study.

#### **A 255**

##### **Wybren Verstegen: Environmental consciousness in the Netherland and the publication of Limits to Growth by the Club of Rome (1971-84)**

In the sixties and seventies worries about the environment were to a large extent fuelled by books like *Silent Spring* (about DDT), *The Population Bomb*, *Blueprint for Survival*, *Small Is Beautiful*, and *The Limits to Growth*. In three papers we would like to answer the questions how these books came into being and how public opinion in Europe reacted to two of these books: *Silent Spring* by Rachel Carson, which was published in 1961, was quickly translated, and produced major impact in several (but not all) countries; and *The Limits to Growth* by Dennis Meadows, which was published in 1972.

The paper will take a look at the tremendous reception of *The Limits to Growth* in the small country of the Netherlands, concentrating on public opinion: television, newspapers, scientific conferences, popular books, interviews and several ad hoc publications with opinions of politicians and scientists. The paper will try to reconstruct the impact of the study on Dutch environmental consciousness by using the publications issued ten years after to commemorate

the publication of the book.

**A 197**

**Benjamin Warr:**

**Wasted energy or useful work? Technological progress, structural changes and lifestyle trends in the US 1900 – 2000**

Of the primary energy supplied to the US economy only a fraction goes to provide useful work (energy services) and can therefore be considered productive, the rest is wasted. Traditional energy accounting methods do not capture these trends. However, it is essential to identify trends in the way in which energy is used to provide work. Not all of these trends have been positive. True, the energy intensity of the US economy (Kuznets curve) has been decreasing since the 1930s as a result of dramatic technological progress. Yet the work intensity of the economy has only improved since the late 70s. Raw energy consumption statistics hide these important trends. The enormous wealth generated by the fossil fuel economy has dramatically modified the amounts and the way in which energy is consumed by society. The significant increases in per capita energy consumption caused by rebound effects are worrying, yet an analysis of how energy has been used historically and until recent years provides important insights into future trends and major opportunities to improve the efficiency and productivity of society.

**A 027**

**Lyn Waymouth:**

**Whakapapa - Understanding the Environment through Genealogies**

There are many different ways of understanding world and for New Zealand Maori it is through whakapapa - genealogies. The late Sir Apirana Ngata, a Maori scholar, once described whakapapa as the 'key to the mass of facts' that explain Maori social, political and economic organisation. This paper will explain firstly how Maori understands whakapapa, and secondly show through examples how Maori have used it to develop their economic and socio-cultural needs. Whakapapa in its most basic and familiar sense refers to genealogies - lists of names that show an order of descent from a common ancestor. Everything - every tree, rock, fish, person, star, winds, and water - everything is understood in relation to a whakapapa. It is the foundation by which everything is connected. Whakapapa is inclusive of everything that goes into or out of the relationships between three worlds: the spiritual, the human, and the natural world. Maori remember and understand the creation of the universe, the formation of the earth and all its elements, the emergence of bio-diversity systems, the source of knowledge, the creation of man, the migrations of people to Aotearoa/New Zealand and their settlement patterns around Aotearoa/New Zealand through whakapapa. Maori genealogies give order to knowledge and explain relationships. The way in which whakapapa is used to create links in the Maori worldview will be demonstrated in this paper in the form of stories. Two stories will be used to explain how whakapapa functions and is communicated. The first story will describe harvesting of seafood, and the second will describe some shellfish conservation methods. The stories and their related genealogies will provide observable connections between different entities such as location, habitat, shape, form, texture, colour, smell, seasonality, change, human usage, and adaptation. Because whakapapa is about relationships that may change and adapt over time the stories will show the relevance of this method in contemporary situations.

**A 048**

**Douglas Weiner:**

## **What Did They Think They Were Protecting? Soviet zapovedniki through 21st-century lenses**

This paper will examine the question of how and why particular landscapes and species were selected for protection by the scientists who planned and promoted Soviet zapovedniki, or permanent, inviolable reserves. Among the criteria I will examine are objects of scientific field research of particular biologists, charismatic species, and preconceived conceptions of what was paradigmatically "natural."

### **A 106**

**Hubert Weitensfelder:**

#### **Idrija in the Early Modern Age, 1500-1800**

The history of mining knows only a few mercury mines of great importance. The largest deposit is situated in Almaden in central Spain, the second largest in Idrija in today's Slovenia, which was part of the Habsburg monarchy before the First World War. Other important mercury deposits lie in Huancavelica (Peru) and Montamietta (Italy). The Idrija mine lies about 30 kilometres to the west of Ljubljana, the capital of Slovenia; mercury was first mined there in 1490. Before 1575, the mine was run by companies, whereas until 1918 it was controlled by the Austrian Court Council which covered the greater part of its budget expenses with the income from the sale of mercury. Until the close-down of the mine in 1992, in its 500-year-history, Idrija produced a total of 107.000 tons of mercury, which represents about 13 percent of the entire world production. From the 16th to the 18th century, mercury was mostly used to extract gold and silver from their ores, in a process called amalgamation. It was mainly the Spanish who needed mercury for their mines in Latin America. Mercury, which is highly poisonous, is usually found combined with cinnabar. The extraction of the metal in the mine is extremely dangerous for the miners. After the ore has reached the surface, it is processed through distillation: when the cinnabar is heated, the mercury evaporates and later condenses. In the 16th century the mercury was extracted above an open fire, later on in large furnaces (Almaden technique). Time and time again, the metal found its way out of the ovens and had an extremely harmful effect on plants, animals and people. During the years from 1786 to 1797 Spain imported high quantities of mercury from Idrija. In 1803 a large pit fire had a disastrous impact on the village and its environs.

### **A 017**

**Dennis Wheeler:**

#### **Problems of Nautical Vocabulary in Historical Climatic Research**

Rear-admiral Francis Beaufort proposed his famous wind and weather scales in 1806. By the middle of the nineteenth century they had become the standard vocabulary for British naval vessels. For most of the twentieth century they have been used internationally. But Beaufort's was not the first scale to be used, neither was it wholly the result of his monumental endeavours in hydrography. Wind scales had been proposed throughout the eighteenth century. None were formally adopted. Yet logbook studies reveal that a conventional nautical vocabulary for wind force and weather terms did nonetheless exist. Beaufort later adopted some of the terms then in use, others he dispensed with. Of the former, some unquestionably changed their meaning and the mariner's vocabulary evolved throughout the eighteenth century with terms coming into, and passing out of fashion. There is no doubt that the naval logbooks from this period provide a uniquely detailed view of weather as far back as 1650. But, to use Beaufort's description, the 'meteorological philosopher' must tread warily in their use. Weather terms may be deceptively familiar but of chimeric character. When an eighteenth century mariner writes of having experienced a gale, he may mean something quite different to the present-day understanding of the term. 'Breezes' are no less likely to mislead the twenty-first century

reader. The CLIWOC project is gathering a vast quantity of climatic information from logbook, much of it non-instrumental. But for it to be of scientific value we must be certain of its meaning. This presentation describes the nature of the problem, concentrating on the issue of wind force descriptors, although weather terms are not overlooked. It is based on data gathered from several thousand logbooks embracing the period 1750 to 1850. In doing so it provides a unique view of the evolution of the Beaufort Scale. The results show the range of terms used, their changing frequencies and fashions and, most importantly, how analysis of the terms, their frequencies and associations, can be used to provide a 'dictionary' with which they can be translated into present-day Beaufort Scale equivalents. The presentation will also indicate how the generic terms such as 'gale', 'breeze' and 'storm' came into being; how their employment evolved and, most importantly, how adjectival qualifiers ('strong', 'hard', 'moderate' etc) can be used to add detail to our understanding. Use was also made of such contemporary documents and archive sources as can be employed to cast further light on the meaning of the terms. Such sources do exist, and whilst not providing answers to all the questions of vocabulary, help to confirm independently the findings of the content analysis. The answers do not provide a perfect solution. Some naval officers insisted on a more idiosyncratic style, using unconventional terms. Fortunately few officers allowed themselves such license and although their observations must be rejected as indefinable, they provide less than 5 per cent of the data to hand. Added to this is the international character of the CLIWOC project, using logbooks from British, Dutch, French and Spanish sources. Within those categories similar, but not always identical, problems of evolving nomenclature exist. These could be resolved using the language of the source material but, at the final stage, a translation had also be made into English thereby drawing together a final dictionary based on time and on language. This document will be of value not only to the CLIWOC project, but will also serve the needs of others working with logbook and similar source material.

## **A 169**

**Robert Wilson:**

### **Low Frequency Precipitation Variability Over The Last 500 Years In The Bavarian Forest, Germany**

A 500-year dendroclimatic reconstruction of March-August precipitation has been developed for the Bavarian Forest in southern Germany. The reconstruction utilises ring-width data of Norway spruce (*Picea abies* (L.) Karst) measured from samples taken from 40 historic buildings and 8 living sites. The Regional Curve Standardisation method was employed to capture lower frequency variability in the tree-ring data. The resultant standardised tree-ring chronology, when regressed against March-August precipitation, explains 34% of the climatic variance. The modelled relationship is time stable and verifies well when compared with independent data. The strength of the model, however, is at lower frequencies. When the actual and reconstructed climate data are smoothed using 15-year cubic splines, the proxy and observational data correlate at 0.81 over the 1878-1978 calibration period.

The reconstruction suggests that spring/summer precipitation in south-east Germany since 1920 is higher than at any other period for the preceding 400 years. However, reconstructed precipitation totals during the mid 19th century are significantly drier than those seen in other precipitation series from southern Germany and the Alpine region that go back to 1820.

Three possibilities are presented that may explain this mismatch: (1) The tree-ring data used in this study express local scale variability and may not compare well with larger scale climate averages. (2) The instrumental data have been 'over corrected' for homogeneity problems in their early records and potential lower frequency information has been removed. (3) There is a systematic bias between the standardisation of the historic and living tree-ring data causing a step jump in the final tree-ring chronology.

Comparison of the Bavarian Forest reconstruction with other precipitation reconstructions (tree-ring and documentary) from central Europe also shows a large dissimilarity between the reconstructed series. Again, these differences could be due to the fact that the precipitation signal is spatially heterogeneous and that each of the reconstructions expresses a local signal. However, the dissimilarities in the low frequency domain, which presumably should be more spatially coherent than at higher frequencies, suggests that the variability of spring/summer precipitation over the last 500 years in central Europe is not yet well understood.

## **A 205**

**Anna-Katharina Woebse:**

### **"The matter is really of international concern..." - The environmental history of the League of Nations, 1920-1946**

When the League of Nations was established in 1920 it was regarded as the first international organisation of a new world-wide political and social order and it carried with it a great part of the hopes of mankind. Today we remember the League mainly as an institution set up to restore peace and prevent the world from war and we remember that it met with failure and defeat. But at that time it was a thriving project. The League saw itself as an agency between economic and humanitarian respectively cultural interests. That is why environmentalists from all over the world thought it the ideal institution to settle conflicts which could not be solved by bilateral co-operation or on a multilateral level. The design of this paper is to trace one chapter of the story of early world conservation. It focuses on three aspects of environmental concern the League dealt with: - the attempt to draft a „global protection scheme" and to set up a commission for the international protection of nature under the direction of the League covering such matters as the preservation of the fauna and flora, particularly such as were in danger of extinction and the establishment of nature reserves and national parks - the debate on whaling - the investigation into the problem of oil pollution which was mainly caused by the conversion of coal- to petrol driven vessels leaving sheets of black refuse oil behind. The „oil menace" was put on the agenda of the League due to the pressure of bird lovers. Especially the British activists - among them a remarkable portion of women - organised international protest using the latest techniques of public relation work. Examining these examples means not only to reconstruct an important part of the history of the environmental policies of the League - in a way a forgotten predecessor of UNEP - but to illuminate the part the NGOs played in this process and the upcoming of the international environmental movement.

## **A 042**

**Jiří Woitsch:**

### **Potash industry in Bohemia in the 18th century**

From the very beginning of the 18th century exceedingly pure potash (potassium carbonate,  $K_2CO_3$ ) was produced in Bohemia. Potash was an essential stock material for domestic glass, textile (cloth bleaching) and leather industry, it was used in chemical manufactures and in many other industrial branches. During the 18th century - in the period of its traditional technology intensive progress and modification - the potash making became the most important branch of chemical industry in the Habsburg monarchy. The only raw material for the production of potash was wood-ash from broadleaved as well as coniferous trees, burned and collected by so-called ash men (ash-burners) in forests or forced bought up from serfs. Lack of wood-ash (partly caused by some new forests protection laws) was the most important limit for further development of the potash industry in Bohemia. Ash leaching – the first potash production phase – was ensued with wood-ash filtrate evaporation in iron kettles. The calcination in special kilns (potashcalcining furnaces), which was the most complicated

step of the traditional technology, followed. Three different types of kilns were used. Actual research shows that use of ashes burnt directly in the forests with its negative ecological consequences decreased rapidly in the second half of the 18th century due to replacement by so called house ashes. In the following period (19th century) this type of potash production technology declined because of substitution of other chemicals and new sources of raw material (molasses, mineral substances).

## **A 208**

**Alexandra Yerolympos:**

### **Fire prevention and planning in Mediterranean Cities, 1800-1920**

The paper discusses the regular appearance of fires in the premodern cities under Ottoman rule, and the strategies of protection towards this risk in the 19th and early 20th centuries. In the 1830s the same territory was divided between the modern state of Greece and the Ottoman empire undergoing reforms with the West as its model. Greek authorities addressed the risk of fires by adopting and implementing new city plans with adequate provision of public space and some simple (rudimentary) land use restrictions, mainly locating workshops and small industrial plants in the outskirts of the city. Given the reduced size of modern Greek cities and the rapid renewal of the building stock, the measures proved effective and risk of fires became a minor issue. On the contrary, Ottomans had to deal with large and densely populated cities, with traditionally constructed buildings, mixed land uses and total lack of water pipes systems as well as official fire brigades. In the effort to cope with the risk of fires, the authorities adopted complex building regulations and small scale redesign schemes, which altogether proved ineffective. The paper proposes to follow a sequence of fires in Thessaloniki, starting in the beginning of the 19th century and ending in 1917, 5 years after the city was integrated into the Greek state (1912). Each time a new fire would explode, the regulations previously adopted by the Ottoman authorities would be revised and improved; yet the next fire would be still more destructive. It seems that the overall urban structure was unable to survive and adapt while new patterns of urban life and activity were gradually established. The almost total destruction of the intra-muros city in 1917 provided a unique opportunity for Greek officials to replan radically the old oriental city. No major fire has been accounted for since then.

## **A 115**

**Alexei Yurchenko:**

### **The Atlantic walrus: history of hunting and its population dynamics in the Russian Arctic**

The Atlantic walrus: history of hunting and its population dynamics in the Russian Arctic  
The aim of our paper is to present approaches for the reconstruction of population dynamics and changing habitat of the commercially important marine animal on the base of historical data and to describe the changing role of the walrus hunting in the local economy of the Russian North area from its flourishing period in 17 – 18th centuries to the crisis in the beginning of the 19th century and the revival of hunting by using icebreakers in 1930s. The first attempt to study historical documents on the walrus hunting in the Russian North for the purposes of reconstruction of the habitat of this wonderful marine mammal and the quantity of its populations in previous times demonstrates the future perspectives of this study. The snapshots hunting data were gathered from the 17th century. Products of walrus hunting, especially ivory, played very important role on Russian and international markets, most of the ivory came to the state treasury, the tithe tax was paid by local hunters and it was recorded in the scribe books. These documents along with the trade accounts for the later periods gave the figures of the level of catches in different times and provide also the information on the

average weight of walrus tusks, which evidently has shown that the Russian hunters killed mostly female and young walruses. The history of the crisis of Russian walrus hunting in the beginning of the 19th century provides an interesting example of interaction of different environmental and social factors, which led to this crisis. Among the most important factors were the fall of temperature, which hindered the approaching to the main hunting areas due to their icing, the British Royal Navy blockade of the Russian Arctic and the low prices for the walrus products in Europe most probably due to the appearance on the market the competing products from elephant (ivory), seal and shark (blubber, oil) hunting and fishing. We have mapped all mentions of the places of walrus hunting and defined the walrus habitat for the middle of 16th century. The reduction of the habitat took place until the middle of the 20th century. After prohibiting the walrus hunting in the Soviet Union the process of recolonization of the lost habitats started and nowadays the habitat restored on the whole area of the pre-hunting period. However, the quantity of populations is only about 2500 walruses living in the eastern part of the Atlantic Arctic, while our reconstruction have shown that very likely there were at least 18 – 20 000 walruses in the middle of the 16th century.

#### **A 071**

**Andrea Zagli:**

#### **Wetlands: dealing with an economic, social and cultural "diversity" in modern Tuscany (XVI-XIX cen.)**

I intend to presents the results of my researches about the complexity of human/nature exchange in historical perspective about such particular but important areas such as the wetlands and marshes. My scale is a regional one - Tuscany - and its historical transition from an economic and social point of view, connected with the "rural" conquest of the incultivated lands (woodlands and marshes) lied at different kinds of "exploitation" (fishing, hunting, harvesting...)and managed from different kinds of societies.

#### **A 084**

**Siger Zeischka:**

#### **Environmental change, socio-political history and the evolution of hydrolics**

In this poster I present my PhD project recently begun. It is a study of the long-term history of development of waterengineering and management from a multiperspective view in the Dutch Rijnland, 1500-1800. In traditional historiography, technological evolutions seldom are integrated into a more comprehensive model, in which developments of technology are linked to social-economical, political or ecological contexts. Although becoming more common, much of the research into typical Dutch techniques (like the construction of sluices, dikes and wind-mills) remains in its old constraints, as often descriptive but nevertheless very isolated and narrow topics. We must seek a new perspective if we want to give both technological history a new background. The aim of my study is to analyse the technological means over the period 16th-mid nineteenth century, by which the Dutch succeeded in regulating the water level and preventing their lands from flooding all over the year. The studied period is very long and meant a great reformation of the Dutch landscape, mainly due to peat-digging. So we must question: how did technology in this period develop and what circumstances and influences – social, economical, political and ecological – make that developments were what they were. Of course, this does not necessarily mean a continuous process of renewing, improving, innovating and inventing. Stability, for exemple, may be just as interesting. But then, what forces in society caused this stability? The project focuses on evolutions in the Rijnland, the area between the cities of Amsterdam, Haarlem, Gouda and the Hague. There peat was dug and used as fuel. This happened on a massive scale. By 1700 large tracts of land were replaced by lakes, such that only small islands were left of the old land. This caused

problems of a diverse nature. Not only was the land no longer of any use – and thus not taxable – but also many difficulties arose due to the rising water. Wind-mills, dikes and sluices kept the Dutchmen's feet dry but on the other hand, this richness of waterways formed a dense network of trade routes, often controlled by the cities and their industries. We can imagine, there was much at stake every time a change in this complex system of watermanagement was made, and interests were very different for all participants. So, it becomes clear that economical, political and ecological processes had a major influence on the use of technology and its development. Since our project is a longterm-study in which the general political and economic processes are characterised by growth (16th century), peak (17th century, the so-called 'Golden Age') and decline of the Holland society (18th century), we should be able to track down both an upward trend of innovation and a time of stability. This poster will include some first results of the research project, in particular a survey of the longterm development of drainage by watermills and how this relates to man-made changes in the land.

**A 135**

**Thomas Zeller:**

**The Technological Landscape: Water, Aesthetics, and Power in Germany during the 20th Century**

During the twentieth century, hydroelectric power and its impact on the landscape became a hotly contested issue in Germany. While some engineers, industrialists, and politicians praised electric power derived from water's energy as a boon to the development of Germany's industry, conservationists pointed at the damaging effects of dams and plants on the landscape. However, these new sets of machinery were not portrayed as industrial intrusions on an unspoiled wilderness. In the absence of wilderness as a powerful rallying point and political shibboleth, environmentalists in Central Europe relied on different rhetorical strategies in their altercations about the nature and face of industrial development. This paper will analyze these modes of contests as well as the assumptions underlying these debates, focusing on hydroelectricity's impact on the landscape in 20th-century Germany. It will be shown that wilderness was not a necessary component of debates about conservation in industrial societies; rather, European case studies help us understand different motivations, developments, and cultural complexities. Also, such an examination includes an explicit historical assessment of technology's impact on the environment; this contributes to broadening the scope of environmental history. One of the earliest conflicts between the new creed of environmentalists and developers centered on a hydroelectric plant built into the Rhine close to Laufenburg in 1906. It ended with a defeat for the urban protesters; the Rhine was tamed and its power harnessed. In the preceding debate, conservationists had pointed to the cultural qualities of the Rhine as symbolically charged waterway and natural border with France. Realizing that the Rhine had been subject to formal and informal engineering over centuries, environmentalists extolled the values of the cultural landscape (Kulturlandschaft) embodied in the Rhine. This conceptual tool proved to be a valuable weapon for conservationists in the 1920s, when occasional hydroelectric projects were proposed and implemented, and in the 1930s, when the National Socialist regime touted hydroelectric plants as a step towards economic autarky. Increasingly, environmentalists sought ways to incorporate these technologies into the cultural landscape by treating them as a piece of architecture in a natural setting. What they argued for and received more often than not, were dams and plants in regionalistic architectural styles, thus producing a compromise in tune with the sentiments produced by the Kulturlandschaft. This organic vision of nature as a part of culture also sustained the critique of the grandiose plans of the Nazis to flood entire alpine valleys after the annexation of Austria. These plans were thwarted. It was only in the 1960s

and 1970s that the cultural function of landscape was increasingly replaced with the more inclusive concept of environment (Umwelt). This originally sociological term came to indicate the sea change of the environmental movement to a more socially aware and politically rather left-leaning political force. Thus, hydroelectricity's historical usages can be examined as examples of environmental protest in the absence of wilderness as a unifying concept.

## **A 050**

**Axel Zutz:**

### **The "Landschaftsdiagnose der DDR"**

A controversial research project in the initial stages of the East German ?German Democratic Republic? The unification of the two German states after the falling of the Berlin Wall was followed by intensive debates on the recent history of academic research and its political conditioning within the divided nation. I like to present the organisation, procedure and activities of the "Landschaftsdiagnose der DDR", a controversial research project in the initial stages of the East German ?German Democratic Republic?. Following a brief experimental phase, Frank Erich Carl and Reinhold Lingner, two professionally outstanding landscape architects with an antifascist biography, were able to launch 1950 this ambitious research scheme. Its aim was to establish a nation (East Germany)? wide large scale system of environmental monitoring including forest cover, soil erosion, surface water quality and air quality. Some 90 scientists representing different academic disciplines were involved. Each of the five work teams, being occupied with a territorial segment of the GDR (equivalent to the federal states in West Germany) was headed by a landscape architect/planner. The fact that these five had been enthusiastic planners (?Landschaftsanwälte?), being involved in the design and greening of the Reichs-Autobahnen (dual carriage highways) of the Third Empire, was one reason for suspicions of the State Security Organs (just in the early stage of institutionalisation), leading to the interruption of the project. The fear, that informations on the state of the environment might be of strategic importance for the West (the Cold War had just started and Stalin was still alive) was the second reason to prevent the continuation of the scheme. Besides reconstructing the details related to the project itself a range of questions are of interest such as: 1) The international setting of the project: To which extent is it justified to speak of a genuinely East German research effort, being rather unique in comparison to the Soviet Union or the United States, let alone the war-torn European states? Or should the ?Landschaftsdiagnose der DDR? rather be interpreted as a specific East German manifestation of a global wave of sensitivity for resource depletion which may be served between the Thirties and the mid of the last century? 2) The personal motivation of Carl and Lingner to pursue such kind of work: How valid is the provocative assumption of a pre-rational, rather emotionally based motive being stimulated by the idealization of a pre-industrial harmonious cultural landscape? 3) What made the East German political leadership accept or even support such kind of research in the beginning stage of the first five-year plan? 4) How far did this project, whose nature, size and results remained almost unknown in the West, influence later environmental research within East Germany? 5) What is the documentary value of the project?s results for ongoing research in this field? In 1996 at the Department for Environmental Management at the Faculty ?Environment and Society? of the Technical University of Berlin a workshop was held to discuss these questions. The meeting owed its unusual ambiente to the fact, that a number of senior scientists who had been actively involved in the research scheme were able to contribute as eye witnesses, recalling their personal memories. I like to present the most important results of this discussion to the ESEH 2003 audience.