Gesellschaft für Archäozoologie und Prähistorische Anthropologie e.V.

10. Tagung der GESELLSCHAFT FÜR ARCHÄOZOOLOGIE UND PRÄHISTORISCHE ANTHROPOLOGIE E.V. (GAPA)

Die Geschichte von Mensch und Tier Altes Thema - Neue Daten, Methoden und Interpretationen

28. September – 1. Oktober 2014, Toruń – Polen

Programme, Field Trip Guide & List of Participants

edited by

Daniel Makowiecki, Bogusz Wasik,
Agnieszka M. Noryśkiewicz, Wojciech Chudziak

TORUŃ 2014

ORGANIZING INSTITUTIONS

INSTITUTE OF ARCHAEOLOGY, NICOLAUS COPERNICUS UNIVERSITY IN TORUŃ
STOWARZYSZENIE ARCHEOLOGII ŚRODOWISKOWEJ (SAS)
SILESIAN MUSEUM IN KATOWICE
GESELLSCHAFT FÜR ARCHÄOZOOLOGIE UND PRÄHISTORISCHE ANTHROPOLOGIE E.V. (GAPA)

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Conference field trip
Bogusz Wasik
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Daniel Makowiecki

SUNDAY 28th SEPTEMBER 2014

07:00 – 09:00 **Breakfast in hotels**

Venue:
COLLEGIUM HUMANISTICUM
ROOM: C039
ul. Bojarskiego 1, 87-100 Toruń

08:00 – 10:00 **Registration**

10:00 – 10:20 **Welcome**
by **Krystyna Sulkowska-Tuszyńska** –Dean of the Faculty of History

Opening of the 10th GAPA Conference
by **Stefan Flohr** President of the Society

Session 1: Chaired by **Kerstin Pasda**

10:20 – 10:40 **Ulrich Schmölcke, Daniel Groß**
Fauna und Landschaft des Präboreals – neue Ergebnisse und Rekonstruktionen aus Friesack (D)

10:40 – 11:00 **Daniel Makowiecki, Mirosława Zabilska-Kunek, Jacek Kabaciński**
New archaeozoological records on animal subsistence at the end of late Pleistocene and beginning of Holocene

11:00 – 11:20 **Elisabeth Stephan**
Hunting and livestock management in Hornstaad-Hörnle, one of the oldest pile-dwelling settlements of Lake Constance, South Germany

11:20 – 11:35 **Discussion**
11:35 – 11:50 **Coffee break**

Session 2: Chaired by **Ulrich Schmölcke**

11:50 – 12:10 **Emilia Hofman-Kamińska, Rafał Kowalczyk, Daniel Makowiecki, Hervé Bocherens, Gildas Merceron**
Stable isotopes and teeth microwear analysis in discovering European bison history

12:10 – 12:30 **Elena Nikulina**
Die Entdeckung der Wolle" und "Schafe der Wikingerzeit" – Zwischenergebnisse aus zwei aDNA-Projekten

12:30 – 12:50 **Magdalena Krajcarz, Maciej T. Krajcarz, Piotr Wojtal, Hervé Bocherens**
Isotopic signatures (δ13C, δ15N, δ18O) of Late Pleistocene Cave Bears from Poland. Evidence for Ecological Stability of the Species Across Europe

12:50 – 13:05 **Discussion**
13:05 – 14:30 **Lunch**

Session 3: Chaired by **Carsten Witzel**

14:30 – 14:50 **Thomas Koppe, Elisa Nonnenmacher, Wolfram Kaduk**
Functional morphology of the Hominoid Pterygopalatine Fossa

14:50 – 15:10 **Linas Daugnora, Algirdas Girininkas, Timothy Bromage**
Bone human figurines and theirs histology from the Early Bronze Age Kretuonas 1 C site (eastern Lithuania)

15:10 – 15:30 **Johanna Kranzbuehler**
Which way goes the infection? Paleopathological case study

15:30 – 15:50 **Julia Gresky, Natalia Berezina**
Trepanation in Bronze Age in Kaukasus

15:50 – 16:10 **Discussion**
16:10 – 16:30 **Coffee break**

16:30 – 18:00 **Poster session 1:** Chaired by **Aleksander Chrószcz**

18:00 **Dinner**

MONDAY 29th SEPTEMBER 2014

Session 4: Chaired by **Julia Gresky**

09:00 – 09:20 **Stefan Flohr**
Sex determination using canine dimensions in an early medieval human skeletal assemblages from Greding-Großhöbing

09:20 – 09:40 **Bettina Jungklaus**
Ergebnisse der aktuellen antropologischen Untersuchungen an den mittelalterlichen Bewohnern aus dem Dorf Diepensee

09:40 – 10:00 **Anja Grothe, Bettina Jungklaus**
Sechs Tote an der Gartenmauer – Ein Berliner Arzt des 17. Jahrhunderts unter Verdacht

10:00 – 10:15 **Discussion**
10:15 – 10:30 **Coffee break**

Session 5: Chaired by **Maciej Janeczek**

10:30 – 10:50 **Norbert Benecke**
Early Farmers in the Southern Caucasus - Archaeozoology and Archaeogenetics

10:50 – 11:10 **Günther Karl Kunst, Herbert Böhm**
Contextual and spatial archaeozoology in a Bronze Age City - the Oymaagac-Nerik project (Turkey)

11:10 – 11:30 **Hans-Jürgen Döhle**
Rinderdeponierungen aus der Zeit um 3000 v. Chr. in Mitteldeutschland – neue Funde und Befunde

11:30 – 11:45 **Discussion**
11:45 – 12:00 **Coffee break**

Session 6: Chaired by **Günther Karl Kunst**

12:00 – 12:20 **Cornelia Becker**
The Przeworsk culture in Northern Thuringia – a case of archaeozoological evidence?

12:20 – 12:40 **Konstantina Saliari, Erich Pucher, Peter Ramsl**
Römische Haustiere eines latènezeitlichen Hausherrn in Vindobona (Wien)?

12:40 – 13:00 **Hans Katzgraber**
Varvara Pferdchen - von himmlischen Polen und dynamischen Symbolen keltischer Prägung

13:00 – 13:15 **Discussion**
13:15 – 14:30 **Lunch**

Session 7: Chaired by **Peggy Morgenstern**

14:30 – 14:50 **Herbert Böhm**
Walking on bones – Animal bones as building material at the medieval market place of Tulln, Lower Austria

14:50 – 15:10 **Kerstin Pasda**
"You just throw the bones out so that the foxes can take them and it is clean and nice" - Bone waste disposal in West Greenland by modern Caribou hunters and in the archaeological context

15:10 – 15:30 **Carsten Witzel, M. Semmelroth, Uwe Kierdorf**
Heat induced bone modification – an experimental study on roe deer antler

15:30 – 15:45 **Discussion**
15:45 – 16:00 **Coffee break**

16:00 – 17:30 **Poster Session 2:** Chaired by **Cornelia Becker**

19:00 **Dinner (Jubilee Reception)**

TUESDAY 30th SEPTEMBER 2014

Session 8: Chaired by **Hans-Jürgen Döhle**

09:00 – 09:20 **Susanne Hanik**
Soziotopographische Untersuchungen anhand von Tierknochen des mittelalterlichen Dorfes Diepensee in Brandenburg

09:20 – 09:40 **Peggy Morgenstern**
Jewish life in Medieval Berlin – a zooarchaeological perspective

09:40 – 10:00 **Ptolemaios-Dimitrios Paxinos**
Cattle Husbandry in Germany in the aftermath of the Late Medieval Crisis

10:00 – 10:20 **Teresa Piskorska**
Morphometric variation of horses from Middle Age Wrocław

10:20 – 10:40 **Discussion**
10:40 – 11:00 **Coffee break**

Session 9: Chaired by **Elisabeth Stephan**

11:00 – 11:20 **Margarethe Becker, Uwe Kierdorf, Kai Frölich, Horst Kierdorf, Carsten Witzel**
Seasonal variation in bone growth rates in Soay sheep – A fluorochrome labeling study

11:20 – 11:40 **Krzysztof Szostek, Beata Cienkosz-Stepańczak, Marzena Król, Aleksandra Lisowska-Gaczorek**
A comparison of bio-apatite structure of the ancient and modern animal teeth and bones – application of spectrophotometric methods

11:40 – 12:00 **Maciej Janeczek, Aleksander Chrószcz, Radomir Henklewski**
Anatomical and Biomechanical Aspects of the Horse Spine

12:00 - 12:15 **Discussion**
12:15 – 12:30 **Closing remarks**
Stefan Flohr

12:30 – 14:00 **Lunch**
14:00 – 17:00 **Toruń sightseeing**

17:00 – 18:00 **General Meeting of GAPA**

18:00 **Dinner**

WEDNESDAY 1th OCTOBER

FIELD TRIP AROUND CHEŁMNO LAND. EARLY MEDIEVAL AND LATE MEDIEVAL HERITAGE

7:00-8:00	Breakfast
8:00	Departure from **Toruń** to **Golub Dobrzyń**
9:30-11:30	Sightseeing the **Golub Dobrzyń castle** and visiting the exhibition "Secrets of the St. Lawrence Mount"
11:30	Lunch at **Golub Dobrzyń**
12:30	Departure to Radzyń Chełmiński
12:30-13:30	Sightseeing **a castle ruin** of the Teutonic Knights
13:30	**Departure to Chełmno**
14:15-17:15	Sightseeing **of the city**
17:15	**Departure to Toruń**
18 :00	**Dinner**

POSTER PRESENTATION

SUNDAY 28th SEPTEMBER 2014

16:30 – 18:00

Poster session 1. Chaired by Aleksander Chrószcz

Hans-Volker Karl
Archaeozoological aspects of the *Homo erectus*-site Bilzingsleben

Sabine Birkenbeil, Stefan Flohr
Ergebnisse der anthropologischen Analyse der menschlichen Skelettreste aus dem Totenhaus bei Arnstadt-Rudisleben

Susanne Degenhardt, Stefan Flohr, Peter Pfälzner, Carsten Witzel
How many people were buried in Tomb VII?

Juliane Haelm, Julia Gresky
Dental Anomalies and Malocclusion in Mayemer and Törtoba, Eastern Kazakhstan

Laura Sophia Schwarz, Miguel Puerro, Julia Gresky
Partly fused Metacarpale and Carpale Bones as a possible Case of Rheumatic Arthritis

Alisa Hujić
Breastfeeding and trophic level effect: who is "eating" whom?

Valerie Palmowski, Isabelle Jasch
Calculation of the minimal number of individuals

Magdalena Krajcarz, Daniel Makowiecki, Maciej T. Krajcarz, Agata Masłowska, Mateusz Baca, Hanna Panagiotopoulou, Anna Stankovic, Józef Bednarczyk, Anna Grężak, Magdalena Sudoł
On the trail of the oldest cat in Poland. An insight from morphometry, ancient DNA and radiocarbon dating

Katarzyna Mądrzyk, Beata Cienkosz-Stepańczak, Krzysztof Szostek, Daniel Makowiecki, Anita Szczepanek Małgorzata Rybicka
Stable oxygen isotope analysis of human and animal remains for palaeoenvironment reconstruction – Skołoszów (Neolithic and Early Bronze Age)

Beata Cienkosz-Stepańczak, Krzysztof Szostek, Anita Szczepanek, Rachel Howcroft, Gunilla Ericsson, Paweł Włodarczyk, Marcin M. Przybyła
Human and animal multiple graves of Globular Amphora Culture from Koszyce in the light of isotopic analysis (δ18O, δ15N, δ13C)

MONDAY 28th SEPTEMBER 2014

16:00 – 17:30

Poster session 2. Chaired by Cornelia Becker

Justyna Orłowska
Bone and antler processing by the Hunter-Gatherers during the Late Glacial and Early Holocene in Polish Lowlands

Mikolaj Lisowski
Hides and horn sheaths: a case study of processed skulls and horn cores from the Early-Middle Neolithic site of Kopydłowo 6, Poland

Jan Wiejacki
Size variations of Red deer and Roe deer in Holocene in Polish Lowland on the base of bone measurements

Edyta Pasicka, Vedat Onar, Krzysztof Tarnawski, Maciej Janeczek, Aleksander Chrószcz
Characteristics of upper cheek teeth in horses from Early Medieval excavations in Poland

Hans Katzgraber
Varvara-Pferdchen

Francoise Chaput
Das älteste Pferd Brandenburgs

Konstantina Saliari, Günther Karl Kunst
A 15th century faunal assemblage from the Dominican monastery at Tulln (Lower Austria)

Martyna Wiejacka
Hunting with Birds, on the Base of Remains from Archaeological Sites in Poland

Yavheniia Yanish
Reconstruction of the body length and weight of fishes on materials of archaeological excavations of the settlement in Hersones-Bazilika Kruze in 2011 year

Devidas Norkus, Linas Daugnora
Fish species analysis in different sites of Šventoji complex

Mirosława Zabilska-Kunek
Environmental and Cultural Determinants of Fishery in the Baltic Sea zone during the 5th-4th Millenium B.C. – chosen examples

WEDNESDAY 1th OCTOBER

FIELD TRIP AROUND CHEŁMNO LAND. EARLY MEDIEVAL AND LATE MEDIEVAL HERITAGE GUIDE

Bogusz Wasik

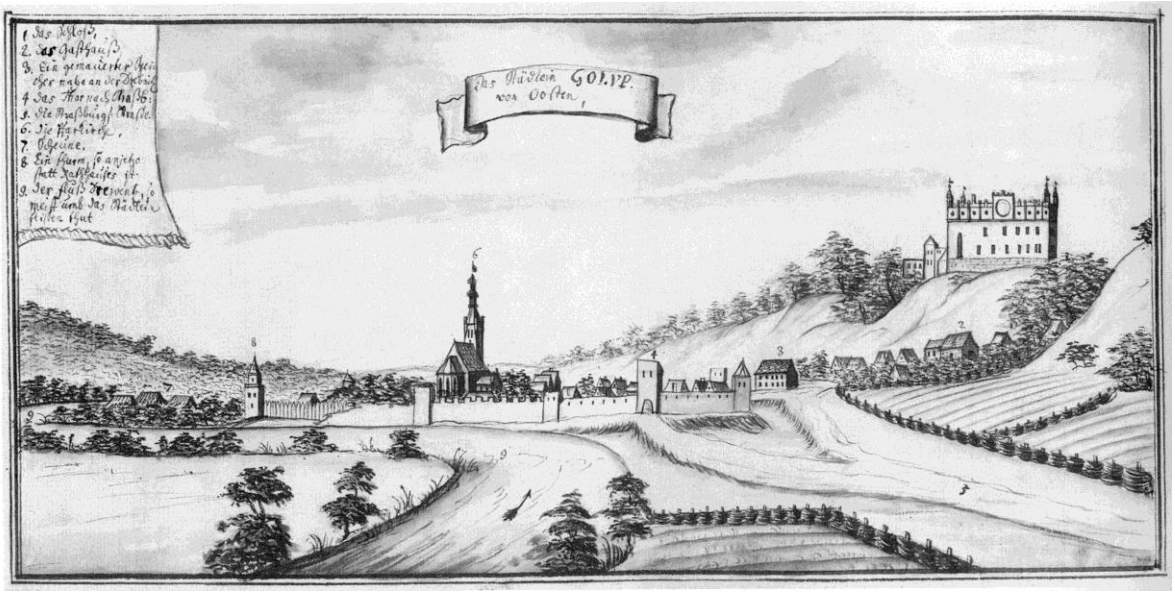
Golub-Dobrzyń (Gollub) - Burg

Golub liegt an der Drwenz, welche die südliche Grenze des Kulmerlandes und auch des Ordensstaates in Preußen war. Das Gebiet Golub-Ostrowite gehörte ursprünglich (seit 1258) dem Bischofen von Leslau (Włocławek). Im Jahr 1293 erwarb der Orden dieses Gebiet zurück.

Der Bau der ersten hölzernen Befestigungen begann unmittelbar nach dem Erwerb des Gebiets durch den Orden. Um das Jahr 1305 wurde mit dem Bau der Burg aus Ziegelsteinen begonnen. Dieses Datum lässt sich dank der schriftlichen Überlieferung von Dusburg recht genau feststellen. Dort wird auch berichtet, dass der Landmeister Konrad Sack den Bau der Burg in Auftrag. Die Burg entspricht in ihrer Bauweise dem frühen Typ des regelmäßigen Konventhauses. Diese Anlagen aus Kulmerland, zu denen auch die Burgen in Bischöflich Papau (Papowo Biskupie), Leipe (Lipienek) und Roggenhausen (Rogóźno) gehören, sind durch eine schlichte und defensive Architektur charakterisiert. Die meisten Räume des im Grundriss viereckigen Konventhauses hatten nur kleine und schmale Fenster (Scharten). Nur die Haupträume, die Kapelle und Remter, die in Golub im Südflügel gelegen waren, hatten größere gotische Fenster.

Der Bau der Ordensburg wurde in Etappen durchgeführt, die typisch für den Bau der regelmäßigen Konventhäuser waren. In der ersten Etappe entstand die Außenmauer des Vierecks, später baute man die Flügel ein. Der geplante und angefangene Bergfried in der Südwestecke wurde hingegen nie fertiggebaut. Wie schon erwähnt, befand sich im ersten Stock des Südflügels die Kapelle und der Remter. Nach neuesten Forschungen weiß man, dass sich über der Küche im Erdeschoss bis zum Dach des Westflügels Magazine und Speicher befanden. Deshalb wird angenommen, dass sich der Schlafsaal (Dormitorium) der Ordensritter im Nordflügel befand. Das Konventhaus hatte keinen Parcham – nur an der Seite der Vorburg war eine Außenmauer und ein Graben. Der Bau des Koneventhauses wurde wahrscheinlich in den 30er-40er Jahren des 14. Jahrhunderts beendet. Die Ziegelmauern der

Vorburg mit ihren Ecktürmen ersetzten um die Mitte des 14. Jahrhunderts die hölzernen Befestigungen.



Picture by Jerzy Fryderyk Steiner XVIII w

In den ersten Jahren des 15. Jahrhunderts baute man noch zwei runde Wehrtürme, die der Burg im Westen vorgelagert waren (nur der südliche der Türme ist erhalten). Als nächstes verbaute man den Südzwinger mit zwei Gebäuden, von welchen eins das Haus des Komturs war.

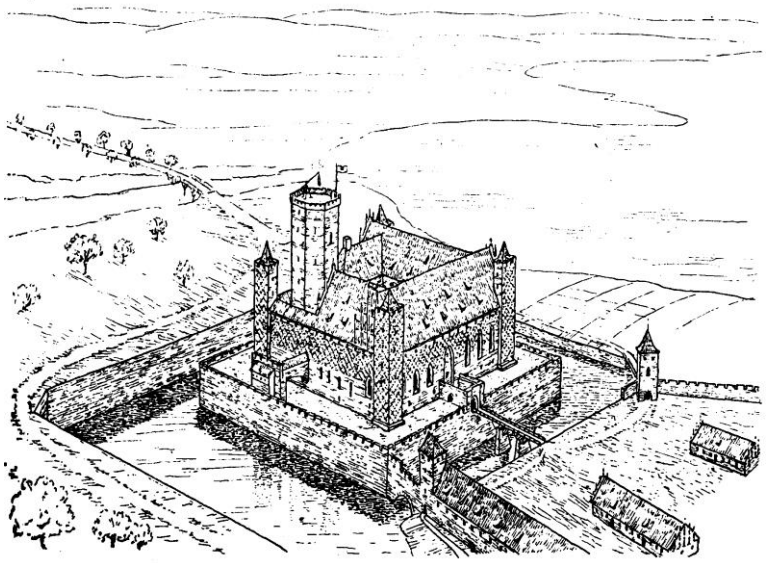
Seit 1466 war die Burg Sitz der polnischen Starosten. Am Anfang des 17. Jahrhunderts wurde sie im Renaissancestil umgebaut. Im 19. Jahrhundert verfiel sie zu Ruine und wurde in der zweiten Hälfte des 20. Jahrhunderts wieder aufgebaut.

Bogusz Wasik

Radzyń Chełmiński (Rheden) – Burg

Im Jahr 1234, während des Kreuzzuges gegen die Pomesanen, wurde die erste, noch hölzerne Burg gebaut. Die Stelle war strategisch wichtig und leicht zu verteidigen – zwischen den Seen verlief hier der Weg von Pomesanien ins Kulmerland. Die Burg widerstand als eine der wenigen Befestigungen des Ordens den Angriff der Preußen während des ersten Aufstandes (1242-1249). Seit der Mitte des 13. Jahrhunderts war hier der Sitz des Komturs.

Es gibt keine schriftlichen Quellen, die das Datum des Baubeginns der steinernen Burg nennen. Das Konventhaus wurde in der ersten Hälfte des 14. Jahrhunderts gebaut und ist ein gutes Beispiel der voll entwickelten Konventsburgen vom Kastelltypus. Das Konventhaus hat eineSeitenlänge von 52 Meter. Die Ecken sind durch schlanke Türmchen betont. In der Nordwestecke befand sich ein freistehender, achteckiger Bergfried. Die Haupträume (Kapelle und Remter) befanden sich im Obergeschoss des Südflügels. Im Westflügel waren vermutlich die Räume des Komturs und im Osten das Dormitorium. Im Erdgeschoss des Nordflügels befand sich die Küche. Das Konventhaus war von einem Parcham umgeben, im Westen war ein Dansker. Auf dem Parcham befanden sich Wirtschaftsgebäude.



Picture by Conrad Steinbrecht 1888

Südlich des Hohschlosses war die Vorburg. Sie war von Ziegelsteinmauern umgeben und beherbergte Wirtschaftsgebäuden. Dort war auch die Infirmerie. Östlich des Konventhauses war noch eine zweite Vorburg errichtet, die aber nur aus Holzgebäuden bestand.

Seit 1466 war die Burg Sitz der polnischen Starosten. Während der Kriege im 17. Jahrhundert wurde sie beschädigt, aber noch bis Ende des 18. Jahrhunderts von den Starosten benutzt. Erst dann wurde sie aufgegeben und von den Deutschen teilweise abgebrochen.

Bogusz Wasik

Chełmno (Kulm) – Stadt

Kulm erhielt die Handfeste im Jahr 1233, aber erst im Jahr 1253, nach paar Transpositionen wurde sie an der heutigen Stelle schriftlich genannt. Die Stadt Kulm, der vom Deutschen Orden eine hervorragende Stellung unter den Städten des Landes zugesprochen wurde, erlebte ihre Blüte im 14. Jahrhundert. Mit dem Zweiten Frieden von Thorn 1466 wurde die Stadt Teil der Provinz Preußen Königlichen Anteils. Mit der Ersten Teilung Polens 1772 fiel Kulm an das Königreich Preußen.

Picture by Jerzy Fryderyk Steiner 1745

Die Anhöhe, auf der die Stadt liegt, fällt im Nordwesten in das Weichseltal steil ab und ebenso steil jedoch weniger tief auf der Südostseite in das Tal des Fribbebaches. In Nordosten und Südwesten schützen zwei Schluchten die Stadt. Die **Mauern der Stadt** sind gut erhalten, so dass die alte Befestigung noch vollständig zu erkennen und zu verfolgen ist. Von den sechs Toren ist nur das Graudenzertor erhalten.

Auf dem großen Marktplatz steht das **Rathaus**. Das gotische Gebäude wurde in den Jahren 1567-1596 im Renaissancestil umgebaut. Es hat eine echteckige Grundform mit einem mittig gelegenen Turm.

In Kulm sind sechs gotische Kirchen und Kapellen erhalten. Beim Markt steht die **Pfarrkirche St. Marie**. Sie ist eine gewölbte Hallenkirche mit Rechteckchor und einer Doppelturmanlage in Westen. Um 1290-1310 wurde der Chor und gleichzeitig oder etwas später der unteren Turmabschnitt und die Halbpfeiler für das Langhaus angelegt. Um 1315-1330 wurde das Langhaus gebaut.

Die Dominikanerkirche St. Peter und Paul liegt im Nordosten der Stadt. Sie ist eine Hallenkirche mit Polygonalchor. Das erste Kloster wurde hier um 1245-1280 gebaut. Der

heutige Chor stammt aus den Jahren um 1330-1338 und das Langhaus aus den Jahren um 1380-1390.

Die Franziskanerkirche St. Jakob und St. Nikolaus liegt nordwestlich des Marktplatzes. Sie ist eine gewölbte Pseudobasilika mit Rechteckchor und einem Turm. Bau des Chors ist um 1310-1320 datiert. Um 1326 wurde das erste Langhaus gebaut, ca. 1375-1385 wurde es verlängert und gewölbt.

Die Zisterzienserinnen-Klosterkirche St. Johannes Bapt. und St. Johannes Evang. steht in der Nordwestecke der Altstadt. Die um 1330-1350 errichtete Kirche ist ein gewölbter Saalbau mit Polygonalchor.

Die Hospitalkirche Heilig-Geist liegt bei der Stadtmauern südlich der Pfarrkirche. Sie ist ein Saalbau mit Turm und wurde um das das Ende des 13. Jahrhunderts/Anfang des 14. Jahrhunderts gebaut.

Die Hospitalkapelle St. Martin ist ein kleiner Saalbau aus der 2. Hälfte des 14. Jahrhunderts westlich der Heilig-Geist Kirche.

An Early Mediaeval Settlement Centre *in Culmine* lying on the Pomeranian Vistula

Wojciech Chudziak

The archaeological evidence found at the foot of the Mount Saint Lawrence fulfils all criteria necessary to qualify it as being regarded as a sacred place by the local society living along the banks of the Vistula in the early Middle Ages. I came to be regarded as a source of holiness and contact, through the medium of different rites, with sacred forces living outside this earth. The date and circumstances surrounding the sanctification of the site are uncertain. The luminous nature of the local landscape may have been of great significance. The lofty towers dominating above the local landscape occupied the central stage. Partially of human construction, there dominates a background of relatively flat local moraines.

The earliest evidences for cult-magical practices beneath the Mount Saint Lawrence come from the 10th century. We have every indication that in earlier times the area around the Mount Saint Lawrence was relatively sparsely occupied. It was principally devoted to magical and cult ceremonies. This is above all indicated by the lack of any 10th century fortifications, which would have indicated that the site also had a political and military function. It does not follow that the site was of minimal significance to the peoples settled along the Vistula. To the contrary, the archaeological data we have recovered permit us to conclude that this site, in an ideological sense, was the key location for a whole group of tribes living in the area on both sides of the Vistula. It fulfilled a complex religious and social function, a symbol of the ethno-cultural identity binding the local population together, of their common origin and ancestors. The evident *sacrum* of this local site, as well as the contacts with the gods experienced there, guaranteed the good favour and fortune of the tribal community. We may also assume that the site, because of its sacredness - saturated as it was with the appropriate power and quality, was also the place where rule was conferred. This would have been the place where the rulers of the local tribes, living in the numerous fortified sites situated in the Chełmno-Dobrzyń area at the end of the first millennium AD, would have been enthroned.

Christianization constituted an indispensable element in the process of state-building during the early Piast period. Tribal cult centres, of the type we can recognise at the Mount Saint Lawrence, were regularly taken over. Much evidence has been preserved of this process. Confrontation between the State, expanding over the Pomeranian reaches of the Vistula, and the local population manifests itself at various levels. The pagan cult centre, called *Culmen*, was destroyed. The stone altar was partially dismantled and the site was covered with a layer of slightly permeable loam mixed with clay. This action, undoubtedly of a magical basis, was aimed at annihilating the sacred power the altar possessed. We can see that the location was consecrated as a Christian site by the building of a chapel, at first probably constructed of wood and only later of stone. This chapel was conceived as an integral part of a great basilica to be laid out in its immediate neighbourhood. The process of construction at the site illuminates many problems associated with the genesis of a centre *in Culmine* for the propagation of Christianity, and the subsequent development of the local settlement planned by the Church. The significance of the location of the western annexe of the basilica, situated exactly in the very centre of the sacred space created by the traditions of pagan religion, is a decisive clue.

The accessibility of holy water nearby and the characteristic early Romanesque architectural plan of the basilica perhaps permit us to hypothesize that its main purpose was baptismal. An alternative interpretation of the building would be as a martyrium. We have insufficient evidence to support either interpretation.

The basilica is laid out in a tripartite plan without a tower, with a nave and two aisles, ending in three apses, the chief of which faces east. This arrangement is most closely related to the basilicas of Northern Italy, which were frequently adopted in Carolingian and Ottonian buildings. The construction of the church began in the first half of the 11th century, even though it was halted relatively soon after. This can be linked to the pagan reaction and the temporary fall of the state structure in the 30s of this century. We cannot rule out the possibility that it was built as the centre of the new bishopric planned for the region, which is mentioned in the *Chronicles* of Jan Długosz. The attempt to build a great Christian church, perhaps serving principally as a place of baptism, at the foot of the Mount Saint Lawrence, a place of ancient sacredness, indirectly indicates the existence of a missionary centre there. This would have preceded the subsequent establishment of a stable church structure in the area. An arrangement of this type can be taken as an indication of the first phase of Christian activity in any given area. Even though the written sources do not touch on this subject, one may presume that the first Christian mission sent out to convert the local tribal groupings was indeed sent out to this centre *in Culmine*. It is surely not without significance that this centre lay on the route of Saint Adalbert to Gdańsk and then to Prussia. Another possible hypothesis is that it may have been used by Saint Bruno of Querfurt in his mission to the lands lying to the north-east of the state of Bolesław Chrobry.

We can also date the building of the early Romanesque Basilica, an act aimed against the pagan *sacrum*, as synchronous with the construction of solid wood and earth fortifications around the high ground at the foot of the Mount Saint Lawrence. We should surely treat this as evidence for the foundation of a centre of state government *in Culmine*. It is the largest such settlement in this part of Vistulan Pomerania. In numerous secondary sources, the Chełmno region is held to have been a dependent tributary territory, although up to that time it had frequently lain outside the basic territory of the Piast state. Recently, a contrary opinion has emerged, however, that it may have only been attached to the core territory of the *civitas Schinesghe* at the beginning of the reign of Bolesław Chrobry.

The attempt to form an ecclesiastical centre *in Culmine* is in itself evidence that from the beginning of the second millennium AD the settlement was already a place of great economic and demographic significance. The large cemetery situated not far from the holy Mount would support this view. The start of the practice of burying the dead in this place can also be connected to the sphere of the *sacrum*. Perhaps a conviction existed, stretching back to tribal times, that the entrance to the underworld was to be found in this place. In this way the traditional vision of cosmic order, that the land of the dead was to be found under the Cosmic Mountain, could be brought up to date. As well as the prestige of the place as a sacred site, a market must have also functioned here. Its revenues would have been passed on to the Benedictines in Mogilno. The whole range of social exchanges taking place at the site undoubtedly would have led to a substantial growth in its significance.

Fig. 1. The Mount Saint Lawrence at Kałdus, view from the south-east. Photo P. Biarda

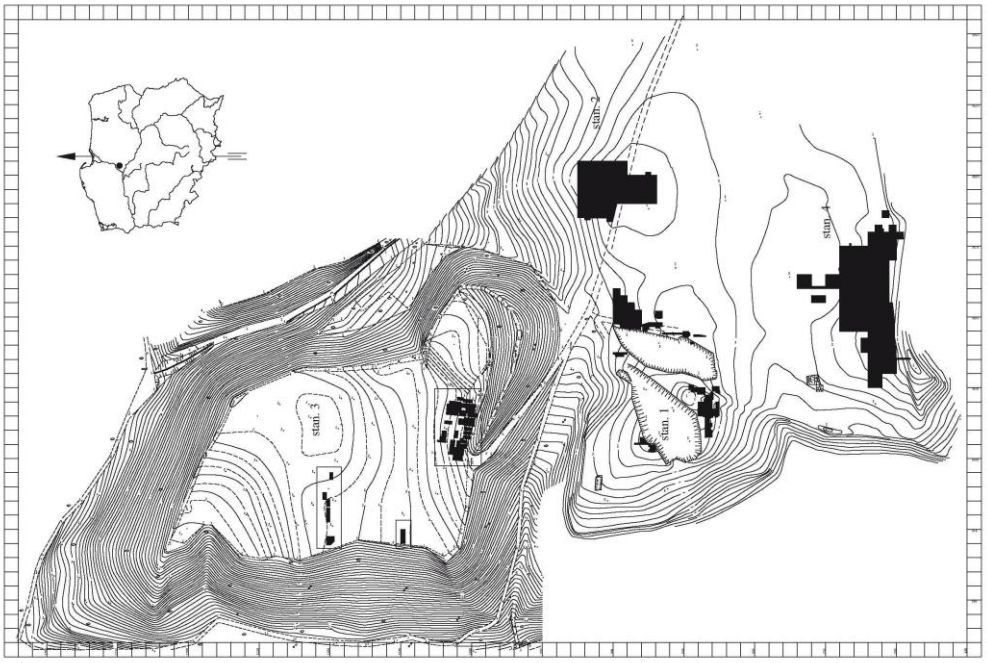


Fig. 2. Kałdus. Contour plan showing the settled area and the location of the tranches from the years 1996-2003.

Impact of the early medieval settlement on the natural vegetation of Kałdus Region.

Agnieszka M. Noryśkiewicz

Studies of biogenic sediments provide information about the environment, vegetation history as well as climatic and hydrological transformations of the past. Pollen analysis was studied to eight profiles in the Kałdus vicinity, five from the Vistula Valley (the Starogrodzkie Southern Lake – two profiles, the Starogrodzkie Northern Lake, peatland Chełmno/Rybaki and peatland Różnowo) as well as three from the moraine plateau (peatlands Gruczno and Uść and the Czyste Lake).

Pollen analysis of sediments from the Starogrodzkie Lakes (3 profiles) allowed to establish younger part of Holocene period as the lake's initial time of forming, the results of radiocarbon dating showing the turn of subboreal and subatlantical periods (2630±160BP). However, there is lack of distinct pollen records for the periods of building a basilica and early medieval settlement activities, caused by a disturbed sedimentation (hiatus). The deposit erosion by Vistula floodwaters most frequently caused that effect. Chełmno/Rybaki profile was a subsequent stage for getting to know the changes of natural environment in the Vistula valley. The pollen analysis allowed to reconstruct the flora changes only within the period from the twilight of the subboreal to the beginning of the early medieval times (1030±70 C^{14} BP). These profiles show the hydrological changing processes within the Vistula valley in the early medieval times. Therefore, in order to characterize plant cover changes around Kałdus site another profile was taken, this time from a small peatbog on moraine plateau (Uść – 1.5 km from Kałdus). We succeeded in obtaining a record of continuous local plant succession for nearly last two thousand years (1760±70 C^{14} BP). A subsequent profiles, come from the Czyste Lake (9 km from Kałdus) and peatbog Gruczno Górne (6 km from Kałdus), recorded a regional and local history of the Holocene vegetation.

The last one due to the presence of anthropogenic indicators in the diagrams it was possible to distinguish the periods of increased activity of man on this area as well as the stages of regeneration of forests resulting from either decreased activity of man or his withdrawal form territory. Due to the presence of plants indicating the economic activity of man, five settlement phases were distinguished, which cover the periods of increased activity of man on this area after the Migration Period. The earliest stage of the early medieval settlement is marked in the Ch/Ryb and GG profiles. These two profiles probably present mainly anthropogenic activity from the other, left bank of Vistula river, where at in 7th and 8th age arises tribal community with central stronghold in Gruczno. In sight of archaeological research we can suppose that scale of antropopression was, in this time, much smaller around Saint Lawrence Mount than around Saint John Mountain.

Fundamental changes in settlement structures took place not until the end of 1st or on the beginning of 2nd millenium when next to St. Lawrence Mountain raised stronghold and its settlement. In this period took place higher, that ever before, deforestation. This process

should be connected with higher demand for wood and field area. Decrease of pollen anthropogenic indicators (turn after phase 2a, fig. 2) was caused by ceasing building the basilica and by burning fortifications of stronghold situated at the St Lawrence Mountain, what probably took place in 30s of 11th age.

Next stage of Kałdus settlement complex functioning should be connected with castellans town (12th-13th age). According to our current palinological knowledge surrounding of St Lawrence Mountain was deforestated to larger extent than ever before.

Foundation of tetonic town of Chełmno in 1233 caused higher degree of deforestation in this area, which level did not decrease till nowadays.

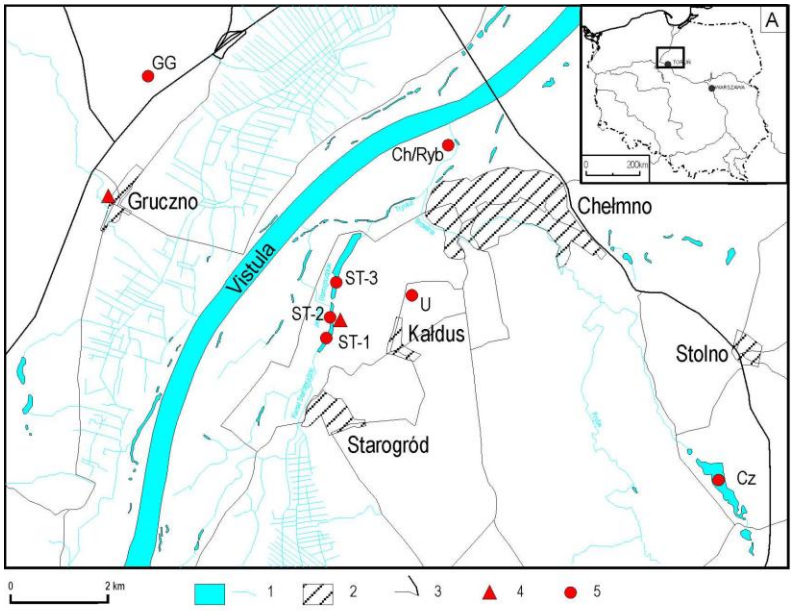


Fig. 1. The location of pollen profiles in the Kałdus vicinity; 1 - surface water; 2 - villages; 3 - roads; 4 - erlymedieval stronghold; 5 - pollen profile, GG - Gruczno Górne, ST-1-3 Lake Starogrodzkie profile 1-3, Ch/Ryb - Chełmno Rybaki, U - Uść

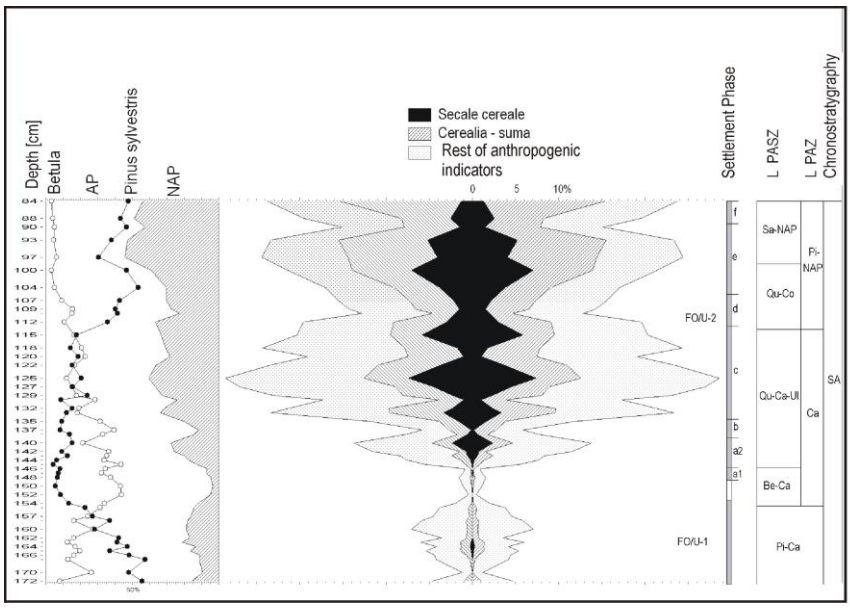


Fig. 2. Percentage pollen diagram illustrating the human impact for Uść profile; AP - Arboreal Pollen (trees and shrubs), NAP - Non Arboreal Pollen (dwarf shrubs and herbs), L PAZ - Local Pollen Zones, LPASZ - Local Pollen SubZones

Fauna of the Early Medieval Settlement centre in Kałdus

Daniel Makowiecki

Of nearly 100 thousand animal bone fragments, excavated in the area of the Kałdus settlement complex, over 75 thousand were examined (tab. 1). They originate from domesticated and wild mammals, birds and fish. Moreover, single fragments of invertebrates such as freshwater molluses and crayfish were also identified. Fauna of that settlement complex made a varied composition of groups referring to different economic, zoocenotic factors and body sizes. Domestic mammals included: cattle, pig, sheep, goat, horse, dog and cat. Representatives of *Animalia superiora* included the following taxa: brown bear, wild boar, red deer, elk, roe deer, aurochs, aurochs/bison and bison. Animals from *Animalia minuta* group were: European brown hare, squirrel, beaver, wolf, fox, beech marten, badger, mustelids, least weasel, otter, wildcat and lynx. The list of avifauna is quite long and consists mainly of wild species (tab. 2), although the most numerous were remnants of chicken (domestic fowl). Domestic birds can also be represented by *Anser* and *Columba*. The list of fish contains mostly freshwater species, but also migratory fish (diadromous – catadromous and anadromous), as well as marine ones (tab. 3).

The high representation of wild mammals refers to the period when the centre had not been under the political influences of the Piast state structures, i.e. in the times of tribal development and in times of the so-called "tribal separatism", being the effect of the historically documented crisis. By contrast, the relatively high domestic mammal representation is characteristic for assemblages relating to the presence of the Piast administration in the centre, i.e. for the first time at the turn of the 10th/11th c – 1st half of 11th c and for the second time in the 12^{th} – 1^{st} quarter of 13^{th} c.

Although, in all stages of the centre's development, cattle, pig, sheep, goat and horse were bred, proportions of their consumed meat underwent changes. During the tribal period in times of tribal separatism, cattle was of greater significance, while during the times of the centre functioning as a crucial element of the Piast state, pig was of greater importance. It can be supposed, that this species' meaning is an effect of the economic strategy introduced by the Piasts, well evidenced, amongst others, in Greater Poland (the core territory of the Piast state), where the base of the meat diet was pork.

Hare was the dominating component of hunted animals of *Animalia minuta*. Its representation in both, the collection from the stronghold and the settlement is identical. The group of *Animalia superiora* is represented by a high level of participation of bones belonging to wild boar, red deer and roe-deer. The remaining species – elk, aurochs and European bison – are represented by a small percentage, while the latter was reported only in the stronghold.

Observing the percentage data of hare in comparison with the remaining species of the *Animalia minuta* group and roe deer in relation to the species of *Animalia superior*, it can be noted that both of them clearly increased their representation in the younger stages. It corresponds to the stage, when the centre *in Culmine*, became bigger and a more important heart of culture and trade.

The list of birds was estimated on the grounds of studies of only a portion of bones recovered from sites 2 and 3. They represent a few orders and relating to distinguishing methods discussed in the introduction, they belong to some ornithological groups. Chicken remains are predominant in both collections, the other bird groups are represented by a lower percentage, in which goose and wild galliformes are particularly prominent. The analysis of the graphic picture of the obtained data enables indicates that both sites are different as far as the percentage of the distinguished groups and taxons are concerned. There is clearly smaller representation of chicken (57,3%) in the stronghold than in the assemblage from the settlement (76,1%), while the participation of other birds is lower in the assemblages from the settlement (Makowiecki 2010). The only common feature of both sites is the identical representation of geese (13.8%). Such proportions were the reflection of different social and economic functions of both settlements. Site 2 was a settlement of a residential-household character, while site 3 served ritual-religious purposes in tribal and later, in Christian periods, as well.

Preliminary studies of 2803 fish bones were the basis for distinguishing 18 taxa (tab. 3). Considering the types of waters inhabited by them, they belong to three ecological groups, i.e. – freshwater fish, diadromous (migratory) and marine fish. The first of them is evidently the most numerous one, consisting of species typical for river waters - asp, ide and burbot and characteristic for a high degree of lake eutrophication – tench and crucian carp. The most numerous are the ones existing in both water bodies types including Cyprinidae and predatory fish – e.g. pike, catfish, perch and pikeperch. Among diadromous species are sturgeon, salmon/ trout and eel. The only sea fish is herring.

Cyprinidae are the dominating component (26–56%) with the most numerous recognized remains of common bream, tench and asp. Other families are represented by quite a high representation of species such as sturgeon (9–38%), pike (7–15%) and catfish (2–11%).

The data above suggest that the centre *in Culmine* implemented a strategy consisting of several elements fulfilling their economic needs. This included husbandry of domestic mammals and birds, hunting mammals, wild birds and fishing. In case of the latter, herring trade can be indicated as the effect of contacts with coastal centres and introducing Christianity to the Chełmno Land by the Piast state. The recorded faunal components point to the exploration of various landscape zones, such as forests, open spaces, swampy areas and waters (surely the Vistula, but also lakes situated in the upland).

Table 1. Kałdus, Kujavian-Pomeranian Voivodship. The list of animal taxa and their NISP in the chronological context and pottery phases

Animals	Total
Cattle *Bos primigenius* f. *taurus*	15431
Pig *Sus scrofa* f. *domestica*	15382
Sheep/Goat *Ovis ammon* f. *aries/Capra aegagrus* f. *hircus*	5703
Sheep *Ovis ammon* f. *aries*	437
Goat *Capra aegagrus* f. *hircus*	195
Horse *Equus ferus* f. *caballus*	1636
Dog *Canis lupus* f. *familiaris*	230
Cat *Felis silvestris* f. *catus*	34
Hare *Lepus europaeus*	173
Red Squirrel *Sciurus vulgaris*	15
European Beaver *Castor fiber*	26
Gray Wolf *Canis lupus*	1
Gray Wolf/Dog *Canis lupus/ Canis lupus* f. *familiaris*	1
Red Fox *Vulpes vulpes*	27
Brown Bear *Ursus arctos*	106
Marten *Martes* spec.	
Badger *Meles meles*	5
Mustelids Mustelidae	1
Least Weasel *Mustela nivalis*	1
European Otter *Lutra lutra*	3
Wild Cat *Felis silvestris* Schreber	2
Wild/Domestic cat *Felis silvestris/Felis silvestris* f. *catus*	1
Eurasian Lynx *Felis lynx*	1
Wild Boar *Sus scrofa*	1885
Sus scrofa L./*Sus scrofa* f. *domestica*	3
Red Deer *Cervus elaphus*	1290
Elk *Alces alces*	107
Roe Deer *Capreolus capreolus*	613
Aurochs *Bos primigenius*	70
Aurochs/Cattle *Bos primigenius/Bos primigenius* f. *taurus*	2
Aurochs/ European Bison *Bos primigenius/Bison bonasus*	4
European Bison *Bison bonasus*	3
Birds Aves	2392
European Pond Terrapin *Emys orbicularis*	1
Fish Pisces	2655
Bivalvia	26
Crayfish *Astacus* sp.	2
Identified	48464

Table 2. Kałdus, Kujavian-Pomeranian Voivodship, settlement and cemetery (settlement and cemetery (site 2) and stronghold (site 3). Birds taxa and their NISP

Birds	Total
Red-necked Grebe *Podiceps grisegena*	1
Cormorant *Phalacrocorax carbo*	2
Bittern *Botaurus stellaris*	1
Grey Heron *Ardea cinerea*	4
White Stork *Ciconia ciconia*	1
Stork *Ciconia* sp.	1
Mute Swan *Cygnus olor*	1
Goos *Anser* sp.	237
Wigeon *Anas penelope*	1
Gadwall *Anas strepera*	2
Teal *Anas crecca*	2
Mallard *Anas platyrhynchos*	1
Duck *Anas* sp.	53
Ferruginous Duck *Aythya nyroca*	1
Common Goldeneye *Bucephala clangula*	3
Sparrowhawk *Accipiter nisus*	3
Goshawk *Accipiter gentilis*	19
Kestrel *Falco tinnunculus*	1
Lesser Spotted Eagle/Osprey *Aquila pomarina*/*Pandion haliaetus*	1
Black Grouse *Tetrao tetrix*	50
Capercaillie *Tetrao urogallus*	70
Black Grouse/Capercaillie *Tetrao* sp.	1
Partridge *Perdix perdix*	2
Domestic Chicken *Gallus gallus* f. *domestica*	1177
Crane *Grus grus*	40
Moorhen *Gallinula chloropus*	1
Coot *Fulica atra* L., 1758	1
Woodcock *Scolopax rusticola*	1
Stock Dove *Columba oenas*	6
Dove *Columba livia* f. *domestica*	1
Stock Dove/Dove *Columba oenas*/*Columba domestica*	1
Dove *Columba* sp.	1
Short-eared Owl/Long-eared Owl *Asio flammeus*/*Asio otus*	1
Starling *Sturnus* sp.	1
Jay *Garrulus glandarius*	3
Raven *Corvus corax*	6
Carrion Crow *Corvus corone*	7
Jackdaw *Corvus monedula*	3
Corvus sp. *Corvus* sp.	8
Total	1715

Table 3. Kałdus, Kujavian-Pomeranian Voivodship. Fish taxa and their NISP

Fish group	Biotope	Fish	Kałdus 1	Kałdus 2	Kałdus 3	Kałdus 4	Total
Fresh water	Rivers/lakes	Cyprinids Cyprinidae	2	698	132	283	1115
		Roach *Rutilus rutilus*		4		3	7
		Rudd *Scardinius erythrophthalmus*		1			1
		Bream *Abramis brama*		47	9	4	60
	Lakes/rivers	Catfish *Silurus glanis*		23	56	31	110
		Pike *Esox lucius*		180	55	27	262
		Perches Percidae		6			6
		Perch *Perca fluviatilis*		31	2	13	46
		Pikeperch *Sander lucioperca*		21	17		38
	Lakes	Tench *Tinca tinca*		24	14	5	43
		Crucian carp *Carassius carassius*		3	2	3	8
	Rivers	Ide *Leuciscus idus*		5	1		6
		Asp *Aspius aspius*	2	19	7		28
		Burbot *Lota lota*		1			1
Migratory	Rivers/Seas	Salmon/Sea trout *Salmo* spec.		2	3		5
		Atlantic sturgeon *Acipenser oxyrinchus*	3	114	195	5	317
		Eel *Anguilla anguilla*		1			1
Marine	Seas	Herring *Clupea harengus*		10	14		24
Identified			7	1190	507	374	2078

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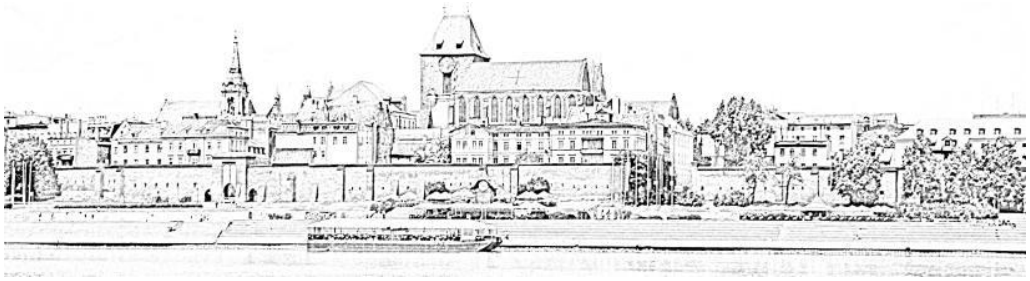

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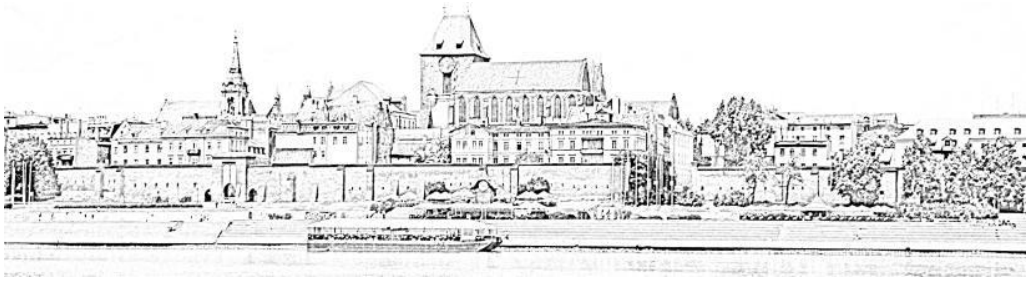

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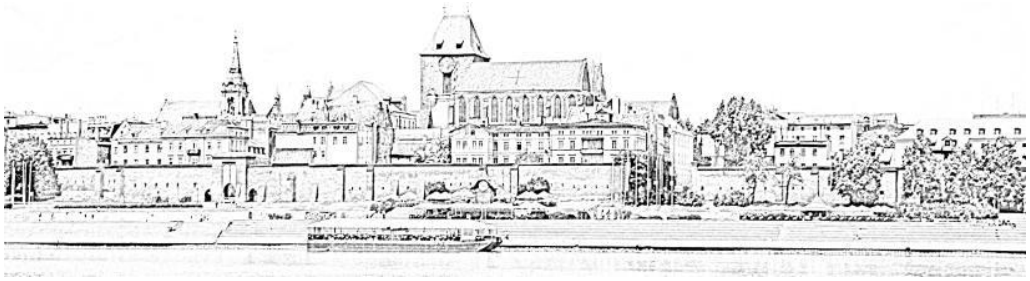

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