

ECP 2005 CULT 038097/Bernstein

BERNSTEIN

Deliverable no. 30, ref. D6.6
Project presentation (final version)

Deliverable number	<i>D6.6</i>
Dissemination level	<i>Public</i>
Delivery date	<i>28 Feb. 2009 (postponed 13 March 2009)</i>
Status	<i>Final</i>
Author(s)	<i>The Bernstein Consortium</i>



eContentplus

This project is funded under the *eContentplus* programme¹,
a multiannual Community programme to make digital content in Europe more accessible, usable and exploitable.

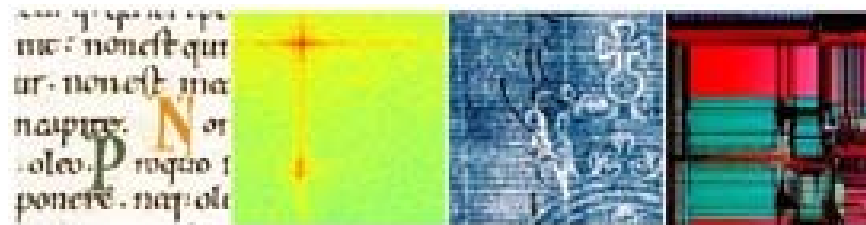
¹ OJ L 79, 24.3.2005, p. 1.



BERNSTEIN – THE MEMORY OF PAPER

Collaborative systems for paper expertise and history
(targeted eContent*plus* project)

max. EU funding: 1.6 Mill EURO
project's start date: September 1st, 2006
duration: 30 months

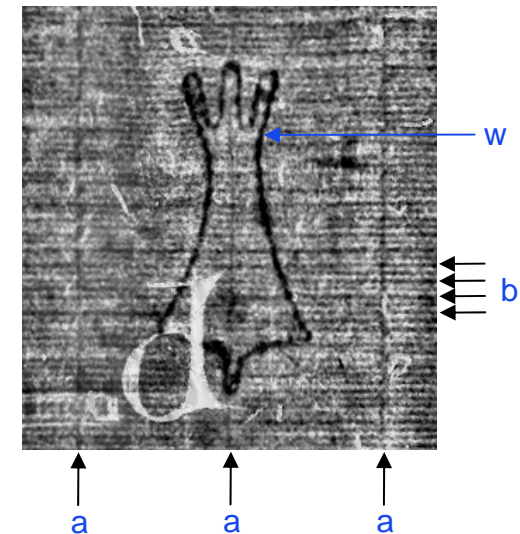




Motivation

Paper studies are important because paper is a ‘memory bearer’. By examining characteristics of the paper (e.g. watermarks, chain lines, laid lines), its date, location and mill of production can be estimated and information about the technological, economical, social and cultural environment of its origin can be obtained. Tracing the movement and the usage of a sheet of paper in time and space provides a thread of captured events that form a basis for historical research and exploration of cultural heritage.

The enormous amount of papers available – millions of samples stretching 800 years back in time – contains a sizable part of what can be learned of Europe’s past, and is both a richness waiting to be tapped into and a technological challenge.



watermark of type bell (w)
chain lines (a)
laid lines (b)

A watermark is a change in the thickness of the paper that can be seen when the paper is hold up to the light.



Main Objectives

Substantial improvements in all expertise areas related to paper studies ...

- **Linking all existing European databases of paper reproductions;**
- Generating the conceptual and technical infrastructure for enabling access to paper expertise and enriching paper data by contextual data (bibliography, GIS, incunabula short title catalogue ISTC etc.);
- Creating an integrated European digital environment for paper expertise;
- Providing a multilingual interface to these digital resources.

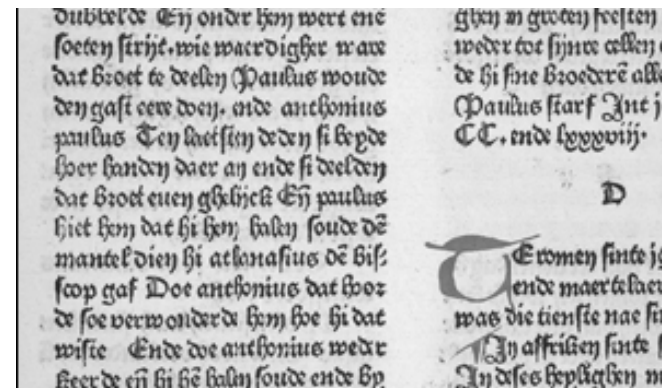


Why “*Bernstein*” ?

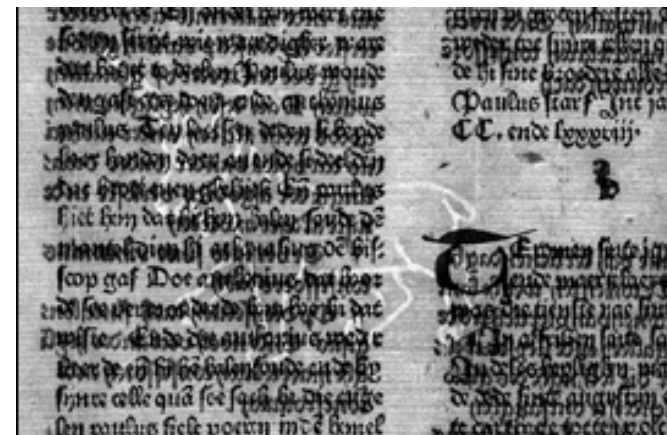


Bernstein is German for *amber*, which is the fossilized resin of ancient trees and famous also for the insects amber pieces may contain sometimes.

They can be seen by raising the stone to the front of the eyes and looking at a source of light, a gesture identical to that of a historian looking for traces of the past captured in the structural features of a sheet of paper – hence the metaphorical name of the consortium and title of the project.



Part of a page from an incunabulum (source: KB)



The watermark as well as the chain and laid lines are made visible with a light box (KB)



Consortium

- 1. Austrian Academy of Sciences, Vienna, Austria (OEAW, Coordinator)**
management, database of mediaeval watermarks, dig. repertories, image processing tools;
- 2. Archives of the State of Baden-Württemberg, Stuttgart, Germany (LABW)**
huge collection of watermarks (Piccard, 95000 watermark entries);
- 3. University of Technology, Institute for Information Systems and Computer Media, Graz, Austria (TUG)**
integration software (implementation), user interface;
- 4. Laboratory for Occidental Medieval Studies in Paris, France (LAMOP)**
historical GIS;
- 5. National Library of Germany, Leipzig, Germany (DNB)**
bibliography on paper, huge paper collection;
- 6. Dutch University Institute for Art History, Florence, Italy (NIKI)**
paper database, art historical expertise;
- 7. Delft University of Technology, Delft, Netherlands (DUT)**
data mining software, intelligent image processing;
- 8. Koninklijke Bibliotheek, National Library of the Netherlands, The Hague, Netherlands (KB)**
watermarks in incunabula;
- 9. Liverpool University, United Kingdom (LU)**
integration architecture.

Co-operators

(Staatsbibliothek zu Berlin, British Library, ICPAL Rome, State Historical Museum Moscow, ...)



Content to be Aggregated

Paper related data and tools

A) **Images** (drawings, rubbings, X-ray images, beta and electron radiographies, digital photos etc.

1. WZMA (*Wasserzeichen des Mittelalters*) OEAW: gray scale images (mainly beta radiographies) with textual German descriptions; 9,500 entries (continuously growing);
<http://www.ksbm.oeaw.ac.at/wz/wzma.htm>
2. POL (*Piccard-Online*) LABW: binary images (drawings) with textual German, English and French descriptions; 92,000 entries (completed);
<http://www.piccard-online.de>
3. NIKI (*Dutch University Institute for Art History Florence*): gray scale images (electron radiographies) with textual English descriptions; 2,500 entries (continuously growing);
<http://www.iuoart.org/wmdb.htm>
4. WILC (*Watermarks in Incunabula printed in the Low Countries*) KB: gray scale images (mainly electron radiographies and rubbings) with textual English descriptions; 16,000 entries (completed).
<http://www.kb.nl/bc/incun/watermerken-en.html>



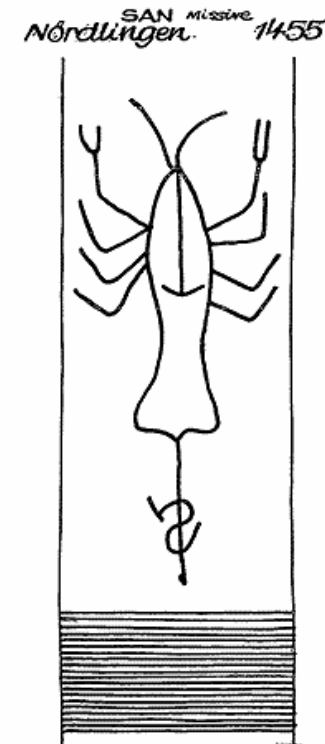
Content to be Aggregated (cont.)

Examples of watermark images



Rubbing (WILC-KB)

WM I 54717, bull's head, cross, Deventer, Netherlands, deduced date 1480-1481, Koninklijke Bibliotheek, The Hague



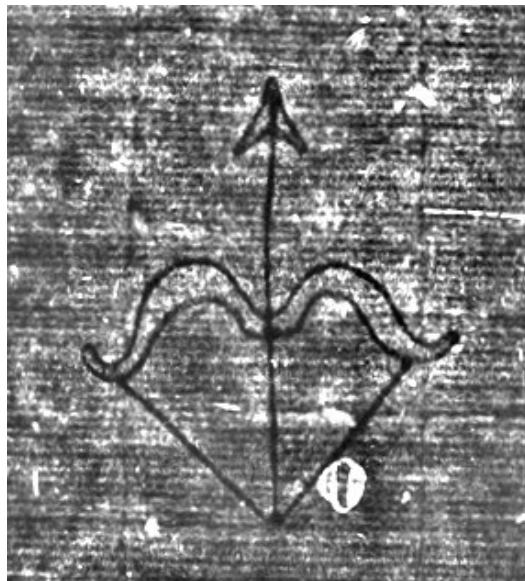
Drawing (Piccard-LABW)

Piccard-Online No. 42778, Vierfüßer – Krebs/Skorpion – Darunter S, Nördlingen 1455, Hauptstaatsarchiv Stuttgart



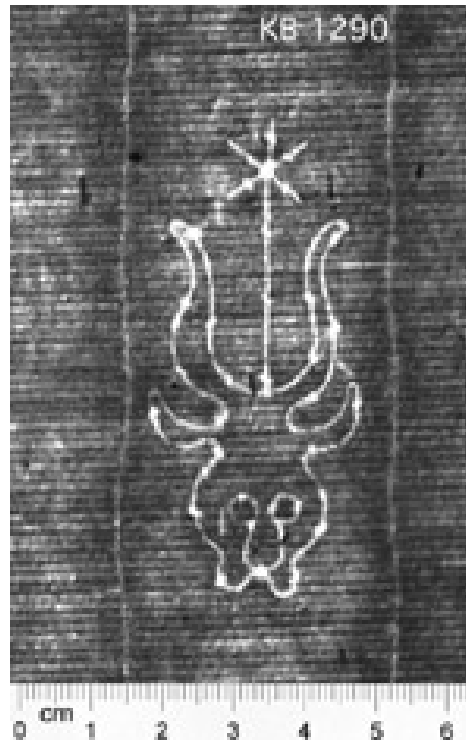
Content to be Aggregated (cont.)

Examples of watermark images



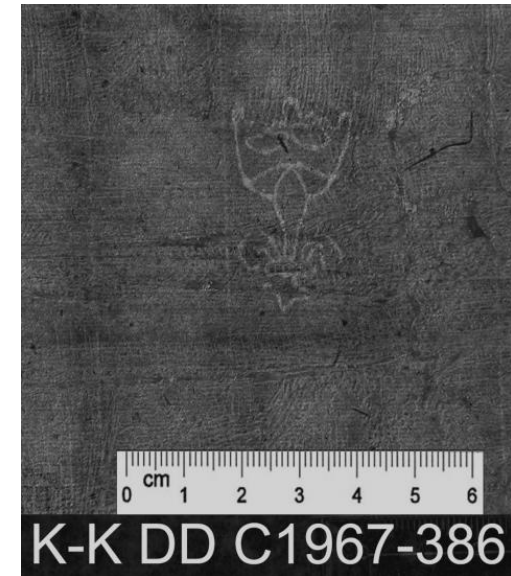
Beta radiography (WZMA-OEAW)

AT5000-158_60, Bogen / waagrecht,
Handschrift: Klosterneuburg OSA, Cod. 158, Teil 2
(fol. 57-117), 1. Jz. 15. Jh.?, Klosterneuburg



Electron radiography (WILC-KB)

WM I 01290, bull's head, cross, curved muzzle,
Gouda, Netherlands, Nov., 29th, 1481, Koninklijke
Bibliotheek, The Hague



Electron radiography (NIKI)

DE-KKDD-C1967-386: Images, Crown, Dutch,
William of Maleval (the large one), 1500, Dutch
University Institute for Art History Florence



Content to be Aggregated (cont.)

B) Metadata

Measured paper characteristics, watermark classification, date and place of production, information about the documents (manuscript, title, author, name of publisher and date of publication etc.).

C) Contextual data

- bibliography;
- incunabula short title catalogue ISTC;
- historical geographical data.

D) Content processing software

- image processing software;
- measurement tools;
- historical cartography, statistics programmes.

Hauptstaatsarchiv Stuttgart

- + Crown
- + Bull's head
 - + Without face features
 - + With eyes
 - + With eyes and nostrils
 - + With eyes and mouth
 - + Without nostrils
 - + With nostrils
 - + Without additional motif
 - + Above star
 - + Above shield
 - + Beneath shield
 - + Above crown, stuck out tongue
 - + Above serpent (snake)
 - + Above T
 - + Above cross
 - + Mouth in profile, opened
 - + With eyes, nose and further face features
 - + With eyes and nose ring in face
 - + Face to the eyes per fess
 - + In profile
 - + Tower
 - + Letter P
 - + ...

Excerpt of the list of watermark types (Piccard-Online)



Target Users

Everybody engaged in paper and/or paper studies ...

- historians (e.g. codicologists), art historians, economic historians
- musicologists;
- archivists, conservators, librarians;
- antiquarians, art dealers, auctioneers;
- restorers, paper makers, artisans;
- computer scientists;
- forensic experts.



Main Results

- Watermark terms - Vocabulary for Watermark Description
- Bernstein systematics
- Bernstein web portal
- Paper bibliography
- Exhibitions and catalogues
- Paper studies kit



Vocabulary for Watermark Description

The Bernstein consortium has introduced a unified terminology for watermark description (“Watermark Terms”) in six languages (English, French, German, Italian, Russian, and Spanish).

1. Sorted by German Terms

DEUTSCH	FRANZÖSISCH	ENGLISCH	ITALIENISCH	RUSSISCH	SPANISCH
Abakus	abaque	abacus	abbaco	счеты	ábaco
abgegrenzt	délimité	delimited	delimitata	ограничен	delimitado
abgeschnittene Exemplare	filigrane découpé	cut watermark	filigrana tagliata	филигрань обрезана	filigrana cortada
abgetrennt	séparé	separated	separata	отделен	separado
abgewendet	détournant	turned away	ritorto	повернутые в разные стороны	apartado
abgewinkelt	angulaire	angled	angolare	расположенный под углом	angulado
Abschlussstrich (Buchstabe)	trait final	finishing stroke	tratto finale (lettera ...)	завершающий штрих (буква)	trazo final (letra)
Abstand	distance	distance	distanza	расстояние	distancia
Abstand zwischen den Bindedrähten	espace entre les fils de chaînette	distance between chain lines	distanza tra i filoni	расстояние между понтузо	distancia entre los corondeles
Abt	abbé	abbot	abate	аббат	abad
Abteilung	section	section	sezione	раздел, часть	sección
achtblättrig	à huit feuilles	eight-petalled	a otto foglie/petali	восьмилепестковый	con ocho pétalos
achtförmig	en forme de huit	eight-shaped	a forma di otto	в виде восьмерки	en forma de ocho

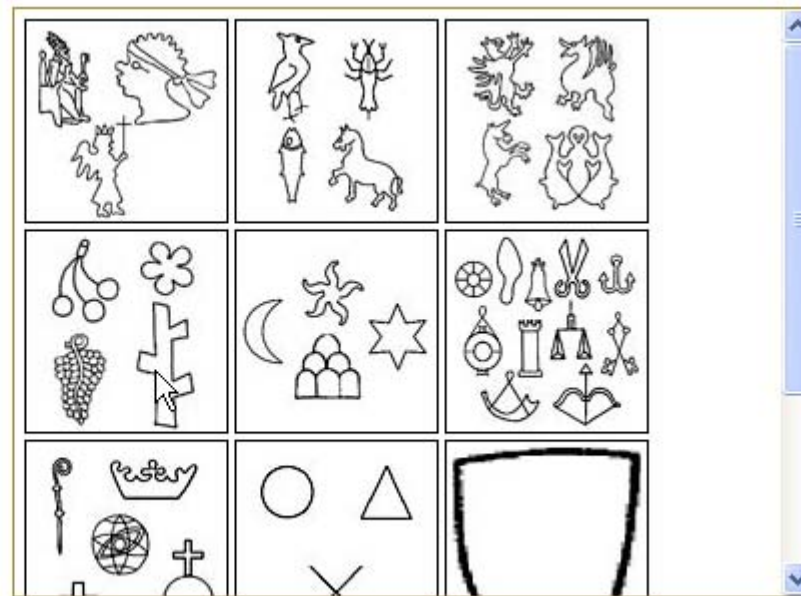


Bernstein Systematics

Watermarks are classified according to their motif in a hierarchical organized system. Unfortunately, this classification is not standardized and differs in all databases. A classification scheme with three levels in six languages was agreed on.

The “Browse Motif” function in the Bernstein portal (tab: *Catalogue*) allows the search for watermark motifs through icons.

- + figures, anthropomorphic
- + fauna
- + fabulous creature
- + flora
- + mountains/luminaries
- + realities
- + symbols/insignia
- + geometrical figures
- + coat of arms
- + marks
- + letters/digits
- undefined mark





Bernstein Portal


... gives multilingual access to all Bernstein products


- *Catalogue*: Search for watermarks and paper in the Bernstein databases
- *Statistics*: Gives statistics parameters of search results like mean value, standard deviation, etc.
- *Atlas*: Visualization of geo-referenced data as maps;
- *Tools*: Download of measurement and image processing programs;
- *Paper Studies Kit*: ready to install database and toolkit for watermark recordings.

www.memoryofpaper.eu



Bernstein Portal: Entrance Page

 **BERNSTEIN** THE MEMORY OF PAPER


Co-funded by the Community programme eContentplus 

CATALOGUEATLASBIBLIOGRAPHYEXPERTISEKIT

ABOUT THE PROJECTEnglish


This website is about paper, paper expertise, and history of paper. It provides resources in the following main application areas: historical research on paper in Europe, expertise of documents made of paper, measurement of structural characteristics of papers, technical support for the creation of new paper databases, introduction to digital paper studies.

The Bernstein project is co-funded by the Community programme eContentplus.



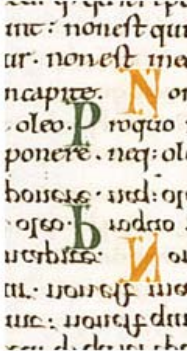
Catalogue

Search for watermarks and paper data



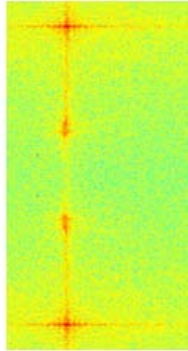
Atlas

Visualization of paper distribution in space and time



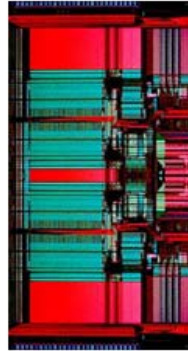
Bibliography

Bibliographic database on paper and paper history (provided by the German National Library, Leipzig)



Expertise

Download of program tools for paper expertise (image processing, measurements)



Kit

Software for generating and supporting watermark databases, collection of links

IMPRESSUMCONTACT

Last Update: 2009-03-04



Bernstein Portal: Catalogue

Catalogue allows to retrieve data from the databases by

Simple search: just enter a search term;

Advanced search: combine different search terms like motif, date, height;

Browse motif: browse through the watermark classification by words or icons;

The screenshot displays the Bernstein Portal Catalogue interface. At the top, there is a header with the Bernstein logo, the text 'THE MEMORY OF PAPER', and navigation tabs: CATALOGUE, ATLAS, BIBLIOGRAPHY, EXPERTISE, and KIT. A banner indicates 'Co-funded by the Community programme eContentplus' with the EU flag. Below the header, the 'ABOUT THE PROJECT' section shows a language dropdown set to 'English'. The main search area displays the query: 'You searched for: 'letter P' AND '1450' - '1500' AND '50' - '60''. It includes filters for Motif (letter P), Date (1450 - 1500), and Height (50 mm - 60 mm), each with an 'INDEX' button. A table on the left lists databases and their hit counts: POL (1712 hits, 60.3%), WILC (1120 hits, 39.4%), WZMA (8 hits, 0.3%), and NIKI (1 hit, 0%). The total results are 2841 hits, 100%. At the bottom, there are checkboxes for 'Continuously update the result' (unchecked) and 'Use vocabulary' (checked), along with 'Add General Search', 'Add DB Specific Search', 'SEARCH', and 'RESET' buttons.

Databases	Hits
<input checked="" type="checkbox"/> POL	1712 60.3%
<input checked="" type="checkbox"/> WILC	1120 39.4%
<input checked="" type="checkbox"/> WZMA	8 0.3%
<input checked="" type="checkbox"/> NIKI	1 0%
TOTAL	2841 100%





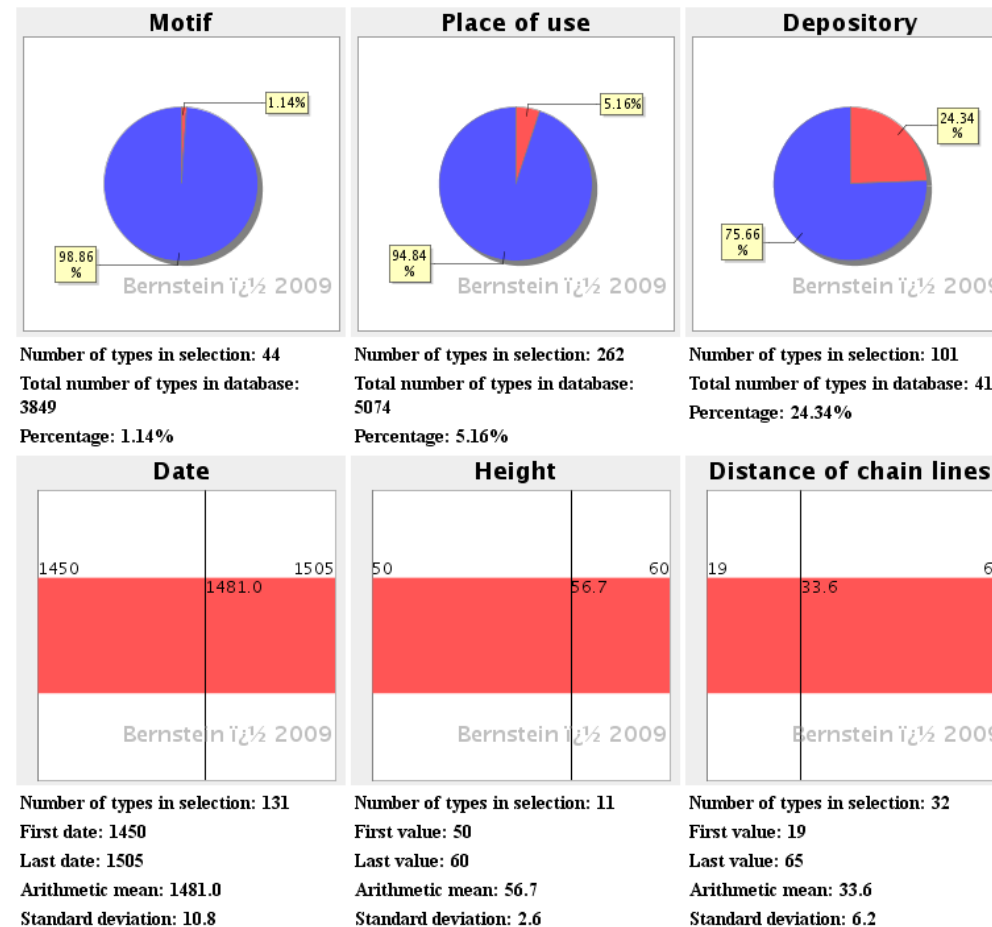
Bernstein Portal: Search Results I

The results of a search in *Catalogue* can be presented in three ways: as a list, a statistics summary, or a map of the geographical distribution of the places of use.

1 - 10		Show thumbnails		Export results		Bookmarks		Previous		Next	
Select all		Deselect all									
		Database	Ref. number	Motif	Place of use	Date	Height				
#1	<input type="checkbox"/>	WZMA	AT4000-456_196	Buchstabe - P - zweikonturig	Köln	um 1455/1462	59				
#2	<input type="checkbox"/>	WZMA	AT4000-456_212	Buchstabe - P - zweikonturig	Köln	um 1455/1462	57				
#3	<input type="checkbox"/>	WZMA	AT4000-456_130	Buchstabe - P - zweikonturig	Köln	um 1455/1462	53				
#4	<input type="checkbox"/>	WZMA	AT4000-456_137	Buchstabe - P - zweikonturig	Köln	um 1455/1462	50				
#5	<input type="checkbox"/>	WZMA	AT4000-426_240	Buchstabe - P - zweikonturig	Köln	3. Viertel 15. Jh.	55				
#6	<input type="checkbox"/>	WZMA	AT4000-426_254	Buchstabe - P - zweikonturig	Köln	3. Viertel 15. Jh.	60				
#7	<input type="checkbox"/>	WZMA	AT4000-435_31	Buchstabe - P - zweikonturig	Köln	7. Jz. 15. Jh.	60				
#8	<input type="checkbox"/>	WZMA	AT4000-435_27	Buchstabe - P - zweikonturig	Köln	7. Jz. 15. Jh.	58				
#9	<input type="checkbox"/>	NIKI	DE-KKDD-C786	Gothic letter P with forked stem, turned inwards	---	1480	55				
#10	<input type="checkbox"/>	POL	115807	Letter P - Angular - consisting of two lines - With additional motif - Above clov...	---	1458	60				
				Export results		Bookmarks		Previous		Next	

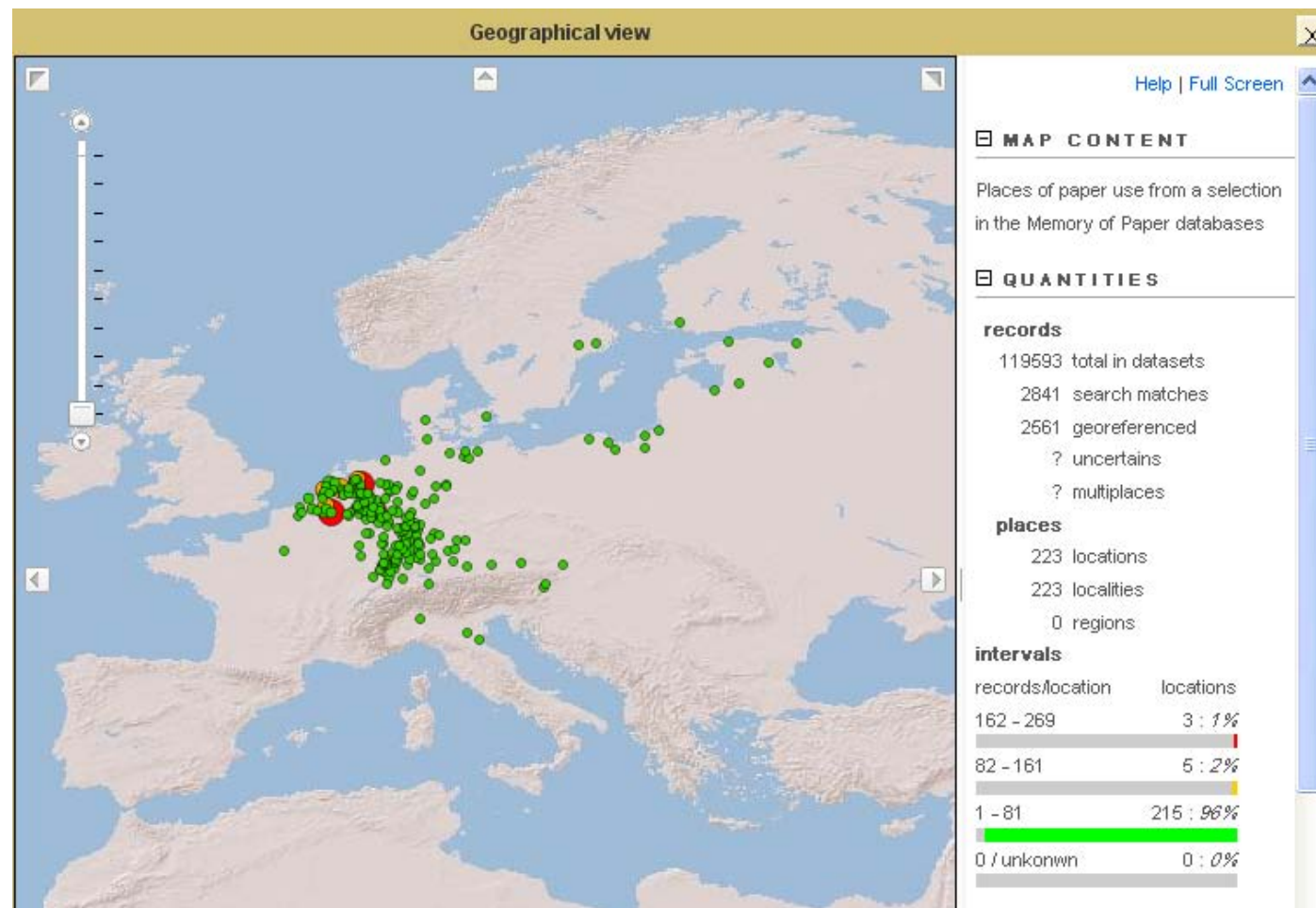


Bernstein Portal: Statistics





Bernstein Portal: Atlas





Bernstein Portal: Paper Bibliography

The Bibliography consists of more than 31.000 bibliographical records on historical, technological, social, economical, etc. aspects of pre-modern paper published up to 2009. It is provided and updated by the German National Library, Leipzig.

BERNSTEIN THE MEMORY OF PAPER

Co-funded by the Community programme eContentplus

CATALOGUE ATLAS BIBLIOGRAPHY EXPERTISE KIT

ABOUT THE PROJECT English

ABOUT SEARCH BROWSE SEARCH CLASS BROWSE CLASS Help

Search in: Author for: Schmidt, Frieder All

AND OR NOT

search in: Location of Print for: Leipzig All

...Add another search term

Sort by: Author/Title

Submit Query

Narrow Search

Classification

- Germany (2)
- Specific countries (1)
- Germany, Thuringia, general aspects (1)
- Decorated paper, general aspects (1)
- Watermarks of different paper grades (1)

Subjects

- Germany (5)
- Thuringia (2)
- Conferences (2)
- Paper collections (2)
- Saxony (2)
- Research establishments (2)
- Leipzig (2)
- Weiß, Karl Theodor (1)
- Höfle, Friedrich von (1)
- Kirchner, Ernst (1)

Your search was for: Author all "Schmidt, Frieder" and idx-kwd-print_location all "Leipzig"

6 Results

Sort by: Author/Title, Title, Date ascending, Date descending

1. Die Papierhistorischen Sammlungen des Deutschen Buch- und Schriftmuseums der Deutschen Bücherei Leipzig
Author: Schmidt, Frieder; Year: 1996
2. Warenzeichenschutz und Wasserzeichen im Maschinenpapier : [Vortrag auf d. Tagung vom] Dt. Arbeitskreis für Papiergeschichte (Düren, 16.-20. Nov. 1994)
Author: Schmidt, Frieder; Year: 1994
3. Besitzerfolgen von Papiermühlen in Thüringen : zsgest. nach Unterlagen der Papierhistorischen Sammlungen des Deutschen Buch- und Schriftmuseums der Deutschen Bücherei Leipzig
Author: Schmidt, Frieder; Year: 1998
4. Einige Aspekte der Papiergeschichtsforschung in Deutschland
Author: Schmidt, Frieder; Year: 1995
5. Buntpapier : Fragestellungen d. Erschließung
Author: Schmidt, Frieder; Year: 1996
6. Die Papierhistorischen Sammlungen des Deutschen Buch- und Schriftmuseums der Deutschen Bücherei Leipzig
Author: Schmidt, Frieder; Year: 1996



Exhibitions

A series of exhibitions about paper history and watermarks, sense and usefulness of watermark research, and collectors and collections of watermarks, developed into a powerful dissemination strategy. The exhibitions are accompanied by catalogues.

- Dec. 2006-Feb. 2nd, 2007 – “Ochsenkopf und Meerjungfrau. Wasserzeichen des Mittelalters”
Landesarchiv Baden Württemberg, Hauptstaatsarchiv Stuttgart, Germany.
- Mar. 22nd, -June 9th, 2007 – “Ochsenkopf und Meerjungfrau. Wasserzeichen des Mittelalters”
Museum im Schottenstift, Vienna, Austria.
- July 9th, -Aug. 24th, 2007 – “Testa di bue e la sirena. Filigrane del Medioevo”
Museo della Carta e della Filigrana, Fabriano, Italy.
- Sep. 8th, -Oct. 10th, 2007 – “Testa di bue e la sirena. Filigrane del Medioevo”
Istituto centrale per la patologia del libro, Rome, Italy.
- Oct. 28th, -Dec. 31st, 2008 – “Una firma nell’acqua – La memoria della carta e delle filigrane dal Medioevo all’età moderna”
Archivio Storico Civico e Biblioteca Trivulziana, Milan, Italy.

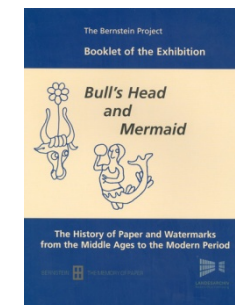
Future exhibitions:

Biblioteca Nazionale, Turin, Italy (April/June 2009); Stiftung Zanders, Bergisch Gladbach, Germany (summer 2009); Koninklijke Bibliotheek, The Hague, Netherlands (autumn 2009); ...



Catalogues/Books

- First edition (German): *Ochsenkopf und Meerjungfrau: Wasserzeichen des Mittelalters* (2006, 72p);
- Second, enlarged edition (Italian): *Testa di bue e sirena: La memoria della carta e delle filigrane dal medioevo al seicento* (2007, 96p);
- Third, once more enlarged edition (German): *Ochsenkopf und Meerjungfrau: Papiergeschichte und Wasserzeichen vom Mittelalter bis zur Neuzeit* (2009, 128p);
- Third, once more enlarged edition (English): *Bull's Head and Mermaid: The History of Paper and Watermarks from the Middle Ages to the Modern Period* (2009, 128p).





Paper Studies Kit (PSK)

The *PSK* is a collection of ready-to-use tools and data that gives people the means to set up their own digital services for paper watermark studies, such as watermark databases and Bernstein compatible application software. It consists of:

- The PSK software package;
- A set of configuration files for the PSK package;
- An empty version of a Bernstein compatible watermark database;
- A demo version of a Bernstein compatible watermark database with a set of data demonstrating the basic functionality of the PSK;
- Documentation.



Contact

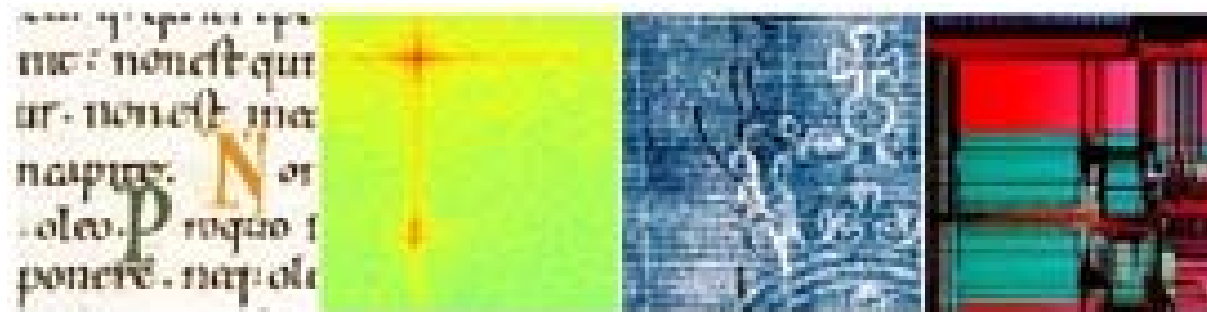
www.bernstein.oeaw.ac.at

www.memoryofpaper.eu

www.bernstein.oeaw.ac.at/twiki

Email: bernstein@oeaw.ac.at

Co-ordinator: emanuel.wenger@oeaw.ac.at



The Bernstein Consortium is solely responsible for the project.

This does not represent the opinion of the Community and the Community is not responsible for any use that might be made of information contained therein.