

## PAPER HISTORY

Journal of the  
International Association of Paper Historians

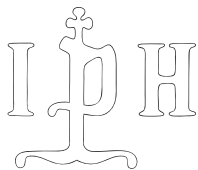
Zeitschrift der  
Internationalen Arbeitsgemeinschaft der Papierhistoriker

Revue de  
l'Association Internationale des Historiens du Papier

ISSN 0250-8338

[www.paperhistory.org](http://www.paperhistory.org)

International Association of Paper Historians  
 Internationale Arbeitsgemeinschaft der Papierhistoriker  
 Association Internationale des Historiens du Papier



Editor Anna-Grethe Rischel  
Denmark

Co-editors IPH-Delegates

Maria Del Carmen Hidalgo Brinquis  
Spain

Dr. Claire Bustarret  
France

Prof. Dr. Alan Crocker  
United Kingdom

Dr. Józef Dąbrowski  
Poland

Jos De Gelas  
Belgium

Elaine Koretsky  
USA

Paola Munafò  
Italy

Dr. Henk J. Porck  
The Netherlands

Prof. Dr. Gottfried Schweizer  
Austria

Prof. Dr. Tomas Stohr  
Venezuela

Göran Wohlfahrt  
Sweden

Lay-out Karen Borchersen  
School of Conservation  
Esplanaden 34  
DK – 1263 Copenhagen K  
Denmark  
kab@kons.dk

Printer Atlas-Plæhn Grafisk a/s

Paper meets ISO 9706 - 160g/80g  
Manufacturer Husum,  
Sweden

## Contents / Inhalt / Contenu

Letter from the IPH President September 2011	3
Lettre de la Présidente de l'IPH, Septembre 2011	4
Brief der IPH-Präsidentin, September 2011	5
Review on the debate of paper history during recent 30 years in China	6
Groundwood Mills an Intermediate in Norwegian Industrialization	13
“Paper originated in India, not China”	21
Exhibition in Athens “Paper – Two thousand years of history in East and West”	22
Gefärbt, gekämmt, getunkt, gedruckt	23
IPH Congress 2012 Call for Papers	24
IPH-Kongress 2012 Call for Papers, German	25
IPH Congrès 2012 Appel à contributions	26
Papiermühle in der Au - Lange vor der Papierfabrik Lenzing – die Papiermühle in der Au	27
Meetings, conferences, seminars, courses and events	29
La Papeterie de Presles Belgique	30
Complete your paper historical library now! Ergänzen Sie jetzt Ihre papierhistorische Bibliothek!	
Completez aujourd’hui votre bibliothèque de l’Histoire du papier!	30
Guidelines for authors	31
<b>Deadline for contributions each year 15. April and 15. September</b>	

President Anna-Grethe Rischel  
 Präsident Stenhøjgaardsvej 57  
 President DK - 3460 Birkerød  
 Denmark  
 tel + 45 45 816803  
 rischel@privat.tele.dk

Secretary Dr. Sabine Schachtner  
 Sekretariat LVR-Industriemuseum  
 Secrétaire Papiermühle Alte Dombach  
 D- 51465 Bergisch Gladbach  
 Germany  
 tel + 49 2202 936680  
 sabine.schachtner@lvr.de

Treasurer Alphonse Radermecker  
 Kassier Hochstr. 87  
 Trésorier B- 4700 Eupen  
 Belgium  
 tel + 32 87 560069  
 a.radermecker@skynet.be

---

## Letter from the IPH President September 2011

Dear members of IPH,

Every second year is a year between two international IPH congresses, and 2011 is such a year, when some of us are deeply involved in the publication of the 2010 Congress Book from Angoulême, while others have started the planning of the 2012 Congress in the trinational Upper Rhine region with announcement and Call for Papers for the congress.

But 2011 is also like every year with annual meetings, organized by the regional paper historical associations, where we can meet each other and keep contacts through periodicals and working groups. Together with other members of the Nordic association of paper historians, I went to the NPH annual meeting in June, where Kari Greve, NPH and IPH member, had arranged a rich program with interesting papers in Oslo and excursion to Klevfos Industry Museum. Here all machines and equipment were still preserved in the former pulp and paper mill. Walking around in the narrow passages along the production line of the Kraft pulp and paper production between steep staircases with flimsy barristers and rails and chemicals gave a strong impression of the workers risky daily life. At the Oslo meeting one of the papers dealt with the groundwood mills in Norwegian industrialization, and Einar Bøhmer's paper is presented in this issue, because of his deep insight and clear illustration of this important period and development of paper history in Scandinavia.

Ten months ago the Chinese TV producer Liao Ye contacted IPH, because he needed paper historical support for his documentary film about the history of paper. After much correspondence about places of paper historical importance in Europe, he finally decided on Fabriano to illustrate the European paper history. In the beginning of August I received the good news that the film had been finished and broadcasted in May on National TV channel 10, where the documentary had received a very high viewer rating. A few days later a very Chinese envelope with DVD's of the 5 chapters with Chinese text arrived. As express of my gratitude I sent a

sample of IPH Paper History, Volume 15, Issue 1 to Liao Ye that was very happy to know that our publication has had news about this event.

Maybe the Chinese documentary on the National TV channel 10 has resulted in the renewed contact with one of our former IPH members from China, Professor Pan-Jixing from the Institute for the History of Science, Chinese Academy of Sciences in Beijing. After several years without connection to IPH, Professor Pan-Jixing wanted to get in touch with IPH again and with the editor of the periodical. He wished to publish a recently written article internationally in IPH Paper History in order to introduce the real situation of the debate of paper history in China to foreign paper historians. Thirty years ago Professor Pan-Jixing published "On the Origin of Papermaking in the Light of Newest Archaeological Discoveries" in IPH Information 2/1981, and the new paper is a review on the debate of paper history during recent 30 years in China. We do not need to wait for the publication of his paper until the spring issue 2012, because his manuscript arrived in time to be published in this autumn issue of IPH Paper History 2011.

It is only a little more than 100 years ago, that microscopic analysis documented that rag paper was not a European invention, and according to the Indian and the Chinese paper history presented here, the final answer of the origin of paper is not yet found, and continued research and studies are lying ahead of us.

Anna-Grethe Rischel

---

## Lettre de la Présidente de l'IPH, Septembre 2011

---

Chers membres de l'IPH,

Une année sur deux est pour l'IPH une année entre deux congrès, et c'est le cas en 2011, où certains d'entre nous ont à cœur de réaliser la publication du Livre des Congrès issu de celui de 2010 à Angoulême, tandis que d'autres commencent déjà à prévoir le planning du Congrès de 2012 dans la région trinationale du Haut-Rhin, avec l'annonce et l'appel à contributions.

Mais 2011 est aussi une année comme chaque année, avec des réunions annuelles, organisées par les associations locale d'histoire du papier, occasion pour nous de nous retrouver et de garder contact par l'intermédiaire des périodiques et des groupes de travail. Avec d'autres membres de l'association scandinave d'historiens du papier, je me suis rendue à la rencontre annuelle du NPH en juin, où Kari Greve, membre du NPH et de l'IPH, avait préparé un riche programme comportant d'intéressantes communications présentées à Oslo et suivies d'une excursion au Musée de l'Industrie de Klevfos. Un ancien moulin à papier et à pâte y est conservé avec toutes ses machines et son matériel. Déambuler dans les étroits passages qui longent la chaîne de production de la pâte et du papier Kraft, entre des escaliers raides munis de rampes chancelantes et de rails au milieu des produits chimiques, donnait une forte impression des risques quotidiens encourus par les ouvriers. L'une des présentations d'Oslo concernait les moulins à défibrer le bois au cours de l'industrialisation norvégienne, et l'article d'Einar Bøhmer est présenté dans ce numéro en raison de sa vision approfondie et parce qu'il illustre bien cette période importante du développement de l'histoire du papier en Scandinavie.

Il y a dix mois, le producteur de télévision chinois Liao Ye a contacté l'IPH, sollicitant notre concours pour son documentaire sur l'histoire du papier. Après de nombreux échanges de courrier à propos des sites importants de l'histoire du papier en Europe, il a finalement choisi Fabriano pour évoquer l'histoire du papier européenne. Au début du mois d'août j'ai eu le plaisir d'apprendre que le film avait été achevé et diffusé en mai sur la chaîne 10 de la TV Nationale, avec une très forte audience. Quelques jours plus tard arriva une enveloppe très

chinoise avec les DVD des 5 épisodes, avec le texte en Chinois. En guise de remerciement, j'ai envoyé le Vol. 15., n°1 de IPH Paper History à Liao Ye qui s'est dit très heureux de savoir que notre périodique recenserait cet événement.

C'est peut-être suite à ce documentaire sur la chaîne 10 de la TV Nationale que l'un de nos anciens membres de Chine, le Professeur Pan-Jixing de l'Institut d'Histoire des Sciences, Académie des Sciences de Beijing a repris contact avec l'IPH. Après plusieurs années sans nouvelles, le Professeur Pan-Jixing a souhaité joindre le rédacteur en chef de notre périodique. Il voulait publier dans une revue internationale un article récent faisant le point sur le débat concernant l'histoire du papier en Chine. Il y a trente ans, le Pr Pan-Jixing publiait dans IPH Information 2/ 1981 "Sur les origines de la fabrication du papier à la lumière de découvertes archéologiques récentes", et son nouvel article dresse le bilan des trente dernières années. Son manuscrit est arrivé à temps pour paraître dans notre numéro de IPH Paper History de l'automne 2011.

Cela ne fait qu'un peu plus de cent ans que l'analyse microscopique a permis de prouver que le papier de chiffon n'était pas une invention européenne, et selon les sources indiennes et chinoises présentées ici, il apparaît que bien des découvertes sont encore à venir si nous voulons trouver par nos recherches une réponse définitive à la question de l'origine du papier.

Anna-Grethe Rischel

## Brief der IPH-Präsidentin, September 2011

Liebe IPH-Mitglieder,

jedes zweite ist ein Jahr zwischen zwei internationalen IPH-Kongressen, und 2011 ist ein solches Jahr. Einige von uns sind intensiv eingebunden in die Herausgabe des Kongressbuches 2010, Angoulême, während andere mit der Vorbereitung des Kongresses 2012 im Dreiländereck der Oberrheinregion mit der Ankündigung und dem Call for Papers begonnen haben.

Aber wie jedes Jahr ist auch 2011 ein Jahr mit Tagungen, die von den regionalen papierhistorischen Vereinigungen organisiert werden, bei denen wir uns treffen können. Durch Zeitschriften und Arbeitsgruppen können wir Kontakt halten. Ich habe am Jahrestreffen der Skandinavischen Vereinigung der Papierhistoriker (NPH) im Juni teilgenommen, bei dem Kari Greve, NPH- und IPH-Mitglied, ein reichhaltiges Programm mit interessanten Vorträgen in Oslo sowie einer Exkursion zum Industriemuseum Klevfos organisiert hatte. In dieser ehemaligen Zellstoff- und Papierfabrik sind alle Maschinen und die gesamte Ausstattung erhalten. Das Herumwandern durch die engen Gänge entlang der Produktionseinrichtungen für den Kraftzellstoff und das Papier, über steile Treppen mit wackeligen Absperrungen und Geländern und den Chemikalien vermittelte einen intensiven Eindruck vom gefährlichen Alltagsleben der Arbeiter. Bei der Tagung in Oslo behandelte ein Vortrag die Holzschleifereien in der Industrialisierung Norwegens. Einar Bøhmer's Vortrag wird in dieser Ausgabe veröffentlicht wegen seiner profunden Einsicht und klaren Beschreibung dieser wichtigen Periode und der Entwicklung der Papierproduktion in der Skandinavien.

Vor zehn Monaten hat der chinesische Fernsehproduzent Liao Ye Kontakt zur IPH aufgenommen, weil er Unterstützung für seinen Dokumentarfilm über die Geschichte des Papiers brauchte. Nach umfangreicher Korrespondenz über Orte mit papiergeschichtlicher Bedeutung in Europa entschied er sich für Fabriano zur Darstellung der europäischen Papiergeschichte. Anfang August erhielt ich die gute Nachricht, dass der Film fertiggestellt und im Mai im nationalen Fernsehkanal 10 ausgestrahlt worden war, wo die

Dokumentation eine sehr hohe Zuschauerquote erreicht hatte. Einige Tage später traf ein sehr chinesisch anmutender Umschlag mit DVDs der 5 Teile mit chinesischem Text ein. Als Ausdruck meines Danks habe ich ein Exemplar von „Paper History“, Band 15, Nr. 1 an Liao Ye geschickt, der sehr glücklich war zu erfahren, dass unsere Publikation über dieses Ereignis berichtet hatte.

Vielleicht war es diese chinesische Dokumentation, die dazu geführt hat, dass wir erneut mit einem früheren IPH-Mitglied aus China, Professor Pan-Jixing vom Institut für Wissenschaftsgeschichte der chinesischen Akademie der Wissenschaften in Peking, Kontakt bekamen. Nach mehreren Jahren ohne Verbindung wollte Professor Pan-Jixing wieder Kontakt zur IPH und der Redaktion der Zeitschrift herstellen. Er wünschte, einen kürzlich verfassten Artikel in „Paper History“ international zu publizieren, um den derzeitigen papierhistorischen Diskussionsstand in China ausländischen Papierhistorikern vorzustellen. Vor dreißig Jahren hatte Professor Pan-Jixing seinen Beitrag „On the Origin of Papermaking in the Light of Newest Archaeological Discoveries“ in den IPH-Informationen 2/1981 veröffentlicht, und der neue Artikel ist eine Darstellung der papierhistorischen Diskussion der letzten 30 Jahre in China. Wir müssen nicht mit der Veröffentlichung seines Artikels bis zur Frühjahrsausgabe 2012 warten, denn sein Manuskript traf rechtzeitig zur Veröffentlichung in dieser Herbstausgabe 2011 von „Paper History“ ein.

Es ist nur wenig mehr als 100 Jahre her, dass mittels mikroskopischer Untersuchung festgestellt wurde, dass Hadernpapier keine europäische Erfindung war, und gemäß der indischen und der chinesischen Papiergeschichtsforschungen, die hier wiedergegeben werden, ist die endgültige Antwort auf die Frage nach dem Ursprung des Papiers noch nicht gefunden, und weitere Forschungen und Untersuchungen liegen vor uns.

Anna-Grethe Rischel

## Review on the debate of paper history during recent 30 years in China

Pan Jixing, zhangmingwu2002@yahoo.com.cn

It is well known that papermaking is one of the great inventions of ancient China. Who was the inventor of paper, the eunuch Cai Lun (63—121) of the Eastern Han (25—221) or craftsmen of the Western Han (-206 to +24), is originally an academic problem that could be discussed. There have been two different viewpoints during recent 60 years. The one deems that the eunuch Cai Lun invented paper in the year 105 mainly on the basis

of literary records, the Hou han shu (The History of the Later Han) written by the historian Fan Ye (398—446) in 445. The other one was firstly put forward in 1948 by the late famous archaeologist Dr. Huang Wenbi (1893—1966) in his Lobnor kaogu ji (Archaeological Report at Lobnor, Xinjiang) mainly on the basis of archaeological discovery in 1933. It was a normal phenomenon that the debate between the two different viewpoints has taken place in new China since 1949. The debate can be divided into two periods. The first period was going on during 1949—1979 in the atmosphere of free discussion. In the pace with more and more finds of unearthed ancient paper made in the Western Han [1-8] (Table I) the theory that paper was made before Cai Lun gradually gained the upper hand and was accepted

Table I. The excavation situations of unearthed hemp paper made in the Western Han

	Name of paper	Date of making	Unearthed date	Size maxim cm	Place and mode of excavation	Note
1	Lobnor paper	-49	1933	4×10	Lobnoor, Xinjiang scientific excavation	Burnt up by war fire in 1937
2	Baqiao paper	before-138	1957	10×10	sorting up of building site at Baqiao grave area, Xi'an city	Rough paper, low beating degree, used for wrapping
3	Jingguan paper A	-52 to -3	1973	9×11.5	scientific excavation at ruin of Jinguan, Gansu	Without characters but could be used for writing
4	Zhongyan paper	+1 to 55	1978	6.8×7.2	sorting up in architectural ruin at Zhongyan, Fufeng country, Shaanxi	ditto
5	Majuanwan paper	-65 to -25	1979	9×15.5	ruin of station troops at Majuanwan near Dunhuang, scientific excavation	ditto
6	Xianggang paper	-122 to -121	1983	3×4	grave of Nanyue King on Xianggang Hill, Guangzhou, scientific excavation	like the Baqiao paper
7	Fangmatan paper	-176 to -141	1986	2.6×5.6	sorting up of grave area of the Qin-Han at Fangmatan, Tianshui, Gansu	a map drawn on the paper
8	Xuanquan paper	-140 to -7	1990	7×13.5	scientific excavation of Xuanquan post ruin at Tianshui Well near Dunhuang, Gansu	characters written on the paper



by public in China and abroad, and the theory that Cai Lun invented paper fell into crisis.

The second period was going on from 1979 up to now. The Ministry of Light Industries (abbreviated MLI below) and its Bureau of Papermaking (abbreviated BOP below) directly intervened in the academic debate. Hence in this period the debate of paper history had already separated from the normal track of academic discussion. The government department became the one side in the debate and they acted as sportsman as well as judge. In order to defend the theory that Cai Lun invented paper they approved that the MLI and its BOP adopted some administrative measures to change their passive positions in the past for dealing with the different opinion:

1. They maintain that the theory that Cai Lun invented paper is a “final historical conclusion”, surpassing over the practice, hence it is holy and inviolable. To challenge this theory is no more an academic problem, but a political problem which has a bearing on whether loving the country and the national honor, the government department and its leadership has the right to intervene [9].
2. They maintain that the theory that paper was invented by craftsmen of the Western Han was a product of the “ultra Left thought” during the Cultural Revolution (1966—1976) as a “source of ideological chaos”, it must be uprooted as soon as possible [9-10].
3. They persist in that the BOP has the right to take charge of the study in paper history in whole China. Any writings of difference from the theory that Cai Lun invented paper must be submitted to the BOP beforehand for their examination. Such writings can be published only after getting written instruction from the BOP [9].
4. They claim that the Papermaking Institute of the MLI is “the sole, legal and authoritative technical centre” of the test and identification of unearthed ancient paper in China, the result of test by Wang Juhua and Li Yuhua of this institute should be taken as the standard. Any different results of test by all other scientific research institutions or individuals are invalid and thus illegal [11].

5. All dating of unearthed ancient paper by archaeologists should set after the year 105, otherwise, papermaking engineers of the MLI will redate in stead of archaeological teams to set all unearthed ancient paper at the time later than Cai Lun. In short, there should not have been paper in the Western Han [12-13].

We think that the above mentioned pretexts for official intervention do not hold water.

1. Although the theory that Cai Lun invented paper had wide spread for a long time, it was denied by archaeological excavations in the 20th century for eight times, and because it is not the so-called “final historical conclusion”, we shifted the origin of paper to earlier date by 200 years. The birth place of papermaking is still China, and the inventor of paper is still the Chinese. Could this be treasonable action?
2. To correct mistakes in literary records with archaeological excavation did not make the nation to lose honor. They politicized academic problem, jointly attacked the different opinion and put political label on scholars of different viewpoint. This is undemocratic manifest. The theory that paper existed in the Western Han was put forward and propagated by scholars including the author of this article during 1933—1964 [1, 14-16]. It was not the product of the “Cultural Revolution” (1966—1976).
3. Paper history belongs to the field of the history of technology, and is something within the research scope of the Institute for History of Science, Chinese Academy of Sciences (abbreviated CAS below); outside the jurisdiction of BOP, there is not any legal basis which stipulates the BOP has the right of enforcing the law to examine the research results done in the CAS. It is unnecessary to submit our research results to BOP for their permission.
4. There is neither any legal basis to stipulate that the Papermaking Institute of the MLI is the sole, authoritative and legal unit of testing unearthed ancient paper and that those of all other scientific research institutions are illegal. Wang and Li of the Paper Institute of the MLI could even not differentiate fibres of jute and hemp as well as fibres of hemp and silk [17-18]. It is difficult to believe

that their identification is authoritative. So we cannot recognize their results of testing unearthed ancient paper.

5. Archaeologists had already dated all unearthed ancient paper made before the time of Cai Lun one by one according to stratigraphy, combination of utensils unearthed together with paper, characteristics of paper, wooden slips with dates and other scientific method. We think their dating is reliable, because papermaking engineers of the MLI do not possess professional knowledge of archaeology and experience of excavation. It is natural that their dating opinion was flatly refused by the archaeological circle in China [19].

Although their behavior of intervention in paper history debate is utterly unjustifiable, they still strongly carried out their viewpoint in China, and concentrated to deny the Baqiao paper, the firstly unearthed paper made in the Western Han in new China. They attacked archaeologist Cheng Xuehua who reported this paper in 1957 [2] and Pan Jixing who firstly studied it in 1964 [16]. They said that Mr. Cheng made “archaeological fake” by means of artificial processing a heap of waste hemp fibres into something like paper and that I “overstated” such a thing into plant fibre paper [10].

They deem that if they could deny the Baqiao paper, all other archaeological evidence must raise domino effects, and the theory that Cai Lun invented paper would unify the whole country. So during 1979-2001 they let Wang-Li make counter examination of unearthed paper made in the Western Han to prove that such paper “could not be identified as true paper” [20]. Then they connived papermaking engineer Rong Yuankai (Y. K. Yung) to make counter dating for fixing all unearthed ancient paper at the time later than Cai Lun [12-13]. The MLI also organized a leading body, the “Paper History Committee”, in 1984 and issued a special periodical *Zhishi Yan Jiu* (Studies in Paper History, 1985—2001). Then they began to create momentum in China for defending their theory and jointly attacking the different opinion.

On September 11, 1987, the MLI held a “Commemorative Conference for the 1882nd Anniversary of the Invention of Papermaking by Cai Lun” in Beijing, and distributed an Investigation

Report on the Baqiao Paper to the attendant. The authorities of the MLI declared at the conference in the form of government decree that the Baqiao paper and other unearthed ancient paper “are not true paper”, Cai Lun was still the inventor of paper, and the debate of 30 years should be ended from then on. Many Chinese and foreign news media which are unaware of the real situation reported this news one after another [21]. But after this, the Fangmatan paper with a map and the Xuanquan paper were successively unearthed again [7-8]. This made the organizers of the Beijing conference very awkward. So they attacked the excavator Mr. He Shuangquan and me, because I tested the two kinds of paper as hemp paper [22]. After the State Council disbanded the MLI in 1998, its succeeded organized group was still reserved. They followed the established policy of the former MLI, propagated the theory that Cai Lun invented paper and attacked the different opinion, especially set off the movement for deifying Cai Lun [23].

The MLI in press conference in 1987 said that “Pan already admitted his mistake, gave up his viewpoint and will not study the history of paper, he is now abroad” [24]. I made a statement in Tokyo that this was a pure rumor. Rong Yuankai has never seen the Baqiao paper, but he “found” that it bore “handwriting of Eastern Jin people (4th—5th century)” only according to a picture of the paper. [25] In fact, he told a lie. He has lack of professional knowledge of archaeology, but he decided to deny the date of all unearthed paper of the Western Han, set by experienced archaeologists [12], and absurdly maintained that the Majuanwan paper of the Western Han was made in the Tang (8th century) [13]. As said above, the Investigation Report of the BOP framed Mr. Cheng Xuehua to process a heap of waste hemp fibres into something like the Baqiao paper, and only he himself dated it in the Western Han [10]. But Rong and the Investigation Report actually told lies. On the other hand, Wang Juhua and Li Yuhua of the Papermaking Institute, MLI, asserted that the Baqiao Paper is not true paper, but a heap of waste hemp fibres “pressed by bronze mirrors into thin sheets like paper” [20]. However, all other Chinese and foreign scholars think that though its beating degree is low, it can be regarded as a rough paper [26-32]. Wang-Li’s examination is not objective and reliable.



In 1991 Mr. Ma Ji, authorized on behalf of Shaanxi Provincial Museum, issued the following statements:

1. The dating of grave at Baqiao is accurate, and is the results of collective research. Its date was affirmed no later than 118 BC, and was not guessed by Cheng Xuehua. The Baqiao paper unearthed from the grave, of course belongs to this date. We have never doubted this, and will still preserve and exhibit it as the first class of cultural relics.

2. After the Baqiao paper was unearthed we only made treatment of removing the dust and flattening. It is still keeping the original situation without any artificial processing. There is not any basis of facts to say that Cheng made archaeological fake. Moreover, he never took part in reinforcement work of the Baqiao paper.

3. The former curator of our Museum Wu Bolun, the former head of Preservation Department Li Changqing as well as Cheng Xuahua, still living in good health, are very disgusted with the unauthentic words which were said in the so-called Investigation Report and retain the right for finding out [33].

According to the tone set by the leadership of the MLI, a teacher of high school Duan Jigang filed a suit to the Member of Secretariat of Central Committee of CPC Hu Qiaomu in 1986. Duan said that Pan Jixing denying the theory that Cai Lun invented paper means to deny China's invention of papermaking and to endanger the country and people. He asked the People's Daily to carry out criticism on Pan. [34] After Mr. Hu sent his subordinate to meet me for understanding the situation, he thought that Duan brought a false charge against me and did not allow criticism in the People's Daily.

Why must they deny the 200 years of paper history in the Western Han so as to only defend Cai Lun's individual inventor's patent right? Why must they be antagonistic to the archaeological practice? This is really difficult to imagine, the sole explanation just as some scholars said:

Since the theory that paper was invented in the Western Han was put forward, some people retorted it without grounds, only because they wanted to defend that Cai Lun was the inventor. This is an action of believers of the religion of Cailunism with emotion.

As their main point against the theory that paper existed in the Western Han they had to say, owing to the haunting of emotion that "the Baqiao paper can not be regarded as paper" [35].

From 1979 the departments of the BOP ordered, that no one was allowed to examine unearthed ancient paper in cooperation with me. I had to carry the fibres of paper specimens to Japan and ask experts there to make objective test and take microscopic pictures. For this, I took certificate and declared to the customs. But the member of the Paper History Committee of the MLI Chen Qixin framed me "to smuggle cultural relics" [36]. In fact, I did not and could not also carry the whole sheets of ancient paper abroad. He also provided false information that the Japanese experts did only take pictures and did not identify the paper itself. This is not true, for example Dr. Masuda Katsuhiko wrote:

There have been different viewpoints about the Baqiao paper among scholars. Somebody thought it is a crude paper. Other deemed it is a heaped thing of hemp fibres. I think the Baqiao paper is paper. The reason is that when I observed its microscopic pictures, people who censured it is not paper, its most fibres are long and arranged along parallel directions. But we can determine that the whole fibres are arranged muddledly, and positions can also be found, where broken fibres can be seen.....Conversely, writing paper unearthed at Loulan, Xinjiang, was used for writing. When we observe its microscopic picture we can also see the fibres being not broken and hemp thread fibres leaving intact. On paper, made later than the Baqiao paper by 300 years, positions can still be observed which seem not to be paper. It is thus clear that the earlier paper was not well processed. Therefore, it is natural to find some positions where it does not seem to be paper [32].

Such observation is entirely identical with those of other Chinese scholars including mine [26-31]. Wang-Li's counter examination [18, 20] is not reliable. They substituted the part for the whole and thus is not objective. As to ancient paper unearthed at Jinguan, Zhongyan and Majuanwan, the microscopic analysis of Xu Mingqi and mine has proved that all of these papers should be better hemp paper for writing [28-30]. It is also undoubted that the Fanmatan paper with a map and the Xuanquan paper with characters is true paper of the Western Han (see Table II)

Table II. Comparison of the results of microscopic analysis on parts of unearched Western Han paper done by different persons

Name of paper	Taster's name	Thickness mm	Brightness %	Density g/m <sup>3</sup>	Basic weight g/m <sup>2</sup>	Mean length of fibres mm	Mean width of fibres μm	Conclusion of microscopic analysis
Baqiao paper	Xu Mingqi	0.07-0.09	—	0.25	21	1.05	18	rough paper used for wrapping
	Pan Jixing	1.0	25	0.25	29.7	1.0	20.55	ditto
	Wang Juhua	—	—	—	—	—	—	“heaped product of waste hemp fibres”
Jinguan paper	Xu Mingqi	0.25	40	0.26	63.8	1.03	17	Paper could be used for writing
	Pan Jixing	0.22	40	0.26	61.8	2.19	18.93	ditto
	Wang Juhua	0.2-0.24	40	—	—	—	—	“embryonic form of paper”
Zhongyan paper	Xu Mingqi	0.23	40	0.26	58.4	1.29	19	Paper could be used for writing
	Pan Jixing	0.22	43	0.28	61.9	2.12	20.26	ditto
	Wang Juhua	0.22-0.24	42	—	—	—	—	“embryonic form of paper”
Majuanwan paper	Pan Jixing Sample V	0.29	42	0.29	95.1	1.93	18.18	Paper could be used for writing
	Wang Juhua Sample A	0.28	32	—	—	2.5	20	Paper, but “made after Cai Lun”
	Wang Juhua Sample A	0.50	36	—	—	2.0	20	

Note. Zu' analysis done in 1980, Pan—1981, Wang—1979, and afterwards, her Testing items are incomplete.

## Conclusion

1. The study in the history of technology including papermaking history, of course, should rely on literary records, but should also pay particular care to archaeological discoveries and accept new facts provided by archaeologists, because archaeological materials are more reliable than literary records. While archaeological practice contradicts with literary records, we must correct the latter by the former, and not reversely. The practice is the sole criterion for testing truth.

2. The study in the history of papermaking is an academic problem, it is normal that there have been different opinions on the origin of papermaking since the 20th century. The debate must be going on in the atmosphere of free discussion. It is not suitable to politicize the academic problem and put political label on different viewpoint. The history of science proved that any government department that carried out a certain academic theory they approved and surpassed the different theory by means of administrative intervention in the academic debate, could not avoid failure at last.

3. The archaeological new discoveries during 1933—1990 for eight times proved that papermaking actually started from the Western Han in the 2nd century BC. Any old theory contradicting with the practice eventually would withdraw from the historical scene, and of course the theory that Cai Lun invented paper can not be exceptive. But Cai Lun's role will not be denied, he will go down in history as the improver and popularizer of papermaking.

Pan Jixing, born in 1931, is research professor at the Institute for the History of Science, Chinese Academy of Sciences, Beijing.

## References

For saving space here we only give out the English translation of cited Chinese and Japanese references.

- Huang Wenbi. Archaeological report at Lobnor. Peking University Press, 1948, 168.
- Tian Ye (Cheng Xuehua). Paper made in the Western Han discovered at Baqiao, Shaanxi Province. Reference material for cultural relics, 1957(7): 78-81.
- Chu Shibin and Ren Buyun. Excavation of the ruin of beacon-fire at Juyan, and the inscribed wooden slips of the Han unearthed in Gansu. *Wen Wu* (Cultural Relics Monthly), 1978(1): 1-12.
- Luo Xizhang. A hoard of bronzes, ancient coins and paper unearthed in Zhongyan Village, Fufeng County, Shaanxi Province. *Wen Wu*, 1979(9):17-20.
- Yue Banghu and Wu Rengxiang. Excavation report of the ruin of beacon fire of the Han at Majuanwan near Dunhuang. *Wen Wu*, 1981(10):1-6.
- Mai Yinghao and Huang Zhanyue. Nanyue King's tomb of the Western Han, bk1. Beijing: Cultural Relics Press, 1991: 430-432.
- He Shuangquan. Excavation report of tombs of the Qin-Han period at Fangmatan in Tianshui City, Gansu. *Wen Wu*, 1989(2): 1-11.
- He Shuangquan. Excavation report of the ruin of the Han at Xuanquan near Dunhuang *Wen Wu*, 2000(5):4-20.
- Zongshi (An Jialin). On bring order out of chaos and administrative intervention. *Studies in Paper History*, 1987(3): 45-46.
- Bureau of Papermaking, Ministry of Light Industries. Investigation Report of the Baqiao Paper. *Studies in Paper History*, 1987(4): 11-13.
- Li Zhongkai. Whose analytical identification of Western Han ancient paper should be taken as the standard. *Studies in Paper History*, 1986(2): 23-24.
- Rong Yuankai. The dating of Western Han hemp paper cannot be tenable. *Journal of Jiangxi University (Social Science)*, 1982(1): 1-12.
- Rong Yuankai. Analytical proofs for Majuanwan paper being made in the Tang. *Studies in Paper History*, 1987(3): 12-15.
- Yuan Hanqing. The origin and development of papermaking in China. *Science Bulletin*, 1954(12):62-72.
- Zhou Yiliang. Paper and printing, in: *Collected papers on China's science and scientific figures*. Beijing, 1955: 1-20.
- Pan Jixing. The earliest specimen of plant fibre paper in the world. *Wen Wu*, 1964(1): 48-49.
- Pan Jixing. Is the Baqiao paper not plant fibre paper made in the Western Han? *Studies in the History of Natural Sciences* (Beijing), 1989, 8(4): 361-377.
- Wang Juhua et al. *The History of Papermaking Engineering and Technology in Ancient China*. Taiyuan: Shanxi Education Press, 2005: 46-75.
- Liu Qingzhu and Bai Yunxiang(ed.). *Chinese Archaeology·Qin and Han Volume*. Beijing: China Social Science Press, 2010: 739-748.

20. Wang Juhua and Li Yuhua. Identification of some kinds of paper made in the Han and the history merits of Cai Lun, *Wen Wu*, 1980(1): 80-84; Archaeological new discoveries cannot deny that Cai Lun invented paper. *Guangming Daily*, November 16, 1979.
21. News report on Beijing conference held by MLI in 1987, such as *Scientific and Technical Daily* (1987. 09. 12), *Guangming Daily* (1987. 09. 12); *China Youth Daily* (1987. 09. 12), *Asahi Shimbun* (Tokyo, 1987. 09. 13) and others.
22. Pan Jixing. Testing report of the Fangmatan paper of the Western Han (1990. 08. 09).
23. Xu Huanjie(ed.). *Zhizu qianqiu* (The Ancestor of Paper of Thousand Years). Changsha: Yuelu Press, 2005: 1-475.
24. Reporter Xie Songxin. There is no doubt Cai Lun invented paper. *English China Daily*. Sept. 13. 1987.
25. Rong Yuankai. Doubt about hemp paper of Western Han. *Journal of Jiangxi University (Social Science)*, 1980(2): 56-62.
26. Liu Renqing and Hu Yuxi. Preliminary study in ancient paper in China, *Wen Wu*, 1976(5): 74-79.
27. Yao Shijia. Who was the inventor of papermaking. *Research of the History*, 1976(8): 76-81.
28. Xu Mingqi. Archaeological discoveries denied that Cai Lun invented paper. *Guangming Daily*, December 3, 1980; Test of ancient paper unearthed three times. *Collected Papers on the History of Science (Shanghai)*, 1989(15):23-30; *Studies in the origin of papermaking in ancient China*, Shanghai Communication University Press, 1991, pp.1-8.
29. Pan Jixing. Comprehensive examination of Western Han paper unearthed four times. *China Pulp and Paper (Bimonthly)*, 1985, 4(2): 56-59; *The History of Papermaking and Printing in China*, in: *The History of Science and Technology in China*. Beijing: Science Press, 1998: 64-69.
30. Pan Jixing. On the origin of papermaking in the light of newest archaeological discoveries. *Bulletin of the International Association of Paper Historians (Basel)*, 1981, 5(2): 38-47.
31. Kume Yasuo. Unearthed paper proved that papermaking existed in the Western Han, *Hyakumantoh*. (Tokyo, Semi-annual magazine), 1988(70): 1-2.
32. Masuda Katsuhiko. Discussion on the testing results of the Baqiao paper. *Writing paper unearthed at Loulan and the history of paper*. Tokyo, 1988, p. 3; Letter, to Pan Jixing (December 8, 1988, from Tokyo).
33. Ma Ji. Brief description of ancient paper unearthed along the Silk Route. *Wenbo (Cultural Relics and Museology)*, 1991(1): 67-69.
34. Duan Jigang. Letter to Comrade Hu Qiaomu, the Member of Secretariat of Central Committee of Communist Party of China (June 24, 1986), *Studies in Paper History*, 1986(2): 11-13.
35. Nakayama Shigeru. Townspeople's hopeless science outlook. Tokyo: Social Review Press, 1984: 44-47; Hoshino Sodaji. Paper Routes, in: *The story of paper*. Tokyo, Jibodo Press, 1985: 5.
36. Chen Qixin. Claiming paper existed in the Western Han is lack of scientific grounds. *Studies in Paper History*, 1989(6): 2-14.



## Groundwood Mills an Intermediate in Norwegian Industrialization

Einar Böhmer, bohmer@live.no

### Introduction

During the 1800-century the need for information developed tremendously, and there was no way the old paper raw materials could satisfy this need. An old saying tells us that “need is the mother of invention”, and true enough the grinding process was invented in Germany in 1840.

From an historical point of view this is not so impressive, but in Norway it turned out to be one of the first areas of industrialization.

The first Norwegian groundwood mill was Bentse Mill in Oslo, erected in 1861, and in the following decades numerous new mills were being erected. The background for Norwegian investors was straightforward enough, it was first the availability of energy, preferably electrical energy. But initially a turbine or a waterwheel would do the trick, in the same way the old sawmills operated. Another resource needed was spruce as raw material, and Norway was here lucky since the Norwegian forests contain about 80% spruce and 20% pine. Sweden has 60% spruce and 40% pine, Finland 40% spruce

and 60% pine, and therefore these two countries erected fewer groundwood mills than Norway.

Finally, the people definitely needed were recruited from fishermen and small-scale farmers. This was people used to hard labour, but they were uneducated and had to be trained from the start.

In this paper I have discussed 5 groundwood mills located on a peninsula north-west of Trondheim. In the map, these five mills have been indicated and also the coastline. The question is now why I as a scientist in Oslo was interested in these five mills, when there were several much closer to home. One reason was that my wife was born and raised in one of these communities, another that I had spent quite a bit of time as a consultant in these mills. I was therefore interested in following their technical and financial development, but like so many others 4 of 5 have been shut down. The last has been rebuilt to a modern CTMP-mill and is still running. More details about this later.

Furthermore I was interested in looking at and evaluating these mills from a view of industrial history. Whenever mills are shut down, it is unfortunately a fact that a lot of statistics disappear, but this time I turned up before the big cleansing operation, and I received also a lot of assistance from the respective owners.



*Namdalen Groundwood mill at Lauvsnes, 1921*

It should be mentioned that the living conditions have changed tremendously during the last 100 years. When my father – in - law was responsible for the medical service in the area, he had a 30 foot fisherboat available with a 50 hp. motor. When our daughter applied for a position in an “ocean district” further north some years ago, the ship available was a rebuilt 52 foot MTB with a 1500 hp motor!

## How it all started.

The five groundwood mills described here are the following, and their location is also given in the map:

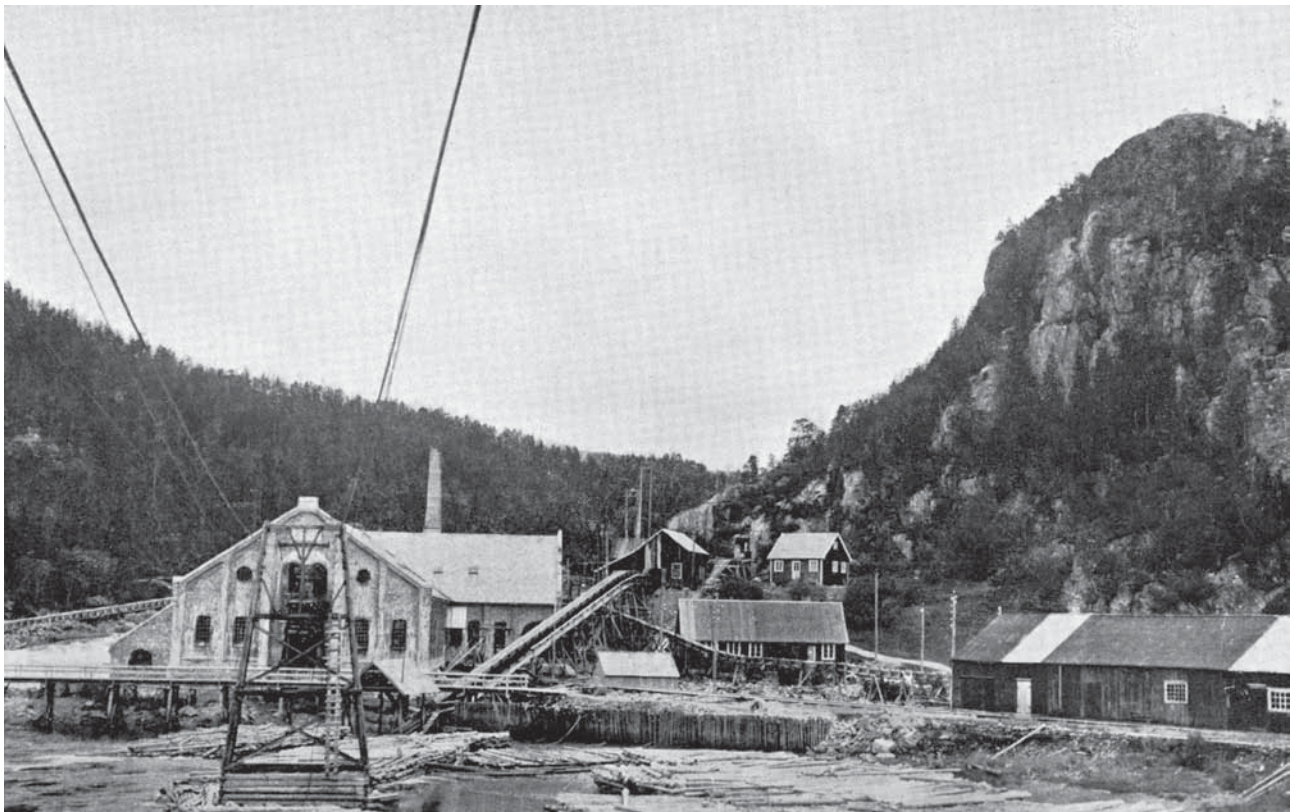
- Namdalen groundwood mill, Lauvsnes, started by local investors
- Statlandbruket, Statlandet, started by local investors
- Salsbruket groundwood mill, Salsbruket, started by the Collett family.
- Helge-Rein-By bruk, Steinkjer, started by the Getz family, and
- Folla, Follafoss, started by the county of North-Trøndelag

The Collett and Getz families had already acquired big forest properties and hydraulic rights in the area, and it must have been tempting to start a groundwood mill. Also, the Collett family hired

a forest expert to analyze the state of the forests, and he concluded that the lumbermen had removed the timber desirable for a saw mill, but had left the smaller dimensions which might have been used in a groundwood mill.

Number 1 and 2 were both erected by local investors. No.1 because they had adequate water falls to give them the energy they required, and also because they had a fair supply of raw material available in the neighbourhood. Mill No. 2 was also started in connection with a saw mill and a reasonable water fall, but the resources were limited, and when the market deteriorated (and it did, not infrequently) the owners had to shut down the operation.

Finally, a comment about Folla, where the county had some rights in the properties as security for a loan. When this was not paid properly, the county took over the entire property with all the necessary rights. The idea was initially to build a power station and to sell electricity to different customers in the county. But alas, the interest from the customers was negligible, or the indicated price too high and it was therefore decided to build a groundwood mill for export. It should also be mentioned that the power available was formidable, and it therefore ended up being one of the biggest mills in Scandinavia.



*Groundwood mill at Salsbruket, around 1910*





*Groundwood mill at Helge-Rein-By bruk, anno 1930*

Technologically or financially these mills were not particularly attractive. They lived during many years from hand to mouth and managed to build up some reserves in good times and use some of the reserves, when the price was low or the demand for the product depressed which it was from time to time.

But let us look a little closer at the technology behind these mills

## The technology of the grinding process.

As already indicated, the energy was obtained by utilizing the waterfalls spread around in the area. In the beginning the waterwheel or the turbine in the power station was coupled directly to the grinding wheel. This had, may be, some advantages, but it was a serious disadvantage that the power could not be utilized when the grinder was idle, a situation which occurred quite frequently. The consequence was that more and more groundwood mills used a separate power station to generate electricity, and the electricity required was then transferred to the groundwood mills. And this was certainly quite an amount. If we assume that 2000 kWh may be used to make a ton of dry groundwood, a production of 50 000 tons would require 100 Mill. kWh!

Now we may immediately state, that the visions were far from this outlook when the operation of a new groundwood mill started. Many of these mills did not have more than 35-40 Mill. kWh. to spend, and it is then easy to calculate the rather limited production. At that time there were no power lines to/from the national power network. These lines were built much later, and when the groundwood mills were shut down, the electrical energy available could then be sold to a power company.

But now to the technical development, which followed a pattern of "trial and error". During the first decades the mills did not have many educated people employed, but the learning followed a pattern as follows: The first experience was that the groundwood became finer when more energy was used, and the control was executed with the well known freeness meter. At the same time it was learned, that the logs should be placed parallel to each other, and vertical to the direction of the grinding wheel in the grinder. Otherwise the quantity of coarse particles increased and the quality deteriorated. For a long time a manual routine was therefore maintained, meaning that the operators physically placed the logs in the grinder container. To start with, the length of the logs were 0,60 meter, and many mills kept this length up to about 1970, although it was evident that longer logs were positioned better in the grinder, and it also opened



*Overview, Folla, 2000*

up the road to automatic positioning, a progress reducing the manpower significantly.

Another problem was also learnt the hard way. That was the fact that the grinding stones became blunter with use, and at the same time the fiber quality changed significantly. If the mill now had many stones operating with variable bluntness, an acceptable quality could be obtained by mixing the fibers from the different stones. Consequently, it was easier to obtain a uniform quality if the mill had many stones, or in other words it was a big mill. If the mill had few grinding stones, it was instead necessary to sharpen the surface of the stones periodically, and special equipment was developed for this process.

During the process it was impossible to avoid that some coarse particles ended up in the product. This was quite undesirable from the customer's point of view, because the greater part of the exported groundwood was used for newsprint, and the coarse particles in the paper gave missing dots in the printing process. The groundwood must therefore be screened with more or less sophisticated methods for continuous separation of the groundwood in

accept and reject. This was a development where the big machine companies in Europe made a big effort, and companies in Finland and Sweden took also an active part in this work.

As mentioned before, the pulp was all delivered with 50% solid content, meaning that the water was first drained from a continuous wire, and the water then pressed out between rolls etc. In 1950 all the groundwood was manufactured in this way, and we are now coming to the big event in the groundwood industry, a situation that we should have been able to anticipate. Modern paper mills in Scandinavia and Canada sold an increasing amount of printing paper, particularly newsprint, to UK and the countries on the Continent, and the result was that particularly the English mills tried to find other paper products than newsprint to improve their competitive situation. To some extent this goal was managed, but the price was that the orders from the customers to the Norwegian groundwood mills did not arrive so regularly, and the groundwood might be expected to remain in the warehouse for a longer time. Untreated as it was, the result was formation of mildew and other microorganisms during the summer, and of course serious complaints to the Norwegian groundwood mills!



This started a process of adding chemicals to the groundwood in order to get rid of the micro-organisms, in particular methyl mercury which proved to be an environmental disaster, and soon was absolutely forbidden. Again, however, the sentence that “need is the mother of invention” proved to be true, since a rational drying process, the flash drying process, was developed. This process need not be discussed, but it took over the market completely, and it was also followed by another technical process, the bleaching process. When bleaching mechanical pulp, it is important to take care that the bleached particles do not dissolve, but remain in the pulp. The results showed that the bleaching process was more efficient, when the groundwood was dried completely, so the trend to install a flash drier was increased.

Some groundwood mills had an excess of electrical energy, and in some cases it was desirable to dry the groundwood with electrical power. It was also a very clean form of energy which would not contaminate the pulp in any way. Suddenly some of these mills started to have serious fires, and in the worst cases the mills burnt down to the ground. This also happened in the Salsbruket mill, owned by the Collett family, and after the fire the owners ended with a complicated legal conflict about whether to rebuild the mill or use the insurance money for better purposes. But why did the fires actually start? It was postulated that a fire only started where the groundwood exclusively was dried with electricity, and not when oil was used to heat the air. This theory was also supported by using some small amount of oil containing sulfur to heat the air, and in these cases there seemed to be no fires.

The battle between the people who wanted to rebuild the mill and those who wanted to take the insurance money and run, must be understood with a background of dubious market conditions. It should also be remembered that the electrical power could be sold to the national electricity grid with a very good profit, considering that very little manpower and maintenance were involved. It was also possible to sell the timber which otherwise might have been used for groundwood and make some money this way.

## The social conditions in the mills.

The reason why I wanted to look closer at these five mills was that they mostly had a very isolated position. Two of them, Namdalen and Salsbruket as examples did not have any road connection to the rest of the country. Accordingly, if the mill was shut down or an employee dismissed, it was very difficult to get another job in the neighbourhood. If we compare this situation with the southern part of Norway where the distance between some groundwood mills or chemical pulp mills might be only a few miles, we understand that the community had to rely on itself. It is now necessary to remind the reader that the social support system was quite undeveloped at that time, and the leadership of the mills as well as their wives played an important part helping those in the area, who otherwise did not get adequate food and shelter.

In this connection it is interesting to compare the dwellings in the different locations and how they were developed. On Statlandbruket they had for many years a sawmill and not many employers involved, and the problem was simply solved by erecting more buildings to provide dwellings. It was never a question of luxury, but remember this was more than 100 years ago, and the people involved were fishermen and small scale farmers well used to hardship. In Salsbruket the employees lived close to the shoreline, when the mill started. This made good sense, since the people were well used to a fishing activity in order to supplement the income. However, the steep hills around the groundwood mill gave the area around them little sunlight, and when the owner should engage some educated people to run and maintain the mill and the power station, he built a number of houses higher up in the hills where the sun could be seen from morning to night.

In a book about the community by a radical author, she calls these houses for “the cream cake living area”. The underlying meaning was that these people could afford to eat cake every day (whether this is healthy is debatable) because of their affluence. In a third location, at Folla, the living accommodations were developed naturally by renting rooms in the farms around, and then gradually erecting houses/apartments for the employees.

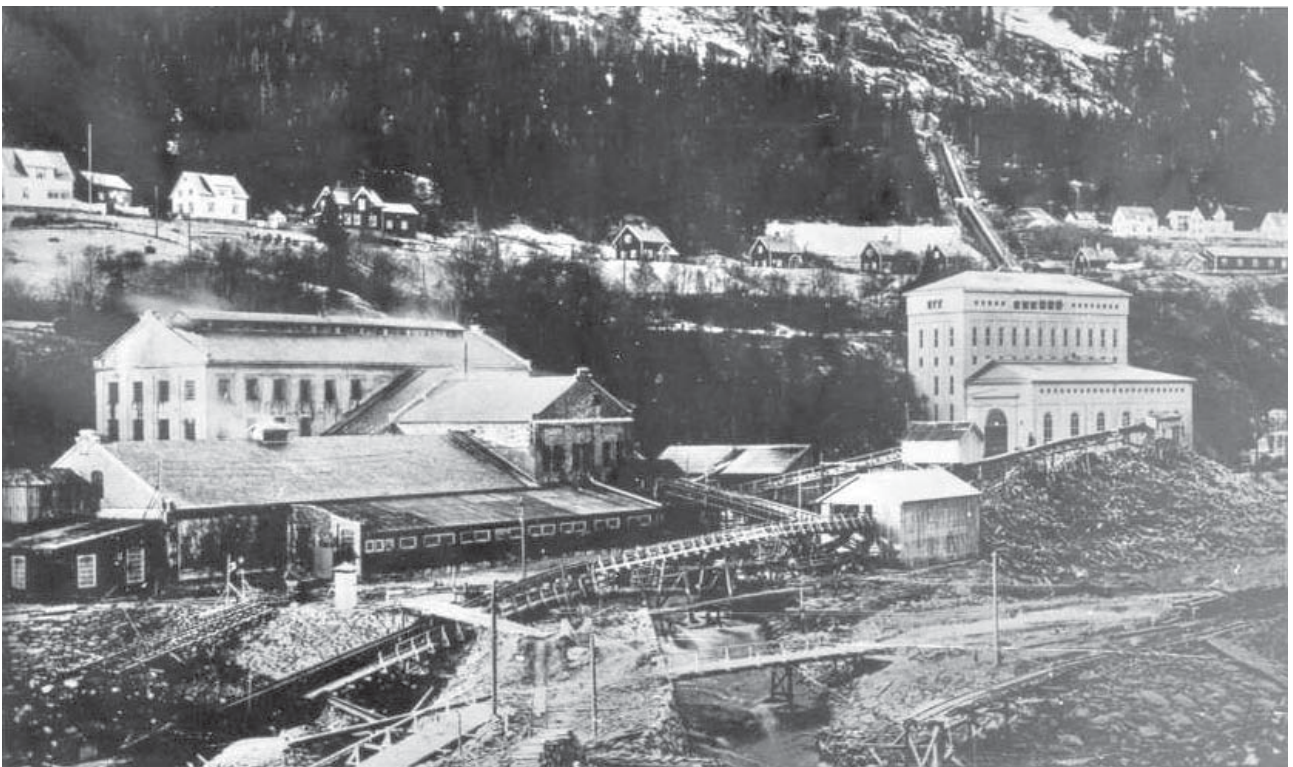
Some of the employers, notably the Collett and the Getz families, had great resources with forests and the hydraulic power as cornerstones. In a period between the two world wars the groundwood mills made also good money, but it was definitely wrong to state that the mills were perpetually making money, as so many in the communities seemed to believe. Some owners also believed this, and there is an example from the southern part of Norway where an owner invited quite a few guests on a cruise along the coast of Africa. When he came home after some months, two of his groundwood mills were bankrupt!

Because of the poor wages and social conditions labour conflicts also happened with intervals. A strike in a groundwood mill might well be understood, but it is strange that the labour force also went to strike in support of some other groups. That was the case in 1920, when all the groundwood mills in the area went to strike in support of the iron workers. This was hardly helping the mills in their struggle for survival, and may have shortened the life of some of them.

Some radicals frequently stated that the owners, for instance at Salsbruket, lived egoistically on top of the world. But in all fairness, it should be mentioned that some people around them really

made an effort to help the people in the community. A brilliant example is Mrs Collett, the wife of the managing director, who regularly went around in the community to help both with food and clothing. She also organized a home for children with tuberculosis, a scourge at that time, on a farm at high altitude where the air and other conditions were much healthier. On her deathbed she also made her relatives promise that they would build a church in her favour. It took 20 years to fulfill this promise, but in 1950 the church was erected! Mrs Collett also established a fund with the economic resources to arrange a party for children during Christmas. This fund still exists now many, many years after shutting down the mill.

Legal conflicts were also quite a normal occurrence, and are not so difficult to understand. The farmers and the fishermen around the mills were used to free access both to forests and rivers, and they could not understand why these old customs should be prohibited. Sometimes the farmers sold their private forest to the mill, but retained the right to materials from the forest to repair the roof etc. and put up a fence. Within reason this custom would legally be accepted, but when it was proved in one case that the farmer had used more than 200 m<sup>3</sup> wood in one year, the action of the mill management might be considered justified. In some cases the fishing



*The old groundwood mill at Folla, power station behind*

and hunting rights might also give a controversy. In this area an example to follow was introduced by the manager of the Folla mill. The hunting of moose during the fall had always been regarded as an interesting pastime, not only for the hunting itself, but for the amount of meat it would bring to the household.

At Folla the successful hunters were obliged to share the meat with the other employees at the mill, and this system functioned very satisfactorily.

### The end of an era.

Now, during the 60- and 70ties the price of groundwood and mechanical pulp in general, was under tough pressure, and as mentioned precedingly, because of the competition generated from the modern, integrated paper mills in Scandinavia and Canada. It should also be emphasized that better technology made it possible to use waste paper instead of groundwood at a significant saving. Of the five mills discussed here Statlandbruket was the first to shut down permanently. The primary reason was a fire in the power station after a lightning, and after evaluating the cost of rebuilding and the limitation of the mill with respect to production, it was decided to stop the mill forever. Namdalen had a reasonably modern mill and was at that time owned by the Norwegian Forest Industry (NFI) with a big paper mill making newsprint in Skogn, another community in the county. The management here wanted to erect a big new paper machine there and would concentrate the resources in the existing paper mill. The verdict was therefore to shut down the mill at Lauvsnes. Since this is an isolated community, no wonder that the politicians interfered because of the unemployment that would follow. The politicians suggested that the new paper mill might be erected at Lauvsnes, but happily the management of NFI would not listen, because this would have been an economic disaster. Interestingly, the company offered employment in the paper mill to anyone who wanted to move to Skogn, and they would also get adequate housing, but very few people from Lauvsnes accepted this offer.

The legal conflict at Salsbruket has already been mentioned. One part of the family wanted to rebuild the mill after the fire, but introduce a new process, pressure groundwood, where the pulp was exposed to higher temperature during the process.

A dubious point was that this pulp had not been tried as a mechanical pulp for sale. It had only been used in integrated production. The other part of the family therefore wanted to develop other sources of income based on the natural resources available, and use the insurance money in this way. This was also the verdict of the court, and since this was an arbitration case, the case could not be appealed to a higher court.

I met the winning part of the family after 10 years, and he informed me how things had developed.

When the mill was stopped, the income from the timber sale was 10 Million NOK and from the tourist trade 1 Million NOK. Today, the situation was opposite. In particular they had developed a suitable river for salmon fishing, and they also sold deer and moose hunting rights with accommodation in suitable cabins. Both made a profit, and with the steady income from the sale of electricity, the economic situation was very satisfactory.

The Helge-Rein-By bruk was in quite a similar position, and the owner told me that the groundwood mill for years had shown a deficit. But as he expressed it: We compensated a deficit of 1 Million with other means of income, but when the amount increased to 10 Million NOK we felt that we had to react, and consequently the mill was permanently shut down in 1991.

The last mill was Folla, which for many years was owned and operated by the county of North-Trøndelag. Again it was a general comment among the citizens of Follafoss, the community, that the county pulled money out of the mill, and that this was where the profit disappeared. Unfortunately, this was not true, and finally the county sold forests, power station and groundwood mill to an industrialist and inventor named Bjorn Lyng.

He called up and asked me directly, if I had any ideas regarding the future life of the mill. I suggested that they might consider building a CTMP-mill, which is a process where the chips are first treated with some chemicals, and then refined and bleached. The result is a mechanical pulp with much better properties than both groundwood and refiner pulp will have. Lyng followed the hint and erected a new mill with a capacity of 100 000 tons of dry pulp/year,





Map of North-Trøndelag county, with the location of the different mills indicated

and this mill is still running under the ownership of Sødra, a great producer in Sweden and Norway both of mechanical and chemical pulp.

### Some kind of conclusion.

The biggest problem in connection with the shut-downs was Lauvsnes, where there lived about 1000 people. It will then certainly be noticed when 65-70 positions disappear. I have now been back there after 20 years, and on the positive side a lot has happened. The mill building has been redesigned and is now housing many craftsmen and artists making textiles, paintings, metal products etc. There has

also been an active promotion of the tourist traffic, in particular tempting people from the Continent with the good fishing opportunities in the area. The projects consist in leasing fisherboats to the tourists with guidance and the help with equipment. All things considered the communities have handled the problems with the groundwood mills well, also thanks to the general state of the Norwegian economy. The improvement of communications, notably the roads, has also increased the mobility of the working force, with positive effects for the employment.



## “Paper originated in India, not China”

P.G.Gosavi, tejasgosavi@ymail.com

Retired Senior Lecturer at Handmade Paper Institute in Pune, P.G. Gosavi indicates in the following interview, published in April 2011 in the Indian newspaper Daily News & Analysis, that paper-making was actually an Indian invention. The world believes that paper was invented in China in 105 AD, and he regrets, based on his work for many decades at the Handmade Paper Institute, that India has never taken up this issue on the international platform. His paper “Did India invent paper?” was taken up by the “Tappi Journal”, a leading publication on the technology of paper manufacture. The effect of that paper was such that China changed the date from 105 AD to the second century BC.

More information about this subject is to be found in IPH-Information, Volume 21, 1987/No. 3, pp. 103-111 in the papers of P. G. Gosavi: Quality of ancient Indian paper and in IPH Paper History, Volume 10, Year 2000, Issue 3, pp.54-56: Does Hand Made Paper (100 % Cotton Rags) Need Acid Free Conditions?

### *Bhagyashree Kulthe’s interview with P.G. Gosavi in DNA Daily News & Analysis 15/04 2011*

The popular belief is that T’Shai Lun first developed paper in 105 AD in China. What’s your claim?

Indians knew the art of papermaking by beating cotton since 327 BC. The Chinese were not aware of this art then. The paper found in China was developed by pounding mulberry bark and it was not durable. These were like the *bhurjapatra* or *talpatra* used in India. There are 10 specimens of old papers in the British Library, London, which were discovered in China. These include five letters in the Sogadian script, four letters in the Chinese script and one in the Chinese and Tibetan script. Cotton fibres were not found in the paper used for the Chinese script, which is among the specimens claimed to be the oldest. However, the paper used for the Sogadian script is found to be made by

beating cotton. The fact is that Sogadians, who were traders, took the paper from India to China.

### How did the paper made in India travel to China?

The Sogadians, people of Iranian origin, dealt in commerce and travelled along Samarkand in Central Asia to Sialkot, Peshawar, Takhsheela to Bhutan, Nepal and China. Sogadians were among the translators of Buddhist scriptures and were called to China for translating Buddhist scriptures in Chinese. Some of these translators took bundles of paper with them from India. Thus, paper was procured from India by Sogadian persons who settled in China. This is how the link to the Sogadian letter on Indian paper is established. Cotton was a constituent in the making of the paper used for this Sogadian letter. These letters have many Sanskrit words. The content also shows that women in those days were educated and had good knowledge of politics and social development.

### If Indians knew the art since then, why did it remain undiscovered?

Indians knew the art of papermaking since 327 BC, but since it was a strenuous process its use was limited. However, Buddhists needed paper to take their scriptures to places. Thus, Indian paper went from India to China to the East and through Turkistan to the West. This art flourished in those countries and came back to India with the Muslims in the 10<sup>th</sup> century AD. Since so much time elapsed before paper re-entered India, it is wrongly believed that paper-making originated elsewhere.

### What was the response to your article in Tappi Journal?

The journal received letters from different countries on my article published in 1984. I replied to these letters. After this, the Chinese Paper Association appointed a committee to look into this matter. Eventually, the Chinese have withdrawn their claim of inventing paper in 105 AD and have changed the date to the second century BC. What they developed in 105 AD was just like *talpatra* made from vegetable fibres. Therefore, the claim was wrong. They, however, need to be pressurised to accept the fact that it was an Indian invention.

## Exhibition in Athens 14/12 2011 – 27/01 2012

### “Paper – Two thousand years of history in East and West”

Maria Malakou, [mplusm@otenet.gr](mailto:mplusm@otenet.gr),  
 Marinos Vlessas, [aeora@otenet.gr](mailto:aeora@otenet.gr)

The exhibition “Paper – two thousand years of History in East and West” is planned to take place from 14/12 2011 – 27/01 2012 in the well known Benaki Museum in Athens – Greece, 138, Pireos and Andronikou Str. Following sections are planned in the ~250 m<sup>2</sup> Exhibition, housed in the Museum:

#### 1. Introduction texts:

(all texts are in Greek and English).

#### 2. Bark cloth:

Text and samples from Pacific & Amazonia, also Amatl (Otomi figurines), Tapa beaters and new, unpublished photos.

#### 3. Writing materials before paper:

Text, photos and samples from Assam, palm leaf books from India.

#### 4. Papermaking raw materials:

Text and samples of raw materials (bark, straw, bamboo, rugs, wood etc.), with explanations on the process of making pulp out of them.

#### 5. Paper in the microscope:

Samples of paper in a microscope.

#### 6. The invention of paper in China:

The narrative of Tsai Lun.

#### 7. Papermaking in East Asia and techniques of Paper-production:

Texts, photos, and two original moulds. The tradition of handwritten book on self-made paper in Asia and especially among some ethnic groups (like Bai, Yao or Naxi): some 8 – 10 genuine Yao and Lanten taoistic books from Cambodia, Myanmar and Tibet are exhibited together with spirit paper, stamps and paper products.

#### 8. Paper and its role in the invention of printing:

Texts and photos, woodblocks and relevant equipment from Buddhist monasteries in Himalaya and Rajasthan.

#### 9. Paper and handwritten book in the Islamic World:

Texts and photos, two paper fragments and Playing cards from the Islamic Museum in Athens, a mould from Rajasthan and a 1:1 scaled representation of a loom to construct the flexible mould-surface.

#### 10. European papermaking:

Texts, photos and a 1:1 model of a vatman in front of his vat, holding an original large, old papermaking laid mould.

Another pair of wove moulds, and about 30 shadow and linear watermarks (back lighted), two original books of the Encyclopedia of Diderot (with gravures on papermaking and printing).

#### 11. About Robert’s machine and transition to the industrial paper:

Texts and photos.

#### 12. Papermaking in Greece:

Texts, photos, paper and product samples from older Greek industrial paper mills.

A well equipped workshop for handmade paper.

## Gefärbt, gekämmt, getunkt, gedruckt Die wunderbare Welt des Buntpapiers Sonderausstellung im Mainfränkischen Museum Würzburg 22.10.2011 - 29.1.2012

Buntpapier ist auf der Oberfläche farbig gestaltetes Papier, das bis Mitte des 19. Jahrhunderts in verschiedenen Techniken in Handarbeit hergestellt wurde: Kleister- und Tunkpapiere, Modelldruck- und Prägepapiere. Unzählige Mustervarianten in großer Farbvielfalt zeugen von Phantasie, Kreativität und einer ausgeprägten Dekorationslust, der vor allem in der Buchbinderei, in Möbeln und als Tapeten gefrönt wurde. Seit ca. 1840 wurde die Handarbeit der Buntpapierherstellung zunehmend durch Maschinen ersetzt, bis die Massenherstellung in neuen Techniken die traditionelle Buntpapierindustrie Mitte des 20. Jahrhunderts verdrängte. Heute erfährt Buntpapier wieder eine Renaissance vor allem als Schrank- und Geschenkpapier, aber auch zur Herstellung von Kunstobjekten und in der Buchgestaltung.

Das Mainfränkische Museum besitzt über 500 Papierdruckmodelle des 19. Jahrhunderts, die aus der Buntpapierfabrik Alois Dessauer in Aschaffenburg stammen. Sie zeugen von einer unbändigen Dekorationsfreude auf Papier, das von Aschaffenburg nach ganz Europa und bis nach Amerika exportiert wurde. Ausgewählte Beispiele dieses hochinteressanten Sammlungsbestandes sind in der Ausstellung erstmals präsentiert. Sie zeigen die ganze Bandbreite der verschiedenartigen Modelle, ihrer Mustervielfalt und geben mit ihren Gebrauchsspuren Hinweise auf die Herstellungsmethoden. Zahlreiche Leihgaben aus öffentlichen und privaten Sammlungen bereichern die Ausstellung.

Die verschiedenen Techniken der Buntpapierherstellung als Modelldruck, Tunkpapier und Kleisterpapier werden mit historischen Werkzeugen, Musterbüchern und Darstellungen gezeigt. Besonders interessant sind ein Marmorierkasten aus der Zeit um 1900 und ein Molettenkasten mit vielen verschiedenen kleinen Musterwalzen. In die Musterbücher der Buntpapierfabriken des 19. Jahrhunderts sind Tausende kleiner Buntpapiermuster eingeklebt, an Hand derer die Kunden früher ihre Bestellungen aufgeben konnten. Diese Papiermuster und Objekte, die mit Buntpapier verziert sind, zeigen die Möglichkeiten und unterschiedlichen Effekte der verschiedenen Techniken sowie die historische Entwicklung des Buntpapiers.

Viele Objekte, die mit Buntpapier verziert wurden, sind in der Ausstellung zu sehen: das älteste stammt aus dem Jahr 1697, die neuesten sind aus unserer Zeit. Darunter finden sich viele Bücher, denn Buntpapier wurde traditionell in der Buchbinderei verwendet, als Einband oder Vorsatzpapier. In der Ausstellung sind aber auch ganz ungewöhnliche Verwendungsmöglichkeiten von Buntpapier zu bestaunen: so besitzt das Mainfränkische Museum einen Nachtstuhl in Form eines großen Bücherstapels, der an den Seiten und im Deckel mit Buntpapier beklebt ist.



Ein Tafelklavier von 1774 ist innen komplett mit kostbarem Brokatpapier ausgeschlagen, desgleichen einige der prächtigen Möbel des 18. Jahrhunderts. Heute ist Schrankpapier wieder zu haben, aber es sind einfachere, bunt bedruckte Papiere.

Ein vielseitiges Rahmenprogramm lädt zum Erleben und Ausprobieren ein: neben vielen Führungen für Erwachsene und Familien gibt es mehrere Workshops, in denen man selber verschiedenen Buntpapiertechniken ausprobieren kann. Ein Kunsthandwerkermarkt rund um Papier bietet alles, was heute handwerklich aus Papier hergestellt werden kann.

Zur Ausstellung erscheint ein Katalog, der im Mainfränkischen Museum erworben werden kann. Weitere Informationen s.: [www.mainfraenkisches-museum.de](http://www.mainfraenkisches-museum.de) Mainfränkisches Museum Würzburg  
Festung Marienberg, 97082 Würzburg  
Tel. 0931 – 205940, Fax 0931-2059456

## IPH Congress 2012

### Call for Papers

## Welcome to the Trinational Upper Rhine Region!

The 31st IPH Congress of International Paper Historians will take place on September 17 – 19, 2012 in the Upper Rhine Region in Baden Württemberg (Germany) - Basle (Schweizerland) – Alsace (France).

The Congress will cover the following three main aspects: Paper Museums, watermarks and paper as a decorative art. The overall theme of the congress will be: Cultural and economical evolution of the trinational Upper Rhine Region, especially its history of paper and printing.

All members and friends of paper history are kindly invited to join us in the Upper Rhine Region

Session 1: Paper Museums, collections of cultural heritage, publications, and research in the history of paper, illustrated through exhibitions and collections of tools.

Session 2: Evolution of papermaking technology, especially watermarking, research and collection of watermarks, digitization, publications, exhibitions, and international standardization of registration.

Session 3: Paper as a decorative art, development of printing technology, production of wall paper, wall papers in art history, and conservation of wall papers.

Anyone wishing to present a paper is invited to send a short abstract, preferably electronically in word format in English, French or German not later than December 15, 2011 to the contact person of the congress:

Dr. Sabine Schachtner  
LVR-Industriemuseum, Papiermühle Alte  
Dombach, D-51465 Bergisch Gladbach, Germany  
Tel. + 49 2202 936680, E-Mail: sabine.schachtner[et]lvr.de

The abstract should provide

- 1) Name and professional title of the author(s), indicate the name of the main author with a \*,
- 2) Postal address as well as E-mail address is necessary for the contact between the author and the program committee,
- 3) Language English, German or French according to the statutes of IPH,
- 4) Title of the presentation,
- 5) max 300 words (1500 signs) summary of the content. The program committee will inform the proposers about acceptance of their proposals by March 31, 2012, providing them with guidelines for authors.

With kind regards on behalf of the program committee and the IPH Council

Anna-Grethe Rischel

President of IPH

## IPH-Kongress 2012

### Call for Papers

### Willkommen im Dreiländereck der Oberrheinregion!

der 31. IPH-Kongress der Internationalen Arbeitsgemeinschaft der Papierhistoriker findet in der Oberrheinregion in Baden-Württemberg (Deutschland) – Basel (Schweiz) – Elsaß (Frankreich) vom 17. bis 19. September 2012 statt.

Der Kongress soll die folgenden drei Hauptaspekte behandeln: Papiermuseen, Wasserzeichen sowie Papier als dekorative Kunst. Das übergeordnete Kongresssthema soll lauten: Die kulturelle und wirtschaftliche Entwicklung im Dreiländereck der Oberrheinregion, insbesondere seine Papier- und Druckgeschichte.

Alle Mitglieder und Freunde der Papiergeschichte sind herzlich eingeladen, uns in der Oberrheinregion zu treffen!

Session 1: Papiermuseen, Sammlungen des kulturellen Erbes, Publikationen sowie Forschungen zur Papiergeschichte, dargestellt in Ausstellungen und Werkzeugsammlungen.

Session 2: Entwicklung der Technologie der Papierherstellung, besonders der Wasserzeichen dazu, Forschungen und Sammlungen von Wasserzeichen, Digitalisierung, Publikationen, Ausstellungen sowie internationale Standardisierung bei der Dokumentation von Wasserzeichen.

Session 3: Papier als dekorative Kunst, Entwicklung der Drucktechnik, Tapetenproduktion, Tapeten in der Kunstgeschichte sowie konservatorische Fragen im Hinblick auf Tapeten.

Alle diejenigen, die einen Vortrag halten möchten, sind eingeladen, eine kurze Zusammenfassung zu schicken, vorzugsweise elektronisch als word-Datei in englischer, französischer oder deutscher Sprache, bis spätestens 15. Dezember 2011 an die Kontaktperson für den Kongress:

Dr. Sabine Schachtner  
LVR-Industriemuseum, Papiermühle Alte  
Dombach, D-51465 Bergisch Gladbach, Germany  
Tel. +49 2202 936680, E-Mail: sabine.schachtner[et]lvr.de

Die Zusammenfassung sollte enthalten

- 1) Name und berufliche Titel des Autors/der Autoren, der Haupt-Autor mit einem \* gekennzeichnet,
- 2) eine Post- sowie eine eMail-Anschrift für den Kontakt zwischen Autor und Programmkomitee,
- 3) in englischer, französischer oder deutscher Sprache, entsprechend den IPH-Statuten,
- 4) Titel des Vortrags,
- 5) eine Zusammenfassung des Inhalts von max. 300 Wörtern (1500 Zeichen). Das Programmkomitee wird die Autoren über die Annahme ihrer Vorschläge bis 31. März 2012 informieren und ihnen Hinweise für die Abfassung des Vortrags geben.

Mit vielen Grüßen im Namen des Programmkomitees und des IPH-Vorstands

Anna-Grethe Rischel

Präsidentin der IPH



## IPH Congrès 2012

### Appel à contributions

### Bienvenue dans la région tri-nationale du Haut-Rhin !

Le 31ème Congrès de l'IPH aura lieu du 17 au 19 septembre 2012 dans la région du Haut-Rhin, à Baden Württemberg (Allemagne), à Bâle (Suisse) et en Alsace (France).

Le congrès concernera trois aspects principaux : les musées du papier, les filigranes et le papier comme art décoratif.

Le thème d'ensemble sera : « Evolution culturelle et économique de la région tri-nationale du Haut-Rhin, autour de l'histoire du papier et de l'imprimerie ».

Tous les membres et amis du papier sont conviés à se joindre à nous dans le Haut-Rhin.

- Session 1 : Les musées du papier, collections patrimoniales, publications et recherches en histoire du papier, illustrées par les expositions et collections d'objets.

- Session 2 : Evolution de la technologie de fabrication du papier, en particulier les filigranes : recherche et collections de filigranes, numérisation, publications, expositions et standard international pour les répertoires de filigranes.

- Session 3 : Le papier comme art décoratif, développement de la technologie d'impression, production du papier peint, le papier peint dans l'histoire de l'art, les questions de conservation du papier peint.

Toute personne souhaitant présenter un exposé est invitée à envoyer un bref résumé, de préférence sous forme électronique, en format WORD et en anglais, français ou allemand avant le 15 décembre 2011 à la personne chargée du secrétariat du congrès : Sabine Schachtner, à l'adresse suivante :

Dr. Sabine Schachtner  
LVR-Industriemuseum, Papiermühle Alte Dombach,  
D-51465 Bergisch Gladbach, Germany  
Tel. + 49 2202 936680, E-Mail: sabine.schachtner[at]lvr.de

Le résumé doit comporter

1° Nom et titres professionnels de(s) l'auteur(s), nom de l'auteur principal suivi d'un \*

2° Adresses postale et électronique indispensables pour que le comité du programme puisse communiquer avec l'auteur

3° Choix de langue : soit anglais, français ou allemand, conformément aux statuts de l'IPH

4° Titre de la présentation

5° Résumé de 300 mots (1500 signes) maximum.

Le comité de programme transmettra son avis d'acceptation ou de rejet de la proposition aux auteurs avant le 31 mars 2012, et leur fournira des directives pour la présentation.

Meilleures salutations, de la part du comité de programme et du Conseil de l'IPH

Anna-Grethe Rischel

Présidente de l'IPH



## Papiermühle in der Au - Lange vor der Papierfabrik Lenzing – die Papiermühle in der Au

Gottfried Schweizer, gottfried.schweizer@ymail.com



Das ehemalige Wohn- und Wirtschaftsgebäude „Peyr-Güttl“ in der Au, erbaut 1814, einziges, unverändert erhaltenes Gebäude.

In der Geschichtsforschung kommt einem immer wieder einmal der Zufall zu Hilfe. Er war es auch, der mich bei einem Besuch in Seewalchen 1989 an der dortigen Pfarrkirche eine Grabtafel für einen „gewesten Papierer in der Au“ entdecken ließ.



Marmorne Grabtafel der Papiermacherfamilie Peyr an der Pfarrkirche zu Seewalchen

*Hier ruhen die Edlen Christian Peyr geweste  
Papierer in der Au*

*Der Vater starb den 15 May 1745 alt 80 Jahre*

*Der Sohn den 16 July 1784 alt 55 Jahre*

*Wanderer der du hier vorüber gehst schenke ein  
Vater unser diesen Redlichen die durch 94 Jahre  
nacheinander als gut Bürger und Christen Ihre  
Pflichten genau erfüllten*

*Das werthe Andenken Liebe und Dankbarkeit  
hielten den Enkl und Sohn für Schuldig Ihnen  
diese Leichenstein zu setzen*

*Gott lasse Sie am allgemeinen Gerichtstag  
wieder Frölich erwachen und Ihren Lohn im  
Himmel ärnten*

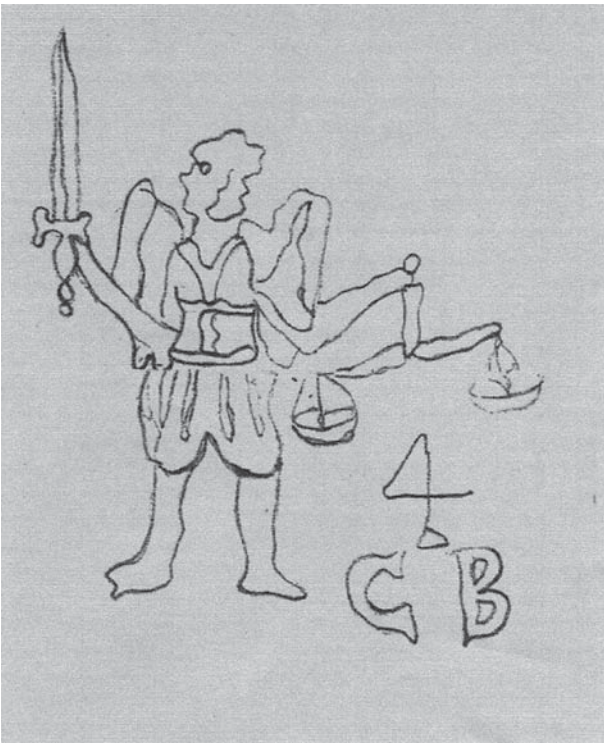
*Anno 1805 AR.*

Feld - und Archivrecherchen führten zum Ergebnis, dass in der Gemarkung Sieben Mühlen, welche sich längs des Flusses Ager erstreckt, bereits seit 1601 eine „Papiermühle in der Au“ handgeschöpftes Papier produzierte.

Der erste Betreiber war Andreas Wider, Bürger in Vöcklabruck. Dann folgten verschiedene Besitzer, bis 1690 Christian Peyr aus dem sächsischen Vogtland zuwandert, mit 25 Jahren die Witwe des ehemaligen Papierers in der Au heiratet und in der Folge die Familie Peyr die Mühle 180 Jahre lang erfolgreich betreibt.

Ursprünglich lag die Mühle auf dem Besitz der Grundherrschaft Kloster Michelbeuren im Salzburgischen, weshalb sie auch dorthin zinste. Da ist es dann auch nicht weiter verwunderlich, dass ein frühes Wasserzeichen den Erzengel Michael mit Schwert und Seelenwaage darstellt. Auch die Papiermühle des Klosters Kremsmünster, gelegen an der Steyr und gegründet im ersten Drittel des 16. Jahrhunderts, führte Teile des Wappens des Klosters in seinem Wasserzeichen. Das Kloster selbst wurde im Übrigen vom Bayernherzog Tassilo III. 777 gegründet und dort befindet sich auch die Grablege von Tassilos Sohn Gunther, der nach der Gründungslegende in dieser Gegend bei der Wildschweinjagd durch einen Keiler ums Leben kam.

Die Familie der Papiermacher Peyr wiederum nahm um 1800 das Bild einer schlanken Fichte als Wasserzeichen, so als hätte sie geahnt, dass der Rohstoff für Massentapiere dereinst der Holzstoff werden würde.



Wasserzeichen Christian Bevr Anfang 18. Jhdt.

Doch die moderne Technik machte auch vor der Papiermühle in der Au nicht Halt: 1871 lässt die Familie Peyr die auf dem Haus liegende, „radicierte“ Papiermühlen-Gerechtheit im Grundbuch löschen, 1877 übergeben Anton und Therese Peyr Mahlmühle und Säge in der Au samt Wohn- und Wirtschaftsgebäuden ihren Kindern, 1891 erwirbt Emil Hamburger aus Ternitz den gesamten Komplex und weitere der „Sieben Mühlen“ dazu. Die Wasserkraft der Papiermühle, heute noch von der Lenzingener Papierfabrik genutzt, wird in eine Holzschleiferei umgewandelt. Weiter flussabwärts folgen dann eine Sulfitzellstofffabrik und die Aufstellung zweier

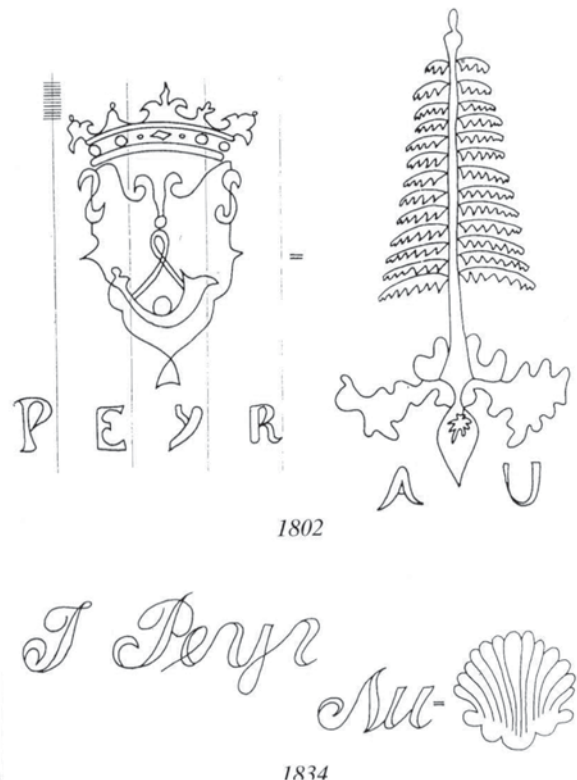


Anton Peyr der letzte Papiermacher in der Au

Papiermaschinen. Daraus wird dann 1907 die bis heute noch bestehende Lenzingener Papier AG.

Produktion ober-österreichischer Papiermühlen im Jahr 1798		Besitzer und Betrieb der Papiermühle in der Au	
(Nach Eineder)			
Anzahl der Ballen			
<b>Hausruckviertel</b>			
Au/Schöndorf	124	1601 Andreas Wider, Bürger in Vöcklabruck.	1877 Anton und Theres Peyr übergeben an ihre Kinder Mahlmühle und Säge in der Au samt Wohn- und Wirtschaftsgebäuden (Papierherstellung wird nicht mehr erwähnt).
Vöcklabruck	63	1620 Gregor Duner.	
Stipelmühle	43	1625 Georg Klass.	1885 Anton Stallinger erwirbt die gesamte Realität.
Schafwiesen/Wels	100	1643 Heinrich Zickh.	
<b>Tramviertel</b>			
Steyr/Altmühle	90	1651 Hans Munich, Handwerker.	1891 Emil Hamburger aus Ternitz in Niederösterreich, Papierfabrikant, erwirbt die gesamte Liegenschaft und weitere der „Sieben Mühlen“. Er baut die Papiermühle zur Holzschleiferei um und errichtet weiter stromabwärts, in Lenzing, eine Sulfitzellstoff-Fabrik und 2 Papiermaschinen.
Aicht	81	1682 Georg Niederdorfer.	
Saggraben	71	1690 Christian Peyr aus Netzschkau im Vogtland, anschließend 180 Jahre Familie Peyr.	1907 wird der gesamte Komplex zur Lenzingener Papier AG; diese betreibt noch heute an der Stelle der alten Papiermühle eine Wasserkraftanlage.
Garsten	190	1871 Franz Peyr sucht um die grundbücherliche Löschung der radizierten Papiermühlen-Gerechtheit an; Einstellung der Handschöpferei um 1870.	
Kremsmünster	93		
<b>Isnviertel</b>			
Braunau	123		
Haibach	63		
Wernstein	10		
<b>Mühlviertel</b>			
Harrachstal	354		
<b>Gesamt</b>	<b>1.405</b>		

Produktion und Besitzer der Papiermühle in der Au



Wasserzeichen Anfang 19. Jhdt.





*Die Papiermühle in der Au um 1870*

## Meetings, conferences, seminars, courses and events

Course: 13/10 – 14/10 2011

### **Conservation of Tracing Paper**

International Association of Book and Paper  
Conservation IADA,  
Institut für Papierrestaurierung, Berlin, Germany  
Email: [hombu@freenet.de](mailto:hombu@freenet.de)

Course: 17/10 – 21/10 2011

### **Making Copies of Clasps and How to Install Them on a Book**

Course: 24/10 – 25/10 2011

### **Bosses and Clasps III: Basic in Clasps Conservation**

Course: 31/10 – 04/11 2011

### **Identification of European Paper – You Only See What You Know**

Course: 07/11 – 11/11 2011

### **Identification of Asian Paper – You Only See What You Know**

Course: 21/11 – 25/11 2011

### **Globe Conservation Course**

European Research Centre:

The European Research Centre of Book and Paper  
Conservation – Restoration, Horn, Austria  
Email: [ercbookpaper@gmail.com](mailto:ercbookpaper@gmail.com)

Symposium 17/10 – 22/10 2011

### **Adhesives and Consolidants for Conservation**

Canadian Conservation Institute CCI, Ottawa,  
Canada  
[www.cci-icc.gc.ca/synposium/2011/index-eng.aspx](http://www.cci-icc.gc.ca/synposium/2011/index-eng.aspx)

Meeting: 01/11 – 2/11 2011

### **BAPH Northern Meeting 2011**

British Association for paper historians BAPH  
Email: [phil.crockett@btinternet.com](mailto:phil.crockett@btinternet.com)

Exhibition: 05/10 – 23/10 2011

### **Tournee Ausstellung: Die Basler Papiermühle auf Wanderschaft**

Museum am Burghof Lörrach, Schwitzerland

Event: 11/11 2011

### **Wiedereröffnung der Basler Papiermühle**

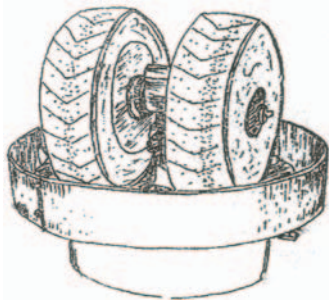
Basler Papiermühle, Schwitzerland  
Schweizerisches Papiermuseum & Museum für  
Schrift und Druck  
St. Alban-Tal 37, Basel

## La Papeterie de Presles Belgique

Alphonse Radermecker, a.radermecker@skynet.be

Le site de la papeterie longeait l'entièreté de la rue Mgr Cerfaux à partir de la place communale (appelée à l'époque « le Fourneau ») jusqu'au bâtiment nommé ultérieurement « Le Sapin Vert », et, de l'autre côté, la rive gauche de la Biesme.

Derrière nous, se trouve l'ensemble du site nouvellement aménagé par la SCRL Sambre et



Biesme et l'administration communale d'Aiseau-Presles.

On ne connaît pas l'origine exacte du moulin à papier de Presles, mais on a la certitude qu'il existait avant 1680. On y fabriquait principalement du papier noble d'écriture et du papier d'emballage. Après 1830, le moulin à papier est qualifié de papeterie et communément dénommé Li Papèn'Rîye.

A la fin du XIXe siècle, on y produit du carton paille épais, jusqu'à sa fermeture définitive en 1914.

Ces trois meules constituaient l'appareillage essentiel d'une machine appelée « Meuleton ». Elles broyaient les matières premières nécessaires à la fabrication du papier ou du carton.

ASBL Patrimoine Preslois



Complete your paper historical library now!

Ergänzen Sie jetzt Ihre papierhistorische Bibliothek!

Completez aujourd'hui votre bibliothèque de l'Histoire du papier!

### IPH Publications available/ Lieferbare IPH-Publikationen/ Publications de l'IPH livrables

	Price / Preis / Prix
IPH Information (1962 – 1990)	on request / auf Anfrage / sur demande
<b>IPH Paper History (Periodical)</b>	
Vol.13, 2009, 1-2	€ 20,70
Vol.14, 2010, 1-2	€ 20,70
Vol.15, 2011, 1-2	€ 20,70
<b>IPH Yearbook (Congress Book)</b>	
Vol.14 Addenda 5, 2002	€ 50,00
Vol.15, 2004	€ 60,00
Vol.16, 2006	€ 60,00
Vol.16, 2006 - supplementary	on request
Vol.17, 2008	€ 60,00

### IPH Monographs/ Sonderbände/ Monographies

	Price / Preis / Prix
Vol.2, 1998	
Nils J. Lindberg: Paper comes to the North	
Paperback – broschiert – broché	€ 48,10
Hardcover – gebunden – relié	€ 66,50
20% discount for members/ Mitglieder 20% Ermässigung/ Remise de 20% pour les membres	
20% discount if you buy 5 books / 20% Ermässigung bei Abnahme von 5 Stück / 20% remise pour acheté 5 livres	
+ Transport expenses/ + Versandkosten / + Frais d'expédition	
Please send request with invoice prepaid to Alphonse Radermecker	
Commande et paiement anticipé à Alphonse Radermecker, s'il vous plait	
Bitte Bestellung und im voraus bezahlen an Alphonse Radermecker	

## Guidelines for authors

contributing to the continuation in 2009 of the IPH "Paper History"

### Name and address of the author/ authors:

Indicate the name of the main author with a \*. Postal address as well as e-mail address is necessary for the contact between the editor Anna-Grethe Rischel (e-mail: rischel@privat.tele.dk) and the author.

### Language:

English, German or French according to the statutes of IPH.

### Title:

The overall general subject of the article should be stated first, followed by a more detailed description of the topic in two-part format of the title of the paper. For shorter remarks, notes, reviews etc. one informative title is sufficient.

### Abstract of articles:

The abstract, not exceeding 1500 units (letters without spaces), must summarise the text with results and conclusions.

Translations of title and the abstract into English, German or French may be made available upon request to the editor.

### Format:

The article will be published in two columns in monochrome print.

Submit your manuscript in a single column using a minimum of formatting, using plain text, RTF or Microsoft Word exported as .doc. or as .rtf. Each page should contain approximately 5300 units (letters without spaces). Do not number sections or paragraphs

### Figures/illustrations:

Please note that the publication will be printed in black-and-white only. Do not use coloured lines etc. for diagrams.

Prepare the illustrations for either one column width (1000 pixels) or double column width (2000 pixels) and indicate that in the caption text.

Photographs may be in formats: .tif, .jpg or .pdf.

Figure and table captions should be listed after the main text similar to the references.

Tables should be submitted as separate files-formats for tables: .doc or .xls.

For diagrams the title must be in the caption only and for graphs the background must be white.

In the final publication the widths of the figures will be either 8 cm or 17 cm.

### References:

Do not use automatic reference numbering, but refer by numbers in the main text. Do not use foot notes, but include eventually notes with the references at the end of the main text.

### Checklist for manuscript submission

- 1) Manuscript document, containing title, author(s) name/names with contact info.
- 2) Main article text, references and list of captions for tables and illustrations.
- 3) Abstract reflecting the actual content of the full paper.

Remember black-and-white/grey-scale only.

- 4) Eventually tables in separate documents.
- 5) Eventually illustrations in the required size and file format in separate documents.

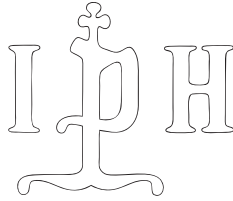
For the check of images and text include one set of printed proof of the text, tables and illustrations.

- 6) Please submit a manuscript with a total file size larger than 5 Mb by post on a cd-rom
- 7) Please submit a manuscript with a total file size below 5 Mb electronically in a PDF file

Please forward the total manuscript to the IPH editor:

**Anna-Grethe Rischel, Stenhøjgaardsvej 57, DK 3460 Birkerød, Denmark.**

E-mail: rischel@privat.tele.dk or  
anna-grethe.rischel@natmus.dk



The IPH gathers professionals of different branches and all friends of paper around the theme of paper history. As an international specialist association it coordinates all interests and activities in this field and provides the necessary means to reach these goals: the periodical "Paper History", the Congresses, the Congress books and the Supplement series.

*Die IPH vereinigt Fachleute unterschiedlichster Bereiche sowie die Freunde des Papiers rund um das Thema „Papiergeschichte“. Sie koordiniert alle papierhistorischen Interessen und Aktivitäten als internationale, wissenschaftliche Fachorganisation und stellt zu diesem Zwecke die notwendigen Mittel zur Verfügung: die Zeitschrift „Paper History“, die Kongresse, die Kongressbücher und die Reihe der Sonderbände.*

L'association IPH rassemble les professionnels de toutes les spécialités ainsi que les amis du papier autour du thème de l'Histoire du papier. Elle coordonne tous les intérêts et toutes les activités dans ce domaine en tant qu'association scientifique internationale et met, pour atteindre ce but, à disposition les moyens nécessaires: le périodique «Paper History», les Congrès, les Livres des Congrès et la série des Suppléments.

The biennial membership fee of € 70 (or the equivalent in other currencies) includes the subscription of the publications of IPH.

*Im Zweijahres-Mitgliedsbeitrag von € 70 (oder einem entsprechenden Beitrag in anderen Währungen) ist das Abonnement auf die Druckschriften der IPH inbegriffen.*

La cotisation bisannuelle de € 70 (ou la somme correspondante en d'autres monnaies) comprend l'abonnement aux éditions IPH.

Please transfer your membership fee to one of the following accounts:	Überweisen Sie bitte Ihren Mitgliedsbeitrag auf eines der folgenden Postgirokonten:	Veillez verser votre cotisation à l'un des comptes postaux suivants:
CBC Banque S.A.	POSTBANK Frankfurt	PostFinance
IBAN: BE51 7320 0469 5962	IBAN: DE15 5001 0060 0012 61660 04	IBAN: CH34 0900 0000 4003 1640 0
BIC: CREGBEBB	BIC: PBNKDEFF	BIC: POFICHBEXXX
Rathausplatz	Postfach	La Poste
B-4700 Eupen	D-60288 Frankfurt a/M	CH-1631 Bulle

## INTERNATIONAL ASSOCIATION OF PAPER HISTORIANS

## INTERNATIONALE ARBEITSGEMEINSCHAFT DER PAPIERHISTORIKER

## ASSOCIATION INTERNATIONALE DES HISTORIENS DU PAPIER

*President / Präsident / Président:*

Anna-Grethe Rischel  
Stenhøjgaardsvej 57  
DK – 3460 **Birkerød**  
Denmark

*Secretary / Sekretariat / Secrétaire:*

Dr. Sabine Schachtner  
LVR-Industriemuseum  
Papiermühle Alte Dombach  
D-51465 **Bergisch Gladbach**  
Germany

*Treasurer / Kassier / Trésorier:*

Alphonse Radermecker  
Hochstrasse 87  
B-4700 **Eupen**  
Belgium

*Domicil / Vereinssitz / Siège social:*

Wasserstelzenweg 95  
CH – 4125 Riehen

[www.paperhistory.org](http://www.paperhistory.org)