www.i2s-bookscanner.com

# DigiBook Mag

May 2003, no. 4

**Four months yet** that we are installed in our new premises and we are now at our maximum capacity to develop and manufacture our scanners.

As we announced you in our latter issue of DigiBook Mag (n°3), we have reinforced the DigiBook team :

- David Dassié occupies the pre-sale engineer's job under Mr Philippe Bayle's responsibility,
- Eric Trinh, engineer doctor in computing has joined the DigiBook software developing team,
- Guillaume Bouquet has joined the commercial team and is in charge of the Northern Europe zone.

Concerning the technical evolutions foreseen for the year 2003, we are on our way to fulfill most of our objectives.

*Achieved points :*

- Productivity improvements of our scanners by reducing our time cycles and the integration of a bi-directional scan system,

*(Cont'd on page 4)*

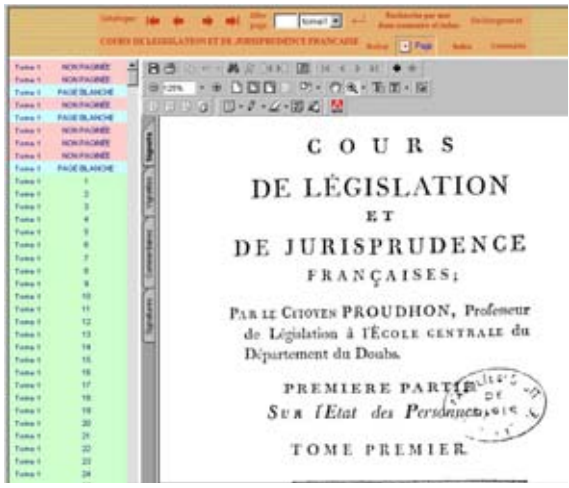
## Cujas digitizes for the Law historians.

In the heart of the Latin quarter, Paris, the inter-university Library of Cujas, opens its reserve to students and worldwide researchers, via the Web. Online, an exceptional selection of Law works from the XVIth, XVIIth, XVIIIth and XIXth centuries.

**Valorize and have at disposal**

[...] The year 2000 is the one starting the project. Who says old book, involves fragility and handling sensibility. Preservation and conservation really are one motivation but not the first. Indeed, these works, that do not belong to the ones mostly asked for, are little menaced by deterioration. What is mostly wished, is to valorize and to have at disposal an exceptional patrimony.

This richness is the fruit of history. Today, Cujas is an inter-university


COURS
DE LÉGISLATION
ET
DE JURISPRUDENCE
FRANÇAISES;
PAR LE CITOYEN PROUDHON, Professeur de Législation à l'ÉCOLE CENTRALE du Département du Doubs.
PREMIERE PARTIE
TOME PREMIER

library of Law and Economical Sciences, depending on Paris I Panthéon-Sorbonne and on Paris II Panthéon-Assas. Under the ancien regime, it is a library of the Law Faculty of Paris. During the revolution, it is closed until Napoleon recreates Law schools, future faculties, by the 22nd ventôse year XII decree. Funds dating back from the Monarchy are spread. However, works were retrieved beside. Besides incunabula, most of the belongings of the reserve date back in the XVIth, XVIIth and XVIIIth centuries. Therefore, these works are worth going online to be consulted with the adequate means. «Beyond

*(Cont'd on page 4)*

## >> INNOVATIONS

➲ To optimize the optical resolution of your digitization, make the acquisition of the **'mechanical resolution setting kit'** (cf article page 2). Adaptable on the 2000LC and SUPRASCAN range scanners.

➲ The **bi-directional digitization is now available** on most of the SUPRASCAN range and 2000 LC scanners. Ask for your update, to increase your productivity and comfort of utilization.

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LAND OF VISION

Technologies

## Optimize the optical resolution of your digitizing scanner !

The DigiBook mechanical engineers have just finished the industrialization of the “mechanical resolution setting kit”.
What does it aim at ?
This kit allows the height setting of the scanner head and therefore offers an optical resolution optimization of the being scanned documents.

This kit presents miscellaneous advantages :

- Whatever the width and format of your would be digitized work, you can get the wished optimum resolution. There is no longer use for you to re-sample your image.
- Such a kit widens the possible resolution range. This range is now continuous.
- The kit optimizes the digitizing quality for a given format.
- The machine use is simplified and limits the lens manipulation. In setting mode, the digital interface of the DigiBook scanner delivers in real time the measured optical resolution.

Your scanner update is available on the SUPRASCAN and 2000LC models.
Please contact our sales department for more information.

Low position setting
(small formats optimizing)

High position setting
(large formats optimizing)

## BookRestorer™ : when binarizing becomes an art.

Binarization is, with no doubt, the most usually used treatment. Some people appreciate in this image transformation, the decrease of information quantity and therefore of the stocking costs, some others will favor it to obtain close-to-reality facsimiles. Binarization also is the basis treatment of most image analysis system.

BookRestorer™, our treatment and restoration software for digital images had to be equipped with a particularly powerful, well-adapted binarizing tool to documents by ensuring the best possible quality to digitized images.

**State-of-the art**

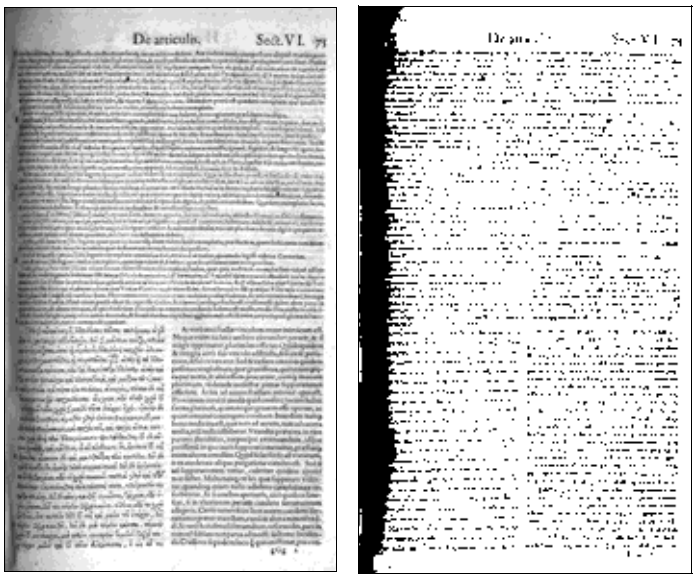
In Literature, hundreds of binarizing methods can be found. However, they can be gathered in two families :

➲ Global threshold utilization where the same threshold is used on the whole image

➲ Local threshold utilization where the threshold is particular to each pixel of the image.

**Global threshold algorithms**

Global threshold binarizing algorithms use a unique threshold value so that every pixels of the image (or of a particular zone) that have a superior lighting intensity to that



-> Binarization failure due to lighting variation

(Cont'd form page 2)

threshold will be defined as white and others as black. This algorithm panel immediately shows its weaknesses in the case where image lighting intensity is not constant, which is unfortunately frequent as far as digitized documents are concerned.

**Local threshold algorithms**

These algorithms allow the getting of a threshold quality far more interesting than global ones, since they treat homogeneously zones that have undergone a different lighting, but require more computing efforts to the machine.

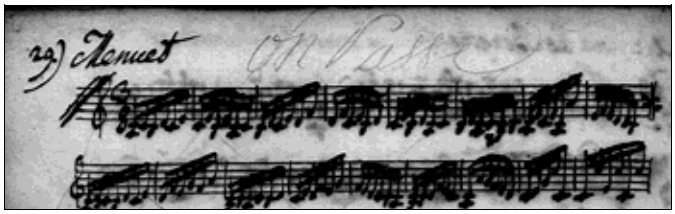
**Results**

The proposed method in Book Restorer™, uses a part of these well-known algorithms but adds to them more evolved filter and propagation methods.

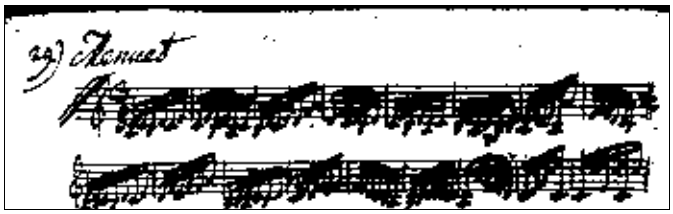
Thus, it allows us to offer a specially adapted algorithm to deteriorated or bad-lighted documents, for relatively low treating times compared to the got gains.

Moreover, the operator is proposed a setting depending on two easily understandable and configurable factors permitting to avoid the apparition of peckles or parasites in the image.

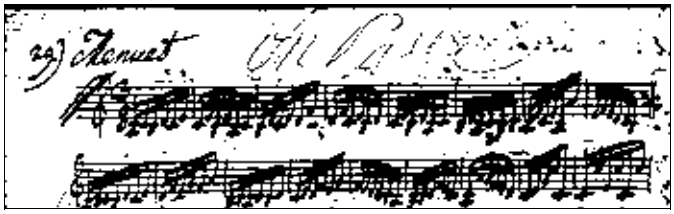
To illustrate our word, here is an example of binarization where the user absolutely wanted to preserve the pencil hand-written text while doing the same to keep the good readability of the lyrics. One can note that our approach was the only one to use to preserve these information.



Original image



Threshold image with the global method



Threshold image with our innovating method

Thenceforth, a post-filter will be applied to erase the parasites, with no difficulty.

## Bi-directional scanning

As we announced you in our #3 issue of the DigiBook Mag, our scanners now come with a bi-directional scanning camera head, by the way increasing productivity.

**What is it about ?**

Thanks to our software optimization and to the endless increasing computing power of our scanners, the processing time of a digitized image, on most of the formats, is far inferior to the return time of the mechanical scanner arm. In these conditions, it is more interesting to launch a new scanning, in the return direction, from the ultimate scanner position. Consequently, our machines win precious seconds at each scanning cycle while avoiding systematic return of the arm to its 0 position.

In addition to these scanning time cycles, the operator wins a great comfort of use since he runs on demand the left-right and right-left scannings, optimizing, by this way, the moment he chooses to turn pages.

As an example, the obtained productivity gain on a greylevel SUPRASCAN DB6000BW equals 33% for a DIN A2/C with a 200 dpi resolution. Said differently, our former 600 page/hour productivity now reaches 800 pages/hour.

On a color scanner like the DB6002RGB and for a DIN A4/A format with a 400 dpi resolution, our productivity that represented 340 pages/hour now equals 360 pages/hour, that is a 1 second gain per cycle.

The software update is free for SUPRASCAN scanners, for under-warranty materials and for the ones benefiting from an extended maintenance.

Testimony

## CUJAS digitizes for the Law historians.

*(Cont'd from page 1)*
digitisation », insists Thierry Boucher, Director assistant, « Cujas is looking for a supplier able to propose a particular intellectual dressing».
Safig supplies are withheld. This firm specialized in the retrospective conversion of catalogs already handled the one of Cujas, some years ago. « After having digitized its metadata, why not digitizing the book itself? » asks while smiling Patrick de Laplane, Safig Manager.

[...] The digitizing process starts in the end of the year 2000, step by step, with a first set of 3 titles. It doesn't take place on site – beside there's no space left – but at Safig's. An i2s camera working in grey levels is used. In order not to spoil the tomes, it is equipped with a Roberval balance, plate compensator system on which lay the works. Open, their format is bigger than an A2/C format. Cold lighting, page scanning with no contact : everything is required for preservation.
The Book Restorer™ software, another i2S product, deskews the got images and text lines in order to correct the round provoked by the binding. But the pages aren't cleaned, in order to respect the genuine version. Even in front of his screen, by visualizing under Acrobat Reader®, the researcher must have the impression to work on the authentic document; he would only miss the odor and the page cracking while turning them. The image digitisation is done in TIFF format (Tagged Image File Format), without compression, then converted in black and white to offer a bigger display lightness on the internet (150 to 200 KB per image). But the material itself is not enough. Safig constitutes an entire team with skills in computing and imaging. It particularly includes an engineer that has followed courses at the Louis Lumière's school that trains people to imaging and sound careers. Usual precautions, each work is insured on the basis of a declared value.

**Free consultation**
[...] The website opened, last July, with its proper address (1). Safig grants its hosting on its server. A link is installed with the Cujas library website (2). The consultation is free with no ID number.

*Author : Michel Remize*
*Extract of Archimag no.157*
*(1) cujas.synasoft.fr*
*(2) Cujas.univ-paris1.fr*

*(**Edito** –Cont'd)*
- resolution adjustment, by disposing of a kit for mechanical resolution setting,
- new generations of 30 and 50 cm book cradles for A1/D format,
- Lighting table for transparent documents.

*Points that are being achieved or industrialized :*
New gamma, new white balance, option to open book at 120° or less, manual removable glass plate in option, Din A0 / E format scanners.

***Distribution network*** :
We welcome our new distributors in Australia and New Zealand, and in Mexico. We thank you for contacting us to get their coordinates.
Our distribution network now covers more than 20 countries worldwide and some new agreements are being negotiated.

I appoint you in our next issue of DigiBook Mag (issue foreseen at the end of next June) that will be dedicated to the event of this year : the IFLA congress in Berlin, Germany. We will present you all the innovations that will be exhibited on our booth.

Alain COSTE
DigiBook Business Unit Manager

## Show time !

- **American Library Association Annual Conference in Toronto**
  **15-19 June 2003**
  Canada
- **IFLA 2003 - BERLIN 3 - 6 August 2003**
  Booth #H48-H49
  Germany
- **BIBLIOCOM - ROMA 29 - 31 October 2003**
  Booth #65
  Italy

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