Paper as Evidence

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(Photographs: Royal Library The Hague, Proost en Brandt, Diemen)

Paper & Resources
Research

Summary
Authentication is practised as part of source criticism by all historical disciplines. It is commonly held opinion that there are no practical rules applicable to all individual cases. However, some general principles of action exist and researchers meet similar problems in different contexts.
The authors of this paper have approached the authentication of works of art as an historian and as a social scientist. They want to make a plea for a unified approach in which all types of evidence are given due weight according to their value for the case at hand.

PAPER AS EVIDENCE

PART I. INTRODUCTION

Objectives

In this paper we want to elaborate on the role of paper historians in the investigation of the authenticity of documents. The purpose is to identify aspects of paper research that in this context need emphasis or may be problematic and need reflection. We will illustrate our remarks with examples from personal practice. The first is an investigation, in collaboration with Henk Porck of the Dutch Royal Library, into the paper support of a pastel signed ´Renoir´. The second is an analysis of the painting board of an oil painting ascribed to the Dutch painter Jan Toorop. Both works would date from the 1880s if authentic. The pastel signed 'Renoir' would be part of a series of preparatory studies for Renoir's painting 'Les Grandes Baigneuses' (see plate 1).
We call these works of art 'documents' because, from the historian's perspective, the work of art is a source of information in the same way as texts. As far as source criticism is concerned the same methods are applicable to both kinds of objects. Therefore the investigation of their authenticity should not take place in the two separate worlds of art study and history.

Authenticity

The concept 'authenticity' refers to the date, origin, 'author' or maker and nature of a document. Authentication is part of the process of identification of a document: what kind it is, who made it and when. As soon as reading or studying makes it clear what a hitherto unknown document is saying about itself - that it is for instance a charter from a certain king, the diary of Hitler or a pastel by Renoir, the question of authenticity is posed: is the document really what it says it is, are the attributed author and date correct?

Research questions

In the investigation of authenticity, we use both data extracted from the content and from the material support of the document. When we focus on the material the questions put to the substratum of documents, in our case paper, are the same as we ask about the document as a whole: what is it, to what period does it belong, when was it made and is it authentic. Because most materials are mass-produced, the question of the maker is usually irrelevant. If the material is part of a document however the authenticity of the material is connected to the author of the document: is the material consistent with the makers overall use of materials?

Method

This last remark points to the fact that the main method in authentication is comparison.[1] It is our only method for paper as no techniques to date recent organic materials directly are available. The general premise is the principle of uniformity. This principle indicates the order in history, the existence of patterns in the form and structure of action and also in the form of the things humans make. For our purpose these patterns are of three kinds:

- form or shape, structure and composition of products
- how things are made
- how they are used

These general remarks explain the aims and structure of our research:

- to describe the attributes, internal structure and chemical composition of the paper support
- to identify the date and the type of the paper support on the basis of
    - the formal style: what it is made to look like , how it is intended to function
    - the technological style: by what methods it is produced
- to identify the pattern of use of material by the artist

[1] Marc Bloch, *Apologie pour l'histoire ou métier de l'historien,* 6e édition, 1967.

In the course of this research we had to enter territories where historians usually do not venture: material science and art history. There we encountered some unexpected problems, problems that relate to three phases of any research:

- the gathering of data
- analysis
- conclusions

PART II. RESEARCH TECHNIQUES

Interconnection of methods

There are a number of methods to extract the information necessary for the identification and dating of paper:

- observation, direct or enhanced by microscope
- physical and chemical tests
- the use of texts, the traditional printed and written sources

In the field of paper research testing methods offer new possibilities but also new problems and questions; how do these new techniques fit in with existing techniques of investigation: observation and source study. Modern material research has broadened the scope of our knowledge of the composition of materials; it greatly helped us to include the typical characteristics of the production method as an integral part of our analysis. The number of possible kinds of tests however is very large and each kind provides a different type of data. In view of this abundance of techniques and in view of the large number of relevant elements and components in paper, research has to be guided on the basis of existing knowledge of production techniques. This knowledge can at present only be acquired through investigation of traditional printed or written sources. Physical and chemical tests are in practice closely connected to source study and literature study.

This problem is clearly illustrated by our own research. In both cases, the type of paper was unknown both to us and to the curators, conservators and art historians who examined the objects. It was the remaining piece of the label on the back of the board that put us on the trail of Academy Board (see plate 1). It was a remark by Renoir about his work as an illustrator for the magazine *La Vie Moderne* and the process called *gillotage* he had to use that lead us to look for transfer paper.[2] These clues made us search for contemporary technical literature with possible references on the components of these papers. After doing this we could perform the proper tests, confirm our hypothetical identification and try to date the sorts of paper. Where no reference could be found in the literature, as was the case with the red layer on the Academy Board (see plate 1), no testing program could be devised and the composition and purpose of this element of the board remained a mystery.

Problems with tests

Using scientific methods confronts the historian with a number of new and unexpected problems of interpretation. Testing is not a straightforward affair but involves a large measure of interpretation. This leads to a number of problems:

- qualitative interpretation of test results: what is in the paper?
- quantitative interpretation of test results: how much?
- comparability of test results from different laboratories or acquired through different testing techniques
- reconstruction and interpretation of the chemical compounds in paper.

As for the last problem we noticed the yellow colour of the fibre layer of the transfer paper and assumed it to come from a colour added to the pulp, but the question was ‘which one’? Two possible candidates were rust yellow and chrome yellow. These dyes contain iron and chromium respectively. The presence of iron and chromium was established through XRF(X-Ray Fluorescence) -

[2] AmbroiseVollard, *La Vie et l’oeuvre de Pierre Auguste Renoir,* Paris 1919.

tests. However, the question remained how much of the element should be present to provide the paper with the yellow colour. A question of course related to the problem of quantitative interpretation as well.

The role of observation

In spite of all modern equipment, simple direct observation is still a most important technique. Documents are most easily accessible to direct observation. A number of scientific techniques serve to reinforce human observation: microscopy, investigation with infra red and ultra violet light. The great advantage of observation is that the amount of data is often very large while their 'reliability' is less problematic.

In our research, observation allowed us to reconstruct Renoir's use of paper in the 1880s. He used very thin papers for some of the preparatory studies to which the investigated pastel belongs if authentic.[3] These papers are not suitable for drawing let alone for making large drawings on them. Initially we assumed that poverty forced Renoir to use any unsuitable paper on which he could lay his hands and that the thin papers were acquired through his contacts with the printing industry where they were used as papers for proofs.[4]

By closer inspection of the preparatory studies, it appeared on the basis of similarity and congruency amongst the figures that two of the thin papers were actually used for tracing. In one instance the figure was even transferred to the next preparatory study [see plate 2].

One of Renoir's preparatory studies on thin paper now owned by the Musée d'Orsay is, according to the Museum's information, drawn on *papier préparé.* This refers to the presence of a coating. As no such coating is visible, the author of the record must have meant a transparent coating as used with transparent transfer paper.

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[3] The drawings on thin paper are reproduced in plate 2.

(1) Plate 2, first row left: a drawing of a single sitting bather, 1 m. x 70 cm, Musée d'Orsay, kept in the Département des Arts Graphiques, Louvre. Data on the paper based on a study in situ by one of the authors.

(2) Plate 2, first row right: a drawing of a standing, splashing bather, 95,8 x 64 cm, Art Institute of Chicago. Data on the paper based on personal information from Harriet Stratis, conservator of prints and drawings of the Art Institute Chicago.

(3) Plate 2, third row left: a group study of two bathers, 125.1 x 140 cm, Fogg Art Museum, Harvard University. Data based on a photograph taken under raking light.

The other preparatory studies by Renoir, relevant for this article are:

(4) Plate 2, second row left: group study, 1.08 x 1.62 cm, Musée d'Orsay, kept in the Département des Arts Graphiques, Louvre. Data on the paper based on a study in situ by one of the authors.

(5) Plate 2, second row right, prelimary painting by Renoir of the Great Bathers theme. This painting has a complicated history; it is possible that the splashing bather (above no. 2) was added in 1903. Forthcoming publication by the authors.

[4] The paper colour of the drawing from the Musée d'Orsay with the sitting bather (no 1 in note 3) is yellow. The surface is covered with creases and folds indicating the thinness of the paper. China paper might be a good guess as to the paper type. Harriet Stratis describes the paper of the drawing in the Art Institute as a wove, very thin and translucent tracing paper with a somewhat coarse surface. The colour she describes as tan and, alternatively, as a golden tone. China paper is in her opinion somewhat thicker, not translucent and ivory or greyish ivory in colour. Her distinction may be a matter of a different definition of China paper. The colour of China paper is not indicated in the literature in a uniform way which may reflect actual variety. The paper might have a pale yellow colour or even a warm grey tint according to Labarre. Meder (*Die Handzeichnung,* p. 144; see literature at the end of this note) distinguishes two types of oriental paper adopted in Europe since the seventeenth century: thick, chamois coloured Japanese paper and very thin, yellowish Chinese paper. This last kind of paper was unsuitable for drawing; Rembrandt used it only for prints. Also in the nineteenth century these papers were used very seldom for drawing. A possible exception to the last remark may have been the early nineteenth century German artists mentioned by Stephan Seeliger; their special drawing style with sharp pencil required a smooth paper with a closed surface described as 'transparent paper'. (see literature below).

The general purpose of China paper or India proof paper was pulling proofs in print making. Mounted on a sturdier paper, it was also used for printing lithographs (chine collé). Provided with a special coating China paper served as transfer paper.

Joseph Meder, *Die Handzeichnung. Ihre Technik und Entwicklung,* 2., verb. Aufl., 1923. Penny Jenkins, *India Proof Prints,* in: *The Paper Conservator*, 1990; E. J. Labarre, *Dictionary and encyclopaedia of paper and paper making,* 1952; Stephan Seeliger, *Zeichnungen auf transparantem Papier*, in: *Deutscher Arbeitskreis für Papiergeschichte, Vorträge und Berichte der elften Tagung vom 6. bis 9. April 2001*.

In the period 1879-1884 Renoir made some illustrations for the magazine *La Vie Moderne*. In one of the illustrations from 1879 we noticed that the image was built up by scratching. In another part of the background, a mechanical structure was visible. From these observations, we concluded that a coated paper with embossed pattern was used [see plate 3].
The printing method used for *La Vie Moderne* at the time was *gillotage*. Source study taught us that it existed in two varieties. In its first version the drawing is made on transfer paper, which is transferred to a metal plate that is subsequently etched to a relief printing form. This process usually destroys the drawing. The other method uses photography as an intermediary step: the drawing is photographed and a metal plate, covered with light sensitive material, is exposed through the photographic negative. Renoir's original drawings from 1883-1884 still exist, indicating that in those years the indirect method of *gillotage* was practised. For the original drawings of 1879 no such information could be found. This points to the fact that the method of direct transfer was practiced and that Renoir's drawings were made on transfer paper.
So, even without access to the original papers, close observation of the resulting printed illustrations allowed us to make statements as to the kind of paper Renoir used in the 1880s. It is also another example of the use of two research methods: one reinforcing the other. In this case, observation and source study were used.
Sometimes because of unexplainable facts paper historians should broaden their scope and make use of the observations of the art historian. In our research project, we had to deal with a transfer paper that had a smooth and stark white coating. Not a logical choice for a drawing in pastel as the paper affords very little grip to the pastel pigments. An explanation for this use of paper can be found when looking at the French artists of the nineteenth century, the Impressionists among them, who had an interest in early Renaissance fresco and consequently tried to emulate the effects of mural painting. Renoir participated in this vogue by painting on McLean Cement (a kind of plaster) and by adopting a coating of lead white for several of the paintings he made in the 1880s.[5]

PART III. ANALYSIS

Patterns and exceptions

Finally, some remarks on analysis. We have stated in the beginning of this article that one has to look for patterns in paper, paper making and paper use. But there is also individuality in human actions and in its products. So in fact we are not dealing with a principle of uniformity but with a principle of limited similarity. Moreover, there may be more than one pattern. The principle of 'limited similarity' confronted us in our research with two practical problems.
In the context of dating the transfer paper the question had to be solved of the typical external characteristics of late 19th century transfer paper. Was it possible to establish these characteristics on the basis of the few existing samples. In general terms was the similarity in patterns of paper and paper making strong enough to allow conclusions on the basis of a few samples?
In order to proceed we had to accept the assumption that mass products of the mechanized paper industry in the nineteenth century showed the same strong tendency towards uniformity in appearance that we see in other industrial products.
The second problem was the problem of exceptions. Dating paper on the basis of comparative analysis only results in probable conclusions. In our research to date Academy Board, a British product, we used the presence of some wood fibres. Those fibres came in wider use in Great Britain only after the 1880s. The absence of a large amount of wood fibre led us to the conclusion that the material in question was produced before that period. However we then had to take into account that some producers may have refused to innovate and continued to use traditional materials.

[5] Robert L. Herbert, *Nature's workshop, Renoir's writings on the decorative arts*, 2000, chapter four.

Contribution of material research to authentication

If it appears from material research that one or more anachronisms, i.e. elements out of later periods, are present then material research is in most cases decisive. In our researches no anachronism was evident.

When no decisive anachronism is found, the data only support an inductive synthesis. In such a case one should choose the most plausible interpretation., that is the interpretation that least requires to call upon *coincidence* as an explaining factor and that leaves the least aspects of the document or work of art unexplained.

The weight given to data from material research in building a synthesis also depends on the context in which the document was made. This is in fact a double context, referring both to the working habits and possibilities of the artist or writer if the work would be authentic and the habits and possibilities of a copyist or forger if it would not be authentic. In our Renoir research the use of transfer paper with a smooth white coating for a pastel is atypical in both contexts, because it is unfit for this drawing technique. A 20th century copyist or forger would however have made a choice much more odd than Renoir: the use of this particular paper by Renoir fitted a pattern, namely

- with regard to the white coating: his endeavour after a fresco-like effect in the works of the 1880s
- with regard to the type of paper: his use of transfer paper in the period during which he worked for *La Vie Moderne* and his appliance in the preparatory studies of the Great Bathers of another kind of printing paper, paper originally intended for tracings and proofs in printing establishments.

Now the use of transfer paper is an argument in favour of authenticity, though not a decisive one, because the pattern is weak. Our investigation shows that separate historical patterns are not laws and do not permit deductive conclusions. The researcher should strive for the most plausible synthesis of all available facts.

Emphasis on a certain type of evidence has the unfortunate consequence that coincidence has to be called upon to explain away divergent facts of other nature. This should be a last resort not standard procedure.

In conclusion, our adventure taught us:

- the relative value of scientific testing;
- the strong interrelationship between traditional source study and scientific testing;
- the importance of the oldest testing technique: observing carefully;
- the difficulties in constructing patterns and drawing conclusions from them;
- the preliminary character of authentication in many cases.

Authentication is like building a tunnel from two sides of a mountain. It is important that both teams of builders, material researchers and (art) historians, meet half way. They should not each construct a tunnel of their own.

PLATE 1 RESEARCH OBJECTS

Oil painting attributed to Jan Toorop on board (left). The verso of the board with grey blue paint and part of a label (right above). Layer structure of the painting at a damaged edge with the paint layer (green), the coating (white), an unidentified red layer and the board fibres (brown) (right bottom).

Pastel signed ‘Renoir’, white coating visible through the top layer of pastel and water colour (left). Detail of the coating on the recto (right bottom) and the uncoated surface structure of the paper on the verso with board fibres of an earlier mount (right top).

PLATE 2 THIN PAPERS

Two of the preparatory studies on thin paper (above) with projection of their outlines on the study from which they were traced or to which they were transferred (below).

The figure of the splashing bather has been traced from the group study on the left. This is proved by the projection of the outline of this bather. On both drawings the bather has been reworked; the earliest state of the separate figure is congruent with the latest on the group study. After tracing from the group study the bather has been transferred to a preliminary painting of the bathers theme.

Preparatory study for the Great Bathers. Indication for the thinness of the paper is the visible structure of the cloth on which the paper was attached during the drawing process (photo right).

PLATE 3 TRANSFER PAPER

Illustration from *La Vie Moderne* 1879, with enlarged details showing the mechanical, aquatint corn structure on the paper surface (above right) as well as how the image is constructed by scratching the paper surface (below right).

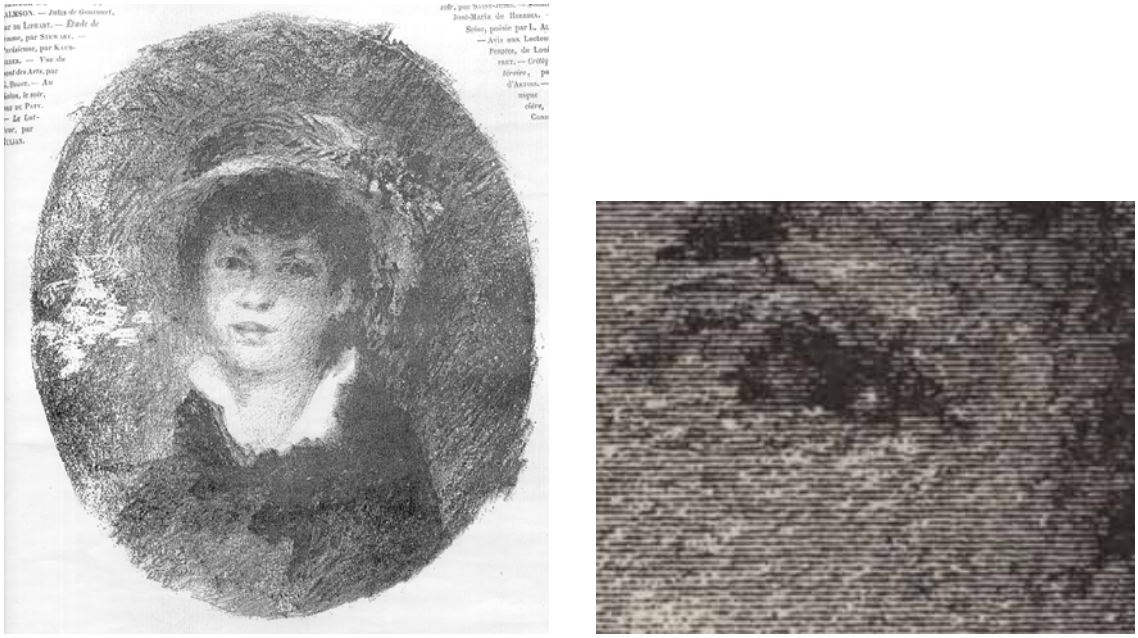

Illustration from *La Vie Moderne* 1879 on a type of transfer paper with printed lines.