The Myth of Fact

Historians state facts - but these "facts" usually mask a complicated web of influences, plagiarisms and simultaneous ideas.

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Historians love absolutes.

They revel in statements of fact, proudly pinning inventions to specific dates, and attaching processes to single personalities. They glory in the words "so-and-so was first" and "this is the earliest." They boldly assert, without equivocation, who did what and when.

And we believe them.

That is understandable. These straightforward, uncomplicated statements of fact are reassuring. They provide a simple chronology of names and dates and affirm what we have always suspected, or wanted to believe, that history is a continuous linear development of great men and important inventions following one after another like beads on a string. This type of history is containable; our minds encapsulate straight facts and give us the illusion that we understand the past.

And it is an illusion.

There is a myth in facts. Rarely, if ever, is the truth revealed by a simple statement. This is particularly true in the history of photography and the introduction of new processes. Take any seemingly inviolate assertion from a textbook or article and beneath that simple statement of fact will be a seething mess of influences, friendly rivalries, personality conflicts, borrowed ideas, petty jealousies, adaptations of existing processes, glowing idealisms, inevitable patterns of change, flashes of brilliance, lost causes and cul-de-sacs, missed opportunities, grabbed chances, mixed up with liberal doses of both spite and luck.

The facts of history are convenient -- but invariably untrue. History is never a simple record of isolated individuals and their sole inventions. The remembered "names" in our medium's history were never alone but were part of an intricate web of influence which not only spread horizontally throughout the zeitgeist of their age but also incorporated the vertical mat of their past.

This is best illustrated by a particular example, but it is important to realize that every simple statement of fact in photographic history masks a truth which is infinitely more complicated. All assertions of the type "X invented the Y process in the year Z" hide a complicated pattern of interweaving forces and influences which is infinitely more interesting.

Let us examine just one such statement: "THE WOODBURYTYPE [WAS] INVENTED IN 1866 BY WALTER BENTLEY WOODBURY."

This statement can be found in practically every source book in the history of photography. It is the type of "fact" which is never questioned because it seems such an absolute. Yet the beginnings of the woodburytype process cannot be reduced to a bold assertion.

Even a description of the woodburytype process itself is open to many interpretations because it was being constantly amended throughout its life. However, so as not to complicate the matter beyond the limits of space and sanity, let us examine merely the accepted definition of the woodburytype process today:

1. Gelatin is made light-sensitive with potassium bichromate. It is exposed to a negative and "developed" in hot water until the image appears in relief.
2. The gelatin relief is forced into a block of lead under great pressure, producing a mould of the image.
3. The mould is filled with a gelatin-ink, covered with paper, passed through a press and a facsimile of the original image is revealed by the variations in the depth, and therefore the tone, of the ink.

The result is a perfect, dot-free grainless reproduction of the original picture. The woodburytype is one of the most perfect reproduction processes yet devised, and even today many authorities confuse a woodburytype with an original photograph.

An historical statement of fact -- the woodburytype was invented in 1866 by Walter Bentley Woodbury -- implies that a lone genius marshalled together the above information and independently stumbled across or dreamed up a brand new process. The image of the solitary inventor closeted in a laboratory, oblivious to all external forces, suddenly screaming "Eureka," is very romantic, but rarely true.

An analysis of the three steps of the woodburytype process, and their genesis, will vividly demonstrate this point.

1. The gelatin/bichromate surface

For the beginnings of the first step of the woodburytype process it is necessary to trace the use of potassium bichromate in photography back to 1839, the year of the medium's introduction.

In that year a gentleman with the distinctive name of Mungo Ponton discovered that potassium bichromate was light-sensitive (or so he thought). He soaked paper in the solution, placed objects on the now sensitive surface, and exposed it to sunlight. Those areas exposed to sunlight were hardened while the areas covered by the objects could be dissolved in water, leaving white "photograms" on an orange ground.

The implications of this discovery were far-reaching, although Ponton, who was a Scot and Secretary of the Bank of Scotland, was primarily interested in the cheapness of his process over the far more expensive silver salts employed in photogenic drawings.*(1)*

Within a year, the French physicist Edmond Becquerel discovered that the bichromate solution was not particularly light sensitive by itself, but that it was the combination of bichromate and the starch in the paper which produced the image.

The next step was taken by W.H. Fox Talbot. He noticed that it was not only starch which gave bichromate this !ight-sensitivity but any organic matter -- such as gum, glue or gelatin. Talbot used this knowledge in his quest for a method of photo-etching, which he called photoglyphy, patented in October 1852.

But Alphonse Louis Poitevin, a French chemist, saw its application for the production of permanent prints. In a process which he patented in August 1855, Poitevin mixed powdered carbon in bichromated gelatin, coated it onto paper, exposed it under a negative and, after washing, produced an image formed by the pigment in the exposed, and hardened, areas of gelatin. There was only one problem with the picture: the image comprised blacks and whites, without half-tones.

In the next few years many individuals saw the advantages of a permanent print process and endeavored to adapt Poitevin's basic principle in order to produce pictures with a full range of tones. These experimenters included F. Joubert, M. Beauregard, Col. Sir Henry James, Paul Pretsch, W.B. Osborn, Abbe' Laborde, C.J. Burnett, William Blair, Adolphe Fargier and many others, all of whom were tackling variations on Poitevin's theme, for which they were often awarded various patents.

But perhaps the most indefatigable experimenter of them all was John Pouncy, an English professional photographer from Dorchester. In 1858 Pouncy felt that his variation on the carbon process had led to such high quality prints that he alone should be known as "the inventor of Photographic Carbon Printing" because his process was "the most important discovery that has yet been made in Photography."*(2)* Pouncy expected the Photographic Society of London to purchase his process for 100 *(3)* and,

when they declined, accused it of jealousy and incompetency. The Society retorted that "Mr. Pouncy (was) not the originator of the idea on which his own and similar processes are based."

The controversy was kept alive by Pouncy for the next 10 years. There are scores of letters, editorials and reports of debates in the photographic press which underline the point that bruised egos, petty jealousies and spiteful rivalries are inevitable factors in discoveries and improvements of processes. As one editorial remarked, these are the "pugnacious aspects" of photography.*(4)* Pouncy demanded his pound of flesh, his reward from his peers, either in fame or money. His peers consistently regarded him as aloud-mouthed, cantankerous modifier of the work of others, who claimed too much for too little.

Ironically, when Pouncy triumphantly exhibited his carbon pictures, it was revealed that his first successes had been made by his assistant, W. Portbury.*(5)*

Perhaps even more unfair, from Pouncy's viewpoint, is that history now gives credit for the invention of the most practical and beautiful carbon printing process to someone else: Joseph Wilson Swan. He will be discussed later.

The purpose of these remarks is not to state a definitive history of the carbon process but merely to indicate that many investigators were continually interacting and adding to the information which would be employed by Woodbury. The true history of the use of bichromated gelatin would be far more complicated than these brief notes could imply. The point is that Woodbury, by the 1860s, was the inheritor of a complex web of facts, influences and pressures for merely the first stage of his process.

2. <u>The metal mould.</u>

One of the wonders of the woodburytype to the uninitiated is that a relatively soft relief in gelatin could make a clear impression or mould in such a relatively hard material as lead. Why does not the extreme pressure merely flatten the gelatin? It is a good question but the fact is that the gelatin relief does indeed produce a mould in lead. Did Woodbury make this discovery through accident or brilliant intuition? Neither. The principle was well known by the 1860s and was commonly employed for botanical illustrations.

Many techniques had been attempted in prior centuries to make impressions of leaves and other botanical specimens directly onto the page without the intervention of the human hand. Leonardo da Vinci includes in his notebooks*(6)* the earliest extant print direct from nature. A sage leaf was smeared thinly with lamp-black mixed with oil and pressed to the page, leaving an ink impression of the leaf's raised areas.

During the following 300 years many attempts*(7)* were made to print directly from leaves but it must be obvious that the fragile nature of the subject meant that the edition runs were severely limited; it was not long before the leaf disintegrated under the strain of inking and pressing.

Ideally, the plant would be impressed into a material hard enough to be used as a printing surface. By the late 1840s Dr. Fergusson Branson, a physician at Sheffield Infirmary, was using gutta-percha for the mould which was then electrotyped before printing. *(8)* He used the technique to make plates for printing ferns, leaves, sea-weeds and other flat plants but he eventually abandoned the process because it was "tedious, troublesome, and costly."

The idea of pressing the plants into soft metal was the inspiration of W.C. Aitken -- and he only thought of using plants in this manner after learning that lace manufacturers in Nottingham often printed samples of their patterns by this method. *(9)* The lace was placed between two sheets of metal and subjected to intense pressure to impress the design in the sheets of gold, silver, German silver and Britannia metal. Aitken was experimenting with lace, paper and other patterns "when it occurred to me to try natural objects." He collected decayed leaves, pressed them between sheets of Britannia metal, and printed from the moulds with brown ink onto paper.*(10)*

The lace prints from Nottingham also sparked off a good deal of experimentation in Austria. In 1852 the Austrian consul in London sent some printed lace specimens to the Minister of Commerce in Vienna, which passed on the samples to the Imperial Printing House, under the direction of Alois Auer. During the experiments, an overseer named Andrew Worring tried using soft lead to make the impression, with great success. Someone else suggested using plants instead of lace. The result was the "discovery" of a "new" process -- claimed by Auer! *(11)*

Like Pouncy, Auer was attacked for claiming too much for too little, like Pouncy, Auer was very sensitive to the criticism and reacted with petulance and arrogance. The resultant public controversy merely served to emphasize that a large number of printers and botanists were working on the same lines, and they were irritated at Auer's excessive claims to originality.

Ironically, a young Englishman, Henry Bradbury, was visiting the Imperial Printing Office during the nature printing experiments. He sent full details to his father William Bradbury, who with his partner, Frederick Mullett, Evans took out British patent no.1164 for the process on 28 June 1853.*(12)* The idea had gone from England to Austria and back to England within one year.

Auer was, of course, furious and rushed into print, asserting his own claims as sole inventor, with a personal attack on Henry Bradbury, full of slanderous references to the young man's offensive personal decorum and drinking habits. Yet Bradley had asked

Auer, in writing, for permission to introduce the process in London, and Auer replied graciously. It is all very confusing and proves, if proof were needed, that any new invention, modification or adaptation of a process led to clashes of ego and petty personality disputes. Nature printing was no exception.

Suffice to say that Henry Bradbury, and others, in the mid- and late- 1850s were busily at work producing ink images on paper, using a mould created by impressing a "soft" object (in this case, plants) into lead. Through his publications, *(13*) Bradbury had brought nature printing into the public's awareness. Even though his influence was removed in 1860, when Bradbury committed suicide at the age of 29 by drinking prussic acid, there is no doubt that Walter Woodbury would have been well aware of his work and of the many other experiments in nature printing.

It was a small step to substitute a gelatin relief for the relief of plants, feathers, fish scales, and snake skins. Again, this stage of the woodburytype process was well-known and in common use by the time it was needed.

3. Printing from the mould.

By early 1864, when Walter Woodbury began experimenting with carbon printing and developed the first ideas for the process which bears his name, it appeared that all the technical information he would required was already known, as has been discussed.

However, his first patent application, dated 23 September 1964, contains two anomalies, the second of which would cause a major controversy in the photographic world for the next two years.

The minor point is that the first description of his process makes it clear Woodbury was creating moulds by electrotyping gutta-percha, on the principle described by Dr. Fergusson Branson. It was some time later (1866) that Woodbury switched to making lead impressions of the gelatin relief in a hydraulic press.

The most striking, and troublesome, anomaly in Woodbury's first patent is that he makes no mention of printing from the moulds. Instead, he merely describes pressing coloured gelatin into the mould to produce, "when finished," a transparency.

It was not until six months later*(14)* that Woodbury first mentions making coloured gelatin prints from the mould.

This was a six months credibility gap which would cause a great deal of acrimony and controversy.

To understand why this was such an important point, it is necessary to pick up the story of Joseph Wilson Swan, who was mentioned earlier. Swan had been experimenting with

carbon printing from the moment that Poitevin's patent had lapsed in 1858. In February 1864 he had patented his own, extremely elegant, solution to the problem and provided future photographers with a beautiful new process of permanent printing. Inevitably this brought Swan into confrontation with the self-styled master of the carbon print, John Pouncy. So far, however, Swan's process was not in conflict with Woodbury's. But that state quickly disintegrated.

In July 1865 Swan adapted his process to produce carbon prints from electrotyped copper moulds from which pigmented gelatin reliefs were cast. These photomezzotints, as Swan called them, were so similar to woodburytypes, that a bitter verbal battle was assured.

So a three-way fight was quickly under way: Pouncy vs. Swan, Swan vs. Woodbury, and Pouncy and Swan vs. Woodbury. The resultant tangle of accusations, claims and counter-points are impossible to unravel as so much "evidence" was hearsay or one man's-word-against-another. Even a simple regurgitation of this war of words would fill a book. But the major bones of contention between Swan and Woodbury can be simplified to this question: who was telling the truth about the events in the 6 months "credibility gap" between September 1864 (the date of Woodbury's first patent which does not mention printing from the mould) and March 1865 (when Woodbury described a printing process almost identical to Swan's)?

Woodbury said: he had shown a print from his process to a friend of Swan's who "acquainted me with the fact that that gentleman had also had a similar idea to myself; but as he learned that I had patented the process, he did not proceed with it." *(15)* However, Woodbury was willing to give Swan credit for being an independent inventor.

Swan said: the same friend gave him to understand that a printing process "<u>was not included</u> in Mr. Woodbury's patent"*(16)* and anyway "I have never, for one moment, extertained the idea of abandoning the process."

Woodbury said: he proposed a meeting with Swan (which took place on 28 February 1865 at Swan's home in Newcastle) in order to work out a way of joining forces. He told Swan of his method "with openess and candour." Only then could Swan make good prints. Swan however was incooperative. But generously, he still offered Swan one-half of the interest in his patent.

Swan said: what he communicated to Woodbury "was of much greater value than what he communicated to me," and that <u>he</u> was the open and candid one, whereas Woodbury was cautious. He also claimed that Woodbury acknowledged he was the original inventor of the process and consented to name it "Swan and Woodbury's" process.

And so on. The dispute became increasingly bitter and there was no chance of collaboration after such a heated exchange. Eventually each exploited his invention along different paths.

In summary, neither Woodbury nor Swan could claim priority to any of the principles of permanent printing in bichromatized gelatin, only to their application. On the published evidence only one of two possible conclusions can be drawn about the priority of application. Either both men thought of the idea simultaneously, or: Woodbury did not associate his original process with prints until after he had heard of Swan's experiments.

The latter seems more likely from a careful reading of the dispute.

On 24 July 1866 Woodbury was awarded patent number 1918 for a method of photo-mechanical printing--and it is this patent on which historians base their statement that Woodbury invented the process in 1866. But, as we have seen, the process had already undergone several transformations and witnessed some acrimonious disputes.

Conclusion:

These notes on the genesis of woodburytypes might appear convoluted, cross-connected and complex. In fact they merely scratch the surface. There were so many interactions of personalities, cross-fertilizations of ideas, and historical precedents for every step of the process that it would be literally impossible to trace all the factors which influenced such a relatively simple process as the woodburytype. Walter Bentley Woodbury happened to be the individual around whom all these influences coalesced into a beautiful result. He was the catalyst for the ideas, not their originator.

As his rival Swan once remarked: "There are no inventions without a pedigree."

And that is the point of this brief essay. Every discovery in the history of photography has a similarly complicated and convoluted pattern of prior events and personalities behind it.

Nothing is so untruthful as a statement of fact. "The woodburytype was invented in 1866 by Walter Bentley Woodbury"?

Well ... in a way...

Footnotes and References:

1. "Notice of a cheap and simple method of preparing paper for photographic drawing, in which the use of any salt of silver is dispensed with," Mungo Ponton, The Edinburgh New Philosophical Journal, July, 1839.
2. The Liverpool and Manchester Photographic Journal, N.S. No. 15, Vol . II, 1 August 1858.
3. A considerable sum in 1858, the equivalent of two-years wages for a semi-skilled man.
4. The Photographic News, Vol. IV, No. 115, 16 November 1860.
5. The Photographic News, Vol. IV, No. 116, Z3 November 1860.
6. Codice Atlantico, fol. 72 verso 2, now in the Biblioteca Ambrosiana, Milan, 1490-1519.
7. For a brilliant history of early nature printing, see Typographia Naturalis, by Roderick Cave and Geoffrey Wakeman, Brewhouse Press, Wymondham, 1967.
8. Branson read a paper on the subject to the Society of Arts, 26 March 1851. He had been experimenting with the idea since 1847.
9. A patent was taken out in July 1852 by Richard Ford Burges of Birmingham.
10. The Athenaeum, 10 December 1853. p. 1486.
11. Auer's "discovery" was first published in 1853; one year later the work was reissued with parallel texts in German, English, French and Italian.
12. See The Photographic and Fine Art Journal, 1854, pp. 75-76.
13. Henry Bradbury's nature prints can be seen in: A few leaves represented by nature printing ..., 1854; Ferns of Great Britain and Ireland, 1855-56, Nature-Drinted British sea weeds, 1859; The octavo nature-printed British ferns, 1860.
14. The first working details of the process were communicated in The British Journal of Photography, 17 March 1865.
15. Ibid.
16. Letter dated 18 December 1866.