RESEARCH IN THE IDENTIFICATION AND PROVENANCING OF 20TH CENTURY PHOTOGRAPHS

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Silver gelatin black and white (B&W) photographic paper was by far the most commonly used photographic printing material during the 20th century. Available in many varieties and different grades and produced by a great number of large and small manufacturers in many countries of the world, this type of paper was the medium for millions of art, technical, and documentary photographs now preserved in museums, historical collections and archives.

As a very chemically complex material object, a photograph might harbor some important material clues to support its provenancing and authentication. Scientific investigations conducted independently at the GCI have identified a number of chemical and physical markers, or signatures, of baryta-coated B&W photographic paper that could be used in provenancing, authenticating, and in some cases even dating of photographic material and photographs.

The XRF analysis of a large number of 20th century photographs and photographic paper from the GCI's and Paul Messier's reference collections has shown that photographs and photographic papers contain—in addition to silver—several other chemical elements such as barium, strontium and calcium. These elements are introduced in different stages of the photographic paper manufacturing process as part of the paper substrate (calcium), baryta layer coating (barium and strontium).

The XRF investigation has further shown that the concentration of these elements is very uniform for any given emulsion run; and this concentration depends on production technology and the purity of raw materials used in the manufacture of photographic paper. Our investigation has shown that actual concentrations of key chemical elements found in photographic paper and many individual physical parameters of photographic paper differ enough from one type of photographic paper to another and vary enough between different manufacturers to provide the rationale for the development of a scientifically based provenancing methodology for both photographic paper and photographs.

The success of determining a new provenancing methodology and its widespread application depends on both the quality of the analytical and scientific methodologies used for quantitative determination of all key chemical and physical parameters applied in the provenancing methodology and on a quality of a photographic paper database available for parameter matching.