Development of Descriptive Terminology for Inkjet-printed Photographs and Fine Art — *Daniel Burge, Image Permanence Institute*

Abstract

The goal of this project was to develop descriptive terminology for inkjet-printed photographs and fine art prints for cultural collections to ensure accurate object understanding and preservation. Inaccurate or imprecise descriptions put objects at risk for inadequate or even harmful use and care. Research into the permanence of inkjet prints has shown that various subtypes of inkjet have significant differences in their responses to the environment, handling, and display and as such have unique and sometimes potentially contradictory preservation needs. Unfortunately, there is currently no single, generally-accepted approach to describing these variations in inkjet prints. To address this problem, a set of criteria to appraise potential approaches was developed. This was followed by collection of existing descriptive systems from the literature and comparison to the criteria, and finally selection of the best system or the best features from each upon which to create a new system. While none of the existing systems met all of the criteria, each of those reviewed clearly had strengths that could contribute to a new combined system. A final terminology and descriptive approach was then created. In the new system, the single primary term "inkjet" is followed by a sequence of four standard qualifiers (colorant, vehicle, coating, and support) that provide a complete picture of the material which can be used as a reliable guide to communicate about and care for the object.

Method

The first step was to create a set of criteria by which to evaluate the effectiveness of any recommended system (see Table 1). The next step was to evaluate existing inkjet media naming systems according to the criteria (see Table 2). Existing systems from the Philadelphia Museum of Art, Wilhelm Imaging Research, and Martins Jürgens were evaluated. Based on analysis of the advantages and disadvantages of each, a new system was developed.

Recommendations from IPI

IPI's goal throughout this project was to examine the existing systems for media naming of inkjet prints and either select the best, combine the best of each, or create a wholly new system. Whichever approach was selected, it would have to meet as many of the above criteria as possible. In examining the extant systems, IPI found that each had much to offer, but even a combined approach would not be sufficient. In the end, IPI chose to synthesize and extend the previous works to create its own recommendation for media naming and description. IPI strongly agreed with the Medium and Extended Medium approach and uses the simple term "inkjet" for most applications as described by PMA. Our Extended Medium term however, is based on four qualifiers, two more than Jürgens, and ink vehicle as a category as per WIR. The use of four qualifiers is based on our experimental work that showed how colorants, coatings, and support variations significantly impact any specific inkjet print's sensitivities, and therefore its unique care needs. While ink vehicle was not studied in the DP3 project (almost all collection objects will have been made from aqueous ink), it should be included as it may also have an impact on durability, especially related to high humidity exposure and contact with water. In Table 3, no manufacturer or brand names are used, or are any of the colloquialisms. The naming system is flexible as it can be expanded both in terms of column if additional qualifiers are ever needed. In addition, the number of terms within each media name component can also be expanded as new technologies hit the market. As long as each new term is defined, and makes sense, the system can be continually updated without having to change the syntax or approach. The following is an example from the new system: Medium ("inkjet print") and Extended Medium ("inkjet print: dye aqueous on porous-coated fine art paper").

Conclusion

IPI's new system should be useful for all users and can be easily integrated into the PMA structure or as an expanded version of Martin Jürgens' systems. The suggested media naming and description truly stands on the backs of giants, relying on components of previous authors. It takes the best of each and then updates and synthesizes them into a single system that, with the data generated during IPI's Digital Print Preservation projects, can be used for effective care for these materials for generations to come.

References

1) Philadelphia Museum of Art - *Guidelines for the Accurate and Consistent Description Of The Materials And Techniques Of Drawings, Prints, And Collages* By Nancy Ash, Scott Homolka, and Stephanie Lussier with Rebecca Pollak and Eliza Spaulding, Edited By Renée Wolcott.

2) *Contemporary Analog and Digital Color Photographic Prints: Dye and Pigment Print Process Descriptors, Naming Conventions, Dating, and Permanence Characteristics* Henry Wilhelm at AIC San Francisco 2014.

3) Jürgens, Martin, *The Digital Print: Identification and Preservation*, Jürgens, M. 2009. Los Angeles: The Getty Conservation Institute.

4) Digital Print Preservation Portal (www.dp3project.org)

Table 1: Criteria for Inkjet Media Naming and Descriptive Terms

- The name should be useful to multiple audiences and provide both a basic name and a detailed name [PMA]
- The name and any qualifiers should be derivable from the object as much as possible [PMA]
- The system should be reproducible by others
- The naming system should be as simple as possible
- All terms used within a naming convention should be defined
- The naming system should be able to differentiate objects according to care needs
- The naming system should be flexible to allow for modification as technologies evolve and new materials are incorporated
- The name should be free of manufacturer and brand names
- The name should be free of colloquial synonyms [WIR]

Table 2: Advantages and Disadvantages of Existing Media Name Systems

	Advantages	Disadvantages
Philadelphia Museum of Art (PMA)	Medium* and Extended Medium** approach Based on direct object examination Free of manufacturer names	Very limited descriptive terms for inkjet Names do not lead to inkjet print care No glossary to explain terms
Wilhelm Imaging Research (WIR)	Includes ink vehicle Rejects colloquialisms such as Archival Pigment Print	Incomplete** Extended names only Uses manufacturer names No glossary No method to collect the necessary information
Martin Jürgens	Simple name and two qualifiers Provides significant support information	Not up to date

*Medium contains the information that likely appears in an online collections search, in the printed fact sheet for an object, or in exhibition wall labels [PMA]
**In the extended medium the work of art is described as concisely and consistently as possible while conveying maximum information [PMA]
***At time of publication did not contain paper descriptors [WIR]

Table 3: The Media Naming and Descriptive Terms Chart

Basic Media Name	Media Descriptors			
	Colorant	Ink Vehicle	Coating	Support
Inkjet	Dye Mixed Pigment (Unknown colorant)	Aqueous Solvent UV-curable Latex Wax Other (Unknown vehicle)	Porous Polymer (Unknown coating)	Plain paper Fine art paper RC paper Baryta paper Canvas Other (Unknown support)

Example 1

The names below show the value of a term to describe **COLORANT TYPE**. The ***DYE*** print developed significant fade and hue shift due to prolonged light exposure, while the ***PIGMENT*** print shows only minor fade.

*Inkjet: **DYE** on porous-coated RC paper*

*Inkjet: **PIGMENT** on porous-coated RC paper*

Example 2

The names below show the value of a term to describe the paper **COATING TYPE** for prints exposed to pollution. The ***POLYMER*** coating encapsulates the colorant protecting it from ozone. The ***POROUS*** coating exposes the colorants to the air and pollution attack.

*Inkjet: dye on **POLYMER**-coated RC paper*

*Inkjet: dye on **POROUS**-coated RC paper*

Example 3

The names below show the value of the term to describe paper **COATING TYPE** for prints exposed to high humidity. The water-soluble ***POLYMER*** coating allows dyes to migrate and cause fade and loss of image sharpness and detail overall. The ***POROUS*** coating does a better job holding the dye in place.

*Inkjet: dye on **POLYMER**-coated RC paper*

*Inkjet: dye on **POROUS**-coated RC paper*

Example 4

The names below show the value of the term describing **PAPER TYPE** in terms of water exposure. The porous coating on the ***RC PAPER*** remained intact as the ***RC PAPER*** did not swell when wet. The ***BARYTA PAPER*** did swell and fracture causing the porous coating to crack as well.

*Inkjet: pigment on porous-coated **RC PAPER***

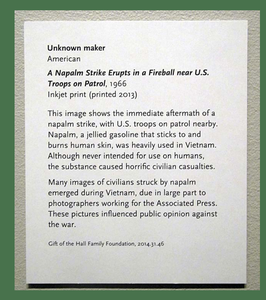
*Inkjet: pigment on porous-coated **BARYTA PAPER***

What is "Inkjet Shame"?

While the above term is a bit tongue in cheek, the rationale behind it is serious because it has led to poor, misleading, and inconsistent naming of prints of significant artistic and historic value. When inkjet was first used as a fine art print process there was concern as to whether it would be accepted given that inkjet was also used as the technology behind inexpensive desktop document printers. For this reason, the term Giclée was coined to hide the inkjet origin as well as give the prints a unique sounding name. However, over time even Giclée came to be looked down upon by the fine art community, so new names which avoided both Giclée and inkjet began to be used. The most popular today is Archival Pigment Print.

What goes on the gallery label?

The amount of information that goes on a gallery label is certainly up to each institution; however, perpetuating misleading names does not help the public understand the object. The simple term inkjet will go much farther in informing viewers on a media's true nature than obscure terms such as Digital Photo or Archival Pigment Print. The image on the right shows a gallery label from an exhibit at the Nelson-Atkins Museum. The additional qualifiers listed in the Jürgens [3] and IPI (described here) approaches may be included if deemed necessary by the curators of the exhibit. However, many of those terms may be unfamiliar to most patrons and need definition support.



Unknown maker
American

A Napalm Strike Erupts in a Fireball near U.S. Troops on Patrol, 1966
Inkjet print (printed 2013)

This image shows the immediate aftermath of a napalm strike, with U.S. troops on patrol nearby. Napalm, a jellied gasoline that sticks to and burns human skin, was heavily used in Vietnam. Although never intended for use on humans, the substance caused horrific civilian casualties.

Many images of civilians struck by napalm emerged during Vietnam, due in large part to photographers working for the Associated Press. These pictures influenced public opinion against the war.

Gift of the Hall Family Foundation, 2014.31.46

Is it a print or a photo?

There has been some debate as to whether an inkjet print from a digital camera file should be called a photograph or a print. Since the inkjet paper is not light sensitive, inkjet printing is technically not photographic in nature. The preferred term will be print. If an image's original mode of capture was by camera, it can be included as supplemental information.

Photographic grain formed by light exposure, development, and conversion to dye

Inkjet dots formed by the application of liquid ink to the surface of paper

Should it be called digital?

The object itself is not digital, but digital technology was used in its creation, as an electronic file and software within a computer directly controlled the application of ink to the paper surface. Given the predominance of inkjet as a digital technology, using the term digital in the media name is also redundant, so digital inkjet doesn't make sense. In addition, there are other digital output technologies, so calling an inkjet print simply a digital print does not effectively name the object.

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The Image Permanence Institute, part of RIT's College of Imaging Arts and Sciences, is a non-profit preservation research lab devoted to the development and deployment of sustainable practices for the preservation of images and cultural property.

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