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Image Permanence Institute

Summary of Activities at IPI—1993

Image Permanence Institute (IPI), the research and testing laboratory for image preservation studies, is an important information source for museums, libraries, film archives, and the imaging industry. IPI is cosponsored by IS&T and RIT, and it currently has a staff of ten full-time employees. Mentioned below are some of IPI's research and standards activities for the year 1993.

At the end of September 1993, work was concluded on a four-year exploratory survey designed to identify which pollutant gases are a potential threat to different types of library microforms. This study established the sensitivity of chromogenic dyes in modern color photographic materials to the oxidant gases ozone and nitrogen dioxide. It also outlined the possibility of severe fading and mirroring of image silver when exposed to low levels of mixed oxidizing and reducing gases. A paper reporting these results will be presented in May of this year at both the IS&T meeting in Boston and the Second ARSAG* International Symposium in Paris. IPI is proceeding with follow-up research in a new pollution study entitled "Enclosures and Air Pollution in Image Preservation," which began October 1, 1993; this will be an investigation of the long-term effects of low levels of pollutant gases and the possible mitigating effects of enclosures.

IPI's three-year study of the effects of polysulfide treatment on degraded and undegraded vintage microfilms is in its second year and is progressing on schedule. Data from this project will make possible a definitive recommendation on the use of polysulfide on existing microfilm collections, and will augment the data collected during IPI's earlier research into the polysulfide treatment of fresh silver film images. A paper on the polysulfide treatment of microfilm is currently under review by IS&T and will be presented at the May 1994 ARSAG meeting.

The *IPI Storage Guide for Acetate Film*, published in 1993, has been favorably received by the preservation community. This publication is based on quantitative data describing the relationship between storage temperature/RH conditions and the life expectancy of acetate film. The data were compiled during IPI's study of the "vinegar syndrome," and are presented in three useful formats—a double-sided time/temperature/RH wheel, time contour graphs, and a "time out of storage" table. Accompanying these three components is a 24-page booklet that explains the time/temperature/RH relationship, describes common types of film base and symptoms of their deterioration, and explains how temperature and RH can be used to extend the life of the film.

"Acetate II"—IPI's NEH-supported investigation into the degradation of still and cinematic cellulose acetate safety films—was concluded at the end of January 1994. IPI staff are now preparing three papers reporting the results of this work.

Under the sponsorship of the University of Rochester, IPI received funds from The New York State Program for the Conservation and Preservation of Library Research Materials for a two-year

* Association for Scientific Research of Graphic Arts Films

research and development project to quantify the effects of a wide range of storage temperature and humidity conditions on the life expectancy of color photography. Accelerated aging tests are being conducted to generate the data necessary to apply the "isoperm" approach to four representative types of color photographs.

The Photographic Activity Test—a predictive test of interactions between storage enclosures and photographic images, which was largely developed by IPI—became an ANSI Standard in 1993. Its official designation is "IT9.16 American National Standard for Imaging Media—Photographic Activity Test"; it is expected to be in print by the end of May. The standard includes test methods for evaluating enclosures for black and white photographs (silver images), chromogenic images, and diazo images.

Other standards notes:

Also published in 1993 was ANSI Standard IT9.15—a test method for determining the degree of chemical conversion of silver to improve oxidation resistance.

As a result of work at IPI, changes were made in ANSI Standard IT9.11 on the storage of photographic film. The same changes have now been proposed for the corresponding ISO document. A paper reporting the storage conditions update will be presented at the ARSAG meeting in May.