

NEGATIVE DETERIORATION

by

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Many photo collectors are unaware of the chemical decomposition that negatives may undergo and since there are some definite steps that can be taken to minimize this effect a reminder seems to be in order. Most of these effects take place in about ten years so all negatives of that age and older should be checked.

The primary cause of negative deterioration is insufficient fixing and washing during the development process. Unfortunately those who do not do their own work have little control over this situation, other than a few pointers listed below.

Insufficient fixing, "hypo", produces a silvery sheen on the emulsion side of the film which usually starts around the outside edges and progresses towards the center. This in itself does no immediate harm, and does not show itself on prints, but in time the sections become yellow or brown, and if allowed to progress long enough they attack the gelatin itself and the negative is irreparably damaged. Films should be fixed in fresh acid fixer for 15 minutes.

Insufficient washing produces a brown stain on the emulsion side of the film. This, and the silver sheen, can be prevented by adequate fixing and then washing in running water for two hours at the time they are developed. By contrast a check of a large commercial plant in the Los Angeles area showed their fixing time to be 2 minutes 40 seconds, and their wash time to be 12 minutes.

Storage may cause damage almost as bad, since negative envelopes most always contain hygroscopic pastes in the seams which tend to retain an excessive amount of moisture, resulting in the fading of the image along the seams of the envelope. This is particularly true if the film was not fixed and washed properly to begin with, or in conditions of high temperature or high humidity during storage. This results in a "T" or "V" silver image on the emulsion side of the film, depending on the pattern of the envelope seam. This effect is particularly bad if the emulsion side of the negative is facing toward the glued area. In addition to this many manila stocks (coin envelopes etc.) contain sulphur and this combines with the metallic silver of the photographic image to form a silver sulphide resulting in a deep yellow stain accompanied by the silvery sheen on the surface.

These stains may be removed, particularly in the early stages, by the following process: Dissolve 3/4th pound of hypo crystals in 24 ounces of water. Then add 1/2 pound of Sodium Bisulphite, which will bring the quantity to 32 ounces. At first it will be a yellowish white in color, until all the Bisulphite has been dissolved, after which it is a pale yellow, relatively clear liquid which gives off a strong odor of sulphur. Immerse the negatives in a tray so that the emulsion is towards the bottom of the tray. Agitate once every half hour at least. The negs will clear in from two to twenty-four hours, average two hours. Do not leave in the solution any longer than necessary. After this process wash the film for two hours in running water.

Prevention. The following items are positive steps toward a solution to this problem:

1. Develop all film in fresh fixing bath for 15 minutes.

2. Wash all film for two hours in running water.
3. If you do not process your own film try to find a small photographer who will do the above. If this is not possible have your film returned uncut, then at your convenience wash the roll for two hours. This can be done in full light and does not require a darkroom.
4. Place negatives in file envelopes with the emulsion side away from any glued seams.
5. Place more than one negative in an envelope. The damage done from negatives scratching each other is less than that done by the chemical content of the envelopes.
6. Use a cellophane liner inside the envelopes if possible.
7. Store in a cool, dry place. Keep out of damp basements etc.
8. Inspect all negatives for damage and wash in Bisulphite bath if any damage has begun.

Negatives that are fixed and washed properly will last from 15 to 50 years in good condition so it is to our advantage to do a good job of processing. Since storage problems also contribute to negative damage we should be equally careful to select the proper conditions to prolong the life of valuable historical material. (Note: Thanks to G. M. Best, railroad photographer, and Eastman Kodak Company.)

The Andrew E. Lutz Company, P.O. Box 5, Syracuse 6, New York, was the only company to reply to our query concerning this problem. They make the following statement: Our Glassine Negontainers are open on one end, shear cut, non staining, with no flap. Negatives filed individually in these specially made Glassine Negontain and stored under any normal conditions, should preserve negatives without stain or noticeable deterioration for 15 to 25 years. Negatives preserved in Glassine Negontainers made with our waterproof and stainless adhesive, in tests after 14 years, still retain their original perfection."

They sell two types of envelopes at the following prices:

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| 1. Glassine Negontainers | | | |
| Size 3" x 5" | 100 for 55¢ | 250 for \$1.00 | 1,000 for \$3.45 |
| 2. Moisture-Proof Cellophane Negontainers | | | |
| Size 3" x 5½" | 100 for 80¢ | 500 for \$2.95 | 1,000 for \$5.45 |

PHOTO CAPTIONS

1. Globe "Swift" with new large registration numbers on the side of the fuselage. This will be explained in full in the next issue. The system is now optional.
2. Vultee V-1A for Russia, URSS-N-208. See pages 54-55.
3. Lockheed "Ventura" modified, Mexico, XB-REX, now N-5399N. See page 41-A.
4. Lockheed "Vega" 5-C modified, XB-MAA. Now N-174D in U.S. c/n 72.
5. P-51B showing invasion stripes etc., see page 46. Note malcolm hatch. Photo taken on Strip A-64, St. Dizier, France, on 9-22-44. Plane belongs to 10th Photo Group, 9th Air Force. Essentially an F-6C with cameras mounted. Code letters ZM-JL. Named "Hun Flusher".
6. New Standard D-27 crop duster. See page 63.
7. Baldwin "Red Devil" (identification not positive). Newark, N.J., Aug 1945. Comments invited.
8. Curtiss SBC-3 of VS-3, Bureau number 0512. Photo taken 1939. See page 46.