EFFECTS OF DISTILLED WATER UPON GALVANIZED BUCKETS

October 14, 1949

The following articles were submitted for observations:

Two galvanized buckets (each half full of distilled H_2O).
One beaker (600 cc) with fibre board cover upon which was attached a dye or metal casting.

To be observed for:

Oxidation and electrolytic action between the solution and metallic surfaces; especially the castings suspended above the solution on which is to be observed effects of any fumes which may arise from the solution.

The buckets were marked as follows:

Bucket #1 (an ordinary pail)
Bucket #2 (an ordinary pail with a metal casting) Attached to interior ap roximately three inches of above solution. The beaker (with cover) was marked "beaker" and all observations of same are under that heading.

October 14, 1941 First Day of Observation

Bucket #1

Definite water line. Patches of white, powdery substance appearing on entire dry surface above water line. Shreds of fiber board appear to be dropping upon surface from cover board. Liquid is flat to taste.

Bucket #2 (with metal die attached)

Definite water line observed. Patch of white metallic substance forming around casting. This patch is approximately two inches in diameter and is extending down toward the surface of solution as a tapering streak. This may be due to the solder which holds the die to the can. Liquid is flat to taste.

Beaker

No visible effects upon casting attached to board

October 15, 1941

Samples of each container were tested as follows:

Beaker: negative upon addition of phenolthalien

Bucket #1: negative upon addition of phenolthalien

Bucket #2: negative upon addition of phenolthalien

October 16, 1941

Bucket #1

Increased white patches above water line. These patches are becoming more profuse; becoming dusty to touch. Area around three quarters of dry surface is mottled with these patches. Entire area covered by water is coated with a definite white chemical deposit. The sides of the bucket so covered appear striated with innumerable hair lines which vary from one-eighth inch to one-fourth inch apart. These lines extend to bottom of bucket.

Bucket #2

Has accumulation of white deposit around casting; this extends down two inches toward surface of water. (No discernible increase in size since last observation)

Beaker

No visible change in water on status of casting.

pH readings are as follows:

Beaker pH 5.68

Bucket #1 pH 6.02

Bucket #2 pH 6.86

October 18, 1941

Bucket #1

Mottled patches of white substance rubbing off more at touch. Entire area covered by water has accumulation of deposit shielding all metallic surface.

Bucket #2

Mottled patches on dry portion of bucket not so profuse as in Bucket #1. The patches, nevertheless, are dusty to touch. Metal casting yields no obvious increase of deposit on or around casting. Area still approximately two inches in diameter.

Beaker

No visible change in H_2O or casting. Placed one drop of phenolthalien on bare metal surface as suggested by Mr.

October 20, 1941

pH readings of samples were as follows:

Bucket #1	pH 6.11
Bucket #2	pH 6.66
Beaker	pH 6.38

The temperature at these readings was twenty degrees centigrade 20 °C.

October 25, 1941

No visible change upon any of the buckets other than those previously noted.