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Burial Pack.
1954

DTCORRAL EXPERIMENTAL REPORT #5

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SIX-MONTH BURIAL TEST ON SEAL-PEEL FORMULA HR-49

On 3 March 1953 a burial cache was made of food, ordnance equipment, electrical and signal equipment. The items were protected by treatment with Hot Dip Seal-Peel formula HR-49. Upon recovery of the cache, on 27 September 1953, the items were inspected to determine what effects exposure to the burial conditions had had upon them. All the items were in an excellent state of preservation and the protective coatings were intact. No control burial of untreated equipment was made, instead the condition of buried equipment was compared to that of identical items of equipment in indoor shelf storage.

1. Purpose of test:

The burial test was conducted to investigate the characteristics of Hot Dip Seal-Peel formula HR-49 as an outer protective coating for burial caches in order to determine if more exhaustive research on HR-49 is justified. It was decided to treat the items of equipment individually and place them in the ground with the soil in direct contact with the protective material. This decision was based on a desire to determine if outer burial containers such as boxes, bags, and/or shoring could be eliminated without impairing the protection of the cache, and to produce, in as short a time as possible, maximum exposure of the cached equipment to the elements.

2. Items cached and method of protective treatment:

The following equipment was prepared as indicated.

	Item	Treatment
1 ea	7.62 mm Carbine, M1938 "Mossin-Nagant" (Soviet), action, barrel, and magazine only	Cleaned, oiled, and dipped in HR-49
1 ea	Stock assembly for above	Cleaned and dipped in HR-49
2 ea	Magazine, drum, SMG, PPSH	Cleaned and dipped in HR-49
1 ea	SW transmitter SMT-1 with key, in original metal case, without tubes or xtal	Case cleaned and unit dipped in HR-49
1 ea	Battery, Burgess, dry, 6TA60, A and B 1½-90 v.	Terminal plug holes taped over with Scotch tape and battery dipped in HR-49

Item		Treatment
1 ea	Flashlight, 2-cell, TL-122-b, w/bulb and batteries	Cleaned and dipped in HR-49
2 ea	Ration, field, Chinese, in 4 commercially packed tin cans, consisting of pork-fried rice, canned fish, pickles, crackers, salt tablets, dehydrated soup, tea, and "pep" tablets.	Cans placed in cardboard tube used to pack 2.36" HEAT rocket. Entire tube dipped in HR-49

3. Conditions of exposure:

The items, packaged as indicated above, were buried in a moderately well-drained, level area in sandy, black soil. The holes were not provided with sumps and the cache was covered with approximately 1½ feet of dirt. The cache was placed on 3 March 1953 and was recovered on 27 September 1953. Average rainfall for this period was 6.64 inches and the mean temperature was 65.25 degrees F.

4. Recovery and inspection:

When recovered the cached items showed no external signs of deterioration. The Seal-Peel coatings were tough, glossy, strong, and clear. There was no indication that the coating had scaled, chipped, or cracked. The inside surfaces of the plastic were dry and bright and appeared to be identical with the condition of plastic as it comes from the factory.

a. Carbine:

The Soviet carbine was stripped and examined closely. The action, barrel, and magazine showed absolutely no signs of rust or corrosion. The action worked freely, the stock fitted easily and showed no signs of damage due to mildew or rot. The bore of the rifle was clean and dry. When assembled and test fired from a machine rest, the rifle operated normally, feeding cartridges smoothly and ejecting empty casing easily.

b. Drum magazines:

The drum magazines were dismantled and inspected. There was no rust on any of the parts. Although the magazines were not tested in a weapon, they were free-working and had a lively action. It is believed that they could have been unwrapped and used immediately without any additional servicing.

c. SW transmitter:

The peeling was removed from the radio case and the case examined. The paint was smooth, dry, and appeared to have undergone no changes whatsoever from the dipping and burial. The radio was dry, clean, and, when tubes and xtal were fitted, operated satisfactorily. There was no sign of mildew on the set or components. The cardboard circuit diagram in the set was quite dry and legible.

d. Battery:

When unpeeled the Burgess battery was lumpy and slightly misshapen. Since there was no sign of moisture or corrosion, however, the possibility exists that the elevation in temperature at the time the battery was dipped in the hot plastic is responsible for the distortion. The battery tested full strength and showed no significant loss of power.

e. Flashlight:

The flashlight was unpeeled and switched on. It operated normally, and when disassembled, the casing and switch seemed to be in perfect shape. The bulb and batteries were in good condition.

f. Rations:

The exterior of the cans showed no evidence of deterioration. The cans had been varnished lightly by the manufacturer and this finish was still intact. The rations were opened and revealed no spoiling of the contents. They were subsequently eaten with no ill effects.

5. Conclusions:

a. The objects placed in this cache for the six-month period were recovered and found to be in perfect condition. After removal of the HR-49 by stripping, the items would have been ready for immediate operational use without additional servicing.

b. The objects cached were found upon recovery to be in far better condition than identical items stocked on shelves in indoor storage, particularly with reference to damage by mildew, rust, and dampness.

c. Further research and experimentation with Hot Dip Seal-Peel formula HR-49 should be conducted in an effort to determine its possible advantages and limitations as a protective burial agent for use in clandestine operational and support storage.

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6. Remarks:

At the present time, [redacted] has stocks of several varieties of Seal-Peel plastic packaging materials. These include hot-dip strippable formulae, and cold applications of the strippable and non-strippable types. The cold formulae may be applied by dipping, brush on, or spraying. This office is now pursuing a program of testing these materials and the techniques of their application for burial and underwater caches of operational supplies such as weapons, clothing, signal equipment, and documents. 25X1

Comments and problems from other stations are invited in order that we may make this testing as realistic and as widely applicable as possible.

Originated by: [redacted] 25X1

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Field Rations as Recovered from Cache

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Russian Carbine as Recovered from Cache

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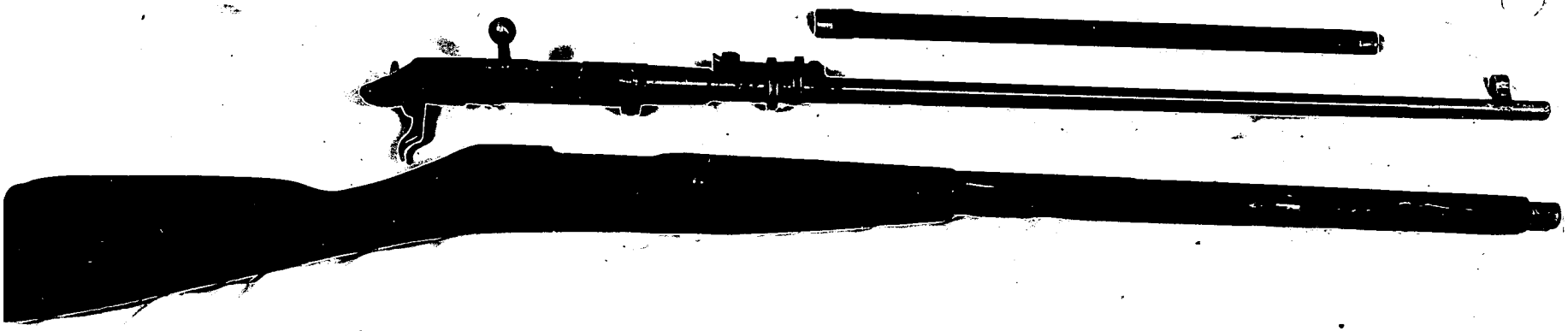

Russian Carbine after Removal of Seal-Peel

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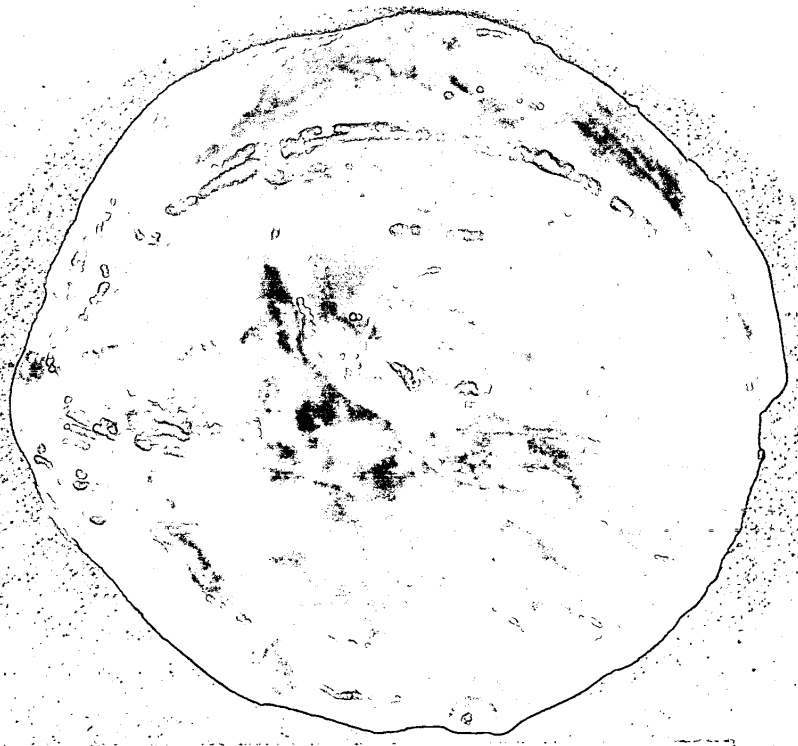

Drum Magazine as Recovered from Cache

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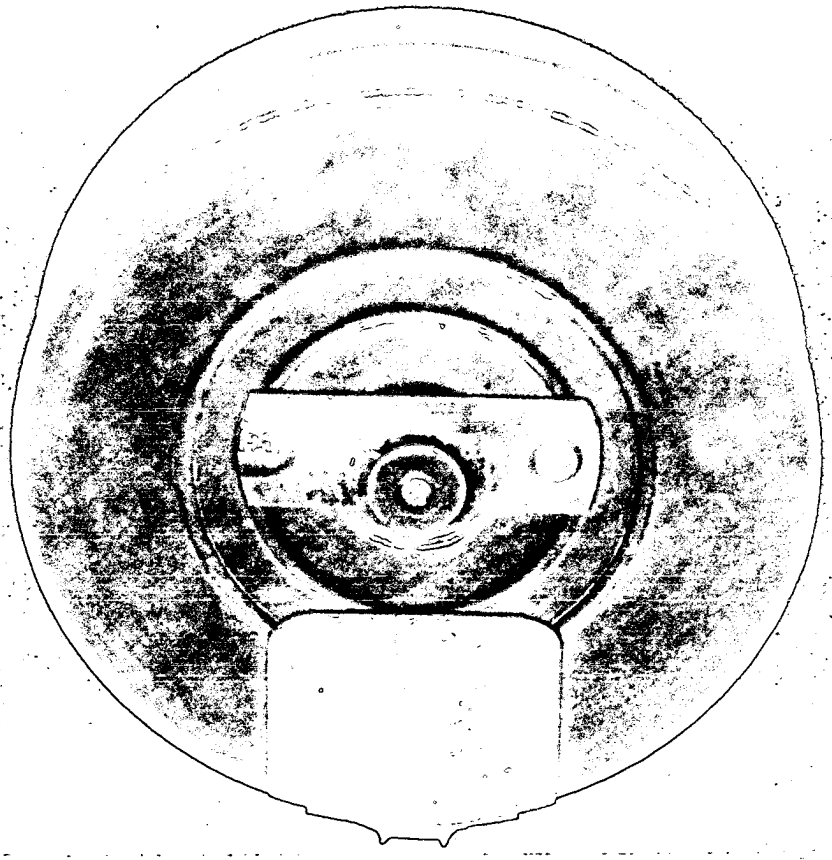

Drum Magazine after Removal of Seal-Peel

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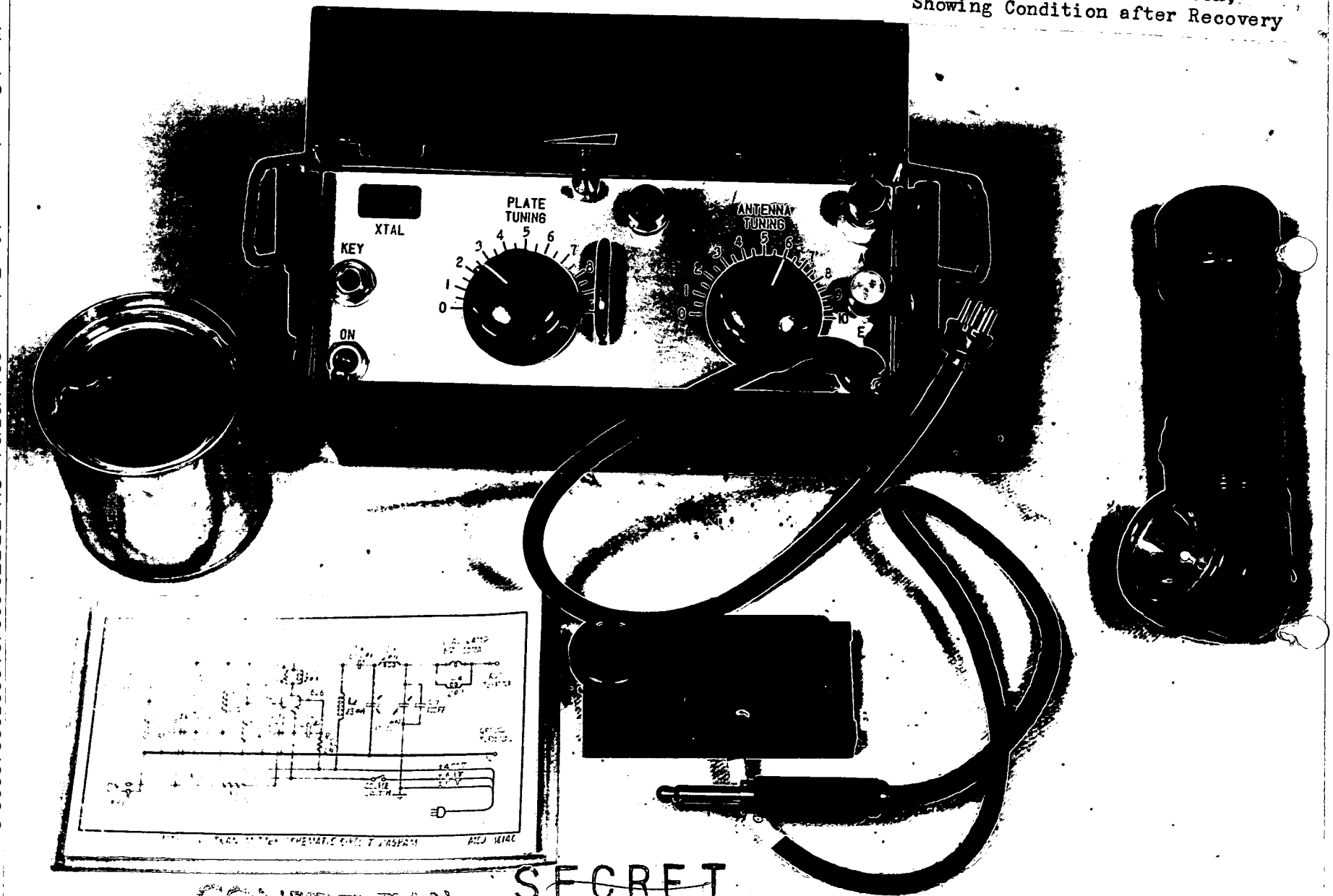
Radio, Flashlight and Ration,
Showing Condition after Recovery



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