Invisible Writing Made Visible

GPO HISTORY TALK

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Invisible Writing Made Visible

- During the Second World War, from late 1942 to mid-1946, the United States experienced an unprecedented influx of almost half a million German, Italian, and Japanese prisoners of war. They were in a position to damage the war effort through attempts to escape and, based on experience from World War I, the possibility of espionage.

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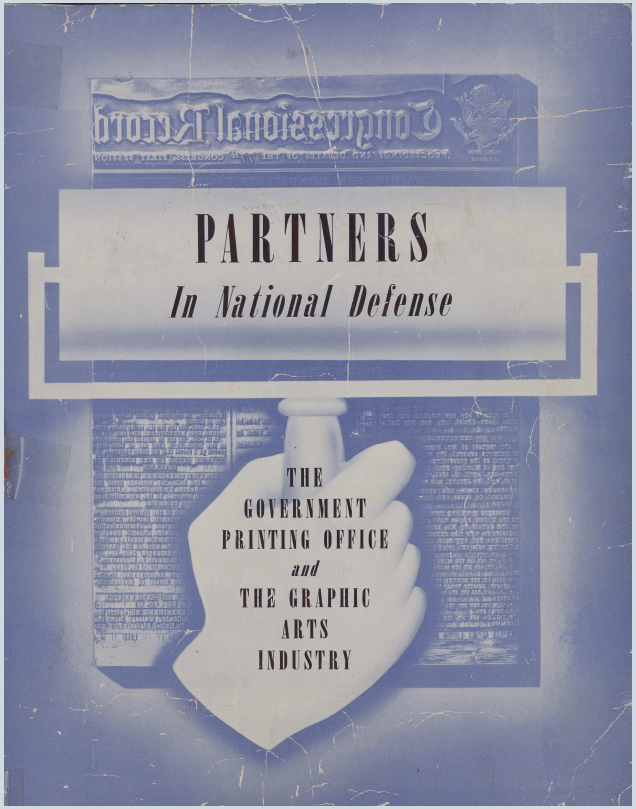
- Since the Geneva Convention mandated that prisoners of war could write home, significant information on prisoners' location and activities could be transmitted through the use of invisible inks made from such common substances as lemon juice, milk, washing soda, baking soda, starch, even urine. The War Department turned to GPO's paper chemists for an answer.



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- GPO's Division of Tests and Technical Controls was set up in the 1920s to monitor and improve the quality of paper, inks, adhesives, typemetal, and other vital components of printing and binding work.

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- After extensive tests, GPO's experts developed a paper base with a silicate or clay coating. The coating contained a powder or dyestuff that would react to moisture, or any acid water solution, by turning green. The paper was called Sensicoat.

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- Sensicoat's heavy 56-pound weight and high cost were negative factors, so GPO developed a lighter, uncoated, and more economical paper, Analith. When it went into production, secret messages to the Axis were greatly reduced.

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- German intelligence noted the change and took action. American sensors began to notice something very interesting about packages of food and clothing addressed to German prisoners as 1944 passed its halfway mark.

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- A small amount of putty-like material, about the size of a kitchen match head, began to turn up in various places of concealment. Repeated tests showed that the material was a dry ink.

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- After several conferences with the Bureau of Censorship, GPO chemists began work on a new paper, bearing in mind that it would have to retain its sensitivity to fluids as well as add sensitivity to dry inks. The result was a coated sheet with both.

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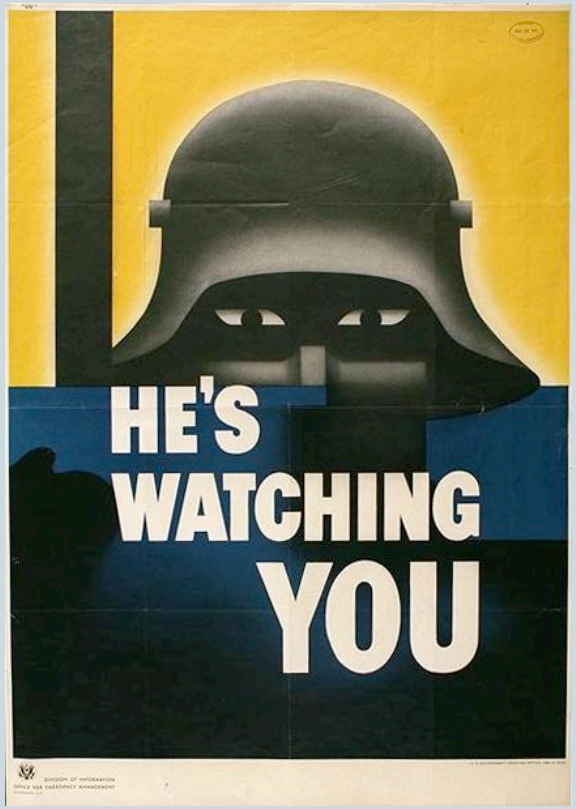

- By 1945, more than 29 million sheets of the new stationery had been ordered at $1.04 per thousand. GPO had blocked a potentially dangerous flow of information to America's enemies. It was an achievement shrouded in wartime secrecy, but one gratefully acknowledged by those who knew about the technical challenges.

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