

Rebecca Altman. “The Trials and Triumphs of the Benzene Tree: The organic compounds that enabled industrialization have unintended, long-last consequences for the planet’s life.” *The Atlantic*. October 4, 2017.

## Dedication

To Vi Waghiyi, Shawna Larson, Pam Miller, Alaska Community Actions on Toxics, and through them, Annie Alowa — all of whom first taught me about PCBs and their far-reaching significance, especially for the two communities of Sivuqaq | Saint Lawrence Island, Alaska. Their leadership, research, and insights into PCBs first put me on the path towards tracing their history and legacy.

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Bark Near a Former Manufacturing Plant in Anniston, AL.” *Chemosphere* 68 (1), 191-198.

On **connection to Indian Refining (Texaco) and Eastman Kodak**, see Swann Research, Inc., et al., v Dow Chemical, Co. District Court, E.D. Michigan N.D. October 18, 1935. Documents resulting from suit Swann brought against Dow Chemical over infringement of its di/biphenyl patent in 1935 named the Indian Refining Co (of Illinois) — acquired (in 1931) by TEXACO — as the company that first proposed to Swann an interest in industrial quantities of di/biphenyl. As described in court documents, Indian Refining approached Swann personally, and specified that their subsequent business relationship was built on a personal connection. Mentions di/phenyl sold by Eastman Kodak in small quantities. For more on their earliest forays into organics production, and the role of Eastman Kodak in this, see Kathryn Steen’s (2014) *The American Synthetic Organic Chemicals Industry, War and Politics, 1910-1930*. (University of North Carolina Press); A. Cressy Morrison (1937). *Man in a Chemical World* (Charles Scribner’s Sons); William Haynes *American Chemical Industry*, Volumes 5: The Chemical Companies to 1948. (Van Nostrand, 1949):138-141.

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On **connection and significance of H.H. Robertson Company, Robertson Protect Metals (and later Galbestos)**, see Griffith and Carolyn Green Satterfield. *The Triumphs and Troubles of Theodore Swann*. (Black Belt Press, 1999), which notes H.H. Robertson issued a call for technical assistance via Pittsburg’s Mellon Institute of Industrial Research fellowship program in the mid- to late-1920s. They desired a coating material to use instead of PCNs, polychlorinated naphthalene (PCNs). According to fellowship records in The Mellon Institute Archives (housed at Carnegie Mellon University), one of Swann’s employees, Russell Lewis Jenkins, listed on the chlorinated diphenyl/PCB patents, had been a Mellon Institute Fellow prior to coming to work for Swann, which may explain (in part) the network through which Robertson expressed its technical need, and Jenkins responded. In late September 1929, Jenkins filed both a publication and patents to cover the material and the process used to make chlorinated diphenyls (now called PCBs). A week earlier, H. H. Robertson & Company filed their patent, which covered a roofing material treated with what they called a new material a “chlorinated di- or polyphenyl” as a better fire resistant treatment than chlorinated naphthalene.”

This is significant in that often the ties between Swann and the electric companies are highlighted as the first use. This suggests the connection to Robertson and building materials was at least as significant in the genesis story of industry PCBs and an early customer. See: Patent assigned to H.H. Robertson Company. Filed September 20, 1929, Protected Metal Article. US Patent 1812732. "A protected metal article comprising a metal article provided with a protective layer of fire-resisting asphalt composed of asphalt and chlorinated poly-phenyl." (Compare with dates of Swann PCB's filings: Russell L. Jenkins. Assigned to Swann Research, Inc. Process for the production of chlorinated diaryls. Filed September 28, 1929. US1892397A; Charles B. Durgin and Russell L. Jenkins. Assigned to Swann Research, Inc. "Diaryl Containing Wax-Like Solid." US Patent: 1894266. Filed September 27, 1929.)

**On the significance of Robertson Protected Metals/Galbestos**, see: H. H. Robertson Company. 1925. Brochure: "Robertson Protected Metal Roofing, Siding and Trim for Industrial Building Construction." Pittsburg, PA. Archived in the Building Technology Heritage Library. And: Douglas A. Jones, President. "H.H. Robertson Company. A Unique International Company, An Address at Pittsburg." 1966. The Newcomen Society in North America.

We know from the review article published in *Environmental Science and Pollution Research* by Mitchell Erikson and Robert Kaley (2011, vol 18 (2): 135-151), that: "Aroclor 1258 was used in various building materials as a fire retardant, including roofing and siding material know as Galbestos.... [And that] ' this construction material manufactured from the 1950s to the 1970s by HH Robertson Company.'" RPM or Robertson Protected Metal was a precursor to Galbestos, and per company patents may have been treated with PCBs or the like perhaps as early as 1930.

**On history of halowaxes**, see: William Haynes *American Chemical Industry*, Volumes III. (Van Nostrand, 1945): 385; Ellen Griffith Spears (2014). *Baptized by PCBs* (University of North Carolina Press); Edward Griffith and Carolyn Green Satterfield. (1999) *The Triumphs and Troubles of Theodore Swann*. (Black Belt Press); Wiebe E. Bijker (1995). *Of Bicycles, Bakelites, and Bulbs: Toward a Theory of Sociotechnical Change*. (MIT Press): 171-172.

**On Theodore Swann's quote re: southern industry under the New Deal/National Recovery Administration.** Quote read: "Sherman's march to the sea was no more destructive than the NRA is going to be on the South...Before it is over, we may have secession." Quote published in newspapers across the country in April 1934. Here are three examples: "NRA is linked to Sherman's March to Sea: Southern Industrialists Petition Roosevelt for Wage Differentials; Racial Strife and Bloodshed Feared." *The Baltimore Sun*. 19 April 1934 (p.1); "NRA Worse than Sherman March, South is Warned; Says Conditions Warrant Secession." *The Chicago Tribune*. 19 April 1934, p. 4). "Mine Clash Expected: Troops Rushed to Scene: Picket Dies and Two Persons Shot at Another Shaft in Alabama Strikes; Water Sabotage Plot Hinted; Industrial Leaders Map NRA Fight Plans." *The Los Angeles Times* 19

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For details about first 12 chemicals listed to **the United Nations Stockholm Convention on Persistent Organic Pollutants** (2001), see: <http://chm.pops.int/TheConvention/ThePOPs/The12InitialPOPs/tabid/296/Default.aspx> Re: more chemicals and chemical classes have been added to the treaty since, including some commercial formulations of PBDEs, see: <http://chm.pops.int/TheConvention/ThePOPs/TheNewPOPs/tabid/2511/Default.aspx> (Last accessed 27 April 2017). Another formulation of PBDEs, called “deca,” was voted for inclusion in 2017, as of press time, this press release served as my source: International POPs Elimination Network. 2017. “Loopholes for DecaBDE and SCCPs Undercut Treaty Additions.” Available at: <http://www.ipen.org/news/press-release-loopholes-decabde-and-sccps-undercut-treaty-additions> (Last accessed 9 May 2017).

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