

Fire Insurance Maps: Introduction and Glimpses into America's Glass Manufacturing History

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by *Kristi L. Palmer*

Introduction

American cities with buildings constructed primarily of wood and other flammable material of the 18th-19th century carried with them great risk of fire damage and spread. The companies extending insurance to the businesses and dwellings within these cities needed a better way to determine risk from fire and therefore value of the insurance offerings. The fire insurance map was a response to this need. Highly detailed maps each include symbols, labels, and colors which describe all bits of information related to fire risk about a structure and its neighboring structures. Risk was determined not just by the structure being insured but the risk associated with neighboring buildings as well. In fact, insurance companies made a point not to insure too many structures in a given area. Generally these maps scale 50:1 or 100:1 (though maps with less detail covering a larger swath of land certainly exist, i.e. 600:1), and are labeled with both proper names of buildings (Indiana National Bank), streets (Maple St.), and landmarks such as parks (Holliday Park) as well as coding landmark or building type (drugstore, blacksmith, wholesale grocer, flat, dwelling). They list addresses, street width and location of fire hydrants. The minutia of description goes to the building level.

Depending on the level of fire risk associated with the structure, description ranges from at least a footprint to room-by-room detail of contents and uses of each section of each floor of a building. One begins to get a picture of fire insurance maps' utility in the present. Within these maps exists stories about the development of the United States, her cities, neighborhoods, buildings, businesses, social organizations, and individuals.

Because the original intent of the maps was for fire insurance purposes, industrial and manufacturing sites are one of the most minutely described entities on these maps due to their high potential of risk. For readers of *The NewsJournal* this is wonderful news, as manufacturers producing or working with glass are often among the more highly described entities on fire insurance maps.

History and the Cartographers

The manufacturing of fire insurance maps itself was made possible through advancements in technology that fed Industrialization. While every original map was still singularly sketched and coded, by 1846, lithography "allowed maps on paper to be transferred as reversed images to stone for printing," creating a sustainable business model for map production.¹ Certainly the concept of insurance cartography existed prior to lithography. Though no map exists, company records evidence that the first fire insurance map was of London created by Thomas Leverton for the Phoenix Assurance Company, Ltd. in 1782. Others followed, including the 1790 "Ichnography of Charleston [South

Carolina]" by Edmund Petrie but "There is general agreement that George T. Hope, Secretary of the Jefferson Insurance Co. of New York was the grandfather of American insurance cartography when he began in 1850 to compile a large scale map of New York City as an aid in calculating fire risk on specific properties."² The most prominent and prolific manufacturer of these maps in the United States was the Sanborn Map Company formed in 1875. Such maps were widely used by insurance companies covering property in the U.S. from 1850 until the 1970's when insurance cartography was replaced by new less expensive methods for assessing value and risk.

One can imagine why the process of creating finely detailed maps was considerably expensive. Though lithography streamlined reproduction of maps, each map was still thoroughly researched and hand drawn in the field by surveyors/trotters/striders, coded and proofread in centralized offices, and after lithography, each sheet was hand colored.³ "Of first importance were the colors to show the different materials used in the construction of a building."⁴ Updating maps was another process. It was quickly discovered that redrawing every map each time another survey was done was not cost effective or efficient. Paste overs became the first solution, with the physical maps from past years having the original drawings literally pasted over with paper showing the drawings, colors, and codes of the new structures or land use. Recognizing this process of editing is a crucial piece in interpreting the maps.

Surveyors were often young men characterized by their love of adventure, willingness to travel, and attention to detail. Though working alone, they were guided by a standard set of coding and recording guidelines, *Surveyor's Manual for the Exclusive Use and Guidance of Employees*, first published by The Sanborn Company in 1905. Their work required that they know the ins and outs of cities, knocking on the doors and asking for entry to almost every building. They witnessed and recorded in their company newsletter, *The Sanborn Surveyor*, events in American history that they recognized as significant at the time such as surveyor, E. G. Merwin's account of the 1906 San Francisco Fire and seemingly insignificant quips that have provided historians with first-hand accounts on behind the curtain lives of late 19th century Americans. From surveyor and later Commissioner of the Boys Scouts of America, Dan Beard's autobiography,

In St. Louis there was a big square building, very similar to the one in Bucktown, Cincinnati, but this had an extremely secretive and mysterious appearance. . . I knocked at the door and the janitor opened it. He was very careful and noncommittal, and I immediately surmised that I had struck a gambling house. I, however, told him my business... He looked at the map in my hand and was convinced; "Can you keep your mouth shut?" ... I was conscious of an uncanny and disagreeable odor, and when I come out upon the floor I saw the cause. Laid out on tables

around that big room were thirteen corpses. Young men in dilapidated dressing gowns were busy dissecting them. . . There had been a great hullabaloo about grave robbing, and only that morning the papers had denied that anything of that kind was going on, and furthermore claimed that the medical fraternities had no subjects for dissection. Of course I made no remarks; there was no fire risk in a dead man.⁵

Example Uses

The trotters' published antics, while amusing and insightful, pale in comparison to the legacy they recorded in their cartographic renderings of America's past. Historians are but one group that use the maps to reconstruct and make conclusions about the past. The maps' unique, minute details about a city, captured (and therefore comparable) through discrete periods of time are useful from both a macro and micro sense. For example, an historian could draw conclusion about transportation as it relates to economic forces in the United States by examining the maps throughout the mid-19th and early 20th century that include inter-urban rail systems. Alternatively one could use the Sanborn maps of Indianapolis to write about that city's bicycle production and repair industry. Descriptions of ethnicity are associated with structures and cartographer codes such as FEM. Bdg., F. B., or female boarding, indicating brothels, make the maps ripe for sociological or ethnic studies researchers. For example, James Borchert's study, "The Rise and Fall of Washington's Inhabited Alleys: 1852-1972," examines Sanborn maps in conjunction with census and city directory data to describe the development and waning of alley homes and the social and ethnic strata of their inhabitants. The 1920s Sanborn maps are used to show the repurposing of space once occupied by mid to late 19th century alley homes into garages and businesses.⁶

A genealogist sleuthing for any piece of information about her grandfather might turn up the flat he occupied in Chicago in 1915. Perhaps he frequented the five cent theatre at the corner, the drugstore next door. She might serendipitously discover the 2nd Episcopal Church in which her grandparents were married three blocks from the flat. A treasure hunter armed with the

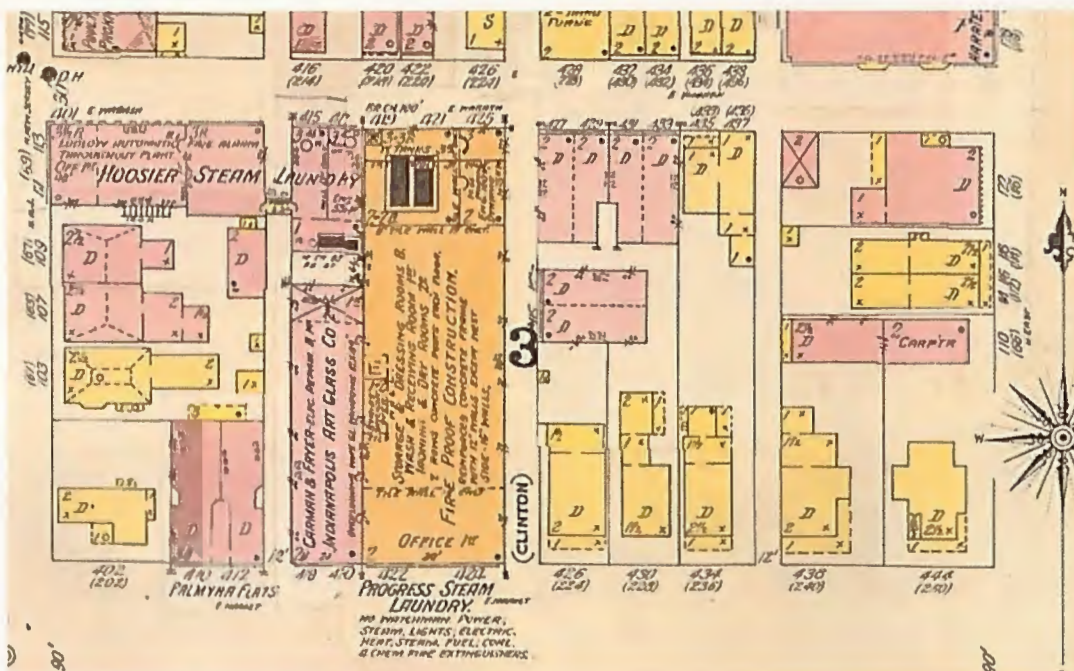
knowledge that privies were a common place for discarding now coveted glassware, pottery, and unwanted household items, could employ the maps to locate and dig at old privy sites.⁷ Owners of a recently purchased Victorian Era home, seeking to restore her to her original grandeur will use the maps to determine the footprint of the original home, location of porches and out buildings long gone, the original materials for construction, where doorways and windows existed, and potentially the shape/type of roof installed. A current day real estate investor looking to purchase a deserted urban corner property or Brownfield in Detroit would be wise to peek at a fire insurance map, scoping the lot for buried environmental risks such as gas tanks or chemical laden soil as a result of past industrial usage.

Deciphering the Maps

First addressed is taking in the map level information as a whole. One map page is typically a single sheet in a large bound volume or microfilm reel (or a single file online). On the sheet in the upper right (sometimes left) hand corner is a large, bold number. This number represents the official map number and will be referenced in the index of the map. Additional large but not as bold numbers will appear on each of the four edges of the map. These numbers represent the map numbers of those maps bordering the geographic area adjacent to each side of the map in hand. These numbers are especially handy for quickly piecing together a larger view or tracing a street as it moves across the city. Additional information on the map may include scale reference, volume indication if bound, and a date and/or revision date.

Previously, paste-overs were mentioned as a means of updating maps without drawing entirely new ones. Paste-overs are easy to spot (see image below) and notify the user that the map in hand originally reflected one date but now reflects another. Often times the maps will remain bound in a volume with a title and date reflective of the original mapping. Only the revised indexes reflect updated dates. A rule of thumb, if the map has paste overs, one is wise to look for a revised date.

Navigating through the hundreds of sheets that may be available



Here is an example of a map with paste-overs. Look at Palmyra Flats, Indianapolis Art Glass Co., and Progress Steam Laundry, all contain revised information. Originally created in 1898 and bound in a volume with that same date, the index shows that map #154 was updated between 1900-1913. Access full map at: <http://indiamond6.ulib.iupui.edu/cdm/ref/collection/SanbornJP2/id/473>

KEY

TILE 1ST
BRICK 1ST
PYROBRICK 1ST

ADOBE

HEIGHT OF BUILDING IN FEET FROM GROUND TO ROOF LINE

(C. BR.)

(C. B.)

(CONC.)

(TILE)

NUMBER OF STORIES 4

TWO STORIES AND BSHT 20 COMPOSITION ROOF

SINGLE ROOF X

(VEND)

BRICK 1ST

FRAME, BRICK LINED

F=FLAT S=STORE

D=DWELLING

A in B AUTO IN BSHT

LOFT

(ASB. CL.)

NON COMBUSTIBLE ROOF COVERING OF METAL, SLATE, TILE OR ASBESTOS SHINGLES

SKYLIGHT LIGHTING TOP STORY ONLY

3 SKYLIGHT LIGHTING THREE STORIES

W.G. WIRED GLASS SKYLIGHT

FIRE WALL 48 INCHES ABOVE ROOF

4

2345 ALL

W.T. WATER TANK

BRICK 1ST

A.

(C. B.)

(C.B. & BR.)

(C.B. & BR. CONSTN)

(C.B. & BR. CONSTN) (BR. FACED)

(C.B. & BR. CONSTN)

Fire proof construction. (OR FIRE RESISTIVE CONSTN)

Adobe building.

Stone building.

Concrete, lime, cinder or cement brick

Hollow concrete or cement block constn

Concrete or reinforced concrete constn

Tile building.

Brick building with frame cornice.

" " " stone front.
" " " frame side.
(DIVIDED BY FRAME PARTITION)

Brick veneered building.

" and frame building.

Frame building, brick lined.

" " metal clad.

Frame residential building

Iron building.

Tenant building occupied by various manufacturing or occupancies

Frame building covered with asbestos

Brick building with brick or metal cornice.

Fire wall 6 inches above roof.

" " 12 " " "

" " 18 " " "

" " 36 " " "

Figures 8, 12, 16 indicate thickness of wall in inches.

Wall without opening and size in inches.

Wall with openings on floors as designated.

Opening with single iron or tin clad door.

" " double iron " " doors.

" " standard fire doors.

Openings with wired glass doors.

Drive or passage way.

Stable.

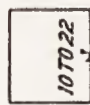
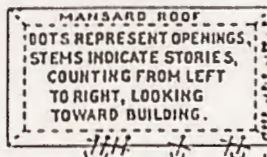
Auto. House or private garage.

Solid brick with interior walls of C.B. or C.B. and brick mixed.

Mixed construction of C.B. and brick with one wall of solid brick.

Mixed construction of C.B. and brick with one wall faced with 4" brick.

Mixed construction of C.B. and brick throughout.



[E] Open elevator.

[FE] Frame enclosed elevator.

[ET] " " " with traps.

[ESC] " " " self closing traps.

[CBET] Concrete block enclosed elevator with traps.

[TESC] Tile enclosed elevator with self closing traps.

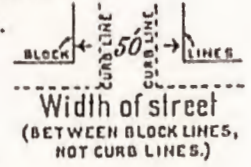
[BE] Brick enclosed elev. with wired glass door.

Window opening in first story.
Window openings in second and third stories.
Window openings in second and fourth stories.

Windows with wired glass.

Windows with iron or tin clad shutters.

Window openings tenth to twenty-second stories.



Iron chimney

(WITH SPARK ARRESTOR)

Brick chimney.

15 Ground elevation.

5 Block number.

U.P.B. Vertical steam boiler.

G.O. Gasoline tank.

V.P. Vertical pipe or stand pipe.

(O.U.) Open under.

AFA Automatic fire alarm.

IEP Independent electric plant.

Siamese fire dept. connection

AS Automatic sprinklers.

Single fire dept. connection

ACS Automatic chemical sprinklers.

AS Automatic sprinklers in part of building only. (NOTE UNDER SYMBOL INDICATES PROTECTED PORTION OF BUILDING)

NS Not sprinklered.

24 Reference to adjoining page.

Outside vertical pipe on fire escape.

+ Fire engine house, as shown on key map.

FA Fire alarm box.

● Fire pump.

● Single hydrant. (36) Under page number refers to corresponding page of previous edition.

D.H. ● Double " "

T.H. ● Triple " "

Q.H. ● Quadruple hydrant of the "High Pressure Fire Service"

H.P.F.S. FA Fire alarm box, of the "High Pressure Fire Service"

H.P.F.S. 20" W. PIPE (H.P.F.S.) Water pipes of the "High Pressure Fire Service" and hydrants of the "High Pressure Fire Service" as shown on key map.

6" W. PIPE Water pipes and size in inches.

6" W. PIPE (PRIVATE) Water pipes of private supply

2 House numbers shown nearest to buildings are official or actually up on buildings.

0 Old house numbers shown furthest from buildings.

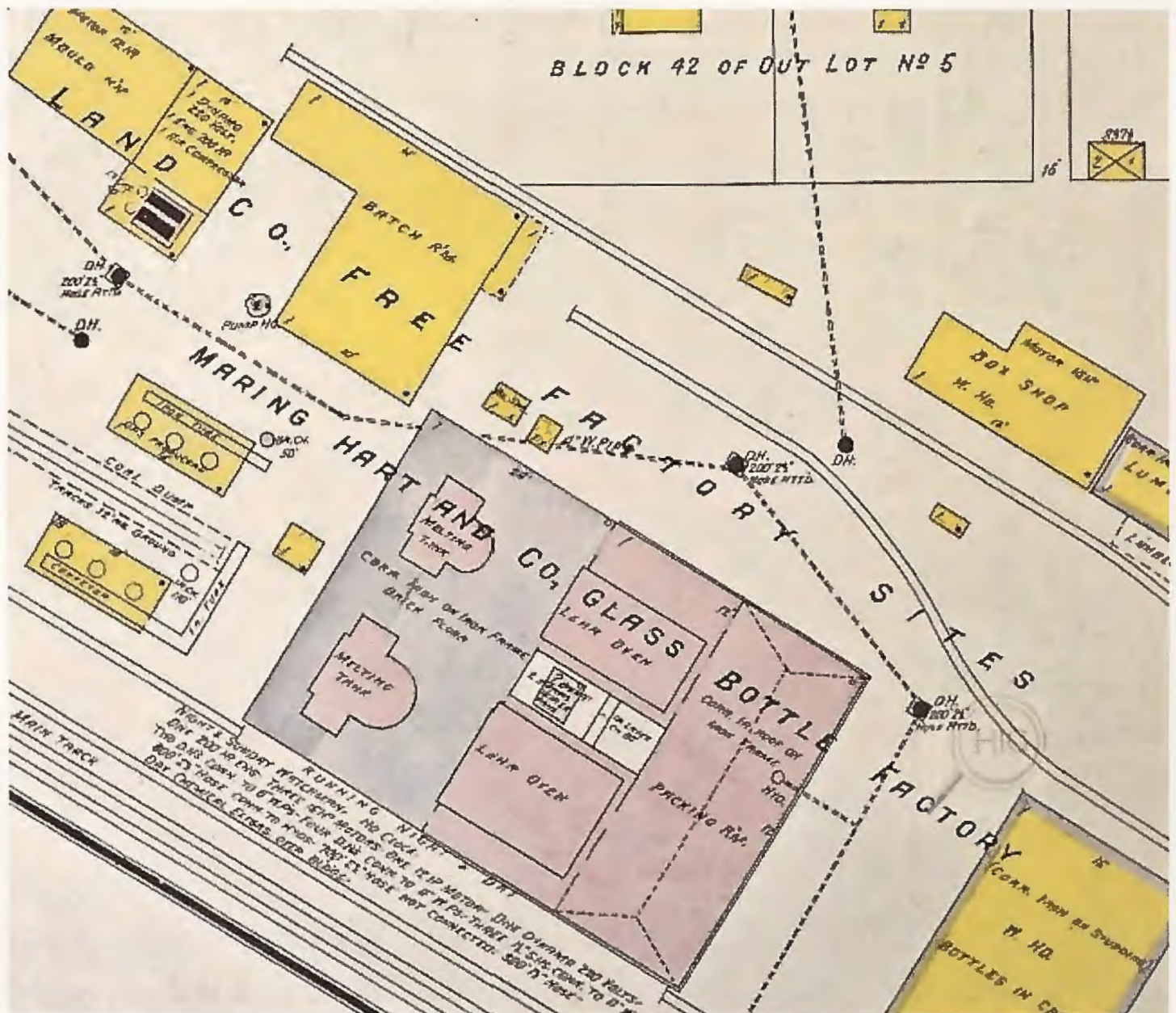
for a given city or state is process in itself. Delving into the content of a single map and deciphering meaning from the numerous symbols and abbreviations is another activity, fairly involved and highly rewarding. Certainly much information can be easily gleaned with a quick glance, but learn to read the full breadth of coding and the richness of the information is revealed. As eluded to earlier, industry and manufacturing properties are especially detailed because of their high fire hazard. Glass history enthusiasts will be pleased to discover the wealth of information that can be surmised from Sanborn maps which include glass, glassware, and bottle manufacturers. With the provided Sanborn key (opposite page) readily at hand, examine the 1909 map of Maring Hart and Company Glass Bottle Factory and the 1915 map of the Indiana Glass Company both located in Dunkirk, Indiana.

Deciphering the Symbols

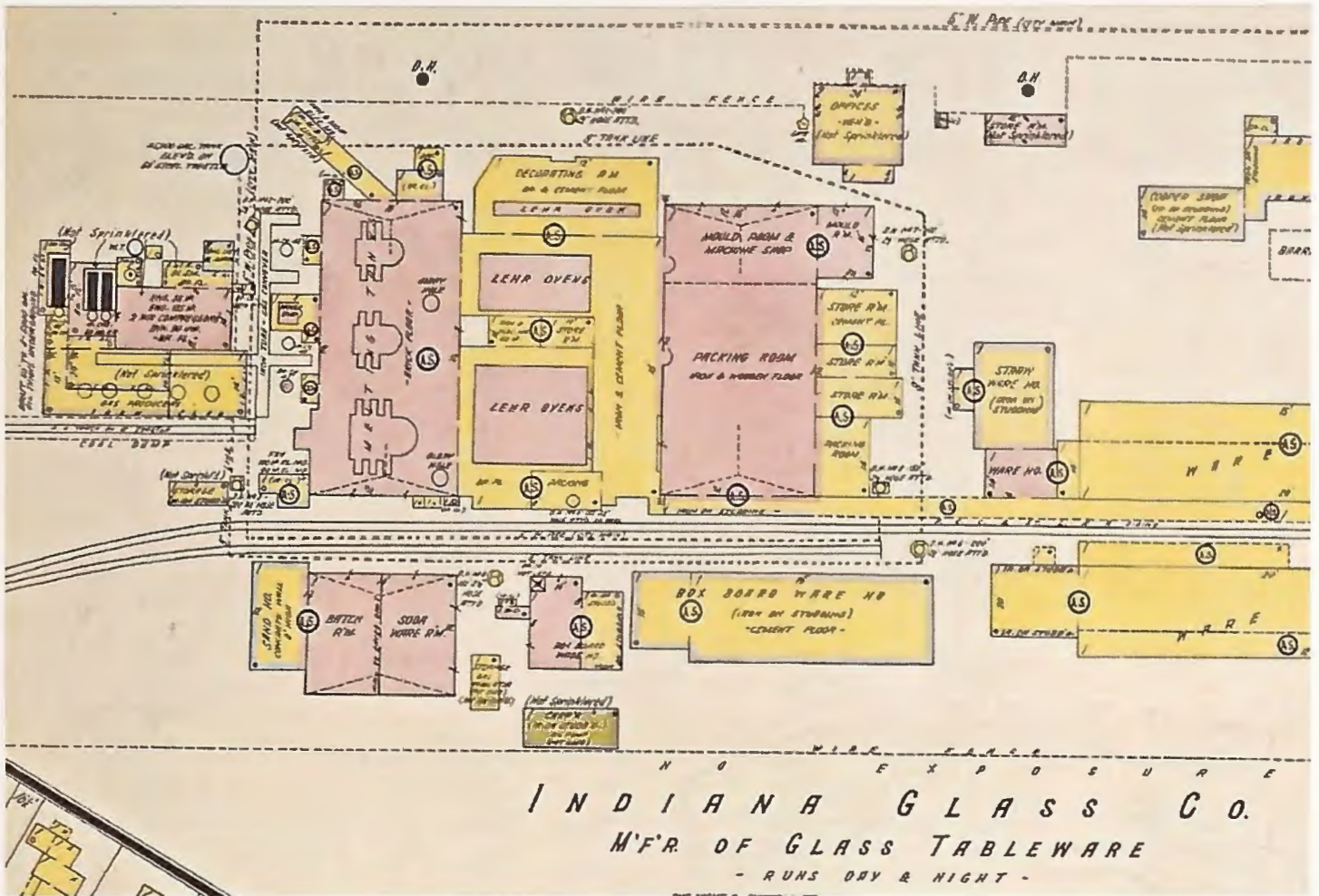
The buildings that make up the Maring Hart and Company Glass Bottle Factory are of various construction types. The yellow are

framed buildings, the pink are tiled, the grey is iron, and the yellow with grey outline is a metal clad framed construction. The "1" in the upper left corner of each building's rooms indicates a single story plant almost universally (with a single instance of a basement, 1B, in the conveyor building and a small 2-story power structure in the center of main building). Building heights vary with examples of 12', 14', 16', and 24'. Adjacent to the mould (mold) room is a 220 volt dynamo electricity generator, a 200 horse power engine, an air compressor and what looks like both iron (circles and IR. CHS.) and brick (pink three-sided rectangles, with black centers) chimneys.

According to *The Surveyors Manual*, "Do not attempt to show all windows in a wall which has a great many, however, show window symbols approximately every 35'...If there are no windows in a wall where called for, note 'NONE' or 'NON.'"⁸ The Dunkirk map shows no window symbols but also does not indicate NONE, a reoccurring example that despite required standards, these maps were drawn and edited by individuals.



The Maring Hart and Company Glass Bottle Factory in 1909



Indiana Glass Company, 1915

Discrepancies, misleading information, and downright mistakes occur.

Each room in framed structures contains at least one single fire hydrant with outdoor double hydrants scattered throughout the premises and connected by private water pipes with hoses connected. A pump house is located near the batch room while an iron chimney can be seen near the building with "gas producers" near the coal dump.

Steps in the glass and bottle making production and shipping are recognized through the naming of various rooms and equipment: Mould room, melting tank, lehr ovens, packing room, warehouse, box shop, blacksmith (BL. SM.) and lumber (suggesting they likely built the shipping crates as well). The cream/paper colored space in the middle of the main iron and tiled oven building shows a center open space containing a 2-story structure encasing 2 motors, 15 horse power each and an iron chimney.

To the direct left of the main iron and tiled oven building is visible one source of energy for the plant, coal. Also visible is the transport mechanisms for coal in, and final product, bottles out, the Pittsburgh, Cincinnati, Chicago and St. Louis Railroad (Logansport Division).

If symbols did not suffice at expressing all characteristics related to fire hazard/safety *The Surveyor's Manual* requested brief text

description. The Maring Hart and Company Glass Bottle Factory map tells insurers that the plant ran 24/7, a night and Sunday watchman was on duty, it describes the length and connectivity of the fire hoses present and whether these hoses accessed water or fire retardant chemicals, the number and power level of various engines on the property, and finally the voltage of the electrical power source.

The 1915 Indiana Glass Company map depicts a full glassware production facility. While many of the tools within the facilities and the arrangement of the facilities themselves are similar to that of the bottler, there is evidence that scale and quality of product have increased between that of bottle factory and "manufacturer of glass tableware." Notice the decorating room, sand house, addition of glory holes for glass reheating between shaping, separate office building and the addition of automatic sprinklers (A.S.) throughout. Notice that the box shop is replaced by a cooper shop and the fire prevention system includes a 45,000 gallon tank (blue circle upper left of map). Indications of windows are included on the 1915 map.

Locating and Accessing Fire Insurance Maps

Digital versions of Sanborn Fire Insurance Maps:

Subscription Access: The company Proquest has created black and white digital versions of the Sanborn maps from the Library



From the IndyBrownfields database, here is an example of a present day footprint of Monument Circle (then Circle Park) and its surrounding blocks in downtown Indianapolis with the 1887 Sanborn overlay. The present day footprints are the lighter colored rectangles while the pink of the Sanborn is visible in the background.

of Congress's microfilm holdings. The Proquest Digital Sanborn Maps, 1867-1970 is a subscription based product. Individual users can purchase access (<http://sanborn.umi.com/>) but first check a local library or historical society as many provide access to this resource.

Freely Available: Because many of the Sanborn Fire Insurance Maps are in the public domain (free of copyright restrictions) many libraries have digitized and placed online freely accessible versions of their geographic region's maps. Fortunately the majority of these online collections use the full color versions as the colors are essential in gaining the full picture of what is historically represented. Indexing of the maps ranges from listing the map number, the city, and the year to detailed keyword searchable indexing of each map's contents including landmark type, landmark name, and street addresses. IUPUI (Indiana University Purdue University Indianapolis) University Library's Sanborn Map and Baist Atlas collection created from the original holdings of the Indiana State Library is one such collection. See References for url.

Similar to the work of Sanborn surveyors, this intricate level of description is time consuming and resource heavy but highly beneficial to researchers. Within the IUPUI collection one may do keyword searches for terms such as parochial schools, theaters, or apartment houses. Proper names of locations such as Indianapolis Power and Light, North Park Christian Church, and Indianapolis Public School No. 45 can be searched. Each of these terms is also hyperlinked. One click and retrieved are all other maps in the over 1,350 item collection that include that

same term. While exact addresses cannot be searched, a known locale is easily found by a keyword search for the closest cross streets. For users more comfortable referring to the original print index of the maps, these too are digitized and referenceable.

Another added enhancement is the rectification or georeferencing of these maps. IndyBrownfields, created by the City of Indianapolis, is a tool that allows a user to view a present day map of Indianapolis and then select layers of Sanborn Maps and Baist Atlases from various time periods to overlay. See References for url. Visible one-on-top-of-the-other are the footprints of the buildings and streets from present day and past, making visual comparison of then and now possible. Unlike the maps indexed at IUPUI University Library this State of Indiana resource is exact address searchable.

Other states and cities with digital versions of insurance maps freely accessible online are: Alabama - Boston and Cambridge - California (Santa Cruz, Monterey, San Benito, Santa Clara, and San Mateo counties) - Charlottesville, Virginia - Cincinnati - Colorado - Florida - Georgia - Hawaii - Illinois - Indiana - Indianapolis - Kansas - Kentucky - Missouri - Nevada - New Hampshire - New Jersey - New York - North Carolina - Pennsylvania - South Carolina - St. Louis - Texas - Utah - Milwaukee.

To locate these collections input the following search into your favored web search engine: *fire insurance maps and [city or state]*. For example: *fire insurance maps and Chicago*.

Print and Microfilm Versions: Many local public libraries, university and college libraries, historical societies and state libraries hold original bound print versions of fire insurance maps for their related geographic areas. Even more likely is the possibility that one of these institutions holds copies of the microfilm versions. If neither print nor microfilm versions are locally accessible the Library of Congress holds the most comprehensive collection of Sanborn Fire Insurance Maps in both print and microfilm formats. Check a local library's catalog for fire insurance maps. Alternatively search WorldCat <http://www.worldcat.org>, a catalog that compiles the library catalogs of research, public, and special libraries from across the globe, for holdings in your area or beyond. A keyword search of: *fire insurance maps and* [state name], is a quick start to locating maps via library catalog.

Keys and Guides

Library of Congress Holdings: Easily determine if a city has a Sanborn map and for what years by consulting the Library of Congress's digital version of its 1981 print book, *Fire Insurance Maps in the Library of Congress*. Online: <http://www.loc.gov/tr/geogmap/sanborn>.

Abbreviations: Environmental Data Resources Inc., has created a key and easy to read, more up-to-date abbreviation guide for the Sanborn maps. Online at: www.edrnet.com/File%20Library/pdfs/Sanbornkey.pdf.

Keys: There are various Sanborn map keys available online and in the print and microfilm versions of the maps. One such key is available through the Indiana State Library at: <http://www.in.gov/library/images/mapkey.jp> and is printed here on page 4.

Discover

With a primer base in fire insurance maps, their history and uses, a set of guides and keys, and thrill for discovery, any researcher can uncover the past of America's cities, businesses, people and manufacturing facilities such as glass bottling and glassware plants. A friendly warning, once you begin looking at Sanborn maps, it is very difficult to stop. You will find yourself hours later having virtually wandered a past city, following one fascinating find after another.

End Notes

1. Diane L. Oswald. *Fire Insurance Maps: Their history and Applications*. College Station, Texas: Lacewing Press, 1997, 12.
2. Walter W. Ristow, "United States Fire Insurance and Underwriters Maps, 1852-1968." *Quarterly Journal of the Library of Congress* 25 (July 1968), 198.
3. Oswald, 35-40.
4. R. P. Getty. Insurance Surveying and Map Making, *Cassier's Magazine*. V. 39 (Nov. 1910), 20.
5. Dan Beard. *Hardly a Man is Now Alive: The Autobiography of Dan Beard*. New York: Doubleday, Doran & Co., 1939, 229-230.
6. James Borchert. "The Rise and Fall of Washington's Inhabited Alleys, 1852-1972". v.48 (1972): 267-288. *Records of the Columbia Historical Society*, 282.
7. Oswald, 94.
8. *Surveyor's Manual for the Exclusive Use and Guidance of Employees of The Sanborn Map Company*. Sanborn Map Co.: New York, 1936, 85.

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- Sanborn Fire Insurance Company. Map #154, Indianapolis, Indiana. 1898 (updated 1901-1913). IUPUI University Library Digital Collections website. [Accessed: <http://indiamond6.ulib.iupui.edu/cdm/ref/collection/SanbornJP2/id/47>].
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Readings of Interest

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- MacKell, Jan. *Brothels, Bordellos & Bad Girls: Prostitution in Colorado, 1860-1930*. Albuquerque: University of New Mexico Press, 2004.
- Marquez, Raquel, Louis Mendoza and Steve Blanchard. 2007. "Neighborhood Formation on the West Side of San Antonio, Texas." *Latino Studies* 5(3): 288-316.

Editor's Note: Kristi L. Palmer is Director of the Indiana University-Purdue University Indianapolis, The IUPUI University Library Center for Digital Scholarship. We have talked about the potential of this article for several months. Kristi has gone out of her way to develop an understanding of glass factories and glass collecting. The results are evident in this article - not a history lesson but a hands on guide to help you make use of fire insurance maps as a research tool. We extend our thanks to Kristi and the University Library Center.