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A Proposition for a Beer Museum

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Abstract

While the craft brewing industry and subsequently beer tourism are ever expanding, we only have a few ideas about what beer tourism is and what drives it. The purpose of this study is to take proposed concepts from other beer tourism studies and to expand their ideas into a working design for a museum. The exhibits displayed in this museum will include many components that beer tourists want when they explore the world of beer, such as beer history, making beer, beer styles, and of course tasting beer. These concepts will be presented through text, images, hands-on interactives, and objects, making this potential museum a multisensory experience.

State University of New York
College at Buffalo
Department of History and Social Studies Education

A Proposition for a Beer Museum

A Thesis in
Museum Studies

By

Alexa R. Templeton

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Master of Arts
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Introduction

Over the past 30 years or so, the craft beer industry has continued to grow throughout the world. For many countries this phenomenon began in the mid to late 1970s, and currently it's the only section of the brewing industry that is still expanding.¹ Let me first clarify what a craft brewer is; according to the Brewers Association, "an American craft brewer is a small and independent brewer."² In this context small means the annual production of beer is 6 million barrels or less, independent means less than 25 percent of the brewery is owned or controlled by a beverage alcohol member who is not a craft brewer, and the brewer must have a Brewer's Notice which gives them permission by law to make beer. A universal component of craft breweries is being innovative with styles of beer, instead of the standard lager that the big brewers are mass producing.

The craft beer industry has a special place in my life because I had the opportunity to be a server at a local brewery in Albuquerque, New Mexico. During the same time that I was working there, I already knew that I wanted to go into the museum field. In a conversation with my parents, they suggested an idea to incorporate both my skills and knowledge within the craft beer industry with the knowledge that I was going to gain while pursuing my master's degree in Museum Studies. Thus, the idea for a beer museum was born. The museum that I will present in this paper would be an independent, brick and mortar building located in Albuquerque, in a hopefully centralized spot where visitors can easily travel to a local brewery if they wish. In addition to the museum concept I was provided research suggestions that lead me to the concept

¹ Amy Mittelman, *Brewing Battles: A History of American Beer* (New York: Algora Publishing, 2008), 200.

² "Craft Brewer Definition," Brewers Association, accessed April 16, 2020, <https://www.brewersassociation.org/statistics-and-data/craft-brewer-definition/>.

of beer tourism. Beer tourism is a concept that scholars are becoming aware of as a result of the expanding craft beer industry.

The study of beer tourism is not as thorough as wine tourism (a note that many scholars put in their papers), and we only have a limited scope of what beer tourism encompasses. The agreed upon motive for beer tourists is beer consumption, whether that be through breweries and brewery tours, beer festivals, or beer trails. Many of the articles and studies regarding beer tourism are quick to detail the facts of our limited understanding of beer tourism, but few offer a fully comprehensive plan of how to expand this idea in their areas. I want to utilize my experience with exhibit design and installation to help expand the beer tourism conversation. For Albuquerque, some of the craft breweries will offer tours and there are festivals that breweries participate in but having a museum would offer a form of beer tourism year-round with additional information that they may not gain from these other forms.

Thus, the purpose of this study is to expand on the beer tourism topic by providing a working design for a museum in Albuquerque. The exhibits in this museum will include many components that beer tourists want when exploring the world of beer, such as beer history, making beer, beer styles, and of course tasting beer. These concepts will be presented through text, images, hands-on interactives, and objects, making this potential museum a multisensory experience.

Literature Review

Some questions that might come to mind regarding this paper are, how can a museum be an essential element in the beer tourism sector? And what do museums provide in this scenario that other beer tourism outlets, like brewery tours and festivals, might not? Beer festivals offer the ability to try multiple products and the possibility for tourists to learn about different styles and/or history of the breweries that are participating in the festival. Brewery tours go further and offer patrons the ability to see the equipment and at times the raw ingredients used in making beer. However, a beer museum can provide all of the components and more. In a museum setting, patrons can go at their own pace to learn about the history of beer, read about the process of making beer in a format that is understandable, and still have the ability to try various styles of beer in a controlled setting. The proper way to approach new beer will give patrons the opportunity to interact with the beers that they have chosen.

Scholars in various parts of the world have conducted studies to help us understand beer tourism. Sylvia Smith, John Farrish, Matthew McCarroll, and Elizabeth Huseman compiled a paper, “Examining the Craft Brew Industry: Identifying Research Needs,” looking into topics regarding the craft beer industry that could use further research. These topics include the overview of the craft beer industry, economics and the industry, craft beer tourism, and sensory analysis. Smith, et al., provide information about these topics based on the research that is available, then they include a section detailing what is lacking in the available research. For craft beer tourism, the problem revolves around the lack of broad studies. They claim that the publications are focused on particular markets without considering the larger picture.³

³ Sylvia Smith, et al., “Examining the Craft Brew Industry: Identifying Research Needs.” *International Journal of Hospitality Beverage Management* 1, no. 1 (2017): 11. Accessed November 30, 2019. <https://scholars.unh.edu/ijhbm/vol1/iss1/3>.

Most of the research that Sylvia Smith, et al., were able to provide looked at markets in North Carolina, however, this limited view does provide significant data. There is an overwhelming discrepancy of who craft beer tourists are, which is males, in their 30s, with bachelor's degrees.⁴ As a woman who has worked in the craft beer industry, I want women to be just as passionate about beer as men are. Beer is becoming more and more diverse as brewers' experiment with styles and I believe that the craft beer tourists should be just as diverse. Smith, et al., are under the impression that craft beer tourism will not reach the scope of wine tourism, however, offering other outlets besides breweries, such as a museum, could help boost the tourism concept.

Abel Duarte Alonso and Nevil Alexander's article, "Craft Beer Tourism Development 'Down Under': Perspectives of Two Stakeholder Groups," provides a compelling study into the development of beer tourism, specifically in Australia. This study offers three objectives, (1) the extent of development, (2) types of beer tourism to develop, and (3) challenges in this development. The stakeholder groups that were utilized were brewers in two different areas of the brewing industry, those in commercial production and those in the leisure or homebrewing production. The conclusion for each objective is as follows: there is an overwhelming support to develop beer tourism further with some ideas including shuttle tours from brewery to brewery, brewing classes for beginners and advanced brewers, and cooking classes that incorporate beer. Some of the challenges or worries that were brought up throughout the study include, negative attitudes towards alcohol, lack of government support, and laws and regulations.

This study provides insight into how those in the brewing industry view beer tourism and their ideas on how to develop it. For my study and other future studies, the information from the

⁴ Ibid, 5.

challenges section can be used as notes of what might hold the development back. Many of these suggestions that the stakeholders make can be done within the framework of a museum or around a museum. Such as the shuttle tour from brewery to brewery, which could be a monthly event with the museum, where a few breweries participate, and visitors get special tastings from these establishments. While brewing and cooking classes might need additional planning, having brewers give talks at the museum could provide visitors another opportunity for learning.

Christian M. Rogerson's article, "Developing Beer Tourism in South Africa: International Perspectives," aims to talk about the growth of beer tourism in South Africa and provides an overview of key trends in beer tourism research. Rogerson included statements around the education of beer, specifically through tasting rooms which are common in wine tourism. Tasting rooms can provide a space to promote and develop product awareness, as well as challenge the market dominance of large breweries.⁵ Rogerson also noted that brewers need to acknowledge their role as tourism attractions and need to embrace support and partnerships with tourist organizations.

This article is education forward and embraces that breweries have a role is disseminating that information. At the end of the article, Rogerson notes that breweries might be discouraged to open their establishments to large numbers of people because they would need additional staff to run tasting rooms and other costs to make the brewery "visitor friendly."⁶ This is where a beer museum would be beneficial because it would be set up to have numerous visitors and they would be getting the same information. It also wouldn't be the brewery's responsibility to

⁵ Christian M. Rogerson, "Developing Beer Tourism in South Africa: International Perspectives," *African Journal of Hospitality, Tourism, and Leisure* 4, no. 1 (2015): 9.

⁶ *Ibid*, 10.

provide staff. They would be embracing this type of partnership through offering to provide some of their product for tastings.

Christian Rogerson also wrote another article, with Keagen J.E. Collins, titled “Beer Tourism in South Africa: Emergence and Contemporary Directions.” This article was more focused on the growth of beer tourism in South Africa, which is primarily a wine tourist destination. This article talks about South African Breweries (SAB), which is the big beer conglomerate in South Africa. The SAB World of Beer is a museum in Johannesburg that presents the brewing process in detail and presents a message that combines production, branding, and consumption. This museum was part of an urban renewal project for Johannesburg, so initially visitor numbers were low, but over the years the museum has become a place of hospitality.⁷

Though this paper’s focus was on beer tourism in South Africa, it provides a look into how beer tourism can be successful even when presented with challenges. South Africa’s craft beer industry had a later start than the United States and the United Kingdom. However, it is because of the craft beer industry that South Africa’s beer tourism has diversified.⁸ Collaboration of craft breweries with beer tourism seems to correlate with beer tourism’s success. Craft breweries have dedicated followers who are willing to support festivals that their favorite brewery is attending. Having support of local breweries where a beer museum is established could contribute to that amount of support given to it.

Jana Jablonská, Tomáš Pôbiš, and Gajza M. Timčák, contributed an article, titled “Beer Tourism in Slovakia,” for a conference focused on geo-tourism and geo-heritage. Their article

⁷ Christian M. Rogerson and Keagan J.E. Collins, “Beer Tourism in South Africa: Emergence and Contemporary Directions,” *Nordic Journal of African Studies* 24, no. 3 and 4 (2015), 245.

⁸ *Ibid*, 252.

gives a brief overview of beer history in general and in Slovakia. It discusses microbreweries within Slovakia, as well as beer festivals and celebrations held in the country. This article states that the likely success of breweries in the country can be attributed to multiple associations, including the Slovak Academy of Brewing, the Association of Small Independent Breweries of Slovakia, and the Slovak Association of Brewing History. The authors believe that these groups could also contribute to the success of beer tourism.⁹

In the conclusion of this article, the authors provide an example of a beer trail that could be followed in Slovakia. They state that beer trails could help preserve the brewing traditions of Slovakia.¹⁰ Beer tourism at its core, besides giving people the opportunity to sample products, is about celebrating the local customs around this beverage. And again, we see that collaboration is the best approach to making beer tourism a success.

These studies of beer tourism, conducted in all parts of the world, provide insight into how to make beer tourism successful anywhere. The consensus throughout most of these papers is collaboration and willingness to work with outside resources to expand what beer tourism is and what it can provide to beer tourists. As seen in these studies, there are attempts to make beer tourism more than just consuming beer. It's also about focusing on local history, education, and appreciation of the products that are available. These components are the reasons why I believe a beer museum would contribute to the beer tourism scene. Museums can provide multiple experiences and ensure that it is done in a responsible manner.

Along with the ideas presented in the above studies, I needed to consider what it means to develop an exhibit. Having some experience in exhibit design and installation, I have resources

⁹ Jana Jablonská, Tomáš Pôbiš, and Gajza M. Timčák, "Beer Tourism in Slovakia," in *Geotour and Isle 2013: Strategies of building geotourism and geoheritage attractions (Conference Proceedings)*, edited by L'ubomír Štrba (Košice: Technical University of Košice, 2013), 71.

¹⁰ *Ibid*, 73.

at my disposal that I referenced while putting together the examples that are featured later in this paper. The Smithsonian Exhibits' publication, titled "A Guide to Exhibit Development," provides a concise evaluation of how to develop an exhibit. This guide details the steps in which to develop an exhibit from who is involved, the phases of development to the structuring of panels. At this point the design that I am working on has not followed many of the early steps, but those will be revisited as this project develops further. However, components such as visitor preferences, interactive tools, and structuring were useful guides in what I have put together.

The J. Paul Getty Museum also has a guide in exhibit development, titled "Complete Guide to Adult Interpretive Materials: Gallery Texts and Graphics." Similar to the Smithsonian guide, this resource provides tips and structuring for exhibits. This shows numerous types of panels and displays that might be used in an exhibit and how they should be laid out. Additional information that this guide includes are measurements, fabrication suggestions, and type face suggestions. The recommendations of these two sources were helpful for the working design of this exhibit and will be continuously referenced as this project moves forward.

Interactive and multisensory components will be an essential addition to a beer museum. Jennie Morgan's article, "The Multisensory Museum," discusses how museums are shifting towards a more hands-on experience verse the typical "Do Not Touch" mentality. In this article, Morgan mentions the outcomes of having exhibits that go beyond just seeing, including the hope that it leads to more diverse audiences.¹¹ In addition to talking about how multisensory museums can enhance the learning of visitors, it could also cause disorientation as visitors adjust to how they are supposed to interact with the objects. Having clear instructions how to use the exhibit

¹¹ Jennie Morgan, "The Multisensory Museum," Ethnographic Institute of SANU, 2011, accessed April 20, 2020, 72 <https://www.cceol.com/search/article-detail?id=242251>.

space and the interactives can help with this disorientation. This leads to the other source that I will continue to reference as this project moves forward.

The staff in the Office of Policy and Analysis at the Smithsonian Institution put together the document, “Developing Interactive Exhibitions at the Smithsonian.” This was the result of a workshop that was held and attended by Smithsonian staff members with various backgrounds. The definition, guidelines, and evaluation of interactives is provided and a checklist that was created by the participants of the workshop is available to those who are developing exhibits that will have interactive components. This will continue to be an important source to refer to because it will be valuable beyond the development stage of this project and will ensure that the museum is being evaluated constantly to see what is working and what might need to change.

The last group of sources that contributed to the development of the beer exhibit, include reference materials for beer and various sources dealing with the history of beer and brewing. The information from these sources provided much of the content that will be seen on the example panels that I have put together. Many of these sources are also widely used materials within the brewing industry and beer tourism. These sources often times reference each other and offer some of the most extensive information on numerous beer topics. *The Oxford Companion to Beer* edited by Garrett Oliver, *Craft Beer for the People* by Richard Taylor, James Watt, and Martin Dickie, *The Beer Scholar Study Guide for the Certified Beer Server Exam* by Chris Cohen, and *Beer Judge Certification Program: 2015 Style Guidelines* edited by Gordon Strong, are the reference materials that contributed to the brewing process and styles sections for this exhibit.

The Oxford Companion to Beer is an encyclopedic style book for individuals who want to learn about the various aspects of beer, from ingredients, history, and science, to biographies of

long-standing breweries across the world. Garrett Oliver, the chief editor, is also a brewmaster at the Brooklyn Brewery and is regarded as one of the world's leading beer authorities. The work could be considered the starting point for any individual who wants to research beer because it will give them the beginnings of information which will have references to other sources and authors that will elaborate further. Many of the topics discussed are cross-referenced in other sections, which is noted at the end of the sentence or passage. This allows readers to maneuver through the book quickly and efficiently.

Craft Beer for the People is another reference book for people interested in craft beer overall. This book was written by the founders of the BrewDog brand, which began in Scotland. Since they started brewing in their garage roughly 13 years ago, James Watt and Martin Dickie have opened and expanded their business tenfold, with four breweries and 50 bars (as of 2016). DogTap, their brewery located in Columbus, Ohio, is their first brewery in the United States. This location is not only a brewery and restaurant it also consists of a museum and a hotel. This museum was a wonderful insight to the ideas for the museum that I would like to open. More information about the museum will be provided later in this paper. The book that Watt and Dickie decided to publish was part understanding where they came from and where they are hoping to go, but the other part of this book is giving people the knowledge on how to approach craft beer and appreciate the process that goes into it.

While including sections that explain the ingredients of beer, the brewing process, and a variety of recipes for readers to try, this book also brings a personal element to it. It tells the story of these brewers who started out making beer in their garage and are now proud owners of a successful international brand of craft beer. They present their information in a way that those who are new to beer can understand. Much of their approach in this book is reflected in my

exhibit. This is also a book that readers can continuously come back to because it offers interactive pages at the end that readers can fill out when they visit a BrewDog brewery or any brewery.

Similar to the above sources, *The Beer Scholar Study Guide for the Certified Beer Server Exam*, provides information about the brewing process and ingredients. This, as its title suggests, is a resource dedicated to helping people pass the first level of the Certified Cicerone Program. Many breweries encourage or even recommend that their servers and staff are at least level one certified beer servers. This ensures that they can better inform their customers what that brewery has available and to ensure that they know how to handle the beer. This type of information was also helpful for many components of my exhibit.

The Beer Judge Certification Program: 2015 Style Guidelines is the final reference guide which was utilized extensively in the beer styles section. This is used at many beer festivals that involve beer competitions. The Great American Beer Festival in Colorado gives out awards to breweries for the beers that they enter. Beers are put into categories based on the *2015 Style Guidelines* and certified judges award beers with gold, silver, and bronze medals. I used this information, not to judge beers, but to display informative panels about beer styles. You will see that these panels explain the general characteristics, like color, IBU, ABV, and flavor, of a handful of beer styles.

The history of beer is typically not the center of beer tourism and only a couple of the beer tourism studies about attempt to include it. I believe that the general history of beer should be highlighted just as equally as the other subjects. I consulted many sources regarding the history of beer to help build my own version of the story and the subsequent timeline that could work in a museum setting. Cutting down the information from these sources was a challenge but

ultimately it means that there are plenty of options to choose from. The following sources cover thousands of years of history from numerous sections of the globe.

A History of beer and brewing by Ian Hornsey and “A Comprehensive History of Beer Brewing” by Franz G. Meussdoerffer both provide the longest stretch of history than other sources, which is around 10,000 years. Hornsey’s work is much more elaborate and the modern history is focused on the European market. While Meussdoerffer’s work, which is set in a handbook for brewing, does not spend too much time on each period of history. However, these sources are very similar in telling where beer began and how beer evolved throughout the years. Another source that focused on the early beer, more particularly how it was viewed compared to wine, is *The Barbarians Beverage: A History of Beer in Ancient Europe* by Max Nelson. Many early cultures, including the Greeks and Romans, preferred wine over beer, so Nelson’s work details the causes of these beliefs and how they handled the beer drinking cultures that they encountered.

American beer history is vital to the story since it is what I am used to, so I utilized many sources that focused on this part of history. Gregg Smith’s book, *Beer in America: The Early Years-1587-1840*, offers a glimpse into American beer before the major players of the 1800s were established. Smith details how early colonists attempted to establish the necessary materials for beer and how beer was also affected by conflicts with England. Amy Mittelman’s *Brewing Battles: A History of American Beer* and Maureen Ogle’s *Ambitious Brew: The Story of American Beer*, provide a similar story of the rise of American breweries in the 1800s to modern times. Mittelman includes the relationship between the government and associations that represented the brewing industry. Ogle focused more on individual brewers that grew to be household names in the industry. Both illustrate the accomplishments and struggles that

American beer has faced over the years. Prohibition was one of the main struggles that American brewers faced, which is detailed in Mittelman's and Ogle's works. Jack S. Blocker's work, *Retreat from Reform: The Prohibition Movement in the United States, 1890-1913*, helps readers understand the events and people that led up the prohibition movement.

The above sources were essential in the development of the exhibit featured in this paper. Individually they each have offered insights to their fields, whether in museums, brewing, or beer tourism. I want to use each of these to create an experience that involves each of these fields, which has not been a focus in any of them. Each field wants to create new experiences for their visitors, and I believe that by combining their suggestions and ideas, a collaborative experience could be produced. The following paper is the result of that combination.

Chapter 3

The Exhibit

In each of the following sections, I am going to detail at length the information for the following subjects: history of beer, making and evaluating beer, and beer styles. I will explain if and how these subjects are approached in other beer tourism outlets and then explain how they would be approached in a museum setting. The extended explanation of these subjects is provided with the hope that it will help the reader's understanding of the information that I have chosen to put on the panels. It will also hopefully illustrate how diverse these panels can be because of the vast amount of information regarding beer. When developing these panels, I referenced the Smithsonian's "Guide to Exhibit Development" and The J. Paul Getty Museum's "Complete Guide to Adult Interactive Materials: Gallery Texts and Graphics." The Smithsonian's overview for their work mentions that "exhibit development is a team sport" and that "collaboration is key." Therefore, the following is merely a working design that could change as I consult with others in both the museum and brewing field.

History of Beer

To begin, I will look at the history of beer, which is the least focused on aspect of beer or beer tourism. Beer festivals are centered on the socialization around beer and beer consumption, so having in-depth conversations about how beer came to be may not be on the minds of many visitors. As far as brewery tours, visitors often times will learn about the history of that particular brewery. In a beer museum, visitors will have the opportunity to learn about many important events that beer has gone through. This in turn will hopefully spark an interest in researching an event or location further. The history of beer can be extensive, and many scholars have dedicated their time to writing these histories.

If I were to do the same, this paper would have an entire books worth of information, so to keep things concise yet informative I will only detail the highlights of beer history that I find to be most noteworthy. This approach helped in the development of the example panel featured later in this paper. It is agreed upon that there has been a fermented beverage made from cereal grains since the earliest forms of human civilization. It is hard to pin-point exactly how fermented cereal grains were discovered because the fermentation process is different than that of fruit, honey, or milk¹². In addition, some scholars are unsure if we can definitively say that this beverage is beer, the distinction is complicated because our modern terminology does not precisely correlate with ancient distinctions.

To clarify, it is speculated that preagricultural groups may have sought out fruits, which are prone to natural fermentation with the exposure of wild yeast, hoping that they would provide an intoxicating effect. While fruits already have the proper sugars and water needed for fermentation and only need contact with yeast, cereal grains need to convert their insoluble starches and sugars (polymers) into soluble forms (monomers), mainly maltose and dextrose.¹³ This occurs through the actions of enzymes which develop inside the seeds of grains that have been left out in the rain. The starches would then need to be heated to allow the enzymes to liquify into sugars. Once it is known that grains can also provide intoxicating effects like fruit, it becomes difficult to say whether brewing was a primary reason for a sedentary lifestyle or if it was like horses and ploughs which developed as a result of the farming lifestyle.¹⁴

Whatever the answer may be, evidence has been found for production and use of a cereal based intoxicating beverage within the Egyptian and Mesopotamian societies. The evidence in

¹² Max Nelson, *The Barbarians Beverage: A History of Beer in Ancient Europe* (New York: Routledge, 2005), 9-10.

¹³ *Ibid*, 9.

¹⁴ Oliver, "History of Beer," 436.

both cases dates within the Predynastic period (5500-3100 BC) and is primarily artistic in nature. The Egyptian evidence consists of jars with residue that can be linked to early forms of beer and extensive written records from the Early Dynastic period (3100-2686 BC) about the importance of beer for that time, which means it was well established by the Early Dynastic period. The Egyptians credited the invention of beer to one of their most important deities, Osiris, who was associated with fertility, death and resurrection.¹⁵ This association of beer or beer production with gods was a common practice for many ancient civilizations. Another artistic and enlightening example of beer, and bread, production is a relief in the tomb of Ty (Ti), which depicts the stages of making these items. Ty was an important official who was in charge of looking over the pyramids and sun temples of the 5th Dynasty rulers.¹⁶

In Mesopotamia, the region currently accepted as the birthplace of beer, there is a seal from Tepe Gawra in northern Iraq dated around 4000 BC, which depicts two people drinking from a vessel with bent straws. It was common that these early forms a beer were not filtered and therefore still contained sediment. To avoid this people used straws made from reed.¹⁷ The Sumerians, inhabitants of Mesopotamia, considered brewing to be very important and put it in charge of the goddess Ninkasi. Archeologist have found a tablet dating around 1800 BC, which has been deemed as a hymn to Ninkasi, detailing some aspects of beer production. As an example, the last stanza goes as follows:

When you pour out the filtered beer of the collector vat,
It is [like] the onrush of the Tigris and Euphrates.
Ninkasi, you are the one who pours out the filtered beer of the collector vat,
It is [like] the onrush of the Tigris and Euphrates.¹⁸

¹⁵ Ian Hornsey, *A History of beer and brewing* (Cambridge: The Royal Society of Chemistry, 2003), 32-33.

¹⁶Ibid, 54.

¹⁷Ibid, 76 and 86.

¹⁸ Ibid, 89.

For an in-depth account of Egyptian, Mesopotamian, and other ancient beer drinking societies, Ian Hornsey's *A History of beer and brewing* should be consulted. To continue, the Babylonians eventually conquered the Sumerians and adopted their now superior beer-making skills. During this period, the first policies to control alcohol were established under the rule of King Hammurabi (1728-686 BC). The Code of Hammurabi is chiseled into a 7-foot-high column made of gray-green igneous diorite and is housed at the Louvre in Paris.¹⁹ According to the Louvre website, the content of the code is separated in three parts, a prologue discussing the investiture of King Hammurabi and the formation of his empire and achievements, an epilogue summing up his legal work and its perpetuation in the future, and finally between these two passages is text detailing almost three hundred laws and legal decisions governing daily life in the kingdom of Babylon.²⁰ Within the laws, beer is classified in 20 different categories and there are price controls on both the brewers and innkeepers.²¹ As stated earlier these policies would be the first of many for alcohol and throughout this story, I will discuss other methods of control.

While the Babylonians seemed to tolerate the idea of drinking beer and continued making it, other cultures that encountered it were not as welcoming. The Greeks and Romans both saw beer as a lower class beverage and deemed it suitable for those living in poverty within the hostel barbarian cultures that they were encountering. This ideology stems from the fact that the Greeks and Romans were wine drinking cultures, and for the Greeks it seemed necessary to distinguish things based off of the four elements. To them wine was considered a "hot" drink which deemed it to have male principles, while beer was considered "cold" representing female principles,

¹⁹ Anda Lincoln and Horst Dornbusch, "Law," in the *Oxford Companion to Beer*, edited by Garrett Oliver (New York: Oxford University Press, 2012), 542.

²⁰ Iselin Claire and André-Salvini Béatrice, "Law Code of Hammurabi, king of Babylon," Louvre, accessed November 20, 2019, <https://www.louvre.fr/en/oeuvre-notices/law-code-hammurabi-king-babylon>.

²¹ Lincoln and Dornbusch, "Law," 542.

leading to the idea that beer drinkers are “effeminate.”²² However, as the Romans expanded their empire they found it necessary to accommodate their people in areas without viticulture with a suitable beverage, allowing provisions of beer. Evidence of this comes from brewery remains in Roman border forts at Loesnich, Xanten, and Regensburg. Tombstones also indicate that there were organized guilds for brewers and beer dealers within the Roman Empire.²³

The Romans were not the only group expanding into new territory and the continuous merging of different cultures draws us closer to the beer that we know today. In the third and fourth century AD the Germans, who were another known beer drinking group, moved closer to the Roman borders, which would soon herald a new era for beer and brewing.²⁴ With the fall of the Roman Empire in 476 AD and the assimilation of cultures including the Romans, Germans, and Slavs, we see monasteries became essential places for learning. They would also become centers for brewing during a time when this activity was moving out of the household and into purposefully built facilities. St. Gallen monastery in Switzerland is credited as having the first full scale brewing operation in Europe, dating from the early 800s.²⁵ The plan of the building was drawn up in 820 and is noted with having three separate breweries. The reason for having three separate breweries was to brew three different brews, one for noble guests, one for daily consumption by the monks, and another for pilgrims (each one decreasing in strength).²⁶

It is also important to know that hops were not the primary flavor additive of beer at this time. Well into the high Middle Ages, brewers were using a combination of herbs known as gruit, which consisted predominantly of bog myrtle or sweet gale.²⁷ This was an important

²² Franz G. Meussdoerffer, “A Comprehensive History of Beer Brewing,” in *Handbook of Brewing: Processes, Technology, Markets*, edited by Hans Michael Eßlinger (Weinheim: Wiley-VCH, 2009), 8.

²³ *Ibid*, 8.

²⁴ *Ibid*, 9.

²⁵ Oliver, “History,” 438.

²⁶ Meussdoerffer, “A Comprehensive,” 10.

²⁷ Hornsey, *A History*, 535.

ingredient for all brewers before the common use of hops, but there were strict controls over the production and use of gruit. This was known as gruitrecht and was primarily put in the hands of the church although it could be transferred to the town. For example, in the 12th and 13th centuries Dutch towns took control of the taxation of gruit, but the counts and bishops saw opportunities to capitalize on this by selling or leasing the power to tax gruit. This transition of power at times came with conditions, as in Schiedam, in 1399, when the count gave the town power to collect the taxes, but the money had to be used to maintain the harbor.²⁸

While people knew about the presence of hops, it would take a long time for it to be widely accepted in brewing. The first example of hops being referenced with brewing was in 822 when Abbot Adalhardus from the monastery of Corvey in Germany issued a series of statutes, one of which mentioned the used of hops. This statue stated that the porter of a monastery should take a tithe for each malting, while also keeping the malt he made himself. This included hops and if the amount was insufficient to meet his requirements, then he should take steps to gather enough raw materials from elsewhere.²⁹ Hopped beer became more and more popular from here and for France it was commonplace by the 11th century. Then in 1516, the Bavarian Duke Wilhelm IV announced the Bavarian Beer Purity Law, which stated that brewers within the Duke's realm could only use barley, water, and hops (yeast would be added later).³⁰ Even with the majority of the continent accepting hops, England still took until the end of the 14th century to use hops on a regular basis. It was with the addition of hops, which have preservative

²⁸ Ibid, 535.

²⁹ Ibid, 305.

³⁰ Victoria Carollo Blake, "Hops," in the *Oxford Companion to Beer*, edited by Garrett Oliver (New York: Oxford University Press, 2012), 464.

qualities, that brewers realized they could store beer for a longer amount of time,³¹ thus moving brewing to a large-scale production to accommodate the increase in demand.

To keep this story moving forward, the remaining information will focus on events in England and America, leading up to modern times with the micro/craft brewing movements. As stated above, beer is now rapidly growing into a large-scale business, which means ideas about how to produce a better product in a more efficient manner were beginning to surface. For the British brewing industry, two components for the progress in brewing would be valuable. The first being the London Patent Office, established in 1617, which encouraged the publication of new, practical ideas, and allowed the people responsible for them to be protected from frauds. The other component was the Royal Society, established in 1662, which with the help of works by Robert Boyle, Wren, and Newton marked the end of “medievalism” and enabled scientific thought to flourish.³²

A couple of examples from the various ideas that resulted in this push for knowledge were the hydrometer and pasteurization. Starting with the latter, Louis Pasteur was responsible for the definitive work that determined the function of yeast in alcoholic fermentation. Pasteur’s conclusion states:

Alcoholic fermentation is an act correlated with the life and organization of the yeast cells, not with the death or putrefaction of the cells, any more than it is a phenomenon of contact, in which case the transformation of sugar would be accomplished in presence of the ferment without yielding up to it or taking from it anything... I am of opinion that alcoholic fermentation never occurs without simultaneous organization, development, multiplication of cells, or the continued life of cells already formed.³³

This conclusion is the reason why brewers now know that yeast is an active ingredient in the brewing process. Yeast consumes the sugars from malts converting them into ethanol thus

³¹ Oliver, “History”, 439.

³² Hornsey, *A History*, 392-393.

³³ *Ibid*, 415.

creating beer. Another vital invention was the hydrometer and saccharometer, one of many instruments that assist brewers. These tools are used to measure densities of liquids, the hydrometer measures the amount of water present in spirits and saccharometers measure dissolved fermentable materials, like sugar, in beer.³⁴ Taking measurements with these tools allows brewers to assign an accurate strength level to beer instead of determining this through tasting or stickiness.³⁵

As we move into the Industrial Revolution, more innovations including steam power and refrigeration entered and transformed the brewing industry. Initially, steam power was used for milling the large amount of grains and for some pumping operations, but quickly it was discovered that it could be used elsewhere. And while the purpose of installing steam engines was to cut costs, brewers were seeing a dramatic increase in output. For example, Whitbread in London had tripled their barrelage from 60,508 in 1760 to over 200,000 by 1796.³⁶ Now that the means to make larger quantities of beer was available there needed to be a way to cool this product.

Typically, beer was cooled naturally by its surroundings, meaning that it was best to brew during the winter months because beer was notoriously unstable if brewed in warmer months. Beer was then consumed within a few days after fermentation to avoid spoilage. Storing beer required underground cellars and ice blocks which allowed beer to stay cool for months.³⁷ In 1873, Carl von Linde invented mechanical refrigerators using ether for refrigerant gas. The ability to make ice expanded the brewing season to year-round and it expanded the availability to

³⁴ Ibid, 429.

³⁵ Keith Thomas, "Hydrometer," in the *Oxford Companion to Beer*, edited by Garrett Oliver (New York: Oxford University Press, 2012), 473-474.

³⁶ Hornsey, *A History*, 437-439.

³⁷ Brian Hunt, "Refrigeration," in the *Oxford Companion to Beer*, edited by Garrett Oliver (New York: Oxford University Press, 2012), 692.

produce lager beers, which required cold fermentation versus ales that needed warm fermentation.³⁸

Before moving too far ahead, it is best to examine the movement of beer to America, which is exactly what it did. Part of the cargo aboard the ships heading for America included English ale. However, after arriving to the New World it was apparent that the beer supply would not last long, and the pilgrims did not trust the water due to fears of pollution which they faced back home. Luckily the colonists could request equipment and ingredients to start their brewing industry and establish a new supply of home-grown ingredients. As alternatives, the colonists were introduced to corn by the natives and learned to crush and ferment them.³⁹ The use of corn would be essential to American brewers after prohibition. However, it would not be long until regulations were set in place about what could and could not be used in beer production. For example, in Massachusetts in 1667 it was mandated that “beer had to be made from good quality malt and could not be diluted with molasses or coarse sugar.”⁴⁰

As more and more colonist settled into the New World, their ability to have small brewing establishments and taverns grew (large-scale brewing would still take time to build). The tavern quickly became an important establishment within a settlement. Taverns were considered the epicenter of settlements because they offered drinks, food, lodging, and they were the places to hear the news.⁴¹ Drinking beer had its roots as a social activity since its inception and that did not change in the New World. Through the darkest moments of war to the celebration of winning the Revolutionary War, beer was by the sides of colonists. Post war there was a push to buy American in order to prove independence from England, so it was an

³⁸ Ibid, 692.

³⁹ Gregg Smith, *Beer in America: The Early Years-1587-1840* (Boulder: Brewers Publications, 1998), 14.

⁴⁰ Ibid, 27.

⁴¹ Ibid, 32.

opportunity for brewers to expand. However, this expansion was met with difficulties, particularly due to the struggles of growing English barley in American soil. American varieties were beginning to flourish, but in the meantime, New Englanders saw an opportunity for something else: cider.⁴² The climate in America was perfect for apple trees and the cold, crisp weather was ideal for cider drinking. This spike in popularity would not last long and it would never surpass beer as the country's favorite drink.

The 1800s was a period of great change for America and for American beer, largely thanks to Germany. Many Germans were immigrating into the new country and with them they brought beer. But they didn't bring just any beer, they brought lager. Later in this paper I will discuss the difference between lagers and ales, but for now it is important to know that lagers were smoother in contrast to the available ale and porter.⁴³ This introduction to lager would set the course for Americans' taste in beer and the subsequent brewing industry.

Most of the big brewing names in America were started by German immigrants, including Phillip Best of Best Brewing Company, Adolphus Busch of Anheuser-Busch Brewing Association (makers of Budweiser), Frederick Miller of Miller Brewing Company, and many more. Many of their stories follow the same trend. Either they had previous brewing experience through family, or they immediately found their way into the business through partnerships with existing breweries once they arrived in their new homes. Phillip Best, alongside his three brothers, worked for his father, who was a brewer and vintner in a quaint village in Germany before making the move to Milwaukee.⁴⁴ In September 1844, Phillip Best was brewing and just over a decade later, he would be second best amongst Milwaukee's two dozen other breweries

⁴² Ibid, 113.

⁴³ Ibid, 131.

⁴⁴ Maureen Ogle, *Ambitious Brew: The Story of American Beer* (New York: Harcourt Books, 2006), 1.

(Val Blatz of Blatz Brewing Company led by only two hundred barrels).⁴⁵ Best Brewing Company would eventually be renamed to the Pabst Brewing Company in 1889 and the operation would cease to operate by 1996.⁴⁶

When we think of American beer most people will think of Budweiser and Adolphus Busch's story can be used as an example for many of the early brewers. Adolphus Busch arrived in St. Louis in 1857 at the age of 18 and found work at a commission house. By 1859, he and a business partner opened a brewing supply company, where Busch would meet connections within the brewing industry. One of those connections was Eberhard Anheuser, who acquired the Bavarian Brewery and who would become Busch's father-in-law.⁴⁷ Anheuser was not a master brewer, having a background in the soap business, and when his partner left the brewery in 1864, he knew he had to do something. Busch was an excellent leader and salesman leading him to purchase a share of the Bavarian Brewery. This was the beginning of a company giant that would influence the industry for decades.⁴⁸

Anheuser-Busch Brewing Association, named in 1879, would make large strides in the brewing industry on their way to the top. Busch was a man of innovation and used the best people to establish the best methods to tap into the southwest market, a place where no one was attempting to go.⁴⁹ Busch was the first to put Louis Pasteur's discovery of using heat to kill bacteria into commercial practice. He also introduced refrigerated railcars in 1874 or 1875 shortly before meatpacker Gustav Swift, who is typically noted as the godfather of refrigerated rail shipping.⁵⁰

⁴⁵ Ibid, 11 and 39.

⁴⁶ Ibid, 67 and 336.

⁴⁷ Ibid, 40-43.

⁴⁸ Ibid, 45-46.

⁴⁹ Ibid, 62-64.

⁵⁰ Ibid, 64.

While Busch made these improvements to produce more beer and ship it to further locations, there were times when competition within the industry was fierce. More and more brewers, including Anheuser-Busch, were moving away from ales and started producing lighter pilsner beers, which were more pleasing to the American palate. One recipe that Busch and his head brewer worked on, was for a dealer of imported wines and liquors, Carl Conrad. This recipe would become the infamous Budweiser, which would quickly gain popularity and subsequently attracted other brewers to make imposter beers.⁵¹ Anheuser-Busch was initially just brewing the Budweiser brand for Conrad and did not own the rights to it. Conrad was making a name for himself with the Budweiser brand, but soon his reputation was ruined because of the knock-off brands that were being produced.⁵² In 1891, Anheuser-Busch received full rights to the Budweiser brand and both the brewery's and the brand's reputation were quickly established by the end of the 1800s. Busch was not going to let what he had built fall to beers that were of lesser quality. The work that Busch put into his business paid off because his beer is still one of the most popular commercial brews in the business.

Earlier in this paper I discussed Anheuser-Busch and the reputation that was built from them, so I want to use Frederick Miller as another example of early American brewing that survives in some form today. Miller was a trained brewer before he made his way to America, so the only thing he needed was a functioning brewery. Fortunately for Miller, Carl Best (Phillip Best's brother) let the brewery that he owned fall into bankruptcy. Miller leased the property starting in 1855 and then purchased it fully a year later.⁵³ Miller seemed to stay behind the pack, especially since he didn't add mechanical refrigeration until 1887 resulting in a production of

⁵¹ Ibid, 75 and 80.

⁵² Ibid, 108.

⁵³ Ibid, 35.

only 82,000 barrels for the entire year of 1888. Phillip Best was producing that much in a month. Throughout the 1900s the company became a real competitor with the other big-name breweries, producing 730,000 barrels in 1944, 3 million in 1957, and landing the number two spot for production in 2000.⁵⁴ Being in the number two spot was not enough for Phillip Morris, who owned Miller Brewing Company in 2000, to keep the company and sold it to South African Brewing Company.

While many others saw rapid success like Best, Anheuser-Busch, and Miller, all of these would soon be faced with hard realities about the brewing industry. By 1890, the temperance movement was steadily growing. The prohibitionists of the late nineteenth century were trying to redefine the American mission, functioning as a political device with the intent of creating a middle-class cultural consensus. This included protecting this said culture from competing norms of behavior and to extend a lifestyle embodying restraint to the classes above and below.⁵⁵ The platform for which the prohibitionist party was advocating would take decades to take effect and in the process the movement would split. The work of the Anti-Saloon League would lead to the enactment of prohibition, even though they believed that a national prohibition amendment should not have been presented to Congress until a majority of states adopted a statewide prohibition.⁵⁶

The passage of the Webb-Kenyon Act in 1913, which made it illegal to transport alcohol to dry areas, showed the potential power that the League had in Congress. Then with the ratification of the Eighteenth Amendment in 1920, prohibition became one of the most

⁵⁴ Ibid, 109, 221, 232, and 336.

⁵⁵ Jack S. Blocker, Jr., *Retreat from Reform: The Prohibition Movement in the United States, 1890-1913* (Westport: Greenwood Press, 1976), 15.

⁵⁶ Ibid, 228.

successful reform movements in American history.⁵⁷ Temperance movements were an international phenomenon, but few reached the measures seen in America. Many movements limited or put strict controls in production and licensing, but never ceased the production of alcohol outright. With the onset of World War I, these controls seemed to intensify. For example, in the United Kingdom the government put controls on operation hours of pubs, excise duty on beer, the strength of beer, the volume produced, the price, and raw materials.⁵⁸ For the United Kingdom, these controls were put in place to curtail the drunkenness problem.

Back in the States the government was still moving closer to prohibition of all alcohol altogether. All sections on the industry, from brewers to distillers of hard liquor, were working to convince the government to reconsider prohibition, with their main argument centering on economic reasons. The revenue being collected through liquor taxes made up one-third of the government's budget.⁵⁹ However, the federal government still passed the temporary Wartime Prohibition Act in November 1918, which prohibited the sale of alcoholic beverages after June 30, 1919. Then on January 16, 1919, Nebraska ratified the Eighteenth Amendment, which would take full effect across the country one year later.⁶⁰ The future of the brewing industry looked bleak, and in the end, most would fail to survive the 14 years of prohibition.

The breweries that attempted to stay afloat during prohibition did so by producing products other than beer, including soft drinks, milk, cheese, and flour. Anheuser-Busch Brewing Association resorted to selling baking yeast, ginger ale, and root beer. Pabst Brewing Company also went into the soft drink and soft drink syrup business.⁶¹ While these other endeavors helped

⁵⁷ Ibid, 235.

⁵⁸ Hornsey, *A History*, 587-588.

⁵⁹ Amy Mittelman, *Brewing Battles: A History of American Beer* (New York: Algora Publishing, 2008), 81.

⁶⁰ Ibid, 82.

⁶¹ Ogle, *Ambitious Brew*, 184.

keep the few breweries afloat, the stock market crash of 1929 would be a second blow that many were not able to take. This is when conversations around repeal would start and they centered around the economic benefits that would come from legally selling beer once again.⁶² Prior to prohibition, the United States had around 1,250 breweries in operation. By June 1933 after the official repeal of the Eighteenth Amendment, there were only 31.⁶³ Within a year of the repeal, the number of brewers rose to 756 and they were already producing more than half of the annual barrelage from 1914. The federal government was optimistic that the revenue collected from the liquor industry would reduce the taxes on everything else.⁶⁴

Even though there was a rebirth of the brewing industry, there were still concerning matters to think about. One being the equipment used in these breweries, which had not been updated since the late 1800s. There was also concerns that most breweries were operating on a local distribution system. Only a few midwestern brewers, like Anheuser-Busch and Pabst, had national distribution and sales.⁶⁵ Brewers also faced problems with packaging because bottling technology had made significant changes between prohibition and repeal. The soft drink industry was responsible for these changes in bottling technology, so the brewers had to come up with something new. The result of this would be canned beer, which would also herald as a new form of advertising as off premise consumption continued to increase.⁶⁶ As a result of these rapid changes, the conditions for a monopoly in brewing were beginning to develop shortly after repeal, especially with the introduction of automobiles giving the national distributing brewers an advantage.

⁶² Mittelman, *Brewing Battles*, 95.

⁶³ *Ibid*, 98.

⁶⁴ *Ibid*, 99.

⁶⁵ *Ibid*, 106.

⁶⁶ *Ibid*, 106.

A trend that was seen in the brewing industry worldwide was the declining number of brewing companies. There was still an increase to the annual production of beer, but it was now being done by fewer and fewer companies. In the United States, 481 breweries produced over 6 million barrels of beer in September of 1942 alone. This significantly surpassed the September 1914 total of 360,707 barrels.⁶⁷ In the United Kingdom, the number of breweries dropped from 1,446 in 1900 to 428 in 1940.⁶⁸ These numbers would continue to drop until reaching single digits. Today five brewing companies control more than half of the global beer market.⁶⁹ As a result of these mergers, the need to label types of brewers became important. Whereas in the 19th century, a brewer was a brewer whether he owned a large or small establishment. By the 1970s, there were large national brewers and small regional companies. Then with the legalization of homebrewing, the development of craft brewing would begin.

As a reminder, a craft brewer is a small and independent brewer, meaning they produce up to six million barrels of beer annually and less than 25 percent of the brewery is owned by alcohol beverage industry member who is not a craft brewer. Distinctions of craft beer and brewers include innovation where historic styles are interpreted with new twists and new styles are developed. Also, craft beer is brewed with traditional ingredients, like malted barley, and non-traditional ingredients are added for distinctiveness.⁷⁰ The craft beer industry has four segments within itself: micro-breweries, brewpubs, contract brewers, and regional breweries.

⁶⁷ Ibid, 134.

⁶⁸ Hornsey, *A History*, 687.

⁶⁹Christy Gren, "The Five Largest Beer Companies in the World," *Industry Leaders Magazine*, Industry Leaders, July 11, 2019, accessed February 20, 2020, <https://www.industryleadersmagazine.com/the-five-largest-beer-companies-in-the-world/>.

⁷⁰ "Craft Brewer Definition," *Brewers Association*, accessed April 16, 2020, <https://www.brewersassociation.org/statistics-and-data/craft-brewer-definition/>.

Sierra Nevada Brewing Company from Sonoma, California is an example of one of the first micro-breweries.⁷¹

A micro-brewery is determined by the number of barrels they produce per year, which is less than 15,000 barrels. If a brewery produces 15,000 to 2 million barrels annually, then they are considered regional breweries. Micro-breweries are popular because they focus on brewing styles that are different than the large national brewers. Brewpubs are distinguished by the restaurants that are connected to the brewery where fifty percent of their beer is sold. Companies considered contract brewers brew their product in pre-existing breweries. Boston Beer Company, who produce Sam Adams beer, is an example of contract brewing. While the headquarters for this company are in Boston, the Sam Adams brand is brewed in Pittsburgh at the Pittsburgh Beer brewery.⁷²

Craft brewing is currently the only faction of the beer industry that is continuing to see dramatic growth.⁷³ As of July 30, 2019, there are 7,480 active small and independent breweries operating in the United States alone and the industry saw a four percent increase in production volume. This increase of production is mostly coming from micro-breweries, taprooms, and brewpubs.⁷⁴ Success in the craft beer industry can also be credited to people wanting to enjoy beer on a different level than what the commercial beer can offer them.⁷⁵ Craft beer is more complex and it experiments with flavors that were not possible 50 years ago. Since the mid 1800s, Americans have preferred a light lager or pilsner beer with little to no taste. Now with the

⁷¹ Garrett Oliver, "Microbrewery," in the *Oxford Companion to Beer*, edited by Garrett Oliver (New York: Oxford University Press, 2012), 586.

⁷² Mittelman, *Brewing Battles*, 187-189.

⁷³ *Ibid*, 200.

⁷⁴ Jess Baker, "Growth Continues According to 2019 Mid-Year Craft Brewing Report Card," Craft Beer, Brewers Association, August 6, 2019, accessed February 20, 2020, <https://www.craftbeer.com/editors-picks/growth-continues-according-to-2019-mid-year-craft-brewing-report-card>.

⁷⁵ Derek Thompson, "Craft Beer Is the Strangest, Happiest Economic Story in America," *The Atlantic*, January 19, 2018, <https://www.theatlantic.com/business/archive/2018/01/craft-beer-industry/550850/>.

craft beer movement, Americans are wanting a beverage that they can taste. The large commercial companies are now realizing that the beer they have been brewing is no longer satisfying the majority of drinkers. While Sam Adams is the product a contract brewery, their 2019 advertising for Sam '76 centers around people being surprised that they can taste their lager beer.

Since that brings our story of beer to the present, I will now discuss the first examples of panels. Figure 1 shows the most logical format to present this extensive history of beer, which is in a timeline. I picked out sixteen pieces of information from above for this example. The J. Paul Getty Museum's guide would classify this as a diagrammatic text, which provides additional information through maps, family trees, timelines, and images.⁷⁶ In this format, there should be equal parts text and images. Since this example is not to scale, I have only added a handful of images to correspond with the text. The timeline can be a changing component since there are so many events in beer history to choose from. Another possibility is to have a separate panel for American beer history, or if this is done in another country, their particular history with beer. Having fun fact bubbles could also provide additional historical information. An example could be, "gruit, an herb mixture, was the primary flavor additive before the use of hops." Figures 2 and 3 provide a closer look at the panel. Finally, Figure 4 shows a panel dedicated to the craft beer revolution, which notes how it started and what it looks like today.

⁷⁶Charissa Bremer-David, et al, "Complete Guide to Adult Interpretive Materials: Gallery Texts and Graphics," The J. Paul Getty Museum, accessed April 20, 2020, 15, https://www.getty.edu/education/museum_educators/downloads/aaim_completeguide.pdf

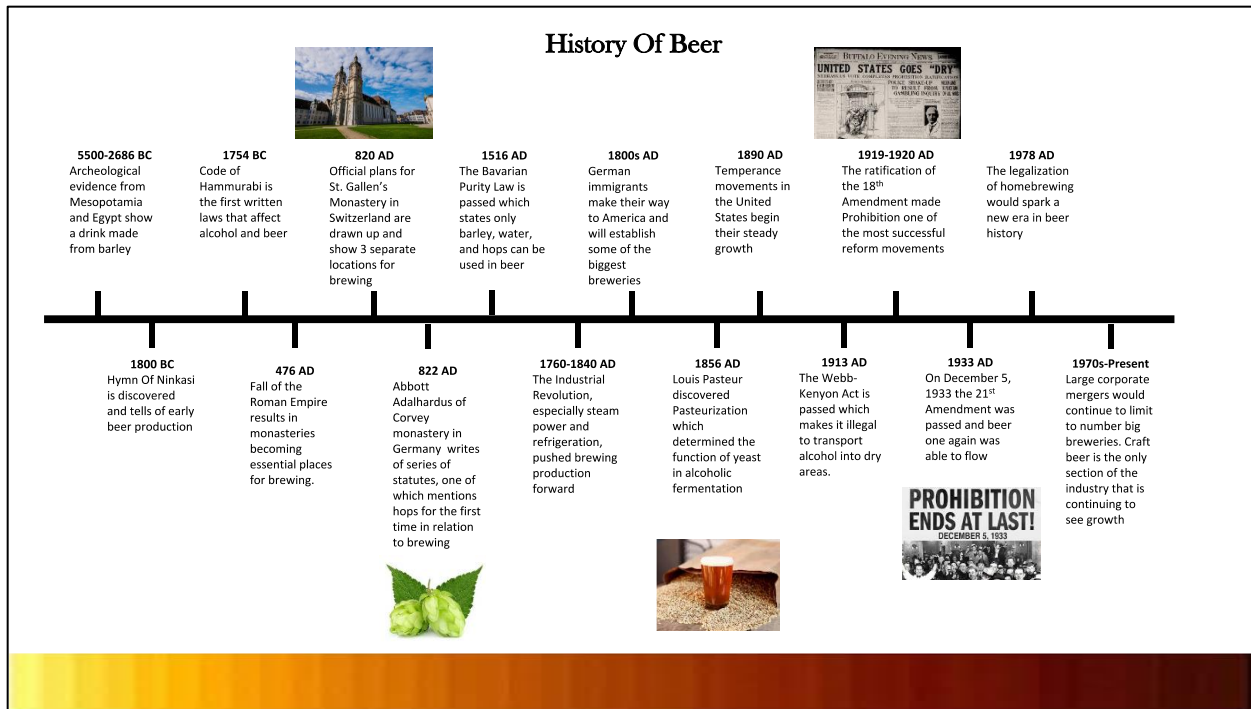


Figure 1 History of Beer Panel

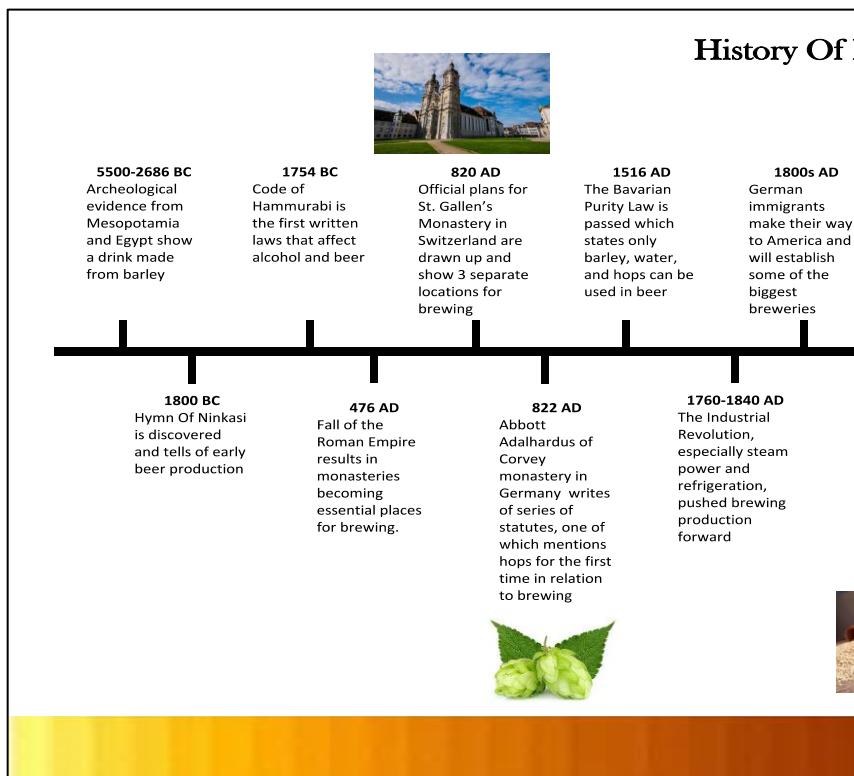


Figure 2 Close up of History Panel, 1 of 2

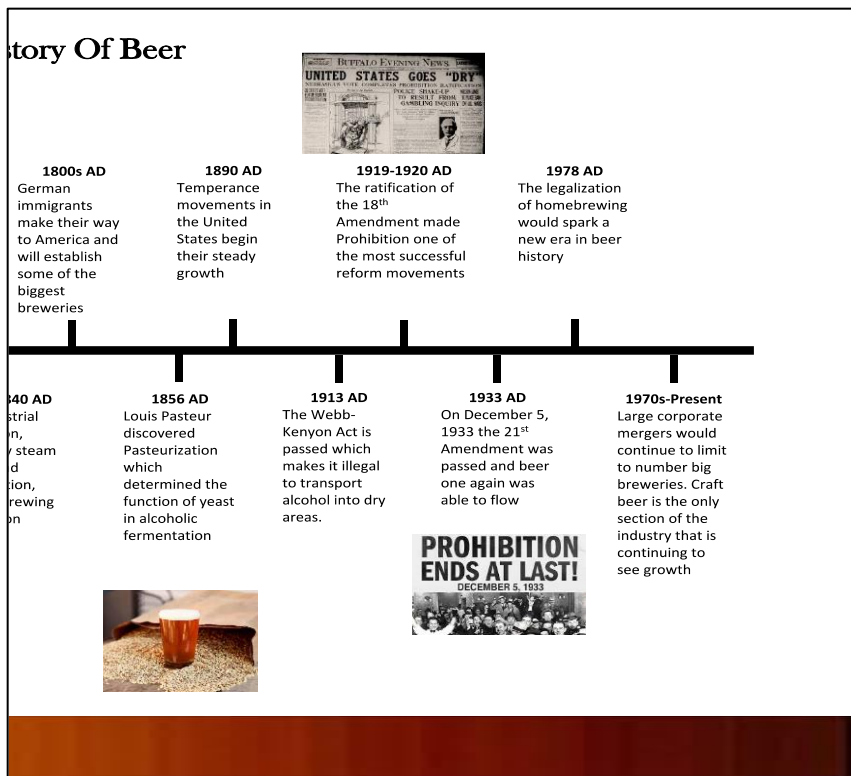


Figure 3 Close up of History Panel, 2 of 2

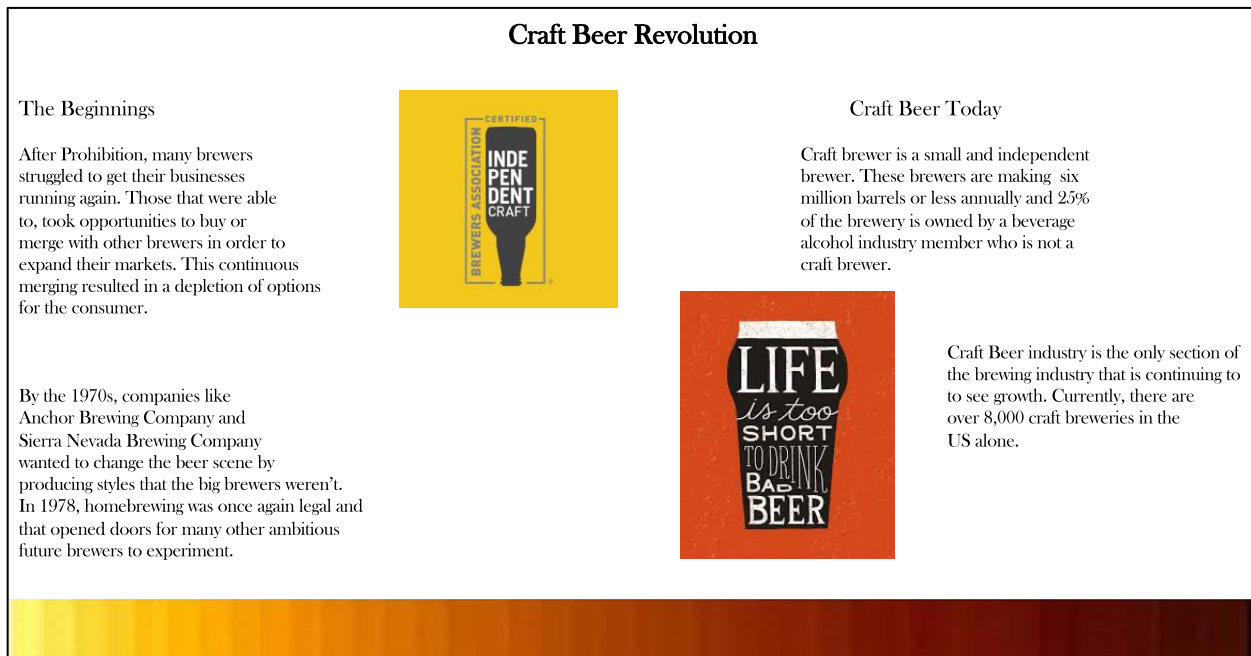


Figure 4 Craft Beer Panel

The Brewing Basics

Next, the making and evaluating beer section of the museum will encompass many aspects of beer tourism that tourists want to see, including tasting beer. In one of the studies on beer tourism, one aspect that people are interested in is visiting hop farms.⁷⁷ While a beer museum wouldn't have a farm on hand, it could have samples of the all the raw ingredients that visitors could interact with. They would also be able to see scale models of the equipment used in the brewing process. In addition, part of this museum experience will include sampling beer while going through the exhibit. The evaluating beer section is going to be another interactive component where visitors can learn new techniques of tasting beer. These strategies are something that they can continue doing well after leaving the museum.

For aspiring beer aficionados, this section of the museum should give them insight into the craft and provide the beginnings of more in depth research on their part. The brewing process utilizes a lot of science, mostly chemistry, and it takes brewers years to master their skills. Therefore, this section of the museum is not intended to make anyone who visits an expert. Its goal is to provide the basics of the process, show how the ingredients work within the process and with each other, and show how drinkers can approach their next brew. The following information is largely provided by James Watt and Martin Dickie, from their book *Craft Beer for the People*.

For this section the best place to start is the beginning, which means with the four ingredients that you find in all beers. Those ingredients are water, malt, hops, and yeast; in the craft brewing industry you will see brewers adding other ingredients to their brews. Examples will be provided later. In the early days of brewing, these four ingredients were not a staple for

⁷⁷ Abel Duarte Alonso and Nevil Alexander, "Craft Beer Tourism Development 'Down Under': Perspectives of Two Stakeholder Groups," *Tourism Planning and Development* 14, no. 4 (2017): 581.

making fermented drinks and early brewers would add numerous things to brews, some of which were not safe for consumers. As stated earlier in this paper, it wasn't until 1516 that a Bavarian decree was written that stated beer was only allowed to be made with water, hops, and malt. Yeast would be added later since at this time it was not known how yeast functioned in the brewing process. Now we will look closely at each of the fundamental four, as they have been deemed, and their role in the beer making process.

Malt is the first ingredient in beer and interestingly enough it is not the actual ingredient. It is in fact an abbreviation for the technique that begins the brewing process, malting. Malting is the artificial germination of grains under controlled conditions. These grains are cereal crops and numerous styles are used in making beer, including rye, wheat, oats, rice, and corn. However, the brewers rely mostly on barley for their brews. Barley is sown in two main forms, two-row and six-row, which refers to the number of kernels that cluster around the central axis. The malt is immersed in warm water where it will use its internal starches to grow roots and shoots before producing a new plant. However, a maltster will stop this conversion at specific times so that the majority of starches can be available for the brewer. The malt is then heated and dried in a kiln to stop germination and fix the starches in exact ratios which will help the brewer create specific beers.⁷⁸

The roasting time for malts in the kiln is very controlled because it will impact the final product. Some malts are roasted for a shorter period to create pale malts with toasty, biscuit flavors. While others are roasted for longer periods to create dark malts with chocolate and coffee flavors. The use of malts is a balancing act since not all light beers use pale malts and not all dark beers use dark malts. The more complex the beer is, means there is a greater number of

⁷⁸ Richard Taylor, James Watt, and Martin Dickie, *Craft Beer for the People* (London: Octopus Publishing Group, 2017), 51-52.

malts used. Darker malts need help from paler malts because they have fewer enzymes and less starch remaining after roasting. Caramelized malts become unfermentable because of their crystalized sugars which adds sweetness to a beer, so paler malts need to be added to provide something that yeast can break down.⁷⁹

Next is water, the most abundant ingredient in beer because without it we wouldn't be drinking beer, we would be eating it. Water has a great effect on the final product; therefore, brewers have to test it numerous times to make sure that the beer is doing what it needs to do. For water there are three main factors to consider, which are the pH, hardness, and mineral content. In regard to the first factor, water is not a universal product. Some water is more acidic, while others are more alkaline. Brewers need to be aware of where their water supply falls so that they can adjust accordingly. Next is hardness and mineral content which go hand in hand because hardness is a measure of mineral content. Water with a higher level of minerals results in hard water and those with low levels are soft. Water that comes into contact with higher levels of calcium ions is good for brewing because it facilitates enzyme action and improves the ability for yeast to divide and flourish. On the other hand, calcium lowers the pH of the mash by reacting with phosphates in the malt grains. While this is useful in counteracting alkaline water sources, if it goes too far it can cause hops to be overly bitter.⁸⁰

The easiest way to think about water's effect on the end result of beer, is to look at a specific style. Irish stouts are the product of the water source available in Dublin, which has high alkaline water with concentrations of carbonate and calcium that need to be balanced out for the final product. Dark malts are the answer and as stated earlier, the greater amount of dark malts results in a darker, more robust beer. Luckily brewers today have more tools available to them

⁷⁹ Ibid, 52.

⁸⁰ Ibid, 54.

that can help manipulate the water profile to which they have access to. While the resulting beers that they produce, such as stouts, are not authentic, they are pretty close to the real thing.⁸¹

Our next ingredient to look at is hops. As we now know, hops have not always been used to make beer and were not seen as a crucial ingredient, mostly due to lack of awareness and/or the ability to grow/use hops. Before hops were used, early brewers would use other herbs to add flavor. A common one was bog myrtle. Another common ingredient to use was gruit, which was a mixture of herbs, and the gruit business became quite lucrative for those selling it. Hops have great preservative properties that allow beer to be kept longer. They also add to the aroma and flavor, much like grapes do for wine. Unlike grapes, hops do not contain the necessary fermentable sugars for the yeast to use, therefore the malts are crucial for this purpose. Hops are added during the boiling stage of brewing and are added at specific times to utilize their individual properties. Hops that are added early in the process are used for bittering and those added later are used for aroma.⁸²

Finally, yeast is the major player for the end result in beer. It is said that brewers make wort, yeast makes beer. There are thousands of species of yeast but only a select few have what it takes to make a favorable outcome. These are granted the name of brewers' yeast and through the years specific strains have been picked out based on their ability to produce good beer. Yeast displays one streak of individuality, which is where in the brewers' vessel they do their work. These are known as top-fermenting or ale yeast, which stay on the surface, and bottom-fermenting or lager yeast, which sink to the bottom. There are some ale yeasts that will sink to the bottom, so this distinction is not definitive.⁸³

⁸¹ Ibid, 55.

⁸² Ibid, 57-58.


⁸³ Ibid, 60.

The scientific names for these yeasts are *Saccharomyces cerevisiae* and *Saccharomyces pastorianus* respectively. Temperatures also have an effect on these types of yeast. Top-fermenting yeast works better at higher temperatures for shorter periods of time, while bottom-fermenting yeast prefers lower temperatures for longer periods. Once the yeast is added to the tank, they take up the food supply from the malts and begin to reproduce. Enzymes in their cells convert the fermentable sugars in the wort into glucose, which they then turn into ethyl alcohol and carbon dioxide.⁸⁴ Throwing all of these ingredients into a tub is not going to give you the result that you want. Each has to be prepped and added at specific times to ensure that their job in the process gets done.


Figure 5 gives an example of how to present this information in words, with short paragraphs for each ingredient and a picture to represent them. As stated earlier, since a farm for these ingredients would not be accessible to this museum, having samples of the raw materials that the visitors can interact with would benefit this section. Jennie Morgan in her article “The Multisensory Museum,” states “through multisensory exploration visitors could apprehend material qualities of an

object, such as weight, shape, texture, odor, and construction, which might not be experienced by


The Fundamental Four




Malts are cereal grains including rye, wheat, oats, rice, and corn. The most important grain in brewing is barley, which comes in two- or six-row forms. Malts are roasted in a kiln for varying lengths of time depending on the aroma and flavor profile needed for specific styles of beer. Pale malts give a toasty, biscuit flavor, while dark malts give chocolate and coffee flavors.



Hops were not always used in beer, a mixture of herbs called gruit was used to add flavor. Once brewers understood the preservative qualities of hops, a dramatic shift occurred across brewing. Hops also add flavor and aroma, like malts, but do not contain proper fermentable sugars for the yeast to use. Thus, all beers need both malts and hops. Hops are added at specific times during the boiling stage, those added early are used for bittering, while those added later are for aroma.



Water is the most abundant ingredient found in beer since it allows us to drink beer instead of eat it. Water also has a great effect on the final product; therefore brewers need to be aware of three characteristics of water: pH, hardness, and mineral content. These elements can affect the outcome of the final product, but luckily today’s brewers have the tools to control their water supplies to produce the desired beer.



Yeast is known as the major player in the brewing process. Some like to say that brewers are responsible for making wort, yeast is responsible for making beer. Over the years, brewers have been able to narrow down which species and strain of yeast makes the best beer. Ale yeast is a top-fermenting variety that does its work at the surface of the vessel. Lager yeast is the opposite because it sinks to the bottom of the vessel and does its work from there. These two types of yeast also work better at different temperatures; ale yeast likes higher temperatures for shorter periods of time, and lager yeast works best in cooler temperatures for longer periods of time.

Figure 5 Ingredients Panel

⁸⁴ Ibid, 60-61.

sight alone.”⁸⁵ This portion, as well as the brewing process, could benefit with short videos of brewers briefly talking about each ingredient and step. Depending on the time needed, these could be one video or split into two separate videos. The Smithsonian guide suggested using multiple interpretive tools, including media elements and interactives.⁸⁶ As indicated by Morgan and the Smithsonian guide, having the videos and the samples of ingredients to interact with would enhance the learning of these concepts.

The Smithsonian’s “Developing Interactive Exhibitions at the Smithsonian,” suggests that an interactive should involve physical activity and engage senses beyond sight. It should stimulate visitors intellectually and emotionally by promoting deeper involvement with the subject. Finally, an interactive at times should involve technology to offer freedom of navigation and allowing visitors to manipulate information to match their interests.⁸⁷ The inclusion of raw materials that can be handled by visitors and having videos will hopefully be a positive addition to this exhibit.

The next part of this section is the brewing process and how brewers turn the raw ingredients detailed above into a refreshing beverage. Mashing is the first step in the brewing process and revolves around dry malted barley and warm water which will begin the process of turning a solid into a liquid. The result of combining these two is a “porridge-like substance” known to brewers as mash (hence the name of the process).⁸⁸ Before the malted barley is soaked, it will be slightly crushed allowing the water to get into each kernel and expose the starches. Exposing the starches allows enzymes to convert them into sugars, which will be used as a food

⁸⁵ Morgan, “The Multisensory Museum,” 66.

⁸⁶ Brigid Laurie and John Powell, “A Guide to Exhibit Development,” Smithsonian Exhibits, accessed April 20, 2020, 9, <http://exhibits.si.edu/wp-content/uploads/2018/04/Guide-to-Exhibit-Development.pdf>.

⁸⁷ “Developing Interactive Exhibitions at the Smithsonian,” Smithsonian Institution, May 2002, accessed April 21, 2020, 2, <https://www.si.edu/Content/opanda/docs/Rpts2002/02.05.InteractiveExhibitions.Final.pdf>.

⁸⁸ Taylor et al, *Craft*, 40.

source for the yeast later on in the brewing process. This is all done in the mash tun for about two hours before beginning the next step.⁸⁹

Lautering is the process of separating the solid from the liquid and can also be called sparging. Adding more water to the top of the grain bed filters through and carries the sugars with it. The residual grains, or “spent” grain aid this process by acting as a filter, much like coffee grounds. This process is done in the mash tun or in a separate vessel called a lautering tun. In any case the bottom of the container will have small holes to allow liquid, now called wort (pronounced as wert), to flow through while retaining the solids. The time spent in this stage is about 30 minutes.⁹⁰

After the wort has been cleared of any remaining particles, it is pumped into the kettle where it is boiled. This boiling does multiple things. First, it stops any enzyme activity, giving brewers a known quantity of sugars to move onto the next stage and the boiling also kills any bacteria so that the liquid that moves to fermentation is sterile. In this stage, a brewer is going to add the hops at carefully timed intervals and once in the boil, hops are going to release alpha and beta acids, which will give the beer its aroma and bitterness. Each batch has to be timed based on the result you want from them. Early batches of hops are going to be for bitterness, while later batches are for aroma and flavor. Time in kettle is 3 hours.⁹¹

As our wort nears the end of its journey, it is cooled and then transferred to a vessel or vessels where it will stay for a longer period. This is also where the final ingredient, yeast, is added and it will take over for the brewer. In *Craft Beer for the People*, they joke and say that the “brewers make wort, yeast makes beer.”⁹² Yeast is pitched into the fermentation vessel where it

⁸⁹ Ibid, 40.

⁹⁰ Ibid, 41.

⁹¹ Ibid, 42.

⁹² Ibid, 44.

will consume the sugars and convert them into ethanol and carbon dioxide. There are hundreds of strains of yeast and each has specific operating conditions of which the brewer needs to be aware. Each strain will also bring a series of aroma and flavor characteristics that will alter the final beer in different ways. Fermentation time takes 10 days.⁹³

The final stage for beer is the conditioning stage, which can last a few days to months and even years depending on how long it takes everything to reach its peak. During conditioning the yeast is allowed to calm down and reabsorb some of the by-products that it created in fermentation. Yeast and other proteins that have accumulated are given time to settle to the bottom of the tanks. This process can be aided by reducing the temperature (cold conditioning) or by adding substances to cause the particulates to clump together. These will then be left behind in the tank when the beer is syphoned off and packaged.⁹⁴

As seen in Figure 6, having images or scale models of the vessels that are used throughout the brewing process can help visitors visualize this process. These will be supported by short descriptions of what happens during each step and a time stamp to help visualize a day in the life of a brewer. As stated above, this section could also benefit from a short video of a brewer explaining the process, with shots filmed within an actual working brewery. As a side note, the museum could also host talks with brewers and the can utilize the exhibit, such as handling the ingredients and talking about the equipment that they use in their breweries, to give visitors information about what they do.

⁹³ Ibid, 44.

⁹⁴ Ibid, 45.

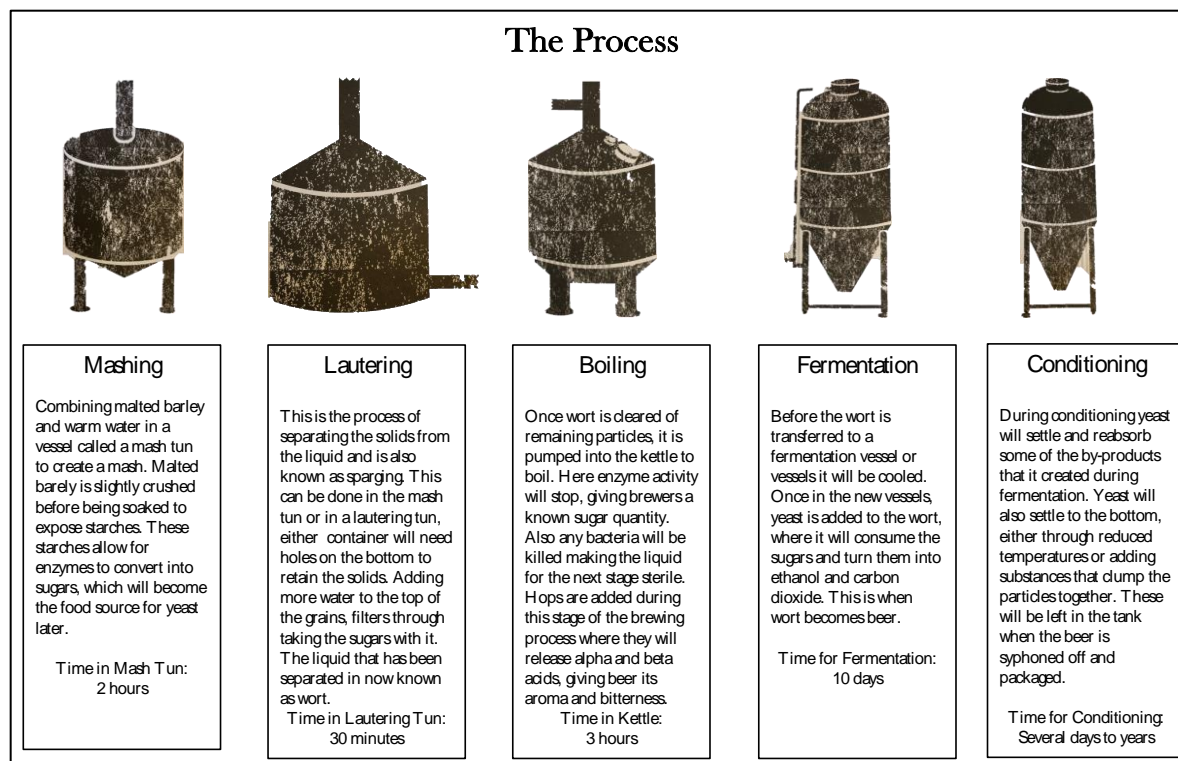


Figure 6 The Process Panel

The next section of this exhibit deals with the evaluation of beer which, much like wine, has a process to approaching a beer before diving into a full glass. Evaluating beer uses multiple senses, each helping to gauge how much we might or might not enjoy a certain style. This process that we are going to talk about is subjective because everyone has a different palate and will pick up on different characteristics. So basically, there are no wrong answers when tasting and evaluating beer.⁹⁵ This section involves the main motivation for visitors when it comes to beer tourism and that's beer consumption and tasting multiple products. Visitors to a museum like this will have the opportunity to select a flight of beer with four samples that will help them be involved with their visit.

The first step to evaluating beer uses sight and there are numerous things that can be picked up on using your sight, such as color, how clear the beer is, and the retention of the foamy

⁹⁵ Ibid, 21.

head. Beers are a unique beverage when it comes to the range of color it has. There are multiple scales that are used to quantify the range. The one that I am familiar with is the Standard Reference Method (SRM). Depending on the beer style and the preference of the brewer, beer can range from crystal clear to impenetrable. Some beers are more hazy or murky than others depending on if the brewer wanted to “fine” the beer. Finally, the beer's head is important to look at because it can be an indicator for the quality of the beer. This too will vary depending on the style, but no matter what beer you are drinking, keep an eye on how the head of the beer is sticking to your glass as you drink. A good quality beer will have a “lacing” of concentric rings left behind.⁹⁶

Aroma should be the next step in evaluating beer. There are about 9 million aroma sensing neurons in our olfactory systems which can sense about 10,000 different aromas.⁹⁷ The aromas of a beer are best when the beer is fully agitated during the pour. It is best to break the smells that you are getting into four parts, otherwise it might be overwhelming. First consider the hop, so you might smell citrus or floral characters, amongst others. Then focus on the malts where you might pick up on biscuit or bready notes or even chocolate and coffee. Who knows? You might smell them all. Yeast is a critical component when it comes to the aroma of a beer. Yeast can come off as fruity, sulphury, or it might remind you of a stable. Taylor et al in, *Craft Beer for the People* note that quantifying aromas of beer by reimagining places you've been, and remembering other smells can help.⁹⁸ A tip to smelling beer is taking short sniffs and if your senses are being overwhelmed, smell the inside of your elbow to reset your senses.

⁹⁶ Ibid, 22.

⁹⁷ Chris Cohen, *Study Guide for the Certified Beer Server Exam*, Beer Scholar, 2015, 52.

⁹⁸ Taylor et al, *Craft*, 22.

Now to the part where you can taste your beer. Here you will evaluate the beer in two parts, one for flavor and the other for mouthfeel. Flavor will be approached much like aroma. To help pinpoint flavors more accurately, it is suggested that you hold your breath as you swallow and then exhale through your nose. Doing this stimulates the receptors and will allow you to taste more of what's going on in the beer. The aftertaste of beer is also important to note. The most notable element is the bitterness. Bitterness, like color, has a scale known as the International Bitterness Units (IBU), which is calculated on the parts per million of dissolved alpha acids from hops. The higher the IBU is the more bitter a beer will be.⁹⁹ The next part of tasting the beer is the mouthfeel, which is the physical sensation of a beer, and can be a telling sign of whether you will like a beer or not.

First, consider the body of the beer, making note on whether it's watery or lacking flavor. Depending on the proteins that are left in the beer, it could coat the back of your throat, much like cough medicine. Carbonation of beer can depend on the style and how a beer is served. Kegged beer is going to have much more carbonation than cask ale does. Beer's carbonation can feel much like a sparkling wine or it could stay a while like a soda pop. Finally, the strength of the beer is going to be a telling sign of how you should approach it. The strength is measured in a percentage of alcohol by volume (ABV) and can range from 3% for mild beers, 4-5% for average, to 6-9% for "boundary-pushing" beers.¹⁰⁰

Displaying this information, like I said early, will hopefully help people appreciate beer on a different level. Commonly beer is seen as a beverage that you don't give a second thought too and that comes from the mass-produced lager beers that the commercial brewers are selling. These types of beer are going to lack flavor and depth, but they shouldn't be considered the only

⁹⁹ Ibid, 23.

¹⁰⁰ Ibid, 23.

option to get. Craft brewers are working hard to create new recipes and the least we can do as consumers is take the time to enjoy them. This section of the museum is also going to be interactive since visitors will have sample beers with them. As the visitors read each part of the evaluation section, they can use their own beer to practice with.


Since there are many parts to each step for evaluation beer, it is best to split the information up. Figures 7 and 8 show how this information can be displayed and images are essential to help conceptualize this information. This section is going to utilize one of the visitor preferences that the Smithsonian guide suggests, which is having a multi-sensory experience.¹⁰¹ This is the portion where visitors can interact with their beer the most while learning how many of their senses are used to perceive beer. The goal of this section is to provide visitors with the tools that they can use any time they encounter a new beer and want to appreciate it in its entirety.

¹⁰¹ Laurie and Powell, "A Guide," 8.





Evaluating Beer

Appearance



Color: Beer is a unique beverage when it comes to its range of colors. You'll find everything from clear lagers to impenetrable porters or stouts. The Standard Reference Method (SRM) and European Brewery Convention (EBC) can both be used to measure beer color. The Degrees Lovibond Scale (L. Scale) is typically used to measure malt color.



Clarity:

Clear Hazy Murky Opaque


Head Lacing

Head: This can be an indicator for the quality of beer. "Lacing" of concentric rings as you drink shows a good quality beer.

Aroma

The olfactory system, or sense of smell, in humans has 9 million aroma sensing neurons and can sense about 10,000 different aromas. Olfactory system has two separate sensing systems: orthonasal and retronasal.

Orthonasal senses aromas through the nose.



Retronasal senses aromas in the back of the mouth, throat, and the space between the mouth and nose, aromas are experienced more as a taste.

Tips for detecting aroma: Smell beer as soon as you receive it and take several quick sniffs. Break up the different smells into four categories:


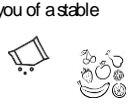
Hops	Malt	Yeast	Familiar Smells
Floral or Citrus aromas might be present	Biscuit or bready notes, or even chocolate and coffee might come through	Fruity or Sulphury notes, yeast aromas could also remind you of a stable	Correlate what your smelling with other aromas to form associated memories with certain aromas
			

Figure 7 Evaluating Beer Panel, 1 of 2

Evaluating Beer

Flavor

Now it's time to taste your beer! A helpful tip is to hold your breath as you swallow, then exhale through your nose. This will help you pinpoint flavors more accurately.

In beer, there are five established flavors: sweet, salty, sour, bitter, and umami.

Sweet this is a balancing element in beer. After fermentation, there is always some residual sugar left behind, which typically comes from the malted barley.

Sour or acidity is common in beer and gives it a bright character. Belgian style sours or fruity beers have a prominent acidic feature.

Bitter flavors come from the hops and counterbalance the sweetness from malts. Bitterness can take longer to process and tends to be perceived as lingering on the palate.

Salty this is generally not found in large amounts of beers, but when made with a salt rich water supply or salt is added on purpose, the beer's flavor is richer.

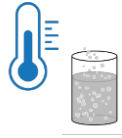
Umami means "pleasant savory taste" or "deliciousness" in Japanese. Umami-rich foods include aged meats, tomatoes, Parmesan cheese, and soy products. In beers that feature lots of umami, they can come across like soy sauce.

Measuring Bitterness is done with the International Bitterness Unit or IBU, which is calculated on parts per million of dissolved alpha acids from hops. The higher the IBU the more bitter the beer.



Mouthfeel

Mouthfeel is the physical sensation of the beer, with the major component being the amount of sugar that yeast leaves behind after fermentation. Well attenuated beers will be crisp and dry, while less attenuated beers will be fuller, sweeter, and richer.

Temperature and Carbonation
The colder and more carbonated the beer, the thinner and crisper it will be. That's why hot days are better for a cold pilsner and cold winter days are more enjoyable with a stout.



Body is how dense or rich a beer feels. American lagers and German Pilsners are among the lightest bodied beers and Imperial stouts and Borelywines are among the richest or heaviest.

Alcohol By Volume (ABV)
The strength of beer is also a factor. Mild beers will have low ABVs, around 3%, the average beer is going to be 4-5%, and Boundary pushing beers can be 6-9+%

Figure 8 Evaluating Beer Panel, 2 of 2

Styles of Beer

Finally, the beer styles section is where visitors can learn the unique properties of various beer styles. This display will coordinate with what is on tap at the museum. Visitors can also visualize these styles with the help of their sample choices, enabling them to train their eye for future beer encounters. For the purposes of this paper I have chosen eight styles of beer to discuss as examples for what information can be expected in a beer museum. Some of these examples may not actually be on display. Each will have a brief history of the style, their basic characteristics, and examples of commercial beers, that most people should be familiar with, and local New Mexico beer since that is where I would like to establish this museum.

The range of beer styles is an ever growing and widely debated subject. If we simply look at the Beer Judge Certification Program's 2015 Style Guideline (BJCP), then we see there are well over 120 different styles.¹⁰² According to *The Oxford Companion to Beer*, the idea of beer styles is a modern concept and is used mostly to help consumers understand beer. Garrett Oliver, editor of *The Oxford Companion* and contributor to the beer style section, describes the purpose of beer styles to be like wine classifications or hollandaise sauce; like these when a brewer adds or modifies the ingredients of beer, these modifications will change the taste, look, and overall impression of the product.¹⁰³ It is agreed upon in many sources that most beer can be put into two larger categories, lagers and ales, with a third section for the wild card beers. These two distinctions come from the types of yeast that are used to make beers; those that use bottom fermenting yeast are sorted into the lager section while those using top fermenting yeast are classified as ales. More about the importance of yeast in the brewing process can be found in the

¹⁰² Gordon Strong, "2015 Style Guidelines: Beer Style Guidelines," BJCP, Inc., 2015, <https://www.bjcp.org/stylecenter.php>.

¹⁰³ Garret Oliver, "Beer Style," in *The Oxford Companion*, edited by Garrett Oliver (New York: Oxford University Press, 2012), 114-117.

ingredients portion discussed earlier in this paper. The following examples are presented alphabetically and do not represent an order within the two larger categories, or an order based on chronological introduction.

Altbier is categorized under the Amber Bitter European Beer with other beers that are amber-colored, evenly balanced to bitter balanced, and with German or Austrian origins. This style of beer has origins in Düsseldorf, Germany and “alt” refers to the old style of brewing before the introduction of bottom-fermenting yeast that is popular with lager beers. While this beer predates bottom fermenting yeast strains it has similar characteristics as bottom fermenting lager beers.¹⁰⁴ The yeast used to make altbiers is a specialty yeast that requires cool fermentation, working best at temperatures between 55° F and 66° F. As a reminder, ales are fermented fast and warm at temperatures between 59° F and 77° F and lagers are fermented slow and cold at temperatures between 46° F and 56° F. Unlike other ales, altbier is aged in lagering tanks for four to eight weeks at temperatures between 28° F and 41° F. This brewing process, if done properly, results in a mellow and clean-tasting ale of exceptional drinkability.¹⁰⁵

The evaluation of an altbier would go as follows: aroma is clean yet robust with a complex aroma of grainy-rich malt and spicy hops with low to medium-low fruity esters. The malts give off notes of rich baked bread and nutty-toasted bread crust. While the hops can have a pepper, spicy, floral, herbal, or perfumy character. Its color falls in the 11-17 range on the Standard Reference Method (SRM), meaning it can be a light amber to deep copper color. It has a thick, long-lasting, off-white head. Many of the aroma characteristics also transfer to its flavor profile, with altbier having an assertive hop bitterness well balanced by a sturdy yet clean and

¹⁰⁴ Strong, “2015 Guidelines,” 13.

¹⁰⁵ Horst Dornbusch, “Altbier,” in *The Oxford Companion*, edited by Garrett Oliver (New York: Oxford University Press, 2012), 36.

crisp malt character. Mouthfeel is medium-bodied and smooth with medium-high carbonation. The International Bitterness Units (IBU) for altbiers are between 25-50 and the Alcohol by Volume (ABV) sits between 4.3-5.5 percent.¹⁰⁶

Altbiers are typically served in a cylindrical 6.8 to 13.5 oz glass. The history of altbiers is extensive in Germany and today there are four brewpubs that have preserved the tradition since the 1830's. Since these breweries in Germany have been around for a long time, the altbiers that they produce are considered commercial examples. Schumacher Alt is the beer produced by the oldest of the four brewpubs in Düsseldorf.¹⁰⁷ In New Mexico, the original Second Street Brewery in Santa Fe had their Atalaya Altbier on tap in November of 2019. It had a 5.5% ABV and 36 IBU measurements.¹⁰⁸ Many local breweries will only brew an altbier on a seasonal basis and once they go through it, that's all they will have for the season.

American Amber Ales are a modern craft beer style which developed as a variation from the American Pale Ales. Traditionally, pale ales will range in color from a deep gold to full amber, but consumers would take the "pale" label literally and expected those beers to be straw or blonde in color. Therefore, brewers adopted the amber ale term to clearly communicate a beer's identity. This style claims the middle ground between American Pale Ales and American Brown Ales but will overlap with these styles. The use of "American" in the title comes into play because of the use of American hops which add citrus and piney traits to the aroma and flavor.¹⁰⁹ While the citrus aroma and flavor are common, they are not required within amber ales. The

¹⁰⁶ Strong, "2015 Guideline," 12-13.

¹⁰⁷ Dornbusch, "Altbier," 37.

¹⁰⁸ "On Tap," Second Street Brewery, accessed November 16 2019, <https://www.secondstreetbrewery.com/new-page-70>.

¹⁰⁹ Ray Daniels, "American Amber Ale," in *The Oxford Companion*, edited by Garrett Oliver (New York: Oxford University Press, 2012), 39.

aroma of this style has low to moderate hop aroma and moderately low to moderately high maltiness, usually with a caramel character, which will support, balance, or mask the hops.

The flavor will have moderate to high hop characters and moderate to strong malt presences with an initial sweetness followed by a moderate caramel flavor. The malt and hop bitterness are balanced and mutually supportive giving the beer a smooth finish without astringency. Amber ales can be amber to coppery brown in color, between 10 and 17 on the SRM scale, with a moderately large off-white head. These beers are generally clear but can be hazy if they are dry-hopped, which means hops were added in the fermenting, conditioning, or serving vessel. The IBU's for amber ales land between 25 and 40, with an ABV between 4.5 to 6.2 percent.¹¹⁰ This style of beer does not have a specific style of glassware associated with it, so serving it in a U.S. Pint would suffice. A commercial example of this style is Rogue American Amber Ale, 5.3% ABV and 53 IBU. This amber ale has a toffee aroma, delicate roasted malt notes, and a smooth finish.¹¹¹ In New Mexico, Steel Bender Brewery has the Spark-Fitter Amber as one of their house beers with a 5.4% ABV and 30 IBU. Spark-Fitter Amber balances “breadly malts, earthy hops, and fruity yeast to achieve a classic, pub-style bitter” and is brewed in the English tradition.¹¹²

India Pale Ales (IPA) is a style of beer best known for its high levels of hops and alcohol. This style has an extensive history outside of the United States and was very popular in British India and other British outposts throughout the 19th century. IPAs saw a decline and spent most of the 20th century as a “pale shadow of its former self.”¹¹³ Luckily it would see a resurgence of

¹¹⁰ Strong, “2015 Guidelines,” 34.

¹¹¹ “American Amber Ale,” Rogue, accessed November 16, 2019, <https://www.rogue.com/products/american-amber-ale>.

¹¹² “House Beers,” Steel Bender Brewery, accessed November 16, 2019, <https://steelbenderbrewyard.com/beer>.

¹¹³ Pete Brown, “India pale ale,” in *The Oxford Companion to Beer*, edited by Garrett Oliver (New York: Oxford University Press, 2012), 482.

interest near the end of the century due to the North American craft brewers, who were interested in traditional beer styles. Peter Ballantine of Ballantine Brewing Company brewed an IPA that was true to the style and was one of the few characterful beers to survive after prohibition. Ballantine IPA would become an inspiration to American craft brewers who searched beer records for styles that they could recreate.¹¹⁴ Having worked within the craft beer scene, I can attest that any local brewery will have an IPA as one of their house beers, meaning a beer that is consistently available. IPAs are one of the most popular beers styles within the craft beer industry possibly because they are on the opposite side of the spectrum from lagers, which are not as satisfying to beer lovers as they were over 100 years ago.

For this example, I am going to focus on American IPAs, which differ slightly from their English counterparts especially in the type of hops that are used. American hops are more intense in flavor and aroma resulting in a medium to very high hop flavor within IPAs. As stated in the Amber Ales section, American hops add a citrus and piney trait to the beer's flavor and aroma. IPAs range from a medium gold to light reddish-amber color and fall between 6 and 14 on the SRM scale. The IBUs of this style can fall between 40 and 70 but reach as high as 100 plus, the ABV ranging between 5.5 and 7.5 percent.¹¹⁵ IPAs can be served in numerous styles of glasses, including Nonic Pints (English IPAs), U.S. Pints, and Tulip glasses.¹¹⁶

A commercial example of this style would be Lagunitas IPA, 6.2% ABV and 51.5 IBU, and is described as ruthlessly delicious. This beer is made with 43 different hops and 65 varieties of malts.¹¹⁷ In New Mexico, Tractor Brewing Company has an Acreage IPA as one of their current beers, with a 100+ IBU rating and 6.4% ABV. This beer has a “melody of pine and fruit

¹¹⁴ Ibid, 485.

¹¹⁵ Strong, “2015 Guidelines,” 37-38.

¹¹⁶ Taylor et al, *Craft*, 226-227.

¹¹⁷ “IPA: Beer Specs,” Lagunitas Brewing Company, accessed January 6, 2020, <https://lagunitas.com/beer/IPA>.

hop boldness with a balanced aroma of citrus, pine, and sweet bread.” It is bold yet flavorful and is overall well balanced.¹¹⁸

Kölsch (Kölsch) is a top fermenting beer from Köln or Cologne, Germany which dates back to the year 874 AD. Cologne brewers take great pride in their beer and in the late 1800s when pale lagers from Bohemia were making their way into the market, the brewers decided to fight back. They made their beer golden and hoppy all while continuing to use warm fermenting ale yeasts and thus the modern kölsch was born. Then in 1986, the brewers of Cologne reestablished what made a true kölsch, light, highly fermented, strongly hopped, top fermented Vollbier, which is served in a 6 oz tall, straight kölsch-“Stangen” glass, and is only produced by Cologne brewers. However, this beer is still widely brewed in America.¹¹⁹ The stangen or stange glass means rod and is slimmer compared to the cylindrical glasses used to serve altbiers.

Kölsch beers are known because of their easy drinkability and many brewers will recommend people start with this style of beer if they are new to the craft beer scene. This beer is very pale gold to light gold, between a 3.5 and 5 on the SRM scale, and is described as a clean, crisp, delicately balanced beer with subtle fruit and hop character. Its aroma is low to very low malt aroma with a grainy sweet character. Kölsch beers have an 18-30 IBU rating and 4.4-5.2% ABV.¹²⁰ A commercial example of this style is the Gaffel Kölsch from Köln, Germany which ranges from 24-26 IBUs and has a 4.8% ABV. This beer is delicately bitter, pleasant, and slightly hoppy in taste which distinguishes it from other Kölsch brands.¹²¹ In New Mexico, Ponderosa has a Crosscut Kölsch which has 25 IBUs and 4.9% ABV. Their brewmaster is

¹¹⁸ “On: Tap: Our Current Crop,” Tractor Brewing Company, accessed January 6, 2020, <https://getplowed.com/on-tap/>.

¹¹⁹ Karl-Ullrich Heyse, “Kölsch,” in the *Oxford Companion to Beer*, edited by Garrett Oliver (New York: Oxford University Press, 2012), 519.

¹²⁰ Strong, “2015 Guidelines,” 8-9.

¹²¹ “Products: Gaffel Kölsch,” Gaffel, accessed January 6, 2020, https://www.gaffel.com/en_Gaffel_Koelsch.html.

German-trained and brought his own recipe for this style of beer and is described as tasting “like it came straight out of Cologne.”¹²²

American Lager in itself is a result of prohibition and World War II, whereas the general lager style has been around for centuries. As stated earlier there are two distinct categories of beer that each style falls into, one of them being lager which uses a bottom fermenting yeast and is fermented at colder temperatures. The name lager comes from the German verb “lagern” meaning to store, because lagers take several weeks and months to mature after fermentation.¹²³ In America, German immigrants brought their knowledge of pilsner-inspired lagers and have been brewing this style since the mid-1800s. Americans enjoyed lagers over ales because of their light and easy drinkability. After 14 years of prohibition, the American palate for beer preferred something that was not hoppy and had little to no flavor. The Pilsner Flute is the typical glass style to serve lagers in.¹²⁴

American Lagers are typically pale, light-bodied beers with high carbonation, neutral flavor, and low bitterness. This beer falls between a 2 and 4 on the SRM scale, very pale straw to medium yellow color. Its IBU rate falls between 8 and 18 and has an ABV ranging from 4.2-5.3 percent.¹²⁵ Budweiser, the proclaimed King of Beers, is a commercial example of an American Lager which has a 5% ABV. It is described as “medium-bodied, flavorful, crisp American-style lager and brewed with the best barley, malt and a blend of premium hop varieties.”¹²⁶ Steel Bender Brewery, previously mentioned, brews their Compa Los Rancho Lager in the American

¹²² “Brew Menu,” Ponderosa, accessed January 6, 2020, <https://www.ponderosabrewing.net/brew-menu/>.

¹²³ Horst Dornbusch, Michael Zepf, and Garrett Oliver, “Lager,” in the *Oxford Companion to Beer*, edited by Garrett Oliver (New York: Oxford University Press, 2012), 532.

¹²⁴ Taylor et al., *Craft*, 226.

¹²⁵ Strong, “2015 Guidelines,” 1.

¹²⁶ “Our Beers,” Budweiser, accessed January 6, 2020, <https://www.budweiser.com/en/our-beers.html>.

style and has a 20 IBU rating and has 5.5% ABV. They describe this beer as “simultaneously malty and easy drinking” and it should be enjoyed after a long day.¹²⁷

Saison in French means “season” and legend says that this style of beer was brewed for migrant workers who helped with the harvest (saisonniers). There were three goals for brewing Saisons: to refresh the seasonal workers during the summer months, to provide work for farm workers in the winter (a time of “unemployment on the farm), and to produce spent grain which was used to feed livestock. This style was thus a winter brew that was drunk in the summer months. Modern Saisons defy easy categorization and can be just as contradictory as they are uniform. Saisons also do not have a specific glass style, but it is noted that most Saisons are re-fermented in bottles.¹²⁸

Saison beers can have a wide range when it comes to flavors and appearance. Paler versions of this beer can be pale orange or pale golden to amber, between a 5 and 14 on the SRM scale, while darker versions can be copper to dark brown, SRM 15-22. Saisons have a medium-low to medium-high fruity (citrus) and spicy (peppery) flavors. Bitterness levels can be moderate to high, with 20-35 IBUs, but sourness can be more prominent than bitterness. Darker and stronger versions of saisons will have more of a malt character. The ABVs of this style can vary depending the brewer’s desires, a table saison can be between 3.5 and 5 percent, a standard is 5-7 percent and a strong saison can reach 7-9.5 percent.¹²⁹ A commercial example of this beer is Fantôme Saison brewed in Belgium which has an 8% ABV and is noted as having a musty and characterful aroma.¹³⁰ In New Mexico, Bomb’s Away Beer Company has an Autumn Saison

¹²⁷ “House Beers,” Steel Bender.

¹²⁸ Phil Markowski, “Saison,” in the *Oxford Companion to Beer*, edited by Garrett Oliver (New York: Oxford University Press, 2012), 711.

¹²⁹ Strong, “2015 Guidelines,” 50-51.

¹³⁰ “Fantôme Saison,” Shelton Brothers Inc., accessed January 7, 2020, <https://www.sheltonbrothers.com/beers/fantome-saison/>.

which is a darker version and has 10 IBUs and 5.6% ABV. The use of Belgian saison yeast gives this beer a “complex fruity, citrusy, and spicy flavors.”¹³¹

The stouts that we are familiar with today have evolved from the stout porter style, popular in London in the 1800s. The term stout started in England in the 1700s to describe the high alcohol, bold-flavored version of any beer and over time it became associated with the porter style. By the late 1800s, the porter style fell out of favor and the stout porter distinction became stout alone. Many different kinds of stouts exist, with the most familiar being the Irish dry stout which was popularized by Guinness. Other styles include the oatmeal stout, which has a richer, silkier mouthfeel, sweet stouts, or milk stouts, which have lactose added to them, and the Imperial stout which has an ABV of 8% or higher.¹³² For the descriptions, I will provide information on American, Irish, and Foreign Extra stouts to better represent the examples that I have chosen. Stouts are another style that can be served in numerous types of glassware, including Nonic Pints, U.S. Pints, and Tulip glasses.¹³³

American stouts are characteristically a jet-black color, some appearing to be very dark brown, falling between a 30 and 40 on the SRM scale. They have a strong roasted malt aroma and flavor with coffee and chocolate qualities. Its hop aroma characteristics can be low to medium while its hop flavor can be low to high, having an IBU rating of 35-75. American stouts have between a 5-7% ABV.¹³⁴ Irish stouts are jet-black to very deep brown in color, falling between 25 and 40 on the SRM scale. It can have coffee, chocolate, or cocoa aroma and flavor with a low hop aroma and little to no hop flavor, between 25 and 45 IBUs. These stouts have a

¹³¹ “Beer Menu,” Bomb’s Away Beer Company, accessed January 7, 2020, <https://bombsawaybeer.com/#post-102>.

¹³² Mirella G. Amato, “Stouts,” in the *Oxford Companion to Beer*, edited by Garrett Oliver (New York: Oxford University Press, 2012), 770-771.

¹³³ Taylor et al., *Craft*, 226-227.

¹³⁴ Strong, “2015 Guidelines,” 36.

lower ABV than the American version, falling between 4 and 4.5 percent.¹³⁵ Foreign Extra Stouts are a very deep brown to black color, 30-40 on the SRM scale. They have a moderate to high roasted grain aroma and flavor with coffee, chocolate, and/or lightly burnt grain characters. In both aroma and flavor, the hops are moderate to low, but they have a medium to high bitterness, 50-70 IBUs. This style of stout has the highest ABV, ranging from 6.3-8 percent.¹³⁶

The commercial example I chose is Guinness Draught, since most beer drinkers are familiar with this brand. Guinness has a 4.2% ABV and has a perfect balance of bitter and sweet with coffee and malt aromas. On the palate it is smooth, creamy, and balanced.¹³⁷ In New Mexico, La Cumbre Brewing Company has a stout in the Foreign Extra style called Malpais Stout. It is described as a “meal in a glass,” and is the heaviest, most-intense year-round offering that La Cumbre brews. It has 60 IBUs and has a 7.5% ABV.¹³⁸

The final beer style that I am going to discuss is Witbier or “white” beer which originated in the Middle Ages in Belgium. This style differs from other wheat beers because they included unmalted wheat in addition to the malted wheat, malted barley, and hops. Plus, the style was produced in the Flemish region of Belgium and there was access to that region’s cereal grains, as well as, spices from the Netherlands. By the early 1900s, Witbier saw a decrease in popularity and had a major loss in the 1950s when the last white beer brewery in Belgium closed. Peter Celis revived the beer style in the mid-1960s by building De Kluis brewery, which is dedicated to white beer production and its product Hoegaarden. The 1990s to present has seen an increase

¹³⁵ Ibid, 27.

¹³⁶ Strong, “2015 Guidelines,” 29-30.

¹³⁷ “Our Beers: Guinness Draught,” Guinness, accessed January 12, 2020, <https://www.guinness.com/en-us/our-beers/guinness-draught/>.

¹³⁸ “Malpais Stout,” La Cumbre Brewing Co., accessed January 9, 2020, <https://www.lacumbrebrewing.com/#malpais-stout>.

in white beer popularity, mostly because of two commercial products, Hoegaarden and MillerCoors' Blue Moon.¹³⁹

Wheat beers are typically served in weizen glasses.¹⁴⁰ Witbiers are a very pale straw to very light gold color and are cloudy due to starch haze and/or yeast which gives them a milky, whitish-yellow appearance, 2-4 on the SRM scale. These beers have a moderate malty sweetness in aroma and flavor with notes of honey and vanilla and there is a moderate zesty, citrusy-orange fruitiness. Hop aroma and flavor is described as low, spicy-herbal or earthy, with 8-20 IBUs. Witbiers have an ABV ranging from 4.8-5.5 percent.¹⁴¹ MillerCoors' Blue Moon is a commercial example, as noted above, which is characteristically garnished with an orange. This beer has 9 IBUs, 5.4% ABV, and is brewed with Valencia orange peel for "a subtle sweetness and bright, citrus aroma."¹⁴² In New Mexico, Marble Brewery has a well-liked Double White, which is a "dry, pale, and hazy Belgian-inspired wheat beer accented with traditional spices," with a 7% ABV, higher than traditional witbiers. It was the 2014 Great American Beer Festival (GABF) Gold Winner in the Other Strong Beer category.¹⁴³

Based on this list of beers, only a handful of glassware was mentioned. There are dozens of styles of glassware that correlate with various styles of beer. It is stated in *The Oxford Companion to Beer* that "drinking vessels can make the beer, just as clothes are sometimes said to make the person."¹⁴⁴ Glassware can also be specific to a country or style and should be chosen

¹³⁹ Keith Villa, "White beer," in the *Oxford Companion to Beer*, edited by Garrett Oliver (New York: Oxford University Press, 2012), 842.

¹⁴⁰ Taylor et al., *Craft*, 226.

¹⁴¹ Strong, "2015 Guidelines," 48-49.

¹⁴² "Our Beers: Blue Moon Belgian White," Blue Moon Brewing Company, accessed January 12, 2020, <https://www.bluemoonbrewingcompany.com/en-US/currently-available/blue-moon-belgian-white>.

¹⁴³ "Beer: Double White," Marble Brewing, accessed January 9, 2020, <https://marblebrewery.com/beer>.

¹⁴⁴ Tim Hampson, "Drinking vessels," in the *Oxford Companion to Beer*, edited by Garrett Oliver (New York: Oxford University Press, 2012), 303.

accordingly for the geometry of the glass can affect the way the beer looks, tastes, and smells.¹⁴⁵ Not all styles of beer will work in the most widely used U.S. Pint. Consideration for the style of beer needs to be taken into account when selecting a glass to serve it in. Other styles of glassware, provided by the Cicerone Certification Program, are a mass (associated with Oktoberfest beers), a goblet (associated with Trappist and Abbey ales), and snifters (associated with higher alcohol beers like barley wines).¹⁴⁶ I have not provided details on every style of glassware. I am considering choosing the details of glassware based on what styles of beer are on tap at the museum.

The styles of beer that will be on display will directly correlate with the beers that the museum will have on tap. The panels for this section would be displayed in the middle of the exhibit space in an accordion layout. Half of the beer styles will be on one side of the panel and the others will be on the opposite side so that more people can read the panels at one time, as seen in Figure 9 and 10. Information that can be put on these panels includes the beer's characteristics, like color, flavor and aroma profile, IBU and ABV measurements, and a brief explanation of its history. This will be a rotating section of the museum as the taps change out, the examples below have information that correlates with the details above. As far as the glassware, that information can be noted with each style or there could be a display with various styles of beer glasses. An introduction panel would be helpful for this section which would detail the two larger categories, lagers and ales, and what it means to be put in these categories.

¹⁴⁵ Cohen, *Study Guide*, 22.

¹⁴⁶ "Guide to Beer Glassware," Cicerone Certification Program, accessed January 12, 2020, <https://www.cicerone.org/sites/default/files/pdfs/Glassware-web.pdf>.

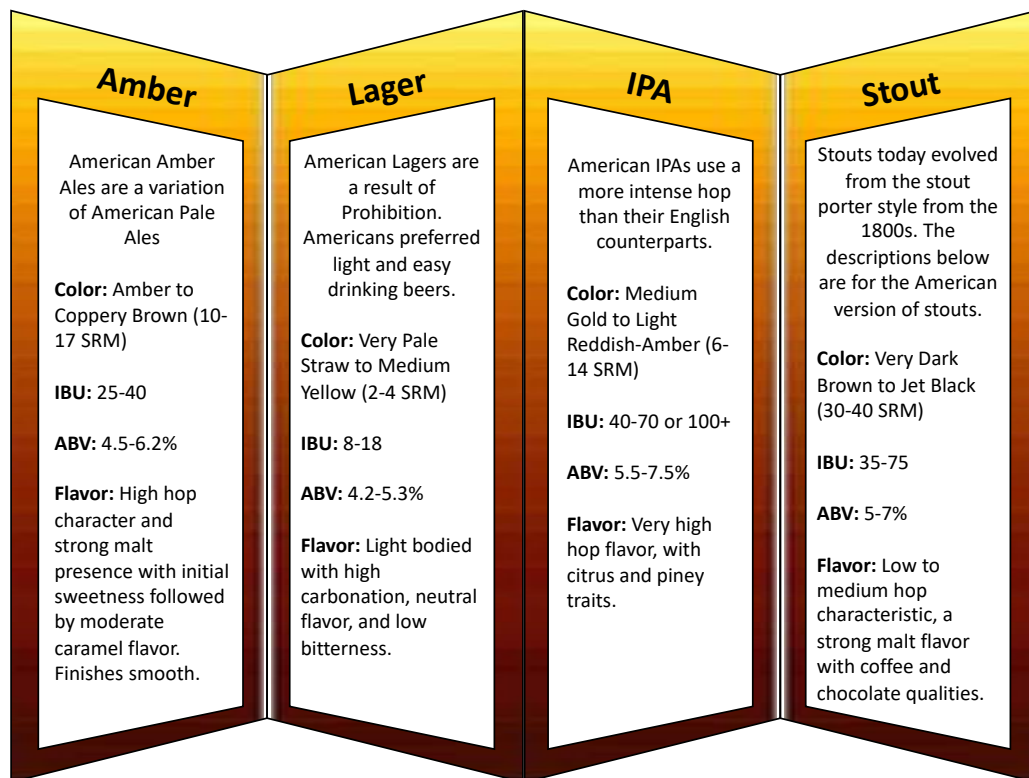


Figure 9 Styles of Beer Panel, Side 1

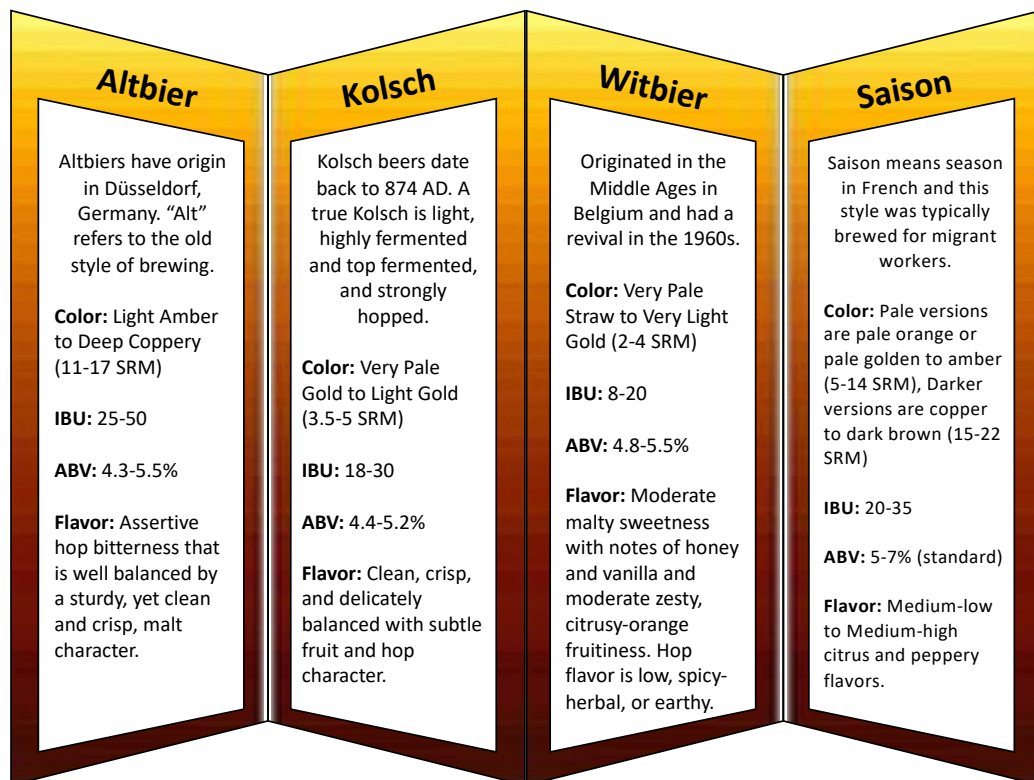


Figure 10 Styles of Beer Panel, Side 2

The design of these panels provides a unified look for a museum like this. Most of these panels have a boarder at the bottom which represents the Stand Reference Method scale and establishes the beer theme. Visuals are a large component for this museum because the information can be dense, breaking it up with pictures that easily relay the information and should help with the understanding of the information. I do find that it would be vital to have collaboration with brewers to make the videos regarding the ingredients and the brewing process, it would add personalization and emotional connections to the exhibit. This is one of the suggestions provided by the Smithsonian guide under the visitor preferences section.¹⁴⁷

¹⁴⁷ Laurie and Powell, "A Guide," 8.

Chapter 4

Beer Tourism in Practice

Throughout the world there are many examples of successful beer tourism at work. Oktoberfest in Munich and Great American Beer Festival also in Colorado are large beer festivals where visitors can socialize while sampling beer and food. Most beer museums that are established are attached to or center around one particular brewery, logically this makes sense because they want to show their pride for what they have been able to make within their own establishments. There are some that will touch on the history of beer and the process of making beer. Breweriana, objects that promote a style of beer or a particular brewery, can be focal points within beer museums as well. Such objects include coasters, bottles, cans, posters, glassware, clothing, etc.

Touring breweries is not a modern activity. Ian Hornsey in his work, *A History of beer and brewing*, notes that in London during the early 19th century visiting breweries was an “essential feature of the metropolitan social scene.”¹⁴⁸ Today many of the corporate breweries, like Coors Brewing Company in Colorado and Guinness Storehouse in Dublin, offer tours. Part of the admission cost usually includes a beer tasting and sometimes a commemorative gift. However, visiting local breweries can ensure that you get a free behind the scenes tour of their establishment. Most head brewers, if their schedules allow, will take some time to offer their first-hand knowledge to anyone who asks. While the establishment that I envision opening will not be a fully functional brewery, it will provide information about the numerous breweries in the area and encourage patrons to visit them following their time at the museum.

¹⁴⁸ Hornsey, *A History*, 448.

BrewDog Beer Museum

I want to use the BrewDog-DogTap brewery in Columbus as an example for a working beer museum. The company was founded in Scotland by James Watt and Martin Dickie and the Columbus location was the first United States outpost for the company.¹⁴⁹ This location is not only a brewery and restaurant, but also consists of a museum, known as BrewDog Beer Museum, and a hotel, known as DogHouse Hotel. I had the opportunity to visit this brewery and their museum in August 2019, giving me insight into their layout and what they focused on. They allow visitors to walk around the exhibit space with a beer and they utilize text, images, objects, and hands-on interactives to teach guests about beer.

The one stand-out feature of their museum was four individual rooms for the four fundamental ingredients in beer, which are water, hops, malt, and yeast. Figures 11 and 12 show parts of these rooms. Each room detailed the use of each ingredient within beer and had the ingredients available for visitors to see and interact with. For example, the hops room had different varieties of hops in jars and if visitors took a guided tour the guide could explain the uniqueness of the different varieties. Since guided tours or talks with brewers might not always be available at the museum that I am designing, having a running video would allow visitors to still get an in-depth explanation of these ingredients. It would also save space since each ingredient wouldn't need a separate room.

¹⁴⁹ Taylor et al, *Craft*, 33.

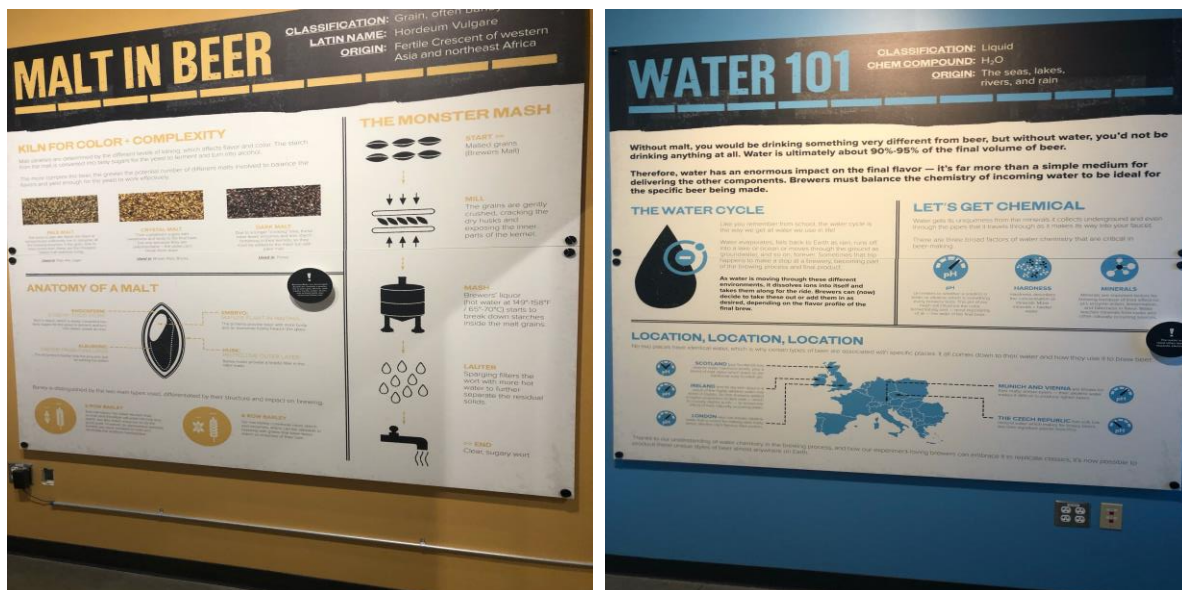


Figure 11 Malt and Water Panels, BrewDog Beer Museum, Photo by Alexa Templeton



Figure 12 Hop Samples and Panel, BrewDog Beer Museum, Photo by Alexa Templeton

An element of their museum that I would also like to incorporate in mine was their display on the process of making beer (Figure 13). They briefly described each step of the process with a timetable for each. Above the panels there was a miniature example of the equipment that each step is processed in. This display was a perfect example of how to present this information without overwhelming visitors with unnecessary details. Also, their display on

how to evaluate beer was inspirational and gave me ideas on how I would like to present this information. Additionally, Brewdog displays the history of beer in a timeline format similar to the example that I illustrated earlier (Figure 14). Their timeline does highlight many of the major moments in beer history such as first record of hop use, the Bavarian Purity Law, prohibition, and the beginning of the craft beer revolution. Some of their historical points differ from the ones that I provided above.



Figure 13 Brewing Process Panel, BrewDog Beer Museum



Figure 14 History Timeline Panel, BrewDog Beer Museum

This exhibit also features breweriana like cans, coasters, newspapers about repeal, and more. There is also a corner display with homebrewing equipment. The BrewDog exhibit was set up well for the guided tour that they offer and still remained informative for those taking a self-guided tour. The BrewDog Beer Museum was an inspirational place to visit and their brochure of their museum reaffirms why I want to achieve a similar goal. Their mission is, “making other

people as passionate about beer as we are.” They also note that they created this experience for everyone to enjoy, for those who are new to beer and for those that are craft beer connoisseurs.

Chapter 5

Comments and Concerns

Current Challenges

At this point it is necessary to put this paper into perspective with the current global climate. The topic for this paper and the first drafts were written before the COVID-19 pandemic. However, subsequent drafts have been written while in the middle of this crisis. Therefore, the above information has some challenges that were not previously anticipated. The original belief was that this design would be presented to the Albuquerque, New Mexico beer community, including brewery owners, brewers, and beer drinkers, during the summer of 2020. This was going to be used to get an initial reaction for support or lack of support. From there, while collaborating with people in the museum field and the brewing field, a more definitive plan of action would have been put into place. Unfortunately, with the current situation this process is not going to move forward for the foreseeable future.

As of mid-April 2020, museums, breweries, including brewpubs, beer tourism, and many other businesses and aspects of life are either temporarily closed or conducting business in a limited capacity. The American Alliance of Museums has dedicated a portion of their website to providing resources and information to museum professionals during this time. These resources include how to handle closures, preparing collections, financial relief, how to use digital platforms to keep audiences engaged, and much more.¹⁵⁰ Many breweries and brewpubs, including DogTap Columbus, have switched to take out for their food and Togo options only for their beer. Some have shut down their kitchens to focus on beer sales only and there have been a

¹⁵⁰ “COVID-19 Resources and Information for the Museum Field,” The American Alliance of Museums, accessed April 24, 2020, <https://www.aam-us.org/programs/about-museums/covid-19-resources-information-for-the-museum-field/>.

few that have had to make the tough decision to close permanently. The big breweries that offered tours are temporarily closed with uncertain reopening dates. Both Coors Brewing Company and Guinness Storehouse have stopped their tours. And major beer tourism events, like Oktoberfest, have been canceled due to the pandemic.¹⁵¹ Currently the Great American Beer Festival held in September is still scheduled.

With this being the current reality, the question then becomes how all of these industries will look once COVID-19 passes or becomes more manageable. And the safe answer is we do not know and at this point we can only speculate. There is going to be a slow process of establishing policies and practices before many of these industries can open to full capacity. Museum practices post COVID-19 will be on a case by case basis because of the varying numbers in visitor attendance. However, I do believe that more museums are going to offer virtual options for their exhibits and collections. The suggestions about how museums can be more accessible is not new, but these circumstances will probably accelerate the implementation of these ideas.

I believe the beer festivals will be the most affected form of beer tourism by COVID-19. These events draw thousands and at time millions of people to one area for several days to a couple of weeks. Beer festivals might have to adjust the number of people they allow to their events if by next year they are unable to run as usual. If this becomes the case, then prices for tickets to these events could rise and limit the diversity of beer tourists. Thus, more accessible options for beer tourism will need to be established. A beer museum could be the answer to that, but nothing can be said with certainty.

¹⁵¹ "Oktoberfest 2020," Oktoberfest, accessed April 24, 2020, <https://www.oktoberfest.de/en>.

Adapting to whatever the future holds is going to be key in moving forward. Like the breweries who produced other products during prohibition in order to keep their name out there and their properties functioning, it is the kind of mindset that every business is going to need. Adjusting to the times does not guarantee survival, but it could help. Many successful brewers were able to come back after prohibition and continue brewing for varying periods of time. One hundred years since the beginning of prohibition, Anheuser-Busch has managed to remain the “King of Beer.” My hope is that many local craft breweries, beer festivals, as well as, small and large museums, will be able to survive this situation and eventually return to some sort of normal in the near future.

Considerations Moving Forward

As this project moves forward, there are several things to keep in mind. These include funding for establishing the museum and to sustain it once its open, establishing an online presence, how to handle having beer within the exhibit space, ways to make the exhibit space its own unique entity, and how interactive components will change due to COVID-19. All of these and more will need to be addressed as more planning and more people are introduced to the project. In addition, many of these could determine the success of the museum. For this project to even begin it will need a stable foundation of funding.

First, I am hoping that the beer community will be helpful with some of the initial funding. I would like to write proposals to numerous brewery owners to see if they would be willing to contribute to the museum. In addition to these contributions, I will do some research into grants and small business loans that I might be able to apply for. Once the museum is open, there will be admission into the museum and that price will be adjusted to include a flight of beer. Other forms of income will include a gift shop, where museum souvenirs and local brewery

t-shirts and beer (depending on fees) could be purchased. Part of beer tourism that tourists want to see include beer classes. The museum could work to host classes that teach visitors how to cook with beer and even how to make beer. Fees could be associated with these classes that could go to the museum. Memberships can also be purchased with discounts on admission and the gift shop as benefits. These are just a few ideas on how the museum could make money and more options will be established once the museum gets going.

An online presence would also be beneficial to this museum and would offer an opportunity for those living outside of New Mexico to experience the museum. Within the website there could be a section for members only and those wishing to access this section can sign up for a membership through the website. As other museum websites offer, there will be a calendar of events, a list of our exhibits, and information on New Mexico breweries. Because of the current circumstances with COVID-19, building a website could help with the start-up of this museum before it becomes a brick and mortar location. It would get the name and purpose of the museum out to the public with the hope that they will visit once it is established.

Next, having beer in the exhibit space could present some issues that we will have to work around. Providing ledges throughout the exhibit space that visitors can use to set their flights down could help minimize spills. Also having the proper flight holders that are easy to carry and support the glasses will prevent any accidents that might occur. Figure 15 is one example. The example has handles on the side and a stabilizer holding the glasses in the middle. Another consideration will be to eliminate the flights and just provide pints of beer which are easier to carry and we would still have the ledges around the exhibit for visitors to put their glasses on. Flooring that is easier to clean on a nightly basis will be considered for the exhibit

space as well. There will have to be different cleaning procedures for this museum compared to others because of the concept.



Figure 15 Example of Flight Board

The final two considerations- how to make this exhibit different from other beer museums and how interactive components will change- can be joined together in numerous ways. Some of the interactives within this museum are the raw ingredients used to make beer. One way to change how visitors see these ingredients could be through curtains or walls. Having the hops, yeast, and malts strung up for people to touch or walk through would be a different experience. For the water, there could be a sort of waterfall type display. Another approach that we might have to consider due to COVID-19 is having small sample baggies and containers with scoops that visitors can use to take and interact with the ingredients themselves. With these samples, visitors can touch and smell their own portion instead of touch materials that others have put their hands in. This will be a safer practice and visitors will be able to take a souvenir home with them.

Another way to make this museum unique compared to others is having a small hop, malt, and yeast garden around the outside. This would offer visitors a chance to see the product being grown and then the museum can use that supply in the exhibit, as stated before. Just as the classes that are mentioned earlier, being able to see hop farms is one request of beer tourists when they think of beer tourism, so having a small garden would give them a glimpse at the bigger process. Planting and harvesting the ingredients from this garden could also be part of the classes that the museum offers. Other ways to make this museum more unique include offering seating in the front area of the museum for people to relax and enjoy a beer. Most people associate beer with music so having a selection of playlists to play throughout the museum, including the exhibit space would provide a different museum experience. Playing music will create a familiar ambience with beer and hopefully make visitors feel comfortable while walking through the space.

The panels that I have provided earlier in this paper are not solidified and could also change as others join in the decision process. Many of these considerations could change as this project moves forward and it will be best to stay flexible. Some of the recommendations for the exhibit space could be a trial and error process until we find the right fit that works with the purpose and goals of the museum. Keeping all of this in mind will hopefully make the process of starting this museum smooth. While I anticipate that there will be struggles along the way, I hope that those struggles can be resolved quickly.

Conclusion

Through the research that I have conducted and with the working design of this beer museum, I am under the impression that this concept could be a positive addition to beer tourism and beer tourism studies. Many of the concepts that beer tourists look for while considering a beer tourism site can be incorporated into a museum setting. Celebrating local culture and history, learning about beer production, and of course sampling multiple styles of beer are some of the opportunities that visitors could find at a beer museum. The success of a museum like this would depend on the collaboration with local craft breweries.

Beer tourism is a result of the craft beer industry, so the role that the breweries play in beer tourism needs to be acknowledged. In the Albuquerque craft beer scene, collaboration is already a standard being practiced among breweries, with these local establishments working together to brew new styles of beer. A portion of the sales for these brews will often times go back into the community or to an important charity. This already established comradery gives me hope that many of the local breweries will be eager to establish a museum that can celebrate them all. Of course, proposing this idea will have to be strategically timed as the current COVID-19 situation is making these breweries focus on how they can survive.

The next steps for this project are uncertain at the moment, but I am hopeful that one day more beer museums and beer tourism sites will open and flourish. The variety of information available to put in this type of museum and the uniqueness that can be seen from city to city, makes this a universal idea. The extensive history alone can be presented in numerous ways and separate local histories can be an additional story to tell visitors. Since history is being made at this moment, every future beer museum will have a common modern story to tell and hopefully they will have the opportunity to tell that story.

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