A Most Surprising Fern: Serendipity and Browsing in Botanical Search

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This article is a case study of botanical field work in the eastern United States in the early twentieth century. These cases will be analyzed as instances of browsing and serendipity. Browsing and serendipity have a rich literature in information science and this article will draw on this literature in order to better understand serendipity in botany. This article will show how botanical localities support browsing and serendipity for the botanists who search them. This article will also show how botanical institutions and botanists interface with localities in order to further support browsing and serendipity. As a whole this article will present a new way of understanding botanical practice and the role of serendipity within it.

Introduction

The following article will give an account of browsing and serendipity in botany. The approach will be historical, centering on botany in the first half of the twentieth century. I will build upon the thesis, espoused in Tuers (2019), Tuers (2020), and Tuers (2022), that botanical localities operate as information storage and retrieval (ISR) systems. Localities fulfill their role as ISR systems by supporting botanical search. I will use the concepts of browsing and serendipity to investigate how localities fulfill their role as ISR systems. I will seek to answer three questions in this paper.

Q1: How did the structure of the locality facilitate browsing and serendipity?

Q2: How did social practices facilitate browsing and serendipity?

Q3: How did browsing and serendipity operate in botany?

The botanical studies I will look at will be, Wherry(1933), Allard (1945), Child (1922), Core (1938), Wherry (1939), Bissell (1903), Field Trip Reports (1948), and Field Trip Reports (1950). These examples will geographically and chronologically limit my investigation to botany in the mid-Atlantic and New England regions in the first half of the twentieth century. These accounts contain instances of serendipity. These instances occur along a range of intention, points of which are looking for no plant in particular, looking for other plants, and looking for the plant that was found.

I will begin with Wherry (1933).[1] In 1932 the University of Pennsylvania botanist Edgar Wherry was on the trail of *Heuchera hispida* (hairy alum-root). *H. hispida* had long been sought by botanists. While searching in southeastern West Virginia Edgar Wherry and S.C. Palmer stopped for the night on the side of the road to camp:

> Then, before making any preparations to retire, we got out our flashlights and started to look around to see if any Heuchera might be growing there. The fog was almost impenetrable, but in a few moments Palmer's flashlight beam struck a clump of one of them, and a leaf was soon brought closer to the light (Wherry 1933).

The location of their camp was chosen because it was an, "openly wooded rocky flat" (Wherry 1933). It was not chosen because it was likely to contain a station of *H. hispida*. This is what makes this instance serendipitous. The distinctive appearance of *H. hispida* likely aided the finding of the plant within the locality, to the point that it could be found at night with flashlights in a thick fog. This is an example of the "Object" findability from Tuers (2020). Wherry (1933) is a good example of the mixing of intentional search and serendipity because *H. hispida* was sought. Nonetheless, the way in which it was found was serendipitous.

The second case we will look at is Core (1938). Here the West Virginia botanist Earl Core reported the findings of a trip to the vicinity of Lancaster, Pennsylvania. This trip saw the cooperation of multiple botanical clubs. The party goers consisted of members of the Southern Appalachian Botanical Club, the Torrey Botanical Club, and the Philadelphia Botanical Club. The trip was hosted by the Muhlenberg Botanical Club. Much of the searching that the party did on the trip was intentional. The account gives an example of one extreme of intention in searching that was the opposite of browsing and serendipity. During the trip the group took time to visit the largest tree in Pennsylvania. Here the group was looking for a particular tree not just an instance of a species. Searching here was so directed that it seems to have disappeared. The limit of intentional search was reached. Later on the party searched an area known as the Serpentine Barrens. Core mentions how this locality was geographically identified and limited, "Today while much of the forest has been cleared for pasture and plowed fields, the true 'Barrens' remain untouched, their sterility preventing agriculture" (Core 1938). The serpentine barrens were sterile and so they were not taken for field or pasture. This is a form of geographic limitation that made the locality easier to find. Tuers (2020) calls this the environment external level of findability. Their sterility also meant that the barrens would be preserved and not plowed under or disturbed by livestock. Tuers (2019) lists preservation as one of the ways in which localities fulfill their role as ISR systems.

The third case I will look at is Allard (1945). The botanist H.A. Allard was on a collecting trip in Tucker County, West Virginia in the summer of 1945 when another botanist,H.P. Sturm, in the field while collecting plants. Sturm mentioned the existence of a novel raspberry in the vicinity. Sturm took Allard to the station alongside a road where a specimen was collected. Upon closer inspection Allard determined that it was *Rubus illecebrosus*. The serendipity here lies in Allard meeting Sturm and Sturm knowing of the *R. illecebrosus*. What Allard's account tells us is that serendipity can be social. The ability of botanists to find plants was aided by social searching. Here we can see the impact of paths and accessibility from Tuers (2019) and Tuers (2020). Serendipity here relied on the plant being found by Sturm in the first place, and this was aided by the road. If the plant were growing half a mile from the nearest road it is not as likely that it would have been found.

The fourth case we will look at is Wherry (1939). In 1938 Edgar Wherry was again in West Virginia. The botanist was focusing on finding ferns during this trip. He reported the findings of the trip in the journal *Castanea*. While on the trip Wherry found *Pteretis nodulosa*. He had found a station of *P. nodulosa* twenty years earlier near the same place. While traveling by rail, his train stopped to switch cars. Wherry and a companion botanist took the opportunity to look around the tracks and found *Pteretis nodulosa*. The serendipity was in the train stopping at just that spot. Returning twenty years later Wherry traced the railroad which had been torn up by then. Alongside a road adjacent to the tracks he found *P. nodulosa* again. Here we see the issues of access and paths. The discovery and rediscovery of *P. nodulosa* occurred beside train tracks and a parallel road. Another serendipitous discovery was made of *Cryptogramma stelleri*, according to Wherry a "most surprising fern" (Wherry 1939). What is interesting here is that Wherry set out that day to search for "rock ferns" (Wherry 1939) but was still surprised to find *Cryptogramma stelleri*. Similar to Wherry (1933), serendipity occurred here despite rock ferns being the plant sought.

In the summer of 1922 the botanist H.W. Child traveled to Vermont (Child 1922). There, Child was shown a station of *Listera australis* by a local botanist C.P. Horsford. During the botanical trip Horsford decided to explore the area while Child prepared to photograph some plants. In a short time Horsford returned with several specimens of *Listera australis*. The two men then sought and found four more plants. A year earlier Horsford had sent Child a specimen of *L. australis* but Child had not been able to identify it. I include this as serendipity because the botanists did not set out that day to find *L. australis*. However, the ground had been prepared for serendipity because of the specimen Horsford had sent

Child the previous year. This highlights the importance of specimens in serendipity that will be discussed below.

In May of 1902 the botanist C.H. Bissell was collecting in Salisbury, Vermont along with M.L. Fernald and another botanist (Bissell 1903). On this trip the botanists made several discoveries of note. During a short walk while waiting for dinner the botanists encountered "the true *F. vesca* of Europe" (Bissell 1903). The serendipity lies in the luck that *F. vesca* was growing near where dinner was being served. Later in the trip Bissell recalls having collected the red seeded dandelion in the same locality. He writes, "This was growing in rich heavy soil which is not considered to be its usual habitat" (Bissell 1903). The red seeded dandelion was unexpected because of the soil type. The serendipity was in the plant growing in uncharacteristic soil.

Later the botanists searched a swamp and the findings came "thick and fast" (Bissell 1903). It is important that the locality was a swamp because a swamp is easily demarcated from the surrounding environment. A swamp works well as an ISR system because it has the same environmental external findability we saw above in Core (1938). In this swamp the botanists found "the rare little Carex tetanica...the first collection of it in New England" (Bissell 1903). They also found a new state record for the *Carex aquatilis*. The trip included a good example of intentional searching as botanists spent the last day of the trip on "an unavailing search for the long lost globeflower" (Bissell 1903). Identifiable small features in the terrain also aided searching. Bissell writes of finding *Avena striata* on "A limestone ledge with northern exposure" (Bissell 1903) and *Carex teretiuscula*, a new state record, "beside a spring" (Bissell 1903). The correlation of plant species with these micro-features made species searchable within the locality. Not all of the discoveries were made intentionally. On one of the last days of the trip one of the party discovered *Carex formosa* while the group was leaving for the train. The botanists did not have to intentionally search for serendipity to happen.

I will end these accounts of botanical searching with two field notes that appeared in *The Bulletin of the Torrey Botanical Club*. During the summer of 1948 botanists traveled to the Mullica River Valley in New Jersey (Field Trip Reports 1948). Among other searches the account notes that the botanists made a particular effort to find a station of *Fossombronia cristula* (Field Trip Reports 1948). The botanists in fact found a *Fossombronia* but could not determine the species because the plants were not yet in fruit. Here serendipity may have been deferred because botanists were not searching during the fruiting season. It is interesting to consider that the chance for serendipity changes throughout the year. Later, while searching for a moss (*Telaranea nematodes*) and finding only pitiful specimens, the author returned to the highway. On the way back to the highway he discovered a luxuriant and robust station of the moss. One way that the ISR facilitates serendipity is that the route out of a locality is through the locality. Here the author was no longer searching for any plant but was returning to the highway where he had parked. It was then that he found his *Telaranea*. This suggests that serendipity is endemic to botany because of the ambulatory nature of botanical browsing. This insight may contain a prescription for designing ISR systems to increase serendipity.

On August, 20th 1949 a botanical trip was made to Brooklyn, NY (Field Trip Reports 1950). Field Trip Reports (1950) remarks on the destruction of the locality caused by a filling operation. This example brings up an interesting point. It was mentioned in Tuers (2019) that localities can play a preservation role. Serendipity may have been prevented from occurring because the role of preservation was not being fulfilled. Serendipity can be supported by localities when they fulfill their preservation role. This may be one way that localities foster and make serendipity more likely. I will now provide an account of botanical browsing preparatory to addressing serendipity.

Browsing

Moving on from the above accounts I will begin by treating browsing generally. I will then focus on the serendipity present in these accounts. I characterize here the process of botanical searching as most closely fitting browsing. There is an added benefit as serendipity already has a home here. In the literature of browsing I will use the framework from Cove and Walsh (1987). Here browsing is broken into three types:

Type 1: Search Browsing
Type 2: General Purpose Browsing
Type 3: Serendipity Browsing (Cove and Walsh 1987)

Search browsing is defined by Cove and Walsh (1987) as an intentional form of browsing. Here browsing is "a closely directed and structured activity" (Cove and Walsh 1987) where something in particular is being sought. An example of this browsing can be found in Edgar Wherry's rediscovery of *Heuchera hispida*. Another example is Wherry's finding of *Cryptogramma stelleri.* In both cases Wherry knew which plants he was searching for. General purpose browsing is the act of periodically checking a source for documents of interest. An example from Tuers (2019) is the update given on a station of *Clematis addisonii*. John Kunkel Small, visiting a locality in 1892, gave this update, "The locality discovered in 1890 was again visited and found to have been nearly obliterated by the quarrying down of the hill in the process of building new streets" (Small 1893). The station had been discovered two years earlier by Nathaniel Lord Britton (Vail 1890). Another example can be seen in Field Trip Reports (1950) where the author says that he returned to the locality with the Brooklyn Bird Club (Field Trip Reports 1950). Cove and Walsh (1988) define Serendipity Browsing as "random", "unstructured", and "undirected" browsing (Cove and Walsh 1988). It is important to note that serendipity is not limited to "Serendipity Browsing." Serendipity can occur across types 1, 2, and 3. Bissell's discovery of *F. vesca* while waiting for dinner and Edgar Wherry's discovery of *Pteretis nodulosa* while waiting for his train to switch cars are examples of serendipity browsing. I will treat categories one and three as the opposite ends of a sliding scale. There is textual support for this as Cove and Walsh (1987) write that browsing is "information retrieval where the initial search criteria range from undefined to only partly defined" (Cove and Walsh 1987). The search criteria largely determines how directed and structured a search is.

Cove and Walsh (1987) gives us 3 characteristics of documents that enhance browsing. Browsing as discussed here is on the document level. In this case we should think of the locality as a document. Cove and Walsh (1988) refer to the structure, navigation, and semantics of a document and how they direct browsing. I will use Cove and Walsh (1988)'s categories to structure my discussion of how the locality can aid in serendipity. Structure is the organization that allows the browser to appraise a document at a high level quickly. An example of structure would be the table of contents in a book. In localities the structure can be the botanical literature that allows the botanist to peruse the available species at that locality. For example, Small (1893) provided a list of species at Kate's Mountain. Small gave structure to Kate's Mountain by giving directions to stations. For example, Small wrote that *Clematis ovata* could be found "on a dry, slaty hillside" (Small 1893). Cove and Walsh (1988) points out that Navigation, "assists in identifying where the user has been and what directions the search may take in the future" (Cove and Walsh 1988). Navigation could be the cardinal directions or the uphill/downhill directions. In structure, cardinal directions are used to divide up a locality, for example 'north slope.' In navigation, cardinal directions are used to describe movement past and future. Navigation is the ordering principle of the locality. Cove describes semantics as "the underlying themes or propositions" (Cove and Walsh 1988). The semantics of a locality is built out by the herbarium, botanical garden, and flora, see Tuers (2022) for an in depth treatment of this. Herbarium specimens can do this by directing botanical browsing. One example is Edgar Wherry's visit to the Academy of Natural Science in Philadelphia to see a specimen of *Heuchera hispida* (Tuers 2022). In Child (1922) browsing was also initiated with the sending of a specimen of *L. australis*. Here we see the semantic role fulfilled by the herbarium specimen. Semantics is largely constructed socially through botanical institutions, botanical literature, and the botanical community.

Type 1 and type 2 browsing in Cove and Walsh (1987) are defined by the directedness and structure of the search. These are indicated by how defined the search criteria is. The scale between type 1 and type 2 browsing is reflected in the accounts above. Now we will move on to a study of serendipity in botanical field work.

Serendipity

This study will next look at serendipity in botanical searching. In IS, serendipity is a phenomenon within browsing and is a useful concept for this study for several reasons. First, there is room for a study of this kind. There exist landmark studies of serendipitous discovery in the sciences. I mention here Roberts (1989) and Shapiro (1986).[3] These studies contain popular accounts of episodes in the history of science where a discovery was made serendipitously. While these studies are good introductions to the subject, they are cursory and botany is not represented in either study. In LIS there is a rich literature around serendipity. I will bring this richer concept of serendipity into this study.

The literature of serendipity sets out three important questions. That is, to what extent is serendipity luck and to what extent is it due to the environment and to what extent is it due to the searcher (examples are Bjorneborne (2008) and Heinstrom (2006)). There is no question that serendipity relies to a degree on luck, otherwise it would not attract attention as anything apart from finding. In this study serendipity involves finding a plant. Serendipity here is a degree of acausal[2] discovery. That is, there is a gap between the causes of finding a document and the finding of a document. Finding a document serendipitously means that there is such a gap. We saw above in Wherry (1939) that the gap between cause and discovery does not have to be large for serendipity. In that case Edgar Wherry was looking for rock ferns but still found *Cryptogramma stelleri* serendipitously.

To discuss what acausal discovery is let me give an example of causal discovery. I suggest Arthur Eddington's 1919 observation of the bending of starlight around the sun during an eclipse.[3] Eddington's observations had a definite search item, a chronological search space, and a physical search space. That is, Eddington knew what he was looking for, when to look for it, and where to look for it. Serendipity means one or more of these is lacking. This creates the gap between cause and discovery that serendipity bridges. This gap can be seen in the models of serendipity that leave the gap unbridged. For example, Foster and Ellis (2014) cites two earlier studies, Austin (2003) and Liestman (1992) (Foster and Ellis, 2014). These name the gap "blind luck" (Austin 2003) and "coincidence" (Liestman 1992).

There is a strong connection between serendipity and browsing. Rice et al (2001) mentions "Serendipitous Findings" as a consequence of browsing:

> One of the consequences of browsing in the library and through journals is finding something of interest or some things that are not originally sought, although the conditions that led to such results are not well understood (Ayris 1986; Bawden 1986; Ellis 1989) (Rice et al 2001).

Here serendipity is conceived as a consequence of browsing. This suggests that serendipitous discovery implies browsing. The localities that botanists searched aided in browsing by supporting structure, navigation, and semantics. But did they aid in serendipity beyond supporting browsing? In the rest of this paper I will try to answer three questions. First, how did the environment contribute to serendipity? Second, how did the botanical community contribute to serendipity? Third, how are we to understand the ranging of serendipity over intention?

The Environment in Serendipity

When I speak of an environment here I mean a physical environment. The role of the environment was discussed superficially above. I will now make a deeper analysis. Above we saw that concepts of Findability in Tuers (2020) can also apply to serendipity. For example, in the cases of external findability in Core (1938) and Bissell (1903). Here I will present an account of how the physical environment of the locality supported serendipity. To do this I will draw from Bjornborne (2008). Bjornborne (2008) defines ten aspects of an environment that support serendipity. I will cover four of these aspects in particular.

Unhampered Direct Accessing

The first characteristic mentioned is "Unhampered direct access to information resources" (Bjornborne 2008). "Unhampered direct access" here is exemplified by the important role that public lands played in serendipity. We see this in discussions of Kate's Mountain in Tuers (2019) and Tuers (2020). In the case of Allard (1945) and Bissell (1903) specimens were found along transportation right of ways. Serendipity is prone where botanical browsing can diffuse into the localities.

Multireachability

Multireachability is the ability of an environment to provide multiple paths to the same place (Bjornborne 2008). "Multireachability" here is exemplified by the important role that paths played in the examples above. These paths could be hiking trails or roads or even train tracks. As mentioned in Tuers (2019) the creation of state and national forests, like that at Kate's Mountain, meant a robust trail system that would provide "Multireachability." A perusal of the trail map today shows multiple ways to reach the summit of Kate's Mountain depending upon whimsy or the direction of approach (Greenbrier State Forest Trail Map 2022). In fact, the botanical literature shows botanists taking multiple routes onto Kate's Mountain.

Explorability

Bjornborne (2008) states that explorability is related to Multireachability. Explorability is stated as "How well the library interface invites users to movement, exploration and browsing" (Bjornborne 2008). Users can be invited in many ways by an environment. The botanist is invited to explore the locality through ease of movement on the trail, long line of sight, animal trails, interesting geological formations, etc. It can almost feel in the forest that you are being pulled off trail to explore.

Stopability

Bjornborne (2008) defines stopability as a characteristic of the environment that allows the user to stop and appraise what he has found. Stopability can be supported in a library with "seating possibilities close to shelves, etc. and extra spaces on shelves, tables, etc" (Bjornborne 2008). In the locality stopability is supported by having the ability to move out of the flow of traffic on the trail. There is stopping built into forays into the forest, such as resting, eating, or setting up camp. We saw stopability in Wherry (1933) when *Heuchera hispida* was discovered at the campsite.

Serendipity and the Community

Botanical search was often influenced by the institutions and communities around botany. In many cases universities supported academic botanists and organized, funded, and directed the search for plants. In many cases these forays were organized and directed by botanical clubs. These were societies of mostly non-academic botanists. A good example of this is Cain (1937). Here we see the large role that botanical clubs played in botanical searching. In June of 1937 the Appalachian Trail Conference was held in Gatlinburg, Tennessee. This conference attracted naturalists from around the eastern United States. On their free time a group of botanists left the conference to do some botanizing in the surrounding area. In Core (1938) we saw a botanical expedition that was organized by four botanical clubs. Cain (1937) offers another look into institutional involvement in botanical search. At the end of this article Cain included a list of everyone on the trip and their membership in botanical clubs. None of the other above accounts pay so much attention to the institutional affiliation of botanists. Yet Cain (1937) is likely showing institutional support that existed but was left unmentioned in other field notes.

An account of searching in localities cannot be complete without looking at the social networks that influenced searching. Rice, et al (2001) makes the point that:

> Social networks influence who has access to what information or technologies (Albrecht and Adelman 1987; Gandy 1988; Mulgan 1991). In many instances, access to information comes

about serendipitously, through unplanned encounters or conversations with others (Archea 1977; Kraut et al. 1990) (Rice et al 2001).

It is just these social networks that we are investigating. One telling instance is Allard (1945), Allard's chance meeting with Sturm led to the discovery of an extraordinary Raspberry. The serendipity in this case was the chance meeting between Allard and Sturm while collecting. A popular locality can aid in browsing as a meeting place for botanists. Botanical societies were a way to provide such encounters and conversations to non-academic botanists. Another telling instance is Wherry's discovery of *Heuchera hispida*. Instrumental to this discovery was the finding in Berlin of Frederick Pursh's original specimen with the tag identifying White Sulpher Springs as the locality (Tuers 2020). Here Wherry was the recipient of information that would have been difficult to access for non-botanists and non-academics. The academic botanist was in a position to take advantage of inside information and discoveries.

We can see that social browsing aided in finding plants in localities. For example, botanists had generally agreed upon names for localities. Localities were small enough that the naming of a place like Kate's Mountain made it likely that a trained botanist would be able to find the plant he was looking for. The results are suggested in a passage from Maurice Brooks' *The Appalachians* (Brooks 1965). Brooks tells the story of botanists from New York City vacationing in White Sulpher Springs, West Virginia. Vacation was granted by their institution[4] on condition that they spend some time collecting plants in the vicinity. The botanists trekked up Kate's Mountain and long before reaching the top they were met by a new species. Each then returned down the mountain to describe their new species. Year after year the botanists worked their way up Kate's Mountain until finally reaching the summit. Brooks' story shows that the identification of Kate's Mountain made possible years of botanical activity. See the example of *Clematis* in Tuers (2019). Another example can be seen in the social browsing that took place in the hunt for *Gaylussacia brachycera* told in Tuers (2020). In these accounts browsing was never done alone. In most cases institutions organized excursions into localities and in some cases dictated what would be searched for. An example of this can be found in Field Trip Reports (1948). Here the party set out to find a station of *Fossombronia cristula* because two specialists in hepatics were on the trip (Field Trip Reports 1948). *Fossombronia cristula* was sought because of the division and specialization of labor in the botanical community. The group was searching for *F. cristula* in particular because according to the literature it was first discovered in the Mullica River Valley. The literature produced by the botanical community supported serendipity.

Serendipity and Pseudo Serendipity

In the historiography of science there have been two notable studies of serendipity. These are Shapiro (1986) and Roberts (1989). Both these works offer up vignettes of serendipity in the history of science. Some cases that both Roberts (1989) and Shapiro (1986) cover are the discovery of X-rays, pulsars, and penicillin. Roberts (1989) holds that serendipity is accidental discovery. Shapiro (1986) contends that serendipity is discovery when searching for something else. This is belied by the fact that Roberts (1989) includes the discovery of Velcro but Shapiro (1986) does not. I will adopt here Roberts' understanding since Shapiro's understanding does not seem to me to allow for much of the serendipity that exists, for example, in Bissel (1903). Many serendipitous discoveries were made by scientists while in pursuit of closely aligned research. Roberts (1989) calls this "psuedo-serendipitous discovery" (Roberts 1989). Roberts argues for a distinction between serendipity and psuedo-serendipity. There are certainly cases where there does not seem to be any related research program. Roberts considers this true serendipity. An example from Roberts (1989) is the invention of Velcro by George deMestral who was not trying to invent a fastener when he noticed burs on his jacket (Roberts 1989).

The serendipity/psuedo-serendipity division appears in the examples above and will provide a way to understand how botanical search ranges over serendipity. I have said that serendipity would be analyzed on a scale between Cove and Walsh (1987)'s type 1 and type 3 browsing. This scale of browsing overlays a scale between psuedo-serendipity and serendipity. Where browsing falls on this range depends on the proximity of the discovery to what, if anything, was sought. The degree of intention reveals itself by the degree of definite search item, chronological search space, and physical search space. Some of the above cases lie near the serendipity end of the spectrum. Examples of this can be seen in Wherry (1939) and Bissell (1903). In these cases the plants that were found were not sought. These are examples of ad hoc botanical browsing. Botanists found themselves unexpectedly among plants with free time and naturally, for botanists, began browsing.

Many examples presented in this paper fall toward psuedo-serendipity. For example, in Wherry (1933) Edgar Wherry and his fellow botanist were looking for *H. hispida*. Nonetheless, there was certainly an element of luck. The botanists found the plant in a roadside campground. The botanists did not select the spot for its likelihood of containing *H. hispida*. The proximity of the campground to the road aided in the findability of the locality. The organization of the locality could bring about serendipity even in very directed search.

Summary

In previous papers I have argued that the locality aided botanists in searching for plants. In this article botanical search is treated as browsing, in particular the concept of browsing from Cove and Walsh (1987). The cases above demonstrate that botanists interacted with localities across Cove and Walsh (1987)'s three categories of browsing. The locality's ability to present plants made serendipity more likely. The locality achieved this through the physical environment. The botanical community augmented this ability through other botanists, educational institutions, and botanical clubs. Browsing led to serendipitous discoveries which occurred on a scale between serendipity and pseudo-serendipity. Future avenues of research could delve into how ISR systems can be improved to support serendipity in ways analogous to how localities support serendipity. The purpose of this article has been to advance and elaborate the single argument shared by Tuers (2019), Tuers (2020), and Tuers (2022). When botanists walked into the wild in search of plants they were not walking into an information neutral environment but a land that presented plants.

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Notes

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[1] A fuller account of *H. hispida* can be found in Tuers (2020).

[2] The use of "acausal" here may be traced back to Carl Jung's description of synchronicity as "An Acausal Connecting Principle" in the title of his 1955 book *Synchonicity*. (Jung, 1955) It would be a fruitful effort to ask what the relationship between serendipity and synchronicity is.

[3] For anyone who wishes to read an account of Eddington's observation of the 1919 eclipse can read Gilmore and Tausch-Pebody (2020) or Joint Eclipse Meeting (1919).

[4] Brooks (1986) says that the institution was the New York Botanical Garden.

References

Allard, H. A. 1945. An Interesting Raspberry, Rubus illecebrosus Focke, new to West Virginia. Castanea. 10(4): 113–115.

Austin, J.H. 2003. Chase, Chance and Creativity: The Lucky Art of Novelty. London: The MIT Press. 245 p.

Bissel, C. H. 1903. A Botanical Trip to Salisbury, Connecticut. Rhodora. 5: 32-35.
Bjornborne, L. 2008. Serendipity Dimensions and Users' Information Behavior in the Physical Library Interface. Information Research. 13(4): 1-16.
Brooks, M. 1965. The Appalachians. Houghton Mifflin Company, Boston.
Brooks, M, Boone, W., Gilbert, F., Davis, H. A., & Sharp, A. J. 1986. Southern Appalachian Botany: Some Historical Reflections. Castanea. 51(4): 233–238.
Cain, S.A. 1937. Botanical Trips in Connection with the Appalachian Trail Conference-June 25- 28, 1937. Castanea. 2(7): 93-98.
Child, H. W. 1922. A New England Occurrence of *Listera australis*. Rhodora. 24: 187-188.
Core, E. L. 1938. Joint Foray at Lancaster, Pa., June 16-19. Castanea. 3 (6): 79–81.
Cove, J. F., Walsh, B. C. 1987. Browsing as a Means of Online Text Retrieval. Information Services and Use. 7(6): 183-188.
Cove, J. F., Walsh, B. C. 1988. Online Text Retrieval via Browsing. Information Processing and Management. 21(1): 31-37.
Field Trip Reports. 1948. Bulletin of the Torrey Botanical Club. 75(2): 234–236.
Field Trip Reports. 1950. Bulletin of the Torrey Botanical Club.77(1): 46–48.
Foster, A.E. and Ellis, D. 2014. Serendipity and its Study. Journal of Documentation. 70(6): 1015-1038.
Gilmore G. & Tausch-Pebody G. 2021. The 1919 Eclipse Results that Verified General Relativity and their Later Detractors: a Story Re-Told. Notes Rec. 76: 155-180.
2022. Greenbrier State Forest Train Map.https://wvstateparks.com/wp-content/uploads/2021/03/GreenbrierStateForestMap.pdf (12/27/2022)
Heinstrom, J. 2006. Psychological Factors Behind Incidental Information Acquisition. Library and Information Science Research. 28(4): 579-594.
Iltis, H.H. 1988. Serendipity in the Exploration of Biodiversity: What Good are Weedy Tomatoes? In: Wilson, E.O. Peter F.M. editors. Biodiversity. National Academies Press, Washington D.C.
Jung C. G. & Hull R. F. C. 1955. Synchronicity : an Acasual Connecting Principle. Routledge & Kegan Paul, London.
Liestman, D. 1992. Chance in the Midst of Design: Approaches to Library Research Serendipity. Reference Quarterly. 31: 524-532.
Rice, R. E., McCreadie, M., & Chang, S. J. L. 2001. Accessing and Browsing Information and Communication. MIT Press, Cambridge, Mass.
Roberts, R. M. 1989. Serendipity: Accidental Discoveries in Science. John Wileyand Sons, New York.
Shapiro, G. 1986. A skeleton in the Darkroom: Stories of serendipity in science. Harper & Row, London.
Small JK, Vail AM. 1893. Report of the Botanical Exploration of Southwestern Virginia during the Season of 1892. Memoirs of the Torrey Botanical Club. 4(2): 93-201.
1919. Joint Eclipse Meeting of the Royal Society and the Royal Astronomical Society. The Observatory. 42(545): 388-398.
Tuers, D. 2019. A Very Glabrate Form!: How a Diminutive Plant Enthralled Botanists on Both Sides of the Atlantic. *Journal of the South Carolina Academy of Science*, 7(1): 7-13.
Tuers, D. 2020. The Found World: the Role of Findability in the History of Botany. *Journal of the South Carolina Academy of Science. 8*(1): 7-13.
Tuers, D. 2022. The Planted Catalog: the Role of the Botanical Garden in Botany. *Journal of the South Carolina Academy of Science. 20* (1): 1-5.
Vail, A.M. 1890. Notes on the Spring Flora of South-Western Virginia. Memoirs of the Torrey Botanical Club. 2(2): 27-57.
Wherry, Edgar T. 1933. Heuchera hispida Pursh Rediscovered. Rhodora. 35: 118–119.
Wherry, E. 1939. Recent Fern Finds in West Virginia. The Journal of the Southern Appalachian Botanical Club. 4(1): 1-4.