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# Writing a “Wonderland” of Science: Child-Authored Periodicals at the Brooklyn Children’s Museum, 1936–1946

REBECCA ONION

Child-authored science writing poses a unique set of questions for the historian of children’s literature, children’s periodicals, and children’s writing. Many American adults of the early twentieth century and of the interwar years, influenced by the tenets of progressive education and pragmatism, considered science to be particularly interesting to children; for these adults, scientific thought was inherently “childish” in its qualities of curiosity and openness while, conversely, children’s attitude toward the world was naturally scientific. The historian could, therefore, view child-authored science writing for periodicals as a textual extension of an adult-sanctioned “natural” mode of experimental play.<sup>1</sup>

Unlike Natalia Crane or Daisy Ashford, two contemporary child authors of novels, children writing about science were not creating what adults perceived to be new and fresh fictional worlds. Nor were they, like the child writers for the young people’s periodical *St. Nicholas* that Anna Redcay and Greta Little analyze, trying to satisfy adult ideas of “realist” fiction.<sup>2</sup> The models that these young writers followed were more likely encyclopedias, books of popular science, textbooks, manuals from chemistry and other science sets, radio shows about science, and adventure stories. As Marcel LaFollette has written, the 1930s and 1940s, when these child-authored periodicals were published, were years when “descriptions of science were especially vivid” in popular periodicals: “Mass magazines such as the *Saturday Evening Post* and *Cosmopolitan* were information sources about the world of science that were easily accessible to millions of readers in all parts of the country and from all walks of life.”<sup>3</sup> Children working within the context of the Brooklyn Children’s Museum, where a dedicated library put science periodicals at their disposal, would have been immersed particularly in this “accessible” science. The young authors and editors of the Brooklyn Children’s Museum periodicals the *Museum Star*, *Pay Dirt*, and *Wonderland of Science* created historical documents that can show how children interpreted and represented a rich textual culture of popular science.

The Brooklyn Children’s Museum, or BCM, founded in 1899, was the first children’s museum in the United States and was steeped in the ideals of

progressive education. At the BCM, educators emphasized child-centered inquiry, the importance of scientific thought and proximity to the natural world, and “hands-on” learning.<sup>4</sup> By the 1930s and 1940s, when the publications I will examine in this article were produced, the museum embraced its role as a crucible of democratic thought in a time of poverty and war. The director of the Harmon Foundation, which supported the museum during the war years, wrote in 1942 in the museum’s bulletin, the *Children’s Museum News*, that the Children’s Museum was “the children’s agora,” a neutral place to meet and share ideas, “as did the scholars in the ancient Greek marketplace.”<sup>5</sup> Within this “agora,” clubs dedicated to specific pursuits were key sites of the kind of child-propelled instruction that the museum favored. In a 1936 *Children’s Museum News* article, the curator-in-chief of the BCM, Anna Billings Gallup, explained, “As Museum children approach adulthood, they seem able to go much farther in their scientific observations and studies if they can proceed as club members rather than as isolated individuals. This has been the experience of members in the BCM’s Stamp Club and the Pick and Hammer Club, each of which has been an unqualified success.”<sup>6</sup>

BCM personnel rallied support for their efforts by tying their work with children to contemporary concerns about the future of American democracy. In 1940, curator Jane Wilson Garrison wrote an editorial for the *Children’s Museum News* on “Democracy in a Children’s Museum,” responding to the recently issued recommendations from the 1940 White House Conference on “Children in a Democracy.” Garrison thought the BCM, which she called “a training ground for democratic living and democratic processes,” was a good example of an institution that managed to create community and mutual respect while emphasizing the need for development of individual interests. She cited the BCM’s clubs as an example of the way that children learned about democracy through action: “Democracy as such does not mean much to a child who has never experienced it.” She told the story of the Literature, Drama, and History Guild, which wrote its own constitution, modeled on the Constitution of the United States, and debated it for six months straight before agreeing to set it aside and continue on with club business.<sup>7</sup>

Reflecting contemporary worry about the effects of mass media and youth culture, Garrison added that the community activities of the Children’s Museum could serve as substitute for the more unsavory entertainments on offer.<sup>8</sup> “Children who depend on regular attendance at thriller movies, or a steady supply of the comics, will never furnish the constructive type of individual leadership which is necessary if a better society is to grow like the phoenix out of the ashes of world conflagration,” she warned.<sup>9</sup> BCM activities, including club membership and the production of periodicals, were intended to wean children from this “dependence” and create the leaders of the future. The BCM defined itself as the promoter of a productive alternative youth culture, one in which children spent time on shared projects that required participa-

tion and work, rather than devoting themselves to the consumption of simple entertainments.

As part of the activities sponsored by museum clubs, child patrons produced a variety of publications, not all of which survive in the BCM's archives. In 1938, a donor's gift secured a new printing press for the museum's official newsletter, and the old press was given to the children to use. In connection with this event, the *Children's Museum News* mentioned a child-authored publication called the *Guild Voice*, which apparently covered historical topics but which was not preserved.<sup>10</sup> The *Children's Museum News* ran a picture of an unidentified patron setting type, accompanied by the museum's rationale for maintaining the printing program: "The printed word is the first mystery of schooling and the tool most used perhaps in all education. It is a lifelong mystery because there are always new words to be learned, often in new languages. The printer knows better than others what a printed word is. He builds up language with his own hands."<sup>11</sup> In 1950, a museum publication reported on the founding of the Book Club, which published the *Museum Gazette*, "a small magazine about the museum" full of book reviews: "Authors, editors, and illustrators of children's books and magazines occasionally are invited to talk to the children."<sup>12</sup> Neither the *Guild Voice* nor the *Museum Gazette* were preserved in the BCM's archives; however, the *Children's Museum News's* evidence of their existence shows that the publication of periodicals was a common club activity at the BCM, and it offers some proof that the adults running the museum viewed this activity as praiseworthy.

### **The *Museum Star*: Boosters and Guides, 1936–1937**

The BCM archive holds three issues of the *Museum Star*, the official newsletter of the Children's Museum League, a group made up of child patrons of the BCM. The publication varied in its length, from four to eleven pages. In the November 1936 issue, advertising rates were announced: a full page for one dollar, with half and quarter pages available for fifty cents and twenty-five cents. This rate held steady in the February 1937 issue.<sup>13</sup> The *Museum Star's* association with the Children's Museum League, a group of boosters for Museum attendance and participation, means that this publication was the most socially-oriented, conversational, and general-interest of the three publications under consideration; *Pay Dirt* and *Wonderland of Science* tended to run topical pieces concerned with particular sciences, while the *Museum Star* attempted to provide coverage of a gamut of museum activities. As part of this attempt at universal coverage, the *Museum Star* ran many unattributed service pieces; in one issue, items reported on elections for Science Club officers, told readers of new nature courses being offered, and listed books recently acquired by the BCM library.<sup>14</sup>

Because of the *Star's* association with the League, which appears to have been one of the most active groups within the BCM's roster of clubs, its pages are also a good place to witness the self-regulation of the "democratic process" prized by the adults associated with the BCM. In the January 1936 issue, for instance, Edward G. Stack, then president of the League, reminded readers in a "letter to the editor" of the structure of the League and the requirements for admission to the Cabinet (members must be ten years of age or older, must "pass a test dealing with the various subjects taught in the Museum with an average of at least 75%," and must attend every League meeting) or the Advisory Board (must be eight years or older and pass a similar test).<sup>15</sup> In a follow-up, full-page letter published by the *Star* in February 1937, Stack wrote again about the requirements of League membership, this time castigating the conduct of those who attended the meetings and did not join in discussion after lectures: "League members, if you wish to have an active League, you must cooperate with the Cabinet. GET UP at the meetings and tell us what you think about the topic under discussion. We are not going to eat you." Moreover, Stack scolded members who attended League events but did not strive to receive an arm-band by reporting their attendance to League officials: "There are a number of active League members who have only 200 or so more credits to get. They are tired of doing puzzles, taking courses of study and engaging in some of the other activities of the Museum. They attend the movies and the League meetings, but they are too grown-up or too proud to report or to ask for credit."<sup>16</sup> Stack's writings, presented from his elected position as the number one museum "booster" among its patrons, provide us with an important window into the way that adult desires for engaged, democratic experiences translated into practice and the way that young visitors served as mediators between these adult intentions and the actuality of club life.

The editors of the *Museum Star* adopted a similar motivational position in relationship to the reader. In the January 4, 1936 issue of the *Star*, an editorial admonished the readers of the newsletter for their lack of investment in the Museum. "Many of the members of the Museum League engross themselves in one type of work here and disregard the other activities," editor Victor Gross wrote. "This Museum was founded with the purpose of educating the children. You who remain in one Division all the time are hindering the work of the Museum in so much as you are not receiving a well-rounded education." The editor cited the Microscope Room as one facility that "many children who come here" failed to use to its potential. "We end with this admonition: 'Keep up with the science at the Museum!'"<sup>17</sup> A similar didactic note can be found in "You Need a Hobby," a February 1937 piece telling readers to use the leisure time given them by "the modern, civilized world" in service of self-improvement. "A hobby, first of all, must be something which you are not required to do," the anonymous author wrote, but it must, at the same time, reduce the number of "dull moments that would otherwise be frittered away"

and transform them into time spent “purposefully and enjoyably.”<sup>18</sup> Steven M. Gelber argues, in his history of the “hobby,” that the emergence of hobbies in the United States during the first half of the twentieth century was a “Trojan horse” that brought the ideology of capitalism into the supposedly free world of leisure; through hobbies, “the underlying values [of the industrial sphere]—from market economics to the work ethic—were colonizing the home.”<sup>19</sup> In “You Need a Hobby,” as in their editorial about proper uses of the museum, the editors of the *Museum Star* adopted the language of progressive education, which assumed that an ideal education would be inspired by children’s interests and therefore be inherently enjoyable and combined this idealism with a stern promotion of the Protestant work ethic.

From the pages of the *Museum Star*, it is also possible to glean a sense of the interpersonal politics at play in the various museum clubs. “The annual elections of the Museum League this September were very closely contested,” the *Star* reported in November 1936. “It was only by a very narrow margin that Edward G. Stack was re-elected president for another year, over Alexander Nicolescu, Jr.” “Alex” resigned from the cabinet following the elections.<sup>20</sup> The same issue carried a piece called “Museum Celebrities Selected!”; in a feature reminiscent of school yearbooks, the readers of the *Star* had voted to select children for categories such as “Biggest Bluff” (Victor Gross); “Most Thorough Worker” (Abraham Froehlich); and “Laziest” (Gloria Argondizza). In selections that perhaps explained the outcome of the Stack versus Nicolescu election, Nicolescu won “Best Mineralogist,” while Stack was named “Done the most work” and “Politician.” The *Star*’s editors ended the list with the (clearly futile) note: “We hope there are no swelled heads or broken hearts over this.”<sup>21</sup>

The remainder of the *Museum Star*’s content tended toward the breezily educational; in contrast to *Pay Dirt* and *Wonderland of Science*, the *Museum Star* rarely ran pieces longer than a column and reserved these spots of greater length for fiction. The *Star* ran a series of quiz questions in each issue and the answers to them in the next; most of these were science questions, with a few historical stumbers: “What is a geode?”; “How can you tell the Monarch Butterfly from the Viceroy?”; “Who was King of France when the first French Revolution broke out?”<sup>22</sup> One issue ran a film review—Sidney Yudin’s positive assessment of *Mutiny on the Bounty*, which included asides about history and geography. (Captain Bligh cruises to Tahiti in search of breadfruit trees, Yudin reports, then adds, “Breadfruit trees were used to make a cheap, coarse bread, which was fed to slaves on East Indian plantations.”)<sup>23</sup>

The *Star* ran a piece of scientifically-themed fiction, “Success,” in the November 1936 issue that reflected the way that science, industry, and the economy were tied closely together in the interwar United States. This story opened with a fictional clipping from the “N.Y. Ledger” about the death of an “up-and-coming scientist,” James Silver, “in his gas-filled apartment.” The piece recounts the tale of Silver’s attempt to earn fifty thousand dollars from

a bread manufacturer seeking the bacterium responsible for “trouble in the bread factories.” Silver, a true Depression-era hero, is impoverished (his flat is “squalid,” and he sleeps in a Murphy bed) but has hopes of better things: “one of today’s experiments was successful. He feels it in his bones.” The anonymous author is careful to include a bit of a moral to this story by recounting the protagonist’s careful scientific work. Silver asks himself, “Has he done the lab work correctly? Sterilized the tubes. Placed the liquid in them. Placed the infected material in the tubes. Let them stand for ten hours. Then made the slides, one from each tube.” The author leavens this dose of a scientific lesson with Silver’s slightly salty voice: “What has he to live for now? Everything is turning against him. Here he has a hunch and still can’t find those \*#&#\* spirilli.”<sup>24</sup> This story is typical of the pieces printed in the *Museum Star*, in that it presumed a basic interest in scientific practice while playing on its young audience’s familiarity with true-crime comic books and adventure stories.

### ***Pay Dirt: Boys’ Adventures with Rocks, 1938–1940***

*Pay Dirt*, “published the 1<sup>st</sup> and 15<sup>th</sup> of every month by the Brooklyn Pick and Hammer Club,” printed its inaugural issue on June 1, 1938. The BCM holds twenty-seven issues, with the last being from November 1, 1940; it is unclear how much longer the magazine continued past this date. *Pay Dirt* was printed on a single sheet of 8 ½” x 11” paper, which was then folded in half to create four pages. (See Figure 1.) The newsletter never ran pictures or illustrations, and, unlike the *Museum Star* and *Wonderland of Science*, did not contain advertisements. The museum’s Craft Club printed *Pay Dirt*.<sup>25</sup> Beginning with the January 15, 1939 issue, the leaflet also carried the line “Printed under the supervision of W. P. A. Printers.”

The inaugural issue’s front page ran a piece by J. C. Boyle, the adult leader of the Brooklyn Pick and Hammer Club (or BP&HC), who told readers that the members of the club, who “have had especially good times investigating the mineral world,” decided to publish the paper, which would cover “field trips they have made in and around New York City, interesting experiments and discoveries in the laboratory, and the prized collections which they own” in order to inform others who “would enjoy working with minerals if they knew what fun it is.”<sup>26</sup>

The publication of *Pay Dirt* came at the end of a decade of development in the subject of mineralogy at the BCM. At the end of the summer of 1932, the *Children’s Museum News* reported that 1,188 boys and girls (forty a day) between the ages of eleven and fourteen had studied mineralogy at the museum.<sup>27</sup> In 1935, the *Children’s Museum News* reported on the doings of the Mineralogy Division, saying that this was the “only place in the world where [a young man] can get thorough practical training in that subject outside of

many believe she found an empty bag. However, in Spain she feels certain of satisfying her needs.

Germany, deprived of all sources of iron ore by the greedy allies at Versailles, has also found Spain a promising source. Some nations have been granted control over key minerals by nature, as in the case of the Spanish and Italian monopolies of mercury. Under such control, this mineral essential in warfare, could create international disturbances as the following Bureau of Mines Report shows:

"The international mercury situation continued to be dominated by the Civil War in Spain, where the largest mercury reserves of the world are located, and by the large demands for metal in the principal mercury consuming nations of the world, partly for armament preparations and partly because of fears concerning future supplies. The termination of war between Italy and Ethiopia and the removal of sanctions against Italy eased the situation somewhat.

"An event of utmost importance in the international situation was the sudden breaking up of the Cartel agreement between Spain and Italy. Barring the possibility of destruction of the Almaden mine workings and reduction equipment in Spain, the dissolution of the mercury Cartel would seem to forecast a renewal of the competitive conditions that prevailed prior to the formation of this organization."

Professor Keith, author of "World Minerals and World Politics," emphasized the seriousness of the present situation when he said "There is nothing in sight to indicate that the force of international rivalries for minerals will diminish in the future. On the contrary the increasing consumption of minerals and the growth of large commercial and political units of control, for the time being intensifies the contest.

"Meanime controversies while diminishing in number and area are between more powerful contestants with greater forces at their disposal."

(To be continued in the next issue)

# PAY DIRT

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VOL. I JUNE 1, 1938

NO. 1

Published the 1<sup>st</sup> and 15<sup>th</sup> of the month by the BROOKLYN PICK and HAMMER CLUB

## Introducing 'PAY DIRT'

When a prospector finds a place where the rock or dirt contains plenty of valuable minerals, he gets busy at once and is happy when he can tell his friends that he has 'struck pay dirt.

Many boys and girls who are working with minerals at the Brooklyn Children's Museum feel as happy over their discoveries as the lucky prospector. The members of the Brooklyn Pick and Hammer Club, who are all holders of the Certificate in Mineralogy, have had especially good times investigating the mineral world. They believe there are still many others who would enjoy working with minerals if they knew what fun it is.

So they have decided to publish this paper telling the interesting things they have found out about minerals. You will read of field trips they have made in and around New York City, of interesting experiments and discoveries in the laboratory, and of the prized collections which they own.

They hope you will find plenty of "Pay Dirt" in the pages of the paper, and that perhaps you will join in the explorations.

J. C. BOYLE

The Mineral Laboratory  
Brooklyn Children's Museum  
May 14, 1938

Printed by the Craft Club

FIGURE 1. *Pay Dirt*, June 1, 1938. Courtesy of the Brooklyn Children's Museum Archive. All rights reserved.

college. There are collections of minerals in many museums, yes, behind the glass of cases. In the Children's Museum, the minerals are handled, broken, tested, put under the microscope, ground up, studied from every possible angle.<sup>28</sup> The results of this type of study were tangible. The *Children's Museum News* reporter told of a schoolteacher who brought a case of minerals into the BCM for identification and a boy who "grabbed the collection and proceeded to identify the minerals about as fast as he could handle them." His identifications, of course, were "90% correct. The visiting teacher was astonished. Mr. Boyle was not."<sup>29</sup>

The issues of *Pay Dirt* held at the BCM show how the teenage boys in the BP&HC defined their identities as pragmatic, economically-minded scientists. In its earlier years, the museum was committed to the idea of nature-study, a dominant mode of science education in the years between 1890 and 1930 that combined observation and classification of natural objects with a romantic and literary mode of engagement. The nature-study curriculum movement experienced waning influence in the 1930s, partially because of what Sally Kohlstedt describes as "a lack of support in the interwar period from a generation of social, natural, and physical scientists with public authority."<sup>30</sup> Scientists such as Edward Thorndike publicly denounced nature-study as insufficiently rigorous; the conflict, Kohlstedt and Kimberly Tolley write, was also implicitly one over gender, as many nature-study instructors were female and many of the physical scientists in opposition to the movement were male.<sup>31</sup>

The pages of *Pay Dirt*, perhaps reflecting this shift, featured few female voices. This absence is particularly indicative of the dynamics within the BP&HC, for there is some evidence that young women did study minerals at the BCM. In 1937, an article in the *Children's Museum News* about "museum children" who had gone on to scientific careers mentioned three young women who had specialized in mineralogy at the museum. Miriam P. Sachs had recently entered the University of Minnesota "because she decided that it offered the best college course in geology"—she was "the only girl taking the course." Edith Schreiber won the Science Medal from her high school, though she went on to the University of Wisconsin to study journalism. And Jan Kessler was teaching geology at the Virginia Polytechnic Institute, having studied at Adelphi and Syracuse.<sup>32</sup> Sarah Levine often wrote short items for *Pay Dirt*, including a third of a page on soapstone in the June 15, 1938 issue and an item on "Books on Mineralogy" in the July 1, 1938 issue; Muriel Specht contributed a short item on "Magnetic Sands" to the July 15, 1938 issue. But young women never wrote the longer articles or went on the collecting field trips that provided fodder for much of *Pay Dirt's* prose. And it was the male "alumni" of the club who visited the club members when home from college and who contributed to the newsletter.<sup>33</sup>

The writers of *Pay Dirt* also composed prose in which they stood in opposition to the enraptured, romantic language common to nature-study writing.

In the rocks that captured their interest, the boys found metaphoric strength; they often pointed to the permanence and “real-world” significance of rocks, in opposition to what they saw as the ephemeral pleasures of flower-collecting or butterfly-pinning. In the September 15, 1938 issue, for example, Irving Horowitz reported on a trip taken to the United States National Museum’s [National Museum of Natural History’s] mineral collection, ending his description in this way: “After spending many pleasant hours among these wonders I thought—those who seek out the beauty in nature and become enraptured over ‘To a Mousie’ or ‘To a Lousie’; should enter the mineral kingdom where nature revels in superb beauty. This beauty enjoys a permanence denied in the flower that wilts or the animal that dies.”<sup>34</sup> In his “Exploring the Shenandoah Caverns,” Thomas Nash Walthier recounted the story of a visit to these caverns in the Shenandoah Valley. “These caverns are devoid of all life,” Walthier wrote. “No bats, no owls, no fish, no molds, no fungi—nothing! Here is a solemn and hidden fairyland, wherein the only sound to break the tomb-like silence in the drip of seeping water into quiet pools.”<sup>35</sup> The cold and “frozen” nature of minerals appealed to these boys, who seemed to view the “hard” nature of rocks, and the strength required to access and harvest them, as permission to indulge in the flights of nature-loving fancy that they condemned in silly, younger, or female children studying animals or plants.

In a *Pay Dirt* piece reprinted from the *Ledger* of the Alexander Hamilton High School, Alexander Nicolescu, Jr. expanded on this masculine attitude toward the study of minerals, defining himself as independent and single-minded in his love for mineralogy. This piece followed a confessional mode, leading with the line, “A hammer is a very useful instrument for a lonesome boy to carry.” Nicolescu explains that, after moving to a new home, he found himself without “companions” and “desperately in need of something to do.” He told of his entry into the BCM and of his initial impression that the place was for younger children—“there was nothing very interesting about the insect room or the bird room, or the animal room”—before he encountered the mineral room, where, his narrative went, everything was fascinating. His fascination led him through the steps of committing to the study of mineralogy; at first introduction to the words “metamorphic,” “chalcedony,” and “sphalerite,” he found them “terrifying and bewildering”; he “drills” with the teacher in charge of the room, then earns the right to enter the mineral laboratory (“hallowed ground”). Here he “had found a wonderful substitute for friends.” Within the narrative, he represents a “conversation” he had with a specimen of quartz: “Say, haven’t I seen you somewhere before?” “Maybe, I’m quite well known.” “Tell me something about yourself.” This enrichment led to his writing about his hobby for a newspaper and winning a four-dollar prize. All in all, Nicolescu concluded, “I have said that minerals are my substitutes for friends, yet, while they were acting in that capacity, I made many friends among other collectors, in school and elsewhere. But still I’d rather

talk with minerals than with most human beings; they talk so much more intelligently."<sup>36</sup>

*Pay Dirt* writers often reported on experiments they carried out, as in Carmine Venuto's November 15, 1938 piece about his adventures in turning kernite into borax.<sup>37</sup> Occasionally, writers outlined instructions for making laboratory equipment, as when Seymour Scharf wrote about making a fluorescent lamp in the November 15, 1940 issue.<sup>38</sup> The longest articles in *Pay Dirt* were explanations of mineralogical phenomena, such as Abraham Spector's multi-part series on polarized light; these were written in a dry voice with much use of the passive construction: "it is further to be noted."<sup>39</sup> At least one longer article about a particular mineral or group of minerals, Irving Horowitz's November 1, 1940 piece on fluorescence and radioactivity, contained a history not only of the scientific discoveries that led to greater knowledge of the phenomena but also of the club's interest in this area of study. "Fluorescence and radioactivity have long spiced the mineralogy studies of the BP&HC," Horowitz wrote, noting that previous issues of *Pay Dirt* had contained articles by Elliot Juni on radioactivity and adding, "In 1935, the Club won second prize at the [American Institute's] Science Fair for a fluorescence exhibit. In 1937, Reuben Silver won an individual prize for his exhibit of fluorescent minerals under various sources of ultraviolet light. . . . Another member, Abraham Spector, had an article on 'Cold Light' published in the November, 1937 issue of the 'Amateur Scientist.' James Delury won a medal for his brilliant essay on the subject, printed in the year-book of the Brooklyn Technical High School."<sup>40</sup> Horowitz made a small apology for the club's obsession with the subject, writing, "It was said that fluorescence has only spiced our studies and that is all that can be said of it, for it is of minor importance when compared with other phases of mineralogy which we have studied. We are well aware that spices are not very nourishing, but they do add enjoyment to the more substantial foods."<sup>41</sup> This account of a shared interest shows that the BP&HC had institutional memory and that *Pay Dirt* functioned as a repository of this memory. It also points to the fact that many of the *Pay Dirt* writers were published in other outlets and that science and science writing fostered involvement in larger communities outside of the BCM.

By far the most common mode of writing in *Pay Dirt* was the trip report, in which members described excursions made to the outskirts of New York City, both under official club auspices and independently. Nicolescu's confession that he would rather talk to rocks than humans, notwithstanding, these trip reports are documents that speak to the vibrancy of the community of boys in the BP&HC. *Pay Dirt* recorded the fact of the club's attendance at speeches given by adults who had returned from scientific expeditions; the young listeners seemed to notice the details of daily life that these scientists included in these presentations, and they certainly appreciated the humor in these presentations. Many incorporated this style in their own writing.<sup>42</sup> In the

August 1, 1938 issue, Irving Horowitz described the club's search for pyrite on Long Island, including the sharp rocks they walked upon while prospecting, the "impromptu game of baseball" they carried out while waiting for the tide to go out ("Elliot Juni batted with a limb from a fallen tree while Robert Foster, Mr. Supp, and myself pitched balls of clay"), the "glee" with which they "attacked" the deposit of pyrite they found, and the refreshments they ate at the end of the day. "Thus in one grand day we had everything from pyrite to cake," Horowitz summed up.<sup>43</sup>

The *Pay Dirt* writers also told readers how to undertake trips on their own, without club supervision. Abraham Spector advised the reader that a mineralogical field trip "in and around New York City" would cost no more than ten or twenty cents. On selecting companions, Spector wrote, "On such mineralogical expeditions it is best to go with at least one more person (unless one likes to go out for the sake of spending a number of hours in loneliness and meditation)." Spector's article mixed the practical ("it is necessary to prepare a few sandwiches") and the strategic ("there are a number of places in Greater New York where the rock strata are exposed, and are being blasted away for the construction of roads, subways, buildings, etc."). The Sixth Avenue subway, for example, would afford hornblende or garnet; these rocks could also be found in the parts of the city where the rocks were being dumped.<sup>44</sup>

Multiple accounts described some of these independent trips undertaken by club members and were written in form of adventure stories, often with notes of wry humor. In "Spring Was Not in the Air," Martin Plotkin recounted a trip four BP&HC members took to the Palisades on a chilly day, telling of feats of frustrated daring (the members climbed down one of the cliffs, only to be "ordered to the top" by a foreman of "the workers excavating there"; Plotkin and Elliot Juni "removed a block of rock weighing about 200 pounds to reach one vein, only to find it contained absolutely nothing of interest"); the absentmindedness of one of the expedition's members ("Ed left his scarf on a ledge south of the bridge"); and the physical hardships undergone ("Elliot had to put my nickel into the subway turnstile, for my fingers were numb").<sup>45</sup> Edward Fairstein's account of a trip to the Prospect Park Quarry, in Paterson, New Jersey, also aimed for a self-deprecatingly humorous tone. Fairstein wrote of being in New Jersey, "I'm glad I live in New York. The first thing we met 'on the other side' was a variety of smells, none of which could be classified as pleasant." Fairstein poked fun at his and his companions' inability to navigate several times—"After having some trouble finding the Brooklyn Bridge, we discovered it on the spot it has been since the 1880s and crossed it"—and noted an encounter with a "drunk" on Broadway as the boys returned from their trip: "A drunk almost walked into Leon [Dressner]'s bike; he stopped short with a most humorous look of astonishment on his face, and exclaimed, 'why donsha putshya lightsh on?' The streets were as bright as day, even though it was past midnight, and we had a good laugh over the incident."<sup>46</sup> A few is-

sues later, Dressner reported on a trip to the same quarry, on which Fairstein decided to climb up the quarry wall to access a “large pocket which was full of prehnite”: “Ed was undaunted and with the skill of a mountain-climber, he finally reached it. However, he found it impossible to retrace his steps; in other words, he was a clinging wall flower.” Fairstein eventually figured out how to climb down, and, as Dressner says, “everyone felt better.”<sup>47</sup> This back-and-forth between Fairstein and Dressner illustrates the way that *Pay Dirt* allowed club members to cement friendships within a semi-public sphere.

The Fairstein piece about Paterson also illustrates how the BP&HC members saw themselves as part of a larger community of collectors. The BCM tried to teach the children who visited that they were to collect for scientific reasons, not out of avarice; the older boys in the BP&HC walked the line between the two. Fairstein told of one sample that surprised him and his compatriots greatly when it was uncovered: “We almost fainted at what [Elliot Juni] had found; a huge boulder containing green datolites that would have filled a quart bottle, and a cavity in the wall with two-inch crystals amount [sic] a mass of smaller ones.” The boys tried to hammer out the crystals in the cavity, but “after twenty minutes of steady hammering,” “the two crystals got angry and jumped out, leaving the junk and matrix behind.” The boys felt badly that the specimen had been ruined by their overzealous efforts, especially because they saw that “someone had worked on the cavity before us and seeing he couldn’t get it out without breaking it, left it there for the next comer.” Fairstein confessed: “We felt like vandals.”<sup>48</sup> The boys aspired to the identity of the responsible (adult) collector; this article shows how the lessons the BCM taught translated into the boys’ self-perception as members of a larger collective of those interested in rocks.

Another group of *Pay Dirt* articles complemented the pieces about club life by gesturing toward the outside world and providing frequent coverage of industrialism and war. “Why Study Minerals?” asked a headline in the first issue of *Pay Dirt*. Carmine Venuto wrote that “boys who are studying minerals” often hear this question and answered, “If it were not for minerals we would not have any skyscrapers, locomotives, war tanks, telephones, wireless telegraph, electric light, automobiles, houses or many other things.”<sup>49</sup> Alexander Nicolescu, Jr.’s piece, “Wall of Wood,” a reprint from a high school newspaper, which was published over the span of three issues, was one of the rare pieces in *Pay Dirt* that was presented in dialogue form. In “Wall of Wood,” set in ancient Greece, slaves held in a silver mine debate how to escape the yoke, while Athenians devise methods of mining more and more silver in order to raise a fleet (a “wall of wood”) to defend their country against the Persians. Nicolescu’s method of presentation was much indebted to the cadence and color of adventure stories—one slave to another: “Why you double crossin’ dog! I ought to cut your throat. You’re yellow”—while the content emphasized the importance of the control of mineral resources in conflict.<sup>50</sup>

Not just ancient, already-resolved conflicts but also the future conflict of World War II can be seen in the pages of *Pay Dirt*. The first *Pay Dirt* reprinted a speech written by Irving Horowitz, who had delivered the oration at Stuyvesant High School's Peace Day event in November 1937. Horowitz suggested what he called a "widely advocated and practical method for the removal of certain conditions giving rise to war." Citing the *New York Times*, the *New York Post*, a report from the Bureau of Mines, and a Professor Keith (author of "World Minerals and World Politics"), Horowitz outlined several current conflicts over mineral rights, including English interest in Spanish iron and mercury deposits (which, Horowitz suggested, forced England to negotiate with General Franco). He suggested that nations poor in mineral deposits should follow Germany's lead in becoming more proficient in scientific processes, and then they could exchange their services for the minerals they required.<sup>51</sup> In the March 15, 1940 issue, the BP&HC announced, "During the present season the meetings of the B. P. H. Club are being devoted to consideration of those mineral materials which are of vital importance from the standpoint of both industrial and military uses."<sup>52</sup> In "Chromium," another in a series of articles about minerals important in the war, Alan Bergdahl argued over three and a half pages of *Pay Dirt* that the importance of this metal to national industry, and the fact that the United States had very few natural deposits, meant that isolationism was mistaken: "An examination, no matter how cursory, of the uses of this metal, in my opinion, should convince the most ardent isolationist that our political as well as our industrial and economic front must exist far beyond our shores."<sup>53</sup>

In the pages of *Pay Dirt*, then, high school boys sought not only to establish a scientific community but also to debate geopolitics and American foreign policy. Although we cannot discern from the record left behind whether this anti-isolationist opinion represented club consensus, we can see from this sample that these larger questions were common currency among the "fellows" of the BP&HC.

### ***Wonderland of Science:* Serious Commitments for the Atomic Age, 1945–1946**

The final periodical held by the BCM archives is a yearly publication called *Wonderland of Science*, which was first published in 1942.<sup>54</sup> The BCM holds only two issues, a twenty-eight-page one from 1945 and a forty-two-page one from 1946. *Wonderland* is the only of the three publications to feature illustrated covers, which indicate that on some level the editors and writers envisioned this publication as a magazine, rather than a newspaper. (See Figure 2 and Figure 3.) Like the *Museum Star*, *Wonderland* included advertising, though in *Wonderland's* case the ads were small and placed by individuals,



FIGURE 2. Cover, *Wonderland of Science*, 1945. Illustration by Elihu Lubkin. Courtesy of the Brooklyn Children's Museum Archive. All rights reserved.

rather than local businesses, indicating that advertising in *Wonderland* may have been viewed as a matter of personal sponsorship rather than a commercial transaction. *Wonderland* was the official organ of the Science Club of the BCM, which was formed in 1936. In that year, prospective members of the club earned membership by accumulating points through attending meetings and being voted in by the other members.<sup>55</sup> Through this process, members could prove themselves to be *authentically* interested in science—an important dis-

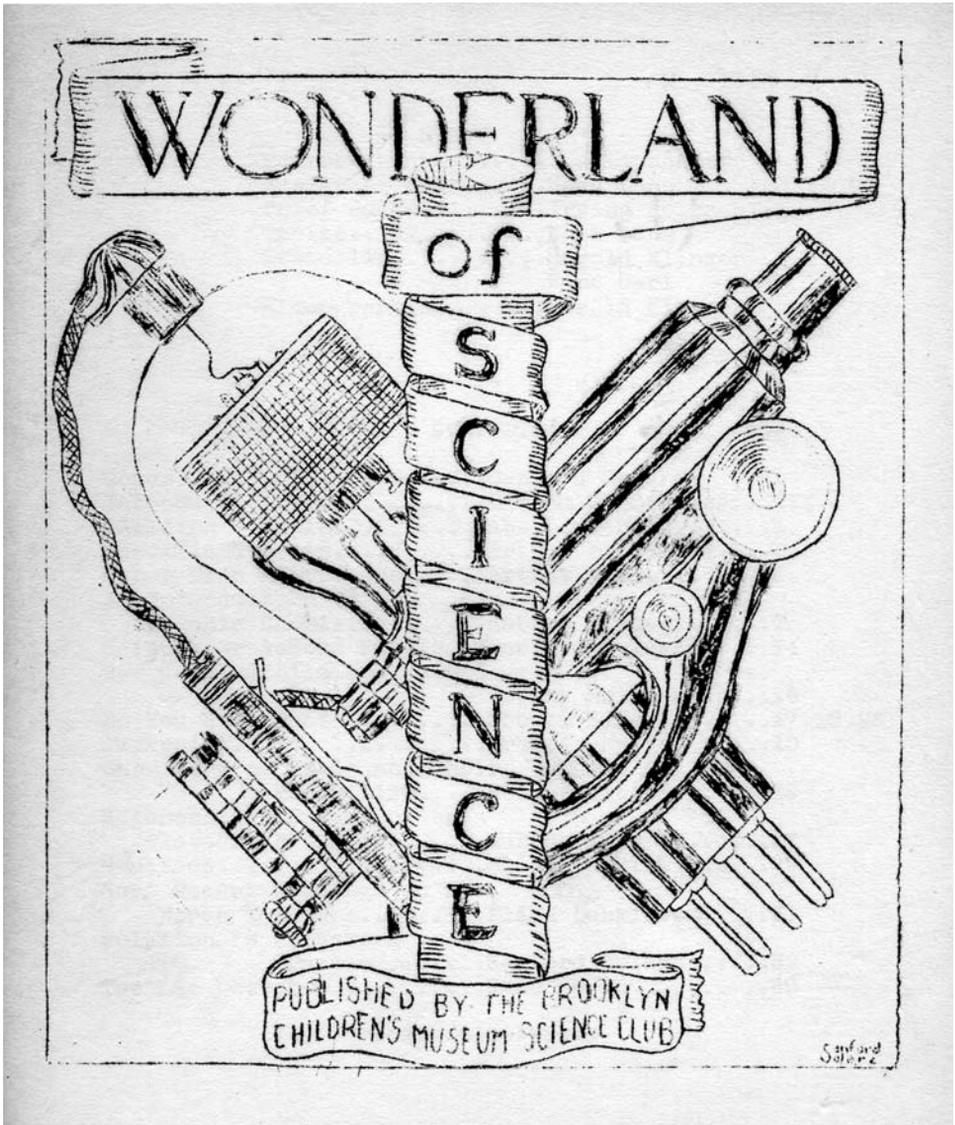


FIGURE 3. Cover, *Wonderland of Science*, May 1946. Illustration by Sanford Solarz. Courtesy of the Brooklyn Children's Museum Archive. All rights reserved.

inction between a Club member and a run-of-the-mill museum patron, and one that museum personnel appeared to encourage. In 1937, an advertisement for the Science Club in the *Children's Museum News* stipulated: "Membership is open to ALL boys and girls THOROUGHLY interested in ANY aspect of scientific work."<sup>56</sup>

In contrast to *Pay Dirt* and the *Museum Star*, adults visibly edited *Wonderland*. Mrs. M. C. Stryker, curator in charge of the Science Club, wrote the intro-

ductory notes for both surviving issues. In these notes, Stryker included inspirational quotes about science: “‘Old sciences are unraveled like old stockings, by beginning at the foot’—Swift; ‘Shun no toll to make yourself remarkable by some talent or other; yet do not devote yourself to one branch exclusively. Strive to get clear notions about all. Give up no science entirely; for science is but one’—Seneca.”<sup>57</sup> In the first surviving issue (the third issue of the periodical), Stryker told readers that the magazine was “the contribution of the various talents and interests displayed by the club members at their meetings” and “has been entirely correlated [*sic*] by the editorial staff.”

Stryker seemed sometimes to address an adult audience with a wartime concern for science recruitment. In one introductory note, she wrote, “Youth today is alert, science-conscious and keen to learn and try new things. Let us guide and encourage our scientifically-minded youth to greater effort.”<sup>58</sup> In the 1946 issue, Stryker hit a sober note in her “Introduction,” invoking recent atomic revelations: “The scientifically-minded youth today who chooses science for his career has a tremendous responsibility, for with knowledge goes power and with power goes responsibility. You cannot divorce the one from the other. What he does with his talents rests with him, let us hope he uses it wisely and constructively that he may give a good account of his stewardship.”<sup>59</sup> She begged the readers to be lenient when assessing the magazine, given the wartime conditions: “We offer [the magazine] with this reservation, that most of their oldest members are now serving in the armed forces and the younger ones have been left to ‘carry on’.” Indeed, the war made several appearances in these issues; “The Chemist’s Corner,” by club alumnus Arthur Small, then serving with the United States Navy, gave advice on removing stains caused by a wide array of substances (grease, fly paper, cod liver oil) and ended with a startling one: “Japs: They may be removed by buying UNITED STATES WAR BONDS AND STAMPS.”<sup>60</sup> Small’s other article in this issue was a blow-by-blow account of a shift he worked while with the Hospital Corps at the U.S. Navy Training Center in Sampson, New York.<sup>61</sup>

The magazine was used in part as a recruitment tool for the Science Club; in the 1946 issue, the editors wrote in their note that “the members have written articles about the subjects that have interested them most in the hope that it may be of some interest to you.” Further, the editors added, “this bulletin represents only an idea of the work done by the Science Club, and as you will probably agree that this can hardly be like the real thing, why not come out to a meeting some Saturday afternoon and watch us work? We guarantee you an enjoyable time.”<sup>62</sup> Perhaps because of this “recruitment” mission, the articles included in *Wonderland* varied greatly in their commitment to a dry, scientific tone. Rane Curl contributed a piece on lie detectors in the 1946 issue, telling several lurid stories of older methods of lie-detection—“in England it was believed that a murdered corpse would bleed if the murderer were brought into the room”—and, debunking each in turn, then offering the latest “scientific”

method and cautioning that “the Lie Detector Test is a scientific procedure which must be administered by experienced operators who understand the psychological and physiological principles involved. Records must be interpreted and judgements [*sic*] of truth or deception made by an expert.”<sup>63</sup>

Issues also included how-to pieces, such as Irwin Gillenson’s “Trick Photography,” which recommended a series of techniques “for any photographer who is tired of making ordinary types of pictures.” (One technique, “Amputation,” outlined the way that a photographer could make it seem as though a man had cut off his own head; “one other interesting picture is that of a man eating his own head which he is serving on a platter to himself by himself.”)<sup>64</sup> In “The Water Drop Microscope,” Arthur Miller told the reader how to construct an inexpensive microscope that could use a water drop for a lens.<sup>65</sup>

*Wonderland of Science* featured several types of pieces that presented science in short, engaging formats. In 1945, Frances Mass offered “Strange Facts About Science,” two-and-a-half pages of tidbits, such as “Male gnats usually refrain from attempting to draw blood, and confine their diet to the nectar of flowers,” and “A cow does not even have to eat garlic to get the flavor in her milk, she need only smell it steadily for 10 minutes, according to the Department of Agriculture.”<sup>66</sup> Robert Siegel wrote a similar piece for the 1946 issue, “Do you KNOW THAT—,” which begins with, “The liver of the polar bear has so much Vitamin D stored in it that eating it results in painful death by calcification.”<sup>67</sup> The 1946 issue contained a “Science Crossword Puzzle” by Sanford Solarz: 25 Down: “Single cell animal”; 17 Across: “Iron Oxide.”<sup>68</sup> In 1946, Frances Mass contributed a poem, “Awakening,” on the subject of natural growth and springtime. A stanza follows:

A tree is white with bloom.  
 Petals like snowflakes are drifting softly down,  
 Covering the ground with a carpet of white velvet,  
 Tranquilly standing there in that spotless vesture,  
 It gives mute witness to the prepresence [*sic*] of Omniscient Power.<sup>69</sup>

The experiment report, another common type of article in *Wonderland*, was slightly more scientifically committed in its form, though in content it often offered exciting “factoids” similar to those available in shorter pieces. Julius Martel wrote on the subject of “Man’s Source of Energy,” upping the stakes by informing his reader in his introduction, “Many years ago, before Nutrition was considered a study, the world was up for a battle for life greater than any man made destruction! Millions of people all over the world were faced with disastrous diseases, which were gradually torturing them to death.” Martel then outlined an experiment he made with homing pigeons, feeding one only white rice and water and the other brown rice and water, and eventually determining that, as history had informed him, the pigeon fed only on white rice

had acquired Beri-Beri. (No other test, besides observation of the bird's weight loss and inability to fly, was made to determine this diagnosis.) "I administered some yeast, which has an excellent source of required vitamin, down the bird's throat," Martel wrote. "After doing this for several hours, I found that the bird was now able to stand on its feet again. The following day it was able to fly. It had conquered Beri-Beri."<sup>70</sup> This piece was accompanied by an unattributed illustration comparing well-nourished and ill-nourished animals.

If Martel's experiment report indulged in some colorful language, Elihu Lubkin's eight-page treatise "The Lithosphere," from the 1945 issue, told the story of the formation of the earth's outermost crust in utmost seriousness. Lubkin added at the end of his piece, "My 'Cosmic Theory of Gravitation' described in my booklet 'Sub-Atomic Theories' can explain the equality of gravity disregarding projections such as the Himalayas."<sup>71</sup> An announcement at the end of the magazine stipulated that "Sub-Atomic Theories" could be obtained by writing to Lubkin at his address and that the booklet was free to scientific institutions and physicists. In the 1946 issue, Lubkin contributed a similarly serious seven-page article on the topic of "Genetics," and the magazine offered a "Suppliment on; THE ATOM BOMB, ITS HISTORY AND DEVELOPMENT, by Elihu Lubkin, published under separate cover."<sup>72</sup> (This supplement was not preserved.) Lubkin, who graduated from Stuyvesant High School in 1950, went on to become a professor of physics at the University of Wisconsin and published articles on gravitation in the *International Journal of Theoretical Physics*.<sup>73</sup>

## Conclusion: Writing Science, Writing the World

The surviving issues of the *Museum Star*, *Pay Dirt*, and *Wonderland of Science* show how patrons of the Brooklyn Children's Museum used science writing to forge community bonds, comment on world events, and perform rational adulthood for each other and for adult readers. The approaches children and young people took to writing and editing these periodicals reflected their lives as consumers of popular scientific writing. From the *Museum Star*'s self-consciously moral sermons on the virtues of scientific engagement and commitment, to the "fun" science of *Wonderland of Science*'s "Did You Know?" factoids and the *Star*'s fictionalized "scientific" mystery, to *Pay Dirt*'s playful expedition reports, the writers of the BCM's periodicals reflected approaches to science writing common in adult periodicals, science books for children, and adventure stories. Although serious, committed examinations of scientific subjects, such as Elihu Lubkin's articles about genetics and the lithosphere in *Wonderland*, were uncommon, the fact that such pieces were accorded the lion's share of pages in the issues in which they appeared shows that the editors of these periodicals regarded their mission with the utmost seriousness. Moreover, the connections that writers for these child-authored science publications made be-

tween the sciences they were studying and contemporary advances in industry, transportation, and the weapons of war show that the teaching approaches of the BCM, which aimed to connect science with “real life,” bore fruit.

## NOTES

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<sup>1</sup> See, for example, John Dewey, *How We Think, a Restatement of the Relation of Reflective Thinking to the Educative Process* (Boston: D. C. Heath and Company, 1933); Katherine Glover and Evelyn Dewey, *Children of the New Day* (New York: Appleton-Century, 1934); William James, *Talks to Teachers on Psychology and to Students on Some Of Life’s Ideals* (1899; Cambridge, MA: Harvard University Press, 1983); Lucy Sprague Mitchell, introductory material for the *Here and Now Story Book, Two-to Seven Year Olds; Experimental Stories Written for the Children of the City and Country School (formerly the Play School) and the Nursery School of the Bureau of Educational Experiments* (New York: E. P. Dutton & Company, 1921).

<sup>2</sup> Anna M. Redcay, “‘Live to Learn and Learn to Live’: The St. Nicholas League and the Vocation of Childhood,” *Children’s Literature* 39 (2011): 58; Greta Little, “The Care and Nurture of Aspiring Writers: Young Contributors to *Our Young Folks* and *St. Nicholas*,” *Children’s Literature Association Quarterly* 17, no. 4 (1992): 19–23.

<sup>3</sup> Marcel C. LaFollette, *Making Science Our Own: Public Images of Science, 1910–1955* (Chicago: University of Chicago Press, 1990), 3.

<sup>4</sup> George E. Hein, “Progressive Education and Museum Education: Anna Billings Gallup and Louise Connolly,” *Journal of Museum Education* 31, no. 3 (2006): 161–74; Anna Billings Gallup, “The Children’s Museum as an Educator,” *Popular Science Monthly*, April 1908; Anna Billings Gallup, “A Children’s Museum and How Any Town Can Get One,” 1926.

<sup>5</sup> Mary Beattie Brady, “The Children’s Agora,” *Children’s Museum News*, May 1942.

<sup>6</sup> “The Science Club,” *Children’s Museum News*, February 1936.

<sup>7</sup> Jane Wilson Garrison, “Democracy in a Children’s Museum,” *Children’s Museum News*, November 1940.

<sup>8</sup> See, for example, James Gilbert, *A Cycle of Outrage: America’s Reaction to the Juvenile Delinquent in the 1950s* (New York: Oxford University Press, 1986); Leerom Medovoi, *Rebels: Youth and the Cold War Origins of Identity* (Durham, NC: Duke University Press, 2005).

<sup>9</sup> Brady, “The Children’s Agora.”

<sup>10</sup> “Of Course You Recognize . . .,” *Children’s Museum News*, February 1938.

<sup>11</sup> “The Printed Word . . .,” *Children’s Museum News*, December 1938.

<sup>12</sup> Brooklyn Institute of Arts and Sciences, *Brooklyn Children’s Museum; What We Do and How We Do It* (Brooklyn: Brooklyn Children’s Museum, 1950), 15.

<sup>13</sup> “Advertising Rates,” *Museum Star*, November 1936; “Advertising Rates,” *Museum Star*, February 1937.

<sup>14</sup> “The Science Club Elections,” *Museum Star*, November 1936; “A New Course in Nature Collection,” *Museum Star*, November 1936; “The Library Shelf,” *Museum Star*, November 1936.

<sup>15</sup> Edward G. Stack, “A Letter to the Editor,” *Museum Star*, January 4, 1936.

<sup>16</sup> Edward G. Stack, “Dear Mr. Editor,” *Museum Star*, February 1937.

<sup>17</sup> The Editor, “Editorial,” *Museum Star*, January 4, 1936.

<sup>18</sup> “You Need a Hobby,” *Museum Star*, February 1937.

<sup>19</sup> Steven M. Gelber, *Hobbies: Leisure and the Culture of Work in America* (New York: Columbia University Press, 1999), 30.

<sup>20</sup> "League Officers Elected," *Museum Star*, November 1936.

<sup>21</sup> "Museum Celebrities Selected!," *Museum Star*, November 1936.

<sup>22</sup> "Can You Answer Them?," *Museum Star*, January 4, 1936.

<sup>23</sup> Sidney Yudin, "Picture of the Month," *Museum Star*, January 4, 1936.

<sup>24</sup> "Success," *Museum Star*, November 1936.

<sup>25</sup> J. C. Boyle, "Introducing 'Pay Dirt'," *Pay Dirt*, June 1, 1938.

<sup>26</sup> "Introducing 'Pay Dirt'."

<sup>27</sup> "Summer Achievements," *Children's Museum News*, October 1932.

<sup>28</sup> "The Mineralogy Division," *Children's Museum News*, January 1935.

<sup>29</sup> "The Mineralogy Division."

<sup>30</sup> Sally Gregory Kohlstedt, *Teaching Children Science: Hands-On Nature Study in North America, 1890-1930* (Chicago: University of Chicago Press, 2010), 231.

<sup>31</sup> Kimberley Tolley, *The Science Education of American Girls: A Historical Perspective* (New York: RoutledgeFalmer, 2003).

<sup>32</sup> "The Beginnings of Careers in Science," *Children's Museum News*, March 1937.

<sup>33</sup> "Surprise!," *Pay Dirt*, April 1, 1940.

<sup>34</sup> Irving L. Horowitz, "The United States National Museum's Mineral Collection," *Pay Dirt*, September 15, 1938.

<sup>35</sup> Thomas Nash Walthier, "Exploring the Shenandoah Caverns," *Pay Dirt*, June 1, 1940.

<sup>36</sup> Alexander Nicolescu, "With Pick and Hammer," *Pay Dirt*, June 1, 1938.

<sup>37</sup> Carmine Venuto, "Borax," *Pay Dirt*, November 15, 1938.

<sup>38</sup> Seymour Scharf, "A Fluorescent Lamp," *Pay Dirt*, November 15, 1940.

<sup>39</sup> Abraham Spector, "Polarized Light, Article II," *Pay Dirt*, April 1, 1940.

<sup>40</sup> Irving L. Horowitz, "Let's Look at the Record," *Pay Dirt*, November 1, 1940.

<sup>41</sup> Horowitz, "Let's Look at the Record."

<sup>42</sup> Irving L. Horowitz, "Needles in an Arctic Haystack," *Pay Dirt*, July 1, 1938.

<sup>43</sup> Irving L. Horowitz, "The B.P.H.C. Goes to Glen Cove," *Pay Dirt*, August 1, 1938.

<sup>44</sup> Abraham Spector, "Collecting Minerals," *Pay Dirt*, June 15, 1938.

<sup>45</sup> Martin Plotkin, "Spring Was Not in the Air," *Pay Dirt*, May 1, 1940.

<sup>46</sup> Edward Fairstein, "On Bicycles Three," *Pay Dirt*, July 15, 1940.

<sup>47</sup> Leon Dressner, "A Trip to Paterson," *Pay Dirt*, August 1, 1940.

<sup>48</sup> Fairstein, "On Bicycles Three."

<sup>49</sup> Carmine Venuto, "Why Study Minerals," *Pay Dirt*, June 1, 1938.

<sup>50</sup> Alexander Nicolescu, "Wall of Wood," *Pay Dirt*, October 1, 1938; Alexander Nicolescu, "Wall of Wood," *Pay Dirt*, October 15, 1938; Alexander Nicolescu, "Wall of Wood," *Pay Dirt*, November 1, 1938.

<sup>51</sup> Irving L. Horowitz, "Minerals and World Peace," *Pay Dirt*, June 1, 1938.

<sup>52</sup> "B.P.& H. Program," *Pay Dirt*, March 15, 1940.

<sup>53</sup> Alan Bergdahl, "Chromium," *Pay Dirt*, September 1, 1940.

<sup>54</sup> The Editors, "Editorial," *Wonderland of Science*, May 1946.

<sup>55</sup> "The Science Club."

<sup>56</sup> "The Pick and Hammer Club . . . The Science Club," *Children's Museum News*, December 1937.

<sup>57</sup> Mrs. M. C. Stryker, "Introduction," *Wonderland of Science*, 1945; Mrs. M. C. Stryker, "Introduction," *Wonderland of Science*, May 1946.

<sup>58</sup> Stryker, "Introduction."

<sup>59</sup> Stryker, "Introduction."

<sup>60</sup> Arthur Small, "The Chemist's Corner," *Wonderland of Science*.

<sup>61</sup> Arthur Small, "Sick Call," *Wonderland of Science*, 1945.

<sup>62</sup> The Editors, "Editorial," *Wonderland of Science*, May 1946.

<sup>63</sup> Rane Curl, "The Lie Detector," *Wonderland of Science*, May 1946.

<sup>64</sup> Irwin Gillenson, "Trick Photography," *Wonderland of Science*, 1945.

<sup>65</sup> Arthur Miller, "The Water Drop Microscope," *Wonderland of Science*, May 1946.

<sup>66</sup> Frances Mass, "Strange Facts About Science," *Wonderland of Science*, 1945.

<sup>67</sup> Robert Siegel, "Do You KNOW THAT—," *Wonderland of Science*, May 1946.

<sup>68</sup> Sanford Solarz, "Science Crossword Puzzle," *Wonderland of Science*, May 1946.

<sup>69</sup> Frances Mass, "Awakening," *Wonderland of Science*, May 1946.

<sup>70</sup> Julius Martel, "Man's Source of Energy," *Wonderland of Science*, 1945.

<sup>71</sup> Elihu Lubkin, "The Lithosphere," *Wonderland of Science*, 1945.

<sup>72</sup> Elihu Lubkin, "Genetics," *Wonderland of Science*, May 1946.

<sup>73</sup> "Stuyvesant High School Math Team (1970)," n.d., <http://173.8.135.113/MathTeam.html>;

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