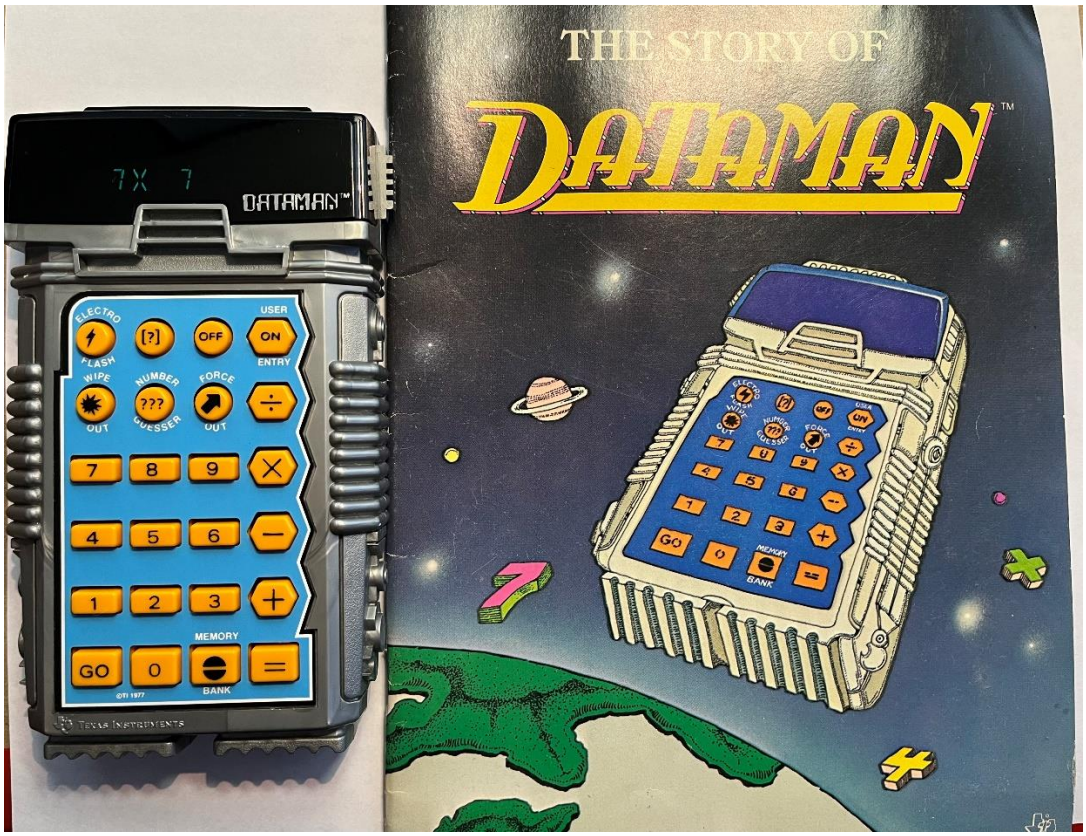
The Many Histories of DataMan
Jon-Paul C. Dyson (Strong National Museum of Play)
O DataMan, how I loved thee!



What is it about certain playthings from our childhoods that inspire a wave of emotion, a frisson of feeling akin to Marcel Proust's description in À la Recherche du Temps Perdu (Remembrances of Things Past) of the flood of memories that swept over him when he dipped some petites madeleines cakes into his tea and vividly recalled his childhood?

We all have those toys that act as time machines when we see them. The favored plaything, the game we spent hours playing, the coveted item we never got (but maybe some neighbor—that jerk!—did get). For me, one such special toy was DataMan. It was not a toy likely to calculate envy in playmates, but it was something I loved. And today, in my various roles at the Strong National Museum of Play, I find myself in the unusual situation of being engaged with these once-prized objects in a professional, as well as a personal, capacity. That has caused me to reflect on what the stories are that a toy like this can tell, and what, perhaps, that reveals about the nature of play and our interpretations of it.

DataMan was, in simplest terms, a calculator toy. It had a number of basic games that you played by adding, subtracting, multiplying, and dividing (fig. 1). And it even had a ludicrous backstory that came in an accompanying booklet, The Story of DataMan, that told of DataMan's intergalactic battle with the evil wizard AntiMath (much later, as a parent, I endured a seemingly endless elaboration of this basic premise in the children's show Cyberchase, with the protagonists' perpetual quest to foil the nefarious schemes of the evil Hacker).

So, what are the stories we can tell, the histories we can write about DataMan?

All history begins with the personal story. In Italian, la storia encapsulates both story and history, recognizing that the two are usually intertwined. In German, die Geschichte does the same work. We historians often soft-pedal this fact, but for most of us our scholarly pursuits are entwined with our personal interests. Even as we strive to maintain objectivity, properly reference our sources, and dispassionately put aside our preferences, our interests creep into the stances we take, the stories we choose, and the evidence we marshal.1

So let me return to the personal. I received DataMan for Christmas one year; I assume it was 1978 when I would have been nine years old. I played it somewhat obsessively, especially at night when I was supposed to be asleep. I loved math, and I can't help but think that all that time spent solving problems on this electronic device sharpened my mental math abilities and eventually landed me a spot on the math team in high school.

That is my personal history of DataMan, and it's not a particularly exciting one. And yet there are other histories, other stories that it makes sense to look at, for DataMan was a mass consumer product and the result of far-flung innovations in technology, trends in marketing, and even United States geopolitical policy. This one beloved object can open up many other windows into the past. So, what are some of the ways we might consider DataMan, holding him up like Yorrick's skull in Hamlet?

First, there is a play story here. Mathematical play has been a popular recreation for centuries. Magic squares, for example, in which all the numbers add up to the same value whether calculated horizontally, vertically, or diagonally, were a favorite of Benjamin Franklin's. Millions of others have found pleasure in fooling with numbers over the years. Starting in 1957, and for three decades afterward, Martin Gardner—whose papers are at Stanford University—published the widely read Mathematical Games column in Scientific American. Composed at the height of the space race with the Soviet Union, his column tapped into the national enthusiasm for all things mathematical and scientific at a time when calculating the trajectories of rockets and predicting the orbits of spacecraft seemed central to the nation's interests.

By the mid-1970s, however, the space race was winding down and mathematical recreations often began to assume more playful, less purposeful guises. Calculator play was one such type of activity. At the Strong National Museum of Play in our Brian Sutton-Smith Library and Archives, we have many examples of books that use calculators just for fun. Ross and Pat Olney's Pocket Calculator Fun & Games (1977), for example, presents this trick:

Multiply your age by 2, add 5, then multiply again by 50. Now add a friend's or relative's age, subtract 250 from the answer, then divide by 100. When you touch the (=) button, you will see your age to the left of the decimal point and your friend's age to the right. (On some small calculators, the last zero is dropped).2

Three of these books in our collection were owned by Ralph Baer, who not only led the invention of the first home video game system but also created many handheld toys such as Simon and Amaze-a-Tron. In his personal copy of Edwin Schlossberg and John Brockman's The Pocket Calculator Game Book, for example, he taped a piece of paper that translated basic calculator functions into hardware controls for a mathematical toy. Certainly there's a close affinity between his handheld electronic game Amaze-a-Tron (1978) and the games in this book.

All the play didn't come just from books. School kids in the 1970s figured out fairly quickly that calculators could be made to do clever things including spelling some words, sometimes by holding the calculator upside down (0.7734 flipped over, for example, spelled "hello" on the primitive LCD screens). Of course, some of the words were more impish or off-color, but tricks like these were almost always more fun than math class. DataMan eschewed these nonfunctional uses of a calculator and instead tried to embed basic processes like adding, subtracting, multiplying, and dividing into a plaything.

And yet this isn't just a story about play; it's also a history of technology, for both calculators generally and DataMan more specifically were the product of technological innovation. More exactly, there were three main technologies that crucially abetted the arrival of DataMan under Christmas trees in the late 1970s: the wide-scale adaptation of plastic to the manufacturing process, the development of the computer chip, and advancements in display technologies. Without all three of these innovations, DataMan would not have been possible.

Plastics are ubiquitous today, and when we talk about them, we mostly discuss them as a problem fueled by the petrochemical industry that pollutes our waterways and landfills. And yet at one point plastics represented a great hope for improved lifestyles. Not only were they easy to manufacture but their malleability—which is why, after all, they are called plastic—made them almost infinitely adaptable. The result is that their presence is often invisible, taken for granted. Our consoles, computers, and phones that we play video games on today are made from plastic, but we rarely think of them as one of the technologies that power our play. As Roland Barthes commented, "the price to be paid for this success is that plastic, sublimated as movement, hardly exists as substance."3

Better living through chemistry applied as much to plastics as anything else in the chemical industry. While plastics were invented before World War II, it was only in the subsequent years that industry began mass production of a range of different plastics that could be molded and shaped into an infinite variety of forms. The result was enhanced creativity in design, more durable materials, and cheaper products. The toy industry in the 1950s especially benefited, as everything from LEGO to Fisher-Price toddler toys became ubiquitous. Plastics such as ABS (acrylonitrile, butadiene, and styrene) made possible a relatively cheap toy like DataMan.4

And yet at its core DataMan was no pretend calculator but a real one, one that relied on a computer chip, and its manufacturer Texas Instruments (TI) was a pioneer in this realm. The company invented the first integrated circuit in 1959, and by the 1960s the company was looking for more products for its microchips. That effort led first to calculators. The Canon Pocketronic calculator using the TI chip was introduced in Japan by Canon in 1970, and in 1972 Texas Instruments brought out its own calculator in the United States. Numerous updates and improvements followed, and soon calculators were ubiquitous in schools and workplaces around the country.

But the company was interested in expanding its markets, so in 1976 TI introduced the Little Professor, a handheld calculator that functioned as a game. Unlike a calculator, the Little Professor gave you the question (for example, 7 + 5) and you needed to supply the answer (I'll let you figure that one out). DataMan used the same chip as the TI-1200 calculator and essentially the same TMS-1100 chip as the Little Professor, giving the company more outlets for its chip designs. After all, DataMan was pretty much the same product as the Little Professor but with different packaging and some measure of an epic outer-space storyline that no doubt helped its popularity given the release of the movie Star Wars earlier that year in 1977.5

And yet it wasn't just the computer chip or the plastic body that made the DataMan so appealing; it was also its display. I'm no expert on displays,6 so if you had asked me what kind of display it was I would have guessed an LED, but in fact it is a VFD, or a vacuum fluorescent display. This technology preceded LED and generated brighter colors but used more power, thus draining batteries faster and making it less desirable as a commercial technology. Still, the luminescent blue glow of the DataMan was part of its appeal, especially at night when I was supposed to be sleeping and the toy's astronaut conceit could almost feel real.
DataMan is not just a plaything or a product of technology, or, more accurately, technologies. It's also a story of geopolitics, something I didn't expect to discover until I turned over a copy of DataMan and saw that it was manufactured in El Salvador.

In the 1970s, Central America was emerging as the next battleground of the Cold War. Ever since James Monroe articulated his Monroe Doctrine in 1823, the United States has claimed a proprietary interest in the Americas, an exclusive claim for dominance vis-à-vis other world powers. Theodore Roosevelt upped the ante in 1904 when he announced the Roosevelt Corollary to the Monroe Doctrine, a principle that gave the United States carte blanche to interfere in the affairs of Latin America at any point. In the 1950s and 1960s, United States dominance in the region was threatened by the Cuban Revolution and the subsequent missile crisis. Just as the Soviet Union and the United States jostled for power in Africa, Asia, and Europe, so too the two clashing superpowers began to wage proxy struggles in Central America.

El Salvador is a small country, about the size of New Jersey, on the Pacific Ocean and bordering Guatemala and Honduras. In the 1970s, it, like many of its neighbors, was ruled by a military government backed by the United States. Much of the American aid was military, but the United States also tried to help the country through economic assistance. This was part of the reason that Texas Instruments built a major presence here in the 1970s. But by the mid-1980s the country's brutal overt and covert conflicts were making life difficult for American operations, and Texas Instruments pulled out of El Salvador, effectively ending the country's nascent rise as an electronics producer.7

So how does this history connect with the larger history of American policies toward the region? Here the subject gets complicated, for it is not a simple matter of overt United States imperial foreign policy. Ronald Cox, in his book Power and Profits: U.S. Policy in Central America, argues that business interests, more than statist policies, helped drive US-related economic growth in the region. Of course, business and state interests were not completely independent. In the 1970s and 1980s, business interests had more sway over United States policies than at other times because heightened Cold War tensions gave more latitude to executive branch bureaucrats, who often formed cozy relations with corporations in the United States and Central America.8

The United States supported development of light industry in Central America going back to the early 1950s. In the decade that followed, the United States Agency for International Development (AID) supported many business ventures as well as developing apprenticeship programs and other initiatives meant to grow the manufacturing workforce. In the 1980s, American policy shifted from general development aid to more explicit support to promote exports through tariff reductions and other means. Many companies moved operations to Central America, especially El Salvador, in search of not only these tariff benefits but also cheaper wages. DATARAM closed a factory in Malaysia and moved to El Salvador. Texas Instruments likewise shuttered its Curacao, Mexico, plant the same year it opened its operations in El Salvador.9

In the late 1970s and early 1980s, social and political unrest grew in the region, making it hard for these companies to do their work. The firms that relied on large amounts of labor began lobbying the US government for more military and economic support for existing conservative governments. The US companies like Texas Instruments needed cheap labor to compete with Japanese and European rivals in a global marketplace. They also worked to pass the Caribbean Basin Initiative in 1984 that explicitly tied duty-free status to countries' opposition to communism and support of US economic policy.10

These policies that reduced or limited tariffs on goods exported from El Salvador resulted in the growth of maquila, businesses that assembled goods for export, as El Salvadoran leaders tried to turn their country into a Central American version of Taiwan.11 The major center of maquila production in El Salvador was a free-trade zone called San Bartolo. There Texas Instruments set up shop and became the largest American manufacturer in the country. A 1984 article in the New York Times noted that "with 2,400 employees, all of whom are local women except for supervisors and top management, T.I.'s Salvadoran division assembles components for pocket calculators and digital watches. Those who have seen the factory say it is ultramodern, encompasses several acres of space and is guarded by a highly professional security force, headed by a retired Salvadoran army major. Until last year, T.I. had two manufacturing facilities, but it reportedly consolidated them for security purposes at the present site

in Santa Lucia, about six miles outside of downtown San Salvador."12 The invisible labor of building our electronics is too often ignored in game studies—in this case, the work of El Salvadoran women assembling components for the United States market. Companies in the San Bartolo free-trade zone enjoyed tax-free status and also could count on the fact that strikes were banned. What were these workers' stories? Likely they were stories of struggle with low wages and hard conditions.

And yet we should not automatically assume that all the workers were mistreated or unhappy. Indeed, many seemed to have fond memories of and pride in their time working there, though to what extent that is a product of the self-selection of respondents or the haze of memory as seen through the country's subsequent troubles is unclear. It's also likely that there were ethnic and class divisions among the workers between those of Indian background and the Ladinos that often had more power and status in El Salvadoran society.13

All this is background on DataMan. But what about the object itself?

Inside the boxed copy of DataMan owned by The Strong museum is a receipt from October 24, 1980, from an AAFES store—the retail arm of the armed forces. The toy was purchased for $15.95. Was this bought for a kid growing up on a military base? It is hard to know since the museum acquired the object on eBay and it came with no provenance, but it seems a fair supposition. Was that child a boy or a girl? Again, we don't know, but the product's packaging gives some clue as to whom Texas Instruments thought was the likely recipient.

The cover of the DataMan box shows two children, a boy using the toy while a girl, presumably his sister, looks on (fig. 2). There's a long history in advertising, especially in toys and most especially in toys related to STEM fields, in which female figures look on encouragingly and enthusiastically while boys or men engage in play. Erector sets or Lionel Trains, for example, usually had a boy as the center of the action in advertising. In the wake of the feminist revolution of the 1960s and 1970s, critics such as Gloria Steinem began to assail the advertising industry for the way it enforced and reinforced gender stereotypes in the images and words it used. Erving Goffman's book Gender Advertisements came out during this period, and in it he analyzed how the advertising industry trafficked in these stereotypes. Vivian Gornick wrote in the book's introduction (to the 1979 edition), "when a photograph of men and women illustrates an instruction of some sort the man is always instructing the woman—even if the men and women are actually children (that is, a male child will be instructing a female child!)." As Goffman notes, advertisements like this one often reinforce subordination by placing the male slightly higher than the female.14

And yet in many ways adults, not children, were not the primary audience for this advertising. The writing on the box was more important for this audience than the imagery: "electronic learning aid," "design-your-own practice sessions," "Games that challenge the mind." As the copy confidently proclaimed, "it is the fun new way to learn arithmetic." The front page of the booklet included "a word to parents," outlining how adults could scaffold the learning for children through the toy.

There is a long tradition of yoking children's play to education, going back at least to John Locke's Some Thoughts Concerning Education in 1697, and that inclination to try and marry learning and fun has grown over the years. Just as toys like erector sets were marketed as training tools for aspiring engineers, so the DataMan would be a means by which children could become computer-trained math experts ready for the new economy. And as the cover art indicated, these future engineers, scientists, and engineers were presumably boys; it is impossible to ignore the capitalized Man in the middle of DataMan's name.15

Texas Instruments trumpeted its involvement with educators in the design of the toy, and in fairness this wasn't mere advertising rhetoric. While researching this article, I talked with Ralph Oliva who worked for Texas Instruments in their marketing department, and he mentioned the important work Ruth

Hoffman from the University of Denver Math Lab did in working with Texas Instruments to facilitate effective use of the calculator in the mathematics classroom and guide the company in the development of their mathematical toys.

While I can't say for sure, my own interpretation is that this particular copy of DataMan was used by a school teacher, as the names Gustaff and Lynch are written on the box cover and some of the cards that came with the game have "Gustaff" written on them, presumably to track them down in case the game was loaned out to another classroom and the cards got separated from the rest of the box. One card that came with the toy was addressed explicitly to parents and teachers, offering them hints on how to use DataMan to "provide valuable drill, practice, and exploration with numbers for both elementary and middle school students." It noted that "DATAMAN motivates your child positively by rewarding right answers and good scores with a dazzling 'light show.'" Technology offered tricked-out inducements to learning.

DataMan stands at the awkward junction of many early electronic toys, in which the novel electronic component was often packaged with more familiar supplementary analog materials, in this case a magazine purporting to tell the story of DataMan, instruction cards, and game boards with competitions like "Antimath Maze" and "Space Ball." Just as the Magnavox Odyssey had come with physical game-play pieces, overlays, money, and cardboard playing fields when it was released in 1972, Texas Instruments provided plenty of ancillary materials to supplement the core electronic product. Before long, these sorts of extras would be gone, with the battery-operated toy alone reigning supreme. As Newsweek wrote in its cover story "Turned-On Toys" on December 11, 1978, DataMan and other "electronic toys, run by computers no bigger than a stick of Dentyne gum, are the hottest new sellers since Barbie doll's debut a generation ago."16

Finally, there's also an institutional history with this particular toy, for at some point DataMan ended up in The Strong's collection, and this reveals that behind institutions are individuals who influence what the institution collects and what it interprets.

The versions of DataMan we have come from a few different sources. The first was acquired from a purchase of Texas Instruments–related toys that we made in 2008 from Joerg Woerner, a German-born engineer who is probably the foremost authority on the history of Texas Instruments calculators and owns an extensive collection. He happens now to live in Rochester, and he worked with us to select a curated group of TI products we could add to our collection. We had just launched our video game preservation efforts two years previously, and this was one of the first purchases we had made. As the person leading that effort, I was no doubt influenced to purchase these items by my childhood love of the toy. The next DataMan was an unsolicited donation in 2018, and the boxed version I wrote about here was one that we purchased because I knew I wanted to write about the toy. DataMan is an object in a museum, not only because it was a popular toy but because it was special to me. Thus, we return to the personal, in this case the ability I had to influence what we as a museum collected.

In the final calculation, DataMan is not a particularly special toy. And yet I wonder if my experience with DataMan is not emblematic of much work in games studies. When we write about games past and present, most often we're writing about games that have been special to us, ones we've played more often for personal reasons as opposed to professional studies. There's more eisegesis than exegesis in a lot of what we do. That's likely inevitable and there's probably nothing wrong with it, as our passion for a subject likely sharpens our insights. And yet our own proclivities can also sway our judgement or blind us to other stories that are less personally interesting to us. It's a good thing to remember that our own lived experiences influence what we choose to study and what we choose to preserve, and that there are more histories than just ours in every object we examine.