



Once upon a time

The story of a book

by **Guido Accascina** • Castelnuovo di Farfa, Italy • Photos and drawings from the book *Automati*, courtesy of the Modern Automata Museum

Once upon a time there was a book by Jorge Luis Borges called *The Aleph and Other Stories*. “The Aleph” is the story of a man who goes down to the cellar, falls down the stairs, and passes out. When he wakes up, his head is leaning against a step and he sees a small gap between one step and another. Looking more closely, the man discovers that he can see the world through the crack—the whole world. It is a wonderful little crack and on the other side is the entire world—its stories, its past, its future.

The beginning of my story of automata is similar. In 1980 I saw Borges’ crack in a small automata



The permanent collection at The Modern Automata Museum in Italy.

museum in Covent Garden—Cabaret Mechanical Theatre. You entered this magical place and walked through a labyrinth full of surprises and adventures. Each automaton was a small artistic and mechanical wonder. There is a quote from Paul Spooner that could well describe the feeling inside this magical museum: “Turning a handle, we see the world’s adventures, and sometimes our own.” At that time, in that place, I thought, This is what I want to do as soon as I grow up.

I grew up a few years later. I lived in a beautiful place in Sabina, between the hills of central Italy, amid olive groves and woods, in an old ninth-century

castle, Vezzano. There was an empty stable there, perfect for my museum. We arranged the floor, then the walls, the shelves, the electrical system, the doors, and the windows. The space was quite welcoming. It was cozy but empty. I didn't have a single automaton—not one. For an automata museum, that was a problem.

But I had a video of Paul Spooner's workshop. In the video you could see the chair where Paul sits when he works. It's an iron-and-wood chair, with armrests. A few days later I had built my first automaton: two people (my partner Marina and I) are kneeling and moving their hands up and down, adoring Paul's chair. The writing on the front says: "Turn the handle ten hundred thousand times and Paul will appear." I sent the automaton to Paul Spooner, whom I didn't know, with a note saying, "Dear Mr. Spooner, I found this object in the stable. I don't know what it is. Maybe you, who are an expert on these strange mechanical objects, will be able to give me an explanation." I think he laughed, and so we met.

From that day I developed good working relationships with many



Hellenistic automaton: *The Organ of Ctesibio*, 3rd century BC.

artists in many places in the world—many beautiful relationships, many beautiful people. The museum has gradually become a real museum, with a lot of awards and appreciation.

That's nice, but there was a new problem. The museum was full of automata but I had no idea how they worked or their history. I had built a museum for pleasure that was only playful and aesthetic.

Once I realized my ignorance, a great curiosity arose in me. What is the history of these machines? When were they born, how do they work, who were the creators and artists, and where are they from? What were the purposes of these automata—were they intended to be aesthetic, artistic, didactic, experimental, or...? The creators obviously had fun making them. In what cultural climate

did they breathe?

The answers were in the traces left by the automata over time, in the form of myths, archaeological finds, builders, artists, legends, stories, testimonies, images, and books. But the information was widely scattered, like a gigantic jigsaw puzzle made up of many pieces. Some pieces were very light, some were faded, some were missing, and some were ruined.

I was looking for a text that would tell me the whole story, from the beginning to today, but around the world I found only pieces of a puzzle. There were so many beautiful pieces. So I thought of putting the pieces together and writing a book for myself that would tell me the entire story, from "once upon a time" to today, just as I wanted to know it. Thus, my book, *Automi*, was born.

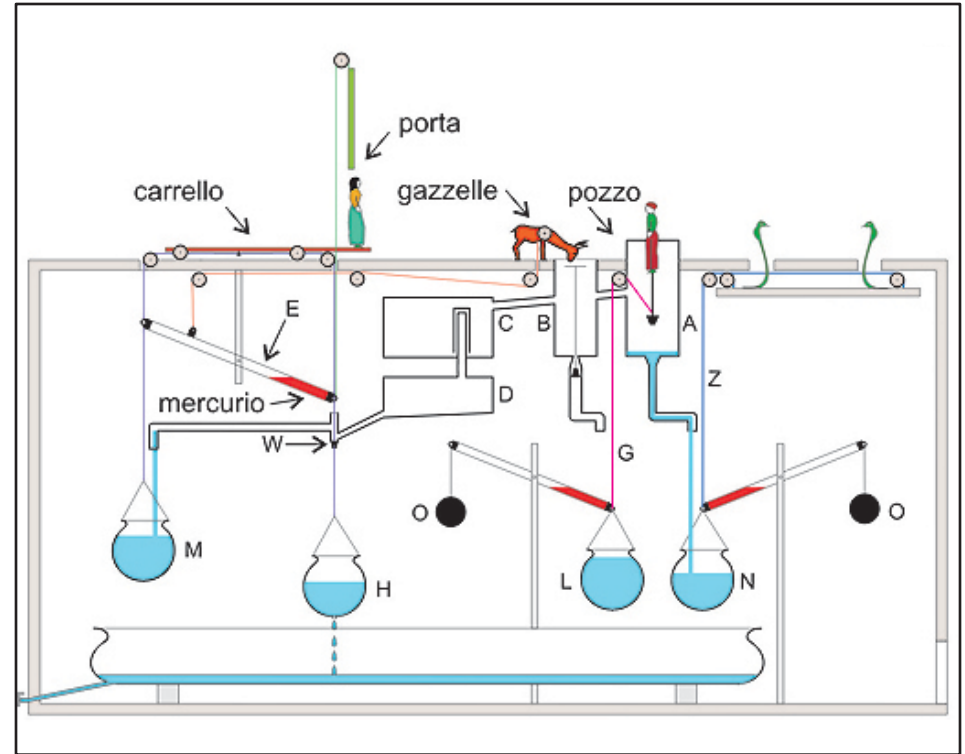
I started writing the book ten years ago in 2010. I wanted to track the history of automata from early mythology to today. I felt that the best way to do this was to follow the track backward. I wanted to go back in time to the first possible trace. For this, bibliographies are fundamental; they are like the map of a labyrinth. I looked for paradigm changes as



Arabic Automaton: *The Gazelles* of al-Muradi (10th century AD).

much as possible. In this sense, I have employed, by analogy, a useful book by Thomas S. Kuhn—*The Structure of Scientific Revolutions*. The book talks about physics but, in my opinion, it can be used in a useful way to study history, both forward and backward, as well as

other things, such as psychology, architecture, or art. I am preparing another book on this topic, a book on the history of art from Manet to Manetas, which will be called *This is not art*. This is a popular phrase, commonly used when you are faced with some-



Mechanism of *The Gazelles* of al-Muradi.

thing that is not understood. Even automata often shocked their audiences, who didn't understand how they worked. Hence the sense of wonder or magic.

There were many problems to overcome in this research. The tales and stories are written in various languages, some ancient. I had to check the validity of their content by drawing or building the automata, or parts of automata, as presented by these stories, imagining them in space and re-

designing historical projects. This is a great exercise to do when you want to understand how something works and why it is made in a certain way. In *Automi* there are various drawings and redesigns, both mine and from other writers.

One discovery that I found made a big impression on me. The book tells of an invention that is credited to Heron of Alexandria, in the first century after Christ, but was probably made by Philo of Byzantium, three centuries before



Couple on a Park Bench by J. Marie Phalibois (18th century), with the restorer Anna Pamidoro.

that. This is a small, round wooden rod capable of programming both a 0/1 sequence and the times of this sequence. It is a discovery that changed the history of programming.

About a hundred people helped me in writing this book. Some were friends I met in my travels. Some would be two thousand years old today, others less so.

To name just a few, first is Mark Rosheim, who runs a robotics fac-

tory in the United States and who has studied, recreated, and written about Leonardo da Vinci's automata. One winter evening I was reading the introduction to one of his books on Google Preview, but it stopped two pages before the end. It was a compelling story and I was curious about how it ended. I searched for Mark's email address on the web and shamelessly wrote to him around three in the morning. "You don't know me, but I'm



Circus, the smallest circus in the world.

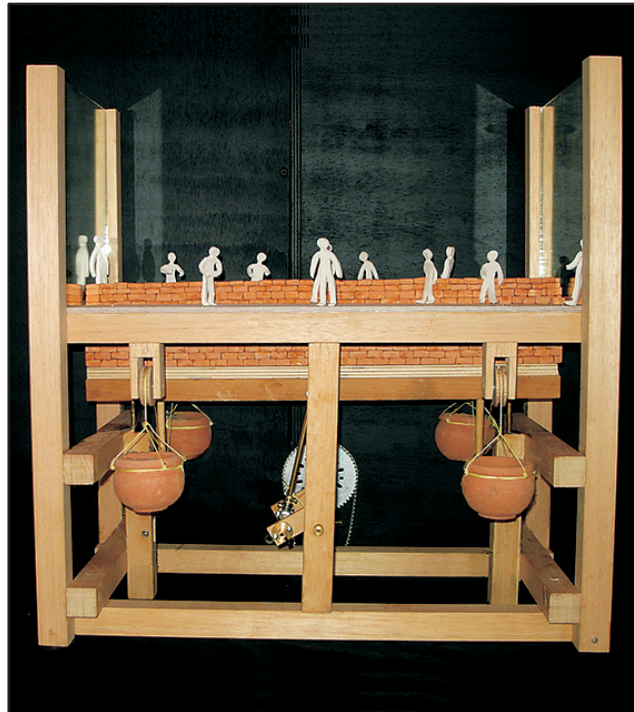
reading the preview of your book and I'd like to read the last two pages of the introduction. Can you send them to me via email?" He did! I couldn't believe anyone could be so kind to a stranger. Mark has a thorough understanding and has written some very precise and accurate things about Leonardo because he has recreated his models and made them work.

Another friend, Anna Pamidoro, is a doll and automaton restorer

who lives in a large house on a lake in central Italy. Anna has a maternal love for both her own automata and those of others. She spent three months restoring one of our automata, built by Phalibois at the end of the 19th century. She reconstructed the face, fingers, and costumes with the materials and fabrics of the time. She explained how to sew a suit for an automaton, which is completely different from making



An automaton by Keith Newstead from the *Automata With Recycled Materials* collection.



An automaton by Marina Gigli for the traveling exhibition, *Against the Idea of War*.



Paul Spooner's *Turkish Soup*.

a dress for humans or dolls. She worked for three months on the project just for the pleasure of doing it, and charged me nothing.

For those who study automata, another valuable person to know about is Donald R. Hill, who died in 1994. He studied the automata of al-Jazari and al-Muradi in a comparative way, with interesting explanatory schemes. In some cases, Hill recreated the automata himself. His writing also contextualizes the work of the automata

builders, discussing the atmosphere of the time. In my book, I created a sequence of drawings, starting from Hill's drawings, in order to give an idea of the dynamics of the movement of the elephant of al-Jazari.

Finally, I would like to mention one other person, a Greek named Kostas Kotsanas, who first recreated and exhibited the Alessandrini automata, and created the Museum of Ancient Greek Technology in Katakolo, Elis, Greece.

The museum contains replicas of automata by Ctesibius, Philo of Byzantium, Antikythera, and Heron. For those with a passion for automata, Kostas's Museum is absolutely one of the most important places to visit. His book, *The Inventions of the Ancient Greeks*, tells in detail, with many diagrams and photographs, about automata from the third century before Christ to a century after Christ. Kostas's reconstructions are all functional.

One hundred travel companions, one hundred stories. There isn't enough room to talk about them all, but they all helped me along my way and contributed to *Automati*. There is a list at the end of the book. I am grateful for what they have built, written, and transmitted. 📖

Guido Accascina's book, *Automati* (in Italian) can be purchased here: <https://tinyurl.com/AutomatiAccascina>