

WONDERFUL MECHANISMS: ENGAGING AUDIENCES WITH GLASS ENGINES

by Rebecca Hopman



Detail from a pamphlet advertising a glass blowing exhibition, 1904, CMGL 131361.
Courtesy of The Rakow Research Library, The Corning Museum of Glass, Corning, New York.

When Bandhu Dunham first learned of the glass steam engines made during the 19th century, he was hooked. The engines were built by itinerant glassworkers, who traveled the world demonstrating lampworking and glass spinning, and creating fantastical models and machines to draw in their audiences. Dunham, who aspired to be a mad scientist as a kid, had found a new experiment to try. His inclination towards kinetic contraptions drove him to make his own engines, while also taking the time to investigate the history of their predecessors.

The tradition of lampworking demonstrations dates back hundreds of years. As early as the 1670s, traveling glassworkers were gathering crowds in towns across Europe. Their shows were typically centered around their demonstrations, but also included a display of models and scientific (sometimes, pseudo-scientific) experiments. Audience members could see Cartesian

divers (also known as bottle imps or water devils), hydrostatic balloons, models of famous ships, and – my personal favorite – a hydraulic skeleton that showed how the circulation system worked. They often left with a small glass trinket (included in the price of admission), although they could also purchase a dizzying array of products, anything from models of animals, carriages, and fountains, to vases, spun glass feathers, and pens.

The essential elements of itinerant glassworkers' demonstrations remained the same for close to 300 years, but these showmen (and women) were constantly looking for new ways to outperform their competition. George Woodroffe, one of three brothers who formed a series of successful traveling troupes, is said to have initially conceived the idea of a steam engine made from glass during a trip he took with his father across Europe. The engine's completion around 1848

marked the beginning of a new trend in glassworking shows.

Consider, for a moment, how magical a glass steam engine would have seemed to a 19th-century audience. Made of hundreds of small pieces, this colorful, moving machine was dazzling. It was art combined with industry, an unexpected way to demonstrate the capabilities of steam during a time when actual steam engines powered the world. A contemporary poem, composed in honor of this achievement, gives you an idea of viewers' reactions:

“When will wonders cease, we may
justly enquire, / When we see a Glass
Engine, complete and entire, / ...
Incredulity starts, in most utter surprise,
/ We can hardly believe the plain sight
of our eyes, / ... The steam from the
boilers sends life to the heart, / And life
it goes bounding throughout every part.
/ Then, *hail* to the *progress* of *science*
and *skill*, / From whose storehouse
such *wonders* are forthcoming still.”¹

Woodroffe is credited for building several steam engines, including the Fairy Queen and the Crystal Gem. They soon spawned many imitators, among them the Saratoga, the Corliss, the Queen of Beauty, and General Garfield. Every troupe seemed to have their own, and all proclaimed that their engine was the most superior and spectacular of the bunch.

Throughout the 19th century and into the first decades of the 20th century, itinerant glassworkers and their steam engines traveled from town to town, fascinating audiences along the way. However, like many traveling acts, their livelihoods were impacted by the spread of mass entertainment and faster, cheaper travel options. Audiences who once congregated in town halls and private homes to watch glassworkers form molten glass into every conceivable form now spent their money on cars, radios, movies,

and televisions. Those glassworkers that kept performing often attached themselves to circuses, World's Fairs, or started their own, stationary tourist attractions.

Today, Bandhu Dunham helps keep the spirit of these glassworkers and their steam engines alive. His glass engines, marble machines, and automata sculptures embody the magic and whimsy of those early mechanical models. They spin, twist, seesaw, and whirl in mesmerizing fashion, captivating viewers much like the original Fairy Queen and Crystal Gem. Dunham also teaches others how to make their own kinetic machines in workshops throughout the United States and internationally. He acknowledges the history and tradition behind his modern interpretations in several volumes of his *Contemporary Lampworking* guides, which are among the most-used technique books in the Rakow Library's collection.

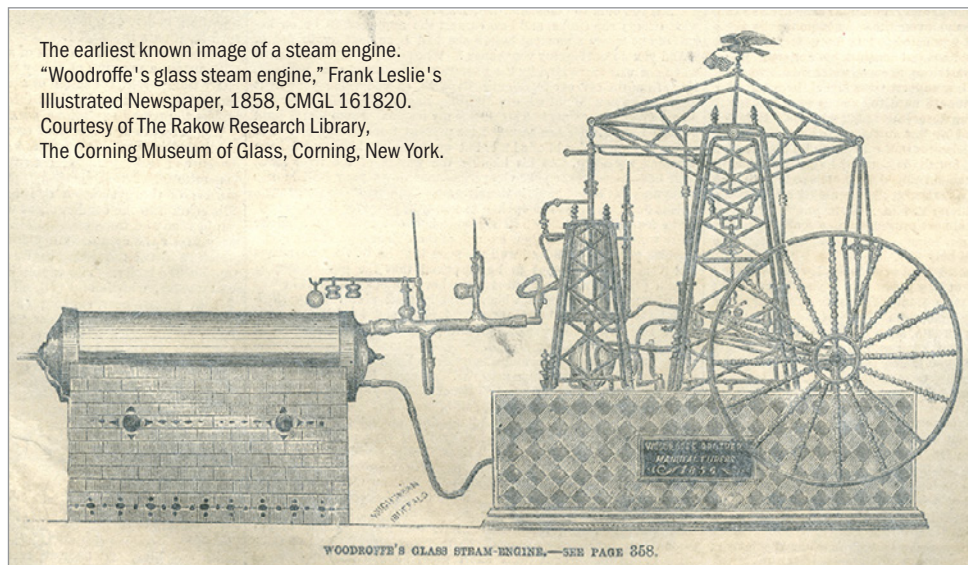
Dunham is presenting a lec-mo at this year's GAS conference in Norfolk, titled "Kinetic Glass as Performative Object." He plans to talk about "interactivity as a kind of audience participation performance" in his kinetic pieces as well as those of other artists. In addition, Dunham will explore how moving sculptures simulate the artist's experience of working with hot glass.

If you would like to see Dunham's kinetic work in person, one of his engines, *The Crystal Gem*, will be on display in the Rakow Library's upcoming exhibition, *Curious and Curiouser: Surprising Finds from the Rakow Library* (April 8, 2017 - February 17, 2019). Surrounding the engine will be some of the itinerant glassworker advertisements and photographs that inspired Dunham's kinetic creations. To learn more about itinerant glassworkers, please visit <http://libguides.cmog.org/itinerant>.

Curious and Curiouser explores our unique collection, and how artists, scientists, and writers have used it to inform and inspire their work. From a patent for preserving the dead in glass to coded batch books, this two-year exhibition will showcase many of the Rakow Library's unusual items. Learn more about the exhibition at <https://www.cmog.org/collection/exhibitions/curious-and-curiouser-surprising-finds-rakow-library>.

Rebecca Hopman is the Outreach Librarian at The Rakow Research Library of The Corning Museum of Glass

1. Somers, William R. *The glass steam engine*. [Bridgeport, CT]: Pomeroy & Morse, steam printers, [between 1855 and 1870].



The earliest known image of a steam engine. "Woodroffe's glass steam engine," Frank Leslie's Illustrated Newspaper, 1858, CMGL 161820. Courtesy of The Rakow Research Library, The Corning Museum of Glass, Corning, New York.

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