

## A History of the 1971 *Le [sic] Société Herpolhodique Buggy* Recollections of Some Participants

Paul Spudich, Editor

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### Cast

Ronald Benton, Physics 1972. Pusher, Construction.  
Robert Carter, Physics 1972. Construction.  
Brian Crowley, Physics 1972. Pusher  
Margaret Ellis, Psych?, 1973? Costume construction?  
Elizabeth Epstein, Fine Arts, 1971. Chief costume designer.  
Kerry Greenwald, ???, ??? Generalized helper.  
Dale R. Huffman, Physics, 1972. Chief Designer, Construction, Pusher  
Jon Manon, Physics 1972. Caped pusher, construction.  
James Oppenheimer, ???, ??? Assistant cinematographer.  
Thomas Smith, Psych, 1972. Bathtub mold co-owner.  
William John Smith, II, Physics, 1972. Construction welder, Pusher  
Paul Spudich, Physics 1972. Buggy driver, assistant cinematographer, Sound recorder.  
David Steidl, Design, 1972. Still photography.  
Sally Towne, ???, ??? Bathtub mold co-owner.  
Robert Turco, Physics 1972. Generalized helper. Pusher??  
Paul Wittman, Biology, 1972. Filmmaker.

### Paul Spudich's recollections

The LSH buggy was born of some tight friendships. I was very fortunate on my first day at CMU to find myself randomly assigned as my roommate in 200 Boss Hall one Dale Huffman, also a freshman physics student, who became a fast friend. That year Dale and I also met John Smith and Ron Benton, also Physics 72, with whom we formed a tight group, studying and carousing together. It is said that shared stressful situations bond people together, and any number of all-nighters trying (occasionally successfully) to solve physics homework problems (we still talk about the 'snowplow' problem) did the trick for us, binding us into the nucleus of the LSH buggy team. (I wonder what we would have produced had we experienced Vietnam together. Probably something less frivolous.) Dale and I, and perhaps the others, were rushed by a couple fraternities our freshman year, but we never fell into the fraternity system, because, at least for me, I already had formed a social network and felt no need for fraternity brothers.

During our junior year we decided to build and race a buggy. I have no recollection whatever of the motivation for becoming a buggy team, although I suspect it was simply to have fun. To enter the race we needed an organization, so being physics students (and not French scholars) we formed *Le [sic] Société Herpolhodique*, the Herpolhode Society, named after the herpolhode, a concept from intermediate mechanics,

specifically, the curve traced out on the invariable plane by the point of contact between the plane and the inertia ellipsoid of a rotating rigid body, a concept that we all fervently wished we understood.

The buggy itself had a white fiberglass body in the shape of a bathtub, painted like a Pittsburgh police car, which at that time had a white star in a circular blue field with parallel red stripes extending horizontally, like the wing insignia on a U.S. Air Force airplane (recall, this was during the Vietnam war, with the police being clear that they sided with Curtis "Bomb them back to the Stone Age" LeMay). The buggy had an interior heavy metal pipe frame (we had no delusions of winning; our hope was not to finish dead last), outrigger bicycle wheels, and a braking system of which we were immensely proud, a lever-actuated, plywood drag-plate cut into the shape of a foot (with toes), having a tire-tread sole and a small spring that lifted the toes to keep the foot from stubbing its toe when it was pressed onto the road surface. Despite the accident that seriously injured one of the other team's buggy driver that spring during a practice, I never had any doubts about my safety in my heavy metal cage with its prodigious stopping system, although in retrospect I wonder how the foot brake would have functioned had it hit one of Pittsburgh's then-prodigious potholes. I don't recall the reason we chose a bathtub body, nor do I recall the choice of the police-car paint job, except that it was intended just to get a laugh.

Ours may have been the first buggy to have an on-board movie camera to record the entire race (another weighty piece of optional equipment that was acceptable even though it diminished our chances of winning). Thanks to Sally Dixon at the Carnegie Museum, Pittsburgh at that time had a vigorous experimental film community in which Paul Wittman and I participated. From the outset we decided that we would produce a super-8mm film of the buggy process. I filmed the construction process, and Paul filmed the race day and epilogue, finally editing the film into a complete work.

As one of the cinematographers of the adventure, I was largely spared the necessity of getting my hands dirtied. Dale Huffman did the mechanical design of the buggy. John Smith welded the frame together in a Hadcan scene set deep in the bowels of one of the most ancient CMU buildings (the name of which I could recount if the campus maps on the CMU web site were not so crummy). Of course, there was a bathtub to be found. We were all dorm rats, but our former dorm neighbor Tom Smith, who shared a 3<sup>rd</sup> floor walkup in Shadyside with Sally Towne, volunteered their bathtub to use as a mold into which we could shape our fiberglass buggy body. None of us had ever molded fiberglass before, and of course it was easy, right? Just line the tub with the fiberglass fabric, slop on the resin, let it set, and pop it out! No problem. Except that after a few days the fiberglass still hadn't set, so to encourage the fiberglass we suspended over the bathtub several space heaters from a web of cords and wires that Tom and Sally had to climb through to use the toilet. We left the space heaters running continuously for about four days, which in retrospect must have been a very expensive fire hazard, and still the fiberglass did not set up. Although Tom and Sally did not complain (to me), after a week or so we decided that maybe we were imposing on their hospitality, and admitting defeat we tore the mess out of the tub and crammed it into the back of Dale's Opel Cadet, where it promptly hardened. It retained enough of its bathtub shape so that with a little repair it was usable for the buggy body. I think that the final

assembly of the buggy took place in our dorm room, but I have no recollection of that, nor of the painting of the insignia.

Aside from being a cinematographer for the endeavor, being the least massive of the group I was chosen to be the driver. As driver, I had to attend a few pre-race meetings. At the first meeting I discovered there was already a slight buzz about the "physics buggy," which no one had yet seen. I casually remarked to a member of another team, "Did you know that a solid sphere rolls 40% faster than a disk of equal mass, and 120% faster than a hoop?" This caused him to fix on me a completely inappropriate gaze of wary respect, which probably dissipated when our buggy was revealed at the design competition. Our buggy presented a conundrum for the judges, who had to decide how to score a buggy clearly designed with no intention of winning. We scored highly in design continuity (everything was designed to an equally rustic standard of elegance) and in driver access and comfort. (See scores in the table below.) The low scores in bodywork and finish were probably warranted, considering that the body had finally hardened while crumpled in the back of Dale's Opel, and we had had to sew up some of its rips with dental floss. The brake test was conducted on the polished gym floor, which put our foot brake at an inappropriate disadvantage owing to the unrealistically low frictional coefficient of the interface. We passed, but I was chagrined that the judges did not appreciate the braking system as highly as we did.

Race day I donned my green helmet with two masking tape racing stripes and suited up in my sexy *Herpolhode* t-shirt, designed and printed by Betsy Epstein, depicting the inertial ellipsoid bearing a Pittsburgh police Air Force wing insignia. The push team all wore the t-shirt, and pusher Jon Manon, oblivious to drag (aerodynamic), wore a red superhero cape in which he looked magnificent. As the gun went off and John Smith (I think) pushed me furiously, we immediately leapt into last place. Ron Benton took over at the top of Tech St and propelled me into free roll. It was a bumpy but very pleasant roll down Schenley Drive, it being a lovely day with sun filtering through the still unleafy trees, the forward view uncluttered except by another pathetically slow independent buggy which I hoped to pass but could do nothing about. I made a completely unnecessary (as I realized later, never having driven any part of the course before) wide bus turn onto Frew St., eroding even more speed from my laconic progress, where the caped Jon Manon resumed propulsion. When the next pusher, Brian Crowley, the superman of the push team, grabbed the handlebars I felt an alarmingly powerful thrust. Spectator James Teter (Chem. 1972) later told me that I yelled to Brian, "Don't push so hard, you'll hurt yourself!" It was at this point that I briefly thought that we might actually overtake the other pathetic buggy. John Smith (?) took over from Brian, and the final push across the finish line was given by Dale Huffman. As we crossed the finish line (last), knowing that most buggies' brakes barely worked, I decided to show the crowd (and judges) just how good our foot brake was, so I pulled up hard on the lever and screeched to a stop, forgetting that Dale was running full steam behind me, nearly impaling him on the handlebars.

Sometime (days? weeks?) after the race was over, we took the buggy to the top of a hill in Schenley Park to film some concluding scenes for our movie. We stored the buggy in our dorm room, but the buggy took a lot of space, being about six feet long and four feet wide with four bicycle wheels. One day I came back the room and the buggy was gone. Someone told me that it was somewhere out back behind the dorms. That's

the last I thought about the buggy. There was homework to do. We never discussed running the buggy in the 1972 race. I don't know what the others thought, but as far as I was concerned, it was "been nair, done nat."

**Paul Wittman's recollections:**

My main recollections of the buggy event are that I was worried you [Paul Spudich, driver] would be so excited at the start of the race that you'd forget to start the buggy-mounted camera. So as you passed by me as I filmed the start, I was yelling "Start the camera, Start the camera". But I don't think you heard me with all the other yelling and shouting, and anyway you are such a smart guy that you DID remember to start the camera. I can even make out myself in the film that was shot from the buggy-mounted camera shouting from the sidelines. Then there is the scene of the finish, for which I climbed a tree to get a high-angle shot. I was so involved in filming I almost fell out of the tree and I kept that shaky footage in to add the *cinéma vérité* feel of the film.

**Ron Benton's recollections:**

The only thing I can add is that Jon [Manon] -- and maybe all of us? -- wore Indian rain dance bells. And I'm quite sure that [John Smith] started off the race and handed off to me, so I propose that we give Turco the benefit of the doubt and have him hand off to Dale. And... didn't the buggy end up in the backyard of your apartment on Beeler? [Not that I recall, and where was it during the intervening 6 months? Not in 200 Boss! -- P.S.] Even if it did, I like your mysterious disappearance ending for it.