

Oral Histories: Perspective From Silicone Valley

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Historians face several daunting challenges in the quest to record, preserve, and interpret significant history. “FRONT STORIES” get recorded for major events, usually by journalists rather than historians, while “BACK STORIES” are seldom captured at the time. BACK STORIES are both fundamental and augmenting for historians to define, interpret, refine, and enrich narratives surrounding major events for participants, enthusiasts, and importantly, a lay public. But there are too few historians for the pace and magnitude of aerospace or computing domains, to expect them reliably to record and preserve many, if not most, of these BACK STORIES.

Thus, the quality and quantity of “BACK STORY” material becomes a primary historical challenge.

Two recent books, one now a movie, illustrate this point for the space age. *Hidden Figures*, a double entendre title, depicts a group of heroic women behind the NASA manned space flights, particularly Alan Shepard and the Freedom 7 Mercury launch May 5, 1961. The book about the remarkable support team was published 55 years later. Simultaneously, *Rocket Girls* was published, describing substantive work of women at CalTech’s Jet Propulsion Labs (JPL) surrounding the deep space probes during the same era.

The Space program(s) share a characteristic with the rapid development and virtual explosion of capability in the computing world over the past fifty years—most projects and most events trace to systems development on a large scale, vastly different in character from the lone-wolf caricature of a Thomas Edison, the Wright Brothers, or Charles Lindbergh. Wrong-way Corrigan built much of Lindbergh’s plane, so his FRONT STORY had a BACK STORY that was relatively easy to capture. Most participants in big

system FRONT STORIES are ‘bit-players’ rather than center-stage actors, which greatly complicates extracting meaningful stories. They may not appreciate, hardly at all, the importance of what they did.

How best to deal with this circumstance? In the computing world, there has been increasing use of and comfort with the idea of “amateur historians” lending support by gathering lots of BACK STORIES. I call this—“*Preserving our Digital Heritage—If Not You, Who? If Not Now, When?*”

Several major institutions—the Computer History Museum (CHM), the Charles Babbage Institute (CBI) and the Science History Institute (SHI, *nee* the Chemical Heritage Foundation)—along with two professional societies (ACM and IEEE)—have embarked on extensive oral history collections for computing history. For example, CHM conducted something like 43 recorded interviews in its first 25 years, almost entirely done by staff; In the last 12 years CHM has added another 700+ done by 120 interviewers.

IEEE has created an Engineering and Technology History Wiki (ETHW), encouraging members and organizational units to collaboratively preserve and share their history. ETHW hosts the Milestones, Oral Histories, and Archives programs, and also allows IEEE members to contribute to Wikipedia-style topic articles or to preserve their own firsthand histories.

In order to be successful, though, ‘amateur historians’ need to follow a five-part scenario for *back stories*.

1. How do you identify and prioritize which stories need to be captured?
2. Who captures them, on what media?
3. How and where are they preserved and indexed so they can be found later?

4. Who correlates, validates, and contextualizes the materials?
5. Who interprets the materials into ‘the rich narrative’ or the documentary or the?

Where are the holes, and what do we need to do? I will focus on the first three, in inverse order

3. How and where to preserve and index them?

NACA or an equivalent Preservation Group should construct something *ala* the IEEE ETHW with:

- a. Recommended tools for essays, audio recordings, and video recordings
- b. Guidelines for selecting desired themes
- c. Guidelines for interviewing

Once that exists, the group should ‘advertise’ the capability widely

- a. Through associations, universities, museums, and member groups
- b. Consistent newsletters / updates / ‘successes’

2. Capturing them, on what media?

This is relatively straight-forward—just grab a camera or audio recorder, or even a smart phone, and turn it on. Amateur enthusiasts usually begin here, but it can work much more effectively if the Preservation Group of Point 3 offers guidelines or templates as tools. There is nothing worse than capturing a great video interview, only to find three years later that no equipment exists to view it. Working with a Preservation Group guideline increases the odds of success over time.

1. identifying and prioritizing which stories need to be captured

This is fundamental to eventual success. First, how do you motivate, entice, and galvanize ‘grass-roots efforts’? Once an individual or a small gathering is cajoled into beginning, what should they do, and in what order? This is where the Preservation Group can play a significant role, providing examples, suggestions, and guidelines. Think for example about the call for papers for this conference—a huge array of topics, including some not always thought of at first blush:

- Archiving space-based business and operations
- Collecting and contextualizing social media, hardware and software
- Legal concerns: Intellectual property rights, classification, Nondisclosure Acts, ITA...
- Contract history: Templates for a successful project
- Reaching underrepresented people and areas
- Archiving the experience of users
- Finding archival partners and solutions
- Ensuring access: Data management, ADA
- Dissemination and diffusion of best practices

The problem with a list like that is that most “BACK STORY” folk will not sign up for such thematic goals—they just seem ‘too large’ for their own experience. What I have found to work is to get a group of five to ten people together (colleagues from a department or a team) and ask them—““What did we do, that mattered? Or was interesting?” from our own Point of View?”



It is relatively easy then to get them to focus on their own workgroup, how it interacted with other groups, and maybe even with the NASA team at Canaveral or Houston. That can then give the following chart:



At this point, many groups get excited. “Yes, I remember our neighbors always wanting to know what I did, and I could never tell them. Boy, wouldn’t they be surprised to learn it now.” This can quickly grow into a desire to work on a bigger theme, such as “what was the cultural impact in our town, etc.”



The trick here is to get the group into a Crowd Sourcing mood, to have them let their imaginations run a bit wild, until someone says, “Hey, don’t you remember when ...” or someone else avers, “You know, old George used to ask us, ‘What If ...?’” Then you might get a story like an old one from *Spectrol Electronics*, about Jim deciding to encapsulate metal slivers in a potting compound to get better heat transfer, which eventually doomed two missiles on the Atlantic range.

And from that shared memory of a disastrous design flaw, new material might emerge, such as names of supervisors—what happened to Al Kuehn, where did Bill Rihn go after that, didn’t Bert Swirsky go over to North American Aviation’s Autonetics? Getting ready for this talk, I queried the Internet for William Rihn, Caltech, and found his obituary, which noted that he founded Kinometrics, and he designed the Teledyne accelerometer that Neil Armstrong placed on the moon (Apollo 11), now at the Smithsonian: alumni-caltech.squarespace.com/s/William-Rihn-obit.pdf

So now you have something. Wow, who knew Bill after Spectrol? And are they still living? This begins a list—of significant folk worth trying to locate, and to interview. I call this the **Magic Carpet**. It is a method of capturing names from long-ago events, correlating them with other names, and building a profile of who did what. I will show the carpet from the Cisco Heritage Project and describe its construction.

WHO? Build a MAGIC CARPET

													References									
	A	B	C	D	E	F	G	H	I	J	L	M	N	C	CK	CL	CM	CN	CO	CP	CQ	
59	41										Bartz	Carol	97 Ed	296	315							
60	42										Bashinski	John	TechLdrEng	859	944	700	705	724				
61	43										Bass	Joe	VP/CM									
62	44										Bates	Tony	VP/CM	954	76	221						
63	45										Baugh	Charles	Tig	428	834							
64	46										Baushke	Mark	Dist Engr I	510	944	36						
65	47										Bech	Stephen	VP									
66	48										Bechtolsheim	Andreas	Grnth. SUP	428	221							
67	49										Beck	Barbara	SWT, HR	689	705	724	869	834	315			
68	50										Beckett	Robert	Tech Ldr Sw	724								
69	51										Beckman	Mark	Dir Supply C									
70	52										Beeman	Roger	R Boeing	428								

The fundamental element is to design a cross-correlated listing to gain insight into ‘key people’

MAGIC CARPET construction

													References							
	A	B	C	D	E	F	G	H	I	J	L	M	C	CK	CL	CM	CN	CO	CP	
67	49										Beck	Barbara	689	705	724	869	834	315		
751	689	A									Pinto	Joe	700	221	724					
777	705										Quinn	Michael	724	689	869					
796	724	A									Remaker	Phillip	700	944	705	869				

Diagram illustrating the MAGIC CARPET construction with cross-correlations:

- Blue circles highlight the values: 689 (row 67, column C), 724 (row 67, column CL), 705 (row 67, column CM), 724 (row 751, column CK), 705 (row 777, column CK), and 724 (row 796, column CK).
- Arrows show the flow: 689 (row 67, column C) points to 751 (row 751, column A); 724 (row 67, column CL) points to 796 (row 796, column A); 705 (row 67, column CM) points to 777 (row 777, column A); 724 (row 751, column CK) points to 751 (row 751, column A); 705 (row 777, column CK) points to 777 (row 777, column A); 724 (row 796, column CK) points to 796 (row 796, column A).
- Formulas are shown: =A751 (pointing to 689) and =A796 (pointing to 724).

One more thing—don’t believe that you can capture all of a person’s career, life, or even project history with one oral interview. For Phillip Remaker on the above chart, we did six interviews; for Joe Pinto, it was five. That’s the significance of the A behind the individual ID number.

So, how to enlist 'amateur historians' to capture BACK STORIES?

1. Get a NASA Wiki underway, along with templates and tools.
2. Generate enthusiasm amongst the practitioners—IF NOT YOU, WHO? IF NOT NOW, WHEN?
3. Help them select a theme, and teach them to build a MAGIC CARPET.
4. Then, get them to start interviewing and send their captured BACK STORIES to the NASA Wiki