

Mitchell's Musings 7-18-11: Incas, Space Shuttles, and the Absence of Nellie

Back in the day, way back in the day, the Inca Empire was invaded by Pizarro and a small band of conquistadors. The Spaniards were placed in a kind of Inca fort where they were visited by the Inca king and his soldiers. As the accompanying video clip to this musing dramatizes, however, the confrontation ended with Pizarro capturing the king, a military turnaround:

<http://www.employmentpolicy.org/spanish-confrontation-incas-linked-mitchells-musings-7-18-11>

When you view the video, it appears that the key ingredient giving the outnumbered Spaniards the advantage was their possession of firearms, a technology the Incas did not possess. But another interpretation is that the true underlying factor behind the victory was literacy, as symbolized by the Bible shown to the king at the beginning of the clip. In that interpretation, literacy allowed military technology in Spain - and in Europe more generally - to develop; advances could be passed from generation to generation through writing and records. Not only did the ability to pass down information permit the development of firearms but it also fostered communication of military tactics. Of course, the history of the event shown in the video is the Spanish version precisely because they could write history and the Incas couldn't.

There is much to be said for that viewpoint; the development of writing was a critical advance where it occurred. A few years ago, ILERA – the International Labor and Employment Relations Association – held its world congress in Lima, Peru. While in Lima for the meetings, I saw an exhibit in a museum there tracing the various civilizations that had come and gone in Peru. The Incas were in control at the time the Spaniards arrived but many other groups had preceded them. What was striking was the up and down of technology – some groups were advanced in pottery and textiles, for example, but others were not. Absent writing, technology could be lost in the turmoil as one group took over from its predecessor.

On the other hand, we have examples of civilizations that developed writing but that nonetheless had long periods in which technology did not advance. China is often offered as an example, since – although it had writing and scholarship – it did not seek to import western technology (including military) or develop equivalent technology. Ultimately, the result was foreign domination, just as the Incas experienced. Japan – another society that had writing - after first following the Chinese example, reversed course in the late 19th century and imported western technology. Nowadays, China is advancing by doing what Japan did earlier.

What history suggests is that to pass down technology and advance technology, societies need both writing *and* doing. That is, learning by doing is important; it isn't enough to have technology tucked away in a book. Imitation of technology is one way of advancing. Europeans learned to make porcelain from China and then spread that technology. But artisans in that field, and virtually all field, learn on the job. Internships, residencies, apprenticeships, etc., are part of the transmission of technology. Experience is a teacher. Mentors are teachers.

Now let's look at a recent development: the launch of the last American space shuttle. It seems to be the assumption that the U.S. can put space technology in a book for a time – but not actually do it – and then open the book and resume where it left off. Much the same assumption appeared to be behind the abandonment of manned travel to the moon. I doubt that either assumption is valid. As generations of folks who actually did it disappear, it will be difficult to pick up where the old program left off.

It is remarkable (to me) that the U.S. space program is being dismantled (sorry, NASA, but that is what is happening) without a public outcry. Some people regard the space program as just symbolic and a product of the Cold War, which is now over. But even if you think of it purely in military terms – the way it was viewed during the Cold War – it seems strange that abandonment is occurring. There is substantial vital technology in space in the form of communication satellites, for example, that could be targeted in a military conflict.

And there is a purely domestic aspect to the questionable notion that technology can be kept in a book and then quickly restored. Let's take American manufacturing. As stressed in prior musings, the U.S. trade deficit – a deficit that is unsustainable and must reverse – is in large part reflected in a manufacturing deficit. Industries that once existed here were outsourced abroad. The jobs and the know-how that was embedded in those jobs were abandoned. It may well be that – absent an ongoing skilled workforce – the costs of re-starting abandoned industries will be higher than if the abandonment had not occurred.

The British had an expression for learning a job by a new employee through just observing what incumbent workers were doing: "Sitting by Nellie." But now we have a problem to address: Nellie ain't here anymore. It's fine for political leaders to talk about new jobs and the need for education and training. But a piece of the training-and-education program needed is missing. Nellie is gone or going. Is anyone concerned about the challenge that absence poses?