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1177 BCE:

CIVILIZATION AND MANUFACTURING

In 1177 BCE, plus or minus about 50 years, the first great civilization we know about came to a stuttering halt and collapsed. This civilization had been growing and operational for nearly 3000

years. It stretched from the British Isles and the Straits of Gibraltar to what is now Iran and Yemen, and a good part of East Africa. We know a lot about this civilization because they wrote it all down. First the Sumerians, then the Egyptians, then the successors to Sumer in Akkad, Babylon, the Hittites, and more. This is the civilization that gave us the Minoans and the Mycenaeans. Somewhere in there was the war that toppled Troy.

The Late Bronze Age civilization was an advanced one. They had higher mathematics, astronomy, medicine, monumental architecture, and a manufacturing economy dependent on foreign trade. They had regular diplomatic discourse between nations, and they had the same sort of border bush warfare we are used to.

Suddenly it all came crashing down. I have recently read an excellent history of the time, *1177 BC: The Year Civilization Collapsed* by Eric H. Cline. He points out the disturbing similarities of the Late Bronze Age Civilization's collapse with many of the factors involved in our own current situation. The repeated concatenation of events like earthquakes, floods, famine caused by climate change, and political instability in Egypt and the Near East, and the effect of those events on an extremely interrelated global economy caused the actual end of civilization. It took nearly 800 years for civilization to rise again, with the Greeks, Romans, Israelites, Egyptians, Phoenicians, Aramaeans, Persians and other peoples. Cline said, in an interview with Adam Frank of NPR, "We should be aware that no society is invulnerable and that every society

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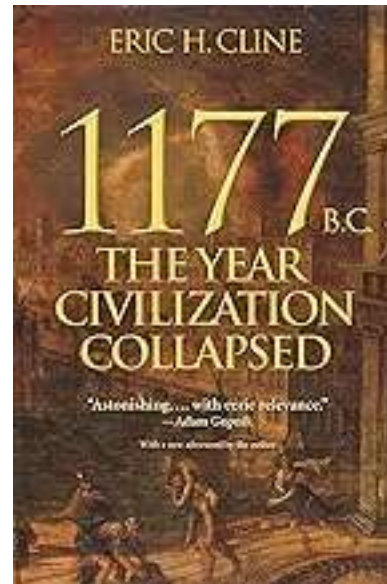
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in the history of the world has ultimately collapsed. The collapse of similarly intertwined civilizations just after 1200 BC should be a warning to us that it can certainly happen again.”

As you might expect, manufacturing was affected significantly by the collapse of the Late Bronze Age Civilization. Shipwrecks from the period have shown that the markets and trading cultures were extremely intertwined and it took the change from a bronze-based culture to an iron-based culture to raise the level of civilization to where it had been.

Should we be concerned? Yes, of course. Cline says that we have a better understanding of what the causes of the “black swan events” that felled the Late Bronze Age than they did, and we have the ability to understand and protect ourselves from the concatenating effects of climate change, famine, pandemic, earthquakes and tsunamis. The question is, can we do it? The Egyptians and Babylonians and the Hittites weren’t advanced enough to understand what was happening and take steps to fix things. We are advanced enough to understand what is happening, but Cline asks, “But are we advanced enough to do anything with our understanding?”



The impact of external and internal events on civilization appears to be a complex function, and entirely nonlinear. It isn’t **global climate change + political instability + financial ruin**, it is more like a complex function where each issue or event isn’t additive, it is multiplicative, and sometimes exponentially so.

The deaths of roughly 3 million people worldwide due to the Covid-19 pandemic continue to have serious effects on manufacturing and supply chains. In both the United States and China, significant deaths have resulted in very low unemployment and what is worse the trained people to fill those jobs just are not there. These issues are interrelated and compound each other.

The deaths of over 500,000 Russian soldiers and a smaller number of Ukrainians, both soldiers and civilians, has affected the worldwide market for grain, for software, and for IT. Highly unintended consequences of a poorly-thought-out invasion of a Western country by one that is not yet completely Westernized.

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The ravages of global climate change on sub-Saharan Africa and the Middle East have produced millions of refugees and lots of starving children. This has directly added to the danger of piracy in the Red Sea, in the Gulf of Aden, and other waterways. Similar issues have increased the danger of piracy in the East Indies too. The Sunda Strait was one of the great pirate havens in the 18th and 19th centuries. It is again.

Add to this the impact of counterfeiting—not currency, but products. Many years ago, Schneider Electric announced that they had a huge problem with counterfeit Square D relays and switches. They said that they estimated that there were more than double the number of real products that they'd manufactured being sold as Square D. Other products are the same.

Deaths, war, famine, piracy, counterfeiting, and the impact of climate change all add tremendous overhead to the economies of our civilization.

They are no longer “black swan” events. We can see them coming, just like the Egyptians, Assyrians, Hittites, Mycenaeans, Minoans and others could see the coming collapse of Late Bronze Age civilization.

We can respond to one or two of these issues, but not all of them. And they seem to be collecting for a perfect storm. They are no longer “black swan” events. We can see them coming, just like the Egyptians, Assyrians, Hittites, Mycenaeans, Minoans and others could see the coming collapse of Late Bronze Age civilization.

We, at least, can understand why it is happening, and not resort to placating gods and spirits. We can see it coming. Can we see what we must do to avoid it? Or should we be getting ready to ride civilization down to the bottom once again?

THE 21ST CENTURY MARKETING BLUES, Part Four

In last month's issue, we talked about real involvement of your customers, and discussed two excellent examples, Inductive Automation and Honeywell User Group. These examples represent a serious and significant cost to the companies involved, and to the end user

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companies and personnel who attend the annual meetings. In both cases, they've been doing this for a very long time. So, if you want to do something similar, how do you get started?

First, you need to get to know your customers in a way that is deeper than the incidental and anecdotal way that salespeople and service personnel who interact with customers "know" them. The way to do this is not polling or focus groups. The way to do this is what we call the "Mind of the Customer®." This is a qualitative method that is based on deep interviews with customers that is able to get beneath the surface beliefs and feelings of the customer and mapping the deep needs that customers usually don't know or understand about themselves or tell vendors about. Their deep views can be used to develop quantitative metrics and strategies and tactics to maintain and retain your customers.

Joy Ward, our Director of Research, says, "The information you get from this kind of research is deeper and more well-rounded, and gives you more direction on where to go and where to take your customers. Polling and focus groups skim off a top level of information, but they can be misleading. Focus groups can be highly biased. Polling and focus groups can tell you what your customers do. Sometimes they can tell you when they will do it. But they cannot ever tell you *why* your customers do what they do. Let me give you a few examples. One involves focus group research about a jewelry advertisement. The ad agency requested that we show a concept video involving a major comedian to the group. I showed the concept to the focus group, and they seemed to like it— they laughed. But I knew something was off. So, I did a deeper dive and what I found was that the members of the focus group were laughing AT the concept. They thought it was ridiculous, and if we'd allowed the concept to go forward the company would have lost money, perhaps millions of dollars."

"Polling and focus groups skim off a top level of information, but they can be misleading. Focus groups can be highly biased."

Ward continues, "Another example was work I did for an anti-abortion group. My team found that people were highly against limiting access to abortion. It didn't matter if they were male or female, young or old, religious or not, the vast majority of people we interviewed in deep dive interviews immediately rejected outlawing abortion. We were the only researchers saying that at the time, but we have been proved correct today."

These examples are not from manufacturing or automation, but the principles and practices generalize well to any subject and any group of people.

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If you want to understand your customers at a very deep level, you need to do the research. If you do the research, your customers will not surprise you, and they will work with you and even for you as you grow.

Now that you know your customers at a very deep level, how do you use the information to serve your customers? Stay tuned and we'll help you figure it out.

AN UNABASHED PLEA FOR WORK

Some of you know that Joy Ward and I lost a major client when the publishing house we had been working with was acquired by another publisher. So, we want to let you know that we have some open time for working with YOU!

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Joy Ward, David W. Spitzer PE and I are industrial strength writers and editors with close to 100 years of experience in manufacturing, automation, instrumentation, and Industry 4.0/5.0 and Smart Manufacturing. We can help you with short form writing from blog posts to white papers, and long form writing and ghostwriting for books and articles. We are deep subject matter

experts. Joy's second Master's was in MES. David W Spitzer PE is a world-renowned expert on flow and other measurement types, as well as variable speed drives and valves. I have done nearly every job in automation from bench tech to system integrator to marketing and sales management and have worked in every industry vertical I can think of.

We are as knowledgeable in non-fiction, whether popular or academic, as we are in fiction writing and editing. With David W Spitzer, we can consult on a variety of issues, including forensic engineering.

We have consulted for a wide range of clients in manufacturing, automation and other industries and verticals including automotive, food processing, packaging, construction, and retail.

We wrote blog posts, reports, and white papers for two major Japanese automation vendors. We wrote an entire blog series and several white papers for a vendor of IT network visualization software. For a considerable period of time, we wrote blog posts and white papers and articles for a Dutch developer of AI-based condition-monitoring software and systems.

I edited what is arguably the first book on OT Cyber Security. We have written books with people like Shari L. S. Worthington and Dr. Peter G. Martin. I edited and wrote chapters for the *Instrumentation*

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Reference Book, was a chapter author for the *Instrument Engineer's Handbook*, and wrote the chapter on Instrumentation for the *Mark's Machinery Handbook*. Many years ago, I wrote much of, and edited a *Manual of Practice on the Disinfection of Wastewater* for WEF. David W Spitzer PE wrote *Industrial Flow Measurement*, and together we wrote over a dozen books on flow and level measurement. Joy Ward coined the term "Mind of the Customer®" and is an expert on consumer psychology.

We have worked in Mergers and Acquisitions, doing technical due diligence for the sale of several companies, as well as finding acquisition targets and partners.

Give us a call or an email and let us help you.



WALT BOYES is a principal with Spitzer and Boyes LLC. He is a Life Fellow of the International Society of Automation, a Fellow of the Institute of Measurement and Control, a Chartered Measurement and Control Technologist, and a member of the Association of Professional Futurists. From 2003 to 2013 Walt was Editor in Chief of *Control* magazine, and from 2014 he has been Editor and Publisher of the INSIDER. From 2016 to 2022 he acted as Editor of the alternate history magazine, *The Grantville Gazette* and as Editor in Chief of *Eric Flint's Ring of Fire Press*. He served Top of the World Publishing, along with Joy Ward, as SFF/Alternate History Editors for their *Novus Mundi Publishing* imprint until the imprint was sold. Walt "pays it forward" as Vice President and Director of The Heinlein Society.

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