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## Op Ed: Defined by Form

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## Op Ed — Defined by Form Factor

by Michael P. Pelikan (Penn State) &lt;mp10@psu.edu&gt;

At the time of this writing, the “Webisphere” is breathlessly agog (its customary posture). The object of this Thud and Blunder? It is, arguably, a timepiece. Wait. Is it a timepiece?

A couple of the top headlines on the topic, pulled directly from Google News this morning:

“Apple Watch shows the strategic ripple effects of a big splash”

“Xiaomi to Take on Apple Watch With Round-Dial, Premium-Looking Smartwatch”

Leaving that first headline aside for the moment, let’s consider the second. The word “watch” appears twice in that headline, once with a single modifier, “Apple Watch,” then a second time with several modifiers, “Round-Dial, Premium-Looking Smartwatch.” We see the battle lines drawn: to confront the seriousness of the emergence on the field of battle of anything called simply the “Apple Watch,” it requires, at the very least, a “Round-Dial, Premium-Looking Smartwatch.” “Round-Dial,” for product differentiation, and “Premium-Looking,” because it had must be, if it aspires to consideration next to what all acknowledge will certainly be a “Premium” device.

But what is a watch (let alone a Smartwatch)?

The first devices referred to as “watches” appeared in the 17th century. Wikipedia credits the derivation of the word “watch” to refer to a timepiece either to; a) the Old English word “woecce” (watchman, who used a timepiece to keep track of their shifts; or b) 17th century sailors using a timepiece to keep track of their “watches.”

At any event, those first portable timepieces were about the size of a modern alarm clock with the two bells on top — whoops — I mean, *your Grandmother’s alarm clock* with the two bells on top. Imagine wearing one of those on a chain around your neck, never mind your wrist. You’d look about as cool as the fellow from **Motorola** who placed the first cellular phone call in 1973, holding to the side his face a device largely reminiscent of a cowboy boot.

But that was a phone, right? Because you spoke over a distance with it: “Tele...” plus “...phone.” We’ve gone over this before. The similarities between the digital, network-connected, data-ravenous devices we carry in our pockets today and even the first cellular phones, purely analog in character, are truly very few. You can, should you choose, carry on a conversation over a

distance with today’s “phone,” but so you can also with my laptop computer — and nobody calls that a phone, do they?

One certainty: just as with your phone, you’ll have to charge your Smartwatch each and every night.

And that’s something to keep in mind when the ether is suffused with commentary about how the new technology is “revolutionary.” “Revolutionary” would be a battery for your watch, or your phone, or your tablet, or your laptop, that would last as long as, say, the battery in your watch. Wait. I mean, the battery in your Smartwatch lasting as long as the battery in your watch.

“Revolutionary” was the introduction, in 1657, of the balance spring to the balance wheel, credited to either **Robert Hooke** or **Christiaan Huygens**. That change resulted in reducing mechanical error in time keeping from hours per day to minutes per day. It was also the central piece of technology that ushered in a new method of global navigation, by enabling calculation of longitude by chronometer, a desperate need met by the development by **John Harrison**, during the first half of the 18th century, of a series of “Sea Clocks.” **Harrison’s** work was elevated to the equivalent of a State Secret: when his second Sea Clock was ready to take beyond on-land testing, Britain was at war with Spain (the War of Austrian Succession), so testing could not take place, lest the invention fall into Spanish hands. Over his lifetime, **Harrison** received monetary awards from Parliament totaling £23,065 — in 18th century British Pounds Sterling. Greenwich became the site through which the Prime Meridian extended as a result of British ascendancy in navigational calculation.

Watch design remained recognizable until 1959, the year **Seiko** placed an order with a newly formed daughter company call **Epson** for Project 59A, the development of a watch movement governed by the vibration of a quartz crystal using the piezoelectric effect. Such a vibration is at a very stable frequency. Coupling this regulator to a mechanical movement with hands resulted in the unveiling, in time for the 1964 Tokyo Summer Olympics, at which **Seiko** quartz movements were used for the timing of all events.

The first digital electronic watch was the **Pulsar**, prototyped in 1970. Wikipedia cites statements by **John**

**Bergey**, head of the **Hamilton Watch Company’s Pulsar** division, as saying he was inspired by the then-futuristic digital clock that **Hamilton** made for use in the film *2001, A Space Odyssey*. The first **Pulsar** watch became commercially available on April 4, 1972, in 18-carat gold, for the entirely reasonable sum of \$2,100. It had a red LED display, and displayed the time of day. Such trinkets were out of reach for those of us serving “before the mast.” **Pulsar** was sitting pretty, at least until 1975, when **Texas Instrument** introduced a mass-produced digital watch in a plastic case for \$20, reduced to \$10 in 1976, a year which, “...saw **Pulsar** lose \$6 million and the **Pulsar** brand sold to **Seiko**,” according to Wikipedia.

But all of these devices were straightforward time keepers, and little or nothing more. Remember the **Casio** calculator watch? How about the **Timex Datalink** watch? These were each evolutionary, if not revolutionary, steps forward.

Note also the influence of fiction on product design. The digital clock in 2001 is at the very least matched by the introduction, on January 13, 1946, of the “2-way Wrist Radio” worn and used by Dick Tracy. This hugely influential design was supplanted in 1964 by the 2-Way Wrist TV.

To fulfill its potential, that watch, excuse me, that “Smartwatch,” is going to need network connectivity. It’s also going to need to know whom it serves — that means it’s going to be on the network as you, or at least, as “your” Smartwatch. The only way this won’t be true is if it relies on some other device for network access — your phone, for example. But that would be regarded, I would guess, as only a limited, short-term, non-optimal solution. No, I would say, as envisioned, both your Smartwatch and your phone will require network access — indeed, if they’re something to say to each other, they’ll say it over the network, rather than over some short-distance, point-to-point connection. I may be wrong about this. Maybe these devices will set up a side-long connection over Bluetooth or Near Field connection. We’ll see how it all works out.

Another aspect of wearable devices worth considering is the challenge (or opportunity) they present in terms of user interface design. Properly done, a fresh

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approach to *how* a user interacts with a device can extend to overthrow common conceptions about *what a user can do* with a device. In the case of a computer on your wrist, and in the context of *Against the Grain*, the first thing that comes to mind is text-to-voice. eBooks are tiny, and use very little bandwidth in comparison with the depth and richness of their content (excluding a number of popular bestsellers, that is). Perhaps the rise of the worn device will usher in a fresh look at the licensing of text-to-voice as a mode for content presentation. Don't be misled, however. Today's headlines also speak of **Apple's** efforts to stand up a television service. Does anyone think, if today's high school and college student adopt "Smartwatches" to the extent they've adopted cell phones, that they won't be watching YouTube on them? And that brings us to networking — not what you do on Linked-In, but what those administrators run at your company or in your building.

"Fashion disaster: What the launch of **Apple Watch** could mean for the health of your network"

This last one is the headline on a thoughtful article by **Jeremy Cowan** on the *m2mnow.com* Website.

**Cowan** is a network administrator. "Keeping networks up and running is my business, and so anything that will connect to them piques my interest," says **Cowan**. He cites a recent survey of European businesses in which 36% of those business polled expect "wearable technology" to come into the workplace this year, but, he notes, "Only 13% of the IT professionals we spoke to have given consideration to how this will affect their IT policies."

It is a telling fact that around a third of those surveyed expect "wearable technology" to connect to their networks this year. Surely, more than a third of them have had reason to be familiar with issues surrounding "BYOD" (Bring Your Own Device). And yet only 16% have given any thought to how a significant bump in the number of devices trying to access their networks may effect network administration. What will happen when folks want to open a Skype session on their Smartwatch, or watch YouTube, or watch the Olympics?

The only consolation may be in headlines like this last one:

"**Apple Inc.'s Watch** Not on Shopping List of Most Americans, According To Poll." 🐾

## Collecting to the Core — Classic Ethnographies

by **Janet L. Steins** (Associate Librarian for Collections, Tozzer Library, Harvard University; Anthropology Editor, *Resources for College Libraries*) <steins@fas.harvard.edu>

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**Column Editor's Note:** The "Collecting to the Core" column highlights monographic works that are essential to the academic library within a particular discipline, inspired by the *Resources for College Libraries* bibliography (online at <http://www.rcweb.net>). In each essay, subject specialists introduce and explain the classic titles and topics that continue to remain relevant to the undergraduate curriculum and library collection. Disciplinary trends may shift, but some classics never go out of style. — AD

Ethnographies are the primary literature of social and cultural anthropology. Ethnography is also the term used to describe the process, practices, and methods used by social anthropologists performing the fieldwork that results in published ethnographies. Traditionally, anthropological fieldwork took place in small-scale, non-western societies (a village or a tribal community), while today such research may take place in virtually any community, even an urban one not unfamiliar to the ethnographer. The study of any definable community may produce an anthropological ethnography, whether that community has a defined border (such as an inner-city neighborhood undergoing gentrification, a military school, or a religious congregation) or not (a multicontinental diasporic community). And while ethnographic fieldwork was once practiced almost exclusively by anthropologists, it is now used by researchers in a wide array of disciplines in the social sciences (economics, political science, communications, and public health, to name a few). In his very useful article "Ethnography" in the *International Encyclopedia of the Social & Behavioral Sciences*, linguistic anthropologist **Michael H. Agar** discusses whether "the many 'ethnography-like' approaches in other fields should be considered acceptable or not."<sup>1</sup> Regardless of the debate surrounding the use of ethnographic methods in other disciplines, this article focuses on eleven classic ethnographies written by anthropologists and based on anthropological ethnographic fieldwork.

Before anthropologists embarked on fieldwork, readers had only anecdotal cultural reports produced by travel writers, journalists, and missionaries. The authors of the works described in this essay, however, were more than just visitors to their selected communities; rather, they became deeply embedded within them. These ethnographies span 80 years of scholarly publishing and are discussed in order of their original publication from 1888 to 1969. They also range across the

globe, representing communities in Africa, East and Southeast Asia, North America, and South America.

The first two ethnographies focus on indigenous peoples of North America. *The Central Eskimo* (1888) by **Franz Boas** dates from anthropology's earliest years as a distinct discipline (ethnography being previously within the purview of academic departments such as geography or natural philosophy).<sup>2</sup> **Boas**, often considered the father of American anthropology, studied physics and geography in his native Germany and published on a wide range of anthropological subjects over a long career. He first encountered the Inuit (as they are now called) on an expedition to chart Baffin Island, Canada, and *The Central Eskimo* appeared as part of the **Smithsonian Institution's** 6th Annual Report covering 1866-67. **Alfred L. Kroeber** trained in the anthropology program at **Columbia University** under the direction of **Franz Boas**, earning the first PhD awarded in the department in 1901. **Kroeber's** *The Arapaho*, which first appeared in a four-part journal article from 1902 to 1907, was a published version of his doctoral dissertation.<sup>3</sup> It is interesting to note that both of these early ethnographies were not originally published as "stand-alone" monographs, but rather as articles produced by major U.S. ethnographic museums. The same was true for the many ethnographic treatises coming out of the great national museums of Europe in the mid- to late-19th century.



Crossing the Pacific Ocean, the next three ethnographies are from Southeast Asia, Melanesia, and Polynesia. **A.R. Radcliffe-Brown** was a British social anthropologist who studied a number of different societies. His earliest ethnographic fieldwork took him to the Bay of

Bengal between India and Myanmar and resulted in his first major ethnography, *The Andaman Islanders*, published in 1922.<sup>4</sup> **Radcliffe-Brown** is considered a founder of structural functionalism, a framework for theory-building that looks at social structures and social functions. **Bronislaw Malinowski** was a Polish anthropologist who trained at the **London School of Economics**. Specializing in economic anthropology, he studied traditional exchange systems in Australia and the Trobriand Islands, part of New Guinea. The latter resulted in his classic ethnography *Argonauts of the Western Pacific*, published in 1922 and reprinted many times since then, most recently in 2014 with a new introduction by **Adam Kuper**.<sup>5</sup> The next classic ethnography — *Coming of Age in Samoa* (1928)

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