

## Practice, Culture and Belief among Independent Inventors: A Preliminary Study

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*This research looks at a number of cultural resources, material and ideological, inventors use to produce, justify and market inventions. While the sample is small, and limited to one particular kind of inventors, the study does raise some questions about how inventors have been portrayed in the literature. It also raises some issues about the kinds of policies and institutions public money is spent on in the US today, to encourage "to market" innovation and knowledge transfer.*

### Introduction

While anthropology of science and technology does exist, much of what we have written on these subjects tends to get published outside anthropology. While there have been several well argued attempts to move these subjects closer to the center of the discipline, they have not had much effect (Hess 2007; Pfaffenberger 2001). This is regrettable because most N. Americans have at best a high school level understanding of what science is and how it operates. In fact, it could be argued that most of the population, including many anthropologists, operate more off ideology and belief than knowledge or fact when it comes to science. What N. Americans do have a kind of folk model of science that equates science with empiricism and with the kind of science which dominated late nineteenth century thought, i.e., one that is positivistic, deterministic and believed to be capable of answering many if not all of all society's questions about both the natural and social order (Bader and Nyce 1998). The relationship that technology has to science tends to be seen as a straight trajectory in which science is always directly coupled to technological innovation.

What this view of science and technology does, among other things, is make it difficult for a lay audience to make reasoned judgments about the validity of any scientific claim. Given the nature of complex societies and cultures in general, what is seen to determine the empirical validity of scientific discourse is not a trivial matter especially because it can influence and legitimate the construction of various social realities within society. Reality of course is a contested domain and what this research describes are where some of the lines have already been drawn. This is between those who seek to explain the world around us using orthodox theory, methods, and practice, i.e., what we term science, and those whose desire is to bring something like fantasy into reality. It is the second group we will be most concerned with here.

How is it that these individuals come to see the world differently than most of us? What social realities and what definitions of science and technology do they invoke to defend their unorthodox theories and practices regarding how the world works? This is an area that has received little scholarly attention. Therefore we dedicated a semester's class in Anthropology of Technology to a study of nonstandard inventors. In these pages we will discuss how these figures are portrayed in the literature. We then turn to the research project itself and describe its methods, data and conclusions. Finally we will offer some practical advice after we discuss how these inventors interact with the business world.

## **Literature Review**

A review of the anthropological literature on invention or inventors suggests that the discipline has paid little attention to the topic. What does exist tends to fall into one of two categories. The main focus of this small body of literature has been on the role that invention has had in human prehistory and evolution (Fitzhugh 2001; de Beaune 2004). There is also some literature on the role invention has played in small scale human societies (Foster 1959). The role that invention plays in American culture, a topic related to this paper's argument, tends to be small and unsatisfactory, either empirically or analytically. Hess (1994:16), an anthropologist, just looks for congruencies between inventions and what is "expressive of the values, categories and conflicts" in particular cultures. This reduces inventions of any kind to a series of correspondences to culture, much like the ones that Durkheim believed existed between religion and society

In this research, we looked at inventors, and users of inventions, to identify some central categories in American culture so that we could discuss how these inventors use, and even exploit, the categories identified to make claims about what "works" in the empirical world. In identifying these categories we looked closely at what might be considered radical or fringe inventors and inventions. We found very little literature anywhere that even attempted to define radical or fringe inventions. The literature that we did find on these subjects used definitions that were inadequate (Dahlin and Behrens 2005). We especially found the definitions and claims these papers made not to be very convincing. For example, one paper where invention is concerned equated radical (fringe) with the "clever" recombination of already existing elements (Dahlin, Taylor, and Fichman 2004). The papers also tended to either to confuse or mistake radical with uniqueness, and discussed innovation as though it could only be something like a "repackaging" of standard, existing practice and technology. Even Hess just seems to be interested in the parallels that exist between the inventions of a culture and the things that its actors value (Hess 1994). This implies that what inventors do is not much more than simply holding up a mirror to their own culture. In short, there is little else that suggests that inventors can for example play a role in the reinvention of culture. Our inventors and informants challenged these ideas regarding inventions and inventors.

Overall, what has been published in the scholarly literature on inventions and inventors has focused on the psychological rather than the social or cultural elements of invention. There is also much biographical and hagiographic material in this literature as well. However there is little that stressed the cultural elements of invention. In short, we found almost nothing that could provide a background to or help to focus this research.

## **Methods**

In the spring of 2009, the Department of Anthropology at Ball State University offered a class on the Anthropology of Technology. We chose to study invention and inventors in an attempt to better understand the inter-relationships that exist between science, engineering and lay (common sense) practice and belief in the America today. One of the problems of studying within one's culture is that it is difficult to achieve any kind of analytic distance. To try to do this, we chose not to focus on those working with mainstream technology, but on those margins of what is considered to be legitimate practice and belief when it comes to technology. In part because these figures often lack creditability and have difficult gaining any kind of legitimacy for their beliefs and technologies, there is little scholarly discussion of figures like these in the academic literature. What exists with only a few exceptions can be read as attempts of

“debunking” or refuting the claims these inventors make for themselves, their knowledge set and their inventions.

We began this study by sending out a campus wide email in which we said we were looking for: 1) local individuals that live in or near Muncie, Indiana, 2) individuals that work with nonstandard technologies, and 3) they need not be interested in patents. By 2), we meant inventors/innovators who believe their work, research and devices are either at the cutting edge of science or work on principles not commonly accepted by mainstream science. We also used the Internet and contacted community groups, patent lawyers, local and regional invention/innovation incubators, and local businesses that might have connections with inventors. There were some 100 responses to the inquiries the class sent out: The campus wide email produced the most results. But most of these responses seemed to be excluded by criteria 2.

It became clear that locating informants was going to be a challenging task. Gaining access to these inventors was difficult because despite the existence of a number of organizations that market various services to inventors and/or provide social networks for them, few of the inventors we located belonged to or/and had much interest or trust in organizations of these kind. Further, inventors of this kind have an almost love-hate kind of relationship with the public. As much as they wish to gain some measure of credit and respect from the public and society, they seem to fear equally being taken advantage of. In other words, there is a certain degree of what might be termed a kind of occupational paranoia or obsession with secrecy that characterizes these inventors' interaction with others, outside their immediate families. The inventors we interviewed shared some of these attitudes. But the fact they were being interviewed for a class project somehow made the desire to tell their story outweigh any of the potential (perceived) risks. One inventor did ask us to sign his firm's non-disclosure agreement.

We invited each inventor to a one and half hour class. This was an opportunity for the inventors to introduce themselves and their projects and for us to set up multiple semi-structured interviews with him. After each inventor met with us, the class divided up into groups of two or three to conduct follow-up interviews with one of the informants. We also visited one inventor's workshop and observed a product demonstration given for a potential client. After each follow up interview, the groups reported back to the class any new or interesting themes and narratives.

Notes were gathered from the interviews and participant observation and included narratives, sketches, schematics and blueprints given to us by the inventors, as well as some digital recordings of the interviews. Data was compared with the entire class present, which provided a second order of analysis. During this same time the class was tasked with searching for the literature on the invention and inventors. The literature, especially the literature on inventors in American history and culture, so far has paid little attention to non-standard inventors. There was also little in the literature about inventors who for one reason or another did not patent their inventions. In fact, much of the recent literature seems to confuse, if not equate, invention with patenting. In general the literature was more concerned with financial and commercial aspects of inventing and how government has or should support both invention and innovation. The recent literature seems to assume that innovation and invention are much the same kind of thing. We took the information we gathered from informants and linked it to what we had been able to find on science, invention and culture. The class analyzed the data and literature iteratively until we reached a stopping point. In short, when new turns did not return significant changes in analysis, we considered it completed. What is presented next are some of the themes and social and conceptual categories that emerged from the data and this analysis.

### **Informant Biographies**

An analysis of the literature on the subject of inventors and inventions shows little attention has been paid to non-standard inventors or inventions. But there are individuals working and inventing today in America from more than just the scientific principles learned at university or described in textbooks (Whalley 1991). These inventors are of interest because for some reason(s), they are able to see and exploit atypical trajectories leading them to the process of radical invention. To try to understand how this is possible, one must first consider who these people are, where they come from, and exactly what they are doing. For this reason, we have chosen to introduce you to three of our informants<sup>1</sup>. Their biographies should help us contextualize the topic of non-standard inventors and give the reader some understanding of the specific socio-cultural realities they work within.

Wiley, who has invented a perpetual motion machine, sees himself as a self-taught tinkerer or garage inventor. He has a high school education and has not received any other kind of formal education or training. He sees formal education as unnecessary and even a hindrance to inventing because it overlooks many “common sense” applications of science and technology. Instead, he uses Internet sites such as StumbleUpon and HowStuffWorks.com to get ideas for projects. He is a multi-tasker with many projects going on at the same time; all of them in different stages of completion. These include a semi-perpetual motion machine, portable beverage cooler, small-scale power cells for cars, and an infrastructure that supports hydrogen-powered vehicles. Because Wiley has no scientific training, he relies on trial and error when working on these projects. He is currently working on many different problems that need resolved, e.g., how to make the portable beverage cooler not drain its battery in 3 seconds. While he has started building some of his inventions, such as the beverage cooler and power cells, he has not gone much beyond preliminary beginning plans and drawings for others. Wiley believes his biggest difficulty is obtaining funding which is why he has not started building his semi-perpetual motion machine despite having blueprints that he says will work. While he acknowledges that others have tried and failed at making these machines, he has read about their attempts on the Internet and believes that his idea will work because of the specific “V” shaped placement of rare earth magnets. Wiley believes that his magnet design and his clever engineering will allow him to bypass the second law of thermodynamics. All his projects have been personally funded. This limits what he can do at the moment because, while his fiancé and mother-in-law are supportive, most of the couple’s money is being saved for their wedding. However, he says that when he is able to build a prototype of his semi-perpetual motion machine he will be able to get more funding. Wiley would like to see his invention produced and used on a larger scale to create free and clean energy that would benefit everyone.

Fred is the founder of a well-known Mid-West paranormal investigation group and he attempts to fulfill the equipment needs for detecting otherworldly phenomenon. For example, he

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<sup>1</sup> All four informants’ identities have been masked. Additionally, we have omitted a lengthy biography of one informant because she was somewhat of an outlier when compared to the rest of our sample. Mrs. Troi, our fourth informant, is an innovator of existing technology. Nevertheless she shares much in common with the rest of our informants including their general skepticism of the standard scientific practice. Schooled in nutritional consulting and homeopathic medicine, Mrs. Troi uses a QXCI feedback machine to balance personal energies of her friends and family, and some clients, in an attempt to aid the natural healing process. Although she has no formal scientific training, she says her machine works on the principles of quantum physics. This research went through Ball State University’s IRB process and was ruled exempt February 25, 2009

invented a moving electro-magnetic field (EMF) detector, which he believes identifies ghosts. His EMF detector is unlike others on the market or ones other paranormal groups use. This is because his device not only detects the presence of ghosts, it can also help track their movements. He told us that many of his ideas of invention come to him in dreams. Fred's EMF detector appeared to him in a dream spotlighted on a pedestal, and when he awoke he found he could remember exactly what the machine looked like, how it felt, how it worked, and what it was made out of. More importantly he felt drawn to create what he had seen. However, to exactly duplicate what appeared in his dream proved to be extremely difficult. There were many difficulties in finding the right materials to recreate what he had seen. The result is his EMF detector prototype is the best match he could achieve given the materials he could obtain. Fred has a high school diploma and no other formal scientific training. When asked what influenced him, he talked about his grandfather who was also an inventor. Fred explained that it was his grandfather who taught him that not everything is as it seems. He funds his inventions out of his own pocket believes that it is his duty to share his work and ideas with other inventors; a type of reciprocity, he sees, lacking within the scientific community. When asked about his views on mainstream science, Fred told us that "science is a crapshoot" and "whenever you put down boundaries, you limit the experiment. "

Our last informant is Luke. Luke has multiple works in progress including a personal hovercraft and an innovative Counter Improvised Explosive Device (C-IED) technology. Luke graduated with a B.S. in Business and started his own company recycling Styrofoam. It was there that he first became familiar with static electricity. Eventually Luke came to see it as a part of the natural world whose potential was something that could be exploited. This is in sharp contrast to orthodox science, which tends to treat static electricity as more of a nuisance or an obstacle. Since then Luke has created a number of devices that can harness electrical power and static electricity to detonate IEDs from a safe distance. He currently has some government funding to pursue his C-IED technologies and he reinvests profits back into his firm to fund new projects. Luke gets his inspiration from popular media, in particular Star Wars. He wants to create futuristic technologies in the present, and told us "The working set is 100%, but maybe 10% is possible. Push that to 12%, then to 15%." Luke believes it is the inventor's job to constantly expand the boundaries of what defines conventional science. To him, science is a work in progress and it does not hold a monopoly on truth and reality.

As the data was analyzed a number of common themes emerged. In anthropology, data analysis tends to flip back and forth between what makes each informant unique and what they seem to share in common. From this perspective, the themes and data we have on these inventors' lives approximate more representative of thick description than of biography or life history. As well, the accounts, by design, rely less on assumptions and generalizations than on what for these individuals seem to be central to their own experience. These biographies should help the reader see how the themes and analytical categories described below have emerged.

### **Cultural Categories**

These three informants are not simply "inventing things," they are reinventing categories and meanings that are central to American culture. These inventors do share a number of categories with most N. Americans. However, how these categories are defined and the relationships these informants see between them, while not entirely idiosyncratic, are neither widely held either. Among these categories are: The Mundane and the Extraordinary; Past, Present and Future; Science and Engineering, and Dreams and Reality. In fact, each of these

informants viewed at least two of the categories in ways fundamentally different than those commonly accepted in America.

All three inventors were interested in finding ways to turn the mundane phenomena into the extraordinary. The informants work with rather commonplace phenomenon, but have redefined them to create something new and innovative. For example, Luke used to work at a Styrofoam recycling facility. There, static electricity was a nuisance that impeded the recycling process and would often stop shop machines from working. It could also arc to surrounding objects (machines and people). However, the pain these static electricity gave Luke led to the idea for a non-lethal weapon, which in lead to his C-IED device. Luke has discovered a novel use for static electricity – one that has led to 21<sup>st</sup> century military technology that could save lives.

Fred employs normal electromagnetic fields in his EMF detector. Electromagnetic fields are extremely common. They are given off by anything with an electrical charge or magnetism: running water, electrical wires, radio antennas and magnets. Fred's invention is unique, he believes, among EMF detectors. This is because it was designed to only pick up moving electromagnetic fields and ignores constant, stationary fields. As with most paranormal researchers, this is important because he believes that motions or disturbances in electromagnetic fields can indicate ghosts and perhaps other kinds of supernatural beings as they move between dimensions and time; between our world and others. What Fred then is doing is using an "ordinary" natural phenomenon, electromagnetic fields, to make some rather extraordinary claims both about the nature of the world and the kinds of persons and forces that operate within it.

Wiley uses magnets in his semi-perpetual motion machine. Magnets have many purposes in today's world. They can for example hold an A+ exam to the fridge, make games like Etch a Sketch™ work and they can even stop roller coasters. Wiley however uses magnets in an extraordinary way, i.e., to create "free" energy. He believes that his design with magnets is arranged in a very specific and unique way, and his device will be to generate more energy than is required to power the system. Wiley hopes that with some refinements in his design and some funding, his magnet machine will become a revolutionary source of green energy.

Wiley also has original views on the relationship between science and engineering. For most N. Americans, engineering is thought to be inescapably linked to science. The American Heritage Dictionary defines science as "the observation, identification, description, experimental investigation and theoretical explanation of phenomena." Engineering is similarly defined as "the application of scientific and mathematical principles to practical ends." While for most of us, it is almost impossible to talk about engineering without at least making some reference to science, Wiley on the other hand does not believe that engineering necessarily has to either "mirror" or be connected in some other way to scientific thought or practice. He firmly believes engineering can be done in the absence of scientific processes. In fact, as he told us "Simple trial and error, not science, is all that is necessary." Wiley believes the role of inventors is to challenge the fundamental laws of nature. Although these laws have been repeatedly tested by science, he believes that with clever engineering and some tinkering it is possible to bypass these scientific laws of nature. For example, he is well aware that his semi-perpetual motion machine, once constructed and operable, would challenge the Second Law of Thermodynamics.

Most Westerners regard the past, present and future as three distinct, chronological periods of history and that these three time periods can never all appear at the same time without the invention of a time traveling device. For most of us, these three time periods affect each other

in one specific and linear way. The past to some extent at least has determined the present, and the present, the future. Luke of course is aware of this belief about time and history. However he sees time and history not so much as a straight line but rather more like a web. To give an example of this, Luke told us that many of his ideas for inventions come from the future, i.e., from watching *Star Wars* films. These movies inspired him to think about how technology and artifacts from the future could be brought to life today. Luke believes that the *Star War* films provide a kind of technological script that can be realized right now or at least in the not very distant future. Luke understands that not all futuristic ideas may be possible but he also believes that we should not let the conventional boundaries of present and future, of time and space, stand in the way of innovation and invention. In effect, for Luke, time's arrow is not unidirectional, past to future, but it too like many other cultural resources can be challenged, even exploited, to bring the future to us now.

Fred too rejects the standard cultural view of time and history. His machine detects ghosts, figments of the past that remain (trapped some say) within the present. Ghosts defy and challenge how most of us think about the past. In fact Fred believes they can actually intervene in ways that "rewrite" not just what the past and present are but the relationship between them. Luke and Fred do not see the time periods as necessarily occurring simultaneously. For Fred ghosts do seem to be able to move in and out of time in ways that suggests time may not be entirely linear. What Luke and Fred do share is a belief that knowledge or information can move across time and between these three time periods. They also believe the information and knowledge can literally travel "back from the future" to the present.

We have shown that for these inventors what for us tend to be two sets of ostensibly fixed cultural categories, i.e., the mundane/the extraordinary and the past, present and future are not stable. While to a certain extent each set is fixed, this is not necessarily true either the relationships within a set or its contents. In fact one could argue that these inventors like Levi-Strauss' *bricoleur* but rather than manipulate categories of mind, they can challenge, change and revise categories of culture. This in turn leads to the kinds of inventions and innovations they produce.

The final category, dreams, is often linked to creativity. Inspiration for creative works often is described as emerging in a daydream or during sleep. In fact, N. Americans commonly use the expression "sleep on it" to imply that one's dreams can help sort out real-life problems. However the kinds of issues we believe dreams can help us resolve are generally limited to psychological or cognitive problems or some combination of the two of them (like writer's block). Fred's dreams can do more than this however. They can influence, if not actually provide concrete guidance for, what should be in the world. Dreams provide models of things for him to literally reproduce in reality. In one dream, for example, he walked into a room in which an invention was spotlighted on a pedestal, exactly as it should appear in real life. Fred continues to try to match reality to this dream. He expressed to us frustration at his inability to find the exact materials the dream specified the device should be made of. Fred described to us how often he had walked up and down the aisles of hardware stores feeling supplies in an attempt to find material that matched what he saw in his dream. One could argue that here Fred inverts the traditional link that most of us make between dream and reality. Here it is dream that directly influences reality, not the other way around. In short, in real life Fred keeps constructing prototypes to achieve the perfect machine of his dreams.

### **Other Common Characteristics**

These inventors share a number of other things, besides being *bricoleurs* of American culture. Each expressed anti-elitist, anti-hierarchical opinions. They do not believe that science is only to be practiced by PhDs in white coats. They instead see science as more like a home chemistry set or a democracy in which everyone can play. When individuals outside of academic, government, or corporate laboratories are able to do science as well, they believe the community, country, and world will prosper. Only Luke has a university degree. Fred and Wiley, despite their interest in science and technology, could not afford to go on to college. Their lack of formal education and of any institutional affiliation, they believe, may have denied them access to certain resources but it has not excluded them from practicing science. In fact, all three informants seem to be both resourceful and successful in finding alternative methods of gaining access to the material and information they need. Additionally, each inventor saw the traditional scientific institutions, and in fact science itself, as stuck within the boundaries they have created for themselves. Luke put it this way, "University-minded people do not think like innovators. Neither do politicians or big business. They get paid for being in the box, for managing the box." The anti-elitism of the inventors is not just motivated by their lack of (or envy of) formal training and credentials. It is also inspired by their desire to do something they do not believe established scientific organizations or orthodox scientists either can or want to do, i.e., not just "push" but challenge as well the boundaries of traditional science – to "truly", to create outside "the box".

Another common characteristic we found has to do with altruism. We had expected to find inventors, especially inventors of this kind, to be overly protective of their work, to have patented every idea, and to be unwilling to talk with us about their inventions. The role altruism played among our three inventors surprised us. For example, Fred did not want to patent his EMF machine because he felt more progress would be made in the paranormal community if other inventors were able to improve on his machine in whatever way they felt possible. He saw peer input and involvement as an essential step to developing the best product. In turn this would strengthen the work done on the paranormal and help give groups interested in the paranormal more legitimacy. Fred talked much to us about how he only wants what is best for his community. He is skeptical of individuals who patent and sell their devices to other paranormal investigators and sees them largely as poseurs and not as serious researchers. They, Fred told us, are only in it for the money or the fame, e.g., to appear on the Sci-Fi television channel. However, this altruism was not absolute. (There are few Mahatma Gandhi's in anyone's informant pool). These inventors could be in turn, altruistic or self-interested. At the same time they could appear more than a little paranoid. For example, Luke was clear that a primary reason he had worked so hard on his C-IED device was that could save lives. Yet the same time, even though Luke said he did not believe in patents (largely because as "first on the block" he could outflank his competition), he required us all to sign nondisclosure forms and to take no notes when we visited his workshop. All our informants expressed a desire to help mankind with their inventions, not just themselves. In this way they believed they distinguish themselves from mainstream science and scientists whom they see as just wanting to win Nobel prizes..

Another thing that surprised was that these informants all in one way or another link their inventions to something like a conversion experience. Fred's dream and the electrostatic shocks Luke received when recycling Styrofoam have already been described. These experiences helped informants reframe convention and reality and unlike Levi-Strauss' bricoleur gave them access to and insight into the material world in ways others would have difficulty imagining. All

three of these informants credited their conversion experience with setting them apart from other inventors; it is the hand that pulled each one from the box of mundane science. This is one reason why they believed that both their knowledge claims and inventions were “better” and more legitimate than those of mainstream science. In their minds, this is because their claims and inventions came from a better if not more authoritative source. It is possible that the conversions are related to the altruism these informants expressed. These inventors all saw themselves as receiving a gift, which they are obligated to share with others.

Additionally we found that these informants seemed to work in a manner that sharply contrasts the single-product industrial model, upon which small business innovators incubators are based. Only Luke used one in his area and this only to give his firm and technologies some modicum of respectability. Whalley suggests that backyard inventors “are their own worst enemies” largely because they are not well socialized into the business world. For backyard inventors to be more successful, he proposes a sort of charm school that would educate inventors into how corporations think and talk about bringing new products to the marketplace.

### **Conclusion**

After discussing inventions and their lives with these informants, we disagree with Whalley. There are some fundamental differences, it seems, between how our informants work and think and the way small business incubators, and the corporate world both operate themselves and expect inventors themselves to act. Our inventors tended to be multi-path and multi-causal actors. They work on multiple projects at a time and draw from multiple different resources. They also tend to be dependent on the opportunity and resources perceived to be available at the time. They are exceptionally good at sorting among resources, ideas and products to make the best use of what is available to them. Perhaps because they are excluded from mainstream science they are skeptical and occasionally paranoid regarding established paths, procedures and knowledge. This encourages them to exploit heterogeneous and sometimes off-the-wall resources. The imaginative ways in which they combine resources, ideas, and supplies, suggests again the notion of a *bricoleur*. But once again these informants do not practice bricolage of convention or thought alone (À la Levi Strauss), but of American culture itself.

As mentioned before, the incubator model of innovation, often funded by the government (local, state and federal) to encourage fledgling inventors rests on a single-product model of the industrial process, in which one idea at a time in lockstep is brought to the market and consumers. In our research we discovered, this tends to result in “innovative” products like a tanning bed for domestic pets. In contrast, the inventors we interviewed multi-process and multi-innovate. In fact it was clear having a “pool” of other ideas and products simultaneously in different stages of development improves all the ideas and shortens development cycles. It is as if each invention or idea becomes a laboratory for and/or a standard by which to judge the validity of the others by. An additional source of conflict between incubators and our informants is that often the incubators’ main criteria for whether an idea should be supported or not, is whether or not it can be patented. As previously discussed, these informants showed little interest in patenting. In short, there seem to be a number of disjunctions between how informants view themselves and their inventions and how incubators funded with public money see both. This is one result why these incubators have not been as successful as they perhaps could be in facilitating business innovation and knowledge transfer.

There is one more issue. The literature on inventors and inventions also tends to equate inventions with patents and property rather than see that these are all cultural categories, not

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analytic ones. As such, these categories do need to be unpacked and critiqued. In short these categories are not derived from nature or even some approximation to nature. What they are informed by and do represent is some version of what we Americans take to be common sense. It seems what anthropology can contribute to the literature on inventors and innovation is that we can try, as we have done here, to trace out some of the roles cultural resources and ideology, can play in the acts we call “invention”.

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