Jared Diamond versus Charles Mann on the Sophistication of Metalwork in Native America

Jared Diamond's theory in his book Guns, Germs and Steel states that the Europeans were able to conquer the Natives because of their favorable geography, a key factor that lent itself to the manufacturing of steel and which Charles Mann, author of 1491: New Revelations of the Americas Before Columbus, also discusses in detail. Both Diamond and Mann agree that the centuries of experience in making steel weaponry in Eurasia gave the Spanish conquistadors an advantage over the Natives in combat; however, Diamond claims that the Europeans had an upper hand because their metal work was more sophisticated, whereas the Natives were merely "stuck in the bronze age," (3) for which he discredits their advancements in metal technology. On the contrary, Mann contends that the Natives' metal work was more advanced than their European counterparts (3), and that the indigenous societies "may not have had steel for weapons, but [they] did highly sophisticated work with other metals" (3). Although Europeans had more experience in working with metal, and in developing different techniques in manufacturing metal that seemed more refined, Mann argues in 1491 that the Natives' techniques and use for metal was not nearly as primitive as what Diamond presumes in his book Guns, Germs, and Steel. Diamond argues that the Europeans conquered the Natives because of superior metal technology. A close examination shows Mann's argument that the Natives' metal techniques undermines Diamond's argument that the Europeans had superior metal techniques.

To understand the main differences between these two authors, one should examine the specific points before considering their different views on the specific metalworking techniques in the respective cultures. The Europeans had steel and Indians did not, which has led some researchers, Diamond among them, to “argue that Indian metallurgy essentially [did not] exist” (2). “After all, they didn’t have the steel axe,” (1) Diamond says in the national geographic movie adapted from his book. The Europeans borrowed innovative techniques from steel manufacturers in the Fertile Crescent to build swords, or rapiers, and guns. Judging by his point of view, Diamond presumes that at the time of arrival of the Europeans the "new world societies had just begun making bronze artifacts and had not started making iron" (Diamond 259). Diamond stresses the crudeness of the Incas metalwork and the tools. He then contends that the Incas used metal for "almost nothing useful" (3). The term “useful” can have many implications, but in this case Diamond's definition of “useful” is using metal to make a device that is going to allow subjugation. Diamond believes that a culture should "[seek] to optimize metals' 'hardness, strength, toughness, and sharpness'" to make weaponry (3). Diamond’s research led him to believe that because the Natives had not developed lethal weapons made of “optimize[d]” (3) metal, the Natives were far inferior to the Europeans. Diamond discredits any advancements in Native metalwork because he believes that the Natives were not advanced, and only squandering their resources.

In his book 1941, Mann believes that the Natives’ techniques in working the metal were far superior in comparison with the Europeans’. He says that Incas metallurgy was as refined as European metallurgy, if not more, but it had such different goals that until recently scientists had not even recognized it as a technology (3). Mann

explains the misconception that researchers, namely Diamond, are guilty of asserting: the fact that the Europeans used metal to conquer overshadowed the Natives' advances, because they used metal for more practical things. Mann then says that unlike the Europeans, the Natives "by contrast, valued "plasticity, malleability, and toughness" (2). Whereas the Europeans used metal as a symbol of wealth, power, and "community affiliation" (2), the Natives used it for practical tool making.

It is important to look at the specific techniques involved in metalworking in the respective cultures to determine who, either Diamond or Mann, is more convincing. Diamond's account stated that European metalworkers created metal objects by "pouring molten alloys into shaped molds" (2). Diamond says that rapiers, represented a high point in a very sophisticated metalworking technology. There are many different qualities needed in a sword that the Europeans had to consider: "First of all, the metal had to be hard enough to take a sharp edge, and that requires steel that is iron infused with carbon, and the more carbon one puts into the iron, then the harder the metal will be. But if it is too hard, then it will be brittle, and that would not work because when someone would hit someone else with his sword, then the sword would break" (3). The Europeans also had to consider pliability as a factor, because an ability to bend and spring back into shape was important in combat (3). Diamond argued that it took centuries of experimentation for the Spanish to perfect the techniques needed to make the deadly rapier, and he concluded that the "budding metal mongers"(Diamond 97) had nowhere near the experience necessary to build these kind of weapons.

In contrast to Diamond's ideas about the use of metal, Mann argues that the Natives were far ahead of the Europeans when it came to working with the metal; and

given the right resources, the Natives could have easily beaten the Europeans in combat. The Natives knew about the European technique of "pouring molten alloys into shaped molds" (2), but they "vastly preferred to hammer metal into thin sheets, form the sheets around molds, and solder the results" (2). The Incas employed metallurgical processes such as "alloying, casting, cloisonné, hammering, incrustation, inlay, repoussé, riveting, smelting, and soldering" (2). In 1941, Mann calls their work "remarkable by any standard" (Mann 143) and describes a bust he found that was less than an inch tall but made of twenty-two separate fastidiously joined gold plates. Mann believes that researchers underestimate the ingenuity that the Natives had in manipulating metal. It is evident that Mann is telling the reader not to disregard the advances made by the Natives in metal just because they are not innovative weapons. The natural inclination is to think in a broad sense that whoever wins the war has better technology. Especially since the Europeans were so outnumbered by the Incas, there had to be a reason why at such a disproportion in numbers the Europeans were able to conquer them. Mann argues that the Natives' skills with metal were a cut above the Europeans', and that the Natives could have made better weapons than the Europeans if that is what they were trying to do. Europeans demonstrated expertise in making swords and whereas the Natives focused on more pragmatic applications of their resources. He warns the reader not lose sight of the fact that when the Europeans were pouring metal into molds, the Natives had already accomplished this feat and had moved on to more sophisticated techniques.

Both Diamond and Mann acknowledge that the Europeans used centuries of experience to manufacture steel to make deadly weapons. Diamond's contention that the Europeans were more advanced is more appealing to the reader because it is the more

intuitive answer. The reader is naturally inclined to choose the Europeans as the superior workers in metal because of their exposure to other cultures' advancements and favorable geography; however, Diamond's underestimation of the Natives takes away from his argument because he dismisses anthropological evidence. Diamond makes the point in his book that the there was no shortage of copper, tin, silver and gold in the mountains of the Andes, but then he disbelieves the Natives' ability to find value in the metal and use it to their advantage. Mann's argument is more convincing because he acknowledges and he gives specific examples that support his opinion that the Natives' metalwork "stressed functional and utilitarian design" (2). What the issue eventually involves is what one views as technology. Clearly, Diamond is holding the Natives and colonists to a higher standard than the Europeans held many years ago and what Mann holds today. Mann says technology refers to "any application of a systematic technique, method, or approach for practical purposes" (3). He argues that colonial "accounts suggest that Europeans then viewed technology in these broad terms--and that they were impressed by what they saw in Native American hands;" and that to the first European visitors, the encounter with Indians was "much more like a meeting of equals than is commonly taught today" (3).

In summary, Diamond and Mann agree that the weaponry in Eurasia allowed the conquistadors to conquer the Inca; however, they are strongly divided in identifying which culture is more advanced as far as metal working techniques, in addition to the culture's main influences and uses of metallurgy. Mann believes that the Natives' metalwork manifests a high degree of sophistication, and that the European efforts to come up with different techniques were not nearly as advanced. Diamond believes that

the European techniques were more advanced, and he attributes this to the centuries of experience from the Fertile Crescent. Mann and Diamond both present convincing arguments, and it is difficult to determine who is more convincing, since both have valid points. The issue comes down to whether the Natives or the Europeans were more advanced in metalwork. Judging by both arguments, Mann's case is more convincing because he provides great support by directly comparing the ways that each culture manipulated metal, which showed that the Natives had more advanced and sophisticated techniques.

Literature Cited

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(6) Germs, Guns, and Steel by: Jared Diamond