EASTERN PHILOSOHPY AND THE TEACHINGS OF W. EDWARDS DEMING

Eastern philosophy provides a decidedly different way of looking at the world than the Western methodology that we are most familiar with. When considering the causes and successes of Dr. Deming in Japan, philosophy is often overlooked. However, it may be this difference in thinking that led to the rapid and dramatic improvements in quality.

After World War II, the state of manufacturing in Japan was in a dismal state. Most resources, both manual and physical, were depleted in the war. "Made in Japan", when stamped on any consumer products, was synonymous more with garbage than with high-quality, high-tech materials like it is today. The Japanese Union of Scientists and Engineers (JUSE), realizing the severity of their troubles, invited Deming to teach a class in Statistical Process Control (SPC) in July of 1950. Deming taught four types of courses while in Japan: statistical techniques, sampling human populations, advanced statistical control, and lectures to top-management. Perhaps more importantly than these lectures, Dr. Deming "also stressed broad concepts of SQC, from testes of raw materials to the consumer research by which the product is designed." (1)

Despite Dr. Deming's success in transforming the Japanese manufacturing sector, he enjoyed little recognition at home. Japanese manufacturing took off; American manufacturing continued to lose market share to affordable, high-quality Japanese goods in both foreign and domestic markets. It wasn't until a 1980 NBC special, titled "If Japan Can…Why Can't We?" put Dr. Deming's theories in the spotlight that he gained notoriety as a business and management consultant. Deming became known as a quality guru in the 1980s, consulting with several high profile companies (such as Ford) and publishing two books on quality and management – *Out of the Crisis* and *The New Economics*. He remained active in his field until his death in 1993.

The theories Deming preached are well known today. They have been, more or less, the basis for the managerial fads of the last 30 years – Total Quality Management, Six Sigma, Lean Manufacturing, Quality Circles, and more. Any discussion of the "quality revolution" in Japan – the period of great industrial and productivity growth, beginning in 1950 – includes a thorough recount of Deming's teachings and his impact of Japan. The effects of the quality revolution have been lifted from Japan and applied to companies all over the world.

The reasons for this success have been analyzed for several decades now. Despite the almost universal agreement on what the end results of the quality revolution were, there is little to no agreement on what exactly caused the changes. Dr. Deming believes top management had a large role in the acceptance of the quality control methods:

> The rapid acceptance of statistical methods in Japan arose, in large part, from the fact that top management had exposure to the methods and were somehow convinced that these methods were vital to survival. (2)

Teaching every level of the company – from senior management to entry-level engineers – allowed the lectures to take hold quickly in each level of the organization. In addition, Dr. Deming also states that quality control techniques succeeded because "they were never anything but total" (3) and provides a list of 6 features of the Japanese quality revolution:

- They are Japanese.
- They learned the statistical control of quality at both ends, top and bottom: (a) engineers and plant managers in production learned techniques; (b) top management learned simultaneously something about the results that could possibly be achieved, and they learned something about their own responsibilities in any plan to put statistical methods to work.
- They learned the statistical control of quality in the broad sense of Shewhart, as defined further on.
- Statistical education must be a continuing process, and it became so through the efforts of Mr. Kenichi Koyanagi, Managing Director of the Union of Japanese Scientists and Engineers. The

initial teaching of techniques was clearly indicated as only an introduction to statistical principles and methods, with admonition to continue the learning process. Statistical methods can not be installed once for all and left to run, like a new carpet or a new dean. They require constant adaptation, revision, extension, new theory, and new knowledge of the statistical properties of materials.

- The Japanese learned the difference between a statistical problem and one in engineering, chemistry, management, or marketing. They learned to use statistical methods as an aid in the solution of statistical problems, not as a substitute for knowledge of engineering or of other subject-matter.
- Japanese manufacturers took on the job themselves, through financial and moral support of the Union of Japanese Scientists and Engineers. They did not look to their government nor to ours for help. When they arranged for consultation, they sent a ticket and a cheque *[sic]*. (4)

There is little agreement amongst others as to what the reasons for the success in Japan were. Kenneth and William Hopper, in their book *The Puritan Gift*, attribute the movement to the foundations of good management practices laid out by their "three wise men of the west": Homer M. Sarasohn, Charles A. Protzman, and Frank A. Polkinghorn. (5) These men were responsible for teaching a seminal managerial course in 1949 in Tokyo, titled "The Fundamentals of Industrial Management." This course precluded the initial course taught by Dr. Deming in the summer of 1950. Joseph M. Juran, himself having taught in Japan and achieving significant fame as a consultant and author, focused more on the upper and middle management, rather than the line workers and statistical methods. Management, to Juran, was the key to success. Peter Drucker also spent significant time teaching management principles in Japan, and undoubtedly contributed to their management philosophy.

Certainly, these men and ideas all played a significant role in Japan rising from the ashes of war into an economic power. The principles they expounded – educating management, using statistical methods as a basis for improving quality, treating workers with respect – are all alive and well today. Each of these points has been analyzed and repackaged into more up-to-date management techniques, finding homes in Total Quality Management (TQM), Six Sigma, and others. However, these are all outside opinions. The Japanese, the members of the organizations who were actually implementing Deming, Juran, Sarasohn, Protzman, and Drucker's ideas, have a decidedly different view of what exactly led to the revitalization of manufacturing. Certainly, they all agree on the visible aspects of the teachings. However, there is something more, cited quite frequently in Japanese texts, which lends credence to the idea that these ideas succeeded for a different reason entirely. Takeshi Kayano, winner of the 1959 Deming Prize, wrote the following in a correspondence to Dr. Deming:

> In Japan, an old custom of strictly keeping the order of things is thought much of. In selecting a policy of "management", there is, besides originality and economy, a factor to be valued in preference to all other factors. Though it may be incomprehensible to Europeans and Americans, this factor is our old custom of keeping the state of things with strictness. How to harmonize or improve relations between man and man, and not to disgrace the honor of men of high standing is thought most important in our tradition of keeping the order of things. (6)

At this time, Kayano was the deputy director of the Management Research Office of the Nippon Telegraph & Telephone Public Corporation. In 1957, he spent three months in the United States and Europe, exploring the different styles of management in different companies and corporations. He clearly had a philosophical twang to his writings, as evidenced in the quote above, and by the fact that he placed a preference in his studies on finding the general Weltanschauung of a country. In America, for example, he cites that a lot of emphasis is placed on efficiency and economy. In Germany, he found a very closed society – "nine men out of ten think that everything must be thought once by a German, and then done by a German and systematized by a German." (7)

His thoughts on Japan, however, provide an interesting view on the success of Dr. Deming's teachings. The highest-regarded factor, in terms of selecting and applying a management philosophy, is keeping the state of things with strictness. This most likely refers to a Chinese philosophical concept of tzu-jan (literally, "self-so-ing", "naturalness", "spontaneity"). (8) This is a pervasive thought in Eastern philosophies; allowing something to function naturally, without any outside help, will lead to the thing acting in its most efficient and effective manner. Dr. Deming's theories on quality control allowed the company to do function, in the mind of the Japanese, as they were intended to.

In order to determine what this means in regards to industry, we need to first understand just exactly what Dr. Deming was teaching in Japan. With a solid definition of quality, it is easy to see how Dr. Deming's work overlapped with traditional Eastern philosophy, and, therefore, why his points were so successful in Japan.

What is Quality?

Dr. Deming devoted a great deal of his life to lecturing, consulting, and teaching about two subjects – statistics and quality. There is very little to find in way of a definition of quality. Interestingly, a majority of his thoughts on the topic come from what quality actually *is not*. Good quality, for instance, has no meaning, except with reference to the consumer's needs and his ability to pay. (9) Deming frequently quoted Harold F. Dodge, who said, "You cannot inspect quality into a product. It must be built in from the beginning." (10) Further to the point, Deming maintains that "quality is not something you install…you implant it. Quality is something you work at. It is a learning process." (11)

In "The New Economics", Dr. Deming provides us with his succinct description of quality:

> **What is quality?** The basic problem anywhere is quality. What is quality? A product or a service possesses quality if it helps somebody and enjoys a good and sustainable market. Trade depends on quality. (12)

It becomes a bit suspicious as to why Dr. Deming defines quality this way. Clearly, saying what something *does* doesn't define what something *is*. There are many holes here, and it seemingly opens up as many questions as it resolves. It is impossible to use this as a comprehensive definition of quality.

This definition seems confusing because Dr. Deming hits upon only one of the two classic platonic ways to define something. Each object, according to Plato, has two separate parts: what the object actually is, and what the object is to the observer. (13) For instance, we can say that a chair exists in a real fashion. Instructions can be drawn up on how to build and assemble a specific chair. Giving these instructions to many different people will yield a chair very similar in nature every time. Contrast this with the exercise of drawing a chair. Asking several people to draw a chair will undoubtedly yield as many different kinds of chairs as there are participants in the study.

The difference here is that there are really two manners of thought. In the first part, the observer of the chair is completely removed from the equation. There is seemingly no subject; the chair exists in some sort of vacuum - it has four legs, a seat, a back, and two arm rests. It does not matter how we see the chair. It is laid out for us in this instruction kit so that person after person can read the instructions and come to the same conclusion. Technical manuals never contain value judgments – such as comfortable, good, delicious, etc. – because they introduce a degree of uncertainty into the instructions. The chair is not comfortable, small, squeaky, or anything else. It just is. An instruction booklet on how to build this chair should be written with precise directions that can yield only one result: a fully assembled, identical chair.

On the other side of the spectrum, the second part of our study completely removes the object from consideration. The question we are asking relates only to the subject who is drawing the chair; that is to say, it is a completely

subjective question. We do not get consistent results from this question (and nor should we expect them) because no two people will have the exact same thoughts about what a chair actually is. The chair, once the question is asked, exists only in the mind of the person who is drawing it, and only for the moment of time that it is being drawn. The type of chair will vary from moment to moment when this question is asked. It could be a favorite chair, a chair that has just caught the subject's attention, the one the subject is sitting on, and so forth.

Circling back to Dr. Deming's definition of quality, it's apparent that he has subjectively defined quality, but has failed to objectively define it. Saying that "a product or service possesses quality if it helps somebody" immediately adds someone to the definition. This means that the quality is going to vary from person to person. One person may not think this chair has as much quality as the next. It should be noted here that this can only occur after the product is already designed and built. When first designing the product, the engineers cannot know if it will help me, or if I will buy it. They can perform market research to see if I am likely to buy it. They can design with the greatest segment of customers in mind, but Dr. Deming's definition of quality does not come into play until the moment that the customer receives the good or service. It is a completely *subjective* definition. Whether it helps the subject, or whether the subject will buy it, depends completely on the mind at the moment of purchase.

Others may provide a more applicable definition of quality. Joseph Juran, a contemporary and occasional colleague of Dr. Deming, offers a more thorough, two-part definition of quality in his *Quality Handbook:*

> Of the many meanings of the word "quality", two are of critical importance to managing for quality:
> 1. "Quality" means those *features of products* which meet customer needs and thereby provide customer satisfaction…
> 2. "Quality" means *freedom from deficiencies* – freedom from errors that require doing work over again (rework) or that result in field failures, customer dissatisfaction, customer claims, and so on. (14)

This is important for one specific reason – Juran provides both an *objective* and *subjective* definition of quality. Part one of the definition is subjective. Features of products which meet customer needs are determined solely by the customer. Innovation of a product is the key to creating this type of quality. Innovation in a product often starts when the creators answer the question, "What exactly is the goal of the product?" The goal of a product is often not the obvious answer. For instance, the goal of a Sony Walkman was not to provide a mobile way to listen to cassettes. It was to provide a mobile way to listen to music. Dr. Deming uses carburetors in engines as an example:

> There was a time when every automobile had a carburetor, at least one. How could an automobile run without a carburetor? The makers of carburetors improved their product year by year…What happened? Innovation. Came the fuel injector which does the job of a carburetor, and a lot more…Fewer readers, year by year, will remember carburetors. (15)

Often, products serve a different purpose than the manufacture intended. Sony thought the purpose of the walkman was to play portable cassette tapes, when in actuality, the purpose was to play portable music. When CDs became economical, the walkman could no longer function as the customer intended it to, even though there was no deficiency with the design as it was defined by Sony. The point of a carburetor was to aerate fuel in an engine. Fuel injectors provided a much more effective way of doing this, so there was no longer a need for carburetors. In both examples, the design doesn't change from one minute to the next. It is an external innovation that renders the product obsolete.

Without innovation, it is easy to get stuck with only the objective definition of quality – freedom from deficiencies. Freedom from deficiencies is probably the most common reference to quality in manufacturing and management. We typically think of quality in terms of tolerances (in Statistical Process Control), defects per million opportunities (Six Sigma), or other similar veins. In our two previous examples, the two products (Walkmans and carburetors)

probably had their lowest instances of defects per million opportunities since they went into production. Quality, in the objective since, was at its highest.

It's safe to say that Juran's quality is indeed what Dr. Deming was teaching in Japan. Deming's initial quality wheel, which included

1. Quality Consciousness
2. Quality Responsibility
3. A study of the operations
4. Design and development
5. Economy in manufacture
6. Test the product
7. Decide on a redesign, and
8. Find new markets (if economical) (16)

has both subjective and objective parts to it (The subjective being the quality consciousness, quality responsibility, design and development, and finding new markets). Clearly, Deming and Juran were working with the same view of quality in mind.

Why Japan?

Dr. Deming arrived in Japan in 1950, under the auspices of JUSE, to teach a notoriously fickle subject. Although it doesn't require a very high knowledge of statistics, or any other math for that matter, SPC is often difficult to implement. One of the reasons for this is the fact that it inherently introduces a degree of uncertainty in everyday life.

Science is almost always concerned with a cause-effect relationship. Based on certain variables, I should be able to predict the behavior of something. The mathematician Laplace predicted that, with knowledge of all the forces in the world, a being of sufficient intellect would be able to predict the future. This theory illustrates the cause and effect relationship perfectly. Although there is inherent variability in our world, Laplace rationalizes it as causes that we simply cannot determine at the time. In the future, with better technology and more experience, these causes will be known and the outcome can again be predicted. Classical physics is concerned entirely with cause and effect. A steady force acting on a body will accelerate the body at a constant rate. Different forces, applied at different angles, will change the speed and direction of the body in a completely predictable manner. This line of thinking has been true for centuries.

Introducing variability completely undermines this cause-effect relationship. He may not have known it at the time, but Dr. Deming was disregarding one of the fundamental tenets of our way of thinking. By saying that "important factors are unknown and unknowable", Dr. Deming was resigning himself to the natural variability of the world. (17) Performing an action over and over again will not always yield the same result. This is a major change in our fundamental thought process. Parallels can be drawn to the dilemma of quantum physics in the early part of the 20th century. In the early part of the century, the mystery of light was being explored. Under certain conditions, light would behave like a particle. However, this was not always the case. Light also had some distinct wave-like properties, as well. A large effort was underway to reconcile these two views into a single theory. A young scientist on this trail introduced a whole new realm of problems for classical physics. Werner Heisenberg's uncertainty principle states that we cannot measure the position and momentum of an electron to a high precision. A greater degree of accuracy in measurement in one leads to a corresponding lack of accuracy in the other. Indeed, the theory goes further – there is no way to measure the system without altering it in some way.

The problem this introduces is deftly illustrated by the thought experiment called Schrodinger's cat. In the experiment, a cat exists in a room, with a random probability, say 40%, that a toxic gas will be released in an hour. With no observer to the system, after one hour that cat cannot be said to be either alive or dead. Clearly, the cat cannot exist in both states simultaneously. The cat is not 40% dead and 60% alive. Without actually observing the cat, we can only say that the cat has a 40% chance of being dead and a 60% chance of being alive. Probability has now been introduced into the natural sciences. All of the causes in the system are known, but there is still no way to predict what will happen to the cat until someone actually observes the cat.

This concept was new and frightening at the time (it famously elicited the quote from Einstein, "God does not play dice"). Saying that one action does not lead directly to a result, but instead *may* lead to a result, goes against thousands of years of belief. Western thought has been particularly ingrained with this notion of cause and effect. It is a unique product of the subject-object metaphysics that developed since the ancient Greeks. The subject is there to witness the cause, can interpret the effect, and therefore draw conclusions about what is happening. In the Asian philosophy, this separation of subject and object is known as *maya*. Alan Watts, in *The Way of Zen*, explains it thusly:

> Western science has made nature intelligible in terms of its symmetries and regularities, analyzing its most wayward forms into components of a regular and measurable shape. As a result we tend to see nature and to deal with it as an "order" from which the element of spontaneity has been "screened out." But this order is *maya*, and the "true suchness" of things has nothing in common with the purely conceptual acridities of perfect squares, circles, or triangles – except by spontaneous accident. Yet this is why the Western mind is dismayed when ordered conceptions of the universe break down, and when the basic behavior of the physical world is found to be a "principle of uncertainty." We find such a world meaningless and inhuman. (18)

When viewed in this light, it becomes a bit more obvious why Dr. Deming struggled to find a market for his ideas at home. Dr. Deming's worked introduced a new, terrifying element to Western manufacturing – randomness. Statistical Process Control forces us to admit that there are things we can't explain in manufacturing. Of course there is logic in this. There are a myriad of factors that can affect any process, and very few of them are we ever aware of. Even if all the causes of the system were known, which isn't an easy task, there still might be a degree of uncertainty. As Watts states above, it clearly affects the Western mind. To contrast with an Eastern thought (specifically, the branch of Buddhism known as Mahayana), he elaborates, "For the Mahayana does not make the mistake of trying to account for the production of the world from the mind by a series of necessary causes. Whatever is linked by causal necessity is *of* the world of *maya*, not beyond it."(19) Watts believes that any conclusions we draw from external causes are merely coincidental. Deming seems to have known that this when discussing the reasons for success of his quality control lectures in Japan. As noted before, Deming is purposely ambiguous on the reasons for his success.

Another example comes from Dr. Deming's view on organization structure. As William Hopper points out, Dr. Deming hardly offer any advice in the terms of how to organize a corporation. Hopper states that Deming had "little or nothing of value to say on a whole range of critical subjects like delegation, multidivisional organizations, line-and-staff or the role of the middle manager." (20) Hopper thinks that more rules for dictating the structure and performance of the organization will lead it to be more successful, more efficient. This is indeed a very classic way of thinking. Hopper believes that trying to control all of the causes will control all of the outcomes. It is the same theory Laplace had, and a traditional viewpoint of Western thought.

There is a reason Dr. Deming left out organizational structure out of his 14 Points of Management. Defining an overall structure limits the effectiveness of an organization in adapting to its environment. This was pointed out in a speech about quality control: "Invention of new words neither generates problems not solves them. Splintering,

without a unifying theory, represents loss of power, with motors pulling in random directions." (21) The belief is that dividing a whole does not lead to any great benefit. Deming believed that quality had to pervade every aspect of an organization. Quality, in other words, cannot be anything other than total. By restricting or commenting on the structure of a corporation, Deming would be preventing quality from adapting to the differing requirements of each individual environment. However, Hopper argues that Dr. Deming is arguing for a kind of structural nihilism. (22) Quite the opposite is true. Dr Deming leaves out structure because the constructing artificial barriers will simply slow down the effectiveness of the organization. Hopper exclaims, "Imagine trying to run a company of 400,000 employees as one large homogenized and seamless unit!" (23) In actuality, this is what we should be striving to do in each organization, and this is exactly what Dr. Deming advocated. An old Chinese proverb tells the tale perfectly - *The centipede was happy, quite/Until a toad in fun/Said, "Pray, which leg goes after which?"/This worked his mind to such a pitch,/He lay distracted in a ditch,/Considering how to run.* (24) Eastern philosophy maintains that focusing on certain specific parts will only slow down the whole. Working as a homogenous whole is the only way to succeed with such a large number of moving parts, such as the ones found in living organism in nature, or in a large corporation.

This strategy is prevails through all of Eastern thought. Zen and Taoists philosophers tend to believe that the ability to adapt, without any self-constructed realities, is akin to enlightenment. What Dr. Deming advocates is allowing something (in this instance, quality control), to expand and adapt as the situation deems necessary. This is echoed in Chapter 78 of the *Tao Te Ching:* "Nothing is softer in the world than water, yet nothing is better at overcoming hard and strong." (25) Water adapts to the container it is in; it can flow seamlessly, eroding the hardest objects in its way, until eventually it expands and occupies the entire area of the container. Letting quality control grow organically within a company is allowing it to overcome all of the obstacles to change that it would normally encounter.

With this in mind, let's revisit Dr. Deming's thoughts on quality. As noted before, it is really hard to find a specific definition from Dr. Deming. Most of his thoughts deal with what quality is not, rather than with what quality actually is. If you remember from before, it is Juran who provided the specific definition of quality, providing both its subjective and objective parts. Although Dr. Deming spent most of his later life working on quality, he seemed to be more comfortable providing characteristics of something that contains quality, rather than what quality is.

This is probably not an accident. Dr. Deming probably realized, through his extensive time in Japan and work with various companies, exactly what quality is and what it is not. After all, this is pretty simple – we all know what quality is, even if we can't express it. Everyone forms opinions on objects that determine what the quality of that object is to us. Subjectively, quality can be determined almost instantly. Dr. Deming realized this, and stressed the importance of design, market research, and "quality consciousness" in his original quality wheels. The quality wheel is intended to show how quality can be built into a product at each stage of its life cycle. Each of these sectors of the wheel deals with an individual's first impression of the product. Quality in design will produce a product that is attractive to the external senses. Quality in market research will show how to improve that product for future iterations. Quality consciousness is intended to make the workers aware of quality, so that it is inherent in everything they do.

Objectively, however, quality takes a bit more time to be made clear. To objectively measure the quality of a product, we must compare that product the ideal standard of that same product. Measuring defects can only happen, after all, if there is some ideal standard to which the product can be compared. Studying the product, ensuring economy in manufacture, and testing the product before release will all ensure that the product is working up to the designed standard.

Why then, if both elements of our definition are clearly evident in Dr. Deming's earliest work on the subject, would he fail to define quality the way Juran has? I believe it is because Dr. Deming realized that quality *couldn't* be defined without losing something in the definition. If you note, our definition above isn't really a definition at all. It

provides guidelines for determining quality, but leaves open to interpretation what exactly quality in a certain area is. For instance, quality of a book can mean anything – durability of the binding, attractiveness of the cover, usefulness of the content. Asking 10 people to define a quality book will undoubtedly lead to 10 different definitions.

Dr. Deming was probably satisfied with this point. Functionally, if quality cannot be defined, than we can just work with a living example of quality and leave it at that. More so, quality doesn't even really need a definition, since everyone seems to know what it is anyway. The subjective part is easy. Dr. Deming could focus on teaching SPC and other methods to reduce defects. By preaching quality consciousness and responsibility, he believed the subjective side of quality would take care of itself.

Quality in Eastern Thought

This inability to define quality is a thought that philosopher Robert Pirsig struggled with immensely in his novel, *Zen and the Art of Motorcycle Maintenance.* Quality, he says, has both subjective and objective parts, but those do not make up the entirety of quality. (26) There is something more, something that seems to exist both outside the observer and the subject. It is the *event* of subject meeting observer that is quality. This means that at any one moment, the quality of an object can change, because the observer is constantly put in different positions. This makes perfect sense, once you think about it. I'm pretty sure everyone has exclaimed that a meal is "the best of their lives" when they are desperately wanting food. To other, well-fed individuals, this meal may not be anything special. Indeed, to the person who makes the exclamation, the meal would seem pedestrian after a few other sandwiches. But the point is that at that moment, when the hungry person actually received the meal, it had the highest quality.

This thought is easily explained in one of the Asian languages. Alan Watts demonstrates the differences between the two languages:

> In English the differences between things and actions are clearly, if not always logically, distinguished, but a great number of Chinese words do duty for both nouns and verbs – so that one who thinks in Chinese has little difficulty in seeing that objects are also events, that our world is a collection of processes rather than entities. (27)

If the quality that Dr. Deming was teaching is actually an event, a process, rather than a trait of an object, it would make sense that native Japanese/Chinese speaker will be able to pick up on it more quickly than someone who speaks English. The appearance of quality as an event, rather than a characteristic or trait, is more evident in a language where words symbolize both nouns and verbs.

Deming's quality had an immediate effect on Japan. The proceeds from his popular statistics guide were donated to JUSE; they eventually made their way into the seed fund for the Deming Prize, which immediately became the most coveted prize in Japanese industry. Companies (and individuals from academia) making the greatest progress annually, in the field of quality control, are honored with the prize. Each company that wins is profiled in a magazine to be given out at the banquet. Here, Dr. Deming's impact is obvious. Looking at three different companies, we can clearly see how Dr. Deming's teaching has taken on a particularly Eastern feel.

Toshiba writes in their quality policy that "the quality-mindedness of everyone having to do with production shall be called upon and the responsibility for quality shall be made clear for each duty." (28) Quality-mindedness is one of the tenets of Dr. Deming's teaching. The article continues,

> Quality control is now an everyday matter at Toshiba and nothing to be fussed about any more. And its functions and activities have fit into everyday work and it seems that everyone in the company is unconsciously carrying out quality control. (29)

Indeed, quality control pervades everything at Toshiba – it must have flown like water to occupy every nook and cranny of the organization – so much so that it doesn't even need to be stressed anymore. Quality control, as Dr. Deming pointed out, "was never anything less than total." (30)

Mitsubishi Electric Co. Ltd took a similar approach to quality. "Mitsubishi Electric Co. fixed the eyes upon this problem from an early date and tried to grow up the quality-mindedness and enthusiasm to realize the company's policy in their mind." (31) Again, an organic approach, like Dr. Deming advocated, is used. The article continues, "Quality mindedness – it is clearly understood that if employees do not have quality mindedness, the product quality would be very poor. Therefore, the company always tries to increase quality mindedness as can as possible *[sic]*." (32) Again, we see how quality mindedness plays a huge role in a company developing an aura of quality.

The Kureha Chemical Industry Co., LTD uses a different description than the previous two examples. Although they do not cite "quality mindedness", it is clear from the description that the growth occurred along the same line. Kureha explains, "We took utmost care not to offend people of old tradition, to avoid friction between old and new, and to diffuse QC slowly but steadily over a long period among the employees in a natural way." (33)

As in the previous two cases, the company advances quality control in, what they say, is a "natural" way. This means that the diffusion of quality control was done by only intrinsic means. Quality control expanded throughout the company, similar to water filling a container. It slowly but surely overcame all obstacles in its way until, eventually, it fills the entire organization. In addition, Kureha believes that the Deming Cycle contributed to their success. According to the article,

> What hitherto had been idealistic and ineffective in performing daily works has been retrained by means of the thinking of the Deming Circle, i.e. Planning-Practice-Check-Action, as well as the statistical judgment and operation has been rebuilt into that which abounds in pragmatism and activity. (34)

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These summaries showed that there are two main forces that drove the transformation of the Japanese companies during the quality revolution in the 1950s. First, Dr. Deming's theories on statistics were instrumental in the turnaround. Statistics were taught at a very wide level, and nearly every company offered classes and seminars on the subject. Statistics became a universal way to measure quality, and removed intuition from the equation. In addition to Deming's thoughts on statistics, his view on quality consciousness and quality mindedness seemed to have played a huge role. Each of the companies cited "quality mindedness" as being an important factor in the quality revolution. This area is often overlooked when considering the factors for adopting quality.

Quality mindedness and quality consciousness are the difference between the success Dr. Deming had in Japan and the experience in the United States. Dr. Deming remarked, "I think that people here expect miracles. American management thinks they can just copy Japan – but they don't know what to copy!" (35) The information pulled out of Japan was completely backwards. We saw the results of the quality revolution in the increased productivity. Immediately, the Western mind began looking for the causes of this effect. Several things popped to the forefront – control charts and other statistical methods, QC circles, Total Quality Management, etc. This doesn't begin to give

the full story, though. As we saw above, the Japanese companies put as much, if not more, stock in quality mindedness and consciousness. To them, this was the basis from where the other ideas could come from. It's like the old joke about the Japanese bicycle instructions: "Assembly of Japanese bicycle require great peace of mind." (36) This is true for quality control well.

Quality control in America lacked that organic value, that intrinsic necessity that made the Japanese version so successful. That's not too say that quality control completely failed in America – clearly, it has not, and there are great examples of its success in companies in every sector. However, far too infrequently has quality mindedness/quality consciousness been cited as a reason for the transformation. The end results of quality mindedness and quality consciousness are usually cited – involving top management from the start, making quality control total, and the like.

Impact on Quality in America

This completely separates the causes from the effects – in other words, what Richard Feynman classifies as a "cargo cult science." (37) During WWII, American cargo planes would often land on Asian-Pacific islands that housed military bases. In addition to bringing supplies for the troops stationed on the island, there was often food, water, and other necessities for the native inhabitants of the island. Once the war stopped, however, the planes stopped coming. The Americans had departed and there was no longer a need to fly in supplies to the island. The natives began to reconstruct the airport, bit by bit. They put down bamboo runways, constructed wooden control towers, and even put in a fake radio control operator with bamboo antennas. They did everything they could to completely replicate what they determined was the reason the planes were landing on the airstrip.

Of course this did not lead to any more supplies being delivered to the island. The inhabitants had completely misconstrued the reasons why the planes were bringing the supplies. The supplies were not coming because the airfield was there; the planes were landing because of a reason that was external to the airfield all together. In this case, the effects of supplies being delivered (the need for a landing strip and control tower) were interpreted to be the cause of the supplies being delivered.

In the case of the quality revolution, the effects – quality circles, statistical process control, total quality management – are believed to be the cause of the quality revolution. However, it was the quality revolution that led to these improved processes. We can't just lift the effects and expect to replicate the success in a different area. This is what Dr. Deming was referring to when he said that American managers don't know what to copy. It's the mindedness, the consciousness, the "naturalness" that was instrumental to the success of the companies. The rest just follows suit.

Deming probably never studied Eastern philosophy with much vigor. He may not have had much thought for the subject matter. However, when looking at the comments from those involved in the quality revolution, it seems that there are two very different viewpoints on the key practices. Most Western observers take away very concrete effects, and believe they are the causes. The commentators on the Japanese side tend to cite the same examples, but usually after one key fact – the mindset of the organization was correct. With the right mindset, quality control became total, led to QC circles, and gave birth to Total Quality Management. The Western views correlate quite highly with the cause-effect, subject-object metaphysics that is direct descendant of ancient Greek thought. However, a Taoist or Buddhist scholar would instantly recognize the merit of the Eastern viewpoint.

Although many people had a role in the quality revolution in Japan in the 1950s, Dr Deming seems to stand largest amongst them all. His caring and compassionate treatment of the Japanese citizens, his pragmatism and optimism in dealing with the problems of Japanese industry, and his teachings on Statistical Quality Control all contributed to his success. His teachings, while similar to many other lecturers and business consultants at the time, had a little something extra to them – an element of Eastern philosophy. As shown, it was this element that allowed Dr.

Deming’s theories to gain an immediate foothold in Japanese industry, and lead to the dramatic turnaround in quality and productivity.

FOOTNOTES

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4. *Ibid.*, 2.
5. Kenneth Hopper and William Hopper, *The Puritan Gift: Reclaiming the American Dream Amidst Global Financial Chaos* (New York: Tauris & Co. LTD, 2009), 109.
6. Takeshi Kayano, Letter to Dr. W. Edwards Deming (Washington, DC: Rpt. In Library of Congress, 1959), 2.
7. *Ibid*. 1.
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9. W. Edwards Deming, "Statistical Techniques as a National Resource" (New York: NYU), 2.
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11. W. Edwards Deming, "If Japan Can...Why Can't We?" *NBC White Paper* (New York: NBC, 1980).
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13. Robert Pirsig, *Zen and the Art of Motorcycle Maintenance* (New York: Perennial Classics, 2000), 359.
14. Joseph Juran and A. Blanton Godfrey, *Juran's Quality Handbook, 5th Edition* (New York: McGraw-Hill, 1999) 2.1-2.2.
15. Deming, *New Economics* 9.
16. Deming, "Manufacturing and Marketing" 3.
17. W. Edwards Deming, "Transformation of Western Style of Management" (New York: NYU, 1980), 1.
18. Alan Watts, *The Way of Zen* (New York: Pantheon Books, 1957), 180.
19. *Ibid.* 75.
20. Hopper 237.
21. Deming, "Remarks" 9.
22. Hopper 238.
23. *Ibid*, 238.
24. Watts 27.
25. Lao Tzu, Yi-Ping Ong and Charles Muller, *Tao Te Ching* (New York: Barnes & Noble Classics, 2005), Chapter 78.
26. Pirsig 242.
27. Watts 5.
28. Toshiba Corporation, "Total Quality Control at Toshiba," *The 10th Anniversary of the Deming Prize* (Tokyo: Union of Japanese Scientists and Engineers, 1960), 84.
29. Toshiba 89.
30. Deming, "Remarks", 4.
31. Mitsubishi Electric Co., "Service Through Quality," *The 10th Anniversary of the Deming Prize* (Tokyo: Union of Japanese Scientists and Engineers, 1960), 141.
32. *Ibid.* 143.
33. Kureha Chemical Industry, Ltd. "Development to the Accompaniment *[sic]* of Quality Control," *The 10th Anniversary of the Deming Prize* (Tokyo: Union of Japanese Scientists and Engineers, 1960), 159.
34. *Ibid.* 160.
35. Deming, "If Japan Can…".
36. Pirsig 164.

37. Richard P. Feynman, Ralph Leighton, and Edward Hutchings, *"Surely You're Joking, Mr. Feynman!": Adventures of a Curious Character*. (New York: W.W. Norton, 1985), 339-346.

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