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Interesting Ideas from <u>Why Things Bite Back</u> by Edward Tenner

Humans are never satisfied with the way things are and always improving the standard of life; to better enjoy the way they live, work, and play. The book, <u>Why Things Bite Back</u> by Edward Tenner, showed the many ways people have improved upon existing technology and how their own creativeness resulted in unexpected consequences. Some of the consequences were just nuisances while others had dramatic effects on the environment. Tenner defined these consequences more precisely as "revenge effects." According to Tenner a revenge "effect is the tendency of the world around us to get even, to twist our cleverness against us (Tenner 6)." A revenge effect that has permeated our society is the migration of hard industrial labor to the "comfortable" office labor. The office setting has improved the harsh labor of many individuals, but it has also brought about a myriad of "revenge effects."

One such revenge effect is back pains brought about by working in the office. Back pain "affects 31 million Americans and is estimated to cost $16 billion annually in medical care and disability payments (Tenner, 213)." Many cases of back pain can be attributed to the way Americans sit in their office chairs. "The original Chinese word for chair means 'barbarian bed' (Tenner, 215)." In many other countries their residents choose to sit on the floor rather than risk their backs in a barbarian device. A lot of the injuries are due to the fact that office workers sit in front of their terminals all day long and rarely move from their cubicle. Technology such as e-mail and electronic messaging allows people to communicate with each other without even leaving their seats. In the

event of technical difficulties the office worker only needs to make a call to the IT people and they will come to fix the problems. There is no need for the office worker to leave their cubicles; all they need is available inside their own little world, the cubicle. The only "exercise" one can get is the walk to the kitchen for a donut or to the vending machine for a snack. When doing a demanding activity an injury is likely to occur due to the lack of activity during the week. This helps to contribute to the fact that "office workers have as high a rate of back injury as truckers (Tenner, 215)."

People who have done hard labor also complain of the problems of the office environment. Jack London "recalls unforgettably how the office technology of the early twentieth century appeared to a laborer struggling to write in the evenings on his brother-in-law's typewriter: 'How my back used to ache with it!'" Jack London has done "seafaring, jutemill labor, and time at a municipal railroad job shoveling two men's previous quotas of coal (Tenner, 215)." Jack London by no mean is a man who is weak.

Many people believe the straight back seating position is still the best for the office environment. This belief is strengthened by many office chairs that have the ninety-degree seating posture. Sitting straight up "has the revenge effect of rotating the pelvis backward, straightening the lordosis(curvature) that is part of the spines natural shape in the standing position" (Tenner, 216). Better seating posture was found by E. Grandjean and by A.C. Mandal through a series of independent studies. Grandjean found that leaning backwards 15 degrees was optimal for reading text on the computer screen. Mandal found that sitting forward like a horseback rider was good for work that required a lot of attention. Both of these seating methods reduced the stress on the back muscles and reduced back pains.

In light of the back problems people experienced in the office environment, chair manufacturers began to design ergonomically correct chairs which help prevent back problems. The revenge effects of the chairs were: 1) the chairs became more expensive thus corporations were less likely to purchase these chars and 2) people did not know how to correctly adjust the chairs, which resulted in even more injuries. Just having an ergonomically correct chair means little when the user is unable to correctly adjust the chair. It is just as bad as a chair which encourages poor posture. Back problems in the office are so prevalent that people have their own lumbar supports and foot rests to reduce the amount of pain they experience. These supports are so important that people hide their supports when they are not at work. Back ailments are not the only revenge effects of office work.

The office environment has evolved into the increased use of computers. When more people use computers for prolonged periods of time a condition known as Carpal Tunnel Syndrome (CTS) becomes prevalent. CTS is a common problem in office workers and researchers have found that "repeated flexing and extensions of the wrist can expand fluid-filled protective sheaths that surround the tendons. But this protective reaction creates its own revenge effect by putting pressure on the median nerve in the carpal tunnel, causing pain and numbness (Tenner, 222)." CTS is caused by the repeated improper use of computer keyboards and mice.

Keyboards have caused the syndrome by typing with the wrists bent in an upward or downward fashion. This risk was absent from old typewriters since with the keyboard there is an absence of the manual line feed, the switching of the piece of paper and the manual erasing of mistakes. This allows for extra movement and activities to be done by

the writer, which also gives the writer necessary breaks. With the keyboard and the computer however, uninterrupted and repeated typing is a major concern in contracting carpal tunnel syndrome.

Mice are also a major cause of carpal tunnel. Carpal tunnel can be caused be using the wrist to move the mouse instead of using the forearm. To combat this problem, Microsoft came out with a mouse in 1993 that was different from what had been in use at the time. "Microsoft reportedly spent millions to develop the new mouse, and a long file on proper mouse use was included as part of the software (Tenner, 228)." While the new mouse was comfortable to use there was no concrete evidence that proved that the Microsoft mouse was any safer to use than mice from competitors. A revenge effect of this comfortable to use mouse is that the more comfortable it is to use the more dangerous it can become. Since it is so easy and enjoyable to use it can lead to increased usage and lead to an increased chance of carpal tunnel in the future. The office technology has enabled people to move from the dangerous conditions of industrial labor to the mild conditions of the office environment. The revenge effect of the office cubicle is an increase in back, wrist, and a variety of other ailments. These are just *some* "revenge effects" of the office environment.

All of the negative implications caused by the office environment makes office work seem like a daunting task. With so many "revenge effects" of the office environment how are we supposed to cope with the inevitable office experience? The movement towards the office is a permanent one and our advance in technology has made us dependant upon the office. We have to find remedies, or at least prevention techniques, for office related ailments such as CTS and back pain.

CTS can be remedied with the use of supporting products such as gel wrist supports. The supports can help keep the user from flexing their wrists up or down because the user will like the soothing jelly-like feel of the gel support. Gel pads are also available for mice which aid the user in the same way as the wrist supports. The long term benefits of these gel pads, is the decreased incidence of CTS. Breaks from the repetitive typing on a keyboard can also reduce the incidence of CTS. Back problems can be readily remedied by correct posture. Lumbar support and correct seat adjustments can make life in the office environment a little more comfortable. One other simple way to reduce the chance of back injury is to regularly exercise the body. Visiting the gym after work would allow the body to function optimally when asked to and would reduce chances of throwing out ones back.

As humans we cannot avoid our nature to be creative and improve upon our current technology. In this case, our advancement in technology has led the majority of workers to flock into the office environment. The replacement of Industrial work with office work is the defining characteristic of our information age. But with the replacement of industrial work many consequences have risen. As computer technology advances there will always be some revenge effects that bite back. All we can do to combat this is to be aware of the problems that will arise and do our best to cope with them. Tenner focuses on the revenge effects of technologic advancements he ignores the positive gains that this advanced technology gives us. With all of Tenner's examples of technology "biting back" it seems that Tenner is more afraid of the consequences rather than the gains of technology in our society. While technology can bring about

unintended consequences one cannot imagine a world without the technology we have

today.