A Scientific American Article Theorizing a Tech Induced Apocalypse & The Unabomber's Response

Ted Kaczynski & Russell Ruthen

August 1, 1993 & 1995

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June 28, 1995: Scientific American receives a letter whose author claims to be ”the terrorist group FC” which references a 1993 article in the magazine on particle accelerators and discusses negative aspects of scientific advances on society.[1][2]

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[1] Russell Ruthen. Strange Matters. Scientific American, August 1993, Page 17. <scientificamerican.com/article/strange-matters>.

[2] Ted Kaczynski. Letter to Scientific American (U-12) C-260 [Letter]. California University of Pennsylvania Special Collections. <harbor.klnpa.org/california/islandora/object/cali%3A919>.

The Initial Scientific American Article

Strange Matters; Can advanced accelerators initiate runaway reactions? By Russell Ruthen

If you have trouble sleeping, you don't want to know about the physicist's worst nightmare: an atom smasher produces a new form of matter even more stable than everyday protons and neutrons, thereby triggering a cataclysmic, self-sustaining reaction that consumes the earth.

Although no serious scientists believe an atomic collision could ever lead to a global meltdown, they still want to be very, very sure it will never happen. Since the beginning of the nuclear age, researchers have met many times—usually behind closed doors—to discuss whether there was any chance that a proposed experiment might initiate a catastrophic event. Physicists rarely discuss the issue openly, fearing bad public relations, but recently some have given candid accounts of the secret meetings. "It's a real concern," observes Henry J. Crawford of the University of California at Berkeley. "Whenever scientists have started a new accelerator program, one of the first talks is always on this topic."

Indeed, one of the most astonishing debates of this subject was revealed by Subal Das Gupta and Gary D. Westfall in Physics Today. The story began some 30 years ago, when the Lawrence Berkeley Laboratory was planning to build a particle accelerator called the Bevalac. At the time, two theorists, Nobel laureate Tsung Dao Lee and the late Gian-Carlo Wick, raised the possibility that conditions of extreme energy and density could create a new phase of dense and stable nuclear matter. If this substance, known as Lee-Wick matter, existed and could be generated, the physicists feared, it would quickly accrete every atom around it—namely, the laboratory, California and the rest of the planet.

Researchers realized that the Bevalac had a shot at making Lee-Wick matter, and under no circumstances did they want to prove the theorists right during a test run of the machine. "We took the issue very seriously," comments Westfall, who was a member of the Bevalac's scientific sta› at the time. "We appointed a blue-ribbon committee to make sure there was no chance it would happen."

The committee, which included Miklos Gyulassy, who is now at Columbia University, met several times. Together they concluded that the Bevalac had no chance of initiating a nuclear disaster. The physicists reasoned that nature had already performed the relevant experiment: the earth, moon and all celestial bodies are constantly bombarded

with an extraordinary number of high energy particles that are produced by stars. Some of the particles collide with atoms on the earth and create conditions that equal or surpass anything the Bevalac could do. Yet the planet was still reassuringly here. Nor had any such event destroyed the moon, which had been struck by countless high-energy particles for at least a few billion years.

In the 1970s the operation of the Bevalac and other accelerators confirmed that Lee-Wick matter did not exist. This happy state of affairs can be explained. When an atomic nucleus collides with another and is compressed into a volume about one fourth its normal value, it expands in about a thousandth of a billionth of a billionth of a second. Nuclear matter that has been compressed somewhat is simply not stable.

But what happens if nuclear matter is compressed to more extreme densities? If two nuclei collide at energies a bit beyond those that modern atom smashers can achieve, the nuclei should transform into so-called strange matter. The protons and neutrons of an atom are themselves made up of quarks, and when the quarks collide at high energy, they may yield a heavier particle: the strange quark. The consensus among theorists is that certain combinations of strange quarks with others are stable. Strange matter should grow through the accretion of ordinary atoms. But not to worry. The droplet of matter should not get much larger than a few million strange particles, theorists think. All such particles should carry a relatively large quantity of positive charge that should ultimately cause the droplet to burst apart. "The basic idea is that at equilibrium the stuff has a net positive charge, and as a result it would turn its own reactions off," Crawford says.

So how can theorists be absolutely certain that an accelerator will never spawn a voracious clump of strange matter? The question was first posed seriously in 1983, when researchers were designing the Relativistic Heavy Ion Collider (RHIC). The collider, now under construction at Brookhaven National Laboratory, promises to be the world's most powerful smasher of heavy atoms and could quite possibly generate strange matter. Piet Hut of the Institute for Advanced Study in Princeton, N.J., put everyone's fears to rest. Applying the same logic his predecessors had used, Hut showed that innumerable cosmic particles collide with atoms on the earth and moon, creating conditions far more extreme than those of RHIC. Calculations similar to Hut's have been done "for all the accelerators that have been built so far," Crawford says, and therefore physicists know they are "not going to be walking in any dangerous territory."

Although there is no instrument yet built that could cause the earth to become a lump of strange matter, such transformations may occur in other celestial bodies. If a droplet of strange matter forms within a star made of dense neutral matter, it might initiate a chain reaction that would create a strange-matter star. Physicists say such events can occur only in the heavens. Let's hope they are right.

Ted K's Letter Response

We write in reference to a piece by Russel Ruthen, "Strange Matters: Can Advanced Accelerators Initiate Runaway Reactions?" Science and the Citizen, Scientific American, August, 1993.

It seems that physicists have long kept behind closed doors their concern that experiments with particle accelerators might lead to a world-swallowing catastrophe. This is a good example of the arrogance of scientists, who routinely take risks affecting the public. The public commonly is not aware that risks are being taken, and often the scientists do not even admit to themselves that there are risks. Most scientists have a deep emotional commitment to their work and are not in a position to be objective about its negative aspects.

We are not so much concerned about the danger of experiments with accelerated particles. Since the physicists are not fools, we assume that the risk is small (though probably not as small as the physicists claim). But scientists [crossed out] and engineers constantly gamble with human welfare, and we see today the effects of some of their lost gambles: ozone depletion, the greenhouse effect, cancer-causing chemicals to which we cannot avoid exposure, accumulating nuclear waste for which a sure method of disposal has not yet been found, the crowding, noise and pollution that have followed industrialization, massive extinction of species and so forth. For the future, what will be the consequences of genetic engineering? Of the development of super-intelligent computers (if this [unreadable])? Of understanding of the human brain and the resulting inevitable temptation to "improve" it? No one knows.

We emphasize that negative PHYSICAL consequences of scientific advances often are completely unforeseeable. (It probably never occurred to the chemists who developed early pesticides that they might be causing many cases of disease in humans.) But far more difficult to foresee are the negative SOCIAL consequences of technological progress. The engineers who began the industrial revolution never dreamed that their work would result in the creation of an industrial proletariat or the economic boom and bust cycle. The wiser ones may have guessed that contact with industrial society would disrupt other cultures around the world, but they probably never imagined the extent of the damage that these other cultures would suffer. Nor did it occur to them that in the West itself technological progress would lead to a society tormented by a variety of social and psychological problems.

EVERY MAJOR TECHNOLOGICAL ADVANCE IS ALSO A SOCIAL EXPERIMENT. These experiments are performed on the public by the scientists and by the corporations and government agencies that pay for their research. The elite groups

get fulfilment [sic.], the exhilaration, the sense of power involved in bringing about technological progress while the average man gets only the consequences of their social experiments. It could be argued that in a purely physical sense the consequences are positive, since life-expectancy has increased. But the acceptability of risks cannot be assessed in purely actuarial terms. "(P)eople also rank risks based on ... how equitably the danger is distributed, how well individuals can control their exposure and whether risk is assumed voluntarily." (M. Granger Morgan, "Risk Analysis and Management." Scientific American, July, 1993, page 35.) The elite groups who create technological progress share in control of the process and assume the risks voluntarily, whereas the role of the average individual is necessarily passive and involuntary. Moreover, it is possible that at some time in the future the population explosion, environmental disaster of the breakdown of an increasingly troubled society may lead to a sudden drastic lowering of life expectancy.

However it may be with the PHYSICAL risks, there are good reasons to consider the SOCIAL consequences of technological progress as highly negative. This matter is discussed at length in a manuscript that we are sending to the New York Times.

The engineers who initiated the industrial revolution can be forgiven for not having anticipated its negative consequences. But the harm caused by technological progress is by this time sufficiently apparent so that to continue to promote it is [crossed out] grossly irresponsible.

This letter, which we invite you to print in Scientific American, is from the terrorist group FC. To prove that this letter does come from FC, we quote below the entire fourth paragraph of a letter that we are sending to the New York Times. The authenticity of the letter to the Times is confirmed by means of our secret identifying number.

FOURTH PARAGRAPH OF LETTER TO NY TIMES:

Contrary to what the FBI has suggested, our bombing at the California Forestry Association was in no way inspired by the Oklahoma City bombing. We strongly deplore the ind of indiscriminate slaughter that occurred in the Oklahoma City event. We have no regret about the fact that our bomb blew up the "wrong" man, Gilbert Murray, instead of William N. Dennison, to whom it was addressed. Though Murray did not have Dennison's inflammatory style he was pursuing the same goals, and he was probably pursuing them more effectively because of the very fact that he was not inflammatory.

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