

**FACT, FICTION OR PREDICTION:
AN INTEGRATIVE LESSON FOR INFORMATION SYSTEMS CLASSES**

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ABSTRACT

This paper describes an interactive lecture that demonstrates rapid, and often unforeseen, changes in technology and their impact on decision strategies. Written excerpts from literature, news, and textbooks are presented for students to determine whether the excerpts represent fact, fiction or prediction based on the author's intent.

Introduction

At the 1998 CBFA meeting, a paper was presented discussing the interplay between business studies and traditional liberal arts (Groleau & Lemler, 1998). The conclusion of that paper requested examples of both conflicts and successes in integrating Liberal Arts and Business. This paper describes an interactive lecture intended to integrate literature, current news, critical thinking, and information technology concepts. Written excerpts are presented from various sources and students must determine whether these excerpts represent fact, fiction or prediction based on the original author's intent.

The excerpts are intended to demonstrate the rapid, and often unforeseen, changes in technology and the application of technology. The lesson can be used as a course introduction or as a lead-in to a discussion of decision making against an uncertain future.

Description of the Exercise

When introducing the exercise, I explain to the class that we are going to examine text excerpts that fall into one of the following three categories (displayed on an overhead):

- **Fact:** the author was describing real technology. It is more than a theoretical musing. It is occurring either at an experimental level or in regular practice.
- **Fiction:** the author's intent was fictional – even if it is something that eventually came to pass. When it was written down, the author did not intend to make any specific technological predictions.
- **Prediction:** the author was intentionally predicting a future event or use of technology.

Along with the definitions, I present two short prediction examples:

- “Computers ... may weigh no more than 1.5 tons.” - *Popular Mechanics*, 1949 (as cited by White, 1999, p. 38).

- “I think there is a world market for maybe five computers.” - Thomas J. Watson, chairman of IBM, 1943 (as cited by Barker, 1992, p. 89).

As a fiction example, I discuss the Nautilus from Jules Verne’s *Twenty Thousand Leagues Under the Sea*. Even though experimentation with submersible craft preceded Verne’s 1870 publication (“Nautilus”, 2000), his work was not describing any existing machinery and wasn’t intended to predict their development path. However, as a foreshadowing, I acknowledge that Verne’s contemporary, H.G. Wells, *did* consider Verne’s work to have an intentionally predictive component (Wells, 1934).

Following the definitions and their explanation, I present the rules that I placed myself under when preparing the excerpts:

- Minor modifications to excerpts are permitted, particularly with regard to names and verb tense. Use of the original character names (fiction and non-fiction) could easily give away the nature of an excerpt.
- Also, when providing a detailed description of a particular technology, component names could reveal a clearly fictional piece. Similarly, excerpts may be changed to present tense since a clear future reference (i.e. "will be") would eliminate the fact option.
- Portions may be removed without notation (i.e., ...).

In presenting that rule, I explain that science fiction (as opposed to fantasy) writing requires “plausible explanations” (“Science Fiction”, 2000) and authors from many years ago may have come up with names that sound ridiculous today. However, I tell the class that I will display the original excerpt to let them decide whether or not my modifications were “fair”.

The excerpts themselves (found in Appendix A) come from a variety of sources including: *1984*, *Fahrenheit 451*, *InfoWorld*, *Reader’s Digest*, *A Modern History of the Computer*, and *The Bible*. Exactly how the excerpts are presented depends on where in the course the exercise is used.

Fitting the exercise into a course

I have used this lesson in two locations: near the end of a course in conjunction with an “emerging technologies” chapter and as the introductory session for the entire course. Both have their advantages.

In the former case, I have a somewhat traditional lecture. I present each modified excerpt, record votes on the board, then reveal the original and, in some cases, have a mini-lecture or discussion on the specific technology addressed. Even though students are only moderately active, it provides a nice diversion near the end of the term when students are tired. It also leads nicely into a discussion of paradigms and future studies.

On the other hand, this exercise also works well for the first class meeting. I often find the first meeting of any course awkward. Students have not done any preparation and there’s only so much that can be accomplished. In this setting I introduce the exercise and hand out the excerpts in a packet. Then I send students out as individuals or teams to see what they can come up with. When we re-convene as a group, I collect the votes and show the original excerpts. This piques

students' interest in the course and is a little more active than the other method. It no longer serves as a lead-in for future studies, but I'm not convinced I have time in my course to include future studies as a direct topic.

As foreshadowed by the Jules Verne example (prediction vs. fiction), some of the excerpts don't neatly fit into only one of the three categories. When this occurs, we discuss the possibilities as a further demonstration of the difficulty in separating fact from fiction when dealing with technology.

If you attempt to use these excerpts in your own class, be warned. There are a few excerpts that rarely fool anyone. On the other hand, there are a few that tend to fool the entire class. Perhaps I've been sloppy in my selection or, perhaps, it's a good idea to have a few obvious ones in the mix.

Debriefing

Regardless of where the exercise occurs in the course, I present the following bullet list as possible lessons to take away:

- Technology takes on a life of its own once it's introduced to the market. There are many tools being used today in ways that their inventors never imagined nor intended.
- The future uses of technology are almost impossible to predict accurately. Since the users and creators of technology have, historically, often gone in different directions, we cannot count on the creators to make predictions. Similarly, we cannot count on the users since they don't know what the creators will offer to them.
- Fiction may very well have an impact on fact. Who's to say that those trying to apply voice-recognition software to language translation were not inspired by the "universal translator" featured in the *Star Trek* movies?
- There is no thing as a "risk free" technology decision. Since any decision must be based on imperfect information about the future, you must accept risk when making decisions about the use of technology in your organization.

I expand on the last point with a discussion of technology decision strategies. In the past, many organizations believed they could wait for the early adopters of technology to set a standard that they could then adopt without risk. That approach may have worked in the past, but not anymore. Consider the following:

- An institution of higher learning waits to "get into" computing until they can see where the market is going. In the mid to late 1980's they decide to jump into the fray with the purchase of a mid-range computer for teaching programming and data processing courses. Within a few years, a major paradigm shift to PCs occurs and makes their "safe" purchase completely obsolete.

Similarly, some firms believe they can beat the risk by being first. Consider this:

- An internet start-up firm creates a web-based bookstore (or bike shop, or grocery store, or ...). They think they've beat the competition to the punch and re-defined the retail business model for their field. Then a major bricks-and-mortar bookstore chain creates a competing web-based bookstore that combines the new business model with the old (i.e., clicks-and-mortar). This completely eliminates the competitive advantage the web-

only store thought they had leaving some to predict that the web-only store will eventually create traditional retail outlets. (Lewis, 2000).

When the exercise is used for the first class meeting, I add a comment about minimizing (but not eliminating) risk by studying information technology in a course like mine. Then I send them home with their first assignments.

When the exercise lands in conjunction with an emerging technologies chapter, I propose the following two books for further study:

- Barker, Joel Arthur (1992) *Paradigms: The Business of Discovering the Future*, New York: HarperBusiness, 0-88730-647-0.
- Christensen, Clayton M. (1997) *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail*, Boston: Harvard Business School Press, 0-87584-585-1.

In the past I have spent some class time summarizing parts of both texts. I have also considered assigning these, or similar books*, to students as projects to be summarized and presented to the class. However, time constraints have prevented me from trying this out.

Conclusion

This paper presented the use of an interactive lesson for information systems students. By combining excerpts from a variety of sources, students are required to read carefully and discuss whether they are reading about a real use of technology, a fictional use, or someone's prediction about future use of technology.

Based on student feedback, this lesson has been a success based on the following three point:

- Participation is a problem in many of my classes and this lesson generates active participation by most of the class.
- It "raises their technology antennae" outside of the classroom. This observation is based on both their feedback and the fact that students occasionally bring their own examples to me later (some of them video rather than text based). In fact, I am considering assigning students the task of finding one or more excerpts that could be used in the future.
- A few students, who never came to my office for any reason previously, have come by my office to discuss this lesson.

So far, however, I do not have any quantifiable evidence that this lesson increases "student learning in IS". Furthermore, I'm not sure that I will attempt to find any. If I can directly observe an improved attitude, I am willing to use one class period per term in the hopes of an indirect improvement in learning.

SOURCES

Barker, J. A. (1992), *Paradigms: The Business of Discovering the Future*, New York: HarperBusiness.

* *The Innovator's Dilemma* is one of several books in HBR's *Management of Innovation and Change* series.

Groleau, T. & Lemler, B. (1998, October) "Liberal Arts and Business Studies: Friends or Foes", Proceedings of the 1998 CBFA Annual Conference, Langley B.C.

Lewis, B. (2000, July 10) "IS Survival Guide: Pundit predictions on the future of the Web don't take into account how messy it will be", *InfoWorld*, 22(28), p. 70.

"Nautilus", *Britannica.com*, retrieved on 7/18/00,
<http://www.britannica.com/bcom/eb/article/4/0,5716,56444+1+55066,00.html>.

"Science Fiction", *Britannica.com*, retrieved on 6/10/00,
<http://www.britannica.com/bcom/eb/article/5/0,5716,68005+1+66289,00.html>.

Wells, H.G. (1934) *Seven Famous Novels of H.G. Wells*, New York: Alfred Knopf.

White, R. (1999) *How Computers Work*, Indianapolis: QUE.

APPENDIX A: THE EXCERPTS

In this appendix, you will find the excerpts used in the Fact, Fiction or Prediction lesson. They are presented in the order most recently used. Each excerpt has the following:

1. A title provided to, perhaps, mislead the student,
2. The excerpt as presented to the students,
3. The author's intent: Fact, Fiction, or Prediction,
4. The original excerpt (if there were any modifications), and
5. The source.

Note: If you are planning on attending the presentation of this paper, do NOT read this appendix. Several of these excerpts will be used in the presentation as examples and you will ruin the fun by reading this first.

Government Cover-ups...

Presented: Already, government agencies and companies are moving into spin-control mode. They cannot afford to tell us the truth - they don't want to create panic. More than anything else, they need to maintain our confidence. As a result, you are going to have to make a decision about what to do without having as much honest information as you would like. And the longer you postpone making a decision, the more you will pay for your procrastination. It could get very expensive. Very expensive, indeed.

Author's Intent: Fact

Original: no modifications

Source: Hyatt: Michael S. (1998) *The Millenium Bug: How to Survive the Coming Chaos*, Washington, D.C.: Regenery Publishing (pages 180-181).

Web Cams: Is Big Brother Watching?

Presented: Johnson turned a switch and the voice sank somewhat, though the words were still distinguishable. The system could be dimmed, but there was no way of shutting it off completely. The system received and transmitted simultaneously. Any sound that Johnson made, above the level of a very low whisper, would be picked up by it; moreover, so long as he remained within the field of vision he could be seen as well as heard. There was of course no way of knowing whether you were being watched at any given moment. How often, or on what system, they plugged in was guesswork.

Author's Intent: Fiction

Original: Winston turned a switch and the voice sank somewhat, though the words were still distinguishable. The instrument (the telescreen, it was called) could be dimmed, but there was not way of shutting it off completely. ... The telescreen received and transmitted simultaneously. Any sound that Winston made, above the level of a very low whisper, would be picked up by it; moreover, so long as he remained within the field of vision which the metal plaque commanded, he could be seen as well as heard. There was of course no way of knowing whether you were being watched at any given moment. How often, or on what system, the Thought Police plugged in on any individual wire was guesswork.

Source: Orwell, George (1949), *1984*, New York: Signet (page 6).

World-Wide Computer Crash

Presented: The job is just too big, and the time is too short. Of the computers that are not fixed in time, some will simply stop working. Others - and this is the scary part - will start spewing out corrupt data and infecting computers they come in contact with. Just like a computer virus, infected computers will transmit their corrupt data to compliant, noninfected computers. Potentially, therefore, if all aren't fixed, then none of them is safe

Author's Intent: Prediction

Original: The job is just too big, and the time is too short. Of the computers that are not fixed in time, some will simply stop working. Other - and this is the scary part - will start spewing out corrupt data and infecting computers they come in contact with. Just like a computer virus, infected computers (those still having uncorrected Y2K code) will transmit their corrupt data to compliant, noninfected computers. Potentially, therefore, if *all* aren't fixed, then *none* of them is safe.

Source: Hyatt: Michael S. (1998) *The Millenium Bug: How to Survive the Coming Chaos*, Washington, D.C.: Regenery Publishing (page 43).

The Wired World

Presented: Your walls are loaded with logic, processing, memory, cameras, microphones, speakers. Your desk is a live technological device, as is your belt and your wristwatch. When I walk into a new environment, it knows that I have arrived. As I approach a computer that's not being used, it will load my applications, my profile, my preferences, my environment. And, in fact, on my body is a network which will connect all of the devices I carry around my belt. The Internet is everywhere ... invisible. You interact with it using wonderful interfaces like speech and pointing.

Author's Intent: Prediction

Original: Your walls will be loaded with logic, processing, memory, cameras, microphones, speakers. Your desk will be a live technological device, as will your belt and your wristwatch. When I walk into a new environment, it should know that I have arrived. As I approach a desktop or laptop computer that's not being used, it will load my applications, my profile, my preferences, my environment. And, in fact, on my body I'll probably be wearing a network called a body LAN, which will connect all of the devices I carry around my belt – maybe even connect my pacemaker if I had one. The Internet will be everywhere. It will be invisible. You will be able to interact with it using wonderful interfaces like speech and pointing. You won't have to think about it. It will be like electricity.”

Source: Dr. Leonard Klienrock interviewed for “Internet Innovators Map the Future”, *Infoworld*, October 4, 1999 (page 36).

A Cashless Society

Presented: It forced all people, small and great, rich and poor, free and slave, to have a card. Without the card, or the number, it was impossible to buy or sell anything.

Author's Intent: Prediction

Original: It forced all people, small and great, rich and poor, free and slave, to have a mark on the right hand or forehead. Without the mark of the name of the Beast or the number of its name, it was impossible to buy or sell anything.

Source: Peterson, Eugene (1995), *The Message: The New Testament Psalms and Proverbs in Contemporary Language*, Navpress (page 534).

Interactive, Large Screen TV

Presented: ... this is a play that comes on the wall-to-wall circuit in ten minutes. They mailed me my part this morning. They write the script with one part missing. It's a new idea. The homemaker, that's me, is the missing part. When it comes time for the missing lines, they all look at me out of the three walls and I say they lines. It's really fun. It'll be even more fun when we can afford to have the fourth wall installed. How long you figure before we can save up and get a fourth wall-TV put in? It's only two thousand dollars.

Author's Intent: Fiction

Original: ... this is a play that comes on the wall-to-wall circuit in ten minutes. They mailed me my part this morning. I sent in some boxtops. They write the script with one part missing. It's a new idea. The homemaker, that's me, is the missing part. When it comes time for the missing lines, they all look at me out of the three walls and I say they lines. ... It's really fun. It'll be even more fun when we can afford to have the fourth wall installed. How long you figure before we can save up and get the fourth wall torn out and a fourth wall-TV put in? It's only two thousand dollars.

Source: Bradbury, Ray (1953) *Fahrenheit 451*, New York: Ballantine (page 20).

Big Brother moves inside...

Presented: Many countries are already exploring this by proposing the implantation of a tiny microchip in each of its citizens. ... Imagine going to a hospital and having medical personnel use a scanner to obtain a complete profile of your medical history. ...store clerks could determine the real age of people purchasing alcohol. Low earth orbit satellites could instantly locate the position of lost children or fugitives from justice. ... The list of advantages is virtually endless.

Author's Intent: Fact

Original: No modifications.

Source: Haag, Stephen, & Cummings, Maeve, & Dawkins, James (2000), *Management Information Systems for the Information Age (2nd)*, Boston, Irwin McGraw-Hill (pages 468-469).

Sony Walkman? Transistor Radio?

Presented: There was a tiny dance of melody in the air, her earphones were tamped in her ear again, and she was listening to far people in far places, her eyes wide and staring at the fathoms of blackness above her in the ceiling.

Author's Intent: Fiction

Original: There was a tiny dance of melody in the air, her Seashell was tamped in her ear again, and she was listening to far people in far places, her eyes wide and staring at the fathoms of blackness above her in the ceiling.

Source: Bradbury, Ray (1953) *Fahrenheit 451*, New York: Ballantine (page 42).

Miniature Computers will Never Work

Presented:...this law stated that a computer system that was twice as big (i.e., that cost you twice as much money) got you not twice but four times as much computing power. If you bought two small computer systems, giving you two times the power of a single one, you would not do as well as you would if you used the money to buy a single larger computer.

Author's Intent: Fact

Original: "Some thought it might be possible to do a mainframe's work with an ensemble of minis, at far lower cost. Mainframe salesmen, citing "Grosch's Law," argued that this tempting idea went against a fundamental characteristic of computers that favored large systems. Named for Herb Grosch, a colorful figure in the computer business, this law stated that a computer system that was twice a big (i.e., that cost you twice as much money) got you not twice but four times as much computing power. If you bought two small computer systems, giving you two times the power of a single one, you would not do as well as you would if you used the money to buy a single larger computer"

Source: Paul E. Ceruzzi (1995) *A History of Modern Computing*, Cambridge: MIT Press (page 177).

The Disappearing Computer

Presented: Parts of our landscape that we don't think of as computers have microprocessors buried in them. The computer is not dying as much as it is morphing into a many new and related species.

Author's Intent: Prediction

Original: The computer as we think of it today will disappear. ... You see it happening already. Parts of our landscape that we don't think of as computers have microprocessors buried in them: the car, oven, refrigerator, phone, watches, and junior's toys as well as the Army's toys, smart bombs. The computer is not dying as much as it is morphing into a many new and related species.

Source: White, Ron (1999) *How Computers Work*, Indianapolis: QUE (page 40)

High-Tech Spy Gear

Presented: Think that brick wall is enough to keep prying eyes out? Think again. Electromagnetic fields from cathode-ray tubes can be analyzed from a remote location through glass, concrete, and even metal. What is now known as TEMPEST (Transient Electro-Magnetic Pulse Emanation Standard) scanning. During a day trip to downtown New York City with a portable TEMPEST scanner, Jones found that "with the proper frequency tuning, antenna manipulation,...and vehicle location, we could monitor just about anyone, anywhere, anytime."

Author's Intent: Fact

Original: Think that brick wall is enough to keep prying eyes out? Think again. In 1985, Dutch scientist Wim van Eck proved that electromagnetic fields from cathode-ray tubes could be analyzed from a remote location through glass, concrete, and even metal. The discovery led to the subsequent classification of what is now known as TEMPEST (Transient Electro-Magnetic Pulse Emanation Standard) scanning. Frank Jones (pictured), a former police officer who now develops TEMPEST scanners for authorized government agencies, outlined the security threat of electromagnetic radiation in his 1996 essay, "Nowhere to Run...Nowhere to Hide..."

During a day trip to downtown New York City with a portable TEMPEST scanner, Jones found that "with the proper frequency tuning, antenna manipulation,... and vehicle location, we could monitor just about anyone, anywhere, anytime." Jones' successful targets included the *New York Post*, City Hall, and several midtown banks at ranges of up to 300 yards. He says his latest scanner, the DataScan TEMPEST Monitoring System, is capable of achieving ranges of 1,000 yards.

Source: "High-Tech Spy Gear" (2000, June) *Smart Business*, 13(6), (page 72). also see <http://www.thecodex.com/tempeav.html>

Artificial Intelligence

Presented: ... unloosed on the planet is an intelligence far greater than that of humankind. Yes, computers that think – much faster, more broadly, more deeply – than people do. And yes, some scientists contend, computers that feel and have self-awareness. Based, not on silicon, but on carbon, neurons, elements of life.

Author's Intent: Prediction

Original: About to be developed and unloosed on the planet is an intelligence far greater than that of humankind. Yes, computers that think – much faster, more broadly, more deeply – than people do. And yes, some scientists contend, computers that feel and have self-awareness. They will be based, not on silicon, but on carbon, neurons, elements of life.

Source: Lang, John (2000, January 1) “Man vs. Machine”, *Kenosha News* (page D2) writing about the predictions of scientist and author Ray Kurzweil:

Virtual Playmates

Presented: “...relationships with automated personalities” and use them as “teachers, companions, and lovers.” That’s right, real conversations with machines, and virtual sex made possible through holographic imaging and tactile sensors.

Author’s Intent: Fact

Original: Kurzweil also expects that within 20 years people will “have relationships with automated personalities” and use them as “teachers, companions, and lovers.” That’s right, real conversations with machines, and virtual sex made possible through holographic imaging and tactile sensors.

Source: Lang, John (2000, January 1) “Man vs. Machine”, *Kenosha News* (page D2), writing about the predictions of scientist and author Ray Kurzweil:

A Bionic Man

Presented: But then the man meets a business associate while out jogging, and the two exchange business card electronically – merely by shaking hands.

Author’s Intent: Fact

Original: But then the man meets a business associate while out jogging, and the two exchange business card electronically – merely by shaking hands. Brian Halla, chief executive of National Semi-conductor, used to apologize to audiences at that point for including such an unrealistic idea – until he met a man who was actually working on the prototype for the “Digital Handshake”.

Source: Dalton, Richard J., Jr. (2000, January 1) “Microchip Miracle: A Second Revolution”, *Kenosha News* (page E6).

The Universal Translator

Presented: You can call a foreign country, speak in your language, have your words translated into the language of the person called, and hear that person’s reply, no matter what language used, in your own tongue and in real time.

Author’s Intent: Prediction

Original: By 2010, instant translation telephones. You can call a foreign country, speak in your language, have your words translated into the language of the person called, and hear that person’s reply, no matter what language used, in your own tongue and in real time.**Source:**

Lang, John (2000, January 1) "Man vs. Machine", *Kenosha News* (page D2), writing about the predictions of scientist and author Ray Kurzweil:

Man–Machine Symbiosis

Presented: "Wake up," says Lundstrom into a microphone attached to a headset . The computer goes into an alert mode, ready for the next command. "Mouse grid," says Lundstrom., and a grid appears on the screen numbered with possible menu options. Lundstrom continues a series of commands: "Mouse up, lover left, button click," until soon there is a screen displaying a chapter of the Bible. When she wants to converse with other people in the room without the computer "hearing her," she tells the computer to "go to sleep."

Author's Intent: Fact

Original: no modifications

Source: Poyner, Heather Larson (1999, November 2) "High Tech Helpers", , *Kenosha News*, (page D1).

Space Travel

Presented: "Yes I know. But how?"

"That's perfectly easy. An air-tight manhole is all that is needed. That of course will have to be a little complicated; there will have to be a valve, so that things may be thrown out of necessary without much loss of air."

"Like Jules Verne's apparatus in *A Trip to the Moon*?"

Author's Intent: Fiction

Original: "Yes I know. But how?"

"That's perfectly easy. An air-tight manhole is all that is needed. That of course will have to be a little complicated; there will have to be a valve, so that things may be thrown out if necessary without much loss of air."

"Like Jules Verne's apparatus in *A Trip to the Moon*?"

But Cavor was not a reader of fiction.

"I begin to see," I said, slowly. "And you could get in and screw yourself up while the Cavorite was warm, and as soon as it cooled it would become impervious to gravitation, and off you would fly...."

Source: Wells, H.G. (1934) *The First Men in the Moon* from the collection *Seven Famous Novels by H.G. Wells*, New York: Alfred A. Knopf (page 408).

Time Travel (Part 1)

Presented: ... There are really four dimensions, three which we call the three planes of Space, and a fourth, Time. There is, however, a tendency to draw an unreal distinction between the former three dimensions and the latter, because it happens that our consciousness moves intermittently in one direction along the latter from the beginning to the end of our lives. But

some philosophical people have ... even tried to construct a Four-Dimensional geometry. Professor Simon Newcomb was expounding this to the New York Mathematical Society only a month or so ago. ... Scientific people know very well that Time is only a kind of Space. ... And why cannot we move in Time as we move about in the other dimensions of Space.

Author's Intent: Fiction

Original: no modifications

Source: Wells, H.G. (1934) *The Time Machine* from the collection *Seven Famous Novels by H.G. Wells*, New York: Alfred A. Knopf (pages 4-5).

Time Travel (Part 2)

Presented: "There is no contradiction," says David Duetsch, a physicist at the Center for Quantum Computation at the University of Oxford, "because the laws of quantum mechanics always arrange from you to go back in time to a different universe."

Time travel and travel to other universes are essentially the same thing," Duetsch says.

Author's Intent: Fact

Original: The classical objection to time travel involves a conundrum sometimes referred to as the "grandfather paradox"; people traveling back in time could prevent their grandparents from meeting, and thus prevent themselves from ever being born.

The solution to that paradox is hard to believe. But it is supported by quantum theory, one of the two pillars of modern physics.

"There is no contradiction," says David Duetsch, a physicist at the Center for Quantum Computation at the University of Oxford, "because the laws of quantum mechanics always arrange from you to go back in time to a different universe."

A DIFFERENT universe? That idea was first proposed by physicist Hugh Everett in 1957. He argued that in order to generate the strange phenomena of quantum physics there had to be not one universe but many, all existing

"When it was first proposed it was considered crackpot," Kaku [Michio Kaku, a physics professor at the City University of New York] says.

But as physics advances, more and more theorists are willing to accept the idea of multiple universes, each one reflecting a possible outcome of the grand experience that is existence.

...

Time travel and travel to other universes are essentially the same thing," Duetsch says.

Source: Crenson, Matt (1999, December 5) "Can You Get There from Here? (Latest Crichton novel raises questions about time travel)", *Kenosha News* (page C8).

Fetal Harvesting?

Presented: The fetuses are little tampered by genetic engineering. But that probably won't be true a century from now. The answer is to collect fetuses and cryogenically preserve them, so that if "original" humans are ever needed again, they can be reintroduced into the world.

Author's Intent: Prediction

Original: "The fetuses of today," he [Piccionelli] observes, "are still little tampered by genetic engineering. But that probably won't be true of fetuses, or anyone else, a century from now." The answer to that problem of the future, and the to the abortion debate of today, he says, is to collect aborted fetuses and cryogenically preserve them, so that if "original" humans are ever needed again, they can be reintroduced into the world.

Source: Pinkerton, James (2000, July 9) "Abortion Debate Persists", *Kenosha News*, page A6 in an editorial about the ideas of, "biologist/lawyer/inventor" Gregory A. Piccionelli.

The Island of Dr. Moreau?

Presented: ... scientists take cells from human marrow and grow replacement parts in pigs.

Author's Intent: Prediction

Original: Medical breakthroughs will allow scientists to take cells from human marrow and grow replacement parts in pigs.

Source: Gay, Lance, (2000, June 1) "A Look at What the Next Millenium May Bring", *Kenosha News* (page E2).