The North Texas Skeptic

Volume 24 December 2010 Number 12 http://www.ntskeptics.org

STENDEC Solved

by John L. Scherer

On August 2, 1947, the "Stardust," a Lancastrian III passenger plane with eleven people on board, was almost four hours into its flight from Buenos Aires, Argentina, to Santiago, Chile. At 17.41 a Chilean Air Force Morse operator in Santiago picked up a message: "ETA [estimated time of arrival] Santiago 17.45 hrs. STENDEC." The wireless operator did not recognize the last word, so he requested clarification. The message was repeated—STENDEC, then transmitted a third time. Then nothing. The "Stardust" could not be raised and no wreckage could be found.

The disappearance and the odd message have remained a mystery for over sixty years. The *Oxford Dictionary of Phrase and Fable* even has an entry for "STENDEC." Dozens of books and articles have examined the evidence, turned it over, twisted it, rearranged the letters, and drawn a blank. Its meaning, however, is astonishingly simple.

People all over the world had reported hundreds of "flying saucer" sightings during the last two weeks of June 1947. On July 3, a rancher at Roswell, New Mexico, claimed to have found a UFO crash site with four alien bodies. Imaginative souls speculated that aliens had snatched the large Lancastrian along with its passengers and crew. A Spanish magazine about UFOs appropriated STENDEK as its title, and at least one U.S. comic book illustrated the disappearance of the "Stardust," pondering the meaning of STENDEC for its fascinated readers.

Adding to the mystery, two Avro 691 Lancastrian aircraft had crashed during the previous seventeen months. British Overseas Airways G-AGLX (the registration number) went down on March 23, 1946, and British Overseas Airways G-AGMF crashed on August 20. The "Stardust" incident involved British South American Airways G-AGWH. Was there a connection?

Pieces of the puzzle started to fall into place in 1998, when mountain climbers in the Andes found the plane's Rolls-Royce engine. In January 2000, a 100-man search party from the Argentine Army clambered 5,000 meters (16,400 feet) up Tupungato Mountain, a 6,552-meter (21,490-foot) volcano, where it located parts of the plane, as

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well as human bones, at the base of a glacier. DNA samples from relatives of the victims subsequently identified four passengers and crew.

A WGBH-Boston "NOVA: Vanished" (2001) program about the crash commented: "Some of the six passengers on board seemed to have stepped straight out of an Agatha Christie novel." They included a Palestinian businessman with a sizable diamond sewn into the lining of his jacket; a German *émigré*, Marta Limpert, returning to Chile with the ashes of her dead husband; and a British courier carrying diplomatic correspondence.

Christie could have made something of this, but the passengers were quite unwilling and unwitting victims. They had nothing to do with the crash, other than being present. With a diplomat on board, the press freely speculated that a bomb had exploded in mid-flight. This would have explained the suddenness of its disappearance, and the fact that large pieces of wreckage had not been spotted during a wide air and land search.

In 2000 the Argentine Army detachment found the debris scattered over one square kilometer, a relatively small area, so the bomb theory was discarded. The Army unit also discovered that the wheels on the plane were in an upward position, so the crew had not attempted an emergency landing. One of the two main landing wheels was still fully inflated after a half century!

The searchers discovered one propeller, its tips scarred and bent backward, indicating that the prop had been revolving when the Lancastrian plowed into the Tupungato glacier. The investigators concluded that the aircraft had not stalled.

The unit had to finish quickly. The site had been difficult to reach. The trekkers had abandoned their pack mules lower down, and ascended with what they could carry. It was hard work at this elevation, and the Army had supplies for only thirty-six hours.

The Flight

During the last forty-five minutes of the flight, the "Stardust" should have crossed the Andes from Mendoza, on the central air route, near Aconcagua, the highest mountain in South America. A York aircraft had flown the first leg of the journey from London to Buenos Aires, and the Lancastrian was to fly over the Andes.

There were three trans-Andean routes: 1) the central, direct route: Buenos Aires-Santiago, thirty nautical miles south of Mendoza, or via Mendoza; 2) the southern: Buenos Aires-Santiago via Planchon; and 3) the northern: Buenos Aires-Santiago via San Juan. Flying the central route was discouraged in bad weather. The "Stardust" was supposed to turn south from Mendoza for descent to Santiago. After arriving at the Chilean capital, the Lancastrian would make a return flight to Buenos Aires, and a York would recross the Atlantic to London.

At 17.00 (5 p.m.), the "Stardust" radioed its position near Mendoza. The crew could see the ground, but clouds surrounded the approaching

mountains. The radio operator on the plane, Dennis B. Harmer, told air traffic control that the "Stardust" intended to climb to 24,000 feet to avoid bad weather. The aircraft had a ceiling of nearly 29,980 feet, so altitude presented no problem. Unfortunately, once above the clouds, the ground remained obscured.

The "Stardust" was flying directly into the jet stream, which, on that day, was blowing around 162 kilometers (100 miles) per hour. In 1947 almost no one knew anything about the jet stream. By 17.41, the crew thought they had crossed the Andes into Chile, but they had not. When Harmer sent the message indicating arrival at 17.45, the aircraft was still east of the Andes. It was descending right into the Tupungato glacier. When the plane crashed, an avalanche covered it with snow and ice. This explained why searchers had not found the wreckage in 1947.

According to glaciologist Juan Carlos Leiva, the glacier gradually engulfed, or absorbed, the "Stardust," which sank 150 feet into the slowly moving ice. For more than fifty years, the plane slid down the entire length of the frozen river. As the ice melted at the glacier's lower end, bodies and aircraft parts began to emerge in the late 1990s. During the next few years, the Tupungato glacier should disgorge the remaining 90 percent of the plane, as well as the rest of the victims—but probably no new secrets.

The Plane and Crew

The Lancastrian, a converted RAF Lancaster bomber, was perfectly suited to vault mountains. It could go as high and as fast as any aircraft in the world at that time, and easily soar above the tallest peaks in South America.

The port outer and inner engines had been overhauled and converted to Merlin series 500-2 by Rolls-Royce. Rolls and changed the port inner engine to Merlin series 502 in November 1946. The aircraft had flown 561 hours since the overhaul of both port engines. The starboard outer engine had been manufactured by Rolls as a Merlin T24/2 in July 1946. It had 535 hours of flying time. The starboard inner engine was also a Merlin T24/2, which had been assembled in January 1946. Rolls converted it to a Merlin series 500-2 in December 1946, and it had been in service for 512 hours since a complete overhaul. Mechanics had checked the plane in Buenos Aires, and found everything satisfactory.

The crew, led by Captain Reginald J. Cook, was thoroughly experienced. He had flown more than 473 hours in a Lancastrian, and had traversed the Andes eight times as a second pilot. First Officer N. H. Cook, who was not related to the captain, exceeded 2,129 hours of flight time, although this was his first trip over the Andes. Second Officer D. S. Checklin had accumulated 2,074 hours of flight time, and had crossed the Andes on four previous occasions. Harmer, the wireless operator, had traversed the Andes six times, and had served as a radio operator for several years in the RAF and BSAAC. The hostess was Iris Morcen Evans.

The Weather

The weather forecast had indicated snowstorms in the Andes with moderate to intense turbulence. Aircraft were warned to stay out of mountain passes. Visual contact with the ground would be lost after Mendoza. The inquiry into the crash noted that this was the pilot's first trans-Andean flight in command, and, in view of the weather conditions, he should not have crossed by the central, most direct route. The board of inquiry speculated that the plane had iced up before the crash. The NOVA program believed that the crew had been blissfully unaware of their predicament, but it was not so.

The Message

All of this seems quite reasonable, but the last part of the puzzle has remained unsolved. (A chart showing Morse code might help readers verify the findings in this essay.) STENDEC is not a foreign word, or a piece of equipment. The radio operator in Santiago described the message as coming in "loud and clear," adding only that it had been given out very quickly.

In 1948 another wireless operator found that by altering the spacing between the symbols for S-T-E-N-D-E-C, one gets E-T-A-L-A-T-E, a common message: / . / - / . - / . - - - / - / . /. That may work with English or Spanish letters, but the Morse is not at all similar.

Others have noted that the letters E-C (/ . / - . - . /) have the same number of dots and dashes as the letters A-R (/ . - / . - . /), the standard signal for "end of message." This may be true, but it does not help decipher the first part of the word.

One person has suggested that the world STENDEC in English is an anagram of DESCENT. DESCENT reads: / - . . / . / . . . / - . - . / . / - . / - /, and in no way resembles STENDEC in Morse. This explanation is both clever and amusing, but it requires the crew to have been suffering from a dangerous lack of oxygen.

The Lancastrian was, in fact, unpressurized and flying at 24,000 feet, which might have led the radio operator to scramble the letters, although he sent the same short coded message three times. The oxygen system, with nine emergency bottles, had been fully charged before the aircraft left Buenos Aires. Each point was inspected for correct functioning, and the First Officer carried out a second check immediately prior to departure. Other people have suggested that Harmer was dyslexic—or just being playful. During the last moments of the flight, he surely had more to do than compose anagrams.

There has been no end to theories. In Morse, STENDEC could become VENDEC by combining the S and T (/ . . . / - /). V (/ . . . - /) is frequently used as a flag to attract attention, and

EC represents a signoff. That leaves the END unexplained. END could have meant "end of message," but Harmer would not have signaled he was ending the message in the middle of the message.

Maybe the radio operator wanted to say "Stardust," which, in Morse code, reads: / . . . / - / . - / . - . /- . . / . . - / . . . / - /. This actually is not too far from STENDEC: / . . . / - / . / - . / - . . / . / - . - . /, except for he final letters. Aircraft were usually referred to by their registration numbers, in this case G-AGWH, and there was no reason to transmit the plane's name at the end of a routine message.

Still others have speculated that STENDEC was an acronym for "Santiago tower message now descending entering cloud," or "Santiago tower aircraft now descending entering cloud," or "Stardust tank empty no diesel expected crash," or "Systems to the end navigation depends entirely on circle," or "Santiago tower even navigator doesn't exactly know." How about "Stop Trying to Encode and Decode this Conundrum"?

By dropping the first two dots, one gets ETA LATE (/ . / - / . - / . - . . / . - / - /. /), a common method of signaling late arrival by Royal Air Force radio operators. Comparing this to STENDEC (/ . . . / - / . / - . / - . . / . / - . - . /) also leaves something to be desired. The crew had just given the tower its estimated time of arrival, 17.45—four minutes away—so it would not be sending LATE. If the crew had been expecting to crash, or had experienced an emergency, it probably would have transmitted the universal SOS: / . . . / - - - / . . . /.

Dr. Carlos Bauza, who headed the Army expedition up Mount Tupungato, someone who thoroughly studied this message, has remarked: "We have consulted everyone who flew these planes and even appealed through the British press to see if any pilots who flew these aircraft could explain whether s-t-e-n-d-e-c was a code word or something to do with weather conditions, or give us any information at all. We couldn't find the answer. I think that in the end s-t-e-n-d-e-c is going to be the final unsolved mystery in the story of 'Stardust'." British UFOlogists reached a similar conclusion: "However much the message is analyzed, it is clear that the truth about this mysterious message will never be known." Wait a minute. Not so fast.

The Solution

So what happened? When solving such a problem, a person should first assume that a mistake had been made receiving the message. If it had been sent incorrectly, it would be more difficult to reconstruct. One ought always do the easier thing first. In this case, it means taking another look at the Morse message as it was received. After all, it had been transmitted three times before the plane vanished. An error in decoding seems entirely reasonable.

Once again, STENDEC reads / . . . / - / . / - . / - . . / . / - . - . /. The actual message probably ended with / - - . /. The wireless operator in Santiago must have assumed that the last letter was C, and added a dot after the first dash: / - . - . /.

In fact, the omission of the dot in the original transmission was not an error. The letter was not C. Nor were the first two letters of this strange message ST: / . . . / - /. The dots and dash formed one letter, V: / . . . - /.

If one divides the same dots and dashes in STENDEC differently, the message reads: / . . . - / . - / . - . . / . - - . /, which is VALP, the call sign for the airport at Valparaiso, some 110 kilometers north of Santiago. The experienced crew of the "Stardust" apparently realized the plane was off course in a northerly direction (it was found eighty kilometers off its flight path), or they purposely departed from the charted route to avoid bad weather. In either case, they attempted to contact what they thought was the nearest airport, Valparaiso, not Santiago. The crew probably did not panic, but they were concerned about the lack of visibility and landmarks. Their curse was too much sky.

Morse allows a maximum of four dots and dashes in any letter, narrowing the possibility for mistakes. If not V, then the first letters might have been EIN, or IAR, but these combinations lead nowhere. The first letter has to be V, and the rest just fall into place—ALP—a perfect match in Morse.

If the wireless operator in Santiago had read the code correctly, it may have made no difference. The accident occurred immediately after the message, STENDEC, or more correctly, VALP, was sent a third time. The airports at Santiago and Valparaiso may have lacked radar in 1947, so they could not have spotted a lost or stray aircraft, even if air-traffic controllers had been searching for one, even if they had all the time in the world.

VALParaiso

The message "ETA Santiago 17.45 hrs. VALP" still seems confusing. The crew of the "Stardust" may have wanted to alert Santiago that it planned to land elsewhere, or the Morse operator at Santiago simply assumed that ETA referred to Santiago, since the Chilean capital had been its scheduled destination. The final message presumably read: "ETA 17.45 VALP." The "Stardust" may have been trying to reach Valparaiso, not Santiago at all.

A bit more information helps. The Lancastrian carried 1,380 gallons of fuel, providing about six hours and thirty minutes of flying time. The 632 nautical mile flight from Buenos Aires to Santiago took approximately three hours and forty-five minutes. By adhering to the flight plan and arriving over Mendoza at 18,000 feet, the distance of 526 nautical miles be-

tween Buenos Aires and Mendoza should have taken three hours and twelve minutes. The remaining 106 miles from Mendoza to Santiago at 26,000 feet would have added thirty-three minutes. The "Stardust" left Buenos Aires at 13.46 and reported as follows:

> 15.07 hrs. 33°55' S. 62°33' W. Height 10,000 feet, course 286°, speed 196 knots, ETA Santiago 17.30 hrs.
>
> 16.00 hrs. 33°25' S. 65°30' W. Height 10,000 feet, course 282°, speed 196 knots, ETA Santiago 17.30 hrs.
>
> 17.00 hrs. 32°50' S. 68°30' W. Height 20,000 feet, ascending to 24,000 feet, speed 194 knots, ETA Santiago 17.43 hrs.
>
> 17.33 hrs. ETA Santiago 17.45 hrs.
>
> 17.41 hrs. A signal was sent out by the aircraft that read: ETA (Santiago) 17.45 hrs. STENDEC

According to the flight plan, the aircraft was to fly at 168.53 nautical miles per hour, or 2.8 nautical miles per minute. The "Stardust" should have been in the air for 225 minutes (180 + 45 [12 + 33]=225). It departed from Buenos Aires at 13.46, and sent the mysterious message at 17.41, for an anticipated total flight time of 239 minutes (17.41-13.46=235 + 4=239 minutes). Navigator Harmer calculated that "Stardust" would be fourteen minutes late (239-225=14). But after rising above the clouds near Mendoza, the crew lost their bearings. The message at 17.33 did not include latitude and longitude.

Reports at 16.00 and 17.00 hours indicated that the plane had traveled 1.25 degrees north during the past hour. Before it crashed at Mount Tupungato (33.20 S. 69.50 W.), forty-some minutes later, the "Stardust" had veered south from Mendoza (32.50 S. 68.45 W.). But where was it? These coordinates indicated that the crew had not decided at the last minute to fly the safer route to avoid the bad weather. It ended up too far from San Juan (31.40 S. 68.35 W.) to have chose this option. It is certain, however, that the "Stardust" was lost, and the crew thought the plane nearer Valparaiso than Santiago. The crew realized that it was lost and, by then, the aircraft may virtually have exhausted its fuel bucking the jet stream.

This new interpretation explains a lesser mystery—why the crew failed to extend the landing gear when they thought the "Stardust" was within four minutes of touchdown. After all, at 17.41 the "Stardust" had announced its arrival at 17.45. But the crew did not know where, exactly, they were. They would have lowered the landing gear when they saw the airport, but the pilot could not see the airport, or even the mountain. All they could do was frantically try to establish radio contact—VALP. . .VALP. . .VALP.

❒

Is high-fructose corn syrup the reason we're fat?

by John Brandt

*Note: I originally wrote this in 2009, based on a talk I gave to the North Texas Skeptics on nutrition myths. Since then, someone **finally** did the scientific thing (yea!) and compared high-fructose corn syrup to cane sugar in a laboratory study. The results were surprising: rats given access to water sweetened with HFCS gained significantly more weight than rats given access to water sweetened with cane sugar, even though the HFCS was at half the concentration of the cane sugar!*

*The study wasn't perfect: it's possible the water sweetened with cane sugar was **too** sweet, so the rats didn't like it as much as the less-sweet HFCS-sweetened water. And there could be other, not-so-obvious problems: it's only one study, after all. As I explain below, there are good reasons to believe the difference between HFCS and cane sugar should be less significant than this study suggests. But nutrition and the body are complex, and this study may well turn out to be correct. Nevertheless, I believe my final conclusion remains sound: banning HFCS is a "quick fix" unlikely to end the U.S.'s obesity epidemic on its own.*

These days, I dread hearing anyone utter the words "high-fructose corn syrup." No matter which side of the issue they're on, they're almost always poorly informed.

On one side are folks who are rightly concerned about the epidemic of obesity and diabetes in the United States. To hear many of them talk, high-fructose corn syrup, or HFCS, bears almost sole responsibility for the epidemic. If only we replaced HFCS with cane sugar, the epidemic would disappear within months.

On the other side is the food industry, which claims there is no difference between HFCS and cane sugar, and since HFCS is cheaper, why not use it?

Both sides are almost certainly wrong. HFCS isn't the same as cane sugar. But it probably isn't the predominant cause of our obesity epidemic either.

HFCS is primarily a mixture of two simple sugars, glucose and fructose, dissolved in water. The exact ratio of glucose to fructose varies, but is generally close to 50-50. (The most com-

mon form, used in soft drinks, contains 55% fructose, 42% glucose, and 3% more complex carbohydrates.) Cane sugar is a different sugar: sucrose. So the food industry is wrong, at least in a technical sense: the two sweeteners aren't the same.

But are they right in a practical sense? After all, our bodies can't use sucrose directly. We must digest it first, which converts it into a 50-50 mixture of: glucose and fructose! In other words, it would seem our digestive systems convert cane sugar *into* HFCS! Doesn't that mean they're the same in practice, even if not in theory?

Not exactly: you see, it takes time to digest cane sugar. So our bodies absorb HFCS more rapidly than cane sugar. This difference can be quantified with the "glycemic index," which measures how quickly sugars and other carbohydrates in our diet get converted into glucose in our bloodstream.

By definition, pure glucose has a glycemic index of 100. It's hard to find precise figures, but one study suggests HFCS has a glycemic index of about 60, while cane sugar has a glycemic index of about 50. So there is a difference, and in general, foods with a high glycemic index are indeed associated with obesity and diabetes.

But the difference isn't much, especially considering that white bread has a glycemic index of about 70! If HFCS is so bad it should be banned, why isn't anyone clamoring to ban white bread? Seriously, what's really going on here?

HFCS entered our national diet in a big way in the early 1980s, when it was developed in response to high sugar prices. It's created from ordinary glucose corn syrup by using an enzyme to convert most of the glucose into fructose, and then adding more glucose syrup to produce the desired ratio.

As it happens, the early 1980s are roughly when our national obesity epidemic seems to have begun. This is one reason the naysayers are so quick to blame HFCS: "post hoc ergo proper hoc" (after this, therefore because of this) is a logical fallacy, but it's a powerful cognitive bias we all share.

Because we heavily subsidize corn, HFCS is *cheap.* And of course, it tastes good. As a result, food manufacturers add it to many processed foods to increase sales and profits. I suspect if cane sugar were as cheap as HFCS, manufacturers would use it instead, and glycemic indexes would drop a bit. But we'd still be awash in cheap, tasty high-calorie foods, so it's hard to believe obesity and diabetes would become a thing of the past.

It seems that, rather than picking on HFCS in particular, we need to raise the price of sugars in general. From a public-policy standpoint, there are several ways to accomplish this. For example, we could reduce corn subsidies, or we could tax sugars added to foods, or some combination of the two. Either approach would encourage consumers to choose other, lower-calorie foods; but more importantly, either would encourage food manufacturers to reduce the amount of sugar they add to processed foods.

Of course, it certainly wouldn't hurt to encourage people to get more exercise also. Public policy could help here too, particularly at the local level. For example, my neighborhood could use some pedestrian crosswalks so I didn't have to *drive* to my neighborhood Kroger.

But the moral is, beware of the quick fix. Many communities have banned trans fats, but I don't expect a significant drop in coronary heart disease anytime soon, because the trans fats can be, and often are, replaced with equally bad saturated fats. Banning HFCS, without taking a broader approach, is likely to be just as futile. ❐

What's new

by Robert Park

[Robert Park publishes the What's New column at http://www.bobpark.org/ . Following are some clippings of interest.]

Faith: Life in a multicultural democracy

I have a number of devoutly religious physics colleagues who are able to partition their life: scientist on one side, devout believer on the other. I can only admire the ease with which they move from one side of the partition to the other. With climate change as the greatest threat we face, we may only hope that Rep. John Shimkus (R-Ill.), a member of the House Committee on Energy and Commerce since 1997, has such a partition and equal alacrity in making the transition. He submitted a letter to his colleagues earlier this week asking for their blessing in his campaign to assume the gavel of Energy when Republicans take control of the chamber. Shimkus rejects the posibility of man-made climate disaster. "The Earth will end only when God declares its time to be over. Man will not destroy this Earth. This Earth will not be destroyed by a Flood." Shimkus then quoted God's promise to Noah after the flood: "never again will I destroy all living creatures as I have done." Genesis 8:21-22. "I do believe that God's word is infallible," Shimkus said, "unchanging, perfect."

Media: "Closing the newspaper with a sigh is not enough."

Good comment by Simon L. Lewis in *Nature* on the page opposite the editorials. His article deals specifically with what he calls, "the climate street fight." His advice is that when the media gets it wrong we should call them on it, and stick with it.

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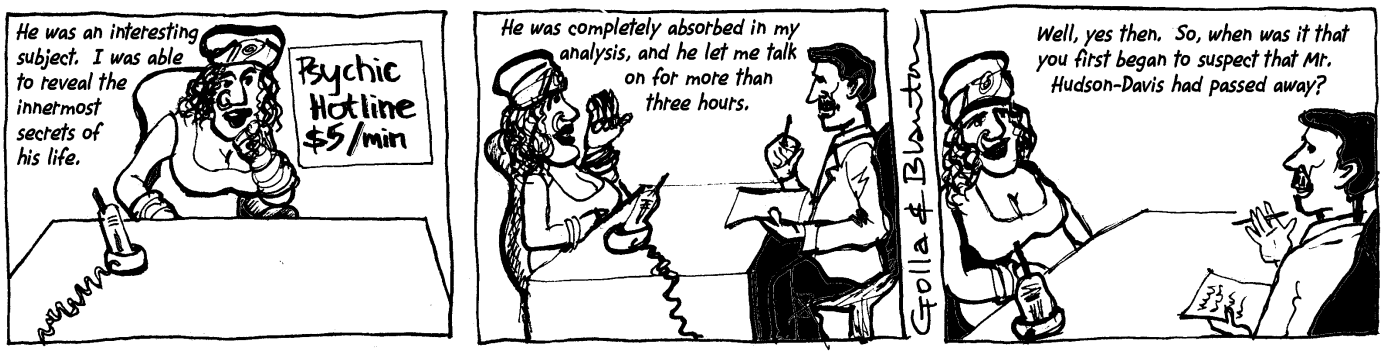

As Lewis points out, the hacking of e-mail at the University of East Anglia broke into the public almost a year ago "http://bobpark.physics.umd.edu/WN09/wn120409.html. Looking back, I reacted just about right. Today, it's the cell phone/cancer issue. Perhaps I overestimate the knowledge of reporters, but the physics has been clear since Einstein was awarded the 1920 Nobel Prize in Physics. All known cancer agents create mutant strands of DNA. Photons with wavelengths longer than ultraviolet (which begins at (the blue end of the visible spectrum) can't create mutant strands of DNA, and hence do not lead to cancer.

Diet pills: Sorry, were back to the "physics diet."

During our first 200,000 years or so, Homo sapiens ate food like plump grubs from beneath rotting logs, and turtle eggs buried on the beach. Although not as convenient as McDonald's fare, it was least as tasty, and obesity was never a problem. Obesity raises concerns about heart attacks and strokes. Earlier this month, after 13 years on the market, the FDA forced the withdrawal of Meridia, citing the risk of heart attacks and strokes. Go figure! According to a story by Andrew Pollack on the front page of this morning's *New York Times*, the FDA has now rejected Qnexa, another diet pill, because of concerns about birth defects and heart problems. Just last week the FDA declined to approve a drug because it caused tumors in rats. Use the Physics Plan: "Burn more calories than you consume," http://bobpark.physics.umd.edu/WN00/wn022500.html.

Memo to scruton: At least Hawking got the right answer.

An op-ed by Roger Scruton in *The Wall Street Journal* this morning was titled, "Memo to Hawking: Theres Still Room for God." An English philosopher, Scruton is a visiting scholar at the ultraconservative American Enterprise Institute in Washington, DC. "Almost no one," he writes, "believes there is a rational scientific theory that tells us how the universe emerged from nothingness." No one, that is, except those that might be expected to know, physicists, who labor to make such a theory possible. In addition to Kant, Scruton invokes Newton and Einstein to make his point, but unlike philosophy, physics is tightly bound to observation.

Cell phones: latest report from the president's cancer panel.

The new report emphasizes environmental causes of cancer, most of which are chemical. It does call for a reduction in exposure to "electromagnetic radiation" from medical x-rays, but at least in press accounts, fails to make clear that x-ray wavelengths are millions of times shorter than the photoelectric threshold in the near ultraviolet, which is also the cancer threshold. Cell phone radiation, in which wavelengths are a million times longer than the photoelectron threshold also got a mention: "In this regard, the use of cell phones and other wireless technology is of great concern. There is no research to support a link to cancer and contemporary cell phone use, but the research on cancer and other disease risk from modern wireless devices is extremely limited and cancer, and identifying those mechanisms." The panel urged additional research on the possible links between electromagnetic fields and disease. This is the staple, more-research-is-needed line. The public deserves a clear statement of what is known in language they can understand, both from the media and the science establishment.

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