

December 28, 2011

Corner post from [Mark Steyn](#).

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When Lord Sacks, chief rabbi in England, rose in the House of Lords to speak about the persecution of Christians, he quoted Martin Luther King. "In the end, we will remember not the words of our enemies, but the silence of our friends."

More on the subject from [David Warren](#).

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This in turn was quoted in an excellent article in the Daily Telegraph this week. Fraser Nelson asked all the pertinent questions about the indifference displayed by the British Foreign Office to the persecution of Christians (along with other minorities) in Iraq, Iran, Turkey, Egypt, Algeria; indeed, throughout the Middle East. Why do our diplomats refuse even to raise the issue with their counterparts in these countries?

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But of course, formal restrictions on Christian life and worship in Muslim countries - which would be considered outrageous if they were applied to Muslims in any western country - are endemic. They vary not so much in content, as in enforcement, and as a rule, become heavier when any society is in convulsion, lighter when it is not. In other words, Christians, formerly Jews (before their general exodus, when Israel was founded), and other minorities such as Shia Muslims in Sunni lands, are accustomed to becoming scapegoats when things having nothing to do with them go wrong.

And this is the case now. The "Arab Spring," which was welcomed this year as an expression of "democracy" by the West's political, media, and chattering classes, has brought social convulsion to one Arab state after another. Against the background of what is to my view instead a large catastrophe, Christian communities that have existed in each state since centuries before the arrival of Islam, are being eliminated. ...

Air France Flight 447 that crashed in the South Atlantic two years ago has been the subject of two items from Der Spiegel in Pickings [here](#) and [here](#). Now, cockpit conversations from the flight recorder have been translated and explained by [Popular Mechanics](#).

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Human judgments, of course, are never made in a vacuum. Pilots are part of a complex system that can either increase or reduce the probability that they will make a mistake. After this accident, the million-dollar question is whether training, instrumentation, and cockpit procedures can be modified all around the world so that no one will ever make this mistake again—or whether the inclusion of the human element will always entail the possibility of a catastrophic outcome. After all, the men who crashed AF447 were three highly trained pilots flying for one of the most prestigious fleets in the world. If they could fly a perfectly good plane into the ocean, then what airline could plausibly say, "Our pilots would never do that"?

Here is a synopsis of what occurred during the course of the doomed airliner's final few minutes.

At 1h 36m, the flight enters the outer extremities of a tropical storm system. Unlike other planes' crews flying through the region, AF447's flight crew has not changed the route to avoid the worst of the storms. The outside temperature is much warmer than forecast, preventing the still fuel-heavy aircraft from flying higher to avoid the effects of the weather. Instead, it ploughs into a layer of clouds.

At 1h51m, the cockpit becomes illuminated by a strange electrical phenomenon. The co-pilot in the right-hand seat, an inexperienced 32-year-old named Pierre-Cédric Bonin, asks, "What's that?" The captain, Marc Dubois, a veteran with more than 11,000 hours of flight time, tells him it is St. Elmo's fire, a phenomenon often found with thunderstorms at these latitudes.

At approximately 2 am, the other co-pilot, David Robert, returns to the cockpit after a rest break. At 37, Robert is both older and more experienced than Bonin, with more than double his colleague's total flight hours. The head pilot gets up and gives him the left-hand seat. Despite the gap in seniority and experience, the captain leaves Bonin in charge of the controls.

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... Today the Air France 447 transcripts yield information that may ensure that no airline pilot will ever again make the same mistakes. From now on, every airline pilot will no doubt think immediately of AF447 the instant a stall-warning alarm sounds at cruise altitude. Airlines around the world will change their training programs to enforce habits that might have saved the doomed airliner: paying closer attention to the weather and to what the planes around you are doing; explicitly clarifying who's in charge when two co-pilots are alone in the cockpit; understanding the parameters of alternate law; and practicing hand-flying the airplane during all phases of flight.

But the crash raises the disturbing possibility that aviation may well long be plagued by a subtler menace, one that ironically springs from the never-ending quest to make flying safer. Over the decades, airliners have been built with increasingly automated flight-control functions. These have the potential to remove a great deal of uncertainty and danger from aviation. But they also remove important information from the attention of the flight crew. While the airplane's avionics track crucial parameters such as location, speed, and heading, the human beings can pay attention to something else. But when trouble suddenly springs up and the computer decides that it can no longer cope—on a dark night, perhaps, in turbulence, far from land—the humans might find themselves with a very incomplete notion of what's going on. They'll wonder: What instruments are reliable, and which can't be trusted? What's the most pressing threat? What's going on? Unfortunately, the vast majority of pilots will have little experience in finding the answers.

Michael Kinsley defends Wal-Mart.

In cultural commentary about the American economy, one company at a time always seems to be the goat. Everything it does is interpreted as evil. In the 1950s it was General Motors. GM's CEO, Charles "Engine Charlie" Wilson, became a national figure of ridicule for telling a congressional committee, "What's good for General Motors is good for America." Except that he actually said, "For years I thought that what was good for the country was good for General Motors and vice versa" — which is quite a different proposition.

In the 1990s the goat was Microsoft. That famous antitrust case looks a bit silly in retrospect, don't you think? Turns out it wasn't Microsoft that was about to take over the world: It was Google.*

Who is the goat today? Clearly it's Wal-Mart, with perhaps an honorable mention for Amazon. But Amazon has ardent fans as well as ardent enemies. Does anybody really love Wal-Mart?

Well, I'm a pretty big fan. It's fun to roam the aisles and see what people are buying. Nineteen-inch flat-screen TVs for \$98! That's pretty great, but I don't need one.

A couple of weeks ago, my colleague at Bloomberg Jeff Goldberg launched a ferocious attack on Sam Walton's daughter, Alice (net worth: \$21 billion), for building a billion-dollar art museum in Bentonville, Ark., where Wal-Mart has its headquarters, and stocking it with American art. He calls it a "moral tragedy." Why? Because Alice Walton's money is tainted by its source: Wal-Mart.

What is Wal-Mart doing that is so wrong?

The Corner

Silent Night

By Mark Steyn

On this [Christmas](#) Eve, one of the great unreported stories throughout what we used to call Christendom is the persecution of Christians around the world. In Egypt, the "Arab Spring" is going so swimmingly that Copts are already fleeing Egypt and, for those Christians that remain, [Midnight Mass](#) has to be held in the daylight for security reasons. In Iraq, midnight services have been canceled entirely for fear of bloodshed, part of the remorseless de-Christianizing that has been going on, quite shamefully, under an American imperium.

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Ottawa Citizen

A prayer for brothers and sisters

by David Warren

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Joy was expressed in the U.S. this week, at the return of remaining American troops from Iraq (except those guarding extensive diplomatic enclaves), "in time for Christmas." Promptly upon their departure, all the democratic arrangements for which these troops had fought, began to unravel.

Baghdad suffered more than a dozen major bombings in one long morning. Iraq's Shia prime minister, Nouri Maliki, had accused his Sunni deputy of sponsoring violence, and the man had fled to protection in Iraqi Kurdistan. Countercharges, and counter-counter, fly, while the country returns quickly to the conditions of 2007, before the famous U.S. "surge."

But with the Americans gone, Iraq now slips the rest of the way off the world media map. It may crawl back on with full-scale civil war. And perhaps, eventually, notice will be taken that Iran's revolutionary regime, already represented within Maliki's entourage, is using the disorder to attach Iraq as a satellite. This is not something even Shia Iraqis could want; but they will have it as a consequence of disintegrative war between Sunni and Shia, Arab and Kurd, abetted by an utterly corrupt and dysfunctional "democratic" political class.

Meanwhile, tonight's Midnight Mass has been cancelled, so far as I can see through the Internet, at Christian churches throughout the country. Estimates of the number of Christians who have fled Iraq now approach or exceed one million; and the reason for their leaving may be read in graffiti sprayed over their empty and assaulted churches. This persistently reminds worshippers of past massacres, and promises they will be next.

The collapse of once-peaceful Egypt into disorder has had similar effects, as the old secular military establishment bids to retain some semblance of its former power and pomposity, while the Islamist parties sweep parliamentary elections.

In the first moments of Egypt's "Arab Spring," triggered by the country's relatively tiny and secular middle class, Coptic Christians were already feeling the rise in heat. But there were several fine displays of solidarity, in which leading Muslims attended church services in defiance of Islamist terror threats.

As ever, in revolutionary situations, the heroic phase ended quickly. We're advancing now through the squalid phases. For the safety of their parishioners, night church services are already switched to broad daylight, and as in Iraq, there are ever-more-cumbersome security measures to pass through, to get into a church at all.

Nothing can be done, or more certainly, nothing will be done by our own "progressive" governing classes, even to anticipate the coming fallout. Having contributed all in their power to ignite "democracy" across the Middle East, they will not be troubled by the consequences.

The one thing we can do - those of us Christian tonight at Midnight Mass - is carry in our hearts a prayer on behalf of our brothers and sisters, prevented from attending. We must ask divine assistance, in terms of the Psalms. For among our human friends, we have little to expect except silence.

Popular Mechanics

[What Really Happened Aboard Air France 447](#)

Two years after the Airbus 330 plunged into the Atlantic Ocean, Air France 447's flight-data recorders finally turned up. The revelations from the pilot transcript paint a surprising picture of chaos in the cockpit, and confusion between the pilots that led to the crash.

by Jeff Wise



AF447 Rio-Paris plane flight data recorder are displayed during a press conference on May 12, 2011, in the French agency Bureau of Enquiry and Analysis for Civil Aviation Safety (BEA) headquarters.

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At 2:02 am, the captain leaves the flight deck to take a nap. Within 15 minutes, everyone aboard the plane will be dead.

Here is the transcript of the last 11 minutes of conversation in the cockpit with translation and explanation.

02:03:44 (Bonin) La convergence inter tropicale... voilà, là on est dedans, entre 'Salpu' et 'Tasil.' Et puis, voilà, on est en plein dedans...

The inter-tropical convergence... look, we're in it, between 'Salpu' and 'Tasil.' And then, look, we're right in it...

The intertropical convergence, or ITC, is an area of consistently severe weather near the equator. As is often the case, it has spawned a string of very large thunderstorms, some of which stretch into the stratosphere. Unlike some of the other planes's crews flying in the region this evening, the crew of AF447 has not studied the pattern of storms and requested a divergence around the area of most intense activity. (Salpu and Tasil are two air-traffic-position reporting points.)

02:05:55 (Robert) Oui, on va les appeler derrière... pour leur dire quand même parce que...

Yes, let's call them in the back, to let them know...

Robert pushes the call button.

02:05:59 (flight attendant, heard on the intercom) Oui? Marilyn.

Yes? Marilyn.

02:06:04 (Bonin) Oui, Marilyn, c'est Pierre devant... Dis-moi, dans deux minutes, on devrait attaquer une zone où ça devrait bouger un peu plus que maintenant. Il faudrait vous méfier là.

Yes, Marilyn, it's Pierre up front... Listen, in 2 minutes, we're going to be getting into an area where things are going to be moving around a little bit more than now. You'll want to take care.

02:06:13 (flight attendant) D'accord, on s'assoit alors?

Okay, we should sit down then?

02:06:15 (Bonin) Bon, je pense que ce serait pas mal... tu préviens les copains!

Well, I think that's not a bad idea. Give your friends a heads-up.

02:06:18 (flight attendant) Ouais, OK, j'appelle les autres derrière. Merci beaucoup.

Yeah, okay, I'll tell the others in the back. Thanks a lot.

02:06:19 (Bonin) Mais je te rappelle dès qu'on est sorti de là.

I'll call you back as soon as we're out of it.

02:06:20 (flight attendant) OK.

Okay.

The two copilots discuss the unusually elevated external temperature, which has prevented

them from climbing to their desired altitude, and express happiness that they are flying an Airbus 330, which has better performance at altitude than an Airbus 340.

02:06:50 (Bonin) Va pour les anti-ice. C'est toujours ça de pris.

Let's go for the anti-icing system. It's better than nothing.

Because they are flying through clouds, the pilots turn on the anti-icing system to try to keep ice off the flight surfaces; ice reduces the plane's aerodynamic efficiency, weighs it down, and in extreme cases, can cause it to crash.

02:07:00 (Bonin) On est apparemment à la limite de la couche, ça devrait aller.

We seem to be at the end of the cloud layer, it might be okay.

In the meantime Robert has been examining the radar system and has found that it has not been set up in the correct mode. Changing the settings, he scrutinizes the radar map and realizes that they are headed directly toward an area of intense activity.

02:08:03 (Robert) Tu peux éventuellement le tirer un peu à gauche.

You can possibly pull it a little to the left.

02:08:05 (Bonin) Excuse-moi?

Sorry, what?

02:08:07 (Robert) Tu peux éventuellement prendre un peu à gauche. On est d'accord qu'on est en manuel, hein?

You can possibly pull it a little to the left. We're agreed that we're in manual, yeah?

Bonin wordlessly banks the plane to the left. Suddenly, a strange aroma, like an electrical transformer, floods the cockpit, and the temperature suddenly increases. At first, the younger pilot thinks that something is wrong with the air-conditioning system, but Robert assures him that the effect is from the severe weather in the vicinity. Bonin seems ill at ease. Then the sound of slipstream suddenly becomes louder. This, presumably, is due to the accumulation of ice crystals on the exterior of the fuselage. Bonin announces that he is going to reduce the speed of the aircraft, and asks Robert if he should turn on a feature that will prevent the jet engines from flaming out in the event of severe icing.

Just then an alarm sounds for 2.2 seconds, indicating that the autopilot is disconnecting. The cause is the fact that the plane's pitot tubes, externally mounted sensors that determine air speed, have iced over, so the human pilots will now have to fly the plane by hand.

Note, however, that the plane has suffered no mechanical malfunction. Aside from the loss of airspeed indication, everything is working fine. Otelli reports that many airline pilots (and, indeed, he himself) subsequently flew a simulation of the flight from this point and were able to do so without any trouble. But neither Bonin nor Roberts has ever received training in how to deal with an unreliable airspeed indicator at cruise altitude, or in flying the airplane by hand under such conditions.

02:10:06 (Bonin) J'ai les commandes.

I have the controls.

02:10:07 (Robert) D'accord.

Okay.

Perhaps spooked by everything that has unfolded over the past few minutes—the turbulence, the strange electrical phenomena, his colleague's failure to route around the potentially dangerous storm—Bonin reacts irrationally. He pulls back on the side stick to put the airplane into a steep climb, despite having recently discussed the fact that the plane could not safely ascend due to the unusually high external temperature.

Bonin's behavior is difficult for professional aviators to understand. "If he's going straight and level and he's got no airspeed, I don't know why he'd pull back," says Chris Nutter, an airline pilot and flight instructor. "The logical thing to do would be to cross-check"—that is, compare the pilot's airspeed indicator with the co-pilot's and with other instrument readings, such as groundspeed, altitude, engine settings, and rate of climb. In such a situation, "we go through an iterative assessment and evaluation process," Nutter explains, before engaging in any manipulation of the controls. "Apparently that didn't happen."

Almost as soon as Bonin pulls up into a climb, the plane's computer reacts. A warning chime alerts the cockpit to the fact that they are leaving their programmed altitude. Then the stall warning sounds. This is a synthesized human voice that repeatedly calls out, "Stall!" in English, followed by a loud and intentionally annoying sound called a "cricket." A stall is a potentially dangerous situation that can result from flying too slowly. At a critical speed, a wing suddenly becomes much less effective at generating lift, and a plane can plunge precipitously. All pilots are trained to push the controls forward when they're at risk of a stall so the plane will dive and gain speed.

The Airbus's stall alarm is designed to be impossible to ignore. Yet for the duration of the flight, none of the pilots will mention it, or acknowledge the possibility that the plane has indeed stalled—even though the word "Stall!" will blare through the cockpit 75 times. Throughout, Bonin will keep pulling back on the stick, the exact opposite of what he must do to recover from the stall.

02:10:07 (Robert) Qu'est-ce que c'est que ça?

What's this?

02:10:15 (Bonin) On n'a pas une bonne... On n'a pas une bonne annonce de vitesse.

There's no good... there's no good speed indication.

02:10:16 (Robert) On a perdu les, les, les vitesses alors?

We've lost the, the, the speeds, then?

The plane is soon climbing at a blistering rate of 7000 feet per minute. While it is gaining altitude, it is losing speed, until it is crawling along at only 93 knots, a speed more typical of a small Cessna than an airliner. Robert notices Bonin's error and tries to correct him.

02:10:27 (Robert) Faites attention à ta vitesse. Faites attention à ta vitesse.

Pay attention to your speed. Pay attention to your speed.

He is probably referring to the plane's vertical speed. They are still climbing.

02:10:28 (Bonin) OK, OK, je redescends.

Okay, okay, I'm descending.

02:10:30 (Robert) Tu stabilises...

Stabilize...

02:10:31 (Bonin) Ouais.

Yeah.

02:10:31 (Robert) Tu redescends... On est en train de monter selon lui... Selon lui, tu montes, donc tu redescends.

Descend... It says we're going up... It says we're going up, so descend.

02:10:35 (Bonin) D'accord.

Okay.

Thanks to the effects of the anti-icing system, one of the pitot tubes begins to work again. The cockpit displays once again show valid speed information.

02:10:36 (Robert) Redescends!

Descend!

02:10:37 (Bonin) C'est parti, on redescend.

Here we go, we're descending.

02:10:38 (Robert) Doucement!

Gently!

Bonin eases the back pressure on the stick, and the plane gains speed as its climb becomes more shallow. It accelerates to 223 knots. The stall warning falls silent. For a moment, the co-pilots are in control of the airplane.

02:10:41 (Bonin) On est en... ouais, on est en "climb."

We're... yeah, we're in a climb.

Yet, still, Bonin does not lower the nose. Recognizing the urgency of the situation, Robert pushes a button to summon the captain.

02:10:49 (Robert) Putain, il est où... euh?

Damn it, where is he?



The recovered tailfin of Air France 447 is unloaded from Brazilian Navy frigate Constituicao.

The plane has climbed to 2512 feet above its initial altitude, and though it is still ascending at a dangerously high rate, it is flying within its acceptable envelope. But for reasons unknown, Bonin once again increases his back pressure on the stick, raising the nose of the plane and bleeding off speed. Again, the stall alarm begins to sound.

Still, the pilots continue to ignore it, and the reason may be that they believe it is impossible for them to stall the airplane. It's not an entirely unreasonable idea: The Airbus is a fly-by-wire plane; the control inputs are not fed directly to the control surfaces, but to a computer, which then in turn commands actuators that move the ailerons, rudder, elevator, and flaps. The vast majority of the time, the computer operates within what's known as normal law, which means that the computer will not enact any control movements that would cause the plane to leave its flight envelope. "You can't stall the airplane in normal law," says Godfrey Camilleri, a flight instructor who teaches Airbus 330 systems to US Airways pilots.

But once the computer lost its airspeed data, it disconnected the autopilot and switched from normal law to "alternate law," a regime with far fewer restrictions on what a pilot can do. "Once you're in alternate law, you can stall the airplane," Camilleri says.

It's quite possible that Bonin had never flown an airplane in alternate law, or understood its lack of restrictions. According to Camilleri, not one of US Airway's 17 Airbus 330s has ever been in alternate law. Therefore, Bonin may have assumed that the stall warning was spurious because he didn't realize that the plane could remove its own restrictions against stalling and, indeed, had done so.

02:10:55 (Robert) Putain!

Damn it!

Another of the pitot tubes begins to function once more. The cockpit's avionics are now all functioning normally. The flight crew has all the information that they need to fly safely, and all the systems are fully functional. The problems that occur from this point forward are entirely due

to human error.

02:11:03 (Bonin) Je suis en TOGA, hein?

I'm in TOGA, huh?

Bonin's statement here offers a crucial window onto his reasoning. TOGA is an acronym for Take Off, Go Around. When a plane is taking off or aborting a landing—"going around"—it must gain both speed and altitude as efficiently as possible. At this critical phase of flight, pilots are trained to increase engine speed to the TOGA level and raise the nose to a certain pitch angle.

Clearly, here Bonin is trying to achieve the same effect: He wants to increase speed and to climb away from danger. But he is not at sea level; he is in the far thinner air of 37,500 feet. The engines generate less thrust here, and the wings generate less lift. Raising the nose to a certain angle of pitch does not result in the same angle of climb, but far less. Indeed, it can—and will—result in a descent.

While Bonin's behavior is irrational, it is not inexplicable. Intense psychological stress tends to shut down the part of the brain responsible for innovative, creative thought. Instead, we tend to revert to the familiar and the well-rehearsed. Though pilots are required to practice hand-flying their aircraft during all phases of flight as part of recurrent training, in their daily routine they do most of their hand-flying at low altitude—while taking off, landing, and maneuvering. It's not surprising, then, that amid the frightening disorientation of the thunderstorm, Bonin reverted to flying the plane as if it had been close to the ground, even though this response was totally ill-suited to the situation.

02:11:06 (Robert) Putain, il vient ou il vient pas?

Damn it, is he coming or not?

The plane now reaches its maximum altitude. With engines at full power, the nose pitched upward at an angle of 18 degrees, it moves horizontally for an instant and then begins to sink back toward the ocean.

02:11:21 (Robert) On a pourtant les moteurs! Qu'est-ce qui se passe bordel? Je ne comprends pas ce que se passe.

We still have the engines! What the hell is happening? I don't understand what's happening.

Unlike the control yokes of a Boeing jetliner, the side sticks on an Airbus are "asynchronous"—that is, they move independently. "If the person in the right seat is pulling back on the joystick, the person in the left seat doesn't feel it," says Dr. David Esser, a professor of aeronautical science at Embry-Riddle Aeronautical University. "Their stick doesn't move just because the other one does, unlike the old-fashioned mechanical systems like you find in small planes, where if you turn one, the [other] one turns the same way." Robert has no idea that, despite their conversation about descending, Bonin has continued to pull back on the side stick.

The men are utterly failing to engage in an important process known as crew resource management, or CRM. They are failing, essentially, to cooperate. It is not clear to either one of them who is responsible for what, and who is doing what. This is a natural result of having two co-pilots flying the plane. "When you have a captain and a first officer in the cockpit, it's clear who's in charge," Nutter explains. "The captain has command authority. He's legally responsible for the safety of the flight. When you put two first officers up front, it changes things. You don't

have the sort of traditional discipline imposed on the flight deck when you have a captain."

The vertical speed toward the ocean accelerates. If Bonin were to let go of the controls, the nose would fall and the plane would regain forward speed. But because he is holding the stick all the way back, the nose remains high and the plane has barely enough forward speed for the controls to be effective. As turbulence continues to buffet the plane, it is nearly impossible to keep the wings level.

02:11:32 (Bonin) Putain, j'ai plus le contrôle de l'avion, là! J'ai plus le contrôle de l'avion!
Damn it, I don't have control of the plane, I don't have control of the plane at all!

02:11:37 (Robert) Commandes à gauche!
Left seat taking control!

At last, the more senior of the pilots (and the one who seems to have a somewhat better grasp of the situation) now takes control of the airplane. Unfortunately, he, too, seems unaware of the fact that the plane is now stalled, and pulls back on the stick as well. Although the plane's nose is pitched up, it is descending at a 40-degree angle. The stall warning continues to sound. At any rate, Bonin soon after takes back the controls.

A minute and a half after the crisis began, the captain returns to the cockpit. The stall warning continues to blare.

02:11:43 (Captain) Eh... Qu'est-ce que vous foutez?
What the hell are you doing?

02:11:45 (Bonin) On perd le contrôle de l'avion, là!
We've lost control of the plane!

02:11:47 (Robert) On a totalement perdu le contrôle de l'avion... On comprend rien... On a tout tenté...
We've totally lost control of the plane. We don't understand at all... We've tried everything.

By now the plane has returned to its initial altitude but is falling fast. With its nose pitched 15 degrees up, and a forward speed of 100 knots, it is descending at a rate of 10,000 feet per minute, at an angle of 41.5 degrees. It will maintain this attitude with little variation all the way to the sea. Though the pitot tubes are now fully functional, the forward airspeed is so low—below 60 knots—that the angle-of-attack inputs are no longer accepted as valid, and the stall-warning horn temporarily stops. This may give the pilots the impression that their situation is improving, when in fact it signals just the reverse.

Another of the revelations of Otelli's transcript is that the captain of the flight makes no attempt to physically take control of the airplane. Had Dubois done so, he almost certainly would have understood, as a pilot with many hours flying light airplanes, the insanity of pulling back on the controls while stalled. But instead, he takes a seat behind the other two pilots.

This, experts say, is not so hard to understand. "They were probably experiencing some pretty wild gyrations," Esser says. "In a condition like that, he might not necessarily want to make the situation worse by having one of the crew members actually disengage and stand up. He was probably in a better position to observe and give his commands from the seat behind."

But from his seat, Dubois is unable to infer from the instrument displays in front of him why the plane is behaving as it is. The critical missing piece of information: the fact that someone has been holding the controls all the way back for virtually the entire time. No one has told Dubois, and he hasn't thought to ask.

02:12:14 (Robert) Qu'est-ce que tu en penses? Qu'est-ce que tu en penses? Qu'est-ce qu'il faut faire?

What do you think? What do you think? What should we do?

02:12:15 (Captain) Alors, là, je ne sais pas!

Well, I don't know!

As the stall warning continues to blare, the three pilots discuss the situation with no hint of understanding the nature of their problem. No one mentions the word "stall." As the plane is buffeted by turbulence, the captain urges Bonin to level the wings—advice that does nothing to address their main problem. The men briefly discuss, incredibly, whether they are in fact climbing or descending, before agreeing that they are indeed descending. As the plane approaches 10,000 feet, Robert tries to take back the controls, and pushes forward on the stick, but the plane is in "dual input" mode, and so the system averages his inputs with those of Bonin, who continues to pull back. The nose remains high.

02:13:40 (Robert) Remonte... remonte... remonte... remonte...

Climb... climb... climb... climb...

02:13:40 (Bonin) Mais je suis à fond à cabrer depuis tout à l'heure!

But I've had the stick back the whole time!

At last, Bonin tells the others the crucial fact whose import he has so grievously failed to understand himself.

02:13:42 (Captain) Non, non, non... Ne remonte pas... non, non.

No, no, no... Don't climb... no, no.

02:13:43 (Robert) Alors descends... Alors, donne-moi les commandes... À moi les commandes!

Descend, then... Give me the controls... Give me the controls!

Bonin yields the controls, and Robert finally puts the nose down. The plane begins to regain speed. But it is still descending at a precipitous angle. As they near 2000 feet, the aircraft's sensors detect the fast-approaching surface and trigger a new alarm. There is no time left to build up speed by pushing the plane's nose forward into a dive. At any rate, without warning his colleagues, Bonin once again takes back the controls and pulls his side stick all the way back.

02:14:23 (Robert) Putain, on va taper... C'est pas vrai!

Damn it, we're going to crash... This can't be happening!

02:14:25 (Bonin) Mais qu'est-ce que se passe?

But what's happening?

02:14:27 (Captain) 10 degrés d'assiette...

Ten degrees of pitch...

Exactly 1.4 seconds later, the cockpit voice recorder stops.

Today the Air France 447 transcripts yield information that may ensure that no airline pilot will ever again make the same mistakes. From now on, every airline pilot will no doubt think immediately of AF447 the instant a stall-warning alarm sounds at cruise altitude. Airlines around the world will change their training programs to enforce habits that might have saved the doomed airliner: paying closer attention to the weather and to what the planes around you are doing; explicitly clarifying who's in charge when two co-pilots are alone in the cockpit; understanding the parameters of alternate law; and practicing hand-flying the airplane during all phases of flight.

But the crash raises the disturbing possibility that aviation may well long be plagued by a subtler menace, one that ironically springs from the never-ending quest to make flying safer. Over the decades, airliners have been built with increasingly automated flight-control functions. These have the potential to remove a great deal of uncertainty and danger from aviation. But they also remove important information from the attention of the flight crew. While the airplane's avionics track crucial parameters such as location, speed, and heading, the human beings can pay attention to something else. But when trouble suddenly springs up and the computer decides that it can no longer cope—on a dark night, perhaps, in turbulence, far from land—the humans might find themselves with a very incomplete notion of what's going on. They'll wonder: What instruments are reliable, and which can't be trusted? What's the most pressing threat? What's going on? Unfortunately, the vast majority of pilots will have little experience in finding the answers.

Jeff Wise is a contributing editor for Popular Mechanics and the author of Extreme Fear: The Science of Your Mind in Danger. For a daily dose of extreme fear, [check out his blog](#).

LA Times

[Demonizing Wal-Mart](#)

What is the retailer doing that's so wrong? A more deserving target might actually be small companies.

by Michael Kinsley

In cultural commentary about the American economy, one company at a time always seems to be the goat. Everything it does is interpreted as evil. In the 1950s it was General Motors. GM's CEO, Charles "Engine Charlie" Wilson, became a national figure of ridicule for telling a congressional committee, "What's good for General Motors is good for America." Except that he actually said, "For years I thought that what was good for the country was good for General Motors and vice versa" — which is quite a different proposition.

In the 1990s the goat was Microsoft.* That famous antitrust case looks a bit silly in retrospect, don't you think? Turns out it wasn't Microsoft that was about to take over the world: It was

Google.

Who is the goat today? Clearly it's Wal-Mart, with perhaps an honorable mention for Amazon. But Amazon has ardent fans as well as ardent enemies. Does anybody really love Wal-Mart? Well, I'm a pretty big fan. It's fun to roam the aisles and see what people are buying. Nineteen-inch flat-screen TVs for \$98! That's pretty great, but I don't need one.

A couple of weeks ago, my colleague at Bloomberg Jeff Goldberg launched a ferocious attack on Sam Walton's daughter, Alice (net worth: \$21 billion), for building a billion-dollar art museum in Bentonville, Ark., where Wal-Mart has its headquarters, and stocking it with American art. He calls it a "moral tragedy." Why? Because Alice Walton's money is tainted by its source: Wal-Mart.

What is Wal-Mart doing that is so wrong? Critics like Jeff say that Wal-Mart employees are underpaid and that many don't get healthcare coverage. They see the museum as a symbol of the growing gap between the haves and the have-nots. As for what Walton can do about any of this, Goldberg suggests she could fund day-care centers or mobile dental clinics for employees. This smacks of Lady Bountiful delivering turkeys to the serfs at Christmastime.

Wal-Mart is a profitable business. It shouldn't get subsidized by charity, nor should its employees have to depend on charity. I also suspect that most of Wal-Mart's employees in the area are happy to have the new museum in town and don't see it as a symbol of income inequality.

The growing income gap is a big problem, but how is Wal-Mart contributing to it? Presumably Wal-Mart pays what it has to in order to attract workers, and doesn't pay a lot more if it can be avoided. Presumably, Wal-Mart scours the globe looking for bargains, and if China is the cheapest producer, China gets the business. That's capitalism, and if we don't like the results, we can use the tools of government, primarily the tax code, to improve them.

True, Wal-Mart has a reputation for being especially ruthless in its dealings with employees and suppliers. Jeff talked to one employee who said she was paid so little that she had to live in her car. Did he talk to no one who said she or he liked working for Wal-Mart?

As for benefits, no company is obliged to offer healthcare. Critics often note that Wal-Mart doesn't offer health insurance to employees who work less than 24 hours a week. You could turn that around and say that Wal-Mart does offer coverage to employees who work at least 24 hours a week. My experience is that you start getting benefits at about half-time. That would be 20 hours a week. So is 24 hours so unreasonable? It's also true that Wal-Mart is raising the premiums for many employees who do get health insurance. But most companies in America are probably increasing the employee contribution in the coming year. It's nothing unique to Wal-Mart.

There are those whose objections to Wal-Mart are more aesthetic than economic: the barn-like quality of the stores, the impact of a Wal-Mart on old downtowns, even the whole culture of consumption that some people find distasteful. They're welcome to those views as long as they acknowledge that higher prices at non-Wal-Mart stores are bad for consumers — especially poor consumers.

Wal-Mart's employees seem as cheerful as those at Target or Costco. But perhaps the company

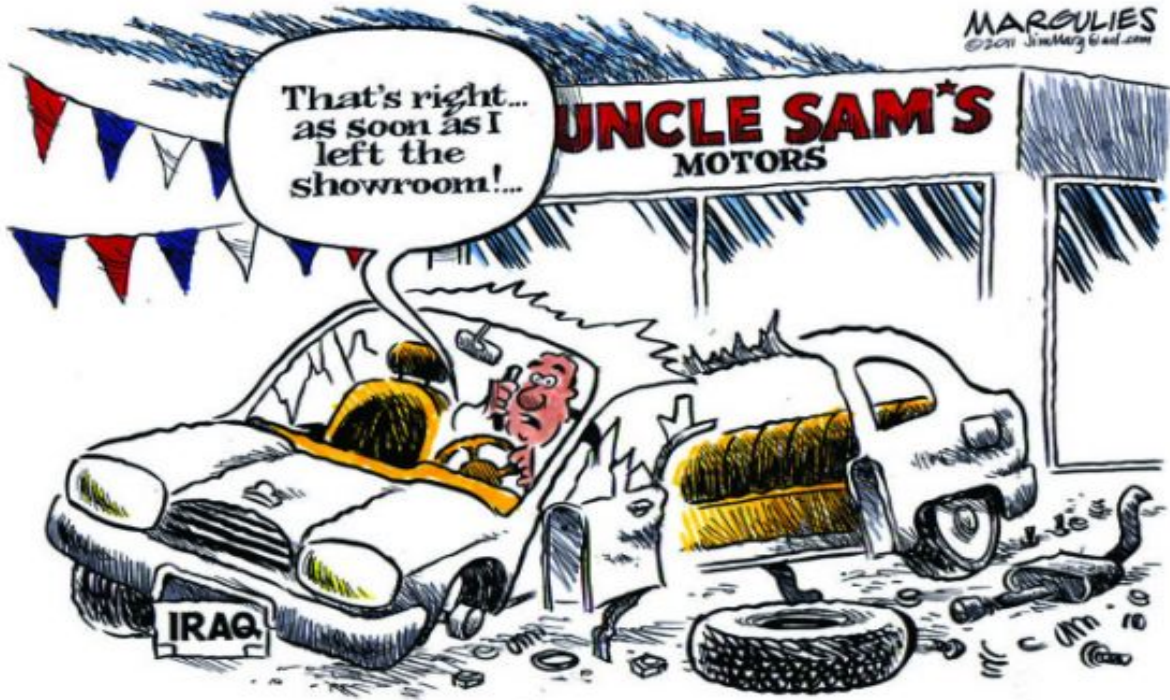
has hypnotized them — or possibly me — in some sort of Stepford wives scenario.

Big companies make fat targets, but a more deserving target might be small companies. Instead, we have the ever-inflating myth of small business. Small businesses come and go, creating and eliminating jobs along the way. Yes, they are an important part of the economy, and often they come with inspiring tales of hard-working immigrants and so on. But they're in it to make a profit, just like Wal-Mart. And I doubt that many offer healthcare to people working less than 24 hours a week. A successful small-business person is more likely to be in the notorious 1% than is an employee (or even a stockholder) of a big corporation. They don't need to be coddled with special tax breaks.

Alice Walton could have put her museum in New York, where this sort of thing belongs. Most of us don't get to Bentonville as often as we'd like. Or she could have decided not to build it at all, for fear that journalists would start comparing her to Marie Antoinette. Would that have been better?







Then and Now...

