



Climategate and Climate Science

AEI's environmental team has been especially busy lately responding to numerous press inquiries about the "Climategate" scandal. We reprint below two pieces, one by Steven F. Hayward that appeared in The Weekly Standard, and another by Kenneth P. Green, which appeared on The American. Hayward's piece was mentioned prominently on Fox News Sunday. Green also testified on the science of global warming recently before the Senate Committee on Finance. In addition, Samuel Thornstrom and Lee Lane, who are codirecting AEI's Geoengineering Project, have been following the developments and commenting on them. AEI released an updated version of its Public Opinion Study "Polls on the Environment and Global Warming," which shows that, even before the latest controversy, opinion about the seriousness of global warming had declined sharply in several recent polls.

Scientists Behaving Badly

By Steven F. Hayward

Slowly and mostly unnoticed by the major news media, the air has been going out of the global warming balloon. Global temperatures stopped rising a few years ago, much to the dismay of the climate campaigners. The United Nations' (UN) upcoming Copenhagen conference—which was supposed to yield a binding greenhouse gas emissions reduction treaty as a successor to the failed Kyoto Protocol—collapsed weeks in advance and remains on life-support pending President Barack Obama's magical intervention. Cap-and-trade legislation is stalled on Capitol Hill. Recent opinion polls from Gallup, Pew, Rasmussen, ABC/*Washington Post*, and other pollsters all find a dramatic decline in public belief in human-caused global warming. The climate campaigners continue to insist this is because they have a "communications" problem, but after Al Gore's Nobel Prize/Academy Award double play, millions of dollars in paid advertising, and the relentless doom mongering from the media echo chamber and the political class, this excuse is preposterous. And now the climate campaign is having its Emperor's New Clothes moment.

In mid-November a large cache of e-mails and technical documents from the Climatic Research Unit (CRU) at the University of East Anglia in Britain was made available on a number of Internet file servers for download by the public—either the work of a hacker or a leak from a whistleblower on the inside. The e-mails—more than 1,000 of them—reveal a small cabal of scientists who, in the words of the Massachusetts Institute of Technology's (MIT) Michael Schrage, engaged in "malice, mischief, and Machiavellian maneuverings." In an ironic twist, one of the frequent correspondents in this long e-trail (University of Arizona scientist Jonathan Overpeck) warned several of his colleagues in September, "Please write all e-mails as though they will be made public." Small wonder why. It is being called "Climategate," but more than one wit is calling them "the CRUtape Letters."

As in the furor over Dan Rather's fabricated documents about George W. Bush's National Guard service back in 2004, bloggers have been swarming over the material and highlighting the

bad faith, bad science, and possibly even criminal behavior (deleting material requested under Britain's Freedom of Information Act [FOIA] and perhaps tax evasion) of a small group of highly influential climate scientists. As with Rathergate, diehard climate campaigners are repairing to the "fake but accurate" defense—what these scientists did may be unethical or deeply biased, they say, but the science is settled, so move along, nothing to see here. There are a few notable exceptions, such as *Guardian* columnist George Monbiot, who in the past has trafficked in the most extreme climate mongering: "It's no use pretending that this isn't a major blow," Monbiot wrote in a November 23 column. "The e-mails extracted by a hacker from the Climatic Research Unit at the University of East Anglia could scarcely be more damaging. . . . I'm dismayed and deeply shaken by them. . . . I was too trusting of some of those who provided the evidence I championed. I would have been a better journalist if I had investigated their claims more closely." Monbiot has joined a number of prominent climate scientists in demanding that the CRU figures resign their posts and be excluded from future climate science work. The head of the CRU, Phil Jones, announced last week that he will temporarily step down pending an investigation.

As tempting as it is to indulge in schadenfreude over the richly deserved travails of a gang that has heaped endless calumny on dissenting scientists (NASA's James Hansen, for instance, compared MIT's Richard Lindzen to a tobacco-industry scientist, and Gore and countless others liken skeptics to "Holocaust deniers"), the meaning of the CRU documents should not be misconstrued. The e-mails do not in and of themselves reveal that catastrophic climate change scenarios are a hoax or without any foundation. What they reveal is something problematic for the scientific community as a whole, namely, the tendency of scientists to cross the line from being disinterested investigators after the truth to advocates for a preconceived conclusion about the issues at hand. In the understatement of the year, Jones, one of the principal figures in the controversy, admitted the e-mails "do not read well." Jones is the author of the most widely cited leaked e-missive, telling colleagues in 1999 that he had used "Mike's *Nature* [magazine] trick" to "hide the decline" that inconveniently shows up after 1960 in one set of temperature records. But he insists that the full context of CRU's work shows this to have been just a misleading figure of speech. Reading through the entire archive of e-mails, however, provides no such reassurance; to the contrary, dozens of other messages, while

less blatant than "hide the decline," expose scandalously unprofessional behavior. There were ongoing efforts to rig and manipulate the peer-review process that is critical to vetting manuscripts submitted for publication in scientific journals. Data that should have been made available for inspection by other scientists and outside critics were released only grudgingly, if at all. Perhaps more significant, the e-mail archive also reveals that even inside this small circle of climate scientists—otherwise allied in an effort to whip up a frenzy of international political action to combat global warming—there was considerable disagreement, confusion, doubt, and, at times, acrimony over the results of their work. In other words, there is far less unanimity or consensus among climate insiders than we have been led to believe.

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The behavior of the CRU circle has cast a long shadow over the entire climate science community, and many honest scientists will now undeservedly bear the stigma of Climategate unless a full airing of the issues is conducted. Other important climate research centers with close ties to the CRU—including NASA's Goddard Institute and the Climate Change Science Program at the National Oceanic and Atmospheric Administration—should not be exempt from a full-dress investigation. Such a reevaluation must begin with an understanding of the crucial role the CRU circle has played in the global warming drama.

Paleoclimatology

In the larger world of climate science, the Climategate story is overwhelmingly about one small but very important subfield—paleoclimatology, the effort to reconstruct the Earth's climate during the vast sweep of time before humans began measuring and recording observations about the weather. That turns out to be a massively complicated exercise in statistical manipulation of huge amounts of raw data. Because the gap between observation and conclusion in this subfield is so dependent on

statistical techniques rather than direct measurement, it was bound to be a matter of intense controversy and deserved the most searching review by outside scientists. It is exactly this kind of review that the CRU insiders acted to prevent or obscure.

Because the Earth's climate is a complex system, the effort to understand why and how it changes is arguably the largest undertaking ever conducted by the world's scientific community. The CRU at East Anglia is not just an important hub of climate science, but one whose work plays a prominent role in the UN's Intergovernmental Panel on Climate Change (IPCC), the body that every five or six years since 1992 has produced a massive report on the international "consensus" in the field of climate science. This is the body typically said to comprise 2,000 of the world's top scientists, though there are many thousands more scientists working on aspects of climate change who do not participate in the IPCC process, many of whom dissent from the rigid "consensus" the process produces. One of the things the CRU e-mails prove is that the oft-cited figure of 2,000 top scientists is misleading; the circle of scientists genuinely active in the work of CRU and related institutions in the United States is very small. Nonetheless, Gore and other climate campaigners have leaned heavily on the IPCC process as proof for their assertions that human-caused global warming is a matter of "settled" science. This, even though in the last IPCC report on the science of climate change in 2007, the terms "uncertain" or "uncertainty" appear over 1,300 times in 900 pages, and the report describes our level of scientific understanding of key aspects of climate as "low" or "very low." The IPCC chapter on the climate models that are the principal tool predicting our future doom refers to "significant uncertainties" in all the models and admits that "models still show significant errors."

There have been rumors for years about political pressure being brought to bear on the process to deliver scarier numbers because the effects of a two- to three-degree increase in temperatures were not going to be enough to justify the kind of emission reductions the greens want. And one of the largest uncertainties in the whole climate story is whether we can determine if the warming of the last 150 years (about 0.8 degrees Celsius) is outside of the long-term historical range, which would lend powerful confirmation to the computer climate models that spit out projections of unprecedented and potentially dangerous temperature increases in the decades to come, caused by the greenhouse gases produced by industrial societies.

It has long been thought that over the last thousand years the earth experienced two significant natural climate cycles: the "medieval warm period" (MWP) centered around the year 1000 and the "little ice age" (LIA) from about 1500 to 1850. The first report of the IPCC in 1992 displayed a stylized thousand-year temperature record showing that the MWP was warmer than current global temperatures, but this was mostly conjecture. Yet it was a huge problem for the climate campaigners: if the MWP was as warm as today, as some scientists believe, it would mean that today's temperatures are arguably within the range of normal climate variability and that we could not yet confirm greenhouse gas emissions as the sole cause of recent increases or rely on computer climate models for predictions of future climate apocalypse. There had long been rumors that leading figures in the climate community believed they needed to make the MWP go away, but until the CRU leak, there was no evidence besides hearsay that scientists might be cooking the books.

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The evidence for the MWP and the LIA is mostly anecdotal, since there were no thermometers in the year 1000. Is there a way we could determine what the temperature was a thousand years ago? Calculating the average temperature for the entire planet is no simple matter, even today. This is where the paleoclimatologists at the CRU enter the picture. The CRU circle set out to "reconstruct" past temperature history through the use of "proxies," such as variations in tree rings, samples of centuries-old ice drilled out of glaciers and polar ice caps, lake sediment samples, and corals from the ocean. Using a variety of ingenious techniques, it is possible for each of these proxies to yield a temperature estimate at a particular location. Tree rings are thought to be the best proxy because we can count backwards and establish the exact year each ring formed and by its width make temperature estimates. But tree-ring data are very limited. There are only a few kinds of trees that live a thousand years or more, mostly bristlecone pines in the western United States and a few species in Siberia. The thousands of data points that emerge from these painstaking efforts are not self-explanatory. They need to be adjusted

and calibrated for latitude, altitude, and a number of other factors (such as volcanic activity and rainfall during the period). Even the most rigorous statistical methodology will generate estimates with large margins of error. One of the striking features of the CRU e-mails is how much time the CRU circle spent discussing with each other the myriad problems with processing these data and how to display them to a wider world. On the one hand, this is typical of what one might expect of an evolving scientific enterprise. On the other hand, these are the selfsame scientists who have insisted most vehemently that there is a settled consensus adhered to by all researchers of repute and that there is nothing left to debate. Another striking thing that emerges from the e-mails is that the climate modelers do not have a high regard for paleoclimatology, and the paleos have a palpable inferiority complex. Judging by the length of many of the e-mail chains kvetching about their problems, it is a wonder this small group had time to do any actual research.

The “Hockey Stick” Chart

In 1998, three scientists from American universities—Michael Mann, Raymond Bradley, and Malcolm Hughes—unveiled in *Nature* magazine what was regarded as a signal breakthrough in paleoclimatology: the now notorious “hockey stick” temperature reconstruction (picture a flat “handle” extending from the year 1000 to roughly 1900 and a sharply upsloping “blade” from 1900 to 2000). Their paper purported to prove that current global temperatures are the highest in the last thousand years by a large margin—far outside the range of natural variability. The MWP and the LIA both disappeared. The hockey stick chart was used prominently in the 2001 IPCC report as “smoking gun” proof of human-caused global warming. Mann and his coauthors concluded that “the 1990s are likely the warmest decade, and 1998 the warmest year, in at least a millennium.”

Case closed? Hardly. The CRU e-mails reveal internal doubts about this entire enterprise both before and after the hockey stick made its debut. In a 1996 e-mail to a large number of scientists in the CRU circle, Tom Wigley, a top climatologist working at the National Center for Atmospheric Research in Colorado, cautioned: “I support the continued collection of such data, but I am disturbed by how some people in the paleo community try to oversell their product.” Mann and his colleagues made use of some of the CRU data, but some of the CRU scientists were not comfortable with the

way Mann represented it and also seemed to find Mann more than a bit insufferable.

CRU scientist Keith Briffa, whose work on tree rings in Siberia has been subject to its own controversies, e-mailed Edward Cook of Columbia University: “I am sick to death of Mann stating his reconstruction represents the tropical area just because it contains a few (poorly temperature representative) tropical series,” adding that he was tired of “the increasing trend of self-opinionated verbiage [Mann] has produced over the last few years . . . and (better say no more).”

Cook replied: “I agree with you. We both know the probable flaws in Mike’s recon[struction], particularly as it relates to the tropical stuff. Your response is also why I chose not to read the published version of his letter. It would be too aggravating. . . . It is puzzling to me that a guy as bright as Mike would be so unwilling to evaluate his own work a bit more objectively.”

In yet another revealing e-mail, Cook told Briffa: “Of course [Bradley] and other members of the MBH [Mann, Bradley, Hughes] camp have a fundamental dislike for the very concept of the MWP, so I tend to view their evaluations as starting out from a somewhat biased perspective, i.e. the cup is not only ‘half-empty’; it is demonstrably ‘broken.’ I come more from the ‘cup half-full’ camp when it comes to the MWP, maybe yes, maybe no, but it is too early to say what it is.” In another e-mail to Briffa, Cook complains about Bradley, too: “His air of papal infallibility is really quite nauseating at times.”

Even as the IPCC was picking up Mann’s hockey stick chart with enthusiasm, Briffa sent Mann a note of caution about “the possibility of expressing an impression of more consensus than might actually exist. I suppose the earlier talk implying that we should not ‘muddy the waters’ by including contradictory evidence worried me. IPCC is supposed to represent consensus but also areas of uncertainty in the evidence.” Briffa had previously dissented from the hockey stick reconstruction in a 1999 e-mail to Mann and CRU’s Jones: “I believe that the recent warmth was probably matched about 1,000 years ago.” Even Hughes, one of the original hockey stick coauthors, privately expressed reservations about overreliance on their invention, writing to Cook, Mann, and others in 2002:

All of our attempts, so far, to estimate hemisphere-scale temperatures for the period around 1,000 years ago are based on far fewer data than any of us would like. None of the datasets used so far has anything

like the geographical distribution that experience with recent centuries indicates we need, and no one has yet found a convincing way of validating the lower-frequency components of them against independent data. As Ed [Cook] wrote, in the tree-ring records that form the backbone of most of the published estimates, the problem of poor replication near the beginnings of records is particularly acute, and ubiquitous. . . . Therefore, I accept that everything we are doing is preliminary, and should be treated with considerable caution.

Mann did not react well to these hesitations from his colleagues. Even Bradley, a coauthor of the hockey stick article, felt compelled to send a message to Briffa after one of Mann's self-serving e-mails with the single line: "Excuse me while I puke." One extended thread grew increasingly acrimonious as Mann lashed out at his colleagues. He wrote to Briffa, Jones, and seven others in a fury over their favorable remarks about a *Science* magazine article that offered a temperature history that differed from the hockey stick: "Sadly, your piece on the Esper et al. paper is more flawed than even the paper itself. . . . There is a lot of damage control that needs to be done and, in my opinion, you've done a disservice to the honest discussions we had all had in the past, because you've misrepresented the evidence."

To Briffa in particular Mann wrote: "Hopefully, you know that I respect you quite a bit as a scientist! But in this case, I think you were sloppy. And the sloppiness had a real cost." Mann's bad manners prompted Bradley to reply: "I wish to disassociate myself with Mike's comments, or at least the tone of them. I do not consider myself the final arbiter of what *Science* should publish, nor do I consider what you did to signify the end of civilization as we know it." Tempers got so out of hand that Tom Crowley of Duke University intervened: "I am concerned about the stressed tone of some of the words being circulated lately. . . . I think you are all fine fellows and very good scientists and that it is time to smoke the peace pipe on all this and put a temporary moratorium on more e-mail messages until tempers cool down a bit." Mann responded with his best imitation of Don Corleone: "This is ultimately about the science, it's not personal." If members of the CRU circle treat each other this way, it is no wonder they treat skeptics even more rudely.

One of Briffa's concerns about Mann's hockey stick chart is that some of the tree-ring data—Briffa's specialty—did not match up well with other records,

so Mann either omitted them (in some versions of the hockey stick) or changed their statistical weighting in his overall synthesis to downplay the anomalous results of the raw data. This, by the way, is the origin of Jones's "hide the decline" e-mail; after 1960, tree-ring data suggest a decline in temperatures, while other datasets show an increase. (This is one of many sources of intense controversy about temperature reconstructions.) Jones's and Mann's treatment may be defensible, but it is problematic to say the least.

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Starting in 2003, two mild-mannered Canadians, retired engineer Stephen McIntyre and University of Guelph economist Ross McKittrick, began making noises about serious problems with the by-then iconic hockey stick graph. The dispute between McIntyre and McKittrick (M/M as they became known in the shorthand of the climate science world) and the hockey team was highly technical, involving advanced methods of data selection and statistical analysis that are almost impossible for a layperson to follow. But one key point was access to the original raw data and complete computer codes that Mann and CRU had used, rather than the adjusted data reported in their final studies.

To extend the sports equipment simile, Mann and the hockey team responded with the scientific equivalent of high-sticking. It was McIntyre's requests for raw data and computer codes that prompted the numerous e-mails from Jones and other CRU people about "hiding" behind technicalities to refuse FOIA requests or even destroying data, codes, and e-mails to stymie McIntyre. Prior to this time, most of the complaints about outsiders in the leaked e-mails dealt with such well-known skeptics as the University of Virginia's Patrick Michaels and Fred Singer, MIT's Lindzen, and journal editors who did not toe the line. After 2003, the CRU crew became obsessed with McIntyre above all others. He appears in 105 of the

e-mails by name (in some others, he is referred to as “a certain Canadian”), usually with a tone of resentment and contempt.

McIntyre is not a climate science insider with peer-reviewed articles in journals that the hockey team firmly controlled. He is an amateur with mathematical chops and a serious track record for spotting statistical funny business. McIntyre, who spent decades in mineral exploration, was involved in exposing the Bre-X fraud in Canada several years ago. Bre-X was a gold mining company promising fat profits on a new proprietary technology for ore deposits in Borneo; McIntyre smelled a rat and demanded the raw data. Bre-X collapsed shortly after. And McIntyre scored a major hit against Hansen, NASA’s chief climate alarmist, discovering significant errors of overestimation in Hansen’s temperature reconstruction of the twentieth century. (NASA’s Goddard Institute website publicly thanked McIntyre, no doubt through gritted cyberteeth, for pointing out their error.) The hockey stickers’ obsession with McIntyre seems out of proportion if there was nothing amiss in their work.

The Climatic Research Unit scandal is only the tip of an unmelted iceberg of politicized science, though the “hard” sciences until recently have been generally thought immune (or at least resistant) to the leftist bias and political correctness of the universities.

McIntyre and McKittrick may have made mistakes in their critique of the hockey stick—the charges and countercharges are difficult for nonspecialists to sort out—but they were sufficiently persuasive that the National Academy of Sciences (NAS) appointed an expert review panel to look into the dispute. The NAS reported its findings in 2006, and the language was sufficiently hedged in diplomatic equivocations that Mann and the media claimed the hockey stick had been vindicated. But a close reading shows that the NAS report devastated the hockey stick. While the NAS said the hockey stick reconstruction was a “plausible” depiction of twentieth-century warming, the report went on to state clearly that

substantial uncertainties currently present in the quantitative assessment of large-scale surface temperature changes prior to about A.D. 1600 lower our confidence in this conclusion compared to the high level of confidence we place in the Little Ice Age cooling and 20th century warming. *Even less confidence can be placed in the original conclusions by Mann et al. (1999) that “the 1990s are likely the warmest decade, and 1998 the warmest year, in at least a millennium.”* [Emphasis added.]

One of the NAS committee members, physicist Kurt Cuffey of the University of California, was more direct in remarks to *Science* magazine: “The IPCC used [the hockey stick] as a visual prominently in the [2001] report. I think that sent a very misleading message about how resolved this part of the scientific research was.” Mann’s hockey stick, a centerpiece of the 2001 IPCC report, did not appear in the 2007 IPCC report.

The NAS report, it should be added, included an implicit rebuke of Mann and his colleagues for their reluctance to share their data with other researchers:

The committee recognizes that access to research data is a complicated, discipline-dependent issue, and that access to computer models and methods is especially challenging because intellectual property rights must be considered. Our view is that all research benefits from full and open access to published datasets and that a clear explanation of analytical methods is mandatory. Peers should have access to the information needed to reproduce published results, so that increased confidence in the outcome of the study can be generated inside and outside the scientific community.

Despite this criticism and rebuke from the NAS, the CRU hockey team continued refusing right up to this month to share its raw data and computer codes with McIntyre and McKittrick or anyone else. Mann continued to insist that the MWP was overestimated, and he keeps on producing more new hockey sticks than the National Hockey League (he has another one out this week in *Science* magazine). Some of the egregious e-mails in the stash include suggestions that everyone delete e-mails related to their work on the IPCC process to shield them from FOIA requests (possibly illegal) and, according to one of Jones’s e-mails, actually destroying the raw data in the face of a successful FOIA requisition.

Jones writes to Mann in one 2005 message: “Don’t leave stuff lying around on ftp sites—you never know who is trawling them. The two MMs [McIntyre and McKittrick] have been after the CRU station data for years. If they ever hear there is a Freedom of Information Act now in the UK, I think I’ll delete the file rather than send to anyone.” Jones now claims no e-mails were deleted, but he will need to explain his December 3, 2008, message to Ben Santer—a climate researcher at Lawrence Livermore National Laboratory—about a new FOIA request from McIntyre: “I am supposed to go through my e-mails and he can get anything I’ve written about him. About 2 months ago I deleted loads of e-mails, so have very little—if anything at all.”

Show Me the Data

Under the pressure of Climategate, the CRU has finally agreed to release its raw data and computer codes. But now we learn that some of the raw data have been lost, and while Jones should be asked blunt questions about whether he made good on his threats to delete data, it is possible that the data were lost through sheer sloppiness. The most devastating document in the CRU tape Letters may be not the egregious e-mails that have drawn most of the public attention but the detailed notes of a CRU programmer, Ian “Harry” Harris, assigned the task of sorting out the handling of the raw data and computer files.

The HARRY_READ_ME.txt file, over 100,000 words long, paints a picture of haphazard data handling that would get almost any private-sector researcher fired. Among the many damning items included in Harris’s narrative are more instances of “hiding the decline” such as “Specify period over which to compute the regressions (stop in 1940 to avoid the decline)” and “Apply a VERY ARTIFICIAL correction for decline!” Worse are Harris’s notes of improperly coded data (or data without codes at all), computer subroutines that do not work, and near complete chaos: “I am very sorry to report that the rest of the databases seem to be in nearly as poor a state as Australia was. . . . Aarrggghhh! There truly is no end in sight. . . . Am I the first person to attempt to get the CRU databases in working order?!” On and on goes Harris’s catalogue of software bugs and data horrors. Finally, this: “It’s Sunday evening, I’ve worked all weekend, and just when I thought it was done I’m hitting yet another problem that’s based on the hopeless state of our databases. There is no uniform

data integrity, it’s just a catalogue of issues that continues to grow as they’re found.”

No drug company could get through the Food and Drug Administration approval process with data handling this slapdash, yet the climate policy process contemplates trillions of dollars in costs to economies around the world based partially on this incompetent work. Worse, it suggests the possibility that the CRU circle might not be able to replicate its own findings from scratch, let alone outside reviewers. No wonder Mann keeps issuing new versions of his hockey stick.

But the frustration of the hapless Harris points to a more fundamental problem: the extreme politicization of climate science this episode reveals will discourage the best graduate students from entering the field. Judith Curry, chairman of Georgia Tech’s School of Earth and Atmospheric Sciences—not a climate skeptic by any stretch—published online a letter she had received from a graduate student pondering whether to enter the field of climate science: “I am a young climate researcher (just received my master’s degree from [redacted] University) and have been very troubled by the e-mails that were released from CRU. . . . The content of some of the e-mails literally made me stop and wonder if I should continue with my Ph.D. applications for fall 2010, in this science.” Scientists at top universities have been telling me privately for several years now that their best graduate students are avoiding climatology because they dislike how politicized it has become and consider it a dead-end field. Unfortunately this means many students who take up the field are second-raters or do so out of ideological motivation, which guarantees that the CRU scandal will not be the last.

The CRU scandal is only the tip of an unmelted iceberg of politicized science, though the “hard” sciences until recently have been generally thought immune (or at least resistant) to the leftist bias and political correctness of the universities. Some scientists are quite open about their leftward orientation. In 2004, Harvard geneticist Richard Lewontin wrote in *The New York Review of Books*: “Most scientists are, at a minimum, liberals, although it is by no means obvious why this should be so. Despite the fact that all of the molecular biologists of my acquaintance are shareholders in or advisers to biotechnology firms, the chief political controversy in the scientific community seems to be whether it is wise to vote for Ralph Nader this time.” MIT’s Kerry Emanuel, as “mainstream” as they come in climate science (Gore references his work, and in one of his books Emanuel

refers to Senator James Inhofe as a “scientific illiterate” and to climate skeptics as *les refusards*), nonetheless offers this warning to his field:

Scientists are most effective when they provide sound, impartial advice, but their reputation for impartiality is severely compromised by the shocking lack of political diversity among American academics, who suffer from the kind of group-think that develops in cloistered cultures. Until this profound and well-documented intellectual homogeneity changes, scientists will be suspected of constituting a leftist think tank.

Perhaps the most damning e-mail from the CRU circle is this July 2005 message from Jones to climatologist John Christy of the University of Alabama: “As you know, I’m not political. If anything, I would like to see the climate change happen, so the science could be proved right, regardless of the consequences. This isn’t being political, it is being selfish.” Jones’s attitude may not be exactly political, but it is certainly unscientific. The denial of political bent is also hard to square with the e-mails revealing that several of these scientists worked closely behind the scenes with alarmist advocacy groups such as Greenpeace, which deserves to be shunned by serious scientists.

Closing Time for the Climate Horror Show

Such is the volume of material leaked from the CRU that it may be many months before all of its implications for the underlying climate science are fully digested. But a few preliminary conclusions can be reached. First, we still do not know whether the MWP was comparable to or even much warmer than current temperatures, and we probably never will know with confidence. So the validating or refining of today’s climate models will have to go forward without this piece of the puzzle being filled in. Second, a close reading of the entire e-mail archive allows some distinctions to be drawn among the CRU circle. Mann, Jones, and Santer seem indisputably to be the bad actors (it was Santer who said he was “very tempted” to “beat the crap out of” skeptic Pat Michaels). Others in their circle, such as Briffa and Wigley, appear much more scrupulous and restrained about handling the data, uncertainties, and conclusions they put into print. Kevin Trenberth, a scientist at the National Center for Atmospheric Research and key IPCC contributor, comes out some-

where in the middle, writing recently, for example, “The fact is that we can’t account for the lack of warming at the moment [since 1998], and it is a travesty that we can’t.” But Jones also suggests in one e-mail that he and Trenberth will help keep contrarian climate research out of the IPCC process “even if we have to redefine what the peer-review literature is!”

The distinction between utterly politicized scientists—such as Jones, Mann, and Hansen—and other more sober scientists has been lost on the media and climate campaigners for a long time now, and as a result, the CRUtape Letters will cast a shadow on the entire field. There is no doubt plenty more of this kind of corruption in other hotbeds of climate science, but there are also a lot of unbiased scientists trying to do important and valuable work. Climate alarmists and their media cheerleaders are fond of warning about “tipping points” to disaster, but ironically this episode may represent a tipping point against the alarmists. The biggest hazard to serious climate science all along was not so much contrarian arguments from skeptics, but rather the damage that the hyperbole of the environmental community would inflict on their own cause.

Climate change is a genuine phenomenon, and there is a nontrivial risk of major consequences in the future. Yet the hysteria of the global warming campaigners and their monomaniacal advocacy of absurdly expensive curbs on fossil fuel use have led to a political dead end that will become more apparent with the imminent collapse of the Kyoto-Copenhagen process. I have long expected that twenty or so years from now we will look back on the turn-of-the-millennium climate hysteria in the same way we look back now on the population bomb hysteria of the late 1960s and early 1970s—as a phenomenon whose magnitude and effects were vastly overestimated and whose proposed solutions were wrongheaded and often genuinely evil (such as the forced sterilizations of thousands of Indian men in the 1970s, much of it funded by the Ford Foundation). Today the climate campaigners want to forcibly sterilize the world’s energy supply, and until recently they looked to be within an ace of doing so. But even before Climategate, the campaign was beginning to resemble a Broadway musical that had run too long, with a sagging box office and declining enthusiasm from a dwindling audience. Someone needs to break the bad news to the players that it is closing time for the climate horror show.

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The Meaning of Motley CRU

By Kenneth P. Green

Climate skeptics are having a field day in the blogosphere, celebrating the firestorm of controversy that has surrounded the University of East Anglia's Climatic Research Unit (CRU). Until recently, the CRU was considered one of the world's leading climate research centers, and it has exerted massive influence on the reports of the Intergovernmental Panel on Climate Change (IPCC). The IPCC, in turn, has positioned itself as the ultimate authority on all things climate, even claiming a Nobel Prize (shared with Al Gore) for its work on global climate change.

If you have been living without an Internet connection, here is a quick overview of *l'affaire* Climategate. On November 17, 2009, someone posted to the Internet a vast archive of materials that had been hacked or leaked from the CRU. When packed, the materials take up about sixty-two megabytes and consist of more than 1,000 e-mails from prominent members of the CRU and more than 3,000 documents that included everything from raw data to annotated computer code to lengthy reports documenting the frightfully disorganized state of the CRU's vitally important data files. While the vast trove of information has not been (and probably cannot be) verified as 100 percent correct, none of the people cited has denied that the documents are legitimate, and some outside entities who were engaged in some of the e-mail exchanges have confirmed that they are genuine.

Bloggers and skeptics immediately tore into the package and found evidence suggesting that CRU scientists manipulated data to exaggerate warming, worked furiously to hide their data from outside examination, may have conspired to delete information to avoid Freedom of Information Act (FOIA) requests, and may have conspired to keep contrary findings from being published in respected climate journals and IPCC reports (all the while denying the legitimacy of skeptics because they are not published in said journals and because their papers are not given credence in IPCC reports).

First, the data games: the data manipulation that has been most seized upon by bloggers involves the choice of which sources of temperature data should be used to reflect climate trends after 1960. Because thermometer-based measurements of the climate are only about 150 years old (and are quite spotty for much of that time),

when scientists set out to construct long-term estimates of temperature trends, they use what are called proxies, such as tree-ring measurements that ostensibly reveal the temperatures that the tree experienced as it grew. As it happens, the tree-ring proxies match up with the thermometer measurements up until about 1960, when there is a divergence between the two sets of data. The tree rings indicate a global cooling after 1960, while the thermometer data indicates a sharp warming.

The CRU scientists decided to simply stop using the inconveniently nonwarming tree-ring data after 1960 and to splice the modern thermometer-based temperature readings instead, using statistical methods to smooth out and conceal the transition. In one e-mail, this is discussed as a "trick" developed by Michael Mann, one of the creators of the infamous climate "hockey stick" chart, that would "hide the decline" shown by the tree rings and emphasize the recent spike in thermometer data, preserving the sanctity of the hockey stick. One problem with this is if the tree rings do not accurately reflect temperatures since 1960, why should we believe they accurately reflected temperatures in the past? If temperatures could diverge now, could they not have equally diverged in the medieval warm period of one thousand years ago? If so, current temperatures could be historically unremarkable, cutting away one of the key rationales for blaming human greenhouse gas emissions for recent climate changes.

There is also the well-known problem in the thermometer record of an upward bias due to increasing urbanization around weather stations. Which are right, the trees, or the thermometers? Perhaps neither.

In another data manipulation discussion, one of the CRU researchers discusses changing the (arbitrary) baseline that is used to define "average temperature" but is discouraged from doing so, as a less arbitrary baseline would reduce the appearance of global warming. About all we can say now is that it is unclear that the public has been shown accurate reconstructions of historic temperatures or been given the context to understand whether recent climate changes are unusual or caused by human activity.

Now, to the coverup. Many skeptics have had their doubts about the climate data championed by the IPCC and the CRU, but one of them, Canadian Steve

McIntyre, a mathematician who used to pick apart graphical representations of data for a living, decided to do something about it.

McIntyre has been indefatigable in his efforts to get the raw data and computer codes from the climate science community so that he could check whether or not their work was straight. But the climate scientists at CRU and elsewhere have been just as stubborn in fighting McIntyre's information requests with every excuse they could find.

The main excuse they gave was that some of the raw data had been provided to CRU with conditions that it could not be released to outside parties. For years, this was the response given to McIntyre and others who requested the data. Surprisingly, within days of Climategate raging across the Internet, the CRU has announced that it got all of those restrictions lifted, and—*voilà!*—is now free to release the data. That is, the data that CRU has “lost” (they have previously said they cannot produce the original data because they have lost it) includes much of the raw temperature data they ever collected. All they claim to have now are data that have been adjusted for a variety of reasons, such as changes in the locations of weather recording stations, urban expansion around weather recording stations, changes in technology used to record temperatures, and so on. However, without the original data, their claim that “the data” show historically unusual warming in the twentieth century is likely unverifiable.

In various e-mails in the Climategate trove, CRU director Phil Jones (who has now stepped down pending an investigation by his university) is shown planning to delete data rather than turn it over in response to FOIA requests and urging his collaborators to delete e-mails pertaining to discussions they had regarding which information should be used in the IPCC's fourth assessment report on climate change.

Finally, and most troubling, are the suggestions that a tribe of incestuous climate scientists may have actively conspired to undermine the peer-review process, until now considered a determinant of what is worthy of scientific consideration and what is not.

The scientists at CRU and throughout the climate change establishment, along with people such as former vice president Al Gore, have slammed skeptics for not publishing in the peer-reviewed literature. What the Climategate documents reveal is that this small group of scientists, who are often called upon to peer review each other's work as well as skeptical articles, have discussed ways of keeping findings they do not like out of the

peer-reviewed literature, even if it required trying to oust editors, boycotting certain journals, or reclassifying a prestigious journal that publishes skeptical articles as a fringe journal unworthy of consideration. They also discuss their specific intention to exclude contrary findings from the IPCC reports, even if they “have to redefine what the peer-reviewed literature is!” Is it surprising that many skeptics simply choose to forgo efforts to place materials in peer-reviewed journals when one knows that it will likely be blockaded by biased reviewers?

Science is vitally important for the operation of a highly technological society, and that science must be open and transparent and must adhere to the scientific method and the institution of science, which has no place in it for hiding data, hiding data processing, shaping data to conform to preexisting beliefs, undermining the peer-review process, cherry-picking reports in order to slant political IPCC reports, or slandering critics by comparing them with flat-Earthers, moon-landing conspiracy theorists, or Holocaust deniers.

The climate scientists at the CRU have given not only climate science, but all of science, a massive black eye, and should the public lose faith in science, a great deal of the responsibility will accrue to them. The scientists involved in the Climategate scandal should be permanently removed from any position in which they can influence climate policy. They should be excluded from peer-review panels, banned from participating in the IPCC process in any capacity, and kept far away from editorial positions at journals. Their data and methods must be made absolutely transparent and available for outside inspection.

Similar attention must be turned to climate centers such as NASA's Goddard Institute for Space Studies, home of the deeply partisan, highly political James Hansen; the National Climate Data Center at the National Oceanic and Atmospheric Administration, now headed up by the equally partisan and political Jane Lubchenco; and the National Center for Atmospheric Research, home to scientist Tom Wigley, also featured prominently in the Climategate e-mails. It is time for climate science to clean house. Researchers at all of these institutions are also frequently in contact with the CRU and collaborate with CRU researchers. Whatever investigations come of Climategate, they should not stop in the United Kingdom.