

# THE INVESTIGATION

You can easily understand how restrictions so absurd on their very face must have operated, in those days, to retard the progress of true Science, which makes its most important advances -- as all History will show -- by seemingly intuitive leaps.

Edgar Allan Poe (1848)

Each fact is suggestive in itself. Together they have a cumulative force.

Arthur Conan Doyle (1908)

In imagination there exists the perfect mystery story. Such a story presents all the essential clues, and compels us to form our own theory of the case.

Albert Einstein & Leopold Infeld (1938)

Maybe it was a clue.

Raymond Chandler (1942)

No matter how smart she is, no matter how modern her methods and how tricky her reasoning, a detective cannot be a good detective unless in the end the bad guys are found out. It is the same with science.

Lee Smolin (1997)

Fundamental physics is today in a peculiar phase of deep conceptual confusion.

Carlo Rovelli (2009)

What is oft-outrageous author Poe outraged about? What restrictions were there, long before his day? Were they really so absurd, as he avers, on their very face? Were they holding back the progress of true Science?

Well, he's indignant—so he says, tongue in cheek no doubt—about not science but *philosophy*. The passage I find in *Eureka* sets out something of the war between philosophy and physics. With a dithyrambic rant that I can hardly bring myself to read, he parodies philosophers of his own day. He says that they prescribe philosophies of Aristotle—whom he calls Aries Tottle—and Bacon—Hog—as ‘the sole possible avenues to knowledge.’ Their out-of-date ideas, he bemoans, ‘confined investigation to crawling.’ Of course, in Poe’s time, scientific that’s distinct from philosophical investigation is in its infancy.

But what a difference two hundred years can make. If Poe had a fair com-

plaint it surely has no currency today. Digging round for Frank it seems that new and strange world views are littering the streets. Or, well, the Web at least. Speakers' Corner at Hyde Park has gone ballistic. Check it out, the echo says. At random I punch in perverse+world+view. Fifty thousand hits. One top hit's a philosophic text that talks about the view 'embraced by modern physicists.' The view of what? Well, of the universe. A long shot or what? Of course not all the new world views are new philosophies: The top hit is a blog on bonuses at Merrill Lynch. Now there's a true perverse world view. Anyhow it's clear that litter is no longer merely up and coming on the Web. It *is* the Web. So where do we begin? How does Frank pull off the feat of finding out the bad guys? Sorting through the litter, where do we pick up the trail? More to the point, doing all his surfing for him, where do I?

This trail is so old it is stone cold. They don't come colder. This isn't like your crime scene that may be disturbed. It's not the Jackson mansion when the moving trucks moved out. This scene has been subjected to the most massive makeover that could be imagined. It's at the ash-end (ash with an aitch) of a long ride through an atomic furnace. Not just a garden-type atomic blast, it goes on for a million years. It leaves behind it nothing bigger than small atoms.

But he should not lose hope. Levison says, 'It's like a bloody crime scene. Sometimes the splatters on the wall can tell you more about the crime than the body itself.' Levison, like Frank, is on a case that's not a crime. With his colleagues he is after the beginning of our solar system. Their problem is that early on—about 4 billion years ago—the solar system has a messy session of its own. Giant planets zoom around all over. A million billion asteroids smash into them. Yet scientists discover and decipher ancient clues. From them they reconstruct events that build the solar system that we see today.

In the same vein the universe came out of the Big Bang complete with certain clues. And they're the very best of clues, says Sherlock: *bizarre* clues! I am compiling a collection. So now we go to work on them. Okay, *I* will work on them. He will read my notes. After a fast start she's reading next to nothing.

I feel a change in him the last few days. Nothing I can put my finger on but the feeling's gone. Not Lightfoot. *He* was singing of another feeling. I had his attention for a while and now it's lost. If his mind is on the job it isn't *this* job.

My LISP-lists list clues for my study and for writing up his lessons. They list more than forty problems. Well-known problems! Well, the cognoscenti know them. The cognoscenti know that they disclose a cosmic disconnect. Leafing through them leads me to an insight: Science and society are cozied up to concepts that work well but make no sense.

My list offers him an opportunity, a crime scene—so to speak—with lots of

pieces that don't fit. It's more than a sufficiency of clues; it is a surfeit. If this were a detective story they'd be signposts leading the protagonist to crack the case. This case is tougher. Could the problems guide his quest? It may take me months to pull together notes on all of them. It seems strange that I can find no ready-made review. Is there a reason? Should I ask her? Then I think: This job won't last forever. I like learning. She has money. There's no rush.

Each problem is a study of its own. It has its experts. My task isn't to explain. It's to clue him in, to tip him off that they exist and help him size them up. Most of all it's to pursue a thought an expert on each problem might not think but a detective would: Could it be easier to solve them all than to solve any one? But then his job is not to solve them, it's to see them in a different light. It's to see that *if* the butler's bride was born in Bosnia the senseless clues all suddenly make sense.

My clues list stretches out in weeks and even months before me. Will we learn a lesson at its end? I'm Watson watching Holmes track Wilson, the notorious canary trainer. At first Holmes' problem is he doesn't know precisely what the problem is. Some kind of plague, says Watson in the story of Black Peter. Holmes comes across a clue. An elephant has died still standing after eating too much candy. Round the corner is a pawnshop with a door that's far too small for any patrons. The unbroken trail that leads him there is made of fluffy ashes from a single elongate cigar. These are but the first and not the strangest of some forty clues. So many clues, such weird ones too, would lead Holmes swiftly to a single simple explanation.

I can't tell Frank my fantasy. It won't help him see his situation. His clues involve deep issues. His task is not to plumb their depths. Rather, having checked them out, he should be in a good position—better off than, say, a physicist—to take a fresh look at the whole of them and wonder: Do they share a single simple explanation?

His first problem is an incident right after the beginning. So far as evidence can show, it seems that, far from being noisy, like the dog in *Silver Blaze* the early universe was strangely hushed. The incident was not a missing bark, it was a missing bang. What does this silence say?