PARAMOUNT PICTURES 2017

Al Gore meets Filipino typhoon survivor Demi Raya and Alfred Romualdez, former mayor of Tacloban City, in *An Inconvenient Sequel*.

CLIMATE CHANGE

Al Gore gets inconvenient again

Michael Mann views the US statesman's second film probing climate change.

Nobody (and given my experiences with climate deniers, I speak with some authority here) has been more vilified for their efforts to communicate the climate threat than Al Gore.

As US vice-president under Bill Clinton, Gore became the figurehead of the movement to combat human-driven global warming. He also became the preferred punchbag for climate-change cynics in search of a straw man. Gore is such a towering, seemingly unassailable figure in this arena that critics have gone after him with all guns blazing. As Tom Toles and I noted in our book *The Madhouse Effect* (Columbia Univ. Press, 2016; see D. Reay *Nature* **538,** 34–35; 2016): "They have criticized his weight, his energy bills, and incidents in his personal life — indeed, pretty much anything else they can scrape up."

There's one problem with taking on Gore. He punches back, and above his weight. After all, he's up against arguably the most entrenched, wealthy and powerful industry the world has ever known: fossil fuels. And this pugilist is still very much in the fight. Witness his new film *An Inconvenient Sequel: Truth to Power* — the follow-up to his 2006 *An Inconvenient Truth*.

For those fearing a preachy PowerPoint lecture on climate science, be assured: *An Inconvenient Sequel* isn't that. Rather, it largely takes the scientific evidence as a given, not least because Gore has already done a whole film on that. This instalment is an attempt to show us how striking climate impacts have become in the decade since his first movie.

An Inconvenient Sequel: Truth to Power
BONNI COHEN & JOHN SHENK
Participant Media/ Actual Films: 2017.

Early in *An Inconvenient Sequel*, there's a scene on the Greenland ice sheet, where glaciologists Eric Rignot and Konrad Steffen point to the dramatic retreat of ice in recent years. We witness rivers of surface melt water gushing away from the ice sheet to the open water of the North Atlantic Ocean. Gore poses the question: "Where is all of that water going?" He then answers it. We're transported to Miami Beach, Florida, where we witness the flooding of streets that now comes simply with seasonal high tides. If melting Greenland ice seems distant and abstract, the perennial flooding of Miami and other coastal cities, and low-lying, highly populated countries from Bangladesh to Belgium is anything but.

The drought that has afflicted Syria for more than a decade is the most pronounced and prolonged for at least 900 years (as far back as we have reliable palaeodata). Climate change has undoubtedly had a role. Gore shows us how the impact of the drought on rural farmers led to increased conflict, a civil war, mass exodus, global conflict over immigration and, as a consequence, the emergence of Islamist terrorist group ISIS. If drought in Syria seems distant or even mundane, the threat of terrorism and global political instability is immediate and visceral. Gore has a genius for joining the dots in the global mapping of climate impacts.

In *An Inconvenient Truth*, Gore showed a version of the famous 'hockey-stick' curve that my co-authors and I published in the late 1990s (M. E. Mann *et al. Geophys. Res. Lett.* **26,** 759–762; 1999), revealing a dramatic spike in temperature over the past century. There is a 'hockey stick' in the new film, but it charts instead the remarkable global growth in renewable energy over the past decade. Climate change is accelerating; so too is our ability to tackle it. There are reasons for cautious optimism.

"Prime Minister Justin Trudeau is reduced to a fanboy."

Meanwhile, we meet an Al Gore whom his friends have described but few others have seen. This Al Gore is not wooden.

He sheds tears in the wake of the 2015 Paris terror attacks. He displays righteous indignation towards those who are knowingly leading the public astray on climate change. This Al Gore is peeved — and we applaud him.

He is also comfortable in his own skin. Greyer now, he has grown gracefully into the elder statesman. He is the master diplomat who convinces innovator Elon Musk to provide the Indian government with free access to his solar technology, in an effort to get the country on board with the Paris climate agreement. He's the hero in whose presence popular Canadian Prime Minister Justin Trudeau is reduced to a fanboy.

Those expecting Gore to rip into US President Donald Trump will be disappointed. Ever even-handed, he does his best to engage with Trump constructively. But it is clear where he stands. He runs a clip of Trump explaining that we should be worrying about ISIS rather than climate change. Anyone drawn to this film will already know that that's a fallacious dichotomy.

This sequel is deliciously inconvenient, and for several reasons. It is inconvenient to the vested interests who had hoped that Gore would just give up. Their campaign of vilification was intended both to deter his ongoing outreach efforts and to strike fear into the hearts of others who might consider stepping up to the plate. (I call this "the Serengeti Strategy" in *The Hockey Stick and the Climate Wars*; Columbia Univ. Press, 2013). But, as his subtitle promises, Gore is still speaking truth to power.

For that reason, the film is also inconvenient to Gore. Rather than spending his remaining years celebrating the fruits of a distinguished career in public service with his family and friends, he's still battling the forces of denial and delay.

Finally, the film casts an inconvenient light on humanity. It is astonishing that we're still mired in a political debate about whether climate change even exists when, with each passing year of insufficient action, the challenge of averting a catastrophe becomes ever greater. Knowing that Al Gore is still optimistic is a shot in the arm at a time of uncertainty. ■

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IN RETROSPECT
Das Kapital

As the world is reshaped by another industrial revolution, **Gareth Stedman Jones** revisits Karl Marx's opus.

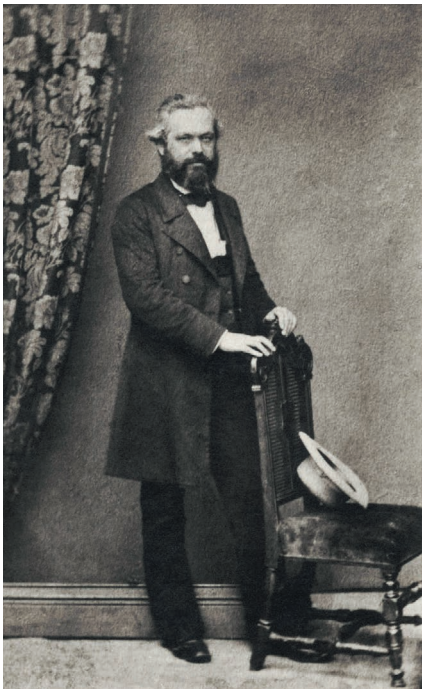
Das Kapital
KARL MARX
Verlag von Otto Meisner: 1867–94.

By the mid-nineteenth century across Europe, the scientific and technological shifts behind the Industrial Revolution were extracting a heavy social and political price. Reports surfaced of the poverty and ill-health of town-dwellers, overcrowding, child labour and oppressive factory conditions. This 'social question' prompted widespread anxiety. Meanwhile, censorship, repression, the continued rule of aristocracies and the exclusion of the working classes from suffrage ignited mounting political discontent.

Observing, analysing and synthesizing these changes was the Rhineland economist Karl Marx (1818–83). He codified concepts of labour, trade and the global market to explosive effect in *Das Kapital*, the first volume of which was published 150 years ago. The book's impact on economics, politics and current affairs has been formidable, and aspects of Marx's thinking have permeated areas of scientific research as disparate as robotics and evolutionary theory. Industrial revolutions, as Marx realized, relegate workers to the status of machine minders, and open the way to production that does not depend on human labour.

How to explain the infusion of *Das Kapital*'s concepts into so many fields? Friedrich Engels, Marx's long-term collaborator and author of the groundbreaking 1845 *The Condition of the Working Class in England*, compared *Das Kapital* to the theory of evolution by natural selection, published eight years before. He wrote: "just as [Charles] Darwin discovered the law of development of organic nature, so Marx discovered the law of development of human history".

What is extraordinary about *Das Kapital* is that it offers a still-unrivalled picture of the dynamism of capitalism and its transformation of societies on a global scale. It firmly embedded concepts such as commodity and capital in the lexicon. And it highlights some of the vulnerabilities of capitalism, including its unsettling disruption of states and political systems. The election of Donald Trump, the vote for Brexit and the rise of populism in Europe and elsewhere can all be understood as indirect effects of shifts in the global division of labour — the relocation of key aspects of modern production away from Europe and the United States. That has been brought about by changes in what Marx identified as the capitalist enterprise's incessant drive to expansion.


CULTURE CLUB/GETTY
Karl Marx in the 1850s.

A HUMAN REVOLUTION

In the early 1840s, Marx was the radical editor of the *Rheinische Zeitung* newspaper, writing editorials that attacked Prussia in the name of freedom of the press. After the paper was banned in 1843, he left for Paris, becoming a communist. He began arguing for a revolution, not a political one like that of France in 1789, but a 'human' one, carried out by a class beneath existing society: the 'proletariat'.

During his exile, Marx's theoretical project was set in motion when, as editor of the *Deutsch-Französiche Jahrbücher*, he received Engels' article 'Outlines of a Critique of Political Economy'. The two met in 1844. Engels, who was managing his father's textile factory in Manchester, UK, condemned an economic system based on private property, whose theory was "political economy" or the "science of enrichment". It had, he argued, brought about the end of slavery and feudalism only to ▶