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## Nothing new under the sun

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### Anthropogenic global warming started when people began farming

IMAGINE a small group of farmers tending a rice paddy some 5,000 years ago in eastern Asia or sowing seeds in a freshly cleared forest in Europe a couple of thousand years before that. It is here, a small group of scientists would have you believe, that humanity launched climate change. Long before the Industrial Revolution—indeed, long before a worldwide revolution in intensive farming, the results of which kept humanity alive—people caused unnatural exhalations of greenhouse gases that had an impact on the world's climate.

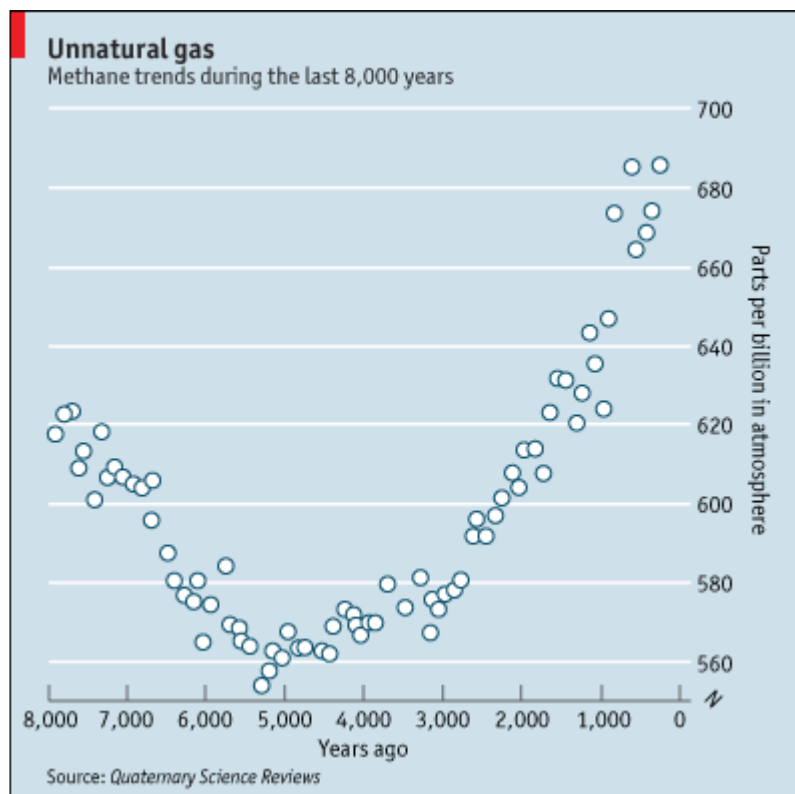
Much of what is known about recent ice ages comes from drilling into the ice at the planet's poles. This holds a chemical chronology of the Earth laid out by depth. There is evidence in this ice-core record of seven periods when the ice caps expanded, and each of them shows a steady decline in the level of greenhouse gases after the ice receded again. All, that is, but for the one which saw the rise of modern agrarian societies.

In Europe, slash-and-burn techniques for clearing forested land allowed the farming of crops that had spread from the Fertile Crescent. This practice loosed the forests' stored carbon into the atmosphere in the form of carbon dioxide. In eastern Asia a couple of millennia later there was a tenfold increase in the growth of rice as the region's principal foodstuff. That meant the destruction of vast grasslands, which released equally vast amounts of methane—a gas far more efficient at trapping heat than carbon dioxide is.

Alamy



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The ice-core record shows that the level of carbon dioxide in the atmosphere made an anomalous upturn about 7,000 years ago, and that methane levels, which were also falling, began to increase about 5,000 years ago (see chart). These numbers correspond well with the rise of farming in Europe and Asia. This is not a new idea, but one of its proponents, [Bill Ruddiman](#), a palaeoclimatologist at the University of Virginia, has recently refuted one of the main objections to it: that there were not enough people farming the land to have made a significant difference.

Dr Ruddiman [argues](#), in *Quaternary Science Reviews*, that with vast tranches of land at their disposal and only unrefined agricultural techniques, early farmers had no incentive to maximise the potential of the land they farmed. Previous attempts to take into account the effects of early agriculture on the climate have assumed that people farming then used about the same amount of land to grow food, per person, that they did into the modern era. Dr Ruddiman argues that such an assumption is tantamount to suggesting that farmers have learned nothing in the past 5,000 years.

He and his colleagues have turned to archaeological and anthropological data to show that early farmers used ten times as much land per person as modern farmers. Burning off large areas of forest or grassland, they would farm the enriched soil until its yield began to drop, and then move off to do the same elsewhere—as practitioners of slash-and-burn agriculture do to this day.

Such profligacy would make the contributions of early farmers large enough to have an effect on worldwide levels of greenhouse gases. So although the size of the effect has increased markedly since the industrial revolution, it looks as if humanity has been interfering with the climate since the dawn of civilisation.

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