

## Glendale Local History Society Talk 11 December 2019

### Climate Change: past and future

At the December talk, Glendale Local History Society members were treated to an informative talk on *Climate Change: Past, Present and Future*, by member Allan Colman, who has a specialist interest in meteorology and climatology. Looking back, he reminded us that many thousands of years ago, our area was completely covered with ice. Looking forward, he warned us that this could happen again, but possibly sooner rather than later, and only after complicated swings and roundabouts of several factors affecting how our climate changes. To see tendencies in climate change, climatologists have to chart an average path through the annual fluctuations which we are all aware of. He took the audience through past patterns since the ice retreated. Globally temperatures reached their highest point since the ice age around 4 to 5 thousand years ago, and then cooled again. The classical period was significantly warmer, followed by a cool period, with our planet warming again during the times of Viking expansion to Iceland, Greenland and their voyages to Vinland. Then, from around 1300 AD, what is known as the little ice age set in, with particularly severe winters in the 18<sup>th</sup> Century. Now, however, global temperatures have nearly reached those early high temperatures.

However, these global trends lead to different patterns in different parts of the world. Some parts of the world are warming much faster than others, with particularly fast changes in northern latitudes of the northern hemisphere. Many of us remember winters in the mid-twentieth century, when harsh temperatures and long periods of winter snow seemed common compared to recent years. Our speaker explained that the 1940s to the 1970s was a time when global temperature was fairly stable, after a period of warming from 1900. Since the 1970s, however, there has been a steep rise.

What causes these changes? They are not the result of a single factor, but of many factors, operating on very different timescales. Some of these work to cool global temperatures, others work to increase them. Some are cosmic in origin, some the result of global geology and some the result of changes in the mix of gases in the various layers of our atmosphere. These all affect the formation and melting of ice caps, the flows of oceanic currents of different temperatures and our planetary ecology. These in turn affect regional patterns of air and sea temperature, cloud and rain formation, and how far gases can be held on the ground, in tree cover for example. Humans contribute to these changes through their impact on both the ground cover, by deforestation, for example, and by the gases we pump into the air as we cultivate animal stock and consume fossil fuels.

Cosmic changes include the changing way the earth tilts on its axis and circulates round the sun. These cycles operate in timescales of many thousands of years. Their effects are sometimes warming and sometimes cooling. Geological changes can be produced by volcanic explosions which pump masses of ash and gas into the air, cutting out the sun and having a generally cooling effect, but over a timescale of a few years. In North West Europe, we are particularly vulnerable to explosions from Iceland's volcanoes, and we were warned that the great Icelandic volcano, Katla, is overdue to have a massive explosion. And we are all aware through so much recent publicity just how much humans have been contributing to global warming in recent years, and continue to do so. Collectively, the effect of all these impacts at the moment is steadily upwards. The impact of this trend is increasingly being experienced in different parts of the world. Some areas are affected by drought, others by storms and hurricanes. Some places are afflicted by forest fires, others by warmer seas, damaging coral reefs and affecting marine ecologies, and, as glaciers melt ever faster, sea levels are steadily rising in many places.

Our speaker provided us with a well-illustrated and balanced account of the trends which climate scientists have now identified. What then about the future? Likely global warming will continue for a good while, perhaps changing all too quickly, causing serious challenges as ways of life in different parts of the world are undermined. In our area, we may benefit from the warming for a while, but cooling could set in again in a few lifetimes hence, due to changes in the flow of ocean and air currents. So what should we humans now do, after ourselves becoming a significant cause of the problems we face? Is there a 'techno-fix' to allow us to carry on as we have done, or do we all have to change how we do things and show more care for our planetary environment? And what can we do in our own local area to try to make a difference to what happens? By the end of the talk, we all felt we needed to go on talking about these issues for much longer!

The next GLHS talk will be on January 8<sup>th</sup>, 7.30pm at the Cheviot Centre, Wooler, when Jessica Turner will talk on the Bamburgh Ossuary and the Anglo-Saxon context.

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