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Neville Brown

THE ERA OF MONGOL EXPANSION

Abstract: The singular Mongol expansion of the 13th century was initiated under the influence of a complex process of climate change: the gist being that a long tendency towards more warmth and moisture was giving way to cooler, drier conditions. The progress and ultimate extent of the expansion were determined considerably by climate change, recent or on-going, at least in the Far East and Near East. In Mesopotamia «climate change» includes earthquake frequency for our purposes here.

Key words: Mongol expansion, climate change, medieval warming, Central Europe.

Through the early 20th century, a debate raged, especially in Anglo-America, between outright climate determinists and those one can term «possibilists». The latter were a loose assemblage of mainstream geographers plus historians with relevant interests. The former were led, in effect, by the American geographer, Ellsworth Huntington. Their priority concern was the *Völkerwanderung* in late Antiquity (Huns, Goths, Vandals ...). They little considered the Mongols. Nevertheless, the arguments they developed may be an appropriate point of departure for assessing the conquests begun by Genghiz Khan. They constituted the last but the greatest of the epic tribal expansions out of inner Eurasia. The Mongols were the most nomadic of the successive tribal groups.

A fundamental Huntingtonian theme was that drought cycles were primary forcing factors for these aggressive excursions. Envisaging big droughts at long though regular intervals, Huntington initially looked to climate trends being uniform from, say, East Persia to Lop Nor, an implausible prospect geophysically. Likewise the regularity attributed to these macro-fluctuations has never been confirmed. Instead the instrumental evidence from South Russia is that, if cyclicity is observable, it is not on a 500-year wavelength but a 20-year one: much as on the High Plains of the USA.

Ascertaining the climatic background for the Mongol take-off, one must extrapolate from the Chinese imperial records. For Mongolia is on the monsoonal fringe with most of what rain there is falling in the summer half-year. The records are peerless in their coverage - geographical, thematic and timewise. The only Near Eastern archival source that even approaches their utility is that for the Nile floods. It, too, is relevant here. The yearly flows of water via the Blue Nile out of Ethiopia tell us about fluctuations of the South Asian monsoon and of El Ninõ.

Clearly all evidence to hand must be subject to dynamic interpretation. One factor to feed in will be early medieval warming, peaking in the late 13th century: a tendency considerably due, in all probability, to deforestation in Europe and China the past several centuries. The incidence of warming was variable around the Northern Hemisphere. However, both China and Europe were much affected, a concurrence unrelated to the tree felling.

In East Asia, the profile of temperature rise is decidedly uneven. There was a preliminary maximum as early as the 8th century. A key to the contrast with Europe is the wintertime Siberian High. Throughout the 20th century this has been most conspicuous within the hemispheric circulation, a determinant of weather well outside its own confines. Nevertheless, it is weak in depth. Centred medially over the Gobi, its circulation easily embraces the hemisphere's «pole of winter cold» at Verkhoyansk. Thereby it entrains cold, dense air the pressure of which falls rapidly with height. In other words, an anticyclonic cell near the surface gives way to a cold pool aloft. Were the dynamics of hemispheric warming to disrupt this fragile structure, the result could be a rise in Mongolia's winter temperatures plus a moderation of the dust storms that, especially as Spring approaches, are the harshest features of the regional climate. Were this mechanism operative, the result might be a compensatory development of circumpolar high pressure. There are, in fact, compelling signs of this through the early Middle Ages, at least over Northern Scandinavia.

Another causal factor is a Rossby «standing wave»: a tendency for the tropospheric upper westerlies to swing sinusoidally northwards then southwards round the Himalayan-Tibetan topography. A British pioneer of modern historical climatology, Hubert Lamb hypothesised that these waves accentuate during secular warming. Near the medieval optimum this could induce the advection of cold, dry northerly air across Mongolia and much of China. The Chinese archives confirm the relative dryness.

However, the human connotations require careful interpretation. A warming beforehand should have favoured the expansion of Mongol manpower and horsepower. But it could have encouraged, too, encroachment on nomadic grazing land by sedentaries. Conversely, a reversion to cooler, drier conditions will have encouraged an extension of nomadic grazing. The lusher grasslands or arable that sedentaries prefer will have receded but been entrapped in certain directions by *taiga* coniferous forest peerlessly adapted to shallow, badly-drained acidic soils. Against this background Temujin (b. 1167) welded together his singularly belligerent Mongolian confederation.

In 1205 he assumed the title of Genghiz Khan, the leader of «all who dwell in tents of felt». In 1211, he made war on the Sung Empire. North China finally fell in

1235 but the Sung realm in the South held out until 1279. Meanwhile, Mongol armies had surged westwards. After crushing victories in Hungary and Silesia in April 1241, Central Europe would have been for the taking had not the death of Ogadai, the son of and successor to Genghiz, obliged all Mongol leaders to address a succession problem. By 1259, the Mongols were poised to confront Egypt. But then the fourth Khan, Möngke died. So facing another struggle for the succession, many troops turned nearer home. Thenceforward transcontinental Mongol unity was looser knit.

The mobility that was the paramount Mongol attribute had mixed connotations. It encouraged the spread of epidemics, in part because trading caravans ranged well beyond the old Silk Road. They thus came more in contact with the wild rodents of the steppes. Probably the latter thus became prime transmitters of bubonic plague.

Also to consider is how far the strategic mobility of the Mongol host was a less than free option, a proclivity imposed by a constant need for suitable fresh pastures. A Mongol army was typically 30,000 men with several mounts apiece. Even ignoring a non-combatant train, that implies there may often have been little choice between withdrawal or continual advance, leaving the newly-subject communities to rearward suitably cowed by destruction and mass murder.

As to how far Mongol campaigning was affected by the climates of the lands under attack, too much has been made of a singular Mongolian hardiness whereby men and horses thrived in most inclement weather. Take their use of Russia's frozen rivers as axes of advance during the winter campaign of 1237-8. Wintertime was customarily preferred for long distance travel by the Russians themselves. The ground was firm and the air insect free. Then again, there is no evidence from the chronicles of climate abnormalities precipitating the inter-boyar warfare that so weakened Russia, especially in the South, ahead of the main Mongol invasion.

In the Near East, Persia and Mesopotamia were the primary conquests. The indications are that, for one or two centuries beforehand, a moister, maritime Mediterranean regime had been extending its influence more across the region. But in Mesopotamia, extensive earthquakes plus the associated unrest had badly damaged the irrigation system in the 11th and 12th centuries, leaving the Abbasid caliphate desperately vulnerable. The Mongol sacking of Baghdad and its hinterland in 1258 finally shattered the hydraulic infrastructure and, indeed, the caliphate itself.

In China, the more monsoonal lands from the Yangtse southwards were generally hard for horsemen to penetrate. However, the region so long controlled by the Southern Sung became more liable to water shortages, probably a further effect of «standing wave» accentuation. The more parched landscapes probably increased its exposure tactically and certainly weakened its economic foundations.

Both the Mongol-led expeditions against Japan (in 1274 and 1281) were devastated as tough national resistance on the coast exposed the invaders to storms at sea. A marginal further rise in sea temperature could have been a general consequence of the Little Medieval Optimum in middle latitude temperatures within the northern hemisphere. Quite possibly, too, the weak El Niño characteristic of the later 13th century will have favoured rather warmer surface waters in the relevant ocean area, thereby invigorating typhoon development. The *kamikaze* («wind of God») typhoon of August 1281 was utterly catastrophic. It came several weeks earlier than, on our contemporary evidence, do the great majority of really lethal typhoons.

As to causation, a wide stretch of the NW Pacific including the waters off southern Japan usually attains by August sea surface temperatures of 28°C: a value apparently critical for typhoon genesis. To which one can add that 1280 saw the onset of decades of stormier weather around the North Sea in NW Europe: the transition there clearly coinciding closely with the turning point of the medieval optimum. More generally, the 14th century was to be characterised by more erratic weather in both China and Europe.

Kublai Khan, the architect of the 1274 and 1281 expeditions, was doing a remarkable job as China's first Yüan emperor, restoring the country's ancient civilisation under Mongol supervision. Also he was widely accepted in the Mongol world as the primary heir of Genghiz Khan. So had he succeeded in conquering Japan, he could well have achieved (confederally at least) something approaching the Genghiz dream of a Mongol «universal Empire». But it would have been liable to break up within decades. All else apart, the Mongols were never really accepted within China itself.

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Neville Brown
Mansfield College
Oxford University
Oxford
United Kingdom