Investigating historical severe storms in Austria (1604, 1807) and England (1638)

Katrin Pfeifer\textsuperscript{1}, Niki Pfeifer\textsuperscript{2}

\textsuperscript{1}University of Salzburg, Department of History, Austria, history.pfeifer@gmail.com and
\textsuperscript{2}Ludwig-Maximilians-Universität München, Munich Center for Mathematical Philosophy, Geschwister-Scholl-Platz 1, D-80333 München, Germany, niki.pfeifer@lrz.uni-muenchen.de

(Dated: August 27, 2011)

I. INTRODUCTION

In this talk we survey selected rediscovered historical severe storms from a cultural historical perspective. Specifically, we investigate a severe storm that destroyed the Parish Church at Widecombe-in-the-Moor in Dartmoor (UK) in 1638. Moreover, we report on two severe storms that uprooted houses and uprooted trees in Vienna (Austria) in 1604 and about two hundred years later in 1807. We analyze various primary sources ranging from written documents like tracts, contemporary newspaper reports, and pamphlets to pictorial sources (woodcuts). We discuss the impact of these severe storms on the society and the cultural responses.

In the talk, we use the cultural historical method presented in [5] to investigate the three historical severe storms. Specifically, we present source material to illustrate how the contemporaries perceived severe storms, how they tried to explain and manage these disasters, and if/how severe storms are remembered.

II. THE SEVERE STORMS IN VIENNA (1604, 1807)

We describe two rediscovered severe storms that raged over Vienna (Austria) in 1604 and 1807. Table II contains a description of the storm of 1604 which gives hints on how the contemporaries perceived the severe storm. It occurred suddenly, destroyed chimneys, many doors, small and large roofs. People were injured by flying bricks. The copper roof of the imperial castle was destroyed. Three carriages with horses and men were lifted from a bridge into the air and thrown into the river Danube. Concerning the causal attribution, Table II explains that god used wind to frighten people and to punish them for their sins. The text also asks for prayers. Praying was a way of mentally managing the disaster. We could not find evidence of how the contemporaries remembered the disaster.

Table II contains excerpts of a newspaper on the severe storm that raged over Vienna in 1807. Another source reports that this storm raged also in many other Austrian regions. In Simmering (part of Vienna) roofs, buildings and trees were severely damaged. Reparations were hindered as French troops occupied the imperial residence for the second time [4, p. 312]. Moreover, in Oberliesing (now the 23rd district of Vienna) a solid tower was so heavily damaged that the upper part had to be carried off [4, p. 210f].

II. THE SEVERE STORM IN

WIDECOMBE-IN-THE-MOOR (1638)

Figure 2 reproduces the title pages of the two Widecombe tracts of 1638. They were published shortly after the incident. The first tract (T1) consists of 14 pages. The second one (T2) repeats the first, is more detailed and consists of 37 pages.

T1 begins by explaining that thunder and lightning are produced by the power of god. It describes vividly how the contemporaries perceived the beginning of the severe storm: In the “time of Divine Service a strange darknesse, increasing more and more, […] a mighty thundering was heard, […] much like […] the sound and report of many great Cannons, and terrible strange lightening therewith” [T1, p. 5]. T1 continues with an early description of a ball lightning: “[…] The whole Church was presently filled with fire and smoke, the smell whereof was […] like unto the sent of brimstone, some said they saw at first a great ball of fire come in at the window and passe thorough the Church” [T1, p. 6]. The dam-

A sudden storm originated northwest west in the night from September 30 till October 1 and raged most violently over Vienna and its surroundings between 3 and 6 o’clock in the morning. The dome of the tower of the Augustiner church was thrown down to the lane [...]. Thousands of windows were broken and many gardens in the suburbs were almost totally desolated [...]. The strongest trees were uprooted or splintered. The wind stopped only in the evening of the next day. [...]. The Reaumur scale showed 9 degrees above the freezing point. 9 degrees on the Reaumur scale correspond to 11.25 degrees Celsius.

TABLE II: Wiener Zeitung Nr. 80/1807, p. 4647f and free translation.

FIG. 1: “The dreadfull tempest in Devonshire”. Anonymous woodcut, probably produced for [1, see p. 54–57].

FIG. 2: Two Widecombe tracts of 1638, reprinted in [8].

The description includes some indication that the severe storm was accompanied by a tornado: “[...] there were some Seats in the Body of the Church turned upside downe [...] And one man going out at the Chancellor doore his Dogg running out before him was whirled about towards the doore and fell downe starke dead: at the sight whereof his Master stepped backe within the doore, and GOD preserved him alive” [T1, p. 9]. John Taylor (1580-1653) wrote an account entitled “Newes and strange newes from St. Christophers of a tempestuous spirit, which is called by the Indians a hurricano or whirlewind. Which hapenth in many of those ilands of America or the West-Indies, as it did in August last, about the 5. day. 1638. Blowing downe houses, tearing up trees by the rootes, and it did puffe men up from the earth, as they had beene feathers, killing divers men. Whereunto is added the true and last relation of the dreadfull accident which hapned at Withicombe in Devonshire the 21. of October 1638”. Rowe [8, p. v] attributes the first appearance of the illustration reproduced in Figure 3 to Taylor’s text. Figure 3 presents an early depiction of a ball lightning. Moreover, it shows the destruction of parts of the tower. T1 describes the strong force of the severe storm, which might count as another tornado indicator: “there were also stones throwne from the Tower as thick as if an hundred men had beene there throwing” [T1, p. 9].

T2 describes that it “is supposed (it having beene since by divers judicoulsy viewed) that here the power or force divided it selfe two waies; one part whereof struck out of the window over their heads, which tore out and carried away some great stones out of the wall with the window [...]” [T2 p.17]. “But the other part of the force descended to the bottome of the wall [...] and about the number of eight boyes sitting about the rayles of the Communion Table, it tooke them up from the seartes and threw them all on heapes within the rayles, and not one of them hurt” [T2 p.18]. This impression of “divided
FIG. 3: Depiction of a ball lightening and the destruction of parts of the tower (Anonymous; taken from [8]).

force” where the one removed great stones and the other one lifted eight boys may be interpreted as tornado caused.

Finally, about thirty kilometers southwest of Widecombe in the Moor, a severe hailstorm occurred: “At the same time also at Brixton neare Plymmouth, there fell such sore of Haile, and such Haile-stones, that for quantity they were judged to be as big as ordinary Turkeis egge; some of them were of five, some of six and others of seven ounces weight” [T1 p. 12].

Today, this severe storm is brought into the memory of the visitors by verses written on four plates located in the church of St Pancras in Widecombe-in-the-Moor in Dartmoor (UK). The verses are attributed by Page [6, p. 214] to the schoolmaster Richard Hill.

IV. OUTLOOK

The Enhanced Fujita scale has been (not uncontroversially) implemented in the United States to measure the intensity of tornadoes [2, 7]. Recent work adapted the scale for Central Europe [3]. For measuring the intensity of historical tornadoes, however, this scale is hardly applicable. Historical sources provide sparse damage indicators. Moreover, although intensity indicators based on vegetation damages may be adapted, the scale needs to be modified with respect to the damage indicators based on buildings. Strip malls, automobile showrooms, or transmission line towers are examples of building characteristics which were built in the 20th century and were not existent in historical times. Future research should focus on developing intensity scales for historical severe storms.

V. REFERENCES

[1] R. Burton, editor. Admirable curiosities, rarities, and wonders, in England, Scotland, and Ireland, being an account of many remarkable persons and places; and likewise of battles, sieges, earthquakes, inundations, thunders, lightnings, fires, murders, and other considerable occurrences and accidents, for several hundred years past. With the natural and artificial rarities in every county, and many other observable passages; as they are recorded by credible historians of former and latter ages. John Richardson, London, 2 edition, 1684.