

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

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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].

Wie der grewliche und erschroeckliche Sturmwind / Anno 1604. den 4. Feb. zu Wien in Oesterreich Jaemmerlich gehauset / auch was der selb fuer maercklichen schaden gethon. [...] Also straffet Gott unser Sünd / Der Wind ist das vierdt Element / damit uns Gott will schroecken. [...] Unversehens schnell und gschwind / Ein gar schroecklicher Sturmwnid [sic!] / Dißmals sich thet erregen / Der ungestuem mit grossem grauß / die Rauch-faeng an manichem Hauß / Erledigt thon bewegen. [...] Umbgeworffen gerissen ein / vil Thuern und Taecher groß und klein / Erledigt und zerrissen / vil Leut an dem fuerueber gahn / getroffen unnd beschaediget hon / von Ziegeln hart geschmissen. [...] In der Kayserliche Burg ich sag / da hats ein gar schoen Kupffern Tach / hats auch halb wegk genommen / sampt einem grossen huetzen Chruest / so auch darbey gewesen ist / weit von der Statt in Summen. [...] In den Graben geworffen ein / das sich verwundert groß und klein / dann der Vind so thet saussen / das man stohnt in noth unnd gefahr / meinten es wurd ein reissen gar / die Statt mit seinem prausen. [...] Nun hoeret weiter Wunder an / auff der langen Thonen Brucken schon / hat der Wind ungestueme / auch drey Waegen mit Roß unnd Mann / Erschroeklich auffheben thon / in die Thonaw gestuertzt mit grimmen. [...] Zur Warnung der gantzen Christenheit / auff Erden schickt zu diser Zeit / Solchs laßt euch gehn zu Hertzen / Bitt Gott den Herrn frue und spat / Das Er uns erzeig sein Goettlich gnad / Gott laßt nicht mit ihm schertzen.

TABLE I: Bayerische Staatsbibliothek München, Handschriften- und Inkunabelabteilung; (Res. 4°, P.o.germ. 232, 38).

III. 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 creat Cannons, and terrible strange lighening 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-

Ein plötzlicher Sturm, der in A sudden storm originated der Nacht vom 30. Sept. auf den northwestwest in the night 1. Okt. aus Nordwestwest hervor- from September 30 till Octo- brach, und am Morgen zwischen 3 ber 1 and raged most violently und 6 Uhr in seiner furchtbarsten over Vienna and its surround- Gewalt wüthete, setzte Wien und ings between 3 and 6 o'clock die unliegenden Gegenden in die in the morning. The dome of bangsten Besorgnisse. Die Kuppel the tower of the Augustiner- des Thurms der Augustinerkirche church was thrown down to the wurde heraubgeschleudert in die lane [...] Thousands of win- Gasse [...] Tausende von Fenstern dows were broken and many wurden eingedrückt, und viele gardens in the suburbs were Gärten in den Vorstädten beynahe almost totally desolated [...] ganz verwüstet [...] Die stärksten The strongest trees were up- Bäume wurden mit der Wurzel aus rooted or splintered. The wind der Erde gerissen, oder zersplittert stopped only in the evening [...] Erst am Abend des folgenden of the next day. [...] The Tages legte sich der Wind ganz [...] Réaumur scale showed 9 de- das Reaumurische Thermometer grees above the freezing point.⁴ zeigte 9 Grad über dem Eispuncte

⁴9 degrees on the Réaumur 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].

ages traces were described as narrow: “And one Mistresse *Ditford* sitting in the pew with the Ministers wife, was also much scalded, but the maid and childe sitting at the pew dore had no harme [...] Also one Master *Hill* [...] sitting in his seate by the Chancell, had his head suddenly smitten against the wall, trough the violence whereof he died that night, no other hurt being found about his body; but his sonne sitting in the same seate had no harme. [...] There was also one man more, [...] his head was cloven, his skull rent into three peeces, and his braines throwne upon the ground whole, and the haire of his head, through the violence of the blow at first given him, did sticke fast unto the pillar or wall of the Church”

A TRVE RELATION OF THOSE SAD AND LAMENTABLE

Accidents, which happened in
and about the Parish Church of
Withycombe in the *Daytmoores*,
in *Devonshire*, on Sunday
the 21. of *October* last,
1638.

PSAL. 46. 8.
Come, behold the workes of the Lord, what desolations
hee hath made in the earth.



LONDON,
Printed by G.M. for R. Harford, and are to be sold at his
shop in *Queenes-head-alley* in *Pater-noster-row* at the
guilt Bible, 1638.

A SECOND AND MOST EXACT RELATION OF THOSE SAD AND LAMENTABLE

Accidents, which happened in
and about the Parish Church of
Wydecombe neere the *Dartmoores*,
in *Devonshire*, on Sunday
the 21. of *October* last,
1638.

PSAL. 46. 8.
Come, behold the workes of the Lord, what desolations
hee hath made in the earth.



LONDON,
Printed by G.M. for R. Harford, and are to be sold at his
shop in *Queenes-head-alley* in *Pater-noster-row* at the
guilt Bible, 1638.

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

[T1, p. 7f]. The cause of the severe storm was attributed to god: “But it pleased GOD yet in the mids of judgement to remember mercy, sparing some and not destroying all” [T1, p. 9].

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 Chancell 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 tempestuouse spirit, which is called by the Indians a hurricano or whirlwind. 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 puffed 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 *Withycombe* 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 judiciously 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

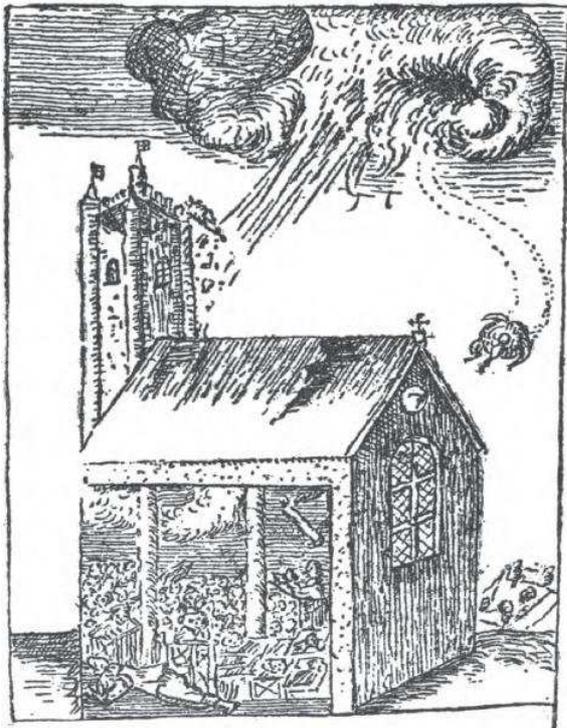


FIG. 3: Depiction of a ball lightning and the destruction of parts of the tower (Anonymous; taken from [8]).

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 near Plymouth, 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.

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