library catalogues have not commonly been used to record historical information about provenance, especially date of acquisition, which would be of particular value for the retrospective construction of content sets. Mining also demands machine-readable text, which is problematic with certain typefaces for printed material and near to impossible with manuscript. Mining of tabular data such as that included in the published reports of the London Medical Officers of Health, recently digitised by the Wellcome Library,[11] is only possible because the tables themselves have been separately re-keyed and presented in appropriate formats. For historians interested in large-scale analysis of images, there is also the need to separate illustrations from text, while retaining some sense of the original context of the image.

None of these are insurmountable obstacles. Librarians have traditionally managed data about the items they hold as adeptly as they have cared for the physical objects: the transition to digital content sets and to the application of content mining simply requires that these skills be applied a little differently, and without preciousness about the correspondence between physical holdings and virtual repository. Building a digital library for the history of medicine may be hard, but then again being a librarian has never been easy either!

Simon Chaplin
Wellcome Trust, UK

Look Out for 'La Grippe': Using Digital Humanities Tools to Interpret Information Dissemination during the Russian Flu, 1889–90

On 28 December 1889, and at the height of global anxiety about a spreading epidemic, the American journal *Medical News* published a lengthy article by Dr Roberts Bartholow about 'The Causes and Treatment of Influenza'.[1] Noting that the 'reappearance of influenza in one of its cyclical manifestations, or epidemics, is an interesting event', Bartholow offered a sweeping statement about the impact of the disease:

Influenza comes suddenly; goes as quickly. The least robust, at any age, and women seem to be the first victims. It is here a question of bodily condition, not of the sex. The large numbers simultaneously attacked attracts general attention, and thus those most impressionable are seized, the onset being facilitated by any depressing emotion like fear or illness.

To treat influenza, Bartholow recommended cures such as sulphurous acid, iodoform, tannin, resorcin, chinoidin, calomel, antipyrin, acetanilide, phenacetin, and more.

This article resembled many contemporary reports about an epidemic already referred to in late 1889 as 'Russian influenza' that combined specific descriptions of symptoms with prognostication about the course of disease. Bartholow's recommended treatments were clearly intended for doctors and druggists rather than the general public, yet his sage

[1] Roberts Bartholow, 'The Causes and Treatment of Influenza', *Medical News*, 55, 26 (1889), 710–4.

advice to maintain vital tone and condition obviously appealed to more general readers. Appearing at the early stages of an epidemic, the tone of Bartholow's article was serious yet reassuring in its claims that the disease was cyclical and familiar, its causes soon to be discovered, and its cure within reach.

Although close reading of an illustrative text, such as Bartholow's editorial, allows historians to understand how a medical expert explained a disease outbreak, new tools from the digital humanities permit interpretations on a larger scale, across a broader range of textual evidence, and with the potential to uncover additional angles that promote revealing analysis.[2] This article explores a digital humanities approach to medical history that takes advantage of the great expansion of texts accessible through digitised collections to facilitate synthetic analysis across layers of experience, from the global to the national and regional, down to the local and even the personal. Digital humanities methods, in other words, allow historians to explore more sources with new tools while also enhancing traditional techniques of close reading and layered analysis.

In terms of a digital humanities approach to medical history, the real significance of Bartholow's article was the manner in which it was replicated, cited and even challenged at a national level. A database search for 'Bartholow', or the frequent misspelling, 'Bartholomew', located more than fifty newspapers over the next ten days that explicitly referenced this expert discussion of influenza.[3] Nearly three-quarters of these articles appeared on 28 December 1889, the publication date of the *Medical News* article. These articles consisted almost entirely of text taken from a wire service summary of the journal article, either in a long version of several paragraphs or a short version of a few sentences. The widely held view of the Russian flu as a disease outbreak to be observed, anticipated but not feared, was expressed in, for example, the headline 'Look Out for 'La Grippe', used by a Georgia newspaper, the *Macon Telegraph*, to introduce the main points of Bartholow's article.[4] In other words, searching through digitised collections reveals the ways iterations of a single text appeared across the United States and gave readers in disparate locations simultaneous access to expert commentary on a disease.

Keyword searching reveals that a few newspapers framed Bartholow's authoritative commentary relative to observations from local physicians, who shared the general assessment of the limited danger of this disease.[5] Yet a strikingly different, even unique, interpretation of Bartholow's article appeared in a Missouri newspaper, the *Sedalia Weekly Bazoo*, in a 7 January 1890 editorial, which began with a sweeping denunciation of journalistic practice:

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[2] For recent discussions of these techniques in the digital age, see Franco Moretti, *Distant Reading* (London: Verso, 2013); Erez Aiden and Jean-Baptiste Michel, *Uncharted: Big Data as a Lens on Human Culture* (New York: Penguin, 2013).

[3] *Aspen Weekly Times, Baltimore Sun, Boston Daily Journal, Chicago Daily Tribune, Courier-Journal* (Louisville, Kentucky), *Daily Democrat* (Huntington, Indiana), *Daily Inter Ocean, Decatur Herald, Evening Star* (Washington, DC), *Fort Wayne Journal Gazette, Hartford Courant, Herald Democrat, Indianapolis Journal, Janesville Daily Gazette, Kansas City Gazette, Knoxville Journal, Los Angeles Daily Herald, Los Angeles Times, Macon Telegraph, New York Herald, New York Times, Oakland Tribune, Omaha Daily Bee, Pantagraph* (Bloomington, Illinois), *Philadelphia Inquirer, Pittsburg Daily Post, Pittsburg Dispatch, Rocky Mountain News, Sacramento Daily Record, Salt Lake Herald, Springfield Republican, St. Louis Republic, St. Paul Daily Globe, Sun* (New York City), *Times-Philadelphia, Times-Picayune, Wilmington Messenger, Worcester Daily Spy*, 28 December 1889; *Sacramento Daily Record-Union*, 29 December 1889; *The Wheeling Register*, 30 December 1889; *The Globe-Republican*, 1 January 1890; *Abilene Weekly Reflector*; *Barton County Democrat*, 2 January 1890; *The Iola Register; The Red Cloud Chief*, 3 January 1890; *Arizona Silver Belt; Huntsville Gazette*, 4 January 1890; *The Sedalia Weekly Bazoo*; *The Hocking Sentinel*, 7 January 1890; *The True Northerner*, 7 January 1890.

[4] *Macon Telegraph*, 28 December 1889.

[5] See quotations from local doctors in *Chicago Daily Tribune; Oakland Tribune*, 28 December 1889.

There seems to be an irresistible pensity, among certain newspaper writers, to try to create panics over the public health. They are never happy unless they can publish stories of fatal epidemic and disastrous plagues . . . Just now these panic-mongers are filling the papers with accounts of the ravages of influenza.

After referring to European hospitals full of patients, businesses and schools closed, and public services curtailed, accompanied by sudden and unexplained increases in mortality, the editorial seemingly mocked alarmist reports of illness in closer proximity: 'In the Eastern States, everybody who has a cold in his head reports himself as a victim of La Grippe, and goes about warning his neighbours to be warned by his melancholy example.' The *Sedalia Weekly Bazoo* then offered its own corrective to stories that 'read like wild fiction, based on a slight substratum of fact': 'There is nothing new in influenza; it is an old acquaintance; we know all about it. It is rarely fatal; it does not usually prevent its victims from attending to business. It sometimes assumes an epidemic type and cases become frequent, but it never lays whole communities low. It has never in its past visitations created a general panic; there is no reason why it should do so now.' Finally, the editorial ended with a sharp retort to the expert advice offered in the *Medical News* ten days earlier: '[The influenza] is probably not nearly so much to be feared as the remedies which Dr Bartholomew [*sic*] of Philadelphia recommends as safeguards: the inhalation of sulphuric-acid gas, five grains of chinoidin three times a day and two grains of calomel at night. A patient who survived these medicines need fear no epidemic in this world.'[6]

The circulation of expert knowledge about influenza involved both repetition and contestation. The *Sedalia Weekly Bazoo* used wire service reports to provide information about the spread of disease in Europe and the United States, yet this editorial challenged both the nature of most newspaper reporting and the specific recommendations of a medical expert. A digital humanities approach that uses broad analytical tools to identify a single text for close analysis offers medical historians a tool to explore tensions between claims of medical expertise and interpretations of human experience.

The Russian influenza, like other nineteenth-century disease outbreaks, is especially suited to a combination of searching across large amounts of texts and close reading of specific texts because of the potential to trace the diffusion of knowledge across communication networks while also carefully evaluating the substance of this information. Medical experts like Bartholow can be tracked by both their names and their ideas, yet this approach requires a combination of tools and techniques. Interpreting specific texts requires the skills of close reading, yet it was the digital humanities tools of word searching and synthetic analysis that identified the texts deserving close interpretation within the broader context. Diseases like influenza epidemics lend themselves to multiple forms of analysis, because the disease can be examined across levels (global, regional, local and personal) as well as across a variety of discursive forms (expert analysis, factual reporting, subjective responses and editorial commentary).

E. Thomas Ewing[1], **Veronica Kimmerly**[2] and **Sinclair Ewing-Nelson**[3]
[1]College of Liberal Arts and Human Sciences, Virginia Tech, USA
[2]University of Edinburgh, UK
[3]Yale University, USA

[6] *Sedalia Weekly Bazoo*, 7 January 1890.