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Clickbait Science: A Review of Rhetorical Patterns Within the Royal Society

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Henry Oldenburg, editor and secretary of the Royal Society, writes, "be invited and encouraged to search, try, and find out new things… improving Natural Knowledge… and [perfect] all Philosophical Arts, and Sciences."[1] In the first science journal ever created in 1665, the *Philosophical Transactions*, Oldenburg intended to collect all arts and sciences of the world which led to a variety of articles scattered across numerous volumes. However, some of the sciences written in the journal are more for human interest than a contribution to the task. The Royal Society used certain rhetorical patterns and non-scientific article entries in the *Philosophical Transactions* to build readership which allowed them to convey science to an assured community.

It wasn't until 1662 when King Charles II of England allowed the group of scientists to be called the Royal Society and along with it the right to publish. With permission from the king, the Royal Society had no interferences with their works which was rare due to problems with propaganda in pamphlets in the past two decades.[2] Charles II supported the Royal Society with their knowledge of science which would help with the spread of science during the seventeenth century. This led to the birth of the *Philosophical Transactions* which is abbreviated to *PT* as well as shorthanded to the *Transactions*. With the creation of the first professional science journal came the need for members of the Society to peer review letters and entries of the *PT*. Some of the articles accepted into the journal included discovering the accuracy of a gun at point-blank, growing grape vines, and making water colors. Knowing the articles are peer

[1] "The Introduction," *Philosophical Transactions* 1, no.1-22 (1665): 2, doi: 10.1098/rstl.1665.0002

[2] "History of Philosophical Transactions," *The Royal Society*, Accessed January 12, 2017, https://royalsociety.org/journals/publishing-activities/publishing350/history-philosophical-transactions

reviewed shows that the Royal Society allowed non-scientific science articles inside the *Philosophical Transactions* because it would benefit the science journal's readership.

The first step Henry Oldenburg took to building a readership for his science journal was increasing the circulation and availability of it. In the article, "Notes on the Printing History of the Early 'Philosophical Transactions,'" David Kronick's research shows the lengths to which Henry Oldenburg went to distribute his science journal. To do so, Oldenburg "used whatever [trade] channels were open to him, including diplomatic couriers and visiting notables, to relay copies [of the *Transactions*] to selected correspondents on the Continent."[3] He wrote how Oldenburg did everything he could to increase circulation of the *PT*. By using Kronick's research of Oldenburg's life through letters, the *Philosophical Transactions*' purpose becomes more clear which increased the traffic and interest of science. Oldenburg distributed copies to cities outside of London such as Venice and Danzig hoping to build a following outside of Great Britain as well. Along with distribution of the *Transactions*, Kronick also researched the financial context to show the yearning for an audience. A letter shows how Oldenburg never made more than forty pounds and he complained to another member of the Royal Society how the revenue "'is little more, than house-rent.'"[4] By discovering Oldenburg's use of the *PT* as a way to pay his bills, Kronick uncovered Oldenburg's intention to make some money on the side with the science journal, but he fell a little flat. With the motive of subsidization, Oldenburg needed to focus more on gathering a following that would be attracted to the articles and future issues of the *PT*. Through Kronick's methodology of researching the printing history of the first science journal

[3] David A. Kronick, "Notes on the Printing History of the Early "Philosophical Transactions,"" *Libraries & Culture* 25, no. 2 (1990): 253, http://www.jstor.org.proxy.lib.pdx.edu/stable/25542243.

[4] Ibid., 247.

and personal life of the editor, it is clear how the first science journal served as a device to gain a community of digesters.

After the journal became more available, the Royal Society needed to include articles focused more on human interest and less on science to entice the readers. These articles were used to build and maintain an audience. This was done by appealing to people who aren't experts in a certain field of study. For example, in an article from the first issue that teaches how to make watercolors, it states people "who either have not the leisure to read Voluminous Authors, or are not readily skilled in that Learned Tongue wherein the said Book is written, being very desirous to have it transferred hither, it was thought fit to comply with their desire herein."[5] The author of the letter makes it explicit how the public would find this article most useful. The Royal Society accepted this article because they thought the common people did not know artistic jargon and would find comfort in reading about how to make colors through the *Philosophical Transactions*. In an article over the preservation of ice, the author writes the article's information "in *England* would not be so much for cooling of drinks… but for cooling of fruits, sweetmeats, &c."[6] The author specifically stated how the article's use is for the English people and how using ice is useful for chilling food and sweets. The article's target demographic ranged from commoners who cook to workers who bake food and must preserve it somehow. With popular articles scattered throughout each issue of the *Transactions*, it peaked the reader's interest in the journal to read more.

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[5] "An Experiment of a way of preparing a Liquor, that Shall Sink into, and Colour the Whole Body of Marble, Causing a Picture, Drawn on a Surface, to Appear Also in the Inmost Parts of the Stone," *Philosophical Transactions* 1, no. 1-22 (1665): 125, doi: 10.1098/rstl.1665.0054.

[6] "A Way of Preserving Ice and Snow by Chaffe," *Philosophical Transactions* 1, no. 1-22 (1665): 140, doi: 10.1098/rstl.1665.0065.

To create a community as grand as possible, the Royal Society also made the *Philosophical Transactions* appeal to areas outside of the society's hometown of London. A couple issues after the first, which included an article over improved optic glasses, an article stated "in the above-mentioned *French* Tract there is also contained M. *Auzout's* Opinion of what he had found New in the *Treatise* of Signor *Campani*, which was spoken of in the first *Papers* of these *Transactions*, concerning both the Effects of the *Telescope*."[7] The article stated how French scientist, Monsieur Auzout, read about optic glasses in the *Philosophical Transactions* and made comments about it which started a series of responses and clarifications of the improved optic glasses between Englishmen and Frenchmen. In addition to spreading information outwards, the *PT* also served as a method to convey knowledge from other countries to England. Throughout each issue and volume of the science journal there were a myriad of articles written in languages other than English. Members of the Royal Society including Oldenburg translated the majority of the articles and stated so in the title with 'Englished out' while the rest of the articles were left in their original language. Scientific discourse scholar Dwight Atkinson's statistical breakdown of the *Philosophical Transactions* during the seventeenth and parts of the eighteenth centuries showed that twenty percent of all articles were in Latin.[8] The Royal Society was able to give Englishmen more insight from different areas of Europe which lets the science community thrive despite a language barrier.

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[7] "A Further Account, Touching Signor Campani's Book and Performances about Optick-Glasses," *Philosophical Transactions* 1, no. 1-22 (1665): 70, doi: 10.1098/rstl.1665.0031.

[8] Dwight Atkinson, "The 'Philosophical Transactions of the Royal Society of London,' 1675-1975: A Sociohistorical Discourse Analysis," *Language in Society* 25, no. 3 (1996): 347, http://www.jstor.org.proxy.lib.pdx.edu/stable/4168717.

To further show the scientific impact the *Philosophical Transactions* had on other parts of Europe, Anthony Turner dives into the translation history of the journal as well as the integration of the *PT* in another science journal created by France's *Academie Royale des Sciences* around the same time as the *Transactions*, the *Journal des Scavans*. Turner's statistical breakdown showed the journal contained at least 98 extracts from *Philosophical Transactions* and a volume entitled Journal d' Angeleterre 36 holds thirty four scientific texts of translation from the *Transactions* as well.[9] With help from Oldenburg and his science journal, he was able to aid other communities and spark the creation of other science journals as well as spread the Natural Knowledge of the *Philosophical Transactions*.

Along with readership and gathering an audience, the Royal Society also attempted to gain a scientific following that contributed to the knowledge of science. In the *Philosophical Transactions*, scientists started to refer and cite other scientists' works in journal entries. For instance, an article from the first issue credited another gentlemen for information on mining efficiency: "That which is here to be described, was invented by one of the most Excellent Mechanicks in the World, *Mounsieur du Son*, who lately put it in practice himself."[10] To validate the information the author is about to present, he referred to the inventor of the method who told him. By doing so, he showed truth in the information and built credibility for both the author and Monsieur du Son. Another use of references is also seen as a commenting on one's work, which

[9] Anthony Turner, "An Interrupted Story: French Translations from "Philosophical Transactions" in the Seventeenth and Eighteenth Centuries," *Notes and Records of the Royal Society of London* 62, no. 4 (2008): 342, http://www.jstor.org.proxy.lib.pdx.edu/stable/20462690.

[10] "A Way to Break Easily and Speedily the Hardest Rocks, Communicated by the Same Person, as He Received It from Minsieur Du Son, the Inventor," *Philosophical Transactions* 1, no. 1-22 (1665): 83, doi: 10.1098/rstl.1665.0036.

is usually another article in the *Philosophical Transactions*. An article written by "a person from Paris" commented on Isaac Newton's theory of light and hypothesized against it. He wrote, "I have seen, how Mr. Newton endeavours to maintain his new Theory concerning *Colours*. Me thinks, that the most important Objection… is that, Whether there be more than two sorts of Colours... [and the] more deeply charged (as appears by the Prismes of Mr. Hook) do produce the dark or deep-Red."[11] The person commented on Newton's theory to criticize it and argued against him by saying there were more than two colors. Because of the comment, Newton commenced a scientific discussion by responding to the article, which was in the very next entry of the issue. Along with referencing Newton, the Frenchman referred to the prism theorized by the famous chemist, Robert Hooke, to support his hypothesis against Newton. Again, by referring to others, the person from Paris built his validity to be able to comment against Sir Isaac Newton.

To see the importance of authors referencing other gentlemen, Bryce Allen wrote an article that noted references and citations in the *Philosophical Transactions* which was used to show a correlation between the reader, author, and what Allen called the 'persuasive community,' who were the gentlemen, such as Robert Hooke and Monsieur du Son, whose works are cited for supporting a thesis.[12] Allen stated "mutual opinions among a group of people who communicate formally through written scientific reports is one definition of a scientific

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[11] "An Extract of a Letter Lately Written by an Ingenious Person from Paris, Containing Some Considerations upon Mr. Newtons Doctrine of Colors, as Also upon the Effects of the Different Refractions of the Rays in Telescopical Glasses," *Philosophical Transactions* 8, no. 92-100 (1673): 92, doi: 10.1098/rstl.1673.0034.

[12] Bryce Allen, Jian Qin, and F. W. Lancaster, "Persuasive Communities: A Longitudinal Analysis of References in the Philosophical Transactions of the Royal Society, 1665-1990," *Social Studies of Science* 24, no. 2 (1994): 279, http://www.jstor.org.proxy.lib.pdx.edu/stable/285433.

community."[13] The person from Paris is one example of this science community developing. The *PT* served as a medium for these scientists to present knowledge and for others to see and write scientific texts in the journal, which further expanded the community in certain fields. The traffic of science increased which led to more people voicing opinions and agreeing with other scientists on certain ideas. The development of the scientific community between authors and readers allowed the persuasive scientific community to grow as well. Allen's other definition of science community, "the persuasive community, consisted of scholars and colleagues whom scientists believed persuaded readers of the validity and importance of their knowledge claims." [14] The *Transactions* also helped build this community as well. With the articles requiring validation, the citations of others helped both the author and the referred gentleman such as the article about efficient mining that cites Monsieur du Son. The use of citations in the first science journal benefited the science community by allowing it to build credibility and community.

With the Royal Society being able to build a community and create an influence in science, they were able to shift focus from developing a community to bring a more professional and sophisticated journal. Atkinson stated in his article gentlemen and scientists credited their work by telling narratives.[15] The narrative aspect of articles in the early years of the *Philosophical Transactions* helped authors claim their authority but also showed informality. Over time, the style of the articles changed into a detached article with references to others instead of stating information as an eye-witness. As the article changed, "it seems clear that methods of reference become more sophisticated as the size of persuasive communities

[13] Ibid., 281.
[14] Ibid., 281

[15] Atkinson, "The 'Philosophical Transactions of the Royal Society…,'" 363.

increases."[16] The shift in formality of articles overtime was needed to keep credibility. After the Royal Society constructed their community and influence around the *PT*, they changed the focus to science and professionalism.

To clearly show the change in formality, it would help to see the change in the way articles are written half a century apart. In an article over anatomy of the first issue of the *PT*, the author wrote, "one of [the doctors] assuring, That he had several times, in the Lungs of *Sheep*, found considerable quantity of Grass in the very Branches of the *Aspera Arteria*."[17] By telling a vignette, the article gained its respectable repute. Half a century later, articles showed a more formal tone. An article over the anatomy of worms was written in a significantly different tone: "The Skin being cut, a limpid Humour issued forth, and then appeared the transversal Fibres interlaid on every Side with the *Viscera*."[18] Although there are still some narrative aspect to articles in the *Transactions*, there is much less and more content in the sense of information. One exception to the change of articles over time is the preservation of Latin terminology. Paula Findlen explained this phenomenon by examining the portrayal of science over time. Findlen specifically researched the poetic language used in scientific discourse, which came in the term of 'jokes of nature and science.' She writes, "by the late eighteenth century, the jokes of nature had disappeared almost entirely from science… The language of play… retained a certain

[16] Allen, "Persuasive Communities…," 291.

[17] "Some Anatomical Observations of Milk Found in Veins, Instead of Blood; And of Grass, Found in the Wind-Pipes of Some Animals," *Philosophical Transactions* 1, no. 1-22 (1665): 100, doi: 10.1098/rstl.1665.0045.

[18] "An Anatomical Description of Worms, Found in the Kidneys of Wolves, in a Letter from Mr. James Theodorus Klein, Secretary of the City of Dantzick, F. R. S. to Sir Hans Sloane, Bart. &c," *Philosophical Transactions* 36, no. 407-416 (1729): 270, doi: 10.1098/rstl.1729.0041.

usefulness to elucidate natural processes for which more precise terms were unnecessary."[19] The Latin terms kept its usefulness over time because it became more practical than using the actual terms itself. As time passed, the Royal Society became more focused on professionalism because they had succeeded in building their community with the *Philosophical Transactions*.

It's important to know how people use different methods to captivate people into a topic. After having past troubles with the church and propaganda in writing, seeing how science developed without interference shows how rhetoric and logic play in conveying science. However, Dwight Atkinson states, "very little research has so far examined the actual language and rhetoric of the *PT*."[20] There is still so much to discover in this field of study. To develop this field, tracing the scientific jargon used and its Latin origin would help reveal why Latin came to be science's dominant language even though it was no longer spoken. There is also the jargon of scientists naming theories and mathematical constants after themselves and how the practice became popular. There is still much more research in the universal language that is called science.

[19] Paula Findlen, "Jokes of Nature and Jokes of Knowledge: The Playfulness of Scientific Discourse in Early Modern Europe," *Renaissance Quarterly* 43, no. 2 (1990): 325-6, doi:10.2307/2862366.

[20] Atkinson, "The 'Philosophical Transactions of the Royal Society…,'" 335.

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