

Chapter Four - Science and the Press: Nascent Institutions in Colonial America

On December 22, 1719, Andrew Bradford printed the first issue of *the American Weekly Mercury*, the first issue of an unbroken and widely read 26 year series and only the third continuous newspaper of the American colonies.⁴⁸ Begun just one day after the first issue of the *Boston Gazette*, this newspaper ushered in a new era of publishing style. While newspapers initially filled the majority of their pages with news from abroad and government reports, room for inter-colonial and local news, as well as articles and references critical to authority, increased considerably over the course of the century. In addition, the *Mercury* stated as its objective “the encouragement of trade” and included many advertisements for wares and services. By 1765, twenty-six newspapers brought a variety of news to the colonists and, in addition, greatly facilitated a growing independent and commercial colonial identity that precipitated the colonies’ eventual break with Great Britain.⁴⁹

Over the course of the middle eighteenth-century, colonial newspapers gave only a small percentage of space for articles directly related to the discoveries of natural philosophy, natural history, or medicine. However, natural knowledge in the newspaper played a distinctive part in sociopolitical conflicts and congruence. For instance, the conflict begun by James Franklin in 1721 editions of *The New England Courant* used arguments against small pox inoculation as a subject for opposition to Puritan authority.⁵⁰ The electrical experiments of Franklin re-affirmed a British-American identity while establishing world renown for colonial American inquires into nature.

In addition, the promoters of enlightenment thought needed a communication technology to establish the economic and practical utility of a knowledge system compatible with public access and commercial freedom. Many examples in the newspaper -- articles on improvements and advances in medicine, navigation, agriculture, fire fighting and warfare while advertisements

⁴⁸ Actually, a John Copson, a bookseller, also appears to be affiliated with the paper until May 25, 1721 when any reference to him disappears. See Jones p.19. The series was unbroken except for the week after Bradford passed away on 11/24/42. On December 2, this wife Cornilia Bradford took over the responsibilities of publisher. See DeArmond, p.37, 38. By most accounts, the paper ended its run sometime in 1746. See DeArmond, p.49, 50.

⁴⁹ Sloan and Williams, pp.103-105.

⁵⁰ See Wilson; Sloan and Williams, pp.26-28. Duffy, pp.23-35.

offered something as "new and improved" -- indicate that it served this purpose.. Through the newspaper's articles and advertisements, the "enlightened," and sometimes their critics, found a device both reaching and reflecting an often willing audience.

This chapter serves to locate perspectives on natural philosophy and nature found in the colonial American newspaper by placing them in the context of an overview of newspaper news. It then surveys the modes of communication of colonial America that include newspapers.

Newspaper Content

With some exceptions, a periodical journal of the eighteenth-century presented information in a particular order. Long articles often came first. Letters or transcripts from the governor, British House of Parliament, or local government; news from abroad; or an essay addressed the reader appeared on the front page. Shorter notices, either clipped from other newspapers or derived from other communications, and ranging from a few lines to possibly a page or more, followed onto the inside of the paper. These shorter notices might originate from the great cities of the world -- Paris, London, Edinburgh, Geneva -- followed by other colonial cities, and, finally, by the paper's locality. The last part of the colonial paper often contained the paid notices.

The paper's organization really reflected the technology of printing and information transfer. Because of the time required to set, print, dry, and print on the opposite side of each sheet, newspapers needed to print at least some part of the paper prior to publication day. Since most papers consisted of four pages of one sheet (although sometimes fewer and potentially up to eight pages in the case of the *Pennsylvania Gazette*) the latest news did not get front-page treatment. Local news likely arrived at the printing office by word of mouth and the printer often waited till the last minute for that and for the latest post.⁵¹ The reader found the latest information on the inside pages. Less time-critical news such as essays, news from abroad, and the advertisements that colonists often bought in three-week packages appeared on the front and back pages. Regional and local news and newer ads resided inside.⁵² He notes that according to Kobre printing houses could

⁵¹ DeArmond, pp.58-61, examines the effect of problems in transportation on the news.

⁵² Copeland, p.275.

print 250 sheets an hour. According to Mott, the average journal ran 600 editions in mid century and they went over 3500 journal subscriptions by 1775 for a few of the busiest printers. Combined with their other printing jobs, this suggests a fair lead-time required for putting out an issue. This also means that with an issue that utilized the long essay, a reader often found opinions on the front page.

Advertisements

What began for most papers as a few short paid notices on the last page of the paper eventually became the single largest component in the colonial newspaper. From 1730 to 1755 the amount of the *Pennsylvania Gazette* devoted to advertisements increased from 22% to 64% and remained approximately at that level for the rest of the period. Printers Franklin and Hall even began to publish paid notices on the front page. By 1765 over a third of the *Pennsylvania Gazette*'s front pages had at least some advertisements, frequently an entire page of them. Although advertisements on the front page remained a rarity for the other papers we're examining, they also increased the amount of space devoted to adverts. The *Virginia Gazette* went from 11% in 1737 to 48.41% in 1755. The *Maryland Gazette* had 17.46% of the paper devoted to advertisements in 1745 and 48.13% in 1753. The number of advertisements and the amount of text devoted to them increased as well. For example, the 1753 *Maryland Gazette*, at 20 or more advertisements per page, had anywhere from 2 to 3 times the number of advertisements the 1737 run had. And at four pages of three columns of 90 lines per page, and 8 words per line, the 1753 *Maryland Gazette* averaged 8640 words per issue giving an average of 4158 words devoted to advertisements. At four pages of two columns of 65 lines, and 11 words per line, the 1745 *Maryland Gazette* averaged 5720 words per issue and only 998 words of advertisement. Even with the line of white space above and below many advertisements, that still shows a better than 4 to 1 increase in the number of words of advertisement in eight years of the newspaper. The *Mercury*, on the other hand, had established its advertisement rate earlier in the century at 32% and generally remained at that rate until its final days.

According to a number of authors, Colonial newspaper advertisements followed their British counterparts in style, but soon surpassed them in quality and quantity, creating the roots of today's commercial advertising. Apparently, colonial newspapers contained a significantly greater amount of advertisements.⁵³ Current events very rarely pushed advertisements aside either. Whatever general content changes in articles occurred due to the wars, earthquakes, or threat of Indians during the eighteenth-century, advertisement rates usually did not drop precipitously, even the weather did not threaten them. For example, the difficulty in obtaining outside news in the winter months often reduced the size of papers. Yet, while the 1753 *Maryland Gazette* ran 9 issues of only two pages in January, February, and December, of those issues, 6 still had 5/6ths of a page, or 41.5% of the paper, devoted to ads.

Samuel Miller also notes advertisements as "well calculated to enlarge and enlighten the public mind, and are worthy of being enumerated among the many methods of awakening and maintaining the popular attention."⁵⁴ Apparently, advertisements not only served the commercial aspirations of colonials but also became an essential part of American literature. Not all writers agreed with this trend however. One letter writer to the *South Carolina Gazette* noted that readers "read the Advertisements with the same Curiosity as the Articles of publick News; and are as pleas'd to hear of a dark colour's Hourse that has strayed out of a Pasture up the Path, as of a whole troop, that has been engaged in any foreign Adventure." That same author found the average reader had "a Voracious Appetite, but no Taste."⁵⁵ These sentiments echo'd those mocked by another writer years before in Britain. Editor of the *Tatler*, Joseph Addison, in 1710 remarked "Advertisements are of great use to the Vulgar: First of all, as they are Instruments of Ambition. A Man that is by no Means big enough for the *Gazette*, may easily creep into the Advertisements, by which means we often see an Apothecary in the same Paper of News with a Plenipotentiary, or a Running-Footman with an Ambassador..." However, Addison meant to sing the praises for the access of newspaper advertisements. He states that they "inform

⁵³ See Francisco Guerra, Lawrence C. Wroth, Samuel Horton Brown, and James Harvey Young and George B. Griffenhagen particularly.

⁵⁴ Samuel Miller, *A Brief Retrospect Of The Eighteenth Century* (New York, 1803), pp.251-2. Also Carl Bridenbaugh, *Cities In Revolt* (New York, 1964), p.183-188, and Daniel Boorstin, *The Americans: The Colonial Experience* (New York, 1958), pp.324-340. Also noted by Karst, p.4. In chap 1, footnote 3.

⁵⁵ Karst, p.3, quoting from the 2/19/31;2 *South Carolina Gazette*.

the world where they may be furnished with almost every Thing that is necessary for Life." He continues:

If a Man has Pains in his Head . . . or Spots in his clothes, he may here meet with proper Cures and Remedies. If a Man would recover a Wife of a Horse that is stolen or strayed; if he wants new Sermons, Electuaries, Asses Milk, or any Thing else, either for his Body or his Mind, this is the Place to look for Them in. . . . [I have a] certain weakness in my temper, that is often very much affected by these little Domestick Occurrences, and have frequently been caught with Tears in my Eyes over a melancholy Advertisement.

The early days of advertisements for any newspaper often began with notices of valuable property missing from landowners and potential rewards for returning said property. Runaway slaves and indentured servants and sometimes ship's crew formed the bulk of these. Notices of missing or found stock animals also had an early start. Stock animals probably served an interesting function in colonial times. Often, a subscriber advertised finding an animal, described it accurately and then stated that "the owner may have this animal returned upon proof of ownership."⁵⁶ Of course, the description given probably made clear to any sentient reader who the owner was. Proof of ownership probably refers to a payment of debt. Since failure to pay debts led to imprisonment in "the goal", a state which surely did not contribute to the lender recouping his money, this kidnapping system may have offered an alternative.⁵⁷

Over time the kinds of advertisements increased in most papers.⁵⁸ The Pennsylvania, Virginia and Maryland *Gazettes* advertised a large percentage of the goods and services that could be had in colonial Philadelphia. Chymists, Druggists, and apothecaries offered medicines and equipment. Surgeons and Physicians offered their services. Teachers announced instruction in French, writing, mathematics, dancing, and manners. Slave traders gave their date of auction. Importers and ship's

⁵⁶ See, for example, the 1/11/53 *Maryland Gazette*.

⁵⁷ This theory is highly speculative and unsubstantiated. I offer it as mostly an amusing interpretation. Anyone who reads the great number of these advertisements, however, should come to a conclusion that they far outnumber the likely amount of normally straying animals.

⁵⁸ Examples from *Maryland Gazette* show land for sale in 8/16/64:4, the dissolution of Short Ridge Garden and Co. with Thomas Campbell collecting debts in 8/16/64:4, a Robert McMartin, taylor, who "makes all kinds of gentlemen's clothes" 9/20/64:22, a Thomas Gray, currier, in 8/9/64:42, and an itinerant servant in 8/2/64. From 8/23/64 we have 100,000 Hogshead staves of Indian corn, a quantity of wood planks, a "commodius brick house", rewards offered for slaves and runaways, and "Vessels of about 250 hogsheads of tobacco wants freight for London, for particulars apply to James Fishwick."

captains announced “newly arrived” merchandise such as “East India Goods” (spices, sugar, rum). Millers, carpenters, ironworkers needed “dependable” craftsmen. The ferries advertised service and schedules. Patent medicines had testimonials and descriptions that could take a whole page or more. Shops placed ads that had long lists, sometimes a whole column, of every conceivable individual item, from antimony to Will's original eye water.

Often the printing house acted as broker for many sales and purchases. Buyers or those desiring services could “enquire of the printer” or “enquire at the post-office.” When an individual wanted to sell a slave, horse, wagon, or a craftsman’s skills, the printer acted as a go-between and bookkeeper. Printing houses, like many shops, also seemed to offer many items seemingly unconnected to their primary businesses.⁵⁹

In its final days, Bradford’s *Mercury* lost many advertisers and did not advertise much more than his own shop’s wares. Before that, however, the paper had always advertised books, almanacs, lamp black ink, and other stationary products found “at the sign of the bible” hanging over his shop’s front door. Franklin, like many printers, also had a shop that advertised books, pamphlets, stationary, and seemingly incongruous items like “crown soap”. Given the popularity and timeliness of almanacs it should not be a surprise that Franklin’s Poor Richard’s Almanac and the almanacs of Titan or Leed and others published by Bradford received their own advertisements.

The placement of advertisements concerning those items found in Bradford’s and Franklin’s shops again remind us of the competition between Franklin and Bradford. Bradford never advertised Poor Richard’s, and never advertised his own shop in Franklin’s paper. You do not see Bradford’s advertised wares in the ads for Franklin’s shops either. However, other printing shops did find their way into the *Pennsylvania Gazette*’s advertisements and the Virginia and Maryland *gazettes* did not seem to differentiate between the products. Unless an advertisement had been placed in that paper by Bradford or Franklin the advertisements usually listed them all or made generic reference to “all almanacs have arrived”.

⁵⁹ Conflicts sometimes arose as to who could sell certain merchandise. Some importers complained of druggists selling alcohol. Occasionally, a conflict over sellers who did not utilize the paper for advertising wares erupted. Unlicensed merchants who sold from items from inside their coat pockets threatened licensed merchants and often received criticism for trafficking in stolen goods.

Individuals and Merchants in larger towns often advertised their products in smaller cities. Many of the advertisements in the Maryland and Virginia *gazettes* advertise goods or services that consumers potentially could not find locally. For example, Nathaniel Tweedy, Druggist “near Franklin and Hall’s Printing-Office in Philadelphia” offered, in a full column advertisement of the *Maryland Gazette*, “A FRESH and Universal ASSORTMENT ... of all Kinds [of drugs], Surgeons Instruments, Medicine Chests, for families, with full Directions, of all Prices, and for Masters of Vessels who do not carry a Doctor.”⁶⁰ A “John Boyd, druggist in BaltimoreTown” also offered drugs, instruments, and medicinal ingredients to the readers of the *Maryland Gazette*.⁶¹

Advertisements used a number of graphical techniques to entice the reader. Before headlines ever graced the tops of articles, advertisements used different fonts, letter sizes, and spacing to stand out from other text on the page. Excepting the masthead on the front page, advertisements also used pictures before non-paid articles. Wood block prints of ships – the first and the most common graphic in the newspaper – often sat above notices of arriving, goods laden ships. By the end of 1765, a reader also could find wood block prints of slaves, runaways, furniture, clocks, and representations of the signs above various stores.

Right before the advertisements, and potentially considered part of them, a reader might find a hodgepodge of public notices. This section might have lists of letters unredeemed or unclaimed at the post office. Sometimes, Franklin, in later years as Postmaster, even placed these notices on the front page. In fact, all the letter redemption notices can be found on the front page in 1764. A reader might also find listed the comings and goings of people ('Arriving on' or 'Sailed on') and ships ('Entred Inwards,' 'Entred Outward,' or 'Cleared'). The wholesale prices for commodities also ran right before the beginning of the advertisements giving the price of flour, ginger, sugar and other staples.

Advertisements give us a robust entrance into the stuff of commerce and the stuff of life of the eighteenth-century colonists. Often, they explicitly stated potentially private information in the

⁶⁰ Examples on 1/5/64:33 and 1/26/64 of the *Maryland Gazette*.

⁶¹ Examples on 4/12/64:22, 9/6/64:31, and 10/4/64:22 of the *Maryland Gazette*.

service of selling goods. For example, physicians advertised they had recently moved to the area and had set up shop, or shopkeepers gave notice that they intended to sail to Europe and so needed to sell their wares and settle debts. In the fall of 1736, for example, Samuel Neave inserted a four-month series of advertisements that he “intended for London” and had numerous goods “for ready money.” Only five months earlier in April he had advertised taking over for Reese Meredith to sell wares. Just as they do today, the advertisements also served to give official public notice of the dissolution of business partnerships and other, more personal, relationships. Women must particularly have felt the brunt of this practice for frequent notices stated something to the effect of this advertisement of 4/24/55 on page 4 of the *Maryland Gazette*:

WHEREAS *Amy*, the Wife of me the Subscriber, living near the Mouth of Manoccosy, in *Frederick* County, has been disorder'd in her Mind, at Times, and made Way with some of my Effects. This is therefore to forewarn any Body from Trusting, or Dealing with, the said *Amy*, on my Account, as I will pay none of her Debts, or abide by any of her Bargains, after this 3d of *April 1755*. -- *William Wheat*.

Articles

In the first parts of the paper, a reader would find a multitude of reports or letters from often anonymous sources (although, again, decreasingly anonymous as the century wore on). The articles were sometimes transcripts of various state governor's letters and speeches to their respective legislatures, and transcripts of King George's speeches to Parliament. Troop movements in the colonies and in Europe also were followed closely throughout this period. Other reports included a number of executions, solved and unsolved crimes, and incidents of disease and atmospheric or earth phenomena: particularly earthquakes, strong winds and storms, and northern lights.

All four papers made editorial selections based on their interpretation of the importance of events but colonial printers were also, to some extent, at the mercy of contributors from outside of their office. While they rarely lacked anything at all to print, sometimes, no events of apparent importance existed to spur essay submission. Weather or war could also severely constrain information transfer. When the rivers in Philadelphia froze so that ship movement came to a

standstill, or snow blocked the post roads, editors did fall back to publishing excerpts from older sources such as the *Tatler*, *Spectator*, *Gentlemen's Journal*, or *the Craftsman*.⁶² Occasionally, a printer would forget that he had already published the material and potentially reap the scorn of those with longer memories.⁶³

The amount of space given to government reports or the movements of troops and vessels of war often differs between the four journals in our sample. Both Philadelphia papers, Franklin's *Gazette* and Bradford's *Mercury*, closely followed the examples of Addison's and Steele's *Tatler* and *Spectator* by frequently running the fairly new literary form of the front-page journal essay.⁶⁴ While the editor clipped many of these essays from other journals, they also inserted many by local writers expressing various and strongly held opinions. The *Virginia Gazette* and *Maryland Gazette* remained more conservative and committed the majority of their total page space to foreign and government news through mid-century. They also adopted the style of printing local submissions although more inconsistently.

No adequate study quantifying the amount of space devoted to foreign, domestic, government or advertising in any of the newspapers really exists. Most older studies state that the majority of the colonial newspapers' bulk addressed foreign and government news. However, this does not always hold true. The paper often made substantial space for esoteric or politically charged essays and local news. For example, the 1737 run of *Virginia Gazette's* front pages had a mix of local letters, love poems, excerpt essays from the *London Magazine* and *the Craftsman*, a satiric play called the "Toy-Shop", a math problem and its subsequent solution, a satiric article called "a memorial to the tobacco trade" (an essay against the tobacco inspection law), and an essay on Freemasons in addition to a few government reports and much foreign news. Little local news made the paper that year. Eighteen years later, the 1755 run of *Virginia Gazettes* had front pages still filled mostly by foreign news but had almost three times as much local news on the inside pages as the 1737 run.

⁶² See, for example, the 3/17/37 *Mercury* reporting the James River in New York and the 1/28/29 report of the *Mercury* on Philadelphia's rivers.

⁶³ DeArmond, p.57.

⁶⁴ See Clary (1935).

The 1745 run of the *Maryland Gazette* had a front page mostly devoted to foreign news but had eight issues that contained essays: two on growing flax, one from the *Gentleman's Magazine* on politics, another an *American Magazine* excerpt, a poem, a critical essay concerning the war with Spain that made use of the metaphor of the machine, and a, seemingly, locally produced essay on the importance of understanding history. In comparison, eight years later, the 1753 run of *Maryland Gazettes* had even less space given to foreign news. Only 17 of the 52 weeks front pages were devoted to foreign news including one letter between foreign heads of state and one speech. The majority of the year's front pages belonged to various essays, many of them produced locally. Eight of the fifty-two front pages that year allowed for one domestic subject alone, essays in opposition to and in support of the tobacco inspection law.

The 1753 run of the *Maryland Gazette* shows how a particular pertinent political issue can monopolize a newspaper. The 1728 run of the *American Weekly Mercury* shows how the pens of two authors and the competitive concerns of one editor could do the same to an even greater degree. The 1/28/28 issue of the *American Weekly Mercury* featured a letter signed by a Caelia Shortface and a Martha Careful addressed to Samuel Keimer concerning an article in the fifth issue of the *Universal Instructor of Arts and Sciences and Pennsylvania Gazette*. The printer Keimer had begun his newspaper, Philadelphia's second, only weeks before. According to his own autobiography, Franklin felt that the idea had been stolen from him. He orchestrated a year long campaign to take over the paper from Keimer by first submitting that pseudonym signed letter to Bradford and then between himself and Joseph Breintnall writing over thirty two BUSY BODY letters alternatively attacking Keimer or addressing other issues.⁶⁵

Bradford must have thought the essays a benefit to his business. The April 24th issue even has a short front page notice apologizing to readers that the Busy Body letter came too late for insertion that week. He does seem to have managed to keep most of his subscribers. Keimer, meanwhile, had given up the idea of a paper by year's end and sold out to Franklin and Hugh Meredith for a "trifle." Franklin later wrote "by this means the attention of the publick was fixed on that paper, and Keimer's proposals, which we burlesqu'd and ridicul'd, were disregarded."⁶⁶ Having apparently

⁶⁵ DeArmond, footnote 42 on page 16.

⁶⁶ Franklin autobiography, p.78.

secured the paper, Franklin ended his involvement in the BUSY BODY letters. The last saw publication on September 25th. Bradford's paper immediately increased the foreign news on the front page and soon faced a much more formidable cross-town rival in Franklin.⁶⁷

Science in the Context of the News

Despite the potential for missing spikes or lulls in the amount of non-foreign and non-government news, one author, David A. Copeland in Colonial American Newspapers, effectively utilizes an every five year sampling technique to categorize most types of articles in the papers from 1720 to 1775. Copeland divides the news into fourteen categories: Sea, North Americans (Indians), Sensational, Crime/court, Slaves, Women, Disease, Religion, Accidents, Animals/agriculture, Entertainment, Natural Events, Social News, Weather, and Discoveries. A compilation of all of the twelve five year intervals he surveyed gives us an overview of the content of the many of the papers minus all articles related to "European, free press, and high matters of state" and all advertisements.⁶⁸ The parameters we have established for examining the newspaper for incidents of science and technology transcend these categories. However, we can use them as a guide to placing explanations of nature, descriptions of technology, appeals to rational and empirical processes, or individuals interested in the value of enlightenment thought in the context of general news.

According to Copeland's data, articles concerning the sea far outnumber the other categories throughout the period, reflecting the obvious importance that ships and shipping had for the colonists. For the newspaper, ships provided the link between the Old and New World - the lifeblood of information and goods that filled the pages with articles and advertisements. The main focus of these articles: pirates, battles, disease, weather, navigation and shipwrecks.

The colonists certainly learned of the horrific practices of ships sailing under no nation's flag. Pirates threatened the transportation of goods and people during the entire 18th-century. However,

⁶⁷ Franklin later complained about Meredith's lack of work ethic and drinking in his autobiography. According to Jones, Meredith's real value may have been his father's wealth. Jones, p.30.

⁶⁸ Copeland states on page 13 and in footnote 22 that "studies of the history of news, outside of the [examining of] free press or political arenas, are relatively new in media history and those that focus on it tend to begin with the penny press

they also served local merchants in circumventing the British monopoly on trade.⁶⁹ Therefore, while the newspaper reports often painted pirate activity as quite brutal, many of the colonial merchant's commercial experience with pirates and privateers probably did not find a place in the newspaper.⁷⁰

Although colonists might occasionally hear of a ship's fairly benign passage, reports of bad weather and shipwrecks featured prominently in articles of the sea. Most of these reports offered dramatic retellings of several dramatic hours in the teeth of a storm or the many days adrift on wreckage, passengers and crew sometimes resorting to cannibalism. Sailors also took note and reported another constant threat to wooden ships: lightning.

Much of the reports related to the sea did not have the same gripping sensationalism of reports of pirates or dramatic weather and shipwrecks. Customhouse reports of ships entering and leaving and their cargoes gave colonists a calmer, while important view of the colonist's relation with the sea. Short line articles warning of diseases also avoided drama to coldly remind the colonists of the dangers of traveling to distant ports. Ships could arrive in the colonies only to receive quarantine as their crew had contracted a distemper or smallpox.⁷¹ Ships also brought news of disease. Newspapers also warned travelers to avoid certain foreign ports where various diseases such as small pox or the plague ran rampant.

While articles addressing ocean weather and ship born diseases often did not make any explicit reference to natural philosophy, they implicitly allowed for a growing archive of observations concerning the New World. Colonial ports such as "Charlestown" became known for their summer distempers.⁷² Reports of great storms eventually gave better understanding to the increase in storms during the summer and fall months of the East Indies. Benjamin Franklin and others used their ocean going experiences to observe changing currents and ocean temperatures so the ocean certainly offered plenty of fodder for the naturalist.⁷³

of the 19th century.”.

⁶⁹ Copeland, p.26, foot 13.

⁷⁰ Copeland, pp.33-38.

⁷¹ Copeland, p.28.

⁷² Karst, pp.15-51.

⁷³ See Franklin's autobiography.

The sea also offered an opportunity for improvements in everything from navigation to preventing worms. Between 1737 and 1752 the *Virginia Gazette* printed articles on life preservers, longitude determinant, marine instruments, sea water purification, the prevention of leeway, and timber decay.⁷⁴ The 4/25/54 *Maryland Gazette* also had an article on making seawater fresh. The 4/5/30 *Mercury* had an article on a device to recover merchandise from sunken ships.

Back on land, a large percentage of the paper concerned the natives of America. Most stories of the Native American population, either regarding attacks, war, preparation for war, or treaties do not usually offer much to those examining science and technology. Occasionally, an article might lend itself directly such as the *American Magazine* article on the construction of shot at the same time that a conflict with Indians was becoming critical in Pennsylvania.⁷⁵ However, in the realm of health, frequent mention of small pox among natives became the example against which those practicing inoculation made their case through tables. A reader also can find a number of Native American remedies for maladies such as a rattlesnake bite.

Most of the events of natural philosophy as portrayed in the newspaper involve male property owners of mostly Northern European descent. Little mention of women involved in natural philosophy grace the pages of the newspaper. A few American women of the eighteenth-century have been shown to be good students of Natural Philosophy but their public portrayal did not often reflect that. In their study of portraits of the figures of natural philosophy in America, Fortune and Warner display two women -- Elizabeth Maxwell Swan and Mercy Otis Warren -- whose portraits use the typical visual metaphors of flowers and/or books of poems and prayers despite the subjects' formidable talents for mathematics. Only a few, such as Anne Catharine Hoof Green (wife of the Jonas Green, publisher of the *Maryland Gazette* and, later, publisher herself after his death) is pictured with an artifact of a career: the latest issue of the *Maryland Gazette*. Anne Whiteside Earl (pictured with navigational instruments), and African American poet Phillis Wheatley (pictured writing at a desk) also had portraits done that used metaphors of typically masculine convocations.⁷⁶

⁷⁴ Find examples of these in *Virginia Gazettes* of 11/24/52:11, 2/06/52:32, 9/16/37:22, 4/24/52:11, 5/18/39:22, 8/19/37:31. See Copeland, p.32 for this and other examples.

⁷⁵ NEED TO FIND?

⁷⁶ Fortune, and Warner, p.13-19.

One woman, a Mrs. Mapp in England, received some notice in the 1/13/37 and 2/15/37 issues of the *American Weekly Mercury* for her skills in setting broken bones. Mostly, stories and essays of women centered on the woman's place in the home as virtuous and nurturing. A threat to that order might solicit an angry letter but many women wrote in support of the order as well.⁷⁷

The exceptions to the portrayal of the virtuous female occurs in reports of women masquerading as men as well as in sensational crime reports. In the case of male masqueraders the public might find amusement with the cleverness of particular women to remain undetected for considerable lengths of time. One woman, a Hannah Snell, served as a marine and fought in the East Indies as a James Gray for seven years. She retired a decorated soldier with pension before discovery.⁷⁸ The July 25, 1728 *Pennsylvania Gazette* tells of a woman who served on a merchant ship for four years. Crime reports gave much bleaker pictures of women. Murdering husbands and infanticide, especially of bastard children, featured heavily in these reports. The courts seldom forgave these murders and the newspaper rhetoric seldom seemed forgiving either.⁷⁹

The woman as metaphor for nature did not really occur in the colonial newspaper, either virtuous or less so. While a fair amount of scholarship has gone into the misogynist aspect of the texts of the seventeenth-century exploratory natural philosophy such as those by Francis Bacon, I've not found the same kind of ribald rhetoric in the newspaper.⁸⁰ The "newspapers recognized that a part of their audience was female and made sure that some of their information was directed towards them."⁸¹ They probably avoided insulting them as well. The early *Busy Body* articles show the power of the "insulted female."⁸²

The principle place of black men and women in the colonial newspaper reflects their principle status as slaves imported from Africa via the Caribbean. The most frequent reference to slaves in the paper: advertisements offering rewards for returning runaway property followed by those offering

⁷⁷ Copeland mentions a writer to Parker's *New-York Gazette* of 12/4/60 who decried freethinking women who should be at home. For other examples of text concerning women see Copeland, pp.151-173.

⁷⁸ Copeland, p.167.

⁷⁹ Copeland, p.111

⁸⁰ See Merchant in *The Death of Nature*.

⁸¹ Copeland, p.171.

⁸² Mary Helen Orr George argues that Franklin shows a history of presenting women sympathetically to promote concepts in human rights. This example seems more likely to be tapping into sympathy for an insulted female for

slaves for sale. Interestingly, small pox and inoculation figure heavily in these advertisements. Advertisements for runaways often mention distinguishing and recognizable facial features caused by small pox. Ads might say, “face pocked by the small pox” or “left cheek pocked by the pox”. There are literally hundreds of advertisements for runaway slaves (and indentured servants) that mention small pox from 1728 to 1765 in just the *Pennsylvania Gazette*. Adverts of slaves for sale also make reference to “has had small pox” to assure the buyer that their property would escape that dreaded disease.

Articles concerning “the Negro” often reflected a fear of reprisal or uprising. The *Pennsylvania Gazette* of 8/21/55 and the *Maryland Gazette* of 8/28/55 both ran the same story of Kittery, Maine slave that threw his owner’s child down the well as retribution. Half the newspaper in the colonies wrote of the 1740 slave insurrection in Georgia of that year. Interestingly, news of slave crimes most often appears in papers other than those of location in which they occur. Franklin also had an aversion towards slavery and so characterized them as potentially inept and thus dangerous. A 2/7/38 article in the *Pennsylvania Gazette* about Negroes dancing and drinking in a Boston waterfront warehouse has them setting the warehouse on fire and almost burning down the whole wharf. Referring to the owners Franklin wrote “tis a pity the laws of 9:00 PM curfew cannot be better enforced to protect those citizens.” This attitude differed little from most references to Africans as inferior to whites, even the antislavery literature of the 1770s.⁸³

Common articles concerning religion involve the comings and goings of Itinerant preachers. Almost every visit in every town that George Whitefield made from 1739 to 1770 found note in the colonial newspapers. Franklin, ever the astute newspaper man and, according to his autobiography, a professed acquaintance of the preacher, carried the greatest amount of these reports.⁸⁴ The newspaper also served for the publication of sermons and hymns; although someone interested in these might more easily find them in books and pamphlets.

Religious disputes, even those politically motivated at the local level, made use of the typically broader disputes between Protestants sects or between Protestants and Catholics, and found a home

commercial gain.

⁸³ Copeland, p.146-8.

⁸⁴ Copeland, p.218.

in the newspaper.⁸⁵ For example, Maryland, having been established as a refuge for Catholics, later banned “popery,” although a percentage of the population continued to practice. The Protestant Reverend, Hugh Jones, did not hesitate to employ strong language in his attack on local Catholics. In the 3/3/47 issue of the *Maryland Gazette*, the authors lead an attack on Catholicism in poetic form titled “An humble ADDRESS to that most venerable and ancient Punk, the Whore of BABYLON”.⁸⁶ In the early part of the century, fear of the Catholic “Pretender to the throne” also sparked stories that colored Catholics as barbaric. An *American Weekly Mercury* article of 4/22/25 reported “papist” soldiers attacking Poland having chopped off the hands and feet of the poor citizens. In contrast, later in the century, articles supporting religious toleration began to appear.

Whitefield also received criticism in the paper. An article of 5/1/40 in the *Pennsylvania Gazette* noted that the doors of the dancing school had been shut, as the practice was “inconsistent with the doctrine of the Gospel.” The next week a letter accusing William Seward, Whitefield’s traveling companion, of both sealing the doors and writing the letter appeared: “Nor is this the only Instance of Misrepresentation in Favour of Mr. Whitefield’s Success...And considering that these Accounts are said to be put in the Papers by themselves, are they not a further Specimen of their little Regard to Truth? Nay, are they not a Demonstration that these Men have other Designs in View than are agreeable to their Pretenses.”⁸⁷ The controversy raged for weeks and even spread to other papers in Boston.⁸⁸ By the end of the month, Franklin wrote an article himself that admitted that he had not checked the writer’s identity.

The newspaper also reaffirmed the place of God’s providence in the everyday dealings of the colonists. The apparently random acts of nature like disease, earthquakes and weather induced crop failures or successes, often became associated with an angry or benevolent God. While most of these articles did not attack natural philosophy outright, the perspective certainly does not ring true with the “Great Clockmaker” of Newton or the Deist thought inspired by Locke’s *Reasonableness of Christianity*. However, some of the naturalists of the Eighteenth-century apparently either

⁸⁵ A great deal of criticism for some of the newer religions such as Methodist and Unitarian, part of the religious splintering brought on by the Great Awakening, existed.

⁸⁶ The authors, P.Q.R.S. and T.U. are, according to J. A. Leo Lemay, actually the Rev. Hugh Jones. See “Hamilton’s Literary History of the *Maryland Gazette*,” p.282.

⁸⁷ *Pennsylvania Gazette*, 5/8/40:2.

⁸⁸ Copeland, p.220-223.

believed or utilized this perspective. Cotton Mather, for example, made a call for greater piety, for its decay had led to many miscarriages. In some cases, the government itself did not shy away from interpreting God's providence in natural events for its citizens.⁸⁹ Others worked to directly counter this perspective through articles.

The mostly agrarian colonies (many of the types of manufactory officially outlawed by the British) welcomed information regarding crops. A number of the articles in the papers written overseas encouraged and detailed the growth of various crops like grapes for wine and flax. Articles also gave details on how to combat pests and irrigate crops. Many of the debates enacted through the paper also concerned agricultural products. The numerous letters in the *Maryland Gazette* about the potential Inspection Law demonstrate the economic significance of such discussions. The plentiful wholesale price tables located near the advertisements do as well. Reports about weather around the world also frequently mention the weather's effect on crop production.

Animals and plants play another role for the colonist other than agricultural product. Explorers in the New World encountered new and strange flora and fauna, which they detailed in letters to the editor. Sometimes, the stories of encounters showed dramatic flare such as the story of the capture of a "Greenland Bear" in 2/28/33 *Pennsylvania Gazette*. Sometimes, these wonders became shows for the public when individuals brought animals back to town or a local naturalist opened his garden to the public. The paper also made some reference to the reports of the Royal Society and other local naturalists on wondrous plants and animals and their potential uses. Occasionally, the paper noted the transfer of new flora or fauna from the New World back to the Old.

The Old and New World played into the stories of crime as well. The newspapers presented crime reports in both dramatic and matter-of-fact ways. The paper often published the last statements from convicted criminals and straightforward reports of people "in the Goal" for unpaid debts. Just as in the reports of Negro's' uprisings, however, the most dramatic stories seemed to occur elsewhere, perhaps reflecting the relative safety of colonial cities compared to those across the Atlantic, perhaps also reassuring colonists of the differences between the old and new world. As

⁸⁹ Copeland, p.212 -213.

mentioned earlier, infanticide and spousal murder found a place in the paper's pages. These reports detail the specific atrocities in a tone that makes the perpetrators eventual discovery a virtual certainty.

The paper occasionally presented children as other than innocent victims. Several reports have children acting most abominably which, if true, give some pause to the idea that the increase in violent children has come about since the advent of modernity. In the 5/24/53 *Mercury Gazette* an article told of how a child attempted to poison her mother after receiving punishment for misbehaving. An 11/2/48 *Mercury Gazette* tells a tragically horrific story of two orphans, a ten year old boy and a five year old girl, living in a Parish in York. The boy, who "confessed that a trifling quarrel happen[ed] between them," took a kitchen knife and cut her wrists, elbows and "hams" to the bone, hit in the head with a hook several times, buried the body, washed up, and then went to breakfast. The article ends: "When he was examined he shewed very little concern, and still appears easy and chearful. -- Judge Hale order'd a boy of the same age to be hang'd, who burnt a child in a cradle." An *American Weekly Mercury* article of 8/19/42 tells of how a boy in England killed his siblings and attempted suicide after mistaking thunder for the guns of the Spanish. The article ends with an admonition against telling frightening tales to children.

The most obvious importance of crime stories for someone exploring natural philosophy probably involves autopsy. Criminals given the death penalty could likely count on their body becoming available for medical inquiries. The colonial government also considered suicide a crime. As such, the body of the 'victim' no longer belonged to them, their church, or their family. Reports of suicides often end with the surgeon taking the body away to their office or the medical school.

Many of these reports of crimes probably fall under Copeland's idea of sensationalist stories. The importance of the differentiation lies in the characterization of the colonial press as a device not only for supplying news, but entertaining its readers with shocking, almost unbelievable, stories. Thus, articles often present information quite graphically, even with some black humor. Timeliness also did not play as big a role in these types of stories.⁹⁰ Descriptions of monsters and monstrous

⁹⁰ Copeland wants to reiterate the perspective that many of the characteristics often attributed to the 19th century Penny Press had their origins in the colonial paper. Copeland follows Mott's lead on this, see Copeland, p.72. See also Mott, *American Journalism*, p. 442. Also Perry H. Tannenbaum and Mervin D. Lynch, "Sensationalism: The Concept and Its

events, sex scandals, effects of disease or lightning strike, natural events, accidents and, occasionally, supernatural events, all found a place in the colonial newspaper's need to supply a moral or aesthetic shock to its readers.

Accidents did not always display such graphic and horrifying descriptions. Often, the loss of life in particular accident seemed to take a second seat to other concerns. An article on the front page of the 3/22/64 *Maryland Gazette* about an overturned ferry mentions that the mail had been saved but the cargo lost before noting that several people died. Reports of accidents are where we find the dangers involved in activities associated with various technologies. Many traditional technologies and techniques such as milling, ironsmithing, ferrying, rarely make the paper otherwise.

New discoveries in technologies and techniques, on the other hand, did feature in the pages of the paper; either considerably detailed articles such as those concerning irrigation, or a few lines merely noting an invention or new technique. Advances in navigation, military hardware, perpetual motion machines, machines to turn salt water sweet, and notes of presentations at the Royal Society get a few lines of text. Some extensive articles, like that of how to construct the kite to prove the “sameness of electricity and lightning” and detailed observations of celestial events also got front page coverage.

Detailed observations might also apply to the category of Natural Events and Weather. While many observations of earthquakes, volcanoes, “comets”, or storms may have exhibited a fair amount of drama or even sensational rhetoric, many more reported the incidents in a few lines with a short description. Occasionally, individuals making careful observations, using instrumentation, or under the auspices of the Royal Society, are mentioned. While not necessarily “new,” several theoretical descriptions of natural events also got some play in the early part of the century – especially in the pre-Franklin *Pennsylvania Gazette*.

Articles related to health often appeared in the paper and addressed the colonists concerns with health. Reports of healing springs, home and Indian remedies, and the medicinal value of native plants offered the colonists potential tools for curing themselves; probably the primary means of

Measurement,” *Journalism Quarterly* 37 (1960): 382.

colonials getting healthy for the bulk of the period. The newspaper also gave hospital annual reports. Few communities had centralized medical facilities and the charts quantified, with its greater percentage of “cured” patients, that the hospital served a useful purpose. The newspaper also presented stories of physicians and patients. Some stories gave the physician authority and capability in the face of a horrible malady. Others painted the physician as not much better than buffoon. Many times a physician does not figure in the story at all, or only as a witness to the person having cured themselves against incredible odds or dying.

The majority of the references to medicine, medical texts, and physician’s or surgeon’s services appeared in advertisements. For example, there are a total of 348 domestic advertisements for health related artifacts and practices in the *Pennsylvania Gazette* between 1729 and 1765: 276 for medicine, 41 for books, 8 for instruction, and 23 for practitioners. In comparison, there are only 85 domestic non-advertising articles of which only seven are technical and prescriptive. The remaining 78 relate to the running of the Pennsylvania hospital or reports of injured or sick people.

Although the principle of contagion did not really exist in colonial times, infectious diseases did receive different treatment in the newspaper than other maladies: especially smallpox. Newspaper reports warned of the disease and many people responded to outbreaks by leaving the city centers and avoiding contact with people. Except for the initial controversy in Boston in 1721, few newspapers ran articles countering the benefits of inoculation. Most ran tables of comparing the rate of recovery for those taking inoculation and those acquiring the disease “the natural way.” In times of rampant disease they often ran the directions as to how to perform the operation as well. Occasionally, a short article might inform the readers that “the occurrence of the Small Pox is much reduced in this city.”

Entertainment articles did not exist only to shock readers. They might titillate, wryly amuse or intellectually challenge. The well written article in the 6/29/48 *Maryland Gazette* by “Quevedo” mocking many of the recent contributors to the paper amuses the reader while pointing, to those who know their identities, their fallibilities.⁹¹ The 5/29/55:2 *Maryland Gazette* story of a farmer leading his horse into town when he turned to find a man, claiming to have turned into a horse by a

⁹¹ “Quevedo” is likely a pseudonym for Alexander Hamilton according to Lemay, “Hamilton’s...”.

witch seven years earlier, wearing the halter, both amused readers and cautioned against foolish superstition. Sometimes the newspapers published puzzles such as that of the 12/21/48 *Maryland Gazette*, or plays, stories, parables, or poems. Such amusement as derived from lotteries also found a place in the newspaper. Many lotteries directly benefited particular civic projects. Players not only played with the opportunity of winning but the knowledge that the proceeds went to a worthy cause.

Finally, social news began the period as an occasional obituary and eulogy for an established citizen, news of a prominent official's movement around the colonies or across the Atlantic, or, from time to time, a descriptive account of a social occasion. As the century progressed, the average citizen might receive more notice in the paper, at least in an obituary.

Of the many articles of general interest in the four colonial American newspapers in this study, my research has accumulated over 3000 incidents, both advertisements and articles, roughly corresponding to science, technology and medicine for the years 1729 to 1765. Table 4.1 breaks this collection down by percentage, distinguishing between categories and articles vs. advertisements. In the following chapters we shall examine the details of many of these articles to establish their character and purpose. However, before we do that, we need to characterize communication and the press in colonial America.

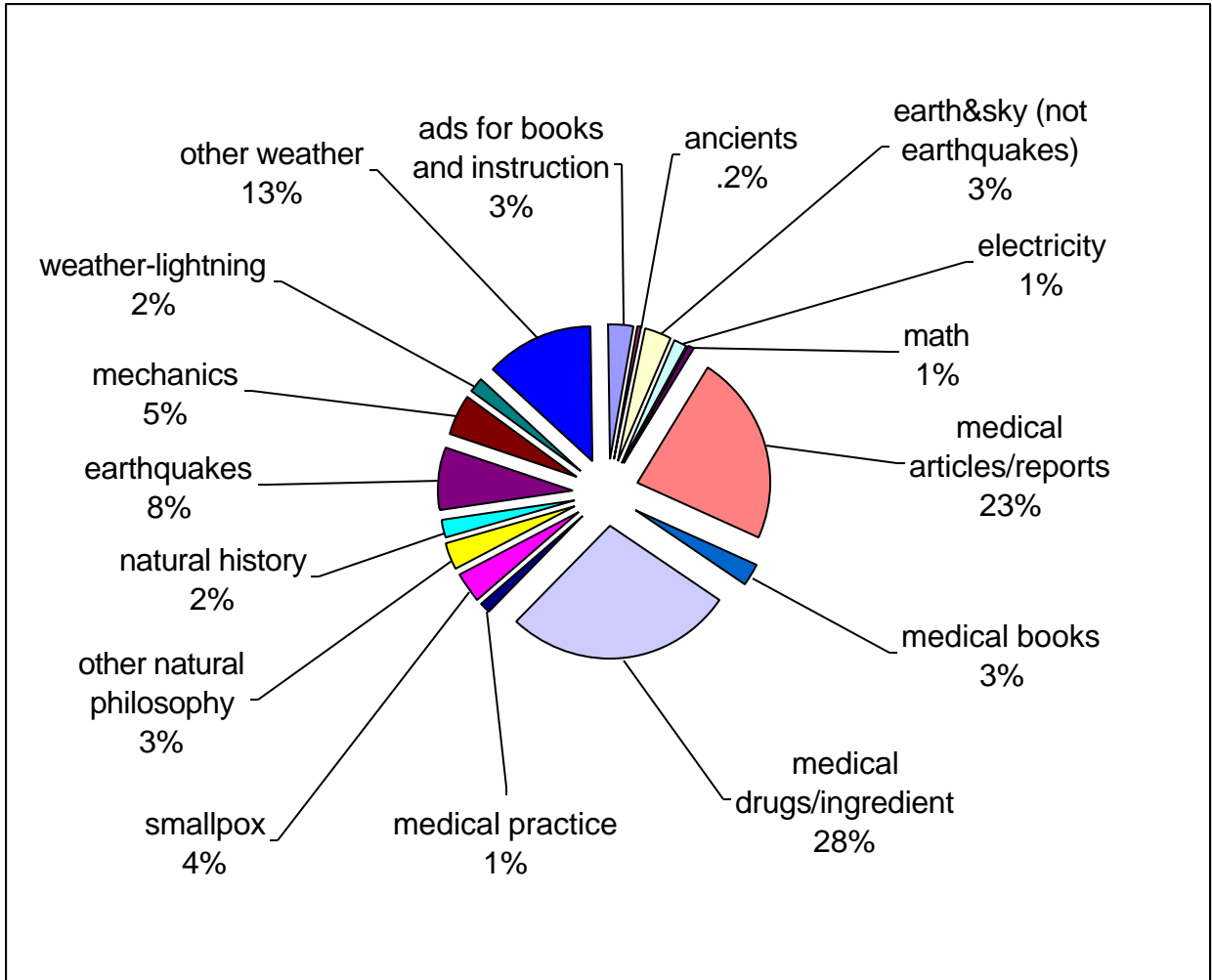


Table 4.1 - Aggregate percentage breakdown of categories of science, technology and medicine in the Pennsylvania Gazette, Virginia Gazette, Maryland Gazette and American Weekly Mercury for the years 1729 to 1765.

Communication: Cause and Effect

What would eventually constitute the thirteen United States began as a haphazard assortment of fairly competitive colonies. Considerable inter-colonial rivalry over trade and land existed until an assortment of factors and interests came together to force revolt and independence. The treaty of Paris in 1763, which brought the Seven Year's War - or French and Indian War - to a close, is generally considered the year the colonist's interests combined to create an impetuous for unity.⁹²

⁹² Many of the background facts for colonial Americans and American cities are taken from Maldwyn Jones and Carl Bridenbaugh.

Many American colonists saw themselves as essentially British in pursuit and likeness.⁹³ However, years of British hands-off bureaucracy and American self-sufficiency in defense, economics, and carving a western-style civilization out of the new continent, did not prepare the colonists for British attempts to consolidate and financially buttress the British Empire by control and taxation of the colonies. By 1775, after a string of conflicts centering on autonomy and trade, an increase in coercive English policies, and an increase in better-organized rebels communicating effective propaganda throughout the American continent, the colonies were ready to declare independence.

Obviously, the seeds for that drive towards independence were there prior to 1763. Due to an assortment of differences -- continuing emigration and the resulting multiracial makeup of the population, the physical distance from Europe, environment and weather, modifications in language, conflicts with American Indians, the need for self-sufficiency, a high level of literacy, a longer life expectancy and quality of life, religious toleration, labor shortages, and rapid population growth (by 1763 the pop was 2 million, 1/3 of England and Wales) -- English society could not be transplanted whole cloth unto the colonies.

These differences interacted and perpetuated each other to become what, in retrospect, might be called a shared American Enlightenment character.⁹⁴ The Puritans of New England valued education for it was important that all believers could read the bible. Their religious intolerance encouraged separatists to spread throughout the region, creating Newport and Providence in Rhode Island, as well as New Hampshire. Economic opportunities spread the puritans far afield as well. All continued upholding the importance of reading and text in their culture. Documents and charters encompassing their societies were both cherished and available to the citizens. Initially, interactions with the native Americans were less problematic. But as time passed, other tribes, often aligned with French interests in the north and west, became more threatening. New Englander's success in defending themselves, despite lack of much support from England, promoted a feeling of local pride. Additionally, some inter-colonial cooperation, notably the 1745 conquest of the French fortress at Louisburg, promoted regional pride as well, while the subsequent British relinquishment of Louisburg in the Treaty of Aix-la-Chapelle in 1748, did little to foster relations with Britain.

⁹³ See Robert H. Riefe for one perspective on the development of American culture through the newspaper.

Local pride did not immediately translate into a shared colonial pride without some impetus, and that really only came about with an increase in shared concerns and interests. As British subjects, the battles of European powers in mid-century (especially when carried out in the West Indies, in connection with the native American tribes, or, because of the colonial reliance on international trade, on the high seas) demanded the attention of all the colonists and received a prominent place within their newspapers.⁹⁵ Itinerant preachers such as George Whitefield received coverage in most colonial papers and acted as a catalyst for colonial cohesion.⁹⁶ Itinerant lecturers on natural philosophy, such as Ebenezer Kinnersley, a certain Mr. Johnson, and objects of curiosity such as the Camera Obscura or mechanical orrery might also be tracked by one colony's paper while it traveled in another.⁹⁷ The introduction of the Stamp Act in 1765 threatened the very means of shared information, creating the opportunity, seized by most newspapers, for laying the groundwork for revolution.⁹⁸

In addition to shared concerns, only technical advances would facilitate broader communication. Over the course of the century improvements brought by a rise in the number of newspapers, an increase in the number and capability of printing presses and ink and paper manufacturing, and an improved transportation infrastructure through roads, stages and shipping, allowed increased communication to take place.⁹⁹

⁹⁵ The international struggles for colonial dominance of America created a long succession of minor conflicts and declared wars that directly threatened the lives of colonial Americans, especially with the use of the Native Americans by England, France, and Spain. The major wars of the period: the War of the League of Augsburg (1689-97), the War of Spanish Succession (1702-13), the War of Austrian Succession (1744-48), and the Seven Years' War (1754(6)-63). Among other things, economic competition with French fur trappers, fishermen, and traders, and the threat of war with numerous tribes of the Ohio Valley and elsewhere, continually threatened British colonists.

⁹⁶ Arguments have been made that link Whitefield explicitly with both the increase in communication between newspapers and the rise of an American cohesion. See references in Copeland, p.216-218, 274.

⁹⁷ The 7/26/64;22 *Maryland Gazette* mentions a Mr. Johnson doing electrical experiments. Lemay('61 and '64) addresses Ebenezer Kinnersley.

⁹⁸ See Allen for a discussion of the details of the printers and the stamp act.

⁹⁹ For a comparison of English infrastructure improvement see Gregory Vincent Laugero.

Information Diffusion

The technical means of communication in the 18th century remained fairly consistent. The printing press, speed of sailing ships, speed of letter carrier, did not change much during that time. In fact, according to Kronick, until the advent of the railroad, speed over land was probably no more than approximately 25 miles a day.¹⁰⁰

A number of social, political, organizational, and economic changes occurred however. A desire to spread influence and increase wealth brought an increase in transatlantic and domestic trade and, thus, communication networks. An increase in organizational makeup of postal services, monetary systems, and marketing devices, such as the newspaper publishing of commodity prices, assisted the flow of goods and information through the network. Better and more roads, ferries, ships, navigation aids and, by the end of the period, relative safety from privateers, made the transfer of information and goods cheaper and easier. With an increasing population, increasing local specialization in many fields such as printing and medicine lowered prices through competition. Regional specialization in crop and manufacturing did as well. Smaller typeface and the domestic production of cheaper paper and ink allowed printers to flourish.

Printed material made up only a part of the modes of communication, and the newspaper only a component of that.¹⁰¹ Artifacts, such as telescopes, microscopes, and other tools used by European philosophers aided naturalists or plants and animals from the colonies back to Europe played a role.¹⁰² Lectures, shows, plays, sermons, animals and devices by itinerant showmen made numerous perspectives popular. Coffeehouses, taverns, and other public places gave a space for oral discourse.¹⁰³ Oral networks, either informally through gossip or more formally created often moved much faster than print.¹⁰⁴ Schools, zoos, museums, collections played a

¹⁰⁰ Kronick, p.48

¹⁰¹ See Kaufer and Carley for a discussion of parallel modes of communication.

¹⁰² According to Fortune and Warner, portraits of naturalists also played a role in this communication. For some excellent pictorial representations of the “men of science” see their companion book to the Smithsonian National Portrait Gallery exhibition.

¹⁰³ While little literature about American men of science communicating in Coffee Houses, Salons, or taverns exists, there exist numerous literary efforts describing European Men of Science doing so, and a few works that make reference to general communication occurring in these places. Among others see Lynn, Rogers, Stewart, Golinski, and Shapin for the former and Brown, Bridenbough, Jones for the latter.

¹⁰⁴ A number of incidents never seem to make the papers for either communication or archiving because they must

part. In the world of written material the republic of letters established networks and often supplied material for local newspapers for inclusion.¹⁰⁵ Imported or domestic books, folios, pamphlets, broadsides, records, and almanacs kept printers in business and supplied colonists with the information necessary for life in Eighteenth-century America.

The newspaper represents only a fraction of these forms of communication but a growing and integral one. Newspapers announced and advertised those plays, lectures and coffeehouses. They advertised the books, bibles and almanacs that colonists desired. They reported on the great crowds listening to itinerant lecturers and discovering the amazing mechanical devices traveling the continent. They also further established the precedent of print as an archival and transcription device.¹⁰⁶

Information Diffusion through the Post

The development of communication networks, especially the press, became tightly linked to the development of the postal system. Sometimes a local postal system or newspaper delivery system preceded an established post. For instance, for several years before the establishment of a government post, riders delivering the *Kentucky Gazette* also carried mail.¹⁰⁷ The development of press, postal systems, transportation infrastructure, and regional expansion all left enduring marks on one another. Postal operations determined the speed of delivery, patterns of circulation, style of news and the quantity of public information that appeared in a given area.¹⁰⁸ The need for information spurred the development of postal roads and shipping circuits. Transportation developments spurred economic development at hubs.

have been common knowledge, considered less important, or purposefully not included. For example, few reports of the Zenger trial, held as critical for the development of the freedom of speech, occurred in papers outside of New York. Local news that surely had been communicated orally, however, such as the death of a local citizen, often did.

¹⁰⁵ See Rogers, Duprey, Goodman, and Warren for discussions of the Republic of Letters.

¹⁰⁶ See Latour for a discussion of text as an immutable mobile.

¹⁰⁷ Kielbowicz, p.52.

¹⁰⁸ Kielbowicz, p.2.

News from the continent took an average of two months to reach the American colonies. A fast ship could make the trip in thirty days but that was unusual. Packets - fast ships designated as mainly mail carriers - were not used during the years 1713 to 1755.¹⁰⁹ Mail was entrusted to the captains of merchant vessels. Not uncommonly, news between colonies might go circuitously through London as well.

Land based communication moved principally by horseback riders and stage (with stage slightly slower). The first long-distance postal service, linking New York, Massachusetts and New Hampshire, began in 1692. Maryland, Virginia and the Carolinas remained without service until the 1720s.¹¹⁰ Roads and organization in the North remained generally better than in the South throughout the 18th century but both had their shares of troubles, mostly from mud, snow, or inadequate fording capacities. Most traffic ran north-south from Boston to Philadelphia along the Atlantic seaboard post road that, by most estimates, would take more than a week to traverse. New York to Philadelphia took thirty-three hours and moved three times a week by 1754. Inland gathering and dissemination of news labored without the almost exclusive seaboard communication network and was even slower.¹¹¹ Travelers were often called upon to carry papers westward.¹¹²

Throughout most of the colonial period, newspapers were carried informally by post and were not subject to specific rates or regulations. Printers found several ways that the post office could accommodate the partially defined postal status of newspapers. Advertisements often were left at offices for insertion in local and out-of-town publications. The publishers who became postmasters earned extra income to sustain their papers while their publications enjoyed an enhanced reputation. Finally, post offices were information clearinghouses; newspapers and correspondence flowing through post offices yielded news, postriders picked up information while making their rounds, and townspeople congregated at the office sharing gossip.¹¹³

Andrew Bradford, the publisher of Philadelphia's first paper, the *American Weekly Mercury*, profited from his tenure as city postmaster from 1728 to 1737. In his autobiography, Franklin

¹⁰⁹ Kielbowicz, p.28.

¹¹⁰ Folkerts and Teeter, p16.

¹¹¹ Kielbowicz, p.51.

¹¹² There is a good description of roads and conditions in Bridenbaugh, *Rebels and Gentlemen*, p.8,9.

wrote how pleased he was in 1737 when he acquired the postmaster position from his rival Bradford.¹¹⁴

The Franklin/Bradford rivalry illuminates the importance of the postmaster position. Postmasters most often received free subscriptions to journals and newspapers which (if they were publishers themselves) they then borrowed heavily to fill their own papers. Often these 'borrowed' stories were lifted from other sources in their entirety with the original source frequently receiving no credit.¹¹⁵ Since papers geared their publication dates to the schedule of ships and postriders (and would even delay publishing awaiting tardy posts) postmasters would have the latest written news.

Postmasters would also have a say on what was delivered. In Franklin's case, Bradford would not allow Franklin to deliver the *Pennsylvania Gazette* through the post. Franklin had to bribe riders to move his paper. According to his autobiography, Franklin, as postmaster, magnanimously allowed Bradford to deliver his paper through the post until the year 1740 when he felt threatened by Bradford's attempt to publish a magazine similar to one he planned that very same year. The controversy over who planned to publish it first has never been successfully resolved but Bradford gets the historical honor as first publisher of an American magazine. Unfortunately for both, the market for a magazine did not yet exist and both magazines failed within five or six issues.

Bradford may have suffered from the lack of access to the post after 1740 but he also had his own connections through family, friends, and rivals of Franklin and likely utilized those.¹¹⁶ Even without the post position, newspaper printers could remain successful.

¹¹³ Barrow, p.60.

¹¹⁴ Franklin Autobiography, p.84.

¹¹⁵ It does appear that sources increasingly became referenced explicitly as the century passed although I do not have specific figures on this matter.

¹¹⁶ One might consider the Franklin/Bradford as relatively well mannered. Franklin had worked hard to force the original publisher of the *Pennsylvania Gazette* to sell out to him. He never focused the same attention on putting Bradford out of business. Competition between printers of newspapers in the 18th century could be intense. Occasionally one employed the ruse of publishing a journal closely resembling an existing successful journal to confuse the public and attract sales. A pretender journal to the British Journal *The Craftsman* stole most of the original's readers and name. See Simon Varey, in Printers as Rivals: the Craftsman.

Between 1753 and 1758 Franklin and William Hunter became deputy postmasters for the whole of the American colonies. At that time they instituted that all papers be charged postage fees except those between publishers. Franklin apparently felt comfortable enough with his position, to reduce (although not remove entirely) the ability of postmasters to injure their rivals by withholding access to the mail.¹¹⁷

The *Gazette's* primary printed competition in the later part of the century came, not from Andrew Bradford's *American Weekly Mercury*, but from William Bradford III's *Pennsylvania Journal* started in 1742. He too owned a printing house and Philadelphia's other major bookstore. He also owned the London coffeehouse, opened in 1754, a focal point for commercial activity. Through that venue William Bradford could act as a center of commercial information, even while he never held the literary gatekeeper position as the Postmaster General.

Print and Newspapers

Scholars list the first newspaper as the Paris Gazette, published in 1631.¹¹⁸ This periodical combined elements of the 'fly-sheet' (a printed intermittent production used to disseminate often single events of momentous nature such as wars, volcanoes, or royal births) and the handwritten manuscript newsletter. The handwritten newsletter developed a regularity of issue following the scheduled departures and arrivals of the postal couriers. Kronick writes, "Thus we have existing, in many of the countries of Europe, periodicity without print as represented by the manuscript newsletter, and print without periodicity in the form of the 'fly-sheet'. It was but a short step to the union of print and periodicity to form the early newspapers."¹¹⁹ By the beginning of our period, 1728, periodicals of many forms already had sprouted into existence and featured a variety of contents.

¹¹⁷ Kielbowicz, p.19, notes two other similar rivalries: James Parker vs. William Weyman and William Goddard vs. William Bradford.

¹¹⁸ The word "newspaper" was coined around 1670 with the *London Gazette* that was a four page, edited, semi-weekly started November 16, 1665. Before that papers were called "newsbooks" and issued in pamphlet form of eight to twenty-four pages. They also were authored, not edited. Barrow, p.11.

¹¹⁹ Kronick, p. 69.

The beginnings of the modern era witnessed a growth in the number of individuals who had the means and the leisure to devote themselves to the cultivation of ideas. The founder of the Gazette in France, Theophraste Renaudot, a physician interested in public education, provided information about health. His journal has been said to represent an early promoter of natural philosophy.¹²⁰ The French reading intellegensia read the Journal des Scavans; a review of most learned literature, including natural philosophy. A fair number of other journals and gazettes existed as well.

Within individual countries the production of periodicals moved along often different lines, seemingly reflecting the societal complexity and orientation of that country. In France, all intellectual publication centered on Paris. England, also characterized by a highly centralized government dominated by a single city, displayed similar characteristics. The geographic area now constituting Germany showed far different publication inclinations. Between 1670 and 1790, German journals outnumbered those in France or Britain by two or three times.¹²¹ There are a number of reasons for the large number of German titles. For one thing, most of these journals were more short-lived than their French and English cousins. Also, German-speaking areas covered a large part of Western Europe that lacked a strong political centralization. At the beginning of the 17th century there are said to have been some 600 sovereign political units that made up a loosely knit empire of approximately 185 principalities and countships. Many of these semi-independent units developed their own regional journals.¹²² Because the American colonies were both decentralized while part of the British Empire and focused around regional cities, the American press shows characteristics of all three foreign presses.

In addition, government sanction and control of print remained, to varying degrees, substantial in all the colonies into the 18th-century and affected the content of printed material up to the revolution. Jose Glover, a Puritan parson, brought the first printing press to North America in 1638 and operated it at Harvard College in Cambridge, Massachusetts. However, the government of Massachusetts did not allow printing outside of the town of Cambridge until 1674 for fear that diversity of opinion might disrupt the colony. The first newspaper in the colonies,

¹²⁰ Kronick, p. 37.

¹²¹ Kronick, p. 90.

¹²² Kronick, p. 92.

Boston's Public Occurrences, ran one issue in 1690 before being suppressed by authorities.¹²³ In Virginia, William Nuthead was thwarted in 1682 from setting up a print shop and so Virginia, although founded in 1607, went without a printing establishment for 123 years. It was not until 1730 that Governor William Gooch invited the established printer William Parks to move from Annapolis and start Virginia's first press.¹²⁴

The *Boston News-Letter*, launched by John Campbell on April 24, 1704, became the first continuously running colonial newspaper. As the postmaster of Boston, Campbell had found himself as a sort of clearinghouse for news and had distributed a handwritten sheet for four years before starting the two page printed edition. Colonial authorities regarded the paper as an aid to administration and allowed it to be "Published by Authority". In 1719 the government dropped the *News-Letter* in favor of the *Boston Gazette*, published by William Brooker, so Campbell no longer had postage-free circulation. To remedy this he began printing the first non-authorized newspaper on only half a sheet and encouraging patrons to use the remainder to write comments and forward to friends.

A new type of newspaper, based on the *Tatler* and the *Spectator* in England first appeared in the colonies in Boston in 1721 and began raising the ire of colonial authorities. Brooker had a printer named James Franklin who eventually lost his *Boston Gazette* job and began *the New England Courant*.¹²⁵ The *Courant* represented a secular and sophisticated import of English journalism of a pointed, witty, satirical bent and concentrated on the local and politics to a degree not before seen in the colonies. Until this time, and continuing in some other colonies for quite some time yet, newspapers focused almost entirely on International and Government news. Joseph Addison and Richard Steele, editors of the *Tatler* and the *Spectator* respectively, created a press attuned to local issues, catering to local concerns, and utilizing the essay, often on the front page, as a means of reforming the press and society.¹²⁶ James Franklin followed their lead editorially and served time in jail for seditious libel when his paper attacked the congregational clergy and

¹²³ DeArmond, p.12.

¹²⁴ Hoofman, p.5.

¹²⁵ Steele, p. 156. This is where Ben Franklin first learned the printing trade, and made an impression with the anonymous DO GOOD papers, and later by taking over publishing when brother James was jailed. According to his autobiography, Franklin went on to learn more of the printing trade as a journeyman on his first trip to England.

¹²⁶ Scott Andrew Black. For an interesting look at how these papers addressed such local concerns as women's

contained humorous critiques of powerful figures. At the time, Benjamin Franklin was apprenticed to his brother James. Given Benjamin Franklin's future philosophical leanings, James Franklin's direct attacks against natural philosophy in a colonial newspaper by criticizing Cotton Mather for promoting Small Pox inoculation appears ironic. This remains one of the most interesting and obvious political episodes fought through a technique championed by natural philosophers in the eighteenth-century.

Another case, which usually gets held up as seminal for freedom of the press, concerns John Peter Zenger. A publisher of the New York Journal, he went to jail for nine months in 1733, a scapegoat for publishing an anonymous letter attacking New York's governor William Cosby.¹²⁷ Zenger gained popular support and a fine representative in Andrew Hamilton and won the case. However, Zenger's case did not set precedent for libel. Although popular sentiment expressed a desire for freedom of the press, for the most part the colonies deferred the libel issue until after the revolution. The press, in general, remained conservative. Papers did demonstrate some objectivity in allowing various paid points of view to be aired, but less so in criticizing the government. Economically successful printers avoided alienating British representatives for most of the first three quarters of the eighteenth century¹²⁸

Of course, a number of issues cloud the contemporary perspective of the timid colonial printer. All printers could find themselves under the threat of losing their right to publish for seemingly minor comments. Andrew Bradford printed a letter in support of Zenger but then, when pressed, claimed he did not realize he had published it. A scholarly tradition holds that colonial American newspaper editors acted as compilers of information either taken from other published sources or through letters written to the editor rather than active and participating editors. Yet Bradford's backpedaling reminds that a benefit existed in an editor not appearing to actively control the contents of the paper no matter what the truth of his or her involvement.

fashion see Erin Skye Mackie.

¹²⁷ Actually, James Alexander wrote the letter to discredit Cosby who owed Alexander money.

¹²⁸ In addition, Richardson argues that Franklin never expressed an editorial opinion (p.31). I would likely argue against a strict interpretation of that.

The obfuscation of the authors of the essays found in the papers also added to the anonymity of the expressed opinions. Only indirect evidence or conjecture links many of the essays found in the colonial paper with the real authors. Letters likely would be signed PUBLICOLA, PERSIUS, BUSY BODY, or numerous other pen names that left the author's identity in some dispute. This tradition continued through the first two-thirds of the century although lessening in some locations with the gradual setting of informal precedents of press freedom. Leslie Anne Chilton examines the genre of the moral essay, and the sub-genre of the pseudo-letter. She notes that both were "popular fare, palatable to the emotions and abilities of the reader. The subjects, themes, and morals were likewise calculated to suit their long-standing interests and beliefs".¹²⁹ While an occasional comment sparked controversy, and conflict remained the exception to the rule, the paper acted as a location for disputes of all types: either through published essays or paid advertisements.

In many ways the marketplace dictated the character of the press as well. The individuals who printed newspaper often also served as merchants who sold and traded imports, paper products and books. They also acted as brokers between individuals and merchants in the cash strapped colonial economy. Most printers made their money on contracts for government, business and religions printing bills of exchange, government transcripts or edicts, religious material, mortgages, indentures, deeds, checks and other template forms in addition to books, broadsides, tracts, pamphlets, and almanacs. Subscriptions for almanacs far outnumber those for newspapers and were the second most sought after publication after the bible. Poor Richard's had 10,000 subscribers in 1748.¹³⁰ Since most newspapers did not become moneymakers until late into the eighteenth century, printers sold advertising space to subsidize newspaper printing costs.¹³¹ They then used their own newspapers and circulation and postal routes to inform a dispersed audience of represented wares. Printers in the colonies created a network and apprenticeship

¹²⁹ Chilton, Leslie Anne, Dissertation Abstract.

¹³⁰ Kronick, p. 1976.

¹³¹ While a number of scholars already mentioned indicate that the colonial press did not make a profit with subscription and advertisement fees, a number of more recent articles indicate otherwise. See Copeland, p. 267, conclusion, footnote 8 – He mentions Folkert and Teeters, *Voices of a Nation*, 130, for making this claim of the Penny Press. Also p.270 mentioning Kobre. Also see Susan MaCall Allen for a survey of printer's wealth in comparison to their political positions on the 1765 stamp act. For a comparison of the value of advertisements in the English countryside (often used as a comparison to the colonies) see John Jefferson Looney.

system of professionals who enjoyed higher status and pay than counterparts in England.¹³² The networks created economies of scale – in ink, paper, and even text – that allowed for the encouragement of trade. The obvious benefit for printers not to alienate any potential customers, within some editorial reason, decreed the relatively neutral editorial stance.¹³³ According to Robert Kany, David Hall, editor of the financially successful *Pennsylvania Gazette* since 1748, opened the paper to all sides and was a fair editor.¹³⁴ DeArmond makes the same argument for Andrew Bradford.

The editorial stance on publishing advertisements reflected the economic concerns of publishing as well. For the most part, the press took all comers with regards to advertising. Very rarely, an editorial comment might exist in proximity to an advertisement. An editorial policy of essentially fair access benefited the purveyors of newspapers economically.¹³⁵

Readership and the Market

Editors appear to open the newspaper to all writers, allowing the reader to have access to a variety of voices. Contrasting editorial comments either specifically written by local authors for a newspaper or selected from other journals and inserted in the journal appear frequently. The availability of advertisements (which were seldom editorialized by the editors) to all who could pay for them also opens the papers to numerous perspectives. Given the potentially fair editing of the paper, we might surmise that the paper accurately reflects the ideas and opinions of the colonists themselves, but not without serious qualification. Generally, contributors to the paper may have

¹³² Folkert and Teeter, p. 30. Usually, women were not admitted but by family succession. Nevertheless, many were running print shops by the revolution. Constance S. McCormack examines four eighteenth-century women printers for their editorial position. She notes that, for the most part, they followed the models already established by men

¹³³ An economic argument can even be made for the transition to a politically biased American press. Patricia Louise Dooley reports that by 1800, the members of the journalistic group were heavily populated with non-printers. The American federalist period had different concerns for publishing and profit.

¹³⁴ Robert Hurd Kany, p.42.

¹³⁵ Numerous articles, books, and dissertations address the issue of freedom of the press. [?] An interesting and relatively recent treatment that turns the argument on its head and states that freedom was made to fit the press can be found in Valerie Elizabeth Frith.

been a select group of opinion leaders. With the lack of signed articles, the scope of accessibility to the newspaper remains one of the most difficult aspects of an historical examination.

The limited size of the papers (usually four although sometimes two or six pages) demanded some selection. We can speculate that many letters did not get published as articles for they ran as paid advertisements. Some suggestions exist that some authors may have paid to have letters published as articles and not advertisements.¹³⁶ Access to the newspaper in some cases may have literally depended, to some extent, on the ability to pay, even outside of the advertisement section.

An example of selection that demonstrates some of the rivalry between Franklin and Bradford occurred in 1740. Ebenezer Kinnersley, embroiled in a religious conflict, failed to secure a place in Benjamin Franklin's *Pennsylvania Gazette* for a letter critical of some of the local clergy despite Kinnersley's friendship with Franklin. The advertisement for the letter ran in the *Mercury* instead on 8/2/40. Franklin then inserted the advertisement the following week (with a disclaimer) after Bradford advertised his intent to publish the second letter.

The character of the material published in the papers also reflects some rhetorical capability. While the literacy rate in the colonies has been put as quite high, this does not necessarily mean that the majority of colonists wrote essays (the primary literary device for getting across ideas and not just reporting occurrences) for the newspaper. Essayists appear to write frequently and have had the time, interest, and capability to invest in the project. For example, only two individuals, Franklin and Joseph Breintnall wrote the BUSY BODY essays that ran for almost a whole year on the front page of the *Mercury* in 1729.

The newspaper also represented a fairly new communication technology not quickly embraced by all parties. For example, despite the majority of births attended by a midwife in the first half of the century, no midwife advertised her services in the *Pennsylvania Gazette* until 1/27/47 despite the advertisements for other medical practitioners for years.

¹³⁶ Lemay, "Hamilton's Literary History..." Lemay argues the author of an essay in the 6/29/48 *Maryland Gazette* was Alexander Hamilton using the pseudonym "Quevedo". In the essay, Quevedo notes that the editor Jonas Green's "only test of literary merit for the *Gazette* is the amount of money an author will pay to have his productions immortalized in the paper." See p.274.

For the reading public, papers were limited and expensive compared to today. The *Rivington's New-York Gazetteer* had a circulation of 3600 by 1774; the greatest in the colonies prior to the war but a small percentage of the 20,000 inhabitants in New York City at the time.¹³⁷ We know subscription rates mostly from the claims of publishers themselves. The figures claimed, while fragmentary and often unsubstantiated, appear fairly reasonable. In a letter to Franklin of July 5, 1747, Jonas Green wrote that he had about 540 paid subscribers for his *Maryland Gazette*. Franklin himself once claimed a circulation of from 8000 to 10,000 for the *Pennsylvania Gazette* during the period from 1748 to 1765. This seems overly large. He may have been referring to readership rather than paid subscription, or perhaps he exaggerated. Lawrence Wroth contends that, based on population and the firm's receipts, 1600 to 1700 subscriptions would be more accurate.¹³⁸ Cost could have been a factor. The average price of colonial newspaper issue, at a shilling a-piece, approximates one twentieth of the average printer's weekly wage of 20 shillings.¹³⁹

Despite the price and limited subscription rate, however, the papers played a critical role in disseminating the news of the world, and the ideas of their contributors to most of the colonists. Print and the press legitimated the movement of different types of information, gradually creating and reflecting a political/social/commercial order organized around what became “mass communication” in the nineteenth century.¹⁴⁰ The mid-colonial explosion of printed words loosened the grip of the elite’s monopoly on information transfer and facilitated a middle class consumer society.

Through print, the exchange of knowledge still retained a degree of hierarchy, yet also expanded accessibility. In the beginning of the period oral networks of communication could often work faster and more reliably than print. Local information networks rarely broke down.¹⁴¹ In his portrayal of Boston merchant Samuel Sewell, Brown asserts that personal encounters characterized the most utilized form of communication for many walks of life in the early

¹³⁷ Barrow p.40

¹³⁸ Wroth (1942). One caveat: I retrieved the receipts to which Wroth refers and they only cover a small fraction of the time period. They may or may not be representative since subscriptions could rise or fall.

¹³⁹ Barrow, p.40; Richardson, p.3.

¹⁴⁰ Brown, p.17.

¹⁴¹ Brown, p.52.

eighteenth century.¹⁴² However, the colonists felt that journals were important for the communication and preservation of information, as well as for the level of civilization which they hoped to achieve. Printers usually printed journals weekly so they often did not bring the news as quickly as spoken networks.¹⁴³ However, print legitimized news and brought it to a wider audience.

In addition, through commercialization the amount of public participation in moving information through print increased. The first newspapers did not turn a profit but survived with royal support. As the century wore on newspapers became self-supportive and independent through increased advertisements and public subscription. Chartier notes the rise in silent reading created a public redefinition of the private, a redefinition that contributed to an increasingly competitive and individualistic society. That society also demanded the movement of goods and the press facilitated the increasing need to meet market demands.¹⁴⁴ The press became the means to all that chose to buy and sell goods, philosophy, information and/or a way of life.¹⁴⁵

The increasing use of text both commodified and broadened access to the movement of information. Written letters, a quasi-public form of communication in the beginning of the period became, unless directed towards newspapers, more private. The press became a source for less formal, more ephemeral information. The newspaper also began attributing intellectual ownership to articles and letters, not merely printing them without acknowledging their source. By the revolution, spurred by republican ideals, people largely understood information as common property for the betterment of a system that allowed for the betterment of themselves.¹⁴⁶ With the rise in population and interest, and the subsequent decrease in the cost of printing, the number of successful newspapers rose over the century.¹⁴⁷

¹⁴² Brown p.112-114.

¹⁴³ Some journals did try twice-weekly runs, but that publishing rate never seemed to last long

¹⁴⁴ Chartier, 1989.

¹⁴⁵ See Warner.

¹⁴⁶ Brown examines this concept in detail.

¹⁴⁷ Barrow makes this link explicit. For tables of colonial newspapers see Sloan and Williams (1994), pp.11-13, 103-105.

Onward

From within the numerous means of communicating information, the colonial American newspaper offers many textual locations that either make some reference to natural philosophy, natural philosophers, or create an explicit or implicit explanation of natural phenomenon. The remainder of this dissertation will attempt to further refine and characterize our understanding of those articles and advertisements. The next chapter further details the movement of scientific information in particular and the newspaper's role in that.