

Punch and comic journalism in mid-Victorian Britain

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In 1842 the *Westminster Review* examined a new comic periodical that had apparently been established to meet the demands of a recent 'Committee of Council for Education' launched by the government for improving methods of popular instruction. According to the reviewer, the editor of this new periodical had successfully embraced 'all the moral, scientific, philosophical, political, poetical, and intellectual subjects, requiring to be newly adapted to the wants of the age'. Adopting a more austere tone, the reviewer questioned whether

criticisms on the part of a quarterly review should be confined to high-priced publications circulating exclusively among the wealthy, but having little or no influence among the masses. Let it not be said, can any good come out of Nazareth? All the good that the people at large can desire from the labours of the philosopher or man of science must reach them, if it reaches them at all, through the medium of the cheap literature of the country.

The cheap literary newcomer certainly deserved to be noticed by the *Westminster*. It displayed 'moral superiority' over comparable publications, such as the *Satirist*, the *Age*, and *John Bull*, its elevated 'wit and humour' testified to a growing 'desire for somewhat more healthful and intellectual means of pleasurable excitement than police reports', and its woodcuts demonstrated the 'improvement in the art of wood-engraving for practical purposes'.¹

The subject of the review was *Punch: Or, the London Charivari*, a weekly that first appeared on 17 July 1841 (fig. 4.1). The *Westminster* clearly anticipated that *Punch* would play an important part in the dissemination of philosophical and scientific labours to the 'masses', because it struck a balance between 'pleasurable excitement' and intellectual stimulation. The formula worked, because *Punch* outlived most of its rivals in the competitive field of Victorian comic journalism. Although *Punch* struggled during its early years, within two decades of its launch this 3d illustrated comic

journal became one of the most talked about and respectable institutions of British literature.²

More has been written about *Punch* than almost any other periodical, but little attention has been paid to its scientific content.³ Only recently have scholars begun to appreciate the complex representations of science in *Punch*. In particular, Richard Altick's magisterial account of *Punch's* first decade illustrates how faithfully it tracked major scientific, engineering, and medical developments, and how scientific topics were used to comment on non-scientific issues. In his general study of Victorian satire and science James Paradis has surveyed *Punch's* ironic portrayal of the increasingly abstract fruits of scientific research. James Secord's exploration of *Punch's* response to the *Vestiges of the Natural History of Creation* (1844) helps us to understand the periodical in the overlapping metropolitan landscapes of graphic journalism and scientific spectacle. Roy Porter's study of medical illustrations shows that *Punch's* representations of medical practitioners reflected not only an individual artist's style but also a Victorian tradition of depicting doctors 'phenotypically and physiognomically rather as the profession might have wished itself to have been seen'. Finally, my recent study of *Punch's* portrayal of technological subjects and its deployment of technological metaphors helps us to understand the embeddedness of engineering and invention in Victorian political, social, and cultural discourses.⁴

For most historians of science *Punch* has been a handy source for documenting 'popular' reactions to scientific topics of the day, ranging from public health to new inventions.⁵ They treat *Punch* as a passive *mediator*, rather than an active *medium*, of science. However, recent work on the history of nineteenth-century print culture suggests the importance of understanding *Punch* as an active producer of knowledge. Thus in his analysis of *Punch's* great contemporary, the *Illustrated London News*, Peter Sinnema rightly urges us to treat any periodical as a 'singular discursive practice, active in the production of truth(s), and engaged with a complex array of other discourses'.⁶ Studies by Roy Porter and Brian Maidment reinforce this argument by insisting that graphic prints always 'represent' or mediate historical events 'through aesthetic and gestural convention', and James Secord's *Victorian Sensation* (2002) demonstrates how much popular perceptions of controversial scientific claims owed to the way such claims were represented in illustrated periodicals.⁷ Of particular importance to this chapter is Janet Browne's recent discussion of caricatures of Darwin in Victorian comic periodicals. Browne concludes with the compelling suggestion that these humorous portrayals 'are not just a transparent medium of communication, not just illustrations, but could be

the actual shapers – maybe even realizers – of nineteenth-century popular thought'.⁸

This chapter attempts to understand how *Punch* functioned as a medium for producing scientific knowledge for what the *Westminster* called the 'people at large'. Concentrating on the first three decades of the periodical – a period corresponding approximately to the tenure of the first editor, Mark Lemon – it argues that *Punch's* production of science was intimately connected with a function that it shared with most weeklies – the representation of news and topical issues. What was specific to *Punch* was its use of the techniques of comic journalism to engage with and reproduce scientific material. Altick has rightly argued that *Punch* 'served as a weekly illustrated comic supplement to the London *Times*, reflecting as in a distorting mirror a selection of the week's news and jauntily editorialising on its significance'.⁹ Its dependence on the ebb and flow of news stories was neatly captured by Shirley Brooks, a later editor, who boasted that *Punch* 'set its watch by the clock of *The Times*'.¹⁰ This chapter shows how the scientific material depended on *Punch's* journalistic pulse. The contributors to *Punch* engaged with topical and sensational scientific subjects which their readers would have encountered in reading newspapers, visiting exhibitions, and listening to gossip.

Building on the work of Celina Fox, and continuing themes explored in the introduction to this book and in chapter 2, I shall initially situate *Punch* in the metropolitan world of graphic and comic journalism, and outline how its early contributors developed the periodical in order to appeal to the increasingly affluent Victorian bourgeoisie.¹¹ I then examine the contributors themselves and show how science figured in their backgrounds, interests, and in their weekly negotiations to produce the periodical's centrepiece – the 'large cut'. Drawing on a systematic study of the entire contents of the periodical between 1841 and 1871, I then survey the kinds of scientific material contained in *Punch*, and the literary and graphical genres deployed.¹² The journalistic preoccupations of *Punch* contributors are spectacularly reflected in its content and form. The scientific topics that *Punch* satirized would have been familiar, entertaining, or of relevance to middle-class readers, and consisted primarily of commentaries on scientific news items.

The final section details *how* different literary and graphic genres deployed by *Punch* engaged with scientific issues. I use this approach to support my central contention that *Punch's* satires on science were not intended merely to entertain readers. Instead, *Punch's* involvement with science was frequently serious, informed, and provocative. Although this

material might have prompted a smile or even a laugh, it was ultimately a sober engagement with the world of science. In this sense Leslie Stephen's 1876 description of the 'greatest of modern humourists' applies to *Punch* contributors, for they often seemed to be thoroughly Puritan in their comedy, having the 'strongest perception of the serious issues which underlie our frivolous lives, the profoundest sense of the infinities which surround our petty world'.¹³ The moral conscience of *Punch*, so powerfully revealed in its rants over political, religious, and social issues, also shone forth in its discussions of science.

Throughout this chapter, I shall be using 'science' as a convenient shorthand for science, technology, and medicine, and employing an inclusive definition of these related aspects of culture. The former move is not only desirable but justifiable on the grounds that in its first three decades *Punch* often referred to the enterprises and practitioners of medicine and technology as 'scientific'.¹⁴

THE WORLD CITY, COMIC JOURNALISM, AND *PUNCH*

In chapter 2 Jonathan Topham emphasized that London-based illustrated journals of the late Regency period drew extensively on the spectacles of the metropolitan landscape. *Punch* was no different. From 1843 to 1900 the *Punch* office was in a single-storey building at 85 Fleet Street, in the heart of London's blossoming journalistic empire. Here its writers and artists often composed their material, surrounded by the workplaces of the very professionals whose writings and deeds fuelled *Punch's* columns – the myriad newspaper offices on Fleet Street, the Middle and Inner Temples, the Apothecaries' Hall, and the Royal College of Surgeons. From the windows of their office, *Punch's* early contributors watched the Lord Mayor's Show and other spectacles that took place on one of London's busiest thoroughfares, and then turned these displays into cartoons and commentaries.¹⁵ Many of these journalists learnt their trade in, or followed the examples of, the new cheap illustrated periodicals of the 1820s and 1830s which owed their success to their ability to re-present in comic form the funerals of monarchs, the processions of priests, stage dramas, displays of exotic species, exhibitions of new machines, illustrated scientific discourses, and a plethora of other sensations which drew the same London crowds who bought cheap periodicals.

London was the source of events that provided journalists with their copy, but as stressed in the introduction to this book, it also possessed the wealth, the print technologies, artisans, and readers necessary to the success of any

new periodical. For the journalists, engravers, artists, and dramatists who launched *Punch* with 'no higher ambition than to put some bread on their tables', the 'World City' was the place to make a living from re-presenting the week's news and events.¹⁶ The introduction to this book also shares with most historians of *Punch* the view that the mass-circulation illustrated periodical was a product of early nineteenth-century industrialized print cultures.¹⁷ During the 1820s and 1830s the success of such cheap illustrated weeklies as the *Mirror of Literature* demonstrated to entrepreneurs that the new steam presses and wood-engraving techniques offered a cheap way of mass-producing weekly journals that blended pictures and text.¹⁸ The new journals also showed the important role that scientific reporting could play in keeping a journal afloat and its team of 'common writers' in work.¹⁹ By the time *Punch* was launched in 1841, journals such as the *Athenaeum* and the *Mirror* had helped create a growing reading audience for digests and other re-presentations of the week's often spectacular stories of scientific endeavour. For the founders of *Punch*, a journal that built its comedy on the week's news, scientific events were an increasingly important source of copy.

Punch drew on the early nineteenth-century traditions in comic journalism that are explored in the introduction. These included the weekly satirical print issued by engravers such as John Doyle (father of early *Punch* cartoonist Richard Doyle); cheap radical satirical journals of the 1810s and 1820s, such as the *Age* and *Satirist*; literary magazines with humorous content, such as *Fraser's Magazine* and *Blackwood's Edinburgh Magazine*; miscellanies that included comic material, such as the *Mirror* and *Bentley's Miscellany*; expensive journals of genteel humour including Thomas Hood's *Comic Annual* and George Cruikshank's *Comic Almanack*; and above all, the cheap satirical weeklies of the 1830s – such as *Figaro in London* (which was edited by *Punch* founders Gilbert Abbott à Beckett and Henry Mayhew), *Punch in London* (edited by leading *Punch* contributor Douglas Jerrold), and the Paris-based *Le Charivari*. Some of the commonest literary and graphic genres found in *Punch* were stock aspects of these earlier genres of periodical publishing: droll commentary on the week's political and social events, literary and theatrical gossip, parodies of literary serials, cartoons, humorous poems and songs, puns, jokes and 'ephemera', and vignette illustrations. Other aspects of the periodical had important precedents: for example, the fictional editor, Mr Punch, was yet another borrowing from the famous, genial, and occasionally irascible fairground character, and the notion of a fictional editor itself had been used successfully in the early years of *Blackwood's*. Likewise, the double-column format and division of the periodical

into various 'departments' had been used in *Figaro in London* while *Punch's* subtitle cleverly exploited the success of *Le Charivari*. *Punch's* strategies for satirizing science were also not without precedent. For example, its caricatures of statesmen as physicians and grotesque animals, its spoof reports of scientists pursuing useless trivia about the natural world, and its humorous advertisements for absurdly chimerical engineering schemes were familiar to readers of *Bentley's Miscellany*, William Hone's *Political Showman at Home* (1821), and Cruikshank's *Comic Almanack*, which themselves drew upon standard techniques of scientific satire developed in such celebrated works as Thomas Shadwell's *Virtuoso* (1676), and the *Memoirs of the Extraordinary Life, Works, and Discoveries of Martinus Scriblerus* (1714).²⁰

Despite its obvious reliance on earlier forms of comic journalism, *Punch* contained greater variety than most humorous journals of the 1830s: for example, greater flexibility of page layout was used, as well as a larger range of fonts, and more illustrations.²¹ As we shall see, representations of scientific events, and in particular spectacular scientific events, helped achieve this variety. However, by the 1850s the layout had become more standardized, but by then *Punch* was established as a British institution and it was no longer necessary to attract readers by experimenting with the format. What chiefly distinguished *Punch* from its predecessors, and what secured its long-term success, was the elevated tone of its humour. As the previously quoted reviewer in the *Westminster* recognized, *Punch's* 'moral superiority' set it apart from earlier satirical papers. By the time *Punch* was founded the older and vulgar traditions of comic journalism were dying out, not least because, as Altick suggests, 'a certain climate of propriety, reasonably pervasive though hardly universal, had settled over the court, aristocracy, and the political establishment'.²² The chief upholders of this new climate of respectability – the middle class – were growing in size and wealth, and they were thus increasingly important consumers of literature. It was to this class that Cruikshank and other early nineteenth-century purveyors of radical print satire increasingly directed their energies, moving away from what Marcus Wood calls the 'confrontational or violently subversive' nature of the print satire towards the 'whimsical and charming social satire' that would become the staple diet of 'respectable Victorian journals'.²³ When *Punch's* first editor Mark Lemon reminisced that his journal survived by 'keeping to the gentlemanly view of things', he was underlining that its success depended on supplying its bourgeois, largely metropolitan, and predominantly male readers with the kind of humour they increasingly wanted – less vulgar, less personal, more genteel, and more focused on general character types.²⁴ *Punch's* shift from the older and more vulgar traditions of comic journalism

was not immediate: indeed, during its first decade, the politically turbulent 1840s, it often looked back to those earlier traditions and articulated its political and reformist missions most emphatically. By the mid-1850s, however, this harsher material had largely disappeared and *Punch* had fully accepted its role as a respectable family comic paper, which it retained throughout its mid- and late-Victorian zenith.

This change in tone is reflected in the scientific material that *Punch* carried. Compare, for example, how *Punch* dealt with scientific societies in its early years and in the early 1870s. In the early 1840s, it published a stream of potent satires on the British Association for the Advancement of Science and the British and Foreign Institute. Indeed, *Punch's* ridicule of the lamentable activities of what it called the 'British and Foreign Destitute' and its *ad hominem* swipes at the Institute's founder, James Silk Buckingham, embroiled it in fierce journalistic controversy.²⁵ Some twenty-seven years later, *Punch* writers and artists had developed much more respect and even admiration for scientific societies. Thus the 1871 British Association meeting prompted a lengthy poem in which comic descriptions of William Thomson's presidential address were balanced by a serious-toned challenge to Thomson's notion that terrestrial life originated in meteors.²⁶ The tone of the *visual* representations of scientific subjects also underwent a gradual refinement. This transformation is powerfully shown when we contrast the way medical practitioners were portrayed by leading *Punch* artists of the early 1840s and 1860s. Representative examples are John Leech's 1842 caricature of a drunken medical student (fig. 4.2) and George Du Maurier's 1865 more boldly drawn and 'realistic' cut of a woman physician (fig. 4.3) which highlight the broader trend towards a more genteel visual humour.

Unlike many of its rivals and imitators in the competitive field of comic journalism, *Punch* was, from late 1842, backed by the highly successful printers William Bradbury and Frederick Evans. Not only were Bradbury and Evans innovators in woodcut techniques and steam printing, thus enabling the rapid mass production of illustrated journals, but their substantial capital also enabled contributors to experiment with the periodical's content and format.²⁷ This flexibility enabled *Punch* to adapt itself to the preoccupations of a predominantly male, middle-class, and metropolitan readership. Indeed, *Punch's* success owed much to the ability of its contributors to make readers laugh at themselves, an achievement that depended on the culture shared between producers and readers. Thus they drew on a common experience of, say, botanical specimen collecting on holiday, and on a shared knowledge, via reports in the *Times*, of quackery

and second-class railway travel, and of lectures at the Royal Polytechnic Institution. This is not to suggest that all middle-class readers enjoyed laughing at themselves in the periodical. Humour shaded into brutality in *Punch's* use of crude stereotypes in portraying Irishmen, Jews, Roman Catholics, and Americans.²⁸ Neither did it please certain individuals – notably, the Irish statesmen Daniel O'Connell, the journalist Samuel Carter Hall, and the impresario Alfred Bunn – who were subjected to highly personal and defamatory criticism.²⁹ Even regular subscribers occasionally found some of its material in poor taste and even objectionable. For example, in 1861 Charles Darwin told Thomas Henry Huxley that he 'did not think' the *Punch* poem 'Monkeyana', describing the controversy between Huxley and Richard Owen over man's simian ancestry, 'very good'.³⁰ There were undoubtedly many literate Victorians who eschewed *Punch* entirely, its rougher edges limiting its appeal to what Susan and Asa Briggs call 'a series of segments' within the Victorian reading public.³¹

SCIENCE AROUND THE PUNCH TABLE

Punch may not have appealed to certain segments of Victorian society, but its mid-Victorian circulation was nevertheless impressive for a comic journal. In the early 1860s, for example, *Punch* was selling approximately 60,000 copies each week, compared with the 20,000 copies of *Fun* and the 10,000 of *Tomahawk*, two relatively new comic weeklies.³² Commentators on *Punch* from the Victorian period to the present agree that the success of the periodical depended greatly on the political and moral character of its satire, but also on the friendships and cordial professional relationships between the periodical's writers, artists, and publishers.³³ Despite differences in social background, personality, and attitude, the periodical's producers became an important British literary community and their informal weekly meetings to discuss the week's 'large cut' functioned as an exclusive club to which many aspiring litterateurs sought invitations. Contributors brought to *Punch* their skills in journalistic reporting, editing daily and weekly papers, writing stage farces, poetry, and novels, and illustrating books and periodicals. They moved in the overlapping worlds of literature, fine arts, the theatre, exhibitions, and pageants. They poked fun at social convention and class, and inveighed against such vices as fraudulence, hypocrisy, and obscurantism. Their periodical was strong on politics and dominated by discussion of the celebrated, notorious, and newsworthy *men* of the day – thus making *Punch* a periodical written largely by men for a predominantly male audience.

The 'Punch Brotherhood' was weakened by bitter rivalries – notably between Thackeray and Jerrold – and occasional disruptions (for example, the Catholic Richard Doyle resigned in 1850 owing to *Punch's* waspish satires on papal aggression), but Mark Lemon was generally successful in engendering harmony among *Punch* staff. Changes in the group, however, affected the tone of the periodical. The changes between the 1840s and early 1860s noted above were in part due to the loss, by either death or resignation, of many of the initial contributors including Jerrold, Thackeray, Richard Doyle, Gilbert Abbott à Beckett, and Albert Smith. The evolution of the magazine's content led Edmund Yates, the editor of *Temple Bar*, to assert in 1863 that *Punch* had lost the 'wit, humour, and pointed sarcasm of former years' and had degenerated into 'sheer, wilful nonsense'.³⁴ But its sustained circulation figures suggest that by the mid-1860s a new type of reader enjoyed the subtle social wit of Shirley Brooks, the grotesque cartoons of Du Maurier, the supreme draughtsmanship of Tenniel's political cuts, and the work of the other rising stars of mid-Victorian *Punch*.

Despite the recognition that *Punch's* brotherhood was crucial to the success of the periodical, little attention has been paid to the question of how this social group negotiated the contents of each week's issue. Although most *Punch* articles were either anonymous or written from the perspective of 'Mr. Punch', ledger books held in the *Punch* library in London enable us to identify writers and artists and thus deepen our analysis of this literary group.³⁵ A preliminary survey of these ledgers supports the argument that contributors with medical and scientific backgrounds were the foremost producers of the periodical's commentaries on science.³⁶ For example, John Leech, Albert Smith, and Percival Leigh had been fellow students at St Bartholomew's Hospital, and they contributed most of the cartoons (in the case of Leech) and texts (in the cases of Smith and Leigh) on medical students, medical legislation, and quackery.³⁷ Contributors who lacked a scientific background constituted a smaller but not insignificant portion of the creators of *Punch's* scientific content. For these writers and artists, information about science was just as accessible as gossip about politics and fashion, and could likewise be satirized. A good example is *Punch's* second editor, Shirley Brooks, who abandoned a legal career for journalism in the early 1840s, and subsequently earned an income as a parliamentary and travel reporter on the *Morning Chronicle* and as a writer of comic journalism and stage farces. In 1851 he began writing for *Punch* where he published satirical poems and news commentaries pertaining to science, gleaning information from reading newspapers, hobnobbing with scientific personalities, and visiting metropolitan sites of scientific activity.

His biographer records that, in the 1870s, Brooks developed an acquaintance with the zoologist Thomas Henry Huxley and the science writer John George Wood. He also attended the Royal Geographical Society's debate on the expedition to observe the transit of Venus in 1882, and dined with the explorer Henry Morton Stanley and the biologist St George Jackson Mivart. Having read Richard Owen's January 1874 letter to the *Times* dismissing news of the discovery of a dodo, he scribbled the comic poem, 'The Dodo Demolished', which subsequently appeared in *Punch*.³⁸ Brooks was one of many *Punch* contributors who accumulated a stock of material for scientific journalism through such contacts, and whose careers illustrate the overlap between Grub Street and scientific London.

Another insight into the weekly business of producing a comic journal is afforded by the diary of Henry Silver, who recorded his experiences at the weekly *Punch* dinners between 1858 and 1870.³⁹ The discussions, disagreements, and anecdotes he documented illustrate that *Punch* men were surprisingly knowledgeable about scientific developments and frequently engaged with them intelligently and penetratingly. Around the large deal table, where food, wine, cigars, jottings, and newspapers circulated, Mark Lemon recounted his meetings with George Stephenson, 'Professor' Percival Leigh 'lectured' on phrenology, and others pondered such dramatic news as Robert Fitzroy's suicide.⁴⁰ These interests and passions were reflected in the serious and informed way in which *Punch* contributors frequently engaged with scientific news.

How *Punch* contributors worked together to turn scientific news into an article is illustrated by the following extract from Silver's account of the 'large cut' meeting of 9 April 1862:

S[hirley] B[rooks] proposes Gladstone making a house of cards. But all agree that the Iron Ships question is the one. So take his Vulcan and Neptune notion of last week, which J[ohn] L[eech] modifies into sea-nymphs arming Neptune as John Bull. P[ercival] L[eigh] proposes shoeing the Sea horses, but negatived. M[ark] L[emon] suggests Britannia in Crinoline – but this repeats this week's 'Jack in Iron'.⁴¹

For most of those present at this dinner, Gladstone's budget speech was far less important than the government's recent decision to save the Royal Navy by replacing its vulnerable wooden ships with state-of-the-art iron-clads. Brooks's, Leech's, and Leigh's proposals were soon rejected, but *Punch* contributors' support for iron ships was so strong that they adopted an alternative representation of the anticipated 'metallic' state of the Royal Navy – a cartoon of several sailors dancing below deck in suits of armour.⁴²

The deliberations over iron ships highlight the journalistic preoccupations and skills of *Punch's* writers and artists – their insatiable drive to represent topical and spectacular issues, and their selection of topics that were appropriate for ‘the stage of *Punch's* theatre’ (to cite Mark Lemon’s phrase).⁴³ Silver’s observations document the immersion of *Punch* contributors in worlds of mid-Victorian comedy and metropolitan science. In bridging these worlds they drew on their mastery of the comic literary and graphical techniques well understood and enjoyed by Victorian readers, and on their acquaintance with contemporary science and scientists. In discussing iron ships they exploited stock aspects of Victorian comedy by articulating many false congruities and unlikely associations. The comic effect of juxtaposing symbols of, on the one hand, the mythological, angelic, and conservative, and on the other, the novel, material, and progressive, underpinned the idea of Britannia in a crinoline. As Leslie Stephen commented in his 1876 analysis of humour, the world was regarded as a ‘farce – a melancholy farce, indeed, for otherwise there would be no contradiction – but a farce where the sublime must never be separated from its shadow, the ridiculous’.⁴⁴ Later in this chapter, we will see that Stephen’s analysis of farce applies to most articles in *Punch*.

PUNCH’S KIND OF SCIENCE

The foregoing analysis of events at the *Punch* table shows how the comic journalistic goals and interests of the periodical’s contributors shaped the content of one article. This section takes a much broader approach to the question. It examines broad patterns in the scientific content of the first thirty years of *Punch* and looks at the way in which these trends reflect *Punch* contributors’ preoccupations with comedy, topicality, spectacle, the vicissitudes of social, political, and cultural life, and the heroic, ingenious, hypocritical, and corrupt aspects of the Victorian landscape. This section also identifies and analyzes the locations of scientific material within the periodical format of the leading Victorian comic journal. Unlike many other topics covered in *Punch*, such as the long-running ‘Punch’s Essence of Parliament’ or the regular ‘Fine Arts’ articles that appeared in the early 1840s, there were no dedicated scientific columns. Instead, scientific material was spread over a wide variety of literary and graphic genres, including commentaries on scientific news reported elsewhere, spoof reports on science, mock proceedings of learned societies, pseudonymous letters, poems, songs, large and small ‘cuts’, burlesques of serialized fiction and stage dramas, illustrated vignettes and illuminated letters, jokes, puns, and

other column-filling 'ephemera', and spoof advertisements (many of which poked fun at the very kinds of new medical treatments and contraptions that *Punch* advertised on its wrappers) (fig. 4.4).

In *Punch* the news commentary was the most prevalent genre for discussing science; of 6,200 'scientific' articles published during the first three decades, there were 2,200 news commentaries, compared with 720 cartoons, 520 comic poems, 400 mock letters, 260 spoof advertisements, and 180 droll songs (all figures being approximate). Scientific topics rarely featured in the weekly centrepiece – the 'large cut' – and they were even less likely to appear in such other coveted places as on the title pages of bound volumes. Nonetheless, the foregoing figures give powerful support to the argument that *Punch's* scientific material – like so much of its other content – was strongly dependent on what was being reported, displayed, or gossiped about elsewhere. A 'scientific' article also often combined literary genres – for instance, a vignette illustration that prefaced a poetic parody, a spoof news report that was followed by a pseudonymous letter, or a poem that was in fact a commentary on an actual item in a newspaper. Few 'scientific' articles in *Punch* existed in isolation and were usually in dialogue with articles appearing in the same or earlier issues, or with entirely separate publications. For example, an 1855 poem describing Faraday's analysis of the Thames water was positioned next to John Leech's large cut of Faraday confronting a gruesome 'Father Thames' emerging from his equally filthy river.⁴⁵ Less straightforward was the 1853 spoof prospectus for 'The Locomotive Table Company'. This explained that following proof of 'the facility with which Tables can be moved by means of a Company, through mere volition, after the hands of the Company have been placed for a short time on the Table', the 'Company' believed it could 'supersede Steam Engines on Railways' by placing a table 'where the engine is at present, in front of the train' and having 'a certain number of the Directors of the Company . . . seated at a board in connexion with it; which will insure that additional guarantee of safety so much wanted on railroads'.⁴⁶ The comedy depended on an explicit reference to the motive force supposedly exerted by individuals participating in 'table-turning' – a practice much derided in *Punch* – but an implicit allusion to a John Leech cartoon published a few weeks earlier, showing a proposed method of reducing railway accidents: tying two railway company directors to the front of a steam locomotive operated by their firm.⁴⁷

In general, *Punch* focused on those scientific topics that its contributors thought would entertain and provoke a respectable male and metropolitan readership. This audience was particularly aware of those areas of science

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Figure 4.4. The wrappers of Punch for 14 April 1849 contain puffs for various medical products including the 'Balsam Copaiba' patent organic capsules for remedying nausea (in the left column), a textbook on hydrophobia and an 'Invisible Spine Supporter' (in the middle column), and the 'Pomade Depurative' for curing baldness and the 'Amandine' hand-dressed treatment (in the right column Noakes.

that were prominently discussed or displayed elsewhere, or that possessed general intellectual interest or had direct implications for health, security, and daily life. *Punch* often selected for comment scientific issues that were newsworthy; thus a cluster of articles might closely track the development of a scientific event familiar to most readers. For example, the 1855 cluster of articles on military technology followed rumours concerning a secret weapon devised by Lord Dundonald to defeat the Russian Fleet in the Crimea; and the 1861 cluster on animal behaviour followed the French-American explorer Paul Du Chaillu's claims regarding the aggressive behaviour of African gorillas. Scientific articles rarely contained just scientific material. Indeed, the comedy of *Punch* often depended on mixing incongruous subjects, such as statesmen and medical quackery, steam locomotives and spiritualism, or civil servants and the behaviour of entozoa.

Particularly prominent among the 'pure' scientific topics discussed in *Punch's* first three decades were animal behaviour and development, zoology, astronomy, analytical and industrial chemistry, human development, natural history, and electricity. These topics impinged most extensively on the lives of readers, either because they were intellectually accessible or stimulating, or because they possessed implications for the readers' daily routines. Natural history, for example, was often discussed in relation to amateur collecting activities; analytical chemistry frequently occurred in the context of polluted water; and electricity typically appeared in discussions of telegraphy and new electrical machines. The coverage of the physical sciences, and the more technical aspects of all the sciences, was unsurprisingly small for a journal that sought to hold the attention of non-specialist intelligent readers. Indeed, the most common cause for discussing such abstract scientific issues was to poke fun at scientific practitioners' obscurantism.

Medical and technological topics were far more prevalent in *Punch* than the 'pure' sciences, let alone the technically more demanding scientific subjects. This concentration lends further support to the claim that *Punch* was mainly interested in those scientific topics that were most familiar or relevant to readers. Among the most common subjects of discussion were the fair and foul deeds of medical practitioners (physicians, surgeons, nurses, and quacks), new medical legislation, novel remedies and other treatments, questions of public health, sanitation, and disease, railways and steam locomotives (especially as the cause of commercial manias, accidents, and environmental damage), ironclads and other new weapons of war, the electric telegraph, steamships, balloons, spectacular new engineering structures, and the ingenious and disingenuous accomplishments of inventors.

As we shall see throughout the remainder of this chapter, the notorious interests of *Punch* contributors in anything that exposed oddities of social convention and class or which smacked of fraudulence, obscurantism, and hypocrisy also informed their choice of scientific topics for discussion. Thus, there are plenty of humorous articles reflecting on the possible advantages of steam locomotives and the electric telegraph to the routines of political and domestic life, the inability of rustics, old sea-salts, and cockneys to come to terms with new inventions, and the curious behaviour and language of delegates at meetings of scientific societies. Similarly, the apparently shady individuals whom *Punch* contributors denounced so passionately at their weekly dinners were targeted for much sober-toned criticism in print. Quacks, dissolute medical students, mercenary railway company directors, inventors of dubious machines, astrologers, and spirit-rappers were caricatured and demonized for much the same reason that *Punch* contributors inveighed against greedy aldermen, misguided statesmen, hypocritical journalists, avaricious merchants, and corrupt priests.⁴⁸

These explanations of *Punch's* choice of scientific topics also account for the scientific practitioners, places, and publications featured in articles and illustrations. Although patriotism may explain the repeated references to such British scientific worthies as Isaac Newton, Edward Jenner, and George Stephenson, at least as much material was devoted to scientific personalities who would have been familiar to metropolitan readers, such as Richard Owen, Michael Faraday, Charles Darwin, Charles Babbage, and George Airy. *Punch* also covered lesser-known scientific personalities who burst into the news for a variety of savoury or unsavoury reasons. Thus, there are a plethora of articles on, or allusions to, James Glaisher and Henry Coxwell and their heroic balloon ascents, David Boswell Reid and his much-ridiculed apparatus for ventilating the Palace of Westminster, and Cowper Coles and his armoured turret for iron ships that was, according to *Punch*, shamefully neglected by the Admiralty. *Punch's* engagements with stories of these lesser-known personalities did not simply reflect the news, but actively contributed to the fame or notoriety of these individuals. *Punch's* frequent allusions to the Zoological Gardens at Regent's Park, to the Crystal Palace, London's hospitals, the Royal Colleges of Surgeons and Physicians, the Royal Polytechnic Institution, the Royal Greenwich Observatory, 'Wyld's Great Globe', and the Social Science Congress, again reflect the interests of the periodical's largely metropolitan audience. References to now-forgotten sites of spectacular new engineering developments, filthy workhouses or polluting factories, or bird-slaughtering gun clubs, also underline *Punch's* close concern with institutions that might improve or harm the minds and bodies of readers.

References to published works included many to new scientific books (notably the *Vestiges of the Natural History of Creation* (1844), Darwin's *Origin of Species* (1859), and Du Chaillu's *Explorations and Adventures in Equatorial Africa* (1861)). Yet in comparison with the 300-odd references to scientific monographs, pamphlets, and other published works in the period from 1841 to 1871, there were nearly 700 references to scientific periodicals (notably the *Lancet*) or scientific discussions that appeared in general periodicals. Thus, as far as science is concerned, *Punch* drew more heavily on periodicals than on books. This analysis also supports Brooks's contention that *Punch* 'set its watch by the clock of *The Times*' since approximately one third of the references to scientific materials in periodicals were to articles in the leading London daily. The dialogue between *Punch* and other newspapers was, of course, two way, as illustrated by the occasionally stinging exchanges between *Punch* and such dailies as the *Morning Post*, and more flatteringly, the *Times*'s regular inclusion of small extracts from *Punch*.⁴⁹ Although *Punch* often made explicit the sources on which it drew, references were sometimes merely implicit. This is powerfully illustrated by the 'Monkeyana' poem which was published in *Punch* on 18 May 1861. The poem ended with the non-referenced phrase, "To twice slay the slain", which many readers will have recognized as the last line in a letter that Huxley had written to the *Athenaeum* five days earlier.⁵⁰ Thus, the comprehensibility of *Punch*'s scientific articles, like the rest of its material, often depended on readers' familiarity with a broad range of periodicals.

TWISTING SCIENTIFIC NEWS

Although a survey of the contents and literary and graphic forms of science in *Punch* is valuable, we also need to appreciate the complex ways in which individual scientific articles functioned. This section takes a closer look at several 'scientific' texts and illustrations from *Punch*'s first three decades. I shall explore how news was re-presented and adapted for entertainment and instruction, and how science was appropriated in order to enable *Punch* to survive in the cut-throat world of mid-Victorian Grub Street. Throughout the following discussion, we will see that *Punch*'s engagement with scientific topics was not superficial. It depended on and reinforced sober and often profound perceptions concerning the places and uses of science in Victorian culture.

Remaking scientific news

Punch's commentaries on scientific news varied considerably in tone, length, and content. After presenting readers with the outlines of a scientific news

item (usually from a named source) or quotations from another publication, contributors to *Punch* typically added expressions of anger, adulation, bewilderment, or amusement, often with allusions to themes already articulated by the periodical. The following example from an 1858 instalment of the 'Essence of Parliament' illustrates how political debates bearing on scientific topics provided ample material for *Punch* to vent its spleen about the more reprehensible aspects of science. Here *Punch* reminded readers that William Cowper's Medical Reform Bill was being read for the second time in the House of Commons, but then pointed out that 'Mr. *Punch* intends to move a clause empowering a Magistrate to order any Advertising Quack to be flogged, and branded with a Q', explaining that: 'Nothing short of this will stop the murderous system of heartless traders in misfortune.'⁵¹ The efforts of other scientific practitioners to treat the body politic were represented with much more warmth. In 1855, for example, *Punch* praised Michael Faraday's use of analytical chemistry to address one of the most intractable public health problems – the foul state of the River Thames. After the savant published a letter in the *Times* announcing his discovery of myriad unwholesome constituents in the capital's river, *Punch* hailed the letter as a 'CHEMICAL work of small size and great importance' that would eventually 'effect a saving of life still greater than that which has resulted from his predecessor's [Humphry Davy's] safety-lamp'.⁵²

Punch was far less impressed with individuals who, from reports in other periodicals, appeared to be hoodwinking the British public with their apparently dubious inventions supported by unsound arguments. On these occasions *Punch* adopted its idiosyncratic mode of arbitration. In October 1857, for example, it was so puzzled by a description in the *Times* of John de la Haye's method for submerging submarine cables that it compared the invention to 'the devices of the Laputan sages'. The project involved coating telegraph lines with a mysterious compound which delayed the descent of the cables to the sea floor, but *Punch* pointed out that whatever the nature of the compound, it would be washed off by the Atlantic's large waves. *Punch* sought to expose technological fraud with comedy, and suggested that de la Haye's proposal was possible, but only if impracticable conditions were met – the cables should be coated with vast quantities of 'Iced cream' and the Atlantic should be dead calm.⁵³ The theme of obscurantism appeared again in 1865 when *Punch* noted that a recent issue of the *Mechanics' Magazine* contained a puzzling extract from the French scientific periodical *Cosmos* describing how a savant had calculated that 'the mechanical equivalent of the total light of the sun' was '1,239 septillion of "bougies"'. This news item was neither 'lucid' nor useful because when 'arithmetical

athletes . . . distort themselves by piling up these absurd heaps of millions and billions . . . no one cares about giving himself the trouble, either to verify, or disprove them'.⁵⁴ *Punch* contributors were, of course, not themselves exempt from abusing language since they exploited new scientific terms as rich sources of puns and word play. For example, a 'Science Gossip' column of 1868 announced that 'A Scientific Ghost-story will shortly appear in fortnightly numbers, founded on Spectrum Analysis'.⁵⁵

It is hardly surprising that a periodical so preoccupied with news and comedy should contain many spoof news reports. These satirical reports presented a newsworthy or familiar topic from a new and comic perspective, typically by associating the topic with other, and often incongruous, themes. As the following examples illustrate, science was often the primary topic of discussion or was woven into a report of what was an ostensibly non-scientific issue. An astonishing range of topics was featured in the 'The Irish Yahoos' appearing in mid-December 1861. This far-fetched report described a rowdy meeting at the 'Pope's Head' where the 'Irish Yahoos' had convened to express 'joy and exultation' at England's imminent involvement in the American Civil War and the anticipated large number of casualties. The mob was 'chaired' by the appropriately named 'O'DONOGHYAHOO' whose cries of abuse against the English were 'hailed with frantic howling and peals of convulsive laughter, like that of a multitude of idiots'. After gloating on the 'calamities they expect[ed] for England' the meeting ended with 'several rounds of hurroos for the POPE' and then 'yelping, whining, and howling, after the manner of the canine species, to which the Yahoo is nearly allied, being a creature between the mongrel and the baboon'.⁵⁶ This 'report' featured the common stereotype of the Irish as wild animals but here *Punch's* racism was linked, implicitly and explicitly, with myriad other themes including Jonathan Swift's bestial 'Yahoos', Britain's growing hostility to America, the evils of Roman Catholicism, and, most significantly, to Paul du Chaillu's recent account of the aggressive nature of African gorillas and Darwinian theories of man's simian ancestry.⁵⁷ Despite its obvious comic format, this spoof news report powerfully illustrates *Punch's* active participation in debates over the possible meanings of science.

News of non-scientific events provided further opportunities for *Punch* contributors to analyze the cultural uses of science. This was particularly common during discussion of alleged miraculous and supernatural phenomena. For example, *Punch* contributors seized on occasional reports of the apparent liquefaction of the blood of Saint Januarius in Naples. In October 1859, for instance, it insisted that this 'so-called "miracle"' could be

achieved with greater rapidity and ‘dead certainty’ by ‘science’, using steam, bellows, or a hot poker. Moreover, the alleged simultaneous ‘appearance’ of the Januarius miracle and the appearance of the saint’s blood in Puzzoli (where the saint was beheaded) could be ‘guaranteed’ by connecting Naples and Puzzoli by electricity. Belief in such miracles was ‘clearly incompatible with scientific knowledge’ because ‘In places where the steam-engine has never been inspected, and where electric telegraphs are utterly undreamt of, their agencies might readily affect a so-thought “miracle”, and deceive the eyesights blinded by the darkened superstitions which are the stock-in-trade and groundwork of the Romish Church.’⁵⁸ On such occasions, when the social order was threatened by tricks perpetrated by cunning priests or other charlatans, *Punch* writers penned forceful endorsements of the superiority of science. Science and engineering could be recruited to reinforce cultural contrasts made more explicitly elsewhere in the periodical. Drawing on such grand spectacles as the Great Exhibition of 1851, contributors to *Punch* revelled in the marvels of science and engineering which, they considered, not only enhanced national pride and confirmed their faith in progress, but also demonstrated Britain’s superiority over other nations and the supremacy of Protestants over Catholics.

Illustrating science/politics

Illustrations were crucial to the overall appeal of *Punch* and to the variety it offered its readers (fig. 4.5). Ranging from tiny illustrated vignettes to the week’s large cut, *Punch*’s illustrations represent some of the most complex engagements with science in the periodical. Articles were often illustrated by visual vignettes or ‘illuminated’ letters that evoked comic scenes. Thus a sober 1861 discussion of the sensational trial of a pharmacist was headed by a cartoon showing a quack about to introduce a dubious-looking tablet into the mouth of a frightened patient.⁵⁹ Representations of science were often made in the small engravings, which occupied between a quarter and half a page. Like other *Punch* material, these illustrations often explored the comic impact of the eccentric world of science and scientists on social convention. This is succinctly illustrated in Leech’s ‘Quite a Novelty’ of 1854, which shows an ‘Amiable Experimentalist’ sitting down to dinner with friends in a room whose walls are adorned with pictures of fungi. Much to the distaste of his guests the eccentric savant enthusiastically provides them with technical and stomach-churning descriptions of the mushrooms they are all about to eat.⁶⁰

Other *Punch* artists were more renowned for using caricature to reinforce the dangers, ingenuity, and sheer drama of the personalities, practices, and products of science. This is evident in an 1845 illustration of what *Punch* thought Great Britain would look like in 1847: developing its cynical view of the 'benefits' conferred by expanding the railway network, it showed the country entirely covered with railroads.⁶¹ Other examples are Du Maurier's satire on Darwinian evolution portraying a zookeeper's nightmare in which the different species of animals have exchanged heads, and Charles Bennett's busy cartoons of the mid 1860s that caricatured delegates at British Association meetings as the subjects of their papers.⁶² In all these cases, the standard techniques of graphic satire – exaggeration, reversal, and incongruous juxtaposition – were used to spectacular effect. Thus in one of his cartoons Bennett drew scientists with large heads atop emaciated bodies, whilst riding, clutching, and embodying the instruments of their trade: the optical expert David Brewster rode a pair of spectacles, the chemist William Crookes upheld, and balanced on, flasks containing his new carbolic spray, and the astrophysicist William Huggins was shown clutching a chemical balance and jar, and sporting an enormous spectroscopy prism for a head, the symbols of the optical-chemical approach to celestial objects (fig. 4.6). In a later cartoon Bennett further exploited reports of the British Association drama by showing Thomas Henry Huxley and Richard Owen locked in an affectionate embrace – thus satirizing their widely known antipathy.

Bennett's caricatures are significant in the early history of *Punch* because they were among the few illustrations that depicted identifiable scientific personalities. Rarely were individual scientists portrayed in the week's large cut. Savants who did enjoy such prominent representation – including Richard Owen and Michael Faraday – would previously have been encountered by readers in illustrated periodicals, scientific memoirs, exhibitions of portraits, photographic shops, and public lectures.⁶³ In contrast to the 1840s, scientific personalities had by the 1860s become far more familiar to the public through illustrated media and public spectacle. Bennett, in particular, exploited this increased visibility of scientists in his cartoons.

Scientific subjects did not often feature in the large weekly cut, the exceptions being mesmerism, railway mania, the Dover–Calais and Atlantic submarine telegraphs, the disease-ridden Thames, solar eclipses, Armstrong heavy artillery, the controversy over gorillas and man's simian ancestry, the hatching of python eggs at the Zoological Gardens, and the Cattle Plague.⁶⁴ These topics were chosen for their current newsworthiness – thus displacing less exciting political and social subjects – and because some of

them were visual enough to make for powerful graphic re-presentation. Yet, like most illustrations in *Punch*, there are plenty of large cuts that defy a straightforward distinction between 'scientific' and 'non-scientific'. Indeed, it is the cuts that blend scientific and non-scientific material that illustrate most powerfully how *Punch* contributors developed commentaries on non-scientific topics by association with scientific subjects, and vice versa. A striking example is John Tenniel's 'Another Eclipse for India', a large cut appearing in *Punch* for 5 September 1868 (fig. 4.7).⁶⁵ The main caption would have reminded readers of the astronomical event of the year – the solar eclipse of 18 August that was best observed from India. The cartoon, the rest of the caption, and, above all, a poem appearing a few pages after the cut, would have helped readers to understand the allusions in the illustration and reflect on the similarity between recent astronomical and political events.⁶⁶ The cartoon shows the allegorical figure of India crouching in fear of the shadow of a man wearing an enormous cocked hat, and John Lawrence, the Viceroy and Governor-General of India, who reassures 'India' that she need not fear her 'light' being extinguished by the other 'eclipse' because it is only being caused by Lord Mayo, who had recently been announced as Lawrence's successor and who promised to continue Lawrence's record of raising the socio-economic status of India by developing its resources and improving its administration. Tenniel's cartoon created analogies between the sun and India, and between the moon and Mayo, and however much readers may have dismissed such analogies as the product of a comic artistic imagination, the cartoon was one of many ways in which *Punch* participated in creating and propagating knowledge of a scientific event.

Re-presenting ingenuity and questioning progress

When *Punch* writers parodied the literary genres of science they were simultaneously mocking scientific practitioners themselves. Drawing heavily on the conventions of scientific satire established in such works as *Martinus Scriblerus* and Charles Dickens's 'Mudfog Papers', these writers poked fun at scientific stereotypes for their unconventional behaviour, pomposity, obsessive interest in trivial details, and their pursuit of apparently implausible research projects. Few occasions provided richer material than the annual meetings of the British Association for the Advancement of Science. Unlike most other events in the scientific calendar, British Association meetings were widely reported in the press and would have been familiar to most *Punch* readers. Moreover, its meetings were replete with the pomp, personalities, and pageantry that *Punch* writers were expert at turning into

humorous material. In the 1840s *Punch* published several spoof proceedings of the British Association which were timed to coincide with the annual meeting in late summer. The 1843 series on the 'Brightish Association for the Advancement of Everything' contained the key elements of scientific satire that *Punch* would develop further over the next thirty years. The 'proceedings' of the meeting developed several comic contrasts, notably between the notoriously lofty tone and absurd content of papers delivered, and between the sublime aspirations of scientific men and the utterly trivial, chimerical, or abstruse products of their labours. Thus in *Punch's* 'Mathematical and Physical Sciences' section a 'DR. SPECTRUM' presented a paper on the apparently important topic of the 'Presence of Prismatic Colours in Potatoes', which described the 'prismatic colours' presented to the eye and the purple colour imparted to the eyelid when the author was struck in the eye by a flying potato.⁶⁷ Like other humorous articles, *Punch's* satires of the British Association evoked contemporary themes familiar to the reader. For example, in 1843 *Punch* informed its readers that Alfred Bunn, the impresario whose plays were a recurrent source of ridicule, had undertaken another futile task: at the forthcoming British Association meeting he would read 'the report of the Committee for the Reduction of Stars on a Method of Hypothetical Representation, as applied to Impossible Results, by PROFESSOR MUDDLEWITZ'.⁶⁸ Parodies of scientific reports also gave *Punch* contributors rich literary resources for questioning the benefits and expertise of social types *other* than scientific savants. A hilarious example is 'Political Zoology: The Red-Tapeworm' of February 1855 in which *Punch* combined a powerful reminder of the dry and esoteric style of natural historical description with another swipe at the bureaucrats whom it clearly believed were chiefly responsible for the woeful state of the British soldiers during the Crimean War. Introduced as 'TÆNIA OFFICIALIS' the 'Red-Tapeworm' was characterized as 'one of the *entozoa* which infest the body-politic' characterized by 'a strong attachment to place, and where it once lodges, there it sticks, with prodigious adhesiveness'. 'Like most creatures of low organisation', it noted,

the Red-Tapeworm admits of being cut up almost indefinitely without being apparently the worse for the operation; its separate portions wriggling themselves together again, and uniting, in a short time, as if nothing had happened. The process has over and over again been performed by various journalists; but the Red-Tapeworm has hitherto survived the severest slashing.

The symptoms produced by the Red-Tapeworm are an alarming weakness and wasting away, attended with confusion, and impairment of faculties and

functions which it occupies, and which becomes, in the end, hopelessly prostrated by paralysis, and sinks into collapse. The emaciation and atrophy of the troops before Sebastopol have been clearly traced to the agency of the *Tenia Officialis*.⁶⁹

Punch's spoofs of scientific reports and proceedings typically presented readers with ambivalent images of science. On the one hand, they illustrated *Punch* contributors' admiration for scientific ingenuity, which they explicitly and soberly praised for its power to vanquish such afflictions as mortal disease, superstition, and international conflict. On the other hand, *Punch's* parodies of science show how much contributors shared the Scriblerian anxiety that the reach of scientific practitioners, engineers, and doctors often appeared dangerously to exceed their grasp.⁷⁰ This tension between admiration and anxiety is succinctly displayed in an 1842 parody of a scientific report on the inane topic of buns, which included such pompous statements as: 'Naturalists having occasionally (very rarely) observed a sort of ossification resembling a currant upon the surface of the bun, were led to undertake a mining speculation, for the discovery of any of these curiosities which might by chance be concealed in the bowels.'⁷¹ Similarly, in the same year *Punch* contributed to the relentless torrent of advertisements for railway schemes with a puff for a railway from England to China. The tunnel would reach from London to Canton 'passing through the centre of the globe', and the whole enterprise was in the hands of the chief engineer 'Sinko Shaft', whose trustworthiness could be judged from his belief that the centre of the globe is inhabited by people who had fallen there during earthquakes.⁷²

Punch's ambivalence towards recent scientific developments was developed in a welter of spoof letters, poems, and songs. Spoof letters and comic poems allowed *Punch* contributors to deliver their sharpest criticism and satire on science because they could assume the pseudonymous persona of Mr Punch, or some other individual, animal, place, or inanimate object that praised, condemned, or reflected on recent changes in science. By adopting the style of an obnoxious, arrogant, illiterate, or hopelessly misguided character, *Punch* could represent, ridicule, and promote a range of (often extreme) positions on scientific developments familiar to readers. Few issues prompted this kind of response more forcefully than news of technological development. Take, for example, the different assessments of technology developed in spoof letters from 1846 and 1866, the former from a yokel, and the latter from a 'disinterested' promoter of gas lighting. The earlier letter was from 'Simon Hodgskins', a

farmer of limited literary ability, who explained that while reading a report of a recent meeting of the Royal Agricultural Society, he was 'took aback to read about all the noo implements for farmun as was show'd there; – Nar-weegun Harrers, Hay-band-meakers, Pattent Haxuls'. He could not help 'laafun' at new clod-crusher and corn-crusher machines and, upholding tradition over innovation, invited Mr. Punch down to his 'farm in Hampshur' and then 'Take aer a one of my carters, and if you dwoant say that the best clod-crushers or corn-crushers either be their *boots* never you trust SIMON HODGSKINS.'⁷³ *Punch's* bourgeois readers were implicitly invited to dismiss the views of this muddled and ignorant sceptic of technological development and instead to sympathize with the producers of fashionable new inventions.

Likewise, readers were invited to oppose 'Audi Alteram Patrem', writing to *Punch* in 1866, who reflected on the news that the Houses of Parliament had refused the Imperial Gas Company permission to build gasworks in the lush surroundings of Victoria Park, Hackney Wick. Given *Punch's* earlier praise for Parliament's decision, readers might have assumed that this was another straightforward attack on polluting factories.⁷⁴ Closer reading of the spoof letter, however, shows *Punch's* more subtle way of questioning technological development. Presenting himself as an impartial onlooker, the author explained that the defeat of the Imperial Gas Company had inspired Hackney Wick residents to oppose a parliamentary bill allowing the Gas Light and Coke Company to establish what they consider an 'odoriferous plant' near Victoria Park. The author's true loyalties were soon revealed when he praised London gas companies for their 'illuminating power', low-cost gas, moderate profits, 'readiness to accommodate the public' and declared his support for 'the interests of a great Company' (the Gas Light and Coke Company). Readers' sympathies with the author would have crumbled when he stated that he had advised gas companies to try to keep their 'Bill to erect Gasworks for that purpose out of the lists of [Parliamentary] Orders of the Day that appear in the newspapers'. He also reminded Mr Punch that since 'choicest scents' arise from the 'residual products' of the Gas Light and Coke Company's works, such a gas plant would have enhanced the smell of flowers in the park. In conclusion, the author suspiciously insisted that he had not been bribed by the Gas Light and Coke Company and was of course 'an entirely disinterested party'.⁷⁵ By satirizing and demonizing a promoter of gas-lighting, an individual so 'interested' that he believed gas companies were actually doing local communities a favour by polluting the air, *Punch* raised dilemmas faced by many readers who enjoyed gas-lighting and other technological luxuries,

and presented readers with one of its most subtle and powerful strategies for debating technological progress *per se*.

CONCLUSION: 'THE FIRST SCIENTIFIC JOURNAL OF THE DAY'?

In her pioneering study of Victorian reading habits, Amy Cruse recalled an anecdote of a young girl who approached Benjamin Disraeli and, despite having never seen the Conservative statesman before, said: 'I know you, I've seen you in *Punch*.'⁷⁶ She was not the only person to believe in a correlation between *Punch* articles and the real world. In 1883 a very different reader, Henry James, opined: 'The accumulated volumes of this periodical contain evidence on a multitude of points of which there is no mention in the serious works – not even the novels of the day. The smallest details of social habits are depicted there.' He also believed that *Punch*'s 'ironical view of these things . . . does not injure the force of the testimony, for the irony of *Punch*, strangely enough, has always been discreet and delicate'.⁷⁷ Other Victorian readers would have known the personalities and 'smallest details' of science from reading *Punch*. Recent work by Janet Browne has emphasized the extent to which late-Victorian perceptions of Charles Darwin as a genial sage depended on caricatures published in *Punch* and other mass-circulation comic periodicals.⁷⁸ *Punch* writers and artists certainly took the 'ironical view' of scientific 'things', and used the techniques of textual and graphic satire to achieve their journalistic goals. The result was distorted 'testimony' about science, but it was testimony nonetheless, and every week it impacted on several hundred thousand Victorians.⁷⁹

This chapter has suggested several ways of understanding how these Victorians understood science from reading comic periodicals. It has examined the complexities of satirizing science in the most celebrated of all Victorian comic journals, from the kinds of scientific material enriching the variety of *Punch* to the complex ways in which the periodical contributors imposed their 'ironic' views on this material. I have suggested that the content and form of science in *Punch* were determined by the journalistic preoccupations of the contributors who sought to entertain the public each week. Their socializing with scientific personalities, their trawls through daily papers, their discussions around the *Punch* table, and their private jottings and sketches usually resulted in far more than a superficial treatment of scientific material for pure comic effect. Just as *Punch* contributors used satire to make serious moral and intellectual points about thorny political and religious issues, so they exploited comedy to develop serious arguments about the uses and abuses of science. I am not suggesting, as did Mr Punch

in 1860, that *Punch* should be recognized as 'the first scientific journal of the day'; rather, I have argued that its role in shaping and determining popular knowledge and opinions about science should not be underrated.⁸⁰

Historians and sociologists of science have long recognized the powerful role of rhetoric and other linguistic and visual techniques of persuasion in the construction of natural knowledge.⁸¹ These studies show that many of the common tropes of Victorian comic journalism – for example, caricature and exaggeration – have been used by scientists themselves to convince each other and their publics of the credibility of their scientific claims. Indeed, scientists themselves were not above exploiting scientific satires in comic journals in their own rhetorical strategies. In 1919, for instance, the ageing physicist Lord Rayleigh addressed the Society for Psychical Research with a speech that used a *Punch* cartoon of mesmerism to illustrate the sceptical attitude of the mid-Victorian 'public' towards an obscure psychical phenomenon that, Rayleigh sanguinely noted, had since become more acceptable to medical practitioners.⁸² Rayleigh's strategy reveals how important *Punch* and, for that matter, other comic periodicals, could be in shaping the scientific discourses of élite savants as well as the knowledge of the mass-reading public. His use of *Punch* is a further reminder that far more needs to be known about the places and uses of science in nineteenth-century comic periodicals. Systematic studies of the scientific material in late-Victorian *Punch* and the welter of other Victorian comic journals promises to show in even greater detail the dependence of satires on scientific events taking place, and reported, elsewhere in nineteenth-century cultures; the entanglement of comic journalists and the increasingly professionalized cadre of scientific experts; and the relationship between the public's changing perceptions of science and what made them laugh.

4. PUNCH AND COMIC JOURNALISM IN MID-VICTORIAN BRITAIN

1. 'E.', 'The Philosophy of Punch', *Westminster Review* 38 (1842), 265–318 (316–17).

I thank Patrick Leary, Jim Paradis, and Jim Secord for their help in preparation of this chapter. I am indebted to Patrick Leary who allowed me to draw on his unpublished researches on *Punch*. See Patrick Leary, 'Table Talk and Print Culture in Mid-Victorian Britain: The *Punch* Circle, 1858–1874' (unpublished PhD dissertation, University of Indiana, 2002). I would also like to thank Helen Walasek and Brigitte Istim for their help in locating *Punch* material. For permission to reproduce material in their collections I thank *Punch* Library, London. The source of attribution of *Punch* articles is from the contributor's ledger books held in *Punch* library. Throughout these notes *Punch* is abbreviated as 'P'.

2. Richard D. Altick, *Punch: The Lively Youth of a British Institution, 1841–1851* (Columbus: Ohio State University Press, 1997), pp. 1–40.

3. The most informative studies of Victorian *Punch* are: M. H. Spielmann, *The History of 'Punch'* (London: Cassell, 1895); Charles L. Graves, *Mr. Punch's History of Modern England*, 4 vols. (London: Cassell, 1921–2); R. G. G. Price, *A History of Punch* (London: Collins, 1957); Susan Briggs and Asa Briggs (eds.), *Cap and Bell: Punch's Chronicle of English History in the Making, 1841–61* (London: Macdonald, 1972); Celina Fox, *Graphic Journalism During the 1830s and 1840s* (New York: Greenwood Press, 1988); Altick, *Punch*.
4. Altick, *Punch*, pp. 552–6, 646–52; James G. Paradis, 'Satire and Science in Victorian Culture' in Bernard Lightman (ed.), *Victorian Science in Context* (Chicago: Chicago University Press, 1997), pp. 143–75; James A. Secord, *Victorian Sensation: The Extraordinary Publication, Reception, and Secret Authorship of the Vestiges of the Natural History of Creation* (Chicago: Chicago University Press, 2000), pp. 455–60; Roy Porter, *Bodies Politic: Disease, Death, and Doctors in Britain, 1650–1900* (London: Reaktion Books, 2001), 262–71 (268); Richard Noakes, 'Representing "A Century of Inventions": Nineteenth-Century Technology and Victorian *Punch*', in Louise Henson, et al. (eds.), *Culture and Science in Nineteenth-Century Media* (Aldershot: Ashgate Press, 2004), pp. 151–62. Other discussions of *Punch*, science, technology, and medicine can be found in Graves, *Mr. Punch's History*, vol. I, pp. 61–80, vol. II, pp. 136–47, vol. III, pp. 198–212, vol. IV, pp. 181–93; Briggs and Briggs, *Cap and Bell*, pp. 106–7, 201–5; Asa Briggs, *Victorian Things* (London: Batsford, 1988), p. 382; and Suzanne Le-May Sheffield, 'The 'Empty-Headed Beauty' and the 'Sweet Girl Graduate': Women's Science Education in *Punch*, 1860–1890', in Henson et al. pp. 15–28.
5. See, for example, Anthony Wohl, *Endangered Lives: Public Health in Victorian Britain* (London: Dent, 1983); Briggs, *Victorian Things*.
6. Peter M. Sinnema, *The Dynamics of the Pictured Page: Representing the Nation in the 'Illustrated London News'* (Aldershot: Ashgate, 1998), pp. 1–2.
7. Roy Porter, 'Review Article: Seeing the Past', *Past and Present* (February 1988), 186–205; B. E. Maidment, *Reading Popular Prints 1790–1870* (Manchester: Manchester University Press, 1996), *Second, Victorian Sensation*. Citation from Maidment, *Reading Popular Prints*, p. II. I am not suggesting that we should stop using *Punch* or any other comic periodical to gauge popular engagements with scientific culture: on the contrary, studies by Martin Rudwick and Janet Browne persuasively argue how much satirical material can reveal about otherwise undocumented attitudes towards scientific enterprises: Martin J. S. Rudwick, 'Caricature as a Source for the History of Science: De la Beche's Anti-Lyellian Sketches of 1831', *Isis* 66 (1975), 534–60; Janet Browne, 'Squibs and Snobs: Science in Humorous British Undergraduate Magazines Around 1830', *History of Science* 30 (1992), 165–97.
8. Janet Browne, 'Darwin in Caricature: A Study in the Popularisation and Dissemination of Evolution', *Proceedings of the American Philosophical Society* 145 (2001), 496–509 (509).
9. Altick, *Punch*, p. xix.
10. Brooks cited in Briggs and Briggs, *Cap and Bell* p. xviii.

11. Fox, *Graphic Journalism*.
12. In this chapter I do not consider *Punch's Almanacks* or the wrappers of individual issues of the periodical. From 1846 the *Almanacks* were issued separately from the periodical and so I treat them as an independent publication. For analysis of *Punch's Almanack* see Maureen Perkins, *Visions of the Future: Almanacs, Time and Cultural Change 1775–1870* (Oxford: Clarendon Press, 1996), pp. 145–9. *Punch's* wrappers are not considered owing to the difficulty of accessing such rare material. However, a complete run of *Punch* with wrappers is held in the *Punch* Library and deserves detailed analysis.
13. Leslie Stephen, 'Humour', *Cornhill Magazine* 33 (1876), 318–26 (324).
14. See, for example, [Gilbert Abbott à Beckett], 'The Disadvantages of Science', *P* 11 (1846), 179, which discusses the electric telegraph and the railways while [Douglas Jerrold], 'Hero Surgeons', *P* 18 (1850), 118, deems military surgeons to be 'people of science'.
15. Price, *History of Punch*, p. 370.
16. Altick, *Punch*, p. xvii.
17. Fox, *Graphic Journalism*; David Kunzle, 'Between Broadsheet Caricature and 'Punch': Cheap Newspaper Cuts for the Lower Classes in the 1830s', *Art Journal* 43 (1983), 339–46; Amanda-Jane Doran, 'The Development of the Full-Page Wood Engraving in *Punch*', *Journal of Newspaper and Periodical History* 7 (1991), 48–63; Marcus Wood, *Radical Satire and Print Culture 1790–1822* (Oxford: Clarendon Press, 1994); Maidment, *Reading Popular Prints*.
18. Patricia Anderson, *The Printed Image and the Transformation of Popular Culture 1790–1860* (Oxford: Clarendon Press, 1991), pp. 16–83; Maidment, *Reading Popular Prints*, pp. 145–8.
19. Nigel Cross, *The Common Writer: Life in Nineteenth Century Grub Street* (Cambridge: Cambridge University Press, 1985).
20. Paradis, 'Science and Satire'; Porter, *Bodies Politic*; Richard M. Koppel, 'English Satire and Science, 1660–1750', unpublished PhD thesis, University of Rochester, New York, (1978).
21. Richard D. Altick, 'Punch's First Ten Years: The Ingredients of Success', *Journal of Newspaper and Periodical History* 7 (1991), 5–16.
22. Altick, *Punch*, p. 4.
23. Wood, *Radical Satire*, pp. 270–1.
24. Cited in Arthur A. Adrian, *Mark Lemon: First Editor of Punch* (Oxford: Oxford University Press, 1966), p. 58.
25. See, for example, [Anon.], 'British Association for the Advancement of Everything in General, and Nothing in Particular', *P* 3 (1842), 6–7; [Douglas Jerrold], 'British and Foreign Destitute', *P* 6 (1844), 231. For *Punch* and Buckingham see Altick, *Punch*, pp. 637–42.
26. [Tom Taylor], 'The Truth after Thomson', *P* 61 (1871), 62–3.
27. Fox, *Graphic Journalism*, pp. 218–19.
28. For *Punch* and Ireland see R. F. Foster, *Paddy and Mr. Punch: Connections in Irish and English History* (Harmondsworth: Penguin Books, 1995), pp. 171–94. For Jews and the Victorian comic press see Anthony S. Wohl,

- “Dizzi-Ben-Dizzi”: Disraeli as Alien’, *Journal of British Studies* 34 (1995), 365–411. For *Punch* on America and Roman Catholicism see Altick, *Punch*, pp. 367–79, 466–92.
29. See Altick, *Punch*, pp. 343–50, 683–6, 698–707.
 30. Darwin to Huxley, 22 May 1861, in Frederick H. Burkhardt, Duncan Porter, Joy Harvey, and Marsha Richmond (eds.), *The Correspondence of Charles Darwin*, volume IX, 1861 (Cambridge: Cambridge University Press, 1994), pp. 134–5 (134).
 31. Briggs and Briggs, *Cap and Bell* (eds.), p. xxvi.
 32. Based on his analysis of the ‘paper and print’ ledger books in the *Punch* archive, Patrick Leary has claimed that in the late 1850s and early 1860s, *Punch* achieved weekly sales of between 56,000 and 61,000: personal communication from Patrick Leary. Circulation figures for *Fun* and *Tomahawk* in Alvar Ellegård, *Darwin and the General Reader: the Reception of Darwin’s Theory of Evolution in the British Periodical Press, 1859–72* (Chicago: Chicago University Press, 1990), pp. 374, 383.
 33. See comments of Mark Lemon recorded by Henry Silver in his Diary: Henry Silver’s Diary, *Punch* Library, London (hereafter ‘Silver Diary’), entry for 27 June 1866. For recent explanations of *Punch*’s success see Briggs and Briggs, *Cap and Bell*, pp. xiv–xv; Altick, *Punch*, pp. 41–66; Cross, *Common Writer*, p. 107.
 34. [Andrew Halliday], ‘Comic Literature’, *Temple Bar* 9 (1863), 590–3 (590). For attribution see Silver Diary, entry for 4 November 1863.
 35. See note 1. The ledger books list names of authors, titles of articles, and amount of column space for each article. They begin with the issue of 4 March 1843 and continue, with several short breaks, to the twentieth century. Approximately 75 per cent of the articles in any given issue are listed, but many of the smaller ones are omitted.
 36. Paradis, ‘Science and Satire’, pp. 149–50.
 37. For Leigh, Smith, and Du Maurier see *DNB*. For Mayhew see Price, *History of Punch*, 27. Although Albert Smith left *Punch* in 1843 he was responsible for one of its most famous portrayals of medical students, the 1841 series ‘The Physiology of the London Medical Student’.
 38. George Somes Layard, *A Great “Punch” Editor: Being the Life, Letters, and Diaries of Shirley Brooks* (London: Sir Isaac Pitman & Sons, 1907), pp. 323, 339, 495, 516, 518, 579. Brooks’s poem was published as ‘The Dodo Demolished’, *P* 66 (1874), 19.
 39. Silver Diary. For analysis see Leary, ‘Table Talk and Print Culture’.
 40. Silver Diary, entries for 1 September 1858 (Stephenson), 23 February 1859 (phrenology), 3 May 1865 (Fitzroy).
 41. Silver Diary, entry for 9 April 1862. The last sentence is from [Henry Silver], ‘Iron-Clad Jack. A Sea-Song of the Future’, *P* 42 (1862), 146. For the interaction between *Punch* artists and ‘suggestors’ of illustrations see John Bush Jones and Priscilla Shaw, ‘Artists and “Suggestors”’: The *Punch* Cartoons 1843–1848’, *Victorian Periodicals Review* 2 (1978), 2–14.

42. [John Leech], 'The "British Tar" of the Future', *P* 42 (1862), [147].
43. Cross, *Common Writer*, p. 102. [Mark Lemon?], 'The Moral of Punch', *P* 1 (1841), 1.
44. Stephen, 'Humour', 320.
45. [Percival Leigh], 'A Philosopher Afloat', *P* 29 (1855), 26; [John Leech], 'Faraday Giving His Card to Father Thames', *P* 29 (1855), [27].
46. [Anon.], 'The Locomotive Table Company', *P* 24 (1853), 209.
47. [John Leech], 'How to Insure Against Railway Accidents', *P* 24 (1853), 125.
48. See Silver Diary, entries for 8 and 15 August 1860, 26 February, 5 March 1862, and 19 March 1862 which reveal *Punch* contributors' scepticism towards spirit-rapping.
49. For the symbiosis between *Punch* and other Victorian periodicals see Altick, *Punch*, pp. 67–90.
50. 'Gorilla' [Anon.], 'Monkeyana', *P* 40 (1861), 206; Thomas H. Huxley, 'Man and Apes', *Athenaeum*, 13 April 1861, 498
51. [Shirley Brooks], 'Punch's Essence of Parliament', *P* 34 (1858), 233–4 (233).
52. [Anon.], 'A Philosopher Afloat'.
53. [Percival Leigh], 'Will it Wash?', *P* 33 (1857), 183.
54. [Horace Mayhew], 'Light and Hair', *P* 49 (1865), 114.
55. [Anon.], "'Science Gossip'", *P* 54 (1868), 202.
56. [Percival Leigh], 'The Irish Yahoos', *P* 41 (1861), 245.
57. Foster, *Paddy and Mr. Punch*, pp. 171–94; Perry Curtis, *Apes and Angels: The Irishman in Victorian Caricature* (Washington and London: Smithsonian Institution, 2nd edn, 1996).
58. [Henry Silver], 'St. Januarius at it Again', *P* 37 (1859), 149.
59. [Percival Leigh], 'Representative Rascals', *P* 41 (1861), 25.
60. J[ohn] L[eech], 'Quite a Novelty', *P* 27 (1854), 40.
61. [Gilbert Abbott à Beckett], 'A Railway Map of England', *P* 9 (1845), 163.
62. [George] D[u] M[aurier], 'The Keeper Nightmare', *P* 60 (1871), [6–7]; C[harles] H. B[ennett], 'The British Association', *P* 49 (1865), 113–14.
63. R[ichard] D[oyle], 'Manners and Customs of ye Englyshe (New Series) No. 10: A Scientific Institution – During ye Lecture of an Eminent "Savan"', *P* 19 (1850), 136; [Leech], 'Faraday'.
64. J[ohn] L[eech], 'Animal Magnetism; Sir Rhubarb Pill Mesmerising the British Lion', *P* 1 (1841), [67]; J[ohn] Leech, 'Lord Brougham's Railway Nightmare', *P* 8 (1845), [207]; J[ohn] L[eech], 'Effect of the Submarine Telegraph; or, Peace and Good-Will Between England and France', *P* 19 (1850), [117]; John Leech, 'The Use of Adulteration', *P* 29 (1855), [47]; [John Leech], 'Father Thames Introducing His Offspring to the Fair City of London', *P* 35 (1858), [5]; J[ohn] T[enniel], 'Another Eclipse for India', *P* 35 (1858), [101]; [John Leech?], 'The New Russell Six-Pounder', *P* 38 (1860), [121]. [John Leech?], 'The Lion of the Season', *P* 40 (1861), [213]; [John Leech?], 'The Parliamentary Python', *P* 42 (1862), [85]; T[enniel], 'The Political Cow-Doctors', *P* 50 (1866), [69].
65. T[enniel], 'Another Eclipse'.

66. [Tom Taylor], 'Eclipse in India', *P* 55 (1868), 104–5.
67. [Mark Lemon], 'Fourth Meeting of the Brightish Association for the Advancement of Everything: Section A – Mathematical and Physical Science', *P* 5 (1843), 167.
68. [Lemon], 'Fourth Meeting'. For *Punch*'s tussles with Bunn see Altick, *Punch*, pp. 698–707.
69. [Percival Leigh], 'Political Zoology: The Red-Tapeworm', *P* 28 (1855), 71.
70. For analysis of Scriblerians see Koppel, 'English Satire', pp. 196–234.
71. [Anon.], 'Buns', *P* 4 (1843), 72.
72. [Anon.], 'Grand Railway from England to China', *P* 3 (1842), 205.
73. 'Simon Hodgskins' [Percival Leigh], 'Fudge for Farmers', *P* 11 (1846), 40 Leigh's italics.
74. See [Shirley Brooks], 'Punch's Essence of Parliament', *P* 50 (1866), 208–9; [Percival Leigh], 'Fresh Air! Or, Victoria Park Preserved', *P* 50 (1866), 214; C[harles] H. B[ennett], 'Punch on the People's Parks', *P* 50 (1866), 138.
75. 'Audi Alteram Patrem' [Percival Leigh], 'A Gas Plant at Victoria Park', *P* 50 (1866), 258.
76. Amy Cruse, *The Victorians and their Reading* (Boston: Houghton Mifflin Co., 1935), p. 394.
77. Henry James, 'Du Maurier and London Society', *Century Magazine* 26 (1883), 49–65 (51). Cited in Altick, *Punch*, p. xx.
78. Browne, 'Darwin in Caricature'. See also Bert Hansen, 'America's First Medical Breakthrough: How Popular Excitement about a French Rabies Cure in 1885 Raised New Expectations for Medical Progress', *American Historical Review* 103 (1998), 373–418. I owe this reference to Jim Secord.
79. This is based on the principle that the actual number of readers of a periodical is roughly five times the number of copies sold. Thus copies of *Punch* in the 1860s would have been read by approximately $5 \times 60,000 = 300,000$ people. For this principle see Altick, *Punch*, p. 38.
80. [Henry Silver], 'Effects of the Recent Eclipse', *P* 39 (1860), 39.
81. For sociological analysis of scientists' jokes see G. Nigel Gilbert and Michael Mulkay, *Opening Pandora's Box: A Sociological Analysis of Scientists' Discourse* (Cambridge: Cambridge University Press, 1984), pp. 172–87. For science and rhetoric see Alan G. Gross, *The Rhetoric of Science* (Cambridge, Mass.: Harvard University Press, 1990).
82. Lord Rayleigh, 'Presidential Address', *Proceedings of the Society for Psychical Research* 30 (1918–19), 275–90 (276). Rayleigh was referring to [Anon.], 'Very Odd!', *P* 24 (1853), 120.