

THE COMMUNICATION OF DEVELOPING TECHNOLOGIES DURING THE FIRST WORLD WAR IN BRITISH POPULAR MAGAZINES

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Introduction

This findings discussed in this article emerged from my research ¹ on the magazines and other periodicals published in Britain during the First World War, to explore a particular aspect of First World War publishing in Britain: how developing technologies were communicated to the reading public.

The original research project explored new ground in the publishing history and book history of the war, with quantitative research focused on trends and publishing patterns over time rather than the scrutiny of single titles or issues. Its subject is also relatively understudied: much research has been published on the modernist magazines published before, during and after the war, but there has been very little attention paid to the origins of the post-war boom in popular magazine publishing that began in wartime. This bias from the academy is skewed towards elite and experimental *avant garde* publications read by comparatively few, and ignoring the opportunity to be attentive to publications read by most of the population. Additionally, the war has usually been treated as a phase in the histories of individual titles, whereas my research has examined the war as a catalyst for publication, the reasons why novels, short stories and non-fiction were published in these periodicals, and how the war influenced changes in the formats of the media: books, magazines, pamphlets and journals.

My sources for the data constituting the original research corpus were: newspaper directories, which were published annually in the UK as business resources for potential advertisers, and in part as legal and fiscal evidence of a periodical's existence; the British Library catalogue, one of the British statutory repositories for registered periodicals, but which only contains those issues and titles that were deposited (many were either not received or have been lost); and the annual editions for 1914-19 of A & C Black's *Writers' and Artists' Yearbook* (W&AY), a popular annual directory to help writers and artists to identify buyers for their work. The resulting corpus is the most comprehensive quantitative representation of the British domestic periodicals market during the years of the First World War. It includes some well-known US society and fiction magazines, but is otherwise all British. But it does not include 'trench' journals, periodicals published by and for refugees in languages other than English, periodicals published for and by military units or regiments and periodicals by temporary military associations formed during the war.

The corpus consists of 1,065 titles. The number of titles in print in any one year ranges between 968 (1914) and 793 (1919) (see Figure 1). Seventy-two per cent of this corpus can be categorised as magazines, whereas journals represent fifteen per cent and newspapers thirteen per cent of the total. These definitions have been fluid across titles and time. In the Victorian period 'journals' can be separated from 'magazines' by their degree of subject specialism. Sporting, academic, literary and family titles used 'journal' in their titles, whereas 'magazines' and 'miscellanies' contained a

wider range for the casual or general reader.ⁱⁱ The demand for scholarly publications from the proliferating research communities of the professions and the universities made the scholarly journal a more defined market presence in the twentieth century. Learned and specialist journals, whose content had a narrow focus and were often sponsored by an institution or an organisation, were also undeniably popular in the sense that they were printed in large numbers to sell to a predictable market sector, and continued to sell throughout the war. They had commercial consistency, and were read widely during the war.

Being read widely is key: the successful communication of news needs readers. At the beginning of the war many 'pop-up' wartime illustrated magazines appeared as opportunist publishing ventures, but at least eight failed within months. They did not sell what the public wanted, or sold a product that was too close to an existing one, or could not cope with increases in production costs, and the shortages in paper, type and plates. Thus the periodicals that survived the war were the fittest, both financially and in their content. They were often part of a group of titles published by individual large publishing companies, which gave them easier access to sources and story material, but which also has implications for their editorial independence.

Randall Stevenson points out that 'censorship and suppression by the military and the Press Bureau, along with often-belligerent patriotism in newspapers' was heavily influential in determining what the public would read. Magazines as well as newspapers would offer 'only a carefully sanitised description [...] through the rhetoric of "deathless deeds"'.ⁱⁱⁱ The Defence of the Realm Acts (DORA) of August and November 1914 prevented the publication of explicit imagery in mass-market print, and anything else diminishing morale (in contrast to the relative freedom of the French illustrated press, for example).

[I]n 1916 amendments made the power of DORA over the arts more explicit: no one should either by word of mouth or in writing or in any newspaper, periodicals, book, circular or other printed publication, spread reports or make statements intended or likely to cause disaffection, or to prejudice recruiting or training, or produce any play, or picture or film that would do any of these things.^{iv}

'Likely to cause disaffection' was the key phrase that could be applied to anything written or expressed. Cate Haste has shown that under the influence of the Acts, the Press Bureau exercised censorship and negative propaganda, suppressing information as well as propagating misleading or false information.^v In concert with incomplete and slanted information appearing in wartime periodicals was what Stevenson calls the 'dis-integrity' caused by adverts, fiction and commentary that avoided any reference to war.^{vi}

Visual communication

The first officially-sanctioned photograph of the British tank, used in action at the Battle of the Somme in September 1916, was presented to the public as a visual image in December 1916, in *The War Illustrated* (Figure 2). It was huge news, albeit old news, and it was visual: this was new technology that had to be seen to be believed. Printing technology and developments in photography made the visual dissemination of war news increasingly easier for readers with low literacy levels, and images were instantly consumable in a way that length columns of text were not. In 1917, the publisher H Simonis discussed the state of the periodicals industry in Britain, and listed distinctions between a 'picture paper' and an 'illustrated paper'. A further subdivision of the name for a printed newsheet with images as well as print was 'pictorial record'.^{vii} This had been a popular form of periodical in Britain since 1842 and the first issues of *The Illustrated London News*. It placed photographs and illustrations alongside feature articles, and carried feature articles made up of images rather than news reports.^{viii} During the First World War the British government produced its own pictorial record, *War Pictorial*, which carried propaganda. Later in the twentieth century the most famous 'pictorial' would be *Picture Post* during the Second World War, and later the US *Life* magazine.

The 'picture papers' such as the *Daily Mail* used photography as an extension of journalism, but were differentiated from 'illustrated papers' (such as *The War Illustrated*) by the assumed class of their readers (indicated by advertisements) and the tone of their content. The 'picture papers' had a lower social status than 'illustrated papers', and readers of the latter were expected to have a higher level of literacy, and thus education, than those of the former, or to have less energy for concentrated study of the written word. Rudyard Kipling had recognised this in 1918, when he observed to the newspaper magnate Lord Beaverbrook that 'the munition worker' (Kipling's example of the consumer of wartime popular fiction) 'is too tired or lazy to read about anything that requires thought after the work is done: they want something exciting [...] they are trained to go to cinemas: and they can be made *to think through their eyes*' (emphasis added).^{ix}

Trends over time

Overall, from 1914 to 1919 the total numbers of periodical titles in the corpus reduced by eighteen per cent, which gives us a baseline against which we can measure how individual categories of periodical weathered the war. The graph in Figure 3 shows the trajectory of the numbers of titles in print from 1914 to 1919, with the solid line in the centre representing all titles in the corpus. It also shows the top seven categories of periodical, those categories with the largest numbers of titles over the period, and their decline over time. Almost every category lost titles by 1919, but some lost more than others. There was an immediate but slight recovery in 1919. The causes of the overall decline in

the numbers of titles published can be broadly attributed to rising production costs which restricted the products on offer in number and in quality and size; a radically changing consumer profile, with men and women experiencing very different occupations and incomes by 1919 than they had at the beginning of the war; and the rising prices of the wartime domestic economy, which restricted readers' purchasing power.

Figure 4 shows some of the more technology-related categories, showing that they too followed the trend. The magazines categorised under the broad label of 'science' lost a little under 20% of its titles overall, whereas 'medicine' and 'engineering' lost a little under 25% each. A third of photography magazines had disappeared by the end of the war, but the market for flight magazines defied the overall trend by losing half its titles, then gaining or resurrecting two.

Not shown in this Figure, the periodicals marketed to driving enthusiasts reduced in number by nearly a quarter, to thirteen by 1919, and sailing magazines dropped to three. There were, however, twice the number of 'driving' magazines than 'sailing' or 'flight' titles on the market, reflecting the car's accessibility as the more common mode of transport and leisure activity. It might be assumed that the 'military' category, in titles such as *The War Office Times*, the *Army and Navy Gazette*, *Bluejacket and Soldier*, *Broad Arrow* and *Fleet*, would have increased its market presence as the war went on. It peaked at fourteen titles in 1917, but experienced the same reduction by 1919 as most other categories, ending the war with ten. There is only one 'radio' periodical listed in the corpus, *Wireless World*. Until 1913 this was called the *Marconigraph*, published by the Marconi Company for their professional wireless operators from 1911 to 1913, but it remained the only magazine for radio amateurs and professionals alike during the war years, suggesting that it fulfilled all the needs of this new technical readership.^x

Methodology for this secondary research

The methodology used for this secondary research study was to examine multiple issues of six periodicals published throughout the war under two criteria: (1) a high probability of having featured the communication of developments in technology; (2) the titles' availability in near-complete print runs for the period under study, to gain a sense of changing editorial strategies over time. They also covered overlapping categories of the sciences most relevant in wartime: medical and clinical, mechanical and engineering.

The Railway Magazine was a monthly magazine for railway professionals, as well as train aficionados and people interested in railway engineering. Its articles had a long lead time and were thus non-topical and non-responsive: the war only began to be mentioned from October 1914, whereas weekly magazines were featuring war-related news by mid-August. This periodical featured very little war-related innovation. Although this is negative evidence, it shows that the war was not the dominant subject in some periodicals.

The English Mechanic was a weekly general interest periodical for all branches of mechanics, and functioned as a digest and forum for readers' questions and answers.

The Power User was a monthly for engineers, and also did not carry news of any kind, only reports of meetings.

The Lancet was and is still a major weekly medical journal for the English-speaking world, and during the war was the journal of record for all medical and surgical developments.

The Hospital was a weekly periodical for hospital administrators, rather than for clinicians.

The War Illustrated was an 'illustrated paper' rather than a newspaper, since its illustrations are more dominant than its text. It was also not a magazine, since its content was directed by the news of the day. It was one of the 'pop-up' magazines that sprang into life specifically for the war, appearing first on 22 August 1914 and continuing until 8 February 1919. It seems to have absorbed one of the failing opportunist war papers, the *Vivid War Weekly*, and was brought back into production for the Second World War, so it was clearly a successful and vigorous creation.

Except for those of *The War Illustrated*, most of the issues examined did not offer direct news of wartime technical innovation. The suggestion from this small sample indicates that not all wartime publications would or could discuss the war. The most useful material in this secondary research study comes from a small percentage of the corpus, and is not representative of the corpus overall.

Photography and the artist's impression

The War Illustrated is a particularly interesting periodical for how it used imagery and text during the war years, and amplified different functions for photography and the artist's impression through illustration. In general, it used illustration for what could not be seen, what was not known, and for sheer speculation; and used photography for reportage, for accuracy and authenticity, to reassure and inform the public, and to normalise new technology in war. The image in Figure 5 is from its second issue, of 27 August 1914, illustrating the defence of Liège. Notice that this is illustration, not a photograph, and is focused on military architecture and a dehumanised battle array, a classical and theoretical approach to the reporting of war. Scale, orderliness and spectacle are important here. The details of the technology are not.

In Figure 6 we see two adjacent pages from 13 December 1914, where photography is used for reportage side by side with an illustration used for propaganda against the presumed enemy of the British readers. In the photograph on the left, sailors are standing on the conning tower of their submarine. The caption says that this is a snapshot taken from a steamer crossing the Channel. This would have been one of the earliest photographs of a submarine on duty that the reading public would have seen, and is presented here with the message that it was busy guarding Channel shipping. On the opposite page, the deceitful behaviour of a priest (normally expected to be neutral)

and a party of German soldiers is illustrated. They have pretended to be a burial party to catch the British soldiers off-guard with their hidden machine-gun. The culpability of the priest seems gratuitously shocking. There is no attribution to the story, so it is most likely to be a crude propagandist feature.

In Figure 7 the adjacent pages from 10 October 1914 reinforce the roles of the two media: the photographs report the details, and illustrate the personnel of the new British armoured car. The illustrations imagine what the reported action would have been like if one had been with the soldiers. This is an important distinction to consider when examining the visual reportage of technology in wartime: whose perspective is given to the reader, or viewer? What medium is used? Is there a difference between how photography and the artist's impression are used? How are the messages, and the verifiable facts, affected by the mode of illustration?

Illustrations by artists were used as an 'explainer': they show what photographs cannot. Figure 8 shows a British 'monitor' shallow-draught barge used as a mobile artillery platform in Nov 1914, and Figure 9 shows a German *flammenwerfer* from September 1915. These images inform and educate the reader, and increase their awareness of technical deployment. They also relate existing technologies known to the reader to new developments being used in wartime (the flame-thrower as an offensive weapon), and to new possibilities (adapting a barge for weapons transport and deployment).

The War Illustrated also appears to have a particular interest in militarised technology as used and developed in wartime. Examples of subjects illustrated by artists include cutaways of the interiors of a submarine, a cruiser and a converted yacht (27 August 1914). It published photographs of a British airship over Ostend beach, Royal Flying Corps planes and an airship on a Belgian airfield (12 September 1914), and a reproduction of poster issued to French troops to help them identify the outlines of German planes (17 October 1914). On 24 October photographs and illustrations combined to explain how trenches were designed and functioned for attack and for shelter; how the machine-gun and the armoured car worked; and an armoured train in action. Many images were deliberately personal and intimate, offering a closer connection with the men at the Front. On 24 April 1915 several pages offered images of inventions used to safeguard soldiers: a body-screen against bayonets, wicker hurdles to screen horses against weather and shrapnel, and wet handkerchiefs and valved respirators against shell fumes. On 28 August 1915 an illustration was used to explain the detail of a torpedo's effect on a ship, and its track through the water. Humour was also used, with amusing photos of soldiers in respirators (25 September 1915), and photos of ridiculous war technology deliberately published to make readers laugh (2 October 1915).

Photography as a record

The power of photographs in reportage expanded during the war. By 1916 it had become

commonplace to publish photographs of individual airmen and new models of aircraft. Photography normalised what the public might have seen themselves when airships were being attacked. They also held the event in stasis on the printed page, allowing it to be examined closely at leisure, when in real life hardly any of the details could have been seen, and the event would have been over in seconds. Figure 10, of two images, shows a burning airship, the plane that attacked it and the pilot parachuting to safety, published in September 1916. The immediacy of these images is completely modern: they are human events of drama and danger, making their political significance (on whose side was the airplane? For which army was the airship reconnoitring?) secondary to the immediate questions of winning and losing, or life and death.

Photography caught action and movement in the most authentic of ways, as shown in Figures 11 and 12. Figure 11 is a photograph from September 1915 of a shell on the point of exploding, captured by a photographer who had been positioned some 40 metres away, quite accidentally. The figures are unposed and natural, and the caption notes the likelihood of the men's deaths. Compare it to Figure 12, an illustration from a year earlier, in November 1914, of a Belgian mine blowing up an artillery point. Aesthetically, this image has been composed for maximum emotional effect, and for the visual patterns of light and dark. While it gives an impression of the destructive effects of propulsive power, it is a composed image: the figures could be gymnasts or divers. It is also unexpectedly modern: this composition could have been used in any *bande-dessinée* or comic-strip cartoon in the last 100 years. The photograph shows the impact of high explosive on bodies as it was happening: the ungainliness of the arms and legs, and the poses, are utterly human and realistic. The illustration only *imagines* the effects of such propulsive power, without addressing the effect of explosive force on human tissues and bones. It is inauthentic, but artistic.

Creating the news

And now we return to the tank, as an example of the handling of the dramatic visual news of a new technology in wartime.

The arrival of the tank in the British media was presented in a highly managed way. There was a media problem, in that photographs of tanks were embargoed or censored for several months after their first public appearance. It was first used in the Battle of the Somme in early September 1916, but was only reported on 7 October, here in Figure 13. This article was not illustrated, and the word 'tank' was set within inverted commas, indicating a neologism in English. The magazine also published photographs of vehicles that it claimed had led up to the tank in an evolutionary progression (Figure 14), but could not publish actual photographs until December 1916.

The first image of the tank was published on 2 December 1916, as an illustration (Figure 15), positioning the tank behind carefully posed and pristine soldiers and an artillery gun. It is large, and alien, and can cross crevasses. It is indisputably modern, compared to the Napoleonic model of the

artillery gun. Its protective escort of soldiers — despite the imbalance between its superior firepower and theirs — suggests its importance in the militarised hierarchy.

All this was a long, teasing trail of information leading up the publication début of the tank's first photographs on 9 December. These were heralded by a long article about the experience of riding inside a tank, by the well-known speculative novelist and magazine editor Max Pemberton. His 1893 novel *The Iron Pirate* had envisaged a seagoing 'ironclad' ship that predated H G Wells' Land Ironclads' (from his eponymous 1903 short story), both presaging the tank as a military weapon of aggression.

Figure 2 shows the first photographs of the tanks themselves. Notice that in the captions the language of war had not caught up with new technologies. The British Navy was the Senior Service (founded in the sixteenth century), and thus took precedence over the 'poor bloody infantry' of the British army, and over the very much younger airborne services, so its particular vocabulary was used to categorise new war technologies. Those who flew airplanes were and still are called pilots, which is the naval term for the navigating vessel leading the way. Service personnel in the airborne services initially wore naval uniform. 'Land cruiser' refers to the tank as an armed vessel of the land. It also echoes Wells' 'The Land Ironclads', which predicted the tank's arrival, and its strategic and military importance. It is not known how well-known this Wells story was in 1916, though Wells himself was a prominent author and war pundit, but the phrasing is suggestive.

Literary language was used to denote the high purpose and serious impressions the readers were intended to receive from these images and their captions. There is significant use of alliteration, which is one of the oldest poetic techniques in English, used in Anglo-Saxon literature as the unifying aural technique in place of the later use of homophonic end-rhyme. Anglo-Saxon poetry was unlikely to have been much known by First World War readers, but it was predominantly military, and aggressive, celebrating battle and the defeat of enemies: thus the alliterative mode used in these captions in a popular medium has deep resonance.

At the time of the war, alliteration was a popular form in the urban music hall and in popular song, and its ownership there is reflected in captions and headlines. Notice that the naval term 'luffing' in the headline in Figure 2 is used for alliteration rather than its literal meaning ('luffing' is when a sail begins to flap, when it has lost optimum propulsion in the wind, and makes no sense in this headline). There was as yet no verb to describe the movement of a tank, since so few people had actually seen them in action. In the text 'churn' and 'crawling' are used, but the captions revert to nautical vocabulary: 'craters and shellholes to the *landship* are like so many *waves* to a powerful *destroyer*'; 'its invisible *crew*, whose bravery is akin to that of *submarine* men bringing their *craft* into position during a *naval* action'. Thus the new development was linked to existing technologies to help readers understand how their world, and war, were changing.

Second-hand news

More specialist periodicals routinely reported new technologies as news that would interest its readers. The only notice that *The Railway Magazine* took of the war, in all its wartime issues, was a single article in November 1914 on the remodelling of railways carriages as ambulance trains. All its other articles for the duration of the war were indistinguishable from those published in the years before 1914. From we might conclude that readership matters: the readers of the *Railway Magazine* were railway workers and those interested in railway engineering, architecture and its associated technologies. Their interest had to be maintained or sales of the periodical would suffer. This suggests that established periodicals did not feel the need to alter their content much to take the war into account. Articles would describe the effects of war on their usual subjects, and the loss of men in the armed services, but more than this, in the specialist fields, was unusual.

We can see this in *The Hospital*, whose full name was *The Worker's Newspaper of Administrative Medicine and Institutional Life, Administration, National Insurance and Health*. It carried occasional mentions of developments in the treatment of war-disabled servicemen, and in prosthetics, but only because these had administrative interest, not from any technological interest. *The Power User, Engineer-in-Charge and Works Manager. A Practical Journal of Engineering Plant Management and Maintenance* was an engineers' journal without the readership to warrant sustained or systematic discussion of technological development due to the war: its feature articles ignored the war completely.

However, *The Power-User* illustrates an alternative method of dissemination: the reproduction of reports and speeches published elsewhere, that related to new war technologies. Examples of the sources this journal used are *Machinery, The American Machinist, Engineer, Engineering and Mechanical World*, and *Proceedings of Society of Naval Architects and Marine Engineers*.

Likewise, *The English Mechanic and World of Science* was a general interest science magazine with a high degree of technical and specialist knowledge required of its readers, in all scientific fields. It used *Scientific American* and learned societies' proceedings for its material. It published many extracts and reports from other much more specialist publications, operating as a digest and a forum for discussion. From this we can see that there was a difference between periodicals engaging in science-related information exchange, and those which published news reports about advances in tech development: the latter was much less common during the war than the former. The secondary nature of information exchange and reporting other periodicals' news may have left the periodicals in question less vulnerable to challenge by the Defence of the Realm Acts. Reporting true news was potentially risky.

Moving away from the text and images in periodicals to their supporting apparatus, we can glean much information about how periodicals disseminated information through indexes. These paratextual elements of a bound journal can be considered quantitatively as well as qualitatively, to

understand much information was present, as well as what kind of information it was. Examining a sequence of indexes from *The Lancet*, a weekly journal, for the entries in each half year shows interesting differences in the dissemination of technology in surgical techniques through the number of articles on this subject. In the second half of 1914 through to July 1915, there were a large number of entries, compared to the smaller number in the second half of 1915 to the middle of 1916. But in the second half of 1916 there was another surge of surgical information, decreasing gradually to the end of 1918. Thus we can see that there was a peak in developments and observations in surgical technique from the first eight months of the war, and again in the second half of 1916. This rather blunt approach is useful as an indicator for the peak periods of activity in presenting new information to readers, across disciplines, although lead times, and the periodicity of the periodicals concerned, need to be taken into account.

Conclusion

In conclusion, this article suggests that periodicals that disseminated, conducted information flows and chose which information to pass on had different methods. Photographs reported and recorded, whereas illustrations by artists imagined and explained. The transmission of news about new technologies was serial and episodic, cascading down from the most specialist expert writer to the most general reader through a sequence of journals and periodicals. Editors and correspondents had the filtering and selection role. Print censorship would have been a control on the dissemination process overall. News about advances in technology was different from information exchange, the auto-didactic process that formed the education of so many readers in the war period. Dissemination was time-sensitive, relating not only to events like the tank and the Battle of the Somme, but to periodicity in the publications under study.

When studying print media, the production constraints should always be considered, as well as editorial imperatives, not the least of which was sales. Lead times affect the topicality of an article, and the freshness of its news. Paper shortages, and rising domestic prices that removed titles from the market, restricted what there was to print on, and whether readers could afford to buy it, as well as forcing them to choose what they had to buy. These secondary influences are surprisingly powerful when considering how and why technological development was reported to the world.

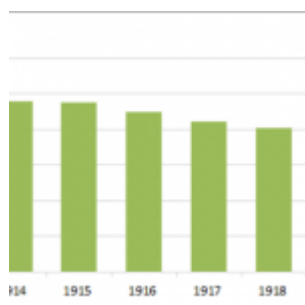


Fig 1

Fig 2

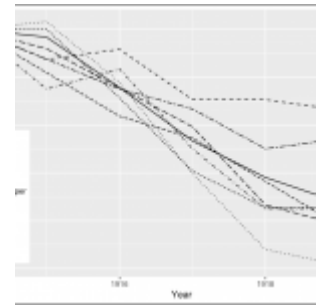


Fig 3

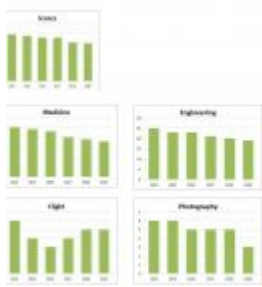


Fig 4



Fig 5

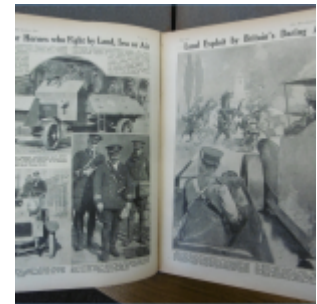


Fig 7



Fig 8



Fig 9



Fig 10



Fig 11



Fig 12



Fig 13



Fig 14

Captions

- Figure 1 Number of titles in main research corpus.
- Figure 2 The first photographs in *The War Illustrated* of the British tank in action. *The War Illustrated* 5:121 (9 December 1916), 396-97.
- Figure 3 Trends in the number of periodicals on the market, by category, listed in the main research corpus, 1914-19.
- Figure 4 Trends over times in numbers of titles of periodicals, by technical categories.
- Figure 5 An illustration of the German attack on Liège, Belgium. *The War Illustrated* 1:1 (27 August 1914), 12-13.

- Figure 6 How a photograph reported the facts, adjacent to an illustration used as propaganda. *The War Illustrated* 1:18 (13 December 1914), 416-17.
- Figure 7 Photographs of the new armoured car and its personnel, and an illustration imagining what participating in an attack by such a car might be like. *The War Illustrated* 1:8 (10 October 1914), 174-75.
- Figure 8 A British 'monitor' shallow-draught barge used as a mobile artillery platform. *The War Illustrated* 1:15 (28 November 1914), 345.
- Figure 9 Illustration of a German *flammenwerfer*. *The War Illustrated* 3:55 (4 September 1915), 70.
- Figure 10 A burning airship, the plane that attacked it and the pilot parachuting to safety. *The War Illustrated* 5:197 (2 September 1916), 51.
- Figure 11 A shell on the point of exploding, captured by a photographer positioned some 40 metres away. *The War Illustrated* 3:56 (11 September 1915), 76.
- Figure 12 Illustration of a Belgian mine blowing up an artillery point. *The War Illustrated* 1:14 (21 November 1914), 334-35.
- Figure 13 The introductory article reporting the arrival of the tanks in battle. *The War Illustrated* 5:112 (7 October 1916), 179.
- Figure 14 Photos of the 'precursors to the "tanks"', suggesting that there are no pictures to be had of the new wonder vehicle, but that they are going to be revolutionary. *The War Illustrated* 5:112 (7 October 1916), 183.
- Figure 15 The first illustration of a tank in *The War Illustrated* 5:120 (2 December 1916), 375.

ⁱ Kate Macdonald, 'Popular periodicals: Wartime newspapers, magazines and journals', in eds Anne-Marie Einhaus and Katherine Baxter, *The Edinburgh Companion to the First World War in the Arts* (Edinburgh University Press, 2017), 245-60; Kate Macdonald, *British First World War periodicals, 1914-1918*, University of Reading Research Data Archive, <http://researchdata.reading.ac.uk/id/eprint/46>.

ⁱⁱ Margaret Beetham, 'Magazines', *The Dictionary of Nineteenth-Century Journalism in Great Britain and Ireland*, eds. Laurel Brake and Marysa Demoor (Ghent; London: Academia Press and The British

Library, 2009), 391–92 (391).

iii Randall Stevenson, *Literature and the Great War* (Oxford, OUP, 2013), 24.

iv Samuel Hynes, *A War Imagined: The First World War and English Culture* (London: The Bodley Head, 1990), 80.

v Cate Haste, *Keep the Home Fires Burning. Propaganda in the First World War* (London: Penguin Books, 1977), 30–31.

vi Stevenson, 41.

vii H Simonis, *The Street of Ink* (London: Cassell & Co, 1917), vi.

viii Simonis, 238–56.

ix Letter from Rudyard Kipling to Lord Beaverbrook, 25 February 1918, in Thomas Pinney (ed.), *The Letters of Rudyard Kipling. Volume 4: 1911–19* (Basingstoke: Macmillan, 1999), 485.

x My thanks to Dr Elizabeth Bruton, The Science Museum, London, for this information.

