

Welcome to online-only production of *Parasitology* and future-proofing of the journal's academic standards

Editorial

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After an unbroken production run, first starting in March 1908, the hardcopy of the Cambridge University Press (CUP) journal *Parasitology* will cease in December 2021. From January 2022 onwards, all published articles will be accessible online-only, although we will continue the regular production cycle of 14 issues per year, a nod to the proud printed press tradition. Each issue typically groups together 10–15 papers, with two earmarked as Special Issues. The latter are commissioned by John Ellis, Deputy Editor-in-Chief & Special Issue Editor. For their easier perusal, the 28 Special Issues from the last decade now feature more prominently on our CUP website, allocated their own navigation tab (see <https://www.cambridge.org/core/journals/parasitology/special-issues>), alongside a tabbed virtual collection of other themed articles selected post-production. The latter is drawn together upon certain #World_Day_Themes that promote a broader academic appeal and impact.

Consolidating *Parasitology's* online presence

Our website exclusively channels our vision for *Parasitology* and acts as our primary dissemination conduit, alongside its social media enhancements. This allows us to break free from the printed page and we have already introduced video footage, for example, with our recent webinar entitled 'Tips in Academic Publishing' and the video summary of the Special Issue focused upon *Angiostrongylus* by Dr Sue Jarvi *et al.* The former promotes our Early Career Awards, together with the Irish Society for Parasitology's William C. Campbell prize. To expand upon these, we will conduct further webinars to help junior authors gain expertise in scientific writing and publishing as well as commission other video enhancements of our future Special Issues.

To keep the month-on-month momentum flowing, we have instigated a 'paper-of-the-month' blog. This is commissioned by the editorial team and is a prestigious slot featured on our website with heightened social media profiling. Foremost, it allows authors to augment their publication with a short digest article to disseminate their findings to an even wider audience, as altmetric scores testify. To increase the journal's editorial transparency and democratization of knowledge, we have also instigated a 'meet-the-editors' section. These postings highlight why our current editors were first drawn to *Parasitology* and what maintains their individual passion for continuing in parasitological research.

Although *Parasitology* does not follow an Open Access financial model it is committed towards a future distribution changeover. The transition towards online-only production began when our website first went 'live' in 2002. Since then, CUP has continued to update this portal to bring together our latest academic outputs and activities. Having just short of 7000 and 3000 followers on Facebook and Twitter, respectively, there are daily interactions, particularly when articles first appear online. These follow a production pipeline of 'Accepted', 'FirstView' and 'Latest Issue'. To speed up this transition and increase coherence we have introduced manuscript submission templates to help with initial online formatting. With the introduction of graphical abstracts, we also broaden their final online appeal. Furthermore, *Parasitology* will maintain the tradition of Special Issue productions, often in conjunction with the British Society for Parasitology, upon various assigned themes of contemporary interest. Indeed, our last hardcopy, Volume 148 Issue 14, is dedicated to 'Ascaris', which we fully expect to be equally as welcomed as Volume 148 Issue 2 on 'Angiostrongylus' was. Collectively, as our international audience expands outside the footprint of institutional subscriptions, so will our knowledge transfer, allowing us to be as far-reaching and enduring as possible.

Future-proofing *Parasitology* against a theory-of-change

To better plan ahead, we have adopted a Theory-of-Change (ToC) model (Fig. 1). This is a 'living' document and useful tool to help navigate across a future shifting landscape of resources and needs in academic publishing. To ensure publication quality and global representation of parasitological expertise, we have taken steps to expand the number of our editorial board members. This board now includes just under 50 experienced researchers, with balanced gender and more equitable representation across all continents (save Antarctica – *volunteers please!*). Editorial board members are regularly requested to help in the peer-

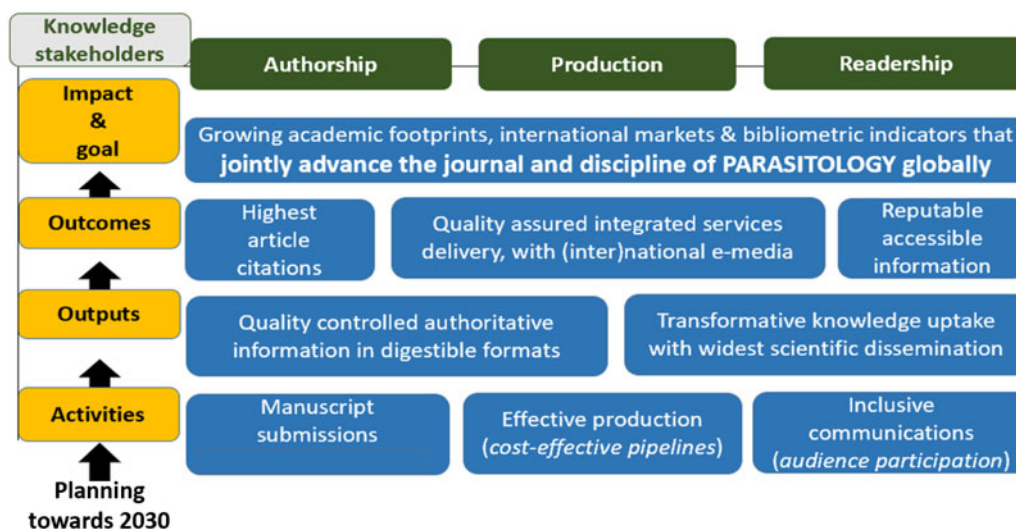


Fig. 1. A ToC diagram to help *Parasitology* move forward by keeping a careful balance of resourcing allocated to the needs of the authorship, production house and readership. The editorial and production teams regularly assess the journal's *activities* e.g. numbers of papers submitted, *outputs* e.g. number of papers published, *outcomes* e.g. various bibliometric indicators, *impact and goal* e.g. evidence of influence, etc. This framework recognizes additional inputs within the changing landscape of parasitological research noting competition and collaboration perspectives.

review process and mentoring future referees. We will also offer bespoke training to new referees that join the *Parasitology* database with forthcoming training webinars. Through the use of the PUBLONS initiative (see <https://publons.com/about/home/>), we will ensure that all referees receive due recognition as a small token of thanks for their endeavours, alongside a published list of all referees who have assisted the journal in the preceding year.

As medical and veterinary studies increase across the life sciences, good scientific practice guidelines are being developed to ensure, for example, that systematic reviews, meta-analyses and epidemiological surveys are reported in the most efficient manner. In due course, *Parasitology* will move towards the formal adoption of submission checklists for PRISMA (see <http://www.prisma-statement.org/>) and STROBE (see <https://www.strobe-statement.org/>) guidelines, but we first outline forthcoming steps here with ARRIVE (see <https://arriveguidelines.org/>) guidelines which we have in preference to the Animal Study Registry (see www.animalstudyregistry.org). This is to ensure that *Parasitology* endorses academic research on animals in the most humane way and ensures rigorous design alongside reporting of animal research.

Animal experimentation guidance

For well over 100 years, *Parasitology* has and continues to publish, a broad array of parasitological research, some of which describes the outcomes of invertebrate and vertebrate animal experimentation. Current journal policy states that research involving animals 'should be approved by relevant ethics committee(s) and should conform to international ethical and legal standards for research'. However, ambiguities concerning institutional ethics vs international legislation lie therein and as a result, the editorial team have rejected certain recent manuscripts on animal ethics grounds alone. In this online world, it is easy to find examples of institutional-ethically approved research that contains contentious international practices. Such examples typically fall short of humane animal research when the 3Rs (Replacement, Reduction and Refinement) are considered in detail (see <https://nc3rs.org.uk/the-3rs>). We, therefore, encourage all in the review process to keep up to date *via* the 3Rs portal.

During the submission and review process, we encourage all involved to follow the ARRIVE (Animal Research: Reporting of *In Vivo* Experiments) guidelines when describing *in vivo* studies. These were first published in 2010, and recently amended to facilitate their wider use (du Sert et al., 2020) to improve the reporting of animal experimentation. Although these guidelines may be followed, we recognize that there may be inconsistencies or sub-standard practices (Leung et al., 2018) both within, and across journals, particularly in detailing important aspects such as the blinding and randomization of animal trials, for example. Although we have modified our journal submission rubrics, we set out the additional guidance below to help future authors and reviewers.

Animal experimentation guidance – Authors

Parasitology will not allow peer-review of an investigation detailing animal experimentation which possesses sub-standard ARRIVE guideline reporting. Manuscripts including ambiguous reporting or experimentation, or that are ethically dubious will be rejected, and clear clarification(s) before re-submission alongside a supporting statement in the re-submission letter will be requested.

The majority of international journals abide to generally equivalent legislation and guidelines. These include the *European Convention for the Protection of Vertebrate Animals used for Experimental and Other Scientific Purposes* (Council of Europe, 1986) or the 'National Research Council' *Guide for the Care and Use of Laboratory Animals* (Clark et al., 1996). All international legislations and guidelines embody the 3Rs principles – that all possible steps for the Reduction, Refinement and Replacement of animals in scientific research are exhausted. Guidance and *in vivo* online experimental design tools are available from the National Centre for the 3Rs website (<https://nc3rs.org.uk/the-3rs>), which we encourage authors to familiarize themselves with.

Where animal experimentation has taken place, we request authors to justify why their experiment was necessary in their covering letter. This should include a statement of the cost-to-benefit ratio of how performing the experiment returned meaningful scientific data. Authors should ensure they are up to date with international best practice and incorporate any updated methods/

reagents into their studies. For example, the use of ether for anaesthesia and euthanasia, once widely practiced globally, is now considered unacceptable (Close *et al.*, 1996).

Authors should ensure any pain or suffering is minimal and managed appropriately with acceptable analgesia. If animals are undergoing severe procedures in the absence of pain-relief then justification should be explicitly provided in the methods section. A frequent ethical pitfall of *in vivo* experimentation is allowing experiments to run for longer than is scientifically necessary. This extends suffering and distress of animals without any merit and is completely unjustifiable. Authors must detail as much information on animal experimentation performed in their methods sections as per latest ARRIVE guidelines (du Sert *et al.*, 2020).

Animal experimentation guidance – Reviewers

Upon manuscript review, the editors will seek to secure those conversant with best practice in humane animal experimentation and like for authors, will remind reviewers to make reference to latest ARRIVE guidelines (du Sert *et al.*, 2020). The data required by the ARRIVE guidelines are the minimum required to enable reproducibility of the results and aid in the interpretation of the ethical standards of the experiment. This is to encourage robust science as much as possible. There are many practices that may be deemed ethically questionable; routine methods of acceptable euthanasia are different for many species so prudent appraisal of this is needed (Close *et al.*, 1996, 1997). If a non-routine method is used without justification, reviewers/editors will request authors to provide clarification upon manuscript revision. Additionally, death as an ‘endpoint of experimentation’ is almost universally not permissible. If conducted, a significantly robust justification of why more humane experimental endpoints were not used should be included. Where possible, we encourage authors to add a retrospective discussion of the methods used and whether they can be refined, replaced or reduced, to encourage best practice for other researchers to follow. Finally, if you are unsure or have concerns about animal experimentation, discuss the reported experiment with persons you know are better familiar with animal ethics, or if needed raise this issue with the editor directly.

An outlook upon the next decade

As indicated in our ToC diagram (Fig. 1), the future success of *Parasitology*, like any other academic journal, requires many inputs, translated through to outputs, outcomes and impact. This is not a one-way journey or dialogue, for there are iterative feedback cycles to help us take advantage of new opportunities or respond to future challenges. In line with its original ambition, *Parasitology* is a conduit to provide learning across the broad. We,

therefore, welcome any suggestions from our readers and authors to improve this process. To mark the transition to online-only production, this editorial seeks to reassure authors and readers that our publishing values and scientific standards will not lower, rather they are adapted to future-proof *Parasitology* into the coming decades and beyond.

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