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Journal for the Unpublishable: "Bad" Data and Non-Discovery

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Understanding and accepting experimental failure as an essence of scientific exploration is a common sentiment among researchers. For example, when beginning geotechnical centrifuge testing, incumbents are warned by their predecessors to prepare for botched trials, disaster, and simply that theory may not reflect practical conditions. A large-scale centrifuge can be used to simulate field-scale conditions to prototype hydrogeological behaviour by exerting a gravitational force on a scaled model. Several challenges arise from inconsistent scaling laws going from the scale to prototype model during testing (e.g. distance with g and diffusive time with g2). Therefore, complications surface when trying to track substrate transport and evaluate product formation, including phase changes. After making large assumptions or settling for approximations, the results could demonstrate that centrifuge testing may not be the best medium or that tests must be deployed differently. Several publications exist detailing efforts on the evaluation of chemical fate and transport in a centrifuge, but more pressing are the experiments and data not presented, deemed to not be publishable by the researchers. Further insight from unpublished work may be implied via anecdotes in non-journal articles or during presentations, but are not readily available on typical platforms. Therefore, future researchers do not have the benefit of learning from earlier efforts.

Experiments rarely work the first time trying novel ideas. Occasionally, researchers find that their original method plan would not effectively answer their posed question. The methods are reworked until fruitful and valuable research results are produced. However, sometimes the strategy intrinsically cannot address the research question. Two paths can be taken: start at the beginning in drafting a completely new plan or change the question. However, what becomes of the data and scientific development from the months or years spent on the original design? Authors are unlikely to risk paying to submit an article to be reviewed that may be rejected, when journals favour unique and positive results. This can result in astonishing reports that up to half of some clinical trials are going unpublished (Sample, 2013). The current publishing landscape does not allow for sharing of non-spectacular results. Consequently, a significant amount of data is going unshared or is portrayed to be positive and impactful, even when it is not. A potential solution would be to begin a journal under established journal organizations as a forum to discuss “bad” results. These non-traditional submissions would be at a reduced fee, as the requirement for peer review is expected to be less. This could serve as a forum to promote feedback and discussion of innovative solutions, while still serving as an opportunity for citations for participating authors. Promoting new platforms for sharing science has the potential to promote growth and disrupt the current state of science publications.

Sample, I. (2013). “Unfavourable results from medical trials are being withheld, MPs warn.” The Guardian. https://www.theguardian.com/science/2013/sep/17/medical-trial-results-withheld-mps-report