

Crossing the Interdisciplinary Divide: Political Science and Biological Science

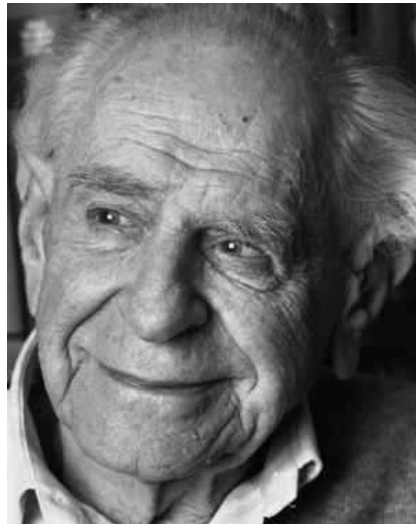
Wyn Grant
University of Warwick

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Own receptivity

- Done a lot of work of agricultural and rural policy
- Involves receptivity to insights of agricultural economists, rural sociologists and geographers
- Political scientists in a minority in that area of work

- ‘We are not students of some subject matter, but students of problems. And problems may cut right across the borders of any subject matter or discipline’ (Popper, 1963)



What is interdisciplinarity?

- ‘By interdisciplinary research I mean a mode of research ... that integrates information ... techniques, perspectives, concepts and/or theory from two or more disciplines or bodies of organized or specialized knowledge’ (Axelrod, 2008)

Why interdisciplinarity?

- Policy challenges in today's world require political science to work effectively with other disciplines (climate change, GM technology, stem cell research)
- This includes an imperative to work with natural science – less well mapped and explored

The feminist case

- ‘Research is often impoverished by accepting the conventional boundaries that separate disciplines. In particular, the study of women and women’s lives has often been neglected precisely because of these disciplinary boundaries and the desire to maintain them even in the face of new and relevant data’ (Ackerley and True)

The RELU programme

- The Rural Economy and Land Use (RELU) is a £25 million research programme, funded by the ESRC, BBSRC and NERC
- Committed to pursue interdisciplinary working across the social and natural sciences in every research project it funds

RELU 1 at Warwick

- Project on the regulatory and environmental sustainability of biopesticides
- A collaboration between political scientists and microbiologists working on plant-insect interactions
- The University of Warwick brought together natural scientists from Warwick HRI and social scientists from the main campus
- The creation of the RELU programme created a relevant funding opportunity

RELU 3 at Warwick

- Project on the Governance of Livestock Diseases (GoLD)
- One challenge has been the large and diverse mix of disciplines involved
- Four team members from Biological Sciences (a veterinary epidemiologist, an infectious disease epidemiologist, an ecologist and a mathematical modeller), two from Political Science, two from Economics and one from Law

Compatibility issues

- ‘The ecological and social sciences have developed independently and do not combine easily’ (Ostrom 2009)
- ‘Studies in the environmental sciences rarely make linkages to the social system ... even those from interdisciplinary programs had not systematically ventured across the fragmented fields of science’ (Norgaard, 2008)

Hasty and anecdotal?

- Can be broadened out to fallacy of 'hasty generalization'
- Natural scientists may feel that social science is not rigorous, anecdotal
- Interdisciplinary research requires mutual respect and confidence in each other's findings

Hard and soft science

- Biology is perhaps the natural science that offers most to political scientists: interaction between entity and setting
- The first chapter of Mackenzie's classic survey of political science is 'The Biological Context'
- Punctuated equilibrium models have their origins in evolutionary biology

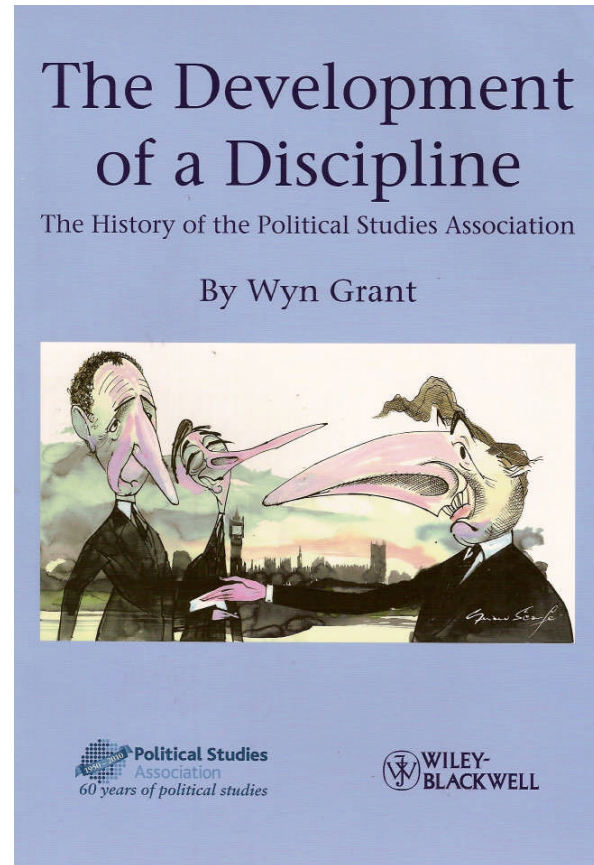
With other disciplines

- Collaborating with a subject like physics more challenging
- But collaboration with natural science could be easier than other social sciences – mutual respect and less fear of capture
- Economics – teaching/research contrast: methodological individualism
- Would collaboration with history be difficult? Own approach to archives.

Politics: a junction subject

- In many ways politics is the junction subject of the social sciences, born out of history and philosophy, but drawing of the insights of economics and sociology and, to a lesser extent, the study of law, psychology and geography
- This openness ('eclecticism') can be seen as a strength allowing interdisciplinary work to flourish

The nature of pol. science



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The risks of such a history

- ‘Disciplinary histories risk privileging the category of the discipline as if its institutional presence demarcates boundaries or the flow of ideas or explains the way in which ideas have developed within such boundaries’ – Adcock et al. 2007

Doubts about the discipline

- ‘The most striking feature of the study of politics in Britain ... is its very weak tendency to disciplinary boundary management.’ (Brian Barry)
- Questions have been raised about whether it is a discrete discipline
- Methodological pluralism, quantitative and qualitative techniques, multi-method research

Positivist or interpretivist?

- Positivists may find it easier to work with natural scientists than interpretivists would (and vice versa)
- But other disciplines in project appreciated insights from discursive framing
- Scientific realism can straddle the natural and social sciences

Our projects in practice

- Steep learning curve for the political scientists
- Biologists thought that political scientist might be identified with a particular political position, or at least researching the legitimacy of different political positions

Creating understanding

- A procedure followed of each discipline reading literature selected from the other disciplines and presenting their understanding of the article to team meetings
- Allowed misunderstandings to be resolved and helped create an understanding of how the other disciplines worked in terms of methodology and vocabulary

Language and terminology

- Often talk of the need for a common language in interdisciplinary research
- The phrase 'trading zone' is often used to denote an interdisciplinary partnership in which two or more perspectives are combined and a new, shared language develops (Collins, Evans and Gorman, 2007)
- Perhaps the key is a 'shared understanding' (Bracken & Oughton, 2006)

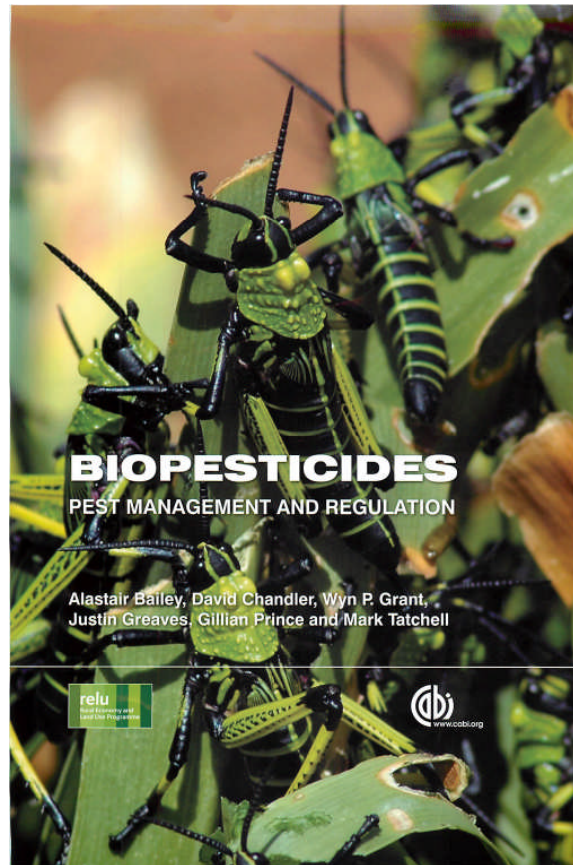
Attitudes to public engagement

- Relatively routine activity in politics
- Some natural science colleagues shocked by blogging activities
- Should not say anything until absolutely sure of results

Co-authorship: a big challenge

- Biological scientists used to tersely argued research papers that present key findings in a few printed pages
- Political science articles more discursive
- Challenge of writing together - difficult to carve out a coherent and readable paper
- Different conventions about number and ordering of authors – example of book

Ordering of names



But we are getting there

- Papers from both projects have been accepted for *Philosophical Transactions of Royal Society*
- In livestock diseases project integrated model using epidemiology and political science

Conclusions

- The experience has generally been a very positive one for us
- But there are real practical challenges in effectively working together
- And the downside – ‘social sciences are waffle but useful for ticking boxes’