

1. Paleodiversity: Past, Present & Future

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Thursday 25/08/2022

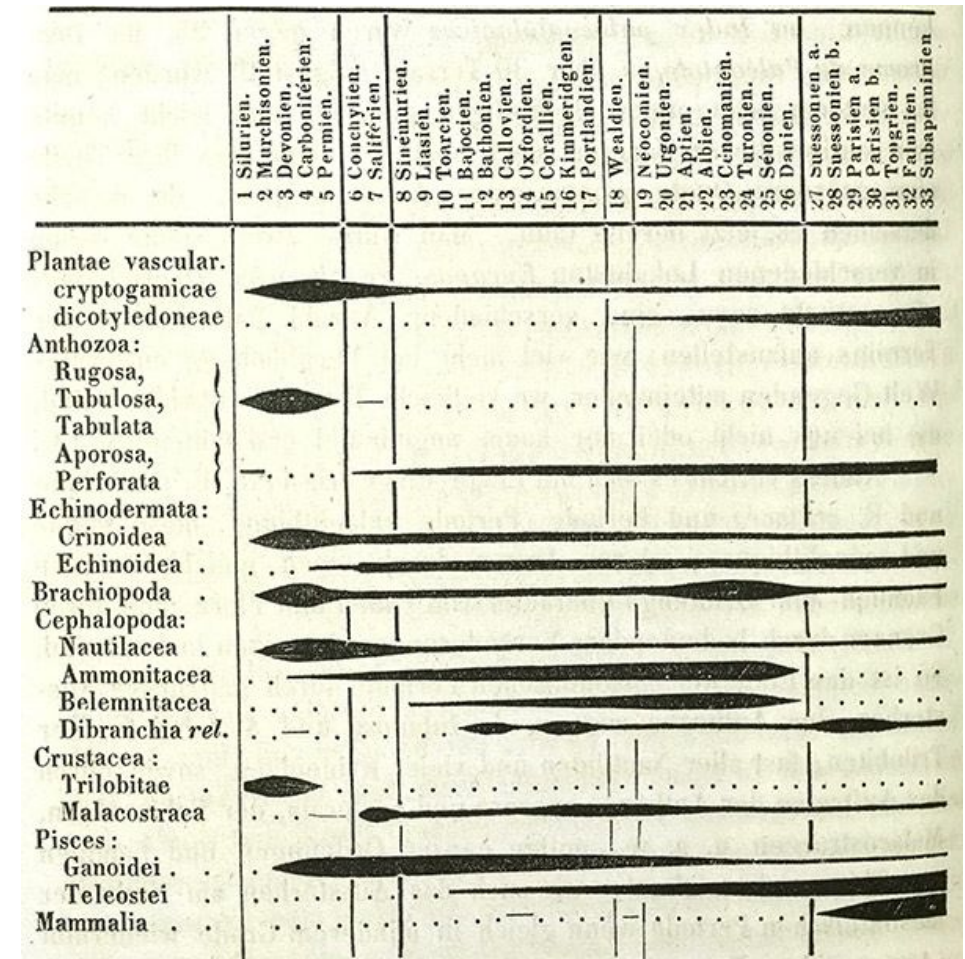


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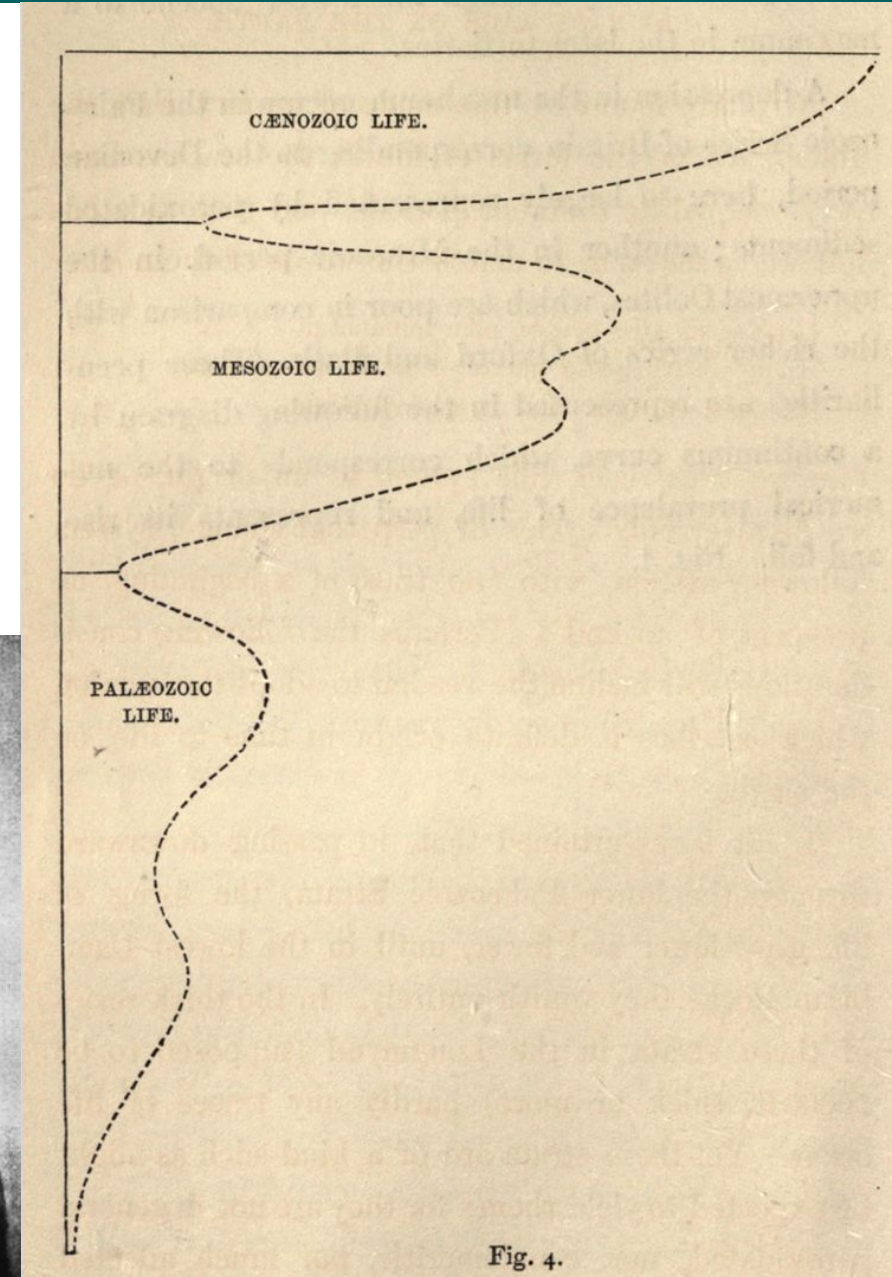
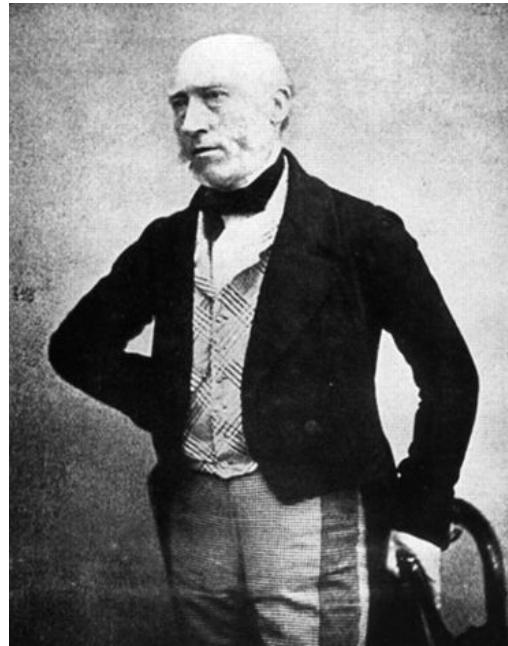
Early paleodiversity studies

- **Heinrich Georg Bronn** (1849)
- German geologist and paleontologist
- First to translate Charles Darwin's *On the Origin of Species* into German in 1860
- **Spindle diagrams**



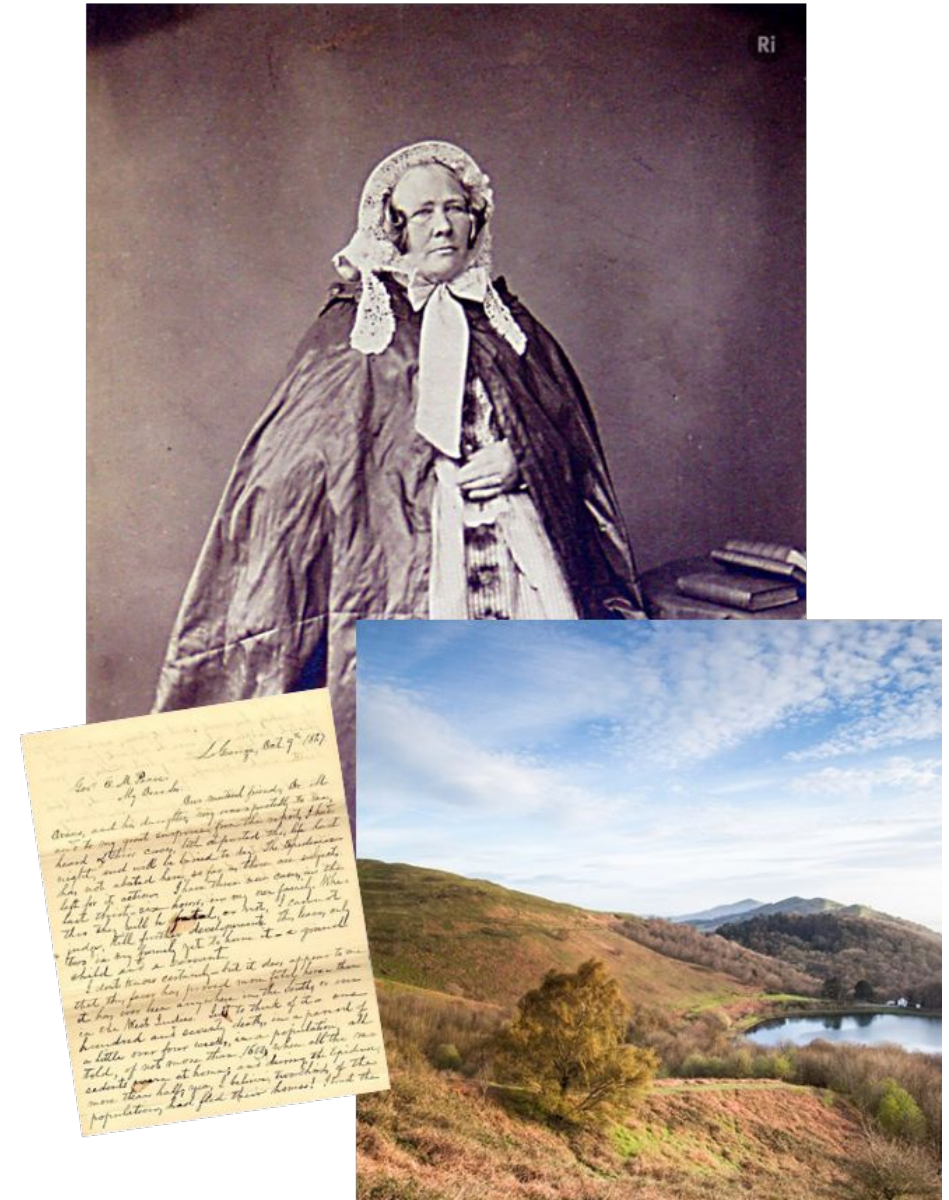
Early paleodiversity studies

- **John Phillips** (1860)
- British geologist (coined the term 'Mesozoic')
- The **first 'diversity curve'** – based on what was known of the British fossil record at the time



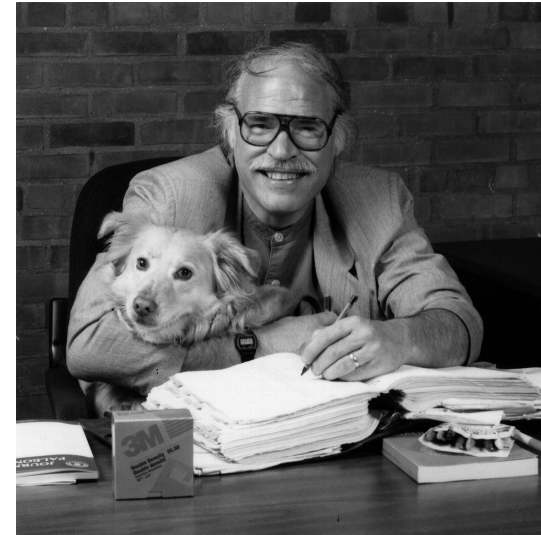
Anne Phillips

- John's sister, arguably a more accomplished geologist
- Employed as John's housekeeper, and later field assistant
- Resolved the origins of the Malvern Hills (discovery of "Ms Phillips' Conglomerate")
- Her contributions are noted by her brother and uncle in their published works and letters

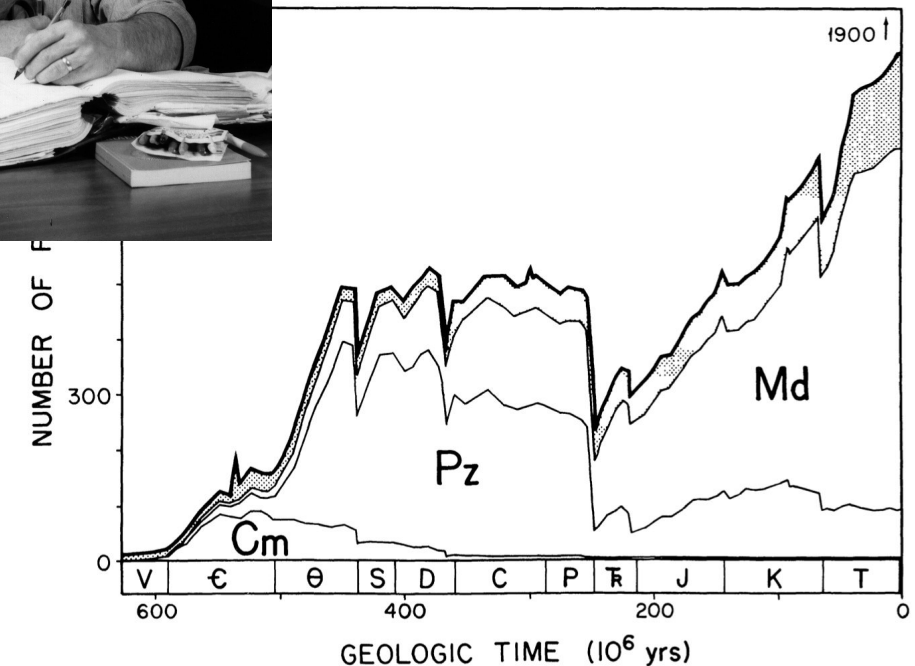


Paleodiversity in the 1970s-80s

- **Jack Sepkoski** (and Ronnie)
- The Sepkoski Compendium (now part of the Paleobiology Database)
- “*The most famous wiggly line in palaeontology*” - Dr Alex Dunhill

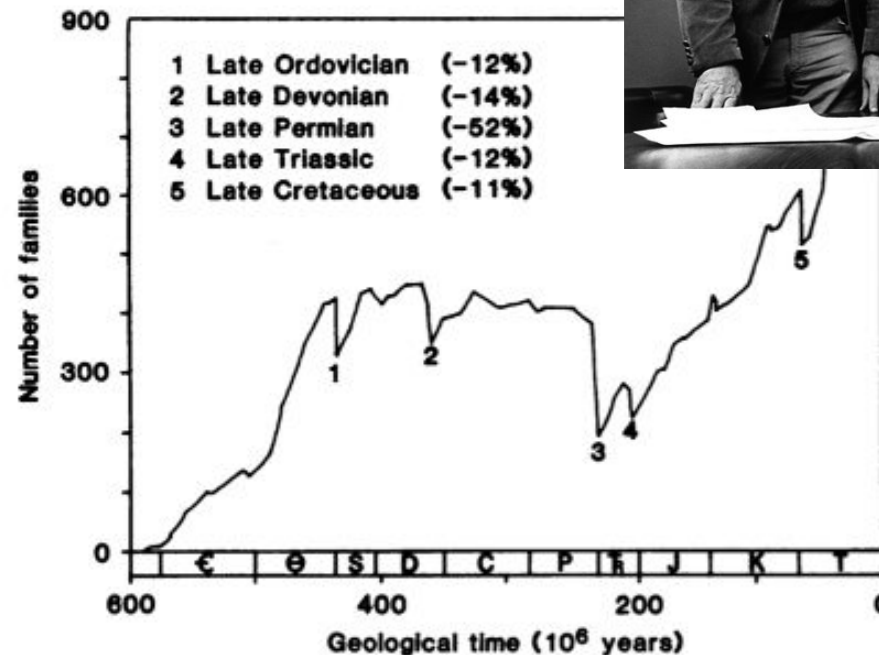


Sepkoski (1984)
Paleobiology



Paleodiversity in the 1970s-80s

- **Jack Sepkoski & David Raup**
(University of Chicago)
- Identified the “**Big Five**”
mass extinctions in the
marine invertebrate fossil
record



Raup & Sepkoski
(1982) *Science*

Paleodiversity in the 1970s-80s

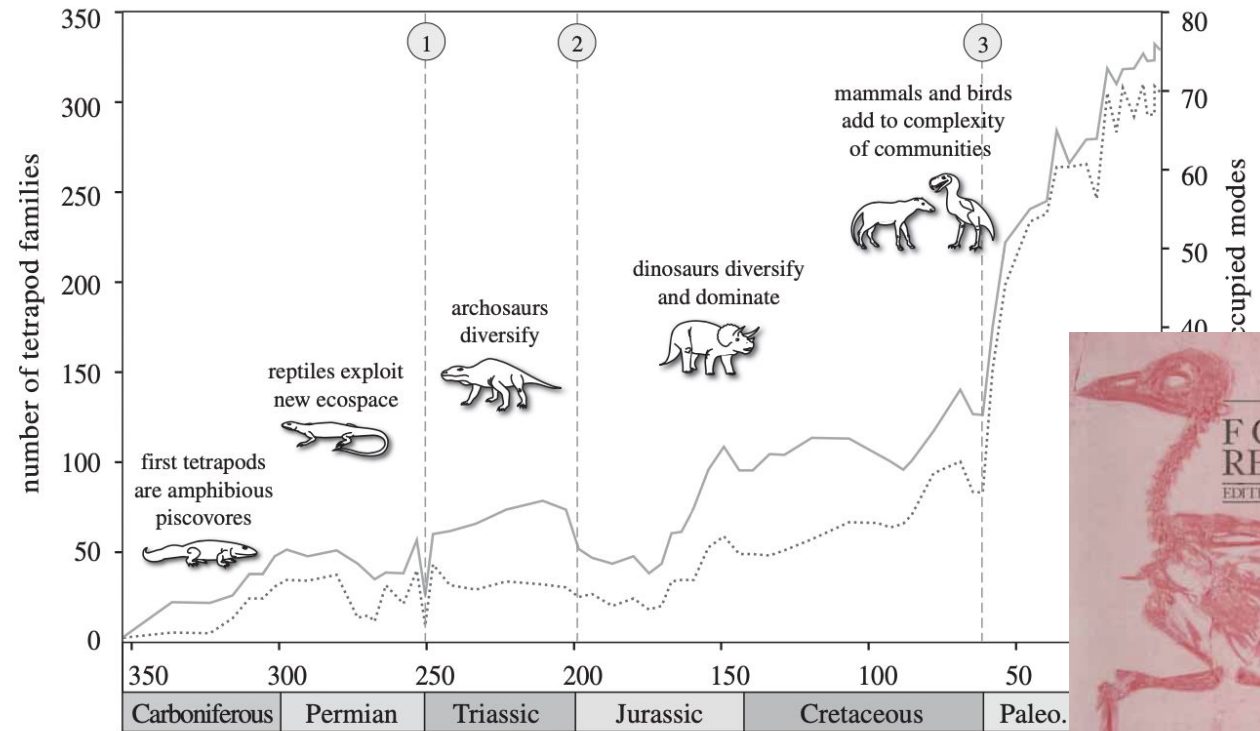
- First issue of *Paleobiology* (March 1975)
- Compare to other paleontological journals publishing at the same time:
 - Less taxonomic descriptions
 - Focus on compilations of data
 - (Macro)evolutionary hypotheses

Volume 1	Number 1	Winter, 1975
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ISSN 0094-8373—CODEN PALBBM 1(1) 1-135 (1975)		

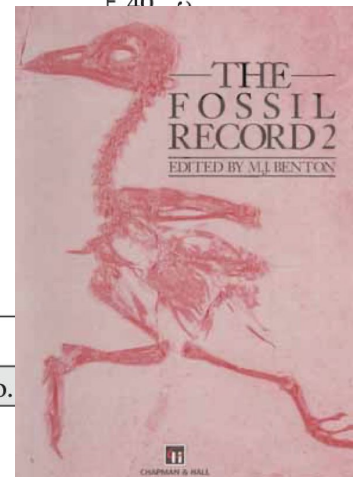
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Paleodiversity in the 1990s-2000s

- **Mike Benton** (University of Bristol) and colleagues
- The Fossil Record Database - included terrestrial vertebrates (tetrapods)

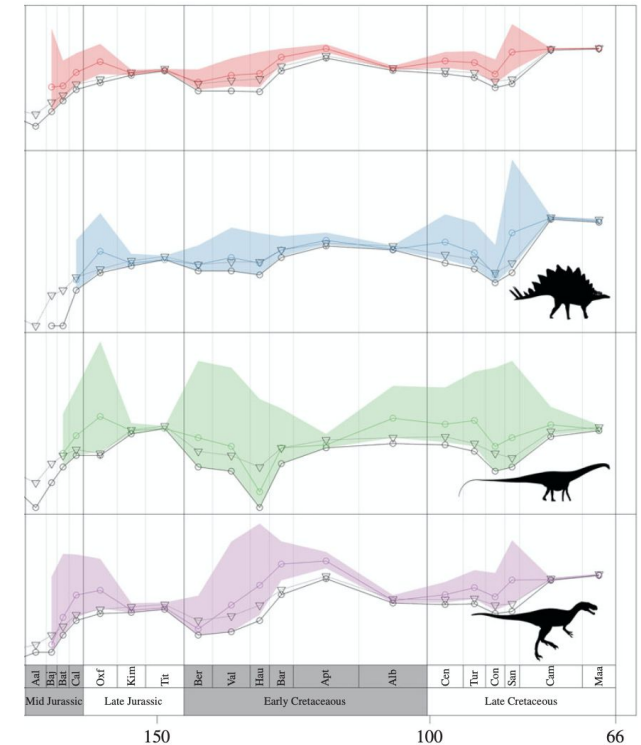
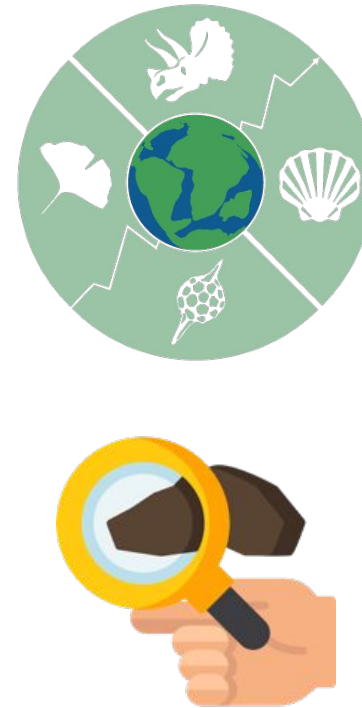


Sahney *et al.* (2010) *Biol. Lett.*



Paleodiversity in the 2010-20s

- The Paleobiology Database and others grew in popularity
- **Fossil record biases** were acknowledged increasingly often
- **Analytical methods** were developed and are continuously being refined (e.g. sampling standardisation)



Paleodiversity in the future?

What are your thoughts?

Where is analytical paleobiology heading towards?

What challenges do we need to overcome?

What excites you about the future of analytical paleobiology?



Paleodiversity in the future?

Challenges for our field - according to the Class of 2019:

1. Interpreting geohistorical data across temporal, spatial, and taxonomic scales
2. Integrating paleobiological, paleoenvironmental, and ecological data
3. Building data science skills and developing statistical approaches to analyse geohistorical data
4. Increasing data accessibility and equity



Dillion & Dunne *et al.* In review