United Fronts: Unity, Organisation and Syntheses in the Life Sciences

The image of science as an integrated, unified body of knowledge has motivated many works in twentieth and twenty-first century science and philosophy of science: from Einstein's search for unifying principles to E.O. Wilson's push for consilience; from Carnap's *Aufbau* to Ernest Nagel's *The Structure of Science*. It has also inspired broader initiatives from the unity of science movement to scientific boosterism. Researchers and theorists alike craft and popularise narratives about the deep integration of scientific knowledge, linking visions of epistemic organisation to progress, efficiency and improvement.

The life sciences are no different, with multiple frameworks, professional networks, and widely circulating narratives that emphasize unity. Perhaps none of these is more deeply rooted than the Modern Synthesis. Existing somewhere between memory and myth, the Modern Synthesis is a narrative characterising the coalescence of concepts, tools, and research objectives among a select group of evolutionary researchers. Typically bookended by two scholarly monographs—R.A. Fisher's *The Genetical Theory of Natural Selection* and G.L. Stebbins' *Variation and Evolution in Plants*—the Modern Synthesis period is characterised as immensely productive, a time when researchers made progress on a number of central questions in evolutionary biology. More than this, the Modern Synthesis was seen as a triumph precisely because of its synthetic character, succeeding because it organised the life sciences around a central core of shared concepts and research questions.

Recently, proponents of the Extended Evolutionary Synthesis (EES) have questioned the need for centrality in syntheses. Building on important work in developmental systems theory, niche construction, and cultural inheritance, these researchers argue that the Modern Synthesis emphasis on core theoretical and epistemic commitments has hamstrung evolutionary research. By promulgating unhelpful conceptual distinctions and policing disciplinary boundaries, the Modern Synthesis has limited the empirical reach of the life sciences. In its place, the EES has proposed a pluralist, eclectic synthesis—and in doing so, has put forward new disciplinary histories, organisational principles and conceptual tools.

So too can the epistemic merits of syntheses be questioned. Both the Modern Synthesis and the EES can be understood and analysed as *united fronts*—narratives or expressions of unity and organisation. Such narratives take a stand on how science should be organised, what constitutes exemplary work, and what questions are most important to pursue. Unsurprisingly, united fronts are contestable. Historians, philosophers and researchers question whether such narratives are accurate portrayals of disciplinary practice, and whether they lead to the epistemic pay-offs that motivate them. Understanding these narratives as promissory and perspectival opens up a space for interrogating the unity in the life sciences—why unity is valued, how such unity is produced (if at all), and how this is related to the production of epistemic goods.

This workshop will analyse the united fronts of twentieth and twenty-first century life sciences, highlighting the concepts, methods, and organising principles that promise (and perhaps, succeed at generating) unity and progress. From philosophical, historical, and sociological standpoints, it will examine how and why such united fronts formed, the extent to which synthesis need be organised around a central core, and what relationship unity and organisation bears to the pursuit of scientific goals.

Speakers and Talk Titles

Andrew Buskell (HPS, Cambridge)	"Synthesising Arguments and the Extended Evolutionary Synthesis" With commentary by **Adrian Currie** (Philosophy, CSER)
Christopher Clarke (HPS, CRAASH and Erasmus University Rotterdam)	"Qualitative and Quantitative Methodology: Competitors, Complements or Analogs?" With commentary by **Tim Lewens** (HPS, Cambridge)
Jean-Baptiste Grodwohl (HPS, Cambridge)	"The disunity of ecology, from the Synthesis period to population biology (1948 – 1980)" With commentary by **Rebecca Kilner** (Zoology, Cambridge)
Erika Milam (History, Princeton)	"Sociobiology, Evolutionary Scientism, and the Conflict Thesis" With commentary by **Nick Hopwood** (HPS, Cambridge)
Anya Plutynski (Philosophy, Washington St. Louis)	"Cancer and the Ideals of a Unified Theory" With commentary by **Jacob Stegenga** (HPS, Cambridge)
Tobias Uller (Evolutionary Ecology, Lund)	"What holds evolutionary biology together?" With commentary by **John Welch** (Genetics, Cambridge)
Niki Vermeulen (STIS, Edinburgh)	"Modelling life: from reductionism towards integration in systems biology?" With commentary by **Helen Anne Curry** (HPS, Cambridge)

Proposed Schedule

Tuesday May 8th		**Wednesday May 9th**	
10:00 – 10:15	Coffee	10:00 – 11:15	**Christopher Clarke**: "Qualitative and Quantitative Methodology"
10:15 – 10:30	Welcome & Introduction	11:15 – 11:45	Coffee
10:30 – 11:45	**Tobias Uller**: "What holds evolutionary biology together?"	11:45 – 13:00	**Niki Vermeulen**: "Modelling life"
11:45 – 11:55	Break	13:00 – 14:30	Lunch
11:55 – 13:10	**Jean-Baptiste Grodwohl**: "The Disunity of Ecology"	14:30 – 15:45	**Anya Plutynski**: "Cancer and the Ideals of a Unified Theory"
13:10 – 14:30	Lunch		
14:30 – 15:45	**Andrew Buskell**: "Synthesising Arguments"		
15:45 – 16:15	Coffee		
16:15 – 17:30	**Erika Milam**: "Sociobiology, Evolutionary Scientism, and the Conflict Thesis"		
19:00	Conference Dinner		