

# Clareity Symposium



Opening by the Master, Loretta Minghella, OBE

## **Keynote Lectures**

Prof Julian Downard  
Rev'd Dr James Hawkey

Co-hosted by  
Sea Yun Pius Joung & Chiara Nicole Leadbeater

19 March 2026  
Riley Auditorium  
Clare College, Cambridge





## Programme Schedule

Time	Session	Details
9:00–9:30	Arrival	Tea, coffee, pastries, and fruit bowl
9:30–9:45	Opening	The Master
9:45–10:30	Session 1	Governing Risk, Climate, and Environmental Futures
10:30–11:10	Session 2	Crisis, Communication, and the Interpretation of Authority
11:10–11:25	Break	Coffee with cookies
<b>11:25–12:05</b>	Morning Keynote	Prof Julian Downward
12:05–12:45	Session 3	The language of cells
12:45–13:20	Lunch	
13:20–14:05	Session 4	Constructing Order
14:05–14:45	Session 5	Dangerous Desires: Gender, Trust, and Cultural Control
14:45–15:00	Break	Coffee with cookies
<b>15:00–15:40</b>	Afternoon Keynote	Rev'd Dr James Hawkey
15:40–16:25	Session 6	Emergence of Order
16:25–17:10	Session 7	Clare 700 – Our History
17:10–17:30	Reception	Pre-drinks
17:30–18:15	Session 8	Conservation and Change
18:15–19:00	Session 9	Scientific innovation for sustainable transformation
19:30–21:30	Dinner	Fine dining dinner (pre-booked)

## Keynote Speakers



11:25–12:05

**Prof Julian Downward FRS FMed-Sci** is Associate Research Director and Principal Group Leader at the Francis Crick Institute in London. A Fellow of the Royal Society and the Academy of Medical Sciences, he is internationally recognised for pioneering work on cancer cell signalling, particularly the role of Ras proteins in tumour development. His research has helped shape the modern understanding of oncogenic signalling and the development of targeted cancer therapies.

Professor Downward read Natural Sciences at Clare College, Cambridge, and completed his doctoral research at the Imperial Cancer Research Fund before undertaking postdoctoral work at the Whitehead Institute at MIT. He has published more than 270 scientific papers and his work has been cited over 85,000 times, making him one of the most influential researchers in molecular cancer biology.

**The Rev'd Dr James Hawkey** is Canon Theologian at Westminster Abbey and Chair of the Westminster Abbey Institute. He is also a Chaplain to His Majesty the King and a Visiting Professor at King's College London. He served as Dean and Director of Studies in Theology from 2015–19 at Clare College, Cambridge. After studying at Selwyn College, Cambridge, Dr Hawkey was ordained in the Church of England in 2007 after training at Westcott House, Cambridge.



15:00–15:40

Dr Hawkey's academic work focuses particularly on ecclesiology and ecumenical relations. He has served as a Visiting Professor at the Pontifical Gregorian University in Rome. Alongside his scholarly work, he has played a significant role in major national services at Westminster Abbey, including the funeral of Her Majesty Queen Elizabeth II and the Coronation of His Majesty King Charles III.

# 1: Governing Risk, Climate, & Environmental Futures

*Chair: Loretta Minghella OBE (The Master)*

## **Contrails, Not Chemtrails: The Overlooked Climate Impact of Aviation**

*Simeon Hatzopoulos – PhD in Physics*

Where would we be without air travel? Every day, around 100,000 flights take off worldwide, emitting vast amounts of CO<sub>2</sub>. Yet the greatest climate impact of aviation is often overlooked: contrails.

Contrails form behind aircraft engines when aerosols in the exhaust freeze in the cold upper atmosphere, creating ice crystals. They can spread into cirrus clouds that trap outgoing radiation from the Earth, leading to additional warming. Recent estimates suggest that contrails are responsible for ~66% of aviation's contribution to global warming.

So why are there still no regulations to limit their formation? The answer is uncertainty. Our understanding of contrails is still incomplete, making it difficult to design effective mitigation strategies. Current estimates of their effective radiative forcing carry uncertainties of  $\pm 70\%$ .

One promising way to speed up progress is through simulation. By improving how we model contrail formation and evolution, we can reduce uncertainty and move closer to practical, climate-friendly solutions for aviation.

## **Risk, perception, and the history of nuclear power in post-1945 Britain**

*Elina Paivinen – PhD in History*

Certain perceptions about nuclear technologies (particularly those surrounding risk and potential) have long shaped not only safety practices and ethical and regulatory frameworks in the nuclear power industry, but also the overall trajectory of British energy. Arising from research into the ways in which various expert institutions have assessed and mitigated radiological risk, produced knowledge in the face of scientific uncertainty, and anticipated, reacted to and participated in the production of nuclear exceptionalism, this presentation gives an overview of the history of the 'acceptability' of nuclear power in post-1945 Britain.

## **Nature in the Courtroom: Rights of Nature and Ecocentric Legal Innovation**

*Lea Weimann – PhD in Law*

Historically, environmental law has sought to protect the natural world indirectly, as an object rather than a subject of rights, through considerations such as property rights, public health and economic use. Over the past decade, there has been an increasing global recognition of nature as a legal subject, with it being represented and defended in judicial proceedings. This presentation examines how Rights of Nature function as a form of ecocentric legal innovation, focusing on the role of courts in translating ecocentric ideas into legal reasoning and remedies. Drawing on selected judicial developments, it explores what changes, and what remains contested, when ecosystems appear in court not merely as objects of regulation, but as rights-bearing entities. It reflects on the meaning of 'ecocentric laws' and the potential shift in environmental protection. The talk concludes with a reflection on the potential and limitations of ecocentric adjudication for the future of environmental law.

---

## 2: Crisis, Communication & Interpretation of Authority

*Chair: Rev'd Dr Robert Wainwright (Chaplain and Fellow of Oriel College)*

### Politics at Play: Civilians, Disloyal Speech, and the Military Commissions in the American Civil War

*Ben Pollard – MPhil in History*

Throughout the American Civil War, the government used military commissions in an unprecedented fashion to prosecute civilians on charges of disloyal speech. By comparing cases of disloyal speech in which the defendant resided in loyal states with those in which the defendant came from seceded Southern states, I argue that civilians within the Union were essentially treated the same as Confederates. By using the same legal system to try civilians from loyal states as was used in disloyal states, the Lincoln administration blurred the lines of assumed loyalty and disloyalty, thus equating Union civilians with secessionists. That stigma was made obvious in those instances in which those found guilty were expelled from the Union. I position these trials as political acts that redefined conceptions of loyalty and speech during a time of disunity and war.

### The effect of digitalisation in publishing

*Lina Mooren – MPhil in Management*

The book publishing industry is one of the oldest media industries in the world. Over the last two decades, digitalisation—and specifically the introduction of the ebook format—has transformed the industry. Despite initial skepticism, the ebook has gained significant market share with over 40% of U.S. adults reporting that they have read at least one digital book in the last year (Perrin, 2022). This talk is going to take a look at the effects that digitalisation has had on this space and what we expect to see going forward.

### The distinction between theoretical and pastoral problems of evil

*Joshua Yen – MPhil in Theology; Oriel College, Oxford*

The distinction between theoretical and pastoral problems of evil is often invoked in the problem of evil to maintain objectivity. Despite its importance, there is no consensus on how the distinction should be characterised, impeding philosophical progress. This paper addresses this lack of consensus by examining these varying characterisations to provide a suggestion for how philosophers can engage with evil going forward. The first characterisation suggests that all theoretical debates are situated on a social and political praxis such that any intellectual position impacts one's pastoral disposition. The second characterisation distinguishes between third person approaches characteristic of analytic philosophy and first person approaches found in the continental and anti-theological traditions. The third distinction arises from differing success conditions with the theoretical problem based on the possibility of God's co-existence with evil and the pastoral on how one copes with evil. Through an examination of these characterisations, I argue that the perspectival distinction is most conducive for philosophical development by promoting fruitful discussion and opening new avenues for how the problem of evil can be framed. While the first distinction rightly notes that theoretical engagement may have pastoral effects, it doesn't follow from this that theoretical discussions are morally untenable. It is also superior to the fourth distinction as any attempt to address the success conditions of pastoral coping would seem, by definition, to devalue truth. Thus, this paper not only helps clarify an often equivocated distinction in the problem of evil, but aids in developing productive meta-philosophical structure to engage with the broader theme of evil.



## Keynote: Professor Julian Downward

11:25 – 12:05

*Chair: Professor Jason Carroll (Professor of Molecular Oncology)*

### 3: The language of cells

*Chair: Professor Julian Downward (Francis Crick Institute)*

#### **A Perfect Match: Marrying chemotherapeutics to proteins for the targeted therapy of cancers**

*Harry Chevassut – BA in Natural Sciences; Whiston Society*

All of the matter around us is (to an extent) chemical. Some chemical things are also biological, and this interface has exciting implications for modern medicine. Proteins are a particularly interesting biological chemical; constructed from a finite set of building blocks, and yet the diversity of possible structures is immense! One example of a class of proteins is antibodies, which are produced by the immune system to target disease causing cells. Harnessing the selectivity of these molecules opens up a plethora of medicinal possibilities for the treatment of cancers, which have traditionally been treated using small molecule chemotherapeutic drugs (which have devastating side effects associated with them). In this talk, I will take a bottom-up approach to this fascinating area of research, beginning by introducing small organic molecules as drug candidates, before discussing proteins and their chemistry, and finally arriving at our “perfect match” of an Antibody-Drug Conjugate.

#### **Amino acid sensing via the ubiquitin-proteasome system**

*Zoe Bannister – PhD in Infection and Immunity*

Amino acids serve as both building blocks for protein synthesis and critical signalling metabolites. Therefore, cells have evolved complex nutrient-sensing pathways to detect amino acid abundance. Canonical amino acid sensing is achieved through mTOR signalling and the GCN2 pathway, but the precise molecular mechanisms that communicate the abundance of individual amino acids to the cellular machinery remains largely incomplete. In particular, the Ubiquitin-Proteasome System (UPS) is emerging as a central regulator of metabolic adaptation, suggesting that E3 ubiquitin ligases may have currently uncharacterised roles as amino acid sensors. The goal of my project is to leverage global genetic and proteomic approaches to identify novel sensors of specific amino acids.

#### **A map of pancreatic cancer cells and their neighbours on the TGFBR2 road**

*Marta Zaccaria – PhD in Medical Sciences*

Pancreatic cancer is a lethal disease with no effective therapies. A potentially surprising feature of pancreatic cancer is that cancer cells only comprise up to 10% of the tumour. In fact, most of the tumour is comprised of non-cancerous cells, which contribute to disease progression and alter response to treatment. Pancreatic cancer cells have a range of alterations in their DNA called ‘mutations’, which drive cancer growth. These mutations occur in tracts of the DNA called ‘genes’ and can help cancer cells to grow or prevent them from dying. Emerging research shows that different pancreatic cancer cell mutations change the behaviour of both pancreatic cancer cells and of their surrounding non-cancerous cells. Consequently, this can alter response to therapies. My project aims to understand how mutations in the gene called TGFBR2 alter the pancreatic cancer cells, the non-cancerous neighbouring cells and the communication between cancer and non-cancerous cells.

## 4: Constructing Order

*Chair: Dr. Ole Nielsen (CRA in Engineering)*

### Materials Science & Metrology - Hidden Heroes of Sustainability

*Ludwig Maximilian Hanauske – PhD in Engineering*

Materials science – the intersection of physics, chemistry, and engineering – underpins modern society in countless ways, from A like airplanes to Z like zips. As materials become increasingly specialised, traditional trial-and-error approaches in research struggle to deliver the speed, scalability, and reliability required by industry while minimising waste and energy use during a material’s life cycle. Materials 4.0 describes a new paradigm in materials research that integrates automation, digital tools, and data-driven workflows to accelerate sustainable materials development. Central to this transition is metrology—the science of measurement—which enables reliable, comparable, and scalable characterisation across laboratories and manufacturing environments.

Within this framework, this PhD project focuses on two-dimensional materials such as WS<sub>2</sub> and MoS<sub>2</sub>, which offer strong potential for energy-efficient electronics, and aims to develop a holistic, high-throughput metrology framework for their quality assessment.

### The role of body size in the evolution of tissues and organs

*Arsham Nejad Kourki – PhD in the History and Philosophy of Science*

The evolution of tissues and organs is often discussed in terms of division of labour or transitions in individuality, yet why core biological functions come to be performed at higher organisational levels remains poorly understood. We test the hypothesis that increases in body size impose physical constraints that render ancestral cellular mechanisms for function performance ineffective, favouring the reorganisation of functions at tissue- or organ-level scales. Using a large comparative dataset spanning unicellular organisms to large metazoans, we analyse body-size distributions associated with different organisational modes of locomotion, circulation, and digestion. Across all three domains, higher-level implementations—such as muscular propulsion, closed and centralised circulatory systems, and extracellular digestion with specialised glands—are associated with significantly larger characteristic body sizes. Exceptions, such as sponges, illuminate how alternative architectural solutions can relax size constraints without tissue-level integration. These results support a view of organisational evolution as the preservation of biological functions across changing size regimes, linking biophysics, comparative biology, and the origin of complex anatomical organisation.

### Engineered Languages

*Valentine – BA in Mathematics; Dilettante Society*

Since the 19th century, people have been creating artificial languages (Volapük, Esperanto, Latino Sine Flexione, Lojban, Toki Pona), often with the goals of either better international communication, or more “ideal” communication. In the light of the limited adoption of most of these, one might ask what goals such a project can hope to achieve. Most constructed languages see little adoption, and few (if any) speakers, with Esperanto as an important exception.

In this talk I will ask what is required for engineered languages to see large adoption. Most importantly: can these languages only succeed if they draw on existing lexicons and grammars? I will also give a broad survey of the topic, both in previous centuries and in modern day, in this case particularly online communities for these languages.

## 5: Dangerous Desires: Gender, Trust & Cultural Control

*Chair: Mr Nikolaos Markozanis (MCR President of Clare College)*

### **Erotica and the Birth of Censorship**

*Hannah Brown – MPhil in Education, Globalisation and International Development*

Humans have engaged with erotic and pornographic content for millennia- but when did it begin to be identified as a problem and how could this problem be tackled? While rich, educated men had always accessed this content the rise of literacy in women and the lower class, coupled with a decline in print costs created a perfect storm during the restoration period for an explosion in the proliferation of pornographic material. Material that often contained political messaging. Fears of the moral consequences of this movement inspired the creation of novel censorship laws. But how could these be defined and enforced when there was no precedent?

### **Gender and promiscuity: who can we trust?**

*Jessica Folwell – MBBS in Medicine*

Research into how promiscuity affects attitudes towards men and women has provided consistently inconsistent results, showing a need for an overhaul of methodology and theory. This research explores the impact of promiscuity by using economic games to assess the degree of altruism and trust shown towards simulated men and women. 501 participants were recruited made to believe that they were playing a real person.

Participants were found to be less altruistic ( $p < 0.001$ ) and less trusting ( $p = 0.00164$ ) towards promiscuous stooges in general, and this negative effect was found to be greater for man stooges than for woman stooges ( $p = 0.031$ ,  $p = 0.089$  respectively) in some contexts. This evidence does not support the existence of the traditional sexual double standard but instead shows support for the existence of egalitarian attitudes or for a greater negative impact of promiscuity on men than women. I address the pressing implications of this for evolutionary theory and expand the theory to consider the importance of male provisioning for female fitness. I also discuss the role of power in the perception of male promiscuity, broadening the sociological explanations for differences in how promiscuity impacts men and women.

### **Dying as a womanly trait: examining depictions of heroines' deaths in the operas of Lully and Rameau**

*Sophia Stellato – MPhil in Music*

This paper investigates the relationship between gender and depictions of women's deaths in the operas of Jean-Baptiste Lully and Jean-Philippe Rameau, focusing on the heroines Psyché, Mérope, and Phèdre. Building on scholarship such as Catherine Clément's analysis of nineteenth-century opera, the study addresses a gap in research on gender norms and musical performances in seventeenth- and eighteenth-century French opera. The analysis situates operatic representations within the context of the Querelle des Femmes debate and prevailing Catholic doctrines, examining how expectations of female behaviour shaped both character arcs and modes of death. Through close readings of libretti and musical scores, the paper demonstrates that heroines who conform to social ideals of obedience and emotional restraint are rewarded or absolved, while those who embody jealousy, hysteria, or sexual transgression meet violent or shameful ends, including suicide. Ultimately, the study reveals how these operatic narratives both reflect and reinforce early modern patriarchal values.



## Keynote: Rev'd Dr James Hawkey

15:00 – 15:40

*Chair: Rev'd Dr Mark Smith (The Dean)*

## 6: Emergence of Order

*Chair: Dr William Wood (CRA in Physics)*

### What Survives When You Zoom Out? An Introduction to Renormalisation in Statistical Physics

*Noah Grodzinski – PhD in Applied Mathematics & Theoretical Physics*

I will provide a non-technical introduction to the renormalisation group, one of the most powerful ideas to emerge from 20th century statistical physics. I will explain how this framework can be used to understand the emergence of order and disorder in large random systems, and connect briefly with my own research.

### Institutions and the Economy

*Cosmin Patrascu – MPhil in Economic Research*

When people think of economics they often think of investment bankers and financial markets (stonks). However, financial economics is but a small segment of what economics has to offer. Indeed economics is the study of decision making. For me, given this the field of political economy and institutions is of paramount importance.

Institutions can be loosely defined as the 'rules of the game', so they set out the environment for individuals. I will show how political institutions have evolved and coexisted with economic institutions throughout history shaping economic environments. I will explain what it means to have inclusive and extractive institutions and how they affect the decision making of individuals. Finally, I will present some evidence based on research I have previously conducted that attempts to quantify the impact that institutions have on the economy.

### Applause as an Analogue Computer

*Jona Nägerl – PhD in Applied Mathematics*

The talk starts from a simple observation: when people clap in an audience, their rhythm sometimes becomes synchronized without any explicit coordination. This behavior can be captured by modeling each participant as a weakly coupled oscillator interacting through auditory feedback. From this minimal description, collective rhythmic patterns emerge, persist, and occasionally collapse. These dynamics are a computational resource. The synchronized states and their transitions are interpreted as collective modes that can be deliberately exploited. In this way, the clapping audience serves as an intuitive example of how coupled dynamical systems can be leveraged as an analogue computer.

---

## 7: Clare 700 - Our History

*Chair: Professor Jacqueline Tasioulas (The Senior Tutor)*

### **What a medieval heiress taught me about modern leadership**

*Vasiliki Carson – EMBA*

When we think of medieval women in power, we often imagine figures constrained by feudal structures and distant from modern leadership realities. This talk challenges that assumption through the life of Elizabeth de Burgh (Elizabeth de Clare) – one of the wealthiest women of 14th-century England and the foundress of Clare College – and reframes her as a case study in enduring, contemporary leadership. Far from a relic of a bygone age, Elizabeth operated as what we might now recognise as a medieval CEO: strategic, financially astute, values-driven, and acutely self-aware. Drawing unexpected parallels with modern female leaders (and cultural icons such as Taylor Swift rather than Amy Winehouse), the talk explores themes of self-knowledge, loyalty, accountability, long-term thinking, empathy as strategy, and the ethical use of power. It argues that Elizabeth's leadership style – rooted in stewardship, learning, and purpose – offers powerful lessons for women navigating authority, resilience, and legacy today.

### **Dispelling Myth: Correcting falsehoods perpetuated about the history of Clare College**

*Mr Alan J Lloyd – Porter*

Almost every detail Cambridge tour guides and punt chauffeurs state about Clare College is inaccurate. Here we'll try to separate the fact from the fiction.

### **Clare and the First World War**

*Dr Jo Costin – Buildings Administrator & Sustainability Manager*

The First World War had a significant impact on community life, including on the Clare community. Nearly every type of war experience can be found through stories of Clare and its members – from conscientious objectors like Hugh Willoughby Bligh, to casualties like Cecil Culme Malpas (who left his name in the brickwork by the River Café). The College itself became an Officer Training Corps, reflecting the loss of undergraduates, and there were even proposals to turn the Fellows' Garden into a rifle training range. After the war, Memorial Court was constructed as a community response to the College's losses, built on the site of a temporary war hospital. This talk will explore some of the wider themes of the war through Clare stories.

---

17:10–17:30 — Reception

---

## 8: Conservation and Change

*Chair: Mr John Heaton-Armstrong (MCR President of Oriel College)*

### **The “Intensely Blue Precipitate”: Reconstructing Woodward’s 1724 Recipe for Prussian Blue**

*Dory Johnson – MA in the Conservation of Easel Paintings, Hamilton Kerr Institute*

Prussian blue is considered to be the first modern synthetic pigment, having been accidentally discovered in the first decade of the eighteenth-century by a pigment maker and an alchemist. This beautiful blue pigment was immediately popular, as it was less expensive, easier to use, and more permanent than other blue pigments available at the time. The highly-profitable secret of Prussian blue’s recipe was guarded until 1724, when a friend of the pigment’s inventors shared the recipe with another scientist, called Woodward, who published the recipe. This paper documents a recent synthesis of Prussian blue using this recipe, working to understand its sometimes confusing directions, considering its possible chemistry, and examining the resulting pigment. This process yielded insights into Woodward’s materials and process, pigment samples that will be useful for future analysis, and previously unconsidered questions for future inquiry.

### **Entropy in Thermodynamics, Texting, and Quantum Entanglement**

*Luke Ng Man Kwong – MAST in Mathematics (Theoretical Physics)*

Entropy is a fundamental concept that appears across many fields including physics, computer science, and even neuroscience, yet it is often regarded as abstract and mysterious. Since its discovery in the 19th century in an attempt to understand the limits of heat engines, the idea of entropy has developed into a powerful tool for understanding important problems in thermodynamics, information processing, and even quantum entanglement.

This talk will give a brief tour of entropy, discussing its origin and some example problems that demonstrate why it is still important today. No prior knowledge of any of the mentioned areas is required.

### **Feeling concrete though electrical signals**

*Priyanka Beta – PhD in Engineering*

The world around us is perceived through electrical signals. Among the most remarkable manifestations of this phenomenon are our neural cells, which allow us to sense, analyse, and respond to our surroundings, keeping us safe. Could similar sensing mechanisms exist within the inanimate concrete structures that form a vital part of our lives, particularly during times of adversity?

As concrete materials evolve in response to low-carbon imperatives—much like shifting demographics driven by globalisation—do we still possess the ability to listen more deeply to these materials and maintain seamless connections with the structures that support us? This talk explores current monitoring approaches, identifies key gaps, and proposes a way forward to “feel” concrete through electrical signals.

---

## 9: Scientific innovation for sustainable transformation

*Chair: Dr Théophile Bonnet (CRA in Engineering)*

### **Demystifying the CO<sub>2</sub> reduction mechanism in Carbon Monoxide Dehydrogenase: An inspiration for novel carbon capture technologies**

*Prasita Dutta – PhD in Chemistry; Oriel College, Oxford*

What would your reaction be if I told you that many of the complicated carbon-capture technologies we are trying so hard to design already exist in nature and are operating constantly as we live and breathe?

Carbon monoxide dehydrogenase (CODH) is one of the few naturally occurring enzymes capable of selectively catalyzing the interconversion of carbon dioxide and carbon monoxide as part of the energy-conservation pathways of certain bacteria. This remarkable capability makes CODH an especially promising model for clean-energy and industrial applications. Yet, its intricate metallocluster architecture and extremely rapid catalytic turnover have made it challenging to unravel the details of its mechanism.

As part of my project, we are probing CODH under electrochemical conditions in an effort to trap and characterize the transient intermediates formed during catalysis. Gaining a clear structural and mechanistic understanding of this enzyme could ultimately guide the design of novel, nature-inspired carbon-capture technologies for a more sustainable future.

### **The Future of Colour: Enzymes, Sustainability, and the Science Behind Fashion**

*Kyra Wu – MRes and PhD in Sensors Technology*

The colours we wear are built from chemistry, yet the dyes behind them carry major environmental costs, with synthetic colourants contributing up to one-fifth of global industrial water pollution. Enzymatic colour generation offers a sustainable alternative. Laccase, a copper-containing oxidase, converts catechol into intensely coloured polymers that bind strongly to fibres, but the reaction is difficult to study due to scattering from the enzyme and rapid colour development that overwhelms conventional analytical methods. This talk explores how chemical bonds create colour, how enzymes can build dyes in real time, and how my research aims to resolve the polymerisation pathway using optimised reaction conditions and simultaneous UV-Vis and Raman monitoring. By connecting fashion and molecular chemistry, this presentation highlights how mechanistic insight can support the development of a more environmentally-responsible industry.

### **How is education possible**

*Vincent W-S Lien – PhD in Education*

This talk reframes a foundational question in educational theory through an ecological reworking of systems-theoretical thought. Drawing on Niklas Luhmann, education is conceptualised as an autopoietic social system that reproduces itself through communication rather than intentional action. Social and psychic systems remain operationally closed – communication produces communication; consciousness produces thoughts – while education depends on contingent and fragile structural couplings unfolding over the life course.

An ecological turn extends this account by treating environments not as passive backdrops but as active, materially and semiotically generative conditions. Educational meanings emerge through shifting ecological entanglements involving institutions, bodies, technologies, histories, and cultural semantics. Second-order observation is refigured as ecological self-observation, as educational distinctions drift in response to changing environments. The talk concludes by arguing that education's central challenge is not the optimisation of learning outcomes, but cultivating ecological sensitivity to the conditions that enable or restrict educational possibilities.

## Acknowledgements

We would like to express our profound gratitude to the Master and Fellows of Clare College for hosting this conference.

We would like to thank Nikolaos Markozanis and members of the MCR community. The ‘dearly beloved’ MCR community is the heart and soul of our time at Clare – and your support for our organisation of Clareity made everything worthwhile.

We thank Professor Jacqueline Tasioulas for her encouragement, guidance, and support throughout the planning of the symposium. Her commitment to the student community has been invaluable, and we have been deeply grateful to have a Senior Tutor who cares so profoundly about the student experience. Newnham College will be most fortunate next academic year to welcome such a thoughtful and dedicated Principal.

We would also like to thank the Clare College catering team for their efforts throughout the day, from the coffee and refreshments to the dinner that brings the evening together. In particular, we are grateful to Lee Corke, Arletta Bialecka-Blount, and Paula Yardy Saban for meeting with us and for their kindness and care in helping prepare the symposium.

Our thanks also go to Paul Saban and Jesse Austin Beers from Support Services for setting up the venue, recording the talks, and ensuring the smooth running of the conference.

Special thanks go to Sally Hodges for designing the website, and to colleagues at Oriel College for their encouragement and engagement with the symposium.

We are especially grateful to Yuanyuan Zhu, Postgraduate Officer and Praelector’s Secretary, whose support from the very first day has made this conference possible. Her careful organisation, meticulous meeting notes, and constant encouragement guided us throughout the entire process.

We are grateful to the Dilettante Society, particularly Nils Lauermann, and to the Whiston Society, especially Harry Chevassut, for their support throughout the year and their involvement in this event.

We also thank Nils Lauermann for kindly photographing the symposium and Adelaide Brooks for organising the International Film Nights this year with us. Furthermore, Dr William Wood, who helped with the set-up of the evening Clareity events throughout this year, as well as Elliott Kasoar and Hannah Smith for their generous support behind the scenes.

Finally, we thank of our keynote speakers, session chairs, speakers, and attendees for contributing their time, insight, and enthusiasm to the day’s discussions.

Organised by Chiara Nicole Leadbeater and Sea Yun Pius Joung



