

## **PSY-PHY**

J. Andrew Ross is a philosopher, born in Britain.  
He did fundamental work in mathematical logic,  
earned four degrees in Oxford and London,  
and worked for 25 years in Germany in  
science publishing and software.  
Now in Britain, he blogs at

**[www.andyross.net](http://www.andyross.net)**

*By the same author*

LIFEBALL

MINDWORLDS

G.O.D. IS GREAT

PHILOSOPHER

CORAL

BRITIZEN JON

ALBION

# PSY-PHY

A BRIEF INTRODUCTION  
TO ULTIMATE REALITY

J. ANDREW ROSS

ROVER

BRITAIN



Rover Nonfiction

An imprint of Ross Verlag Britain

Copyright © J. Andrew Ross 2025

Text build 20250727

The moral rights of the author have been asserted.

All rights reserved.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form, or by any means, without the prior permission in writing of the publisher, nor be otherwise circulated in any form of binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

ISBN

# PSY-PHY

INTRODUCTION	7
BEING	13
TIME	35
STATES	61
MINDS	87
WORLDS	121
CONCLUSION	149
THANKS	155
NOTES	159
REFERENCES	177
INDEX	189

## SCHILLER'S HAIKU

*This great realm of souls:  
its chalice foams and bubbles  
to infinity.*

# INTRODUCTION

The human mind as each of us knows it is still in many ways a mystery to science. We have a lot of work to do before we can claim to have cracked it.

My aim in this book is to explore this challenge and suggest a framework we can use to reach a deeper understanding of the mind in terms that make sense to scientists. I see the work as a contribution to psychophysics – my term of art for the future field at the interface of psychology and physics.

Physics is the fundamental science of nature. Psychology is not yet a science in the same sense. It resembles biology before the theory of evolution gave biologists a unifying framework. The neurosciences are nibbling away at psychology, but they still don't add up to a theory of mind. Something is deeply wrong, but no one seems to know what.

My diagnosis of the problem is that the framing logic for the challenge needs recasting. We need to recognize the role of becoming, or of evolution in the widest sense, to the task of building the models that do the heavy lifting in science. The idea that we're faced with a conceptually static reality, along with a geometric time dimension that exists outside of us, is wrong. It's been shown to be wrong by quantum physicists. When we respond with an open mind to this fact, the project of developing a conceptual basis for psychology can be made to look much less daunting.

But the task is still a tricky one. We need to dip into some deep and difficult logic and mathematics, and we can't avoid some alarming paradoxes that can make the whole enterprise

look doomed. The journey takes us over rocky ground and seems to wander all over the map of our human embedding in the natural environment. Happily, years of grappling with all this stuff has taught me to find ways of smoothing over the bumps and bridging the nasty patches, so the gloss presented here goes easy on its readers.

### THE ELEVATOR PITCH

Given the new view of logic and math, plus the new view of quantum physics and the gusher of new facts from the neurosciences, my new perspective on psychology isn't weird at all. The weirdness was already absorbed in the givens. But it is a radically different perspective from the conventional view that faced the pioneers of psychology a hundred or more years ago. It will take some getting used to.

In short, we use a logic of becoming to distinguish the big self from the little self. If the ego is the big self in being, the little self is projected into existence as a puppet avatar in a virtual reality, or a mindworld. As conscious beings, we live in a mindworld movie. Each brief self is timestamped as it goes from being to existence, and our lived reality is a strange loop that twists and grows in time.

### MY PATH TO ENLIGHTENMENT

To find what could serve as a promising start for this new theory, I took a marathon detour through philosophy. In fact, it turned out to be decades longer than expected. I dived deep into logic and mathematics to see how to bridge the gulf that exists between physics and psychology. I finally found a clue in the strange psychology of monotheism, which latches onto

a logical feature of mental life that all of us know well yet has usually been left unremarked by researchers eager to explore specific cognitive functions.

My academic credentials for taking up the challenge are unremarkable. The scientific need to establish a better theory of mind dawned on me in 1970 as an undergraduate reading physics at Oxford who was struggling to get his head around the deeper issues stirred up by relativity and quantum theory. This led me to widen my reading to physics and philosophy. As a postgrad researcher, I then dug deeper into philosophy, logic, scientific method, mathematical logic, foundations of math, and the philosophy of language. All the while, the need for a theory of mind nagged at me.

A breakthrough of sorts, albeit one that remained private to my own mind for years, to judge by its reception, inspired me over a summer in Berlin. I wrote a rough draft for a book in 1975, but it needed a few further drafts in the following years before the idea looked ready to work as a potential foundation for anything like a theory of mind.

Still perplexed, I took a gap year in Japan, then returned to teach pre-university math and physics in London for a few years while my wider thoughts continued to simmer. In 1987, I moved to Germany and did editorial work on academic studies in math, physics, and computer science for a decade. This offered the chance to reflect and review the theoretical landscape more thoroughly.

In the early years of the new millennium, still in Germany and working in software development, I took part in a series of conferences on the latest developments in neuroscience. The early signs of a new science of mind were appearing on the strength of an impressive flood of new experimental work using brain scanners and powerful computers for researching

cognitive processes, and of steady progress to improve our understanding of the molecular basis of brain function at the neural level. Theoretical physics was also flourishing, thanks again to new technology. Relativistic and quantum physics had become the firm basis for all the sciences and had grown into two accepted standard models, one for cosmology and one for particle physics. Altogether, the pieces seemed to be in place at last to get the job done.

## THIS BOOK

The time was ripe to publish or perish. I published my best essays from the previous decade in my 2009 book *Mindworlds*, retired from software development, wrote a few more books to air the related ideas that had distracted me over the years, and returned to England in 2013. Several further distractions (such as resisting Brexit and Covid) later, I can now offer this book to the world.

The great challenge for a project like this is to identify the intended audience and then to pitch the exposition at a level that properly both supports and respects that audience. Even readers who know the background are entitled to be offered explanations and references that suffice to locate and define the key ideas and innovations within a familiar frame. Readers who are new to most of the issues raised here are especially entitled to a full and fair presentation of what for experts may seem like elementary points that surround the main novelties. The challenge is to balance the wants and needs of all such readers without being boring.

In the end, I chose to compose a light and fairly readable main text followed by relatively technical notes and references at the end for scholars. This approach has sound precedents

among expositions of novel ideas in science, especially ones that seem too unconventional or controversial to be squeezed into the straitjackets of peer-reviewed journals or specialist academic monographs. I want to reach a wider audience, and this seems the best way to do so.

Between the fascinating details (some of them arcane), the main argument should be easy to follow. I've kept the focus off my own story, which is irrelevant to the case made here, but I've included a few minor biographical comments where the extra facts seemed helpful. To make for easy reading, I've suppressed footnote markers in the main text. The notes and references are intended for specialists, and most readers will prefer to ignore them. I've also suppressed URL and doi data in the references – motivated readers can use the cited text to locate resources online with an intelligent search app.

This is not a scientific monograph in the traditional sense. But it is intended to introduce a perspective that makes a real contribution to serious science. Since many of the scientists I hope to persuade are still young students, I've made an effort to keep the journey interesting for readers who not only share my ambition to reach the destination but also want to enjoy the ride.

England, 2025

KANT'S HAIKU

*From this bent timber  
was never a straight thing made:  
our humanity.*

# BEING

Once upon a time, Germany was a land of thinkers and poets. The kingdom of Prussia and the patchwork of statelets left over from the Holy Roman Empire fostered gifted musicians, brilliant mathematicians, talented scientists, and the greatest harvest of philosophers since ancient Greece.

Foremost among the philosophers was Immanuel Kant, a scholar versed in physics and math who first suggested that galaxies were “island universes” and who made a monumental contribution to the theory of mind. His great insight was to grasp that we never experience the world directly; we always observe it through the “lenses” of categories such as space, time, and causality. We have no immediate view of the real world and can only see the phenomenal world as mediated by the categories. Kant’s historic contribution was to argue that any rational being, anywhere in the universe, is constrained to apprehend reality through a set of categories.

Pre-eminent among the philosophers who followed Kant was Georg W.F. Hegel, who conceived an amazing synthesis of that theory of mind with a dialectical history of everything that put its stamp on Western philosophy for the next hundred years. Hegel sought to outdo Kant by dismissing the idea of a real world beyond the categories. He found ways to fit every aspect of human life into a dialectical framework that exposed it to rational reconstruction within a nexus of logical relationships. In doing so, he revealed the limits of his own logic. His early disciples included Karl Marx, whose revolutionary ideas transformed politics in the twentieth century.

The philosopher whose career heralded the eclipse of the German love of genius in the apocalyptic demise of the Third Reich was Martin Heidegger. His main achievement was to resurrect the ancient Greek concept of being in a way that invited a new approach to building a theory of mind. The French existentialist movement in philosophy and psychology arose from Heidegger's ideas.

During Germany's golden era, scientists occupied themselves with sharper questions that invited definite answers. Physics and chemistry were brimming with opportunities for experimentalists, who applied the scientific method to deliver new knowledge. Philosophy had always been seen as a fertile seedbed for new science, but as philosophers debated around in circles and scientists raced ahead with new breakthroughs, the initiative passed increasingly to science.

Today, with computers, artificial intelligence, and robot lab technology, experimental science has expanded from physics and chemistry to include biology and medical science, where its impact has been transformational. Science has gone global. Its next frontier challenge is psychology.

My purpose with this book is to trace out the implications of a radical perspective in logic for the project of building a scientific theory of mind. I think we can solve some central problems about the relation between mind and matter in a way that makes sound scientific sense. By exploring the interface between the embryonic science of psychology and the mature science of physics, as well as the firehose of facts emerging from work in the neurosciences, we can ease the birth of a viable science of psychophysics.

Let's warm up for the fray with a few very basic claims. A multitude of things around us exist. These things populate a physical universe and are typically located in space and time.

Spatial configurations of things evolve in time according to laws that we either know or hope to discover. These claims sum up much of physics, but they ignore the fact that space and time themselves come under scrutiny during deep dives into physics. Also, they raise the problem that a host of things we can't ignore, such as mental phenomena and mathematical objects, don't seem to fit into the frame.

To deal with the first fact, space and time are central topics of study for relativists and quantum gravity theorists, who are pushing out the boundaries in fundamentally new ways. It's tempting to ignore them here, but we can't. Some of the issues they raise are important for our story.

Looking on at things are observers. We are the observers. Our minds are the most subjective and universal aspects of the reality that surrounds and sustains us. We are subjects, and we each have a mind that reflects our being as entities external to and distinct from each other.

Minds are somehow spatial. Most psychologists take space and time as subjective in the sense that we order our understanding of the external world using the categories of space and time, but they also accept that we ourselves have definite locations in space and time. Without our physical roots, we'd cease to be definite beings.

But still we're faced with an awkward choice. Mathematical objects are separate from each other, yet they lack location in space and time. Perhaps our minds (or souls – the distinction between them is far from clear) are similar. Perhaps mental phenomena generally have a being or existence like that of mathematical objects. Minds are often compared to software running on the brain, and we all agree that software is akin to mathematics – algorithmic programs process information in the same way that arithmetic calculations process numbers.

Numbers or information can claim to be eternal residents in Plato's heaven, whereas grubby calculations on paper or buggy code in a computer register are as subject to change and decay as anything in the physical world.

One way to move on is this: Human beings have being by definition, but we can deny that they exist, so long as we do so in a specific sense that we promise to define. There is arguably something too nebulous about human beings, with their moral status, their rights and duties, and the metaphysical claims made on their behalf, for us to grant them existence in the same sense as we do for tables and chairs. All the moral and metaphysical stuff goes beyond science as we know it, and a natural way for us to flag this problematic status is to deny such beings existence for now. For what it's worth, Heidegger contrasted being and existence, but that's beside the point. We're going to break new ground here.

In this vein, we can still agree that people exist. They're defined enough in their attributes as human animals, as apes related to chimpanzees and so on, to exist even if their special status is debatable. People are denizens of a public world in which their moral or other unusual attributes can be debated or put outside the scope of scientific investigation. We shall ignore moral issues here and focus on the science.

We can have a first go at clarification by simply asserting that human beings are people with minds. Human beings are people, but we're free to debate whether people in deep coma or with irreversible brain damage have the usual human rights and duties. This is again a moral debate we can skip.

As we've said for human beings, we can say minds have being but not yet existence. We grant that minds have moral and metaphysical attributes that go beyond anything we might casually grant to tables and chairs. Maybe we could say souls

have the moral and metaphysical attributes, and minds come along for the ride, but then we'd need to explain souls. Maybe minds are the user interfaces for souls, and self-consciousness extends to minds but not to souls. Or maybe we should forget about souls and stick to minds. Okay, but consciousness is something we can't forget about.

### LIVING WITH CONSCIOUSNESS

In recent decades, consciousness has become the main battleground for a theory of mind. It's what distinguishes human beings with minds from humanoid zombies or meat machines. On this view, aired by the philosopher David J. Chalmers, to have consciousness is to have an inner life or a subjective experience of the world. Chalmers gained academic fame as the young man who sang "the zombie blues" with rock-star zest to promote his claim that the hard problem in advancing from the neuroscience of cognitive processing in the brain to a scientific theory of mind for psychology is to build a theory of consciousness.

Minds are closely related to consciousness in the sense that they provide personal windows or theaters of consciousness. Explaining consciousness is the key step in explaining minds. Both are big, baggy ideas, perhaps too big for easy scientific assimilation. A scientist can reasonably focus more narrowly on states of mind. We can admit that states of mind exist but insist nonetheless that minds are too nebulous for existence. This may seem inconsequential, like mere wordplay, but we're working toward a powerful mathematical framework here, so let's go easy on the critical response until the fuller picture begins to take shape and the motivation for this distinction between being and existence emerges.