In a remarkable and utterly original work of philosophical history, Richard Allen revivifies David Hartley's *Observations on Man, his Frame, his Duty, and his Expectations* (1749). Though it includes a detailed and richly annotated chronology, this is not a straight intellectual biography, attentive as it might be to the intricacies of Hartley's Cambridge contacts, or the mundane rituals of his medical practice, or the internal development of the doctrine of association of ideas. Instead Allen brings Hartley's book, a psychological epic with a mystical finale, sympathetically to life in a generous and ambitious historical gesture of mutual recognition. Late 20th-century readers "are in a better position to understand Hartley's work" than were earlier sympathizers like Joseph Priestley and John Stuart Mill; and in turn, Allen argues that "Hartley has something to say to us" about just how rich and strange a full mechanistic psychology might be.

Hartley's daughter Mary reported that her self-deprecating father had decided to write a book "upon the nature of man" as "a very little boy", swinging backwards and forwards upon a gate. Remembering Hartley's early puzzling about "the nature of his own mind", Allen notices the children everywhere in his book. This indissoluble union of neurophysiology, metaphysics, and theology is designed, Allen suggests, to answer one developmental mystery: how does a child learn to love? He zooms in on a few days of Hartley's life in March 1736, five years after his first wife died giving birth to their son David, and just before Mary was born to his second wife Elizabeth. Quoting family papers and unpublished letters, this one biographical chapter achieves three aims. Allen fills in enough detail about sickness, the proximity of death, diet, and the riskiness of sex in Hartley's family to colour our reading of his theorizing on pain, fear, superstition, and the desire for a better life. He hints at the Shandean nature of a real biography of Hartley, in which the hazards of documentary traces would dictate multiple digressions on the promotion of shorthand, on the search for a cure for the kidney or bladder stone (we have Hartley's own agonizingly detailed account of his own suffering), and on the social history of vegetarianism in a culture of consumption. And Allen sketches an alternative psychohistory of his modest and gently humorous subject, which picks up from Hartley's private prayers and diaries the affective depths of the man's ambition, his sensuality, and his capacity for terror.

The *Observations on Man*, ultimate product of those boyhood meditations, unites physics, chemistry, mathematics, medicine, religion, and philosophy in an intensely mystical materialism. In Hartley's cosmobiology, all bodies are compounds of porous molecular structures traversed by attractive and repulsive forces. This vision of nested lattices held in dynamic equilibrium in elastic vibrating media drives a neural harmonics of Newtonian inspiration.

The natural temper of our nerves is moulded and deformed by the vibrations shimmying down them in the various incidents of life, so that the civilizing process is the training or tidying of our own brains. Coleridge and William James - both ambivalently hooked on Hartley - took Hartley's 'ideas' to be simple and distinct, psychological atoms piled together in what James mocked as "a brickbat plan of construction". Coleridge came to vilify the absence of a true, free, controlling agent in Hartley's system, which seemed thus to make us the victims of a despotism of stimuli, and of "senseless and passive memory". But, Allen convincingly shows, this isn't the way that Hartley resolves the self into the social and the subpersonal. Instead, the heart of Hartley's chemically-inspired associationism is the joint and active fusion of ideas in building repertoires of skilled action. Hartley's psychology begins with dynamic embodied performances, his examples drawn from music or dance or the engaged intimacy of conversation. The stability of ideas isn't a foundation but an achievement, and is often the result of language and practice, not their origin.

So we are vibrating sentient machines in constant motion, whether harmoniously attuned from childhood to our circumstances, or shrieking with the pain of a chaos of frequencies. In answer to free-will-mongering critics like Coleridge and Thomas Reid, Allen shows that, for Hartley, our most
voluntary acts are not those detached from causality and circumstance, but those in which our bodies are most deeply engaged and immersed in their world: "a man may speak, handle, love, fear, &c. entirely by mechanism".

As a result, Hartley can integrate emotion fully into his naturalistic psychology: as he puts it, "the understanding and affections are not really distinct things, but only different names, which we give to the same kind of motions in the nervous system". But although we are biologically continuous with other animals, Hartley speculates that some minimal extra plasticity in the human brain, exploited in our long childhoods, makes us in key respects cognitively discontinuous. We symbolize, in action and in language, and thus we can decouple from our environment, or think about our thoughts and habits, redirecting the flow in the place of currents which is our brain. Hartley complains quietly that "it is difficult to know what is meant by the unity of consciousness", and Allen celebrates this dissolution of the self into a sum of accidents, as composite as medicines or bladder stones. But this is no pre-postmodern recipe for limitless transformability. As Hartley insists, "all our voluntary powers are of the nature of memory", and so (in contrast to the social reformers like Priestley, Benjamin Rush, and Robert Owen who took up Hartley's cause) he sees human perfectibility as a distant dream, constrained by the idiosyncrasies of emotional development, and the traces left by sad experience.

This is deeply unconventional fare in intellectual history, enough to make the professionals uneasy. In the course of an approving review in the specialist journal Medical History, Roy Porter notes Allen's desire to recover Hartley's work from radical materialists who have "butchered or twisted it in various ways for their own ends". But he complains that the connections which Allen himself makes between Hartley and modern dynamic psychology and physics in the end constitute "yet another mucking around with Hartley for contemporary purposes". Porter is not suggesting that these links "corrupt the interpretations offered in a highly enjoyable book": so his point is that there is something intrinsically problematic in the historical practice of a writer whose "sympathies for Hartley's holistic mysticism sometimes run to the point of endorsement". Fear of Whiggish, present-centred history runs so deep among academic historians of science that it has become somewhat embarrassing to flirt with truth. But no careful contextualist would care as Allen does about the scope and unity and detail of Hartley's vision, pulling together deterministic explanations of dreams of flying and "morbid affections of the memory" with a powerful desire for "self-annihilation". Allen is commendably explicit about his own quest to join an affective psychology with a naturalistic theology, convincing us that Hartley is closer to William Blake than to Mill or James.

By means of this very intimacy with Hartley's imagination, Allen delineates new possibilities of allegiance. In our age of dynamical, affective, embodied cognitive science we do indeed again want our theories to embed human thinking in richly-drawn contexts of social practices, tools for thinking, and flexible styles of coping. Many readers then will enjoy Hartley's insistence that intelligence is fluent action, memory is mixture and coalescence, and that agency and moral sense are tenuous labels wrapped around "that aspect of body called mind". But fewer can still hold, with Allen's Hartley, that the world is a self-correcting system, and that we can come to know the "mechanical affections" that pattern nature just because our own natures are intrinsically "adjusted to the System of things". Theopathy - our relation to the divine - is here at the heart of associationist psychology, flavoured with Hartley's particular beliefs in universal salvation and bodily resurrection. Allen acknowledges that it's hard for us to want to think spiritually of "the radiance of being" while working away in fascination at the "subtle laws" of physiology and development. But if neurophilosophical mysticism is ever to catch on again, this wise, rangy, and beautifully written book would be a worthy gospel.