

## Physical Science Paper 2 June Exam 2014 Grade 11

This study sheds light on the work of the evangelical scientists who sought to bridge the cultural divide Christianity and evolutionary theory. In the well-known Scopes "Monkey Trial" of 1925, famously portrayed in the film and play *Inherit the Wind*, William Jennings Bryan's clashed with defense attorney Clarence Darrow. The drama, pitting fundamentalist fervor against aggressive agnosticism, illustrated what current scholars call the conflict thesis. Regardless of the actual legal question of the trial, it appeared as though Christianity and science were at war with each other. Decades later, a new generation of evangelical scientists struggled to restore peace. After the Monkey Trial is the compelling history of those evangelical scientists in Britain and America who, unlike their fundamentalist cousins, supported mainstream scientific conclusions of the world and resisted the anti-science impulses of the era. Christopher M. Rios focuses on two organizations, the American Scientific Affiliation and the Research Scientists' Christian Fellowship (today Christians in Science), who for more than six decades have worked to reshape evangelical engagement with science and redefine what it means to be a creationist.

The sub-title of this symposium is accurate and, in a curious way, promises more than it states: *Classical Physicist, Modern Philosopher*. Heinrich Hertz, as the consummate experimentalist of 19th century technique and as brilliant clarifying critic of physical theory of his time, achieved one of the fulfillments but at the same time opened one of the transition points of classical physics. Thus, in his 'popular' lecture 'On the Relations Between Light and Electricity' at Heidelberg in the Fall of 1889, Hertz identified the ether as henceforth the most fundamental problem of physics, as the conceptual mystery but also the key to understanding mass, electricity, and gravity. Of Hertz's demonstration of electric waves, Helmholtz told the Physical Society of Berlin: "Gentlemen! I have to communicate to you today the most important physical discovery of the century." Hertz, philosophizing in his direct, lucid, pithy style, once wrote "We have to imagine". Perhaps this is metaphysics on the horizon? In the early pages of his *Principles of Mechanics*, we read a doubt which makes an impression on our mind cannot be removed by calling it metaphysical: every thoughtful mind as such has needs which scientific men are accustomed to denote as metaphysical. (PM23) And at another place, concerning the terms 'force' and 'electricity' and the alleged mystery of their natures, Hertz wrote: We have an obscure feeling of this and want to have things cleared up.

This authoritative and enlightening book focuses on fundamental questions such as what is innovation, who is it relevant for, what are the effects, and what is the role of (innovation) policy in supporting innovation-diffusion? The first two sections present a comprehensive overview of our current knowledge on the phenomenon and analyse how this knowledge (and the scholarly community underpinning it) has evolved towards its present state. The third part explores the role of innovation for growth and development, while section four is concerned with the national innovation system and the role of (innovation) policy in influencing its dynamics and responding to the important challenges facing contemporary societies.

An innovative study of books and reading that focuses on papermaking in the Renaissance In *The Nature of the Page*, Joshua Calhoun tells the story of handmade paper in Renaissance England and beyond. For most of the history of printing, paper was made primarily from recycled rags, so this is a story about using old clothes to tell new stories, about plants used to make clothes, and about plants that frustrated papermakers' best attempts to replace scarce natural resources with abundant ones. Because plants, like humans, are susceptible to the ravages of time, it is also a story of corruption and the hope that we can preserve the things we love from decay. Combining environmental and bibliographical research with deft literary analysis, Calhoun reveals how much we have left to discover in familiar texts. He describes the transformation of plant material into a sheet of paper, details how ecological availability or scarcity influenced literary output in the sixteenth and seventeenth centuries, and examines the impact of the various colors and qualities of paper on early modern reading practices. Through a discussion of sizing—the mixture used to coat the surface of paper so that ink would not blot into its fibers—he reveals a surprising textual interaction between animals and readers. He shows how we might read an indistinct stain on the page of an early modern book to better understand the mixed media surfaces on which readers, writers, and printers recorded and revised history. Lastly, Calhoun considers how early modern writers imagined paper decay and how modern scholars grapple with biodeterioration today. Exploring the poetic interplay between human ideas and the plant, animal, and mineral forms through which they are mediated, *The Nature of the Page* prompts readers to reconsider the role of the natural world in everything from old books to new smartphones.

In 2012, Australia took the major step of introducing a carbon price, involving the creation of a system of emissions permits initially issued at a fixed price. *Carbon Pricing* brings together experts instrumental in the development, and operation, of a

*Anglo-European Science and the Rhetoric of Empire* presents the recorded facts of alleged medical use of opium in colonial India and British examination and the ultimate acceptance of this practice. Placing the opium controversy in its broad context, the book sheds light on British diplomatic methods for prolonging colonial rule.

*Keeping Women in Science* examines the careers of women and men at a large Australian research institute and the challenges that women with or without children experience, often resulting from direct and indirect discrimination and being positioned as outsiders. The research found a huge generational change between the Baby Boomers—the current science leaders—and Gen X and Gen Ys. Younger women and men reject the traditional model of a successful scientist—a single male for whom science is like a religious vocation. Instead, they seek new models for doing science that support dual careers, work flexibility and work-life balance.

We've had 20 years of government-level conferences at Kyoto, Copenhagen and Cancun, but greenhouse gas emissions continue to rise. Taking a cosmopolitan approach to climate change in this excellent and timely book, Paul Harris and his contributors argue that citizen action is an essential complement to state action. The challenging, unsettling and absolutely vital argument of these high quality essays is that distance makes no moral difference in our globalised world; individual high emitters have a duty to reduce their emissions, wherever they are. - Andrew Dobson, Keele, University, UK This collection of provocative essays re-evaluates the world's failed policy responses to climate change, in the process demonstrating how cosmopolitan ethics can inform global environmental governance. A cosmopolitan worldview points to climate-related policies that are less international and more global. From a cosmopolitan perspective, national borders should not delineate obligations and responsibilities associated with climate change. Human beings, rather than the narrow interests of nation-states, ought to be at the centre of moral calculations and policy responses to climate change. In this volume, expert contributors examine questions of individual and global responsibility, burden sharing among people and states, international law and environmental justice, capitalism and voluntary action, pluralist cooperation and hegemony, and alternative approaches to climate action and diplomacy. The book helps to illuminate

