

# Writing Principia

Bertrand Russell

Bertrand Russell founded  
The Spokesman.

*A conference celebrating  
100 years of Principia  
Mathematica, entitled  
PM@100, will take place  
at McMaster University in  
Ontario, Canada from 21  
to 24 May 2010, organised  
by the University's  
Bertrand Russell Research  
Centre. Details are  
available online  
([pm100.mcmaster.ca](http://pm100.mcmaster.ca)).*

*In 1910, following years of intensive effort, Bertrand Russell embarked on the publication, with Cambridge University Press, of Principia Mathematica, which was to become a landmark study in the foundation of mathematics. On 15 November, in a letter to Helen Flexner, a relative by marriage who taught English at Bryn Mawr College in Pennsylvania, he wrote:*

*'The first volume of the big book that Whitehead and I have been engaged on for the last 10 years is going to appear in a few weeks ... This will be a great event in my life.'*

*To mark the centenary of this momentous event, we reprint a small selection from Russell's own writings. There is Russell's affectionate pen portrait of Alfred North Whitehead, his collaborator on Principia, which was published in Portraits from Memory. And, to set the scene, there is a short excerpt from Russell's Autobiography.*

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In 1905 things began to improve. Alys and I decided to live near Oxford, and built ourselves a house in Bagley Wood. (At that time there was no other house there.) We went to live there in the spring of 1905, and very shortly after we had moved in I discovered my Theory of Descriptions, which was the first step towards overcoming the difficulties which had baffled me for so long. Immediately after this came the death of Theodore Davies ... In 1906 I discovered the Theory of Types. After this it only remained to write the book out. Whitehead's teaching work left him not enough leisure for this mechanical job. I

worked at it from ten to twelve hours a day for about eight months in the year, from 1907 to 1910. The manuscript became more and more vast, and every time that I went out for a walk I used to be afraid that the house would catch fire and the manuscript get burnt up. It was not, of course, the sort of manuscript that could be typed, or even copied. When we finally took it to the University Press, it was so large that we had to hire an old four-wheeler for the purpose. Even then our difficulties were not at an end. The University Press estimated that there would be a loss of £600 on the book, and while the syndics were willing to bear a loss of £300, they did not feel that they could go above this figure. The Royal Society very generously contributed £200, and the remaining £100 we had to find ourselves. We thus earned minus £50 each by ten years' work. This beats the record of *Paradise Lost*.

*Autobiography*

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### **Alfred North Whitehead**

My first contact with Whitehead, or rather with his father, was in 1877. I had been told that the earth is round, but trusting to the evidence of the senses, I refused to believe it. The vicar of the parish, who happened to be Whitehead's father, was called in to persuade me. Clerical authority so far prevailed as to make me think an experimental test worth while, and I started to dig a hole in the hopes of emerging at the antipodes. When they told me this was useless, my doubts revived.

I had no further contact with Whitehead until the year 1890 when as a Freshman at Cambridge, I attended his lectures on statics. He told the class to study article 35 in the textbook. Then he turned to me and said, 'You needn't study it, because you know it already'. I had quoted it by number in the scholarship examination ten months earlier. He won my heart by remembering this fact. His kindness did not end there. On the basis of the scholarship examination he told all the cleverest undergraduates to look out for me, so that within a week I had made the acquaintance of all of them and many of them became my lifelong friends.

Throughout the gradual transition from a student to an independent writer, I profited by Whitehead's guidance. The turning-point was my fellowship dissertation in 1895. I went to see him the day before the result was announced and he criticized my work somewhat severely, though quite justly. I was very crestfallen and decided to go away from Cambridge without waiting for the announcement next day. (I changed my mind,

however, when James Ward praised my dissertation.) After I knew that I had been elected to a fellowship, Mrs Whitehead took him to task for the severity of his criticism, but he defended himself by saying that it was the last time that he would be able to speak to me as a pupil. When, in 1900, I began to have ideas of my own, I had the good fortune to persuade him that they were not without value. This was the basis of our ten years collaboration on a big book no part of which is wholly due to either.

In England, Whitehead was regarded only as a mathematician, and it was left to America to discover him as a philosopher. He and I disagreed in philosophy, so that collaboration was no longer possible, and after he went to America I naturally saw much less of him. We began to drift apart during the First World War when he completely disagreed with my pacifist position. In our differences on this subject he was more tolerant than I was, and it was much more my fault than his that these differences caused a diminution in the closeness of our friendship.

In the last months of the war his younger son, who was only just eighteen, was killed. This was an appalling grief to him, and it was only by an immense effort of moral discipline that he was able to go on with his work. The pain of this loss had a great deal to do with turning his thoughts to philosophy and with causing him to seek ways of escaping from belief in a merely mechanistic universe. His philosophy was very obscure, and there was much in it that I never succeeded in understanding. He had always had a leaning toward Kant, of whom I thought ill, and when he began to develop his own philosophy he was considerably influenced by Bergson. He was impressed by the aspect of unity in the universe, and considered that it is only through this aspect that scientific inferences can be justified. My temperament led me in the opposite direction, but I doubt whether pure reason could have decided which of us was more nearly in the right. Those who prefer his outlook might say that while he aimed at bringing comfort to plain people I aimed at bringing discomfort to philosophers; one who favoured my outlook might retort that while he pleased the philosophers, I amused the plain people. However that may be, we went our separate ways, though affection survived to the last.

Whitehead was a man of extraordinarily wide interests, and his knowledge of history used to amaze me. At one time I discovered by chance that he was using that very serious and rather out-of-the-way work, Paolo Sarpi's *History of the Council of Trent*, as a bed book. Whatever historical subjects came up he could always supply some illuminating fact, such, for example, as the connection of Burke's political opinions with his interests in the City, and the relation of the Hussite heresy to the Bohemian

silver mines. No one ever mentioned this to me again until a few years ago, when I was sent a learned monograph on the subject. I had no idea where Whitehead had got his information. But I have lately learnt from Mr John Kennair Peel that Whitehead's information probably came from Count Lützow's *Bohemia: an historical sketch*. Whitehead had delightful humour and great gentleness. When I was an undergraduate he was given the nickname of 'the Cherub', which those who knew him in later life would think unduly disrespectful, but which at the time suited him. His family came from Kent and had been clergymen ever since about the time of the landing of St. Augustine in that county. In a book by Lucien Price recording his dialogues in America, Whitehead describes the prevalence of smuggling in the Isle of Thanet at the beginning of the nineteenth century when brandy and wine used to be hidden in the vaults of the church with the approbation of the vicar: 'And more than once,' he remarked, 'when word was brought during service that officers were coming up the road, the whole congregation adjourned to get that liquor out of the way assisted by the vicar. That is evidence of how intimately the Established Church shares the life of the nation.' The Isle of Thanet dominated the Whitehead that I knew. His grandfather had migrated to it from the Isle of Sheppey and, according to Whitehead, was said by his friends to have composed a hymn containing the following sublime stanza:

Lord of the Lambkin and the Lion,  
Lord of Jerusalem and Mount Zion,  
Lord of the Comet and the Planet,  
Lord of Sheppey and the Isle of Thanet!

I am glad that my first meeting with him was in the Isle of Thanet, for that region had a much more intimate place in his make-up than Cambridge ever had. I felt that Lucien Price's book ought to be called *Whitehead in Partibus*, 'Partibus' being not everything outside England, but everything outside the Isle of Thanet.

He used to relate with amusement that my grandfather, who was much exercised by the spread of Roman Catholicism, adjured Whitehead's sister never to desert the Church of England. What amused him was that the contingency was so very improbable. Whitehead's theological opinions were not orthodox, but something of the vicarage atmosphere remained in his ways of feeling and came out in his later philosophical writings.

He was a very modest man, and his most extreme boast was that he did try to have the qualities of his defects. He never minded telling stories

against himself. There were two old ladies in Cambridge who were sisters and whose manners suggested that they came straight out of *Cranford*. They were, in fact, advanced and even daring in their opinions, and were in the forefront of every movement of reform. Whitehead used to relate somewhat ruefully, how when he first met them he was misled by their exterior and thought it would be fun to shock them a little. But when he advanced some slightly radical opinion they said, 'Oh, Mr. Whitehead, we are so pleased to hear you say that', showing that they had hitherto viewed him as a pillar of reaction.

His capacity for concentration on work was quite extraordinary. One hot summer's day, when I was staying with him at Grantchester, our friend Crompton Davies arrived and I took him into the garden to say how-do-you-do to his host. Whitehead was sitting writing mathematics. Davies and I stood in front of him at a distance of no more than a yard and watched him covering page after page with symbols. He never saw us, and after a time we went away with a feeling of awe.

Those who knew Whitehead well became aware of many things in him which did not appear in more casual contacts. Socially he appeared kindly, rational, and imperturbable, but he was not in fact imperturbable, and was certainly not that inhuman monster 'the rational man'. His devotion to his wife and his children was profound and passionate. He was at all times deeply aware of the importance of religion. As a young man, he was all but converted to Roman Catholicism by the influence of Cardinal Newman. His later philosophy gave him some part of what he wanted from religion. Like other men who lead extremely disciplined lives, he was liable to distressing soliloquies, and when he thought he was alone he would mutter abuse of himself for his supposed shortcomings. The early years of his marriage were much clouded by financial anxieties, but, although he found this very difficult to bear, he never let it turn him aside from work that was important but not lucrative.

He had practical abilities which at the time when I knew him best did not find very much scope. He had a kind of shrewdness which was surprising and which enabled him to get his way on committees in a manner astonishing to those who thought of him as wholly abstract and unworldly. He might have been an able administrator but for one defect, which was a complete inability to answer letters. I once wrote a letter to him on a mathematical point, as to which I urgently needed an answer for an article I was writing against Poincaré. He did not answer, so I wrote again. He still did not answer, so I telegraphed. As he was still silent, I sent a reply-paid telegram. But in the end, I had to travel down to Broadstairs

to get the answer. His friends gradually got to know this peculiarity, and on the rare occasions when any of them got a letter from him they would all assemble to congratulate the recipient. He justified himself by saying that if he answered letters, he would have no time for original work. I think the justification was complete and unanswerable.

Whitehead was extraordinarily perfect as a teacher. He took a personal interest in those with whom he had to deal and knew both their strong and their weak points. He would elicit from a pupil the best of which a pupil was capable. He was never repressive, or sarcastic, or superior, or any of the things that inferior teachers like to be. I think that in all the abler young men with whom he came in contact he inspired, as he did in me, a very real and lasting affection.

*Portraits from Memory*



**May Day  
Greetings!**

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