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This Side Idolatry

Foreword to: "The Pleasure of Finding Things Out:
The Best Short Works of Richard Feynman"
edited by Jeffrey Robbins

ARTSCIENCE MUSEUM™ PRESENTS

ALL POSSIBLE PATHS

RICHARD FEYNMAN'S CURIOUS LIFE

"I did love the man this side idolatry as much as any", wrote the Elizabethan dramatist Ben Jonson. "The man" was Jonson's friend and mentor William Shakespeare. Jonson and Shakespeare were both successful playwrights. Jonson was learned and scholarly, Shakespeare was slapdash and a genius. There was no jealousy between them. Shakespeare was nine years older, already filling the London stage with masterpieces before Jonson began to write. Shakespeare was, as Jonson said, "honest and of an open and free nature", and gave his young friend practical help as well as encouragement. The most important help that Shakespeare gave was to act one of the leading roles in Jonson's first play, "Every Man in his Humour", when it was performed in 1598. The play was a resounding success and launched Jonson's professional career. Jonson was then aged 25, Shakespeare 34. After 1598, Jonson continued to write poems and plays, and many of his plays were performed by Shakespeare's company. Jonson became famous in his own right as a poet and scholar, and at the end of his life he was honored with burial in Westminster Abbey. But he never forgot his debt to his old friend. When Shakespeare died, Jonson wrote a poem, "To the Memory of my Beloved Master, William Shakespeare", containing the well-known lines:

"He was not of an age, but for all time."

"Nature herself was proud of his designs,
And joyed to wear the dressing of his lines, ...
Yet I must not give Nature all: Thy art,
My gentle Shakespeare, must enjoy a part.
For though the poet's matter nature be,
His art does give the fashion; and, that he
Who casts to write a living line, must sweat, ...
For a good poet's made, as well as born."

What have Jonson and Shakespeare to do with Richard Feynman? Simply this. I can say as Jonson said, "I did love the man this side idolatry as much as any". Fate gave me the tremendous luck, to have Feynman as a mentor. I was the learned and scholarly student who came from England to Cornell University in 1947 and was immediately entranced by the slapdash genius of Feynman. With the arrogance of youth, I decided that I could play Jonson to Feynman's Shakespeare. I had not expected to meet Shakespeare on American soil, but I had no difficulty in recognising him when I saw him.

Before I met Feynman, I had published a number of mathematical papers, full of clever tricks but totally lacking in importance. When I met Feynman, I knew at once that I had entered another world. He was not interested in publishing pretty papers. He was struggling, more intensely than I had ever seen anyone struggle, to understand the workings of nature by rebuilding physics from the bottom up. I was lucky to meet him near the end of his eight-year struggle. The new physics that he had imagined as a student of John Wheeler seven years earlier was finally coalescing into a coherent vision of nature, the vision that he called "the space-time approach". The vision was in 1947 still unfinished, full of loose ends and inconsistencies, but I saw at once that it had to be right. I seized every opportunity to listen to Feynman talk, to learn to swim in the deluge of his ideas. He loved to talk, and he welcomed me as a listener. So we became friends for life.

For a year I watched as Feynman perfected his way of describing nature with pictures and diagrams, until he had tied down the loose ends and removed the inconsistencies. Then he began to calculate numbers, using his diagrams as a guide. With astonishing speed he was able to calculate physical quantities that could be compared directly with experiment. The experiments agreed with his numbers. In the summer of 1948 we could see Jonson's words coming true: "Nature herself was proud of his designs, and joyed to wear the dressing of his lines".

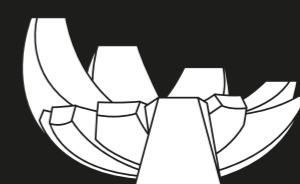
During the same year when I was walking and talking with Feynman, I was also studying the work of the physicists Schwinger and Tomonaga who were following more conventional paths and arriving at similar results. Schwinger and Tomonaga had independently succeeded, using more laborious and complicated methods, in calculating the same quantities that Feynman could derive directly from his diagrams. Schwinger and Tomonaga did not rebuild physics. They took physics as they found it, and only introduced new mathematical methods to extract numbers from the physics. When it became clear that the results of their calculations agreed with Feynman, I knew that I had been given a unique opportunity to bring the three theories together. I wrote a paper with the title "The Radiation Theories of Tomonaga, Schwinger and Feynman", explaining why the theories looked different but were fundamentally the same. My paper was published in the Physical Review in 1949, and launched my professional career as decisively as "Every Man in his Humour" launched Jonson's. I was then, like Jonson, 25 years old. Feynman was 31, three years younger than Shakespeare had been in 1598. I was careful to treat my three protagonists with equal dignity and respect, but I knew in my heart that Feynman was the greatest of the three and that the main purpose of my paper was to make his revolutionary ideas accessible to physicists around the world. Feynman actively encouraged me to publish his ideas, and never once complained that I was stealing his thunder. He was the chief actor in my play.

One of the treasured possessions that I brought from England to America was "The Essential Shakespeare" by J. Dover Wilson, a short biography of Shakespeare containing most of the quotations from Jonson that I have reproduced here. Wilson's book is neither a work of fiction nor a work of history, but something in between. It is based on the first-hand testimony of Jonson and others, but Wilson used his imagination together with the scanty historical documents to bring Shakespeare to life. In particular, the earliest evidence that Shakespeare acted in Jonson's play comes from a document dated 1709, more than a hundred years after the event. We know that Shakespeare was famous as an actor as well as a writer, and I see no reason to doubt the traditional story as Wilson tells it.

Luckily, the documents that provide evidence of Feynman's life and thoughts are not so scanty. The present volume (*The Pleasure of Finding Things Out: The Best Short Works of Richard Feynman*) is a collection of such documents, giving us the authentic voice of Feynman recorded in his lectures and occasional writings. These documents are informal, addressed to general audiences rather than to his scientific colleagues. In them we see Feynman as he was, always playing with ideas but always serious about the things that mattered to him. The things that mattered were honesty, independence, willingness to admit ignorance. He detested hierarchy and enjoyed the friendship of people in all walks of life. He was, like Shakespeare, an actor with a talent for comedy.

Besides his transcendent passion for science, Feynman had also a robust appetite for ordinary human pleasures. A week after I first got to know him, I wrote a letter to my parents in England describing him as "half genius and half buffoon". Between his heroic struggles to understand the laws of nature, he loved to relax, to play his bongo drums, to entertain everybody with jokes and tricks and stories. In this too he resembled Shakespeare. Out of Wilson's book I take the testimony of Jonson:

"When he hath set himself to writing, he would join night to day; press upon himself without release, not minding it till he fainted: and when he left off, remove himself into all sports and looseness again; that it was almost a despair to draw him to his book: but once got to it, he grew stronger and more earnest by the ease".



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