as n is even or odd, so that from (3) $V(n)$, $S(n)$ are rational multiples of π^k, where $n = 2k$ or $n = 2k + 1$.

Reference

1. D. M. Y. Somerville, *An introduction to the geometry of n dimensions*, p. 136. Dover (New York, 1958).

University of Istanbul, Istanbul, Turkey PATRICK DU VAL

GIACOMO SABAN

Obituary

Charles Alfred Coulson

Three reminiscences

My first knowledge of Charles Coulson, mathematician, physicist and chemist, was soon after World War II when one of my undergraduates told me about a splendid set of lectures on Wave Mechanics which she was attending in one of the chemistry laboratories. At that time Professor Coulson was in Oxford as I.C.I. Fellow in Chemistry. In 1950 Professor E. A. Milne died very suddenly leaving the Rouse Ball Chair of Mathematics vacant and Professor Coulson was elected to fill it. He held the Chair from 1952 to 1972, when he became the first Professor of Theoretical Chemistry. In his inaugural lecture (1952) on *The spirit of applied mathematics*, he described applied mathematics as "an intellectual adventure in which one combined creative imagination and authentic canons of beauty and fitness; they combine to give us insight into the nature of that world of which we ourselves, and our minds, are part". It would be hard to find a better description of Charles Coulson's life and work.

A complete lack of any sense of his own importance was one of Professor Coulson's outstanding characteristics. I well remember a certain morning when, at about 9.15 a.m., I rang up the old Mathematical Institute in Museum Road and immediately got through to Professor Coulson. I apologised saying that I had hoped to ask the secretary to give a message to Alan Tayler (Dr. A. B. Tayler). Coulson's reply was typical: "Don't you worry, I'm office boy till Rosemary arrives. What's your message? I'll give it to Alan." And he did!

Professor Coulson's success as a lecturer became a problem to the Mathematics Faculty when we moved into our new purpose-built Institute in St. Giles. Hitherto we had used science lecture theatres, but now we must use our own. No lecture theatre in the new Institute was large enough to hold (not necessarily 'seat'!) the first-year mathematicians, physicists, engineers and chemists who flocked to hear him. I remember a Faculty

meeting at which we discussed all sorts of solutions such as closed-circuit television—but would not the scientists want to see Professor Coulson live and not televised? The problem was finally solved by the science professors, who put on equally important lectures simultaneously in their own departments.

Though utterly devoid of false pride, Coulson had a healthy enjoyment in receiving V.I.P. treatment on occasions. He told me once how he had been invited to preach a special endowed sermon at one of the R.A.F. colleges. His would have been the second such sermon, the first having been preached by the Archbishop of Canterbury. He had refused because the sermon was on a weekday afternoon and he was unable to reach his destination without cancelling his 9 a.m. lecture to undergraduates. To cancel a lecture, even for a sermon, was unthinkable. When I next saw him I learnt that the sermon was to be preached after all. The R.A.F. was sending a helicopter to Abingdon to collect him at 1 p.m. on the day in question. How he enjoyed that!

Professor Coulson was completely indefatigable in his work for mathematics and science, for Methodism and Oxfam, and for people whether black or white, young or old. During the last six weeks of his life he must have dictated or himself typed hundreds of letters. I was the recipient of one of these and it hardly contained a word about himself. The whole world is very much poorer for his passing, but we have been left with very rich memories of this very great and inspiring man.

I. W. BUSBRIDGE

Charles Coulson's interest in the problems of the low-income countries of the world was an extension of his warm humanity and feeling for his fellow men. As chairman of Oxfam from 1965 to 1971, he acquired an unusually detailed knowledge of the countries of the Third World. His visits were at no cost to Oxfam, and were skilfully combined as intermediate stopping points when accepting invitations to address learned bodies in other parts of the world.

In 1969, a long-standing and active concern for the problems of southern Africa expressed itself again when he agreed to become external examiner in mathematics at the tri-national University of Botswana, Lesotho and Swaziland. During his last visit in April 1972, although already weakened by recent illness, he completed an exhausting tour of the three widely separated national campuses of the University, and combined this with his usual meticulous scrutiny of examination scripts. In Lesotho, we remember his concern not only for the University and its students, but equally for the dark and overcrowded rural primary school with leaking thatch, where formal education begins—and, for most children, soon ends, through lack of money to buy even a share in a copy of a necessary school book.

D. P. AMBROSE

I had long been in Professor Coulson's debt for his little undergraduate book on *Waves*; but my personal acquaintance with him began when he agreed to become the first president of the Association's Oxford and District Branch. That his opening address drew a large and appreciative audience caused us no surprise; and one might have expected that, for such a busy and distinguished person, that was where his contribution would end. Far from it—he was more than generous in giving his time to the young Branch, chairing almost every meeting during the year and helping us over many of our early problems.

The following September I asked him whether he thought it was possible to get across something of the flavour of wave mechanics to sixth formers. His reply was completely in character: "I don't know, but I would love to try ... I'm afraid I haven't a free day up to 14 March; could I come on the 15th?" It was, of course, a superb lecture—thoughtfully prepared and beautifully delivered.

When I last spoke to him, it happened that we were both visiting Tanzania —he as Royal Society Visiting Professor to the (then) University of East Africa. The leanness of his figure was enhanced by tropical dress of white shorts and shirt. As we listened together to a talk on African birds, he was in his element; a few months short of 60 at the time, he was about to set off to climb Kilimanjaro.

It was typical that, as President of the Association in 1969, he should choose to entitle his address "On liking mathematics". From that personal manifesto (printed in full in the *Gazette* for October of that year) I have selected one sentence to end this appreciation; he was speaking in the context of mathematical proof, but for me it sums up Charles Coulson the man: "Certainly you should put your Q.E.D. at the end."

D. A. QUADLING

Norman de Quetteville Dodds

After graduating with first class honours in Mathematics from King's College, London, Norman Dodds took up a teaching appointment at Highbury County Grammar School, where he remained until 1944 when he moved to Bishophalt School in Middlesex. Eight years later he went to Haberdashers' Aske's School at Hampstead, where he remained until his retirement in July 1970. Previous to going to King's he had spent some 8 years in the commercial world, an experience which stood him in good stead in his teaching career.

He was a many-sided person. As a sportsman he took a great interest in the athletic activities in all the schools in which he taught, and was himself a first-class cricketer. He had been a keen scout and motorcyclist and was ever a keen gardener. During the war, when his school was evacuated to Somerset, he helped with harvest camps for the boys, and was a constant