D'ARCY WENTWORTH THOMPSON

1860—1948

Others have written fully about the life and many-sided talents of this great zoologist who was equally at home as a natural scientist, as a classical scholar in a realm where he followed his father, and as a mathematician. According to his friend, the late Clifford Dobell,[1] the three main elements in his composition were not mixed or added but as it were chemically combined to form his personality. For over sixty years he occupied a Chair of Natural History in a Scottish University, first at the newly founded University College of Dundee and since 1917 at the United College, in the University of St Andrews. Almost to the day of his death he kept in personal touch with his students, giving them instruction when he was on a bed of sickness during the last year of his life.

His biological *opus maximum*—the extraordinary book *On Growth and Form* (1917)—appeared when he was fifty-seven years of age, but as his father said, "It takes time to form an elephant or a poet." The book, which contains remarkable, not to say startling, applications of geometry, was a biological innovation and few people were in a position to appreciate it. His own words admirably express his main thesis: "Cell and tissue, shell and bone, leaf and flower, are so many portions of matter, and it is in obedience to the laws of physics that their particles have been moved, moulded and conformed. There are no exceptions to the rule that Θεὸς ἀεὶ γεωμετρεῖ. Their problems of form are in the first instance mathematical problems, and their problems of growth essentially physical problems."

These Greek words "God always geometrises" are attributed by Plutarch to Plato, and it is through this particular fact, that D'Arcy Thompson passed on to me as I was about to give a lecture in my first month at the United College, that our friendship began. From this majestic bearded old man whose talk, whether in private or at a public meeting, was easy, measured, homely, resonant and dignified, one learnt with surprise and delight of a new world of mathematical applications and the old world of forgotten mathematical wisdom. Conformal mapping of one complex variable upon another was to him a fruitful

[1] Cf. Obituary Notices, Royal Society of London 18 (1949) 599—617. I have gratefully drawn several extracts from this Notice.

https://doi.org/10.1017/S0950184300002998 Published online by Cambridge University Press

way of relating significantly the shapes of apparently distinct forms of shell fish. A similarity transformation would compare the inner structure of a thigh bone with that in the framework of the Forth Bridge. The equiangular spiral was found in many a guise—in the gnomon of Ancient Greece, and in the growth of a sea shell or of a sunflower. The Fibonacci numbers 1, 2, 3, 5, 8, 13, . . . would enumerate the circuits of flakes upon the surface of a fir cone, each cone requiring two consecutive terms of this series for counting the flakes in one or other intersecting circuit of its network. The theory of numbers came strangely near to botany with him, just as, long ago, Pythagoras had found it in the properties of sound. During the Second World War Sir D'Arcy held spellbound students in training to be airpilots and navigators as they listened to his lecture on the flight of birds which ranged from bridge building of Galileo to the latest technical subtlety in the aerofoil. The Edinburgh Mathematical Society vividly recall his lecture at a Colloquium upon the generation of the thirteen semi-regular figures of Archimedes constructed by short circuiting the plane repeated patterns of space filling regular polygons which he had found among the engravings in a book by Kepler. He was keenly interested in the theory of numbers and in magic squares. His approach to the history of the Ancients, and particularly of Greece and of mathematics, wherein his knowledge was great and detailed, shewed a breadth and an imagination. During a walk he threw out the suggestion that Greece owed more to Ancient Egypt both physically and intellectually than we think, in evidence of which he pointed out how frequently the name of a famous Greek began with the letter P. He deplored it when a historian wrote too cautiously and could not see the wood for the trees.

From his schooldays at the Academy till he presided at the Royal Society of Edinburgh his association with the city was close. He made many friends with young and old and took the greatest interest in their doings, particularly in science and mathematics, and to the very end. He enlarged for us the dignity of mathematics with the wisdom of the ages and we were proud to number him among the Honorary Members of our Society.

H. W. Turnbull.