

# ARTHUR HENRY SHAKESPEARE LUCAS.

1853-1936.

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(With Portrait.)

Lucas came into the world on 7th May, 1853, at Stratford-on-Avon, where his father, the Rev. Samuel Lucas, F.G.S., was a Wesleyan Minister with a passion for Natural Science, whose calling took him over the greater part of England and Wales, holding short tenancies in various towns. Lucas may thus be said to have been nursed in the lap of science and intellectual traditions, which he appears to have assimilated with gusto at an early age. At Brynmawr (S. Wales) and Helston (Cornwall), where his father was superintendent of the Wesleyan circuit of the district, the small boy revelled in wild flowers and sea shells, and even in old age recalled 'the daffodil covered meadows' and 'the clear pools among the rocks, themselves covered with bladder-wrack. I can smell the penetrating odour to-day'. Launceston, Stow in the Wold, where father and two boys collected Liassic fossils, High Wycombe (Bucks), Longton (Stafford), Scorton (Lancashire), Methwold (Norfolk), St. Neots (Huntingdon), and finally Cambridge were successive homes. Though the Wesleyan Conference looked askance at this dallying with a dangerous science, the small boy Arthur was a doughty champion of his parent, when, as a lecturer on 'Geology and Genesis', the Rev. Samuel became embroiled with the local inquisitors. A strange boyhood, through which a clearly unusual parentage prevented the production of a prig or a pedant, that might have evolved from such environments. This notable father seldom had more than £150 a year as stipend, though getting certain allowances and making a little by the sale of fossils. In the very interesting Autobiography, written in recent years, Lucas wrote: "As a very small boy of four to six years, he would show me the specimens he obtained from the mines, and made me a little cabinet of my own in which I kept my small specimens of Quartz, Galena, Towanite (my favourite for its brilliant colours), Iron Pyrites, Serpentine from the Lizard, and so on. He made assiduous search for plants, and named with strange names, which, however, gradually came to stick in my memory. This kind of guidance was continued in later circuits, until I became familiar with most of the fossiliferous strata in England and with the majority of the plants of the British Isles."

The practical knowledge gained in these early years, with little aid of text-book or formal teaching, enabled him to win the Burdett Coutts Geology Scholarship in the University of Oxford, and as a medical student in London, the Gold Medal awarded for Botany by the Apothecaries Society (T. H. Huxley won only the Bronze Medal in his day).

At the New Kingswood School, Bath, where Lucas spent seven years—the seventh under the Scholarship awarded as Head Boy of the previous year, Science had no place and he never had a lesson in Science. This school, founded by John Wesley for the 'sons of the prophets', imposed an iron discipline in which



'Thou shalt not Play' appeared to be the first commandment. The only playground was asphalted, where a favoured few could play cricket, and there was a moderate gymnasium. Chunks of dry bread and a pannikin of milk for breakfast and for tea, with a little meat at dinner, constituted the Plain Living. "Never allowed outside the school precincts alone, we worked in half-years, with five weeks' vacation at Xmas and five in the Summer." Yet the teaching was good, for it turned out a Senior Wrangler in J. F. Moulton and a great engineer in Sir Robert Perks. In the later days of his school life the Spartan system of early days was greatly modified. Dr. C. J. Prescott, who succeeded Lucas at Newington, was a small boy in the school in Lucas's time. Annually they were entered for the Oxford Local Examinations. In the Senior Exam., at the age of 15, Lucas came 14th, and next year 2nd in all England—a position which won for him an Exhibition at Balliol College, Oxford, where he was enrolled eighteen months later. His last year at school, as also his last year at Oxford, was interrupted by a severe attack of pneumonia—the second of these gravely threatening his career. Balliol College in 1870 was under the great Benjamin Jowett. Asquith (later Earl of Oxford), Alfred Milner, R. H. Roe (the greatest of Australian schoolmasters), W. H. Mallock (the novelist), were fellow undergraduates. But, though a new world was opened to him, he was amongst men of a different upbringing, and as a shy boy of 17, poor and poorly clad, he was unable to indulge in the social life of Oxford, unable even to subscribe to the sports clubs. At one time he even thought of trying for a scholarship at Magdalen, of higher value than his Balliol Exhibition. On consulting Jowett he was met by "You are quite right not to come on your father and you mustn't go to Magdalen", and was straightway helped with cheques that enabled him to continue his course. A first class in Mathematical Mods. was followed by a course for Finals in Mathematics and Natural Science, but the catastrophe of a chill and pneumonia led to a special aegrotat degree. Actually he was given a short Honour paper containing the more difficult questions from the examination of the year, and awarded fourth class Honours. This, however, was counterbalanced by the Burdett Coutts Scholarship, an open University prize, with considerable emolument, that enabled him to pay his medical fees. He had followed his older brother to London, where he promptly won the Entrance Science Scholarship at the London Hospital. Half-way through his course, owing to the death of his father and the dangerous illness of his brother, who was ordered to leave England, he sacrificed his medical career and shouldered the financial responsibility for his brother's three young children—their mother had died—and accepted a mastership at the Leys School, Cambridge, where he taught Mathematics and Science for five years. Here he founded a Natural History Society and a Museum, to which he presented the valuable collection of fossils inherited from his father, as well as the family collection of plants, comprising 1,200 out of the 1,400 described species of British Flowering Plants and Ferns. This Museum acquired quite a reputation later, when one of the boys made great finds in the Pleistocene beds of the Cam valley. Lucas made full use of his Cambridge period, working at the Cavendish Laboratory, under Clerk Maxwell, and Glazebrook, and under M. Garnett at the Woodwardian Geological Museum, and attending Professor Bonney's lectures. As a result he was commissioned to investigate the plutonic rocks of Guernsey and to report on some strata in the Isle of Wight, where he spent a winter vacation with a Leys boy. His paper on this was published in the *Geological Magazine* and alluded to with approbation by Robert Etheridge in his Presidential Address to his Section of the British Association. He was also elected a Fellow of the Geological Society, his sponsors



being Sir Joseph Prestwich and Professor Boyd Dawkins. At the Leys School Lucas played with the Rugby Football Team with some success—the only recorded instance of his share in any field sports.

In 1883 Lucas was appointed Mathematics and Science Master at Wesley College, Melbourne, the Head Master of which, A. S. Way, had been a boy and Master at Kingswood. The journey across Europe to join the S.S. *Cuzco* at Naples was a belated honeymoon, for he had married in 1882. His brother, Dr. T. P. Lucas, was already in Melbourne, and he was mightily attracted by the prospect of studying a new fauna and flora. The Orient boats then used to coal at Diego Garcia, a coral island in the Indian Ocean, where he went ashore and, characteristically, nearly got left behind through his intense interest in his first coral beach combing. He was rescued by the Orient Manager getting him back to ship and wife in a dug-out paddled by Mauritian natives. Lucas gives an amusing account of the science teaching and equipment at Wesley in 1883. Of course he started a Natural History Society and Museum, making lifelong friends, including Herbert Brookes, who wrote a delightful appreciation of his old Master in the *Wesley College Chronicle* (August, 1936). Lucas was probably the first teacher to introduce Field Study of Nature into a school. Taking an *ad eundem* degree, he became a member of the Melbourne University Senate, and, by his efforts, a motion was carried to establish a separate Chair of Biology, and the appointment of Baldwin Spencer followed. He became President of the Field Naturalists' Club, founded by his brother, and edited the *Victorian Naturalist* for some years. He was a close friend of Baron von Mueller, who presided at a farewell gathering on the eve of his departure for Sydney.

With J. Burslem Gregory, Lucas went for a 200-mile tramp through hitherto untramped country to Wilson's Promontory, collecting plants and shells, after which the Field Naturalists' Club—at Lucas's suggestion—persuaded the Government to proclaim the Promontory a Reserve. The Journal of this Club, which Lucas edited till 1892, is still a model of its kind, while the Club has a membership of 300, with a monthly attendance of 50 to 70.

Besides his school work in the mornings, Lucas engaged in Tutorial work at Ormond and Trinity Colleges at the Melbourne University, and was largely instrumental in the foundation of Queen's College, of which he was Senior Fellow and Tutor in Science, his colleagues being A. W. Howitt, Rev. Lorimer Fison and Professor Dendy. He also found time to work up the Lizards of Australia, to publish papers on the Amphibia and Fishes of Victoria, and to start the Port Phillip Biological Survey. In this he was greatly aided by Baldwin Spencer, and together they persuaded the Ministry to erect a Biological Laboratory at a cost of £10,000. Only after some consideration did he decline Spencer's offer to become Lecturer in Biology; otherwise his course of life would have been materially different from that actually followed. It was at Spencer's suggestion that the "Introduction to Botany" by Dendy and Lucas was written, a work that has been, and still is, in much use amongst students.

From 1892 to 1898 Lucas was Head Master of Newington College, Stanmore, during which period the school enrolment increased by 50 per cent., and a high University honour roll ensued. In Sydney he at once joined our Society, which then had five members who achieved their F.R.S. (David, Haswell, Hill, Maiden, and Wilson). He went on geological excursions with David, and became the close friend of J. J. Fletcher, with whom he explored the wonderful sandstone areas of Sydney and the Blue Mountains. On one of their trips they left Sydney in the



evening, walked 10 miles from Bell, to reach the summit of Mt. King George at 6 a.m.

His first papers in the Linnean Proceedings were mostly on Lizards. Altogether he contributed 14 papers, those of the last ten years chiefly on Marine Algae, of which he was the acknowledged Australian authority. Two papers also were written in conjunction with others. A member of our Council from 1894 till his death (with the exception of two years, 1924–26, spent in Tasmania), he was President 1907–09. His Presidential Address of 1908 is a model of sane pleading for the proper relation of the State to Science, and should be read by those who did not have the privilege of hearing it. In 1909 he set a useful example in laying on the table the MS. of his 'Revised List of the Fucoideae and Florideae of Australia' as a substitute for less concrete matter.

He was specially selected to give the Memorial Lecture to his brother botanist and friend J. J. Fletcher, and his own words on this subject fitly describe himself as teacher: "There is perhaps one word only in which may be summed up both his discipline and his instruction — sincerity. He hated all humbug and shams, but he loved all that is true or beautiful or good in nature, in literature and in human character."

In 1899 Lucas became Mathematical and Science Master of the Sydney Grammar School. Here he worked for 25 years; was acting Head Master during the war years—when Mr. Sloman was at the front—and, after the resignation of Mr. Sloman, in his own right till 1923. As a sideline in 1906 he assisted with the lectures in Geology and Physiography at the Sydney University, during the absence of Professor David. He also, for many years, was Examiner in Chemistry for the Technical College, Sydney.

As a teacher, Lucas possessed a phenomenal versatility of knowledge which, combined with unusual patience, equability of temper, and a genuine love of the young, made him notable in his profession. During his career at Newington and the Grammar School his personal pupils won the medals, given for the best candidate in the University Senior Examinations, in no less than 13 different subjects. One of these fell to a lad who, short of a subject, took up Physiology, and sat in Lucas's classroom during certain hours picking up the intellectual crumbs that fell during the few available spare moments of class teaching.

Besides the Sciences—including Mathematics—Greek, Latin, German, Ancient History, and especially English Literature, came with equal facility, and he would discuss some French verses he had written with the French Master, or compose an English sonnet to illustrate its earlier form. A ripe English scholar, he was especially selected at Wesley to take the VIth Form in English, whom he regaled on a wide range of reading, from 'Ralph Roister Doister' to 'The Ring and the Book'. With a rich fund of quotations, often humorously applied, with a twinkle in his eye, he would poke fun at an entomologist friend with lines from Browning or satirize a piano-playing nuisance with a clever parody on Walt Whitman. In (or about) 1900 he gave, by special request, two memorable lectures before the Teachers' Guild of New South Wales on 'Maximum and Minimum Temperature', with impressive experiments carried out on the platform on steel welding and liquid air respectively. One of the most remarkable fruits of his learning was his linguistic powers. From school he brought a sound scholarship in the classics and French, with some proficiency in German. With little continental travel, or other inducement than the desire for information from foreign books of Science, Lucas set himself to master a difficult language as a holiday pastime. Thus, while spending a summer vacation with him at Twofold Bay, the writer found him



reading Don Quixote in the original Spanish. He acquired Italian in order to study the '*Sylloge Algarum*' of De Toni. He took up Russian in order to read a Russian author on Lizards; and this was no light dalliance, having its practical application during war years, when he was the only available interpreter who could attend a law court and help some Russian refugees in trouble. He also gave a lecture at the school on modern Russian Literature.

With a backward pupil he, on one occasion, not once or twice, but five times, explained the working of a problem in Algebra. When someone commented on his patience he answered simply, "If I hadn't done it the fifth time the other four times would have been wasted." Herbert Brookes says of him, "he had a new way of teaching in those far off days. I question whether any other teacher in Australia has touched so intimately and deeply the lives of so many young Australians", and he quotes as appropriate to Lucas, "Knowledge may be gained from books, but the love of knowledge is transmitted only by personal contact". Of his modesty one may quote his own words on J. J. Fletcher: "His aim was not to be talked about for doing something, but to do something great because it was a fruitful thing to do."

In 1923 he retired from school work, but not to rest. On Professor Carslaw's recommendation he accepted the Chair of Mathematics in the University of Tasmania, as Acting Professor; surely a unique performance for a man of 70. To quote Dr. Prescott, "Few men would have cared, or dared, to take such a responsibility at his age. But in his quiet way he was a daring soul". In November, 1924, he wrote: "It has been an interesting experience, and I have enjoyed the work, though it has been rather strenuous, as I was very rusty. They have asked me to take similar work through next year and I have agreed, but I think I shall be glad actually to begin to rest." Again, in October, 1925, he wrote: "Tasmania has, I believe, rejuvenated me, and I shall part from her, and the folk here, with much reluctance." Amongst these folk were Mr. and Mrs. L. H. Lindon—the former Head Master of Geelong and an old Grammar School colleague—and Mr. and Mrs. Perrin, who shared in his algae hunting. During the last decade of his life Lucas showed his 'rejuvenation' by his active research on the Algae. He wrote the article 'Algae' for the *Australian Encyclopaedia*. With Mrs. Perrin he collected the seaweeds of the Barrier Reef and of Lord Howe Island. As Curator of the Algae he was allotted a special room at the Botanic Gardens. The Commonwealth Government sent him on a special mission to report on the economic possibilities of the seaweeds of Western Australia. Paying a visit to Rottnest Island, by special permission—for this island is wholly reserved as a penal settlement—he stayed for a week in the Governor's quarters and "was driven from point to point of the coastline in the prison van and assisted in the collection by two convicts. These men so enjoyed their association with him that they continued to collect for him and communicated with him afterwards". Such was his power in winning affection from all sorts and conditions of men. "It was the response to his own genuine affection for all humanity, birds, insects and plants. He was, in very truth, one of the world's great lovers and recalls the spirit of St. Francis." (H.B.)

Since the death of his wife, Lucas lived at Roseville with his daughter, Mrs. Cortis-Jones, and her husband. Here he loved to grow the native shrubs, flowers and ferns collected in his rambles. Every summer was spent in Victoria and Tasmania collecting Algae and knowledge to the end. He published classified lists of the Algae of Tasmania, Tropical Queensland and of Australia in general, also of Lord Howe Island. Since his death, Part 1 of 'The Seaweeds of South



'Australia' has been issued by the South Australian Branch of the British Science Guild (June, 1936).

In this Handbook, besides enumerating and classifying, with copious illustrations, the Green and Brown Seaweeds, he gives (1) An Outline of the Progress of Phycology in Australia, (2) Hints on Collecting and Preserving Seaweeds, (3) General Notes on the Classes of Sea Plants, (4) The Work of Seaweeds in Nature, (5) The Uses of Seaweeds to Man. In common with many other scientific men—notably with his fellow Linneans David and Tillyard—Lucas was a skilful draughtsman and photographer; and the illustrations of this and other works are from his own drawings or slides.

Alas! he overtaxed his waning strength when, at 83, he faced stormy weather on the rocks of Warrnambool in May, and a cold developed into pneumonia. On the train journey homeward he collapsed at Albury and died in the Albury Hospital three weeks later (10th June, 1936) from heart weakness. A large gathering paid their last homage at the service, held in the Roseville Methodist Church. Here his old schoolfellow and fellow Head Master, Dr. C. J. Prescott, gave an eloquent address. Representatives of every class of the community were there, including many old colleagues in Science and Education and the prefects of the two schools where he had held sway. Eulogistic notices have appeared in the *Wesley College Chronicle* and the *Sydneian*—in the latter from four sources, and these have been quoted freely in the present Memorial. Perhaps the most outstanding characteristic in him was that self-effacement that sprang from extreme modesty and a humility learnt from his Puritan forbears. "Lucas helps you to believe in Christians", said Mr. Weigall to Dr. Prescott. It was this common heritage, as much as scientific sympathy, that was the bond between Lucas and Fletcher. They were alike in their scorn of material profit. Fletcher's refusal of higher salary or assistance when he considered that the Society couldn't afford it is matched by the refusal of Lucas to accept more than £1,000 a year as Head Master of the Sydney Grammar School, though offered £1,500, for a similar reason. This self-effacement also formed a veil which dimmed the radiance of his work in the public eye. His name does not appear in the Australian *Who's Who*, though its pages are filled with the names of lesser men. The great sacrifice of his medical career in the interest of his brother has been already noted. Other acts of unselfishness were almost every-day features of his life. Here is one that was clearly impressed on the writer's mind at the time. As a rare indulgence, Lucas, together with Fletcher, joined a botanical expedition to Mt. Kosciusko, organized by the late J. H. Maiden. On the first day, wandering in this floral Elysium, he and Fletcher became separated towards the evening; Lucas—always a poor bushman and, as on Diego Garcia, lost to the world in the worship of Pan—was veritably bushed, and unable to find the camp. He managed, however, to find his way to the Observer's hut on the summit, where he was detained for 48 hours by a dense fog. Unfortunately a returning horseman passed the Maiden Camp that evening, heard that Lucas was lost on the mountain, and spread the news. This obtained headlines in the Sydney evening papers, and an over-zealous cleric took it to Mrs. Lucas. Lucas hastened home to console a harassed wife, giving up a well-earned holiday. Reference has already been made to the Autobiography written in his late years which it is hoped will see the light of publication. Here is told the brave struggle of a gifted lad who, under the rare teaching and example of a splendid father, chose to scorn delights and lead laborious days, careless of reward but ambitious in effort. Some verses written recently by Lucas and quoted in full in the Wesley College article may be given here in part to show the strength of this early influence.



Stow on the Wold, Gloucestershire. 1862.  
 "Of a year of my childhood the scenes I behold  
 Where we lived on the hillside of Stow on the Wold,  
 For its fields and its faces remain with me yet,  
 And the folks and the flowers I never forget,  
 Where the wind blows cold  
 On old Stow on the Wold.

In the white quarries of fossils a store,  
 In the deep railway cuttings a hundredfold more,  
 How the navvies delighted tobacco to spy  
 When they saw the good parson advancing to pry  
 In the clay stiff and cold  
 Of old Stow on the Wold.

For a bargain in fossils the parson was keen,  
 And he knew them, from Cambrian to Post-Pliocene,  
 When he lectured, the Clergy looked wise as they knew,  
 For the Squire in the Chair gave the Clergy the clue—  
 We must Science uphold  
 In old Stow on the Wold."

Some of his friends lamented that his gifts would have more appropriately adorned a University Chair than the Schoolmaster's desk. Yet, while it is clear that he could have filled almost any Chair of Science as efficiently as he did that of Mathematics, he himself was well content to be employed usefully; cheerfully carrying out the drudgery that went with the endless looking over of examination papers—elsewhere described as soul-destroying work; ever holding aloft the lamp of lofty aims and noble ideals. His portrait by Hanke—a tribute of admiration from Old Boys—hangs in the Assembly Hall of the Sydney Grammar School. It is a great thing to have passed on such a record. Few men have earned so thoroughly the title 'scholar' as he whose whole life was spent in the pursuit of knowledge: and this, not to be stowed away in some mental lumber room, but to be utilized to the full for the benefit of his fellow men.

Of his family his daughter Ida married Mr. H. F. Cortis-Jones of the Newington College Teaching Staff; a second daughter, Grace, married Dr. J. O'Keefe. Three grandchildren are living.

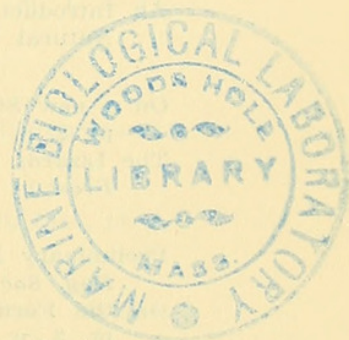
As an appropriate ending to the Memorial of a great Linnean I am permitted to quote the spontaneous homage of an eminent Melbourne citizen, whose heart, as well as his hospitable home, was so freely open to the loved teacher of earlier years.

To A.H.S.L.

When at the last, as that great tide of God  
 Sweeps on me with its never ending flow,  
 And I am lifted up and borne along  
 Upon its buoyant breast, as all must be;  
 And gently flung upon some quiet shore,  
 And tranquil inlet of those Happy Isles:  
 There on that golden strand, full well I know,  
 I shall behold that old familiar form  
 Of him I learned to cherish in this life,  
 Bending as was his wont above the weeds,  
 Shaking their beauty forth from foreign dross,  
 And fondling with an earth-begotten love.  
 There shall I join his club of kindred souls,  
 Formed to prospect that other Out-of-Doors.  
 Still, still, he shall reveal to me those dear  
 And precious things, that are not for the mart,  
 To which my untrained eyes are mostly blind.

*Herbert Brookes.*

H.J.C.





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