

## Obituary.

MR. J. S. GAMBLE, C.I.E., F.R.S.

A FEW weeks ago the Indian Forest Service and British forestry had to deplore the loss of Sir William Schlich, who may be said to have been the doyen of British Empire forestry. Following shortly on the death of his friend, the Indian Service has now lost another great forester in the person of James Sykes Gamble, who, on his departure from India in 1899, left a great reputation behind him both as a scientific forester of the first calibre, an educationist, and a great botanist. Gamble went out to India when the botany of the forest was imperfectly known for the practical forester's purpose and the Indian timbers were quite unknown. Before he left the country he placed in the hands of the Indian forester a manual the value of which received immediate recognition.

Gamble was the second son of Dr. Harpur Gamble, R.N., and was born in London on July 2, 1847. He was educated at the Royal Navy School, New Cross, and at Magdalen College, Oxford, where he took firsts in Mathematical Moderations and in the Final School of Mathematics. The following year, 1869, he was selected by the Secretary of State for India to undergo training on the Continent for the Indian Forest Service. This scheme had been recently inaugurated by Sir Dietrich Brandis, at that time the first Inspector-General of Forests in India. Out of the seven selected in that year, Gamble and three others were deputed to the Nancy Forest School, the rest going to Germany. Gamble had many stories of the interesting life he led at Nancy, where he was trained under some of the greatest foresters of the day. He was under M. Clément de Grandprey in the fine forest of Haguenau before he went to the School. At the latter place at the time there were some of the best known names in French forestry, Nanquette being director. In the jubilee number of the *Indian Forester* (July 1925) Gamble wrote: "Personally, I can testify to having started my interest in wood-structure under the auspices of Professor Mathieu and with the help of the well-arranged collection in the wood-chalet in the School Garden." The Franco-Prussian War interfered with the English students' studies at Nancy and they were transferred to Scotland under Dr. Cleghorn, who had made a great name in Indian forestry annals and had been associated with Brandis in the first organisation of the Forest Service (1863-64). In the spring of 1871 Gamble returned to Nancy, and in November he sailed for Calcutta, taking out with him some Wardian cases of *Ipecaçuanha* for the Botanic Gardens. It was this commission, received from the India Office, which took Gamble to Kew, where, under the guidance of Sir Joseph Hooker, he paid his first visit to the Gardens and Herbarium, thus starting an association with the Gardens which was to continue in later years and to last until his death. With these cases in his charge he landed at the private ghat (landing stage) of the Calcutta Gardens on the Hoogly River, and it was from the same ghat that he took his departure from India twenty-eight years later.

Gamble was posted to Burma and, like every man who goes first to that fascinating country, fell in love with it and with the forests. His stay in Burma was

short, for in August 1872 he received orders to report in Bengal, orders he was very reluctant to comply with. In those days forest organisation in Bengal did not exist. Towards the end of the year Schlich was sent to Bengal as Conservator, and the friendship which was to last through life commenced between these two men. Before Schlich left Bengal he had placed forest administration on a firm basis, and Gamble afterwards carried on the work, as also the editorship of the *Indian Forester*, which Schlich founded in 1875. For a time Gamble was Conservator in Madras, and in 1890 he was transferred to the North-West Provinces (now United Provinces) as Director of the Imperial Forest School at Dehra Dun and Conservator of the School Circle, comprising an area of forests in the lovely Dun and Siwaliks and neighbouring Jaunsar Himalaya. Gamble proved himself one of the best directors the School has ever had. In connexion with the School he planted a small arboretum, which the writer had the good fortune to visit for the first time in his company, and saw once again in April last during a visit to India.

The Indian forest officer owes a great debt to Gamble on the score of the valuable botanical work he accomplished; but it should be recorded that the latter was a thoroughly efficient forest officer and in his day carried out some remarkably fine work. He was an indefatigable research worker and a patient cataloguer. In his early days in Bengal he prepared a list of the trees, shrubs, and climbers of the Darjiling district, a second edition of which was published in 1895. As an outcome of his work in Madras he compiled a flora of that Presidency. He drew up a list of the Bambuseæ of British India, published in the *Annals of the Royal Botanic Garden, Calcutta*.

It was while he was associated with Brandis as Assistant Inspector-General of Forests that he commenced the research work on Indian timbers, which resulted in the publication of his great work "A Manual of Indian Timbers," for which generations of Indian forest officers have blessed the name of Gamble. This first appeared in 1881, was soon out of print, and for a decade the young Indian forest recruit was almost helpless in the forest in the absence of such an essential handbook. A second edition, much amplified, appeared in 1902, and a third three years ago, the latter an improvement even on the second.

In the year of his retirement Gamble was made a C.I.E., and in the same year was elected a fellow of the Royal Society. In 1900 he was put in charge of the organisation of the forestry exhibit at the Paris Exposition of that year. The whole of the objects were assembled and arranged and tabulated in Calcutta by Mr. F. Manson, to whom the writer acted as assistant on what proved an extremely interesting piece of work. Gamble was awarded the Jury Medal and Diploma of the Exposition for this work; he also received the Barclay Medal of the Royal Asiatic Society of Bengal. He was elected to the Athenæum in 1902.

Gamble collaborated with the late Sir George King in materials for a flora of the Malay Peninsula, work which he afterwards carried on by himself. He was also associated with Schlich at Oxford in the training of Indian forest probationers and lectured on Indian



forest botany. He settled at Highfield, Liss, in Hampshire, and married, in 1911, Gertrude, daughter of the Rev. A. S. Latter.

To the Indian Forest Department and his many old friends Gamble's death will come as a great blow. He has left behind him an enduring memorial by which many a young forest officer who never met him will revere his name.

E. P. STEBBING.

PROF. W. WRIGHT SMITH has sent us the following brief notes on Mr. J. S. Gamble's botanical work:

Gamble was associated with the late Sir George King on a very extensive publication entitled "Materials for a Flora of the Malayan Peninsula." This was started by Sir George King, who was responsible for Nos. 1-13; then King and Gamble appear as the authors for Nos. 14-21. These papers appeared in the *Journal of the Asiatic Society of Bengal* for the years 1903-1909, and the last numbers contain chiefly the Gamopetalæ. On the death of King, Gamble completed the work to the end of the dicotyledons. This constituted Nos. 22-25—published 1912-1915—and represented the orders Nyctagineæ up to Salicaceæ. One or two of the families were done by other authors.

On the completion of this very large work—I should perhaps have noted that Ridley had already done the monocotyledons of the area—Gamble turned his attention to the flora of Madras, and during the years 1915-1924 he published six parts of the "Flora of the Presidency of Madras," from Ranunculaceæ down to Plantagineæ. At the time of his death he was busily engaged on the Urticaceæ and had hopes of bringing out another part at an early date.

The very many new species which came to light during the work on the flora of the Malayan Peninsula, and also on the flora of Madras, appeared in numerous short papers scattered throughout the *Kew Bulletin* during the last twenty years.

PROF. E. H. BARTON, F.R.S.

THE scientific world has lost a very able and steadfast worker in the person of Prof. Edwin Henry Barton, professor of physics in University College, Nottingham, who died suddenly on Wednesday, September 23, when starting, in apparently perfect health, for a day's walk. He leaves a widow and two sons.

Prof. Barton was born in Nottingham in 1859, and lived there all his life except for two years spent in study: the first under Sir Arthur Rucker in the Imperial College of Science, London; the second under Hertz at the University of Bonn. The recognition of his talent, or perhaps the opportunity to develop it, came to him comparatively late in life; for he was a trained engineering draftsman when, at the opening of the University College, Nottingham, he commenced a course of study, and at the age of thirty-one years passed the London matriculation. His career as a student was brilliant, and he was awarded an 1851 Exhibition Research Scholarship. On returning to Nottingham in 1893 after his training in London and Bonn, he became lecturer in physics, and in 1906 professor and head of his department. His published scientific work was recognised in 1916 by election into the Royal Society.

Prof. Barton was the author of some very useful books for students; the best known being his "Text-book on Sound." This book from its scope and careful treatment may be held to complete a trilogy with Preston's "Light" and "Heat," so well known to advanced students. Prof. Barton's other works were "Analytical Mechanics" and "Introduction to the Mechanics of Fluids." At the time of his death he was well on the way with an advanced treatise on "Properties of Matter." To Glazebrook's "Dictionary of Applied Physics" he contributed the article on "Sound." His published papers, about sixty, were mostly in the *Philosophical Magazine*. When with Hertz, he commenced research on electric vibrations, and his earlier papers dealt with the transmission, damping, and reflection of waves along wires. In later years he turned rather to acoustic and other mechanical vibrations. In the sound experiments he adopted optical levers attached to the various parts of the moving wire or plate to amplify the vibrations, which he then recorded photographically.

As most of Prof. Barton's papers were collaborations, a great number of students and colleagues had the benefit of his inspiration in these researches. In particular, in the last eight years he published a series of no less than fourteen papers with Dr. H. Mary Browning, who was first his student and later his colleague. In this series the author used coupled and triple pendulums to illustrate the close analogy existing between electrical, optical, and mechanical vibrations, in all cases bringing the mathematical theory into relation with the physical action.

We have good authority for saying that the best early training for a would-be physicist is either mathematics or engineering. Prof. Barton, as we have seen, began life as engineer, and in his student career showed great mathematical ability, so he may be said to have happily combined both the desiderata specified. By nature a student, he was conversant with most branches of his very progressive subject with its voluminous recent addition of the "new" physics, relativity and quantum. When lecturing he handled his subject with a thoroughness which carried conviction and with a wealth of illustration which sustained the attention of his audience.

Prof. Barton was well known as an expert in sound, and as such was consulted by musicians and experimentalists in sound in various parts of the world. As regards the practice of music he was a *virtuoso* and could perform on many instruments. This faculty served him for demonstration in lectures and for his researches; so that the physics wing at Nottingham often resounded to the merry strains of cornet, trumpet, harmonicon, or other kinds of music. He was a very popular head of his department at Nottingham, where his great ability and invariable courtesy will not soon be forgotten.

His special talent may be held to pass on to the next generation, as his two sons both had brilliant careers in physics at Cambridge.

DR. GEORG SCHWEINFURTH.

GEORG AUGUST SCHWEINFURTH, who was born at Riga, of German parents, on December 29, 1836, and died in Berlin on September 20 last, was a naturalist