

Difficulties in the interpretation of results have arisen from the use of the German scale *DIN* 4710 for assessing breakdown, mainly because the grades of this scale are too widely separated. Moreover, it is based solely on estimates of the rusting of the basis steel and takes no account of other important factors, such as chalking and cracking of the paint film.

In a second paper, M. Bermane compared the results of accelerated tests on paints by means of the Belgian Commission's cycle with those of a French cycle (Gaz de France), the weatherometer and the A.S.T.M. (American Society for Testing Materials) continuous salt-spray test, respectively. Of the four methods, only the French test and the Belgian test gave good correlation with outdoor tests.

R. St. J. Preston read a paper on the mechanism of the processes involved in atmospheric corrosion testing. Experiments at the Chemical Research Laboratory, Teddington, have shown that no direct reaction of any magnitude takes place between water vapour and iron at ordinary temperatures and that condensation of water must occur on the iron surface if appreciable corrosion is to result. This was demonstrated by an ingenious colour film showing tests on two similar steel specimens suspended in beakers containing a warm solution of sulphur dioxide. The bottom of one specimen dipped into the solution, so that the transfer of heat prevented condensation on it. This specimen remained unruined. The other specimen, which was hung clear of the solution, experienced condensation and rusted rapidly.

General discussions were held at the end of both the morning and afternoon sessions, in which T. H. Turner, J. F. Kayser, Dr. J. E. O. Mayne, C. E. Richards, Dr. E. E. Longhurst, the authors of papers and others took part.

In the evening the Council of the Society of Chemical Industry entertained the Belgian visitors to dinner at the May Fair Hotel. After the loyal toast, Dr. W. H. J. Vernon proposed the health of the guests. In a simple and moving reply, Prof. Erculisse referred to the strong ties of gratitude and affection uniting Belgium and Great Britain. Here the dictum of Pascal—"Le cœur a des raisons que la raison ne comprend pas"—did not apply.

JOHN LELAND, c. 1506-52

By JOAN M. EYLES

JOHN LELAND, famous as an antiquary and topographer, died on April 18, 1552. For the previous five years his many manuscripts had lain untouched, since the melancholy day when Leland "by a most pitifull occasion fell about his wits". In fact, his detailed notes about his journeys through the length and breadth of England and Wales remained unpublished for a hundred and fifty years after his death, though they were copied and used by many later antiquaries. Then during 1710-12, the "Itineraries" were edited and published by Thomas Hearne, the assiduous librarian of the Bodleian, in which many of Leland's manuscripts had found a worthy home. Nearly two centuries later, between 1907 and 1910, the "Itineraries" were re-published with maps and many annotations by Miss L. Toulmin Smith.

The "Itineraries" are a mine of information for the historian and antiquary, and most local historians quote Leland as their earliest and most interesting source of information, not only for descriptions of monuments and ancient buildings, but also for topographical details of rivers and streams, woods and cultivated ground. Less well known are his many observations concerning the mineral wealth of the country. Though few in number compared to his antiquarian notes, they provide valuable information for the economic historian and also have some interest for the geologist. Moreover, though Leland was no naturalist, he sometimes recorded the "commune fische" of different pools and lakes.

The exact date and place of Leland's birth is unknown, but he attended St. Paul's School, and graduated B.A. from Christ's College, Cambridge, in 1522. Later he studied at Oxford, and after two or three years there went to Paris, apparently with some sort of foreign scholarship. He returned to England about 1529, and in 1533 received a royal warrant from Henry VIII which permitted him "diligently to serche al the libraries and monasteries of this youre noble realme". While travelling about the country engaged on this task, Leland made the numerous notes which supply such a detailed description of England during the decade 1535-45. Interested in the local industries, he noted the quarries for stone and the workings for various minerals. He gave a long account of the salt works at Droitwich; and in his description of Cornwall frequently referred to the many "tynne werkes", remarking how some of the streams were "clene chokid with the sandes" washed down from these works. He also noted such coal pits as he saw, including "pittes of se coles" at Wakefield and Gateshead, and others in Staffordshire, South Wales and Lancashire. His observations about the occurrence and working of coal are of considerable interest. Thus he noted: "The waynes of the se coles ly sometyme open upon clives [cliffs] of the se, as round about Coket Island and other shores, and they be properly caullid se coale; but they be not so good as the coles that are diggyd in the inner parte of the lande"; and he added, "The craft is to cum to it with leste paine in depe digging", an observation which would no doubt be endorsed by the modern open-cast miner. Sometimes he noted the nature of the soil, whether chalky, gravelly or, as in "Venteland" (Monmouthshire), "of a darke reddische yerth ful of slaty stones". In a few places he noted fossils, such as the "myghty shells of great oysters turned in to stones" near Alderley in Gloucestershire, and "stones figurid like serpentes wounde into circles" (that is, ammonites) near Keynsham, Somerset. These may well be the first references to English fossils.

In an address that Leland presented to his royal master as a "Newe Yeares Gyfte" in 1546, he stated his intention of preparing, "if God sende me life to accomplish my beginninges", a map of the "worlde and impery of England", which would be engraved on a "quadrate table of silver". He also intended "such a description to make of youre realme yn writing, that it shaul be no mastery after, for the graver or painter to make a like by perfect exemple". By a strange coincidence, the first important engraved map of the British Isles was published at Rome in 1546. Its authorship has been attributed to the exiled George Lily, a prominent Catholic and son of William Lily, grammarian and Leland's former

headmaster at St. Paul's. Because its accuracy is remarkable for the time, it was recently suggested¹ that it was actually prepared in England by "a group of English patriots, inspired by the antiquarian and historical ardour of the Renaissance". If this was the case, one wonders whether the travelled and erudite Leland was consulted during its preparation; although, as he was an ardent supporter of the king, it is unlikely he would have approved of the publication in Rome of a map such as he himself had intended for the greater glory of Henry VIII.

Leland was buried in St. Michael-le-Querne, near St. Paul's, where, according to Stow, in his "Survey of London", there existed a monument in memory of him; but the church was destroyed in the Great Fire of 1666.

¹ Lynam, E., *Geog. J.*, 116, 8 (1950).

OBITUARIES

Prof. F. T. Brooks, C.B.E., F.R.S.

By the sudden death of Prof. F. T. Brooks on March 11, Cambridge has lost a man who played an important part in the development of the study of botany, and Britain is deprived of the wisdom and service of a leader in the field of mycology and plant pathology. Born at Wells in Somerset in 1882, he left Sexey's School, Bruton, in 1898, and entered Emmanuel College, Cambridge, in 1902. Like so many other undergraduates of that time, he fell under the spell of Marshall Ward's brilliant teaching of botany, and he gained first classes in both parts of the Natural Sciences Tripos, afterwards to commence research on plant diseases under Ward's direction. Prof. Marshall Ward died in 1906, and Brooks was left to carry on the specialized teaching of plant pathology in the Botany School. In 1914 he spent a year in the Federated Malay States investigating the diseases of rubber, and on his return he joined the team of investigators constituting the original Food Investigation Department of the Government. At the end of the War, which had seriously affected his personal happiness, he became University lecturer and continued his researches on diseases of crop plants. The peculiar silver-leaf disease, then very prevalent in Victoria plums, occupied much of his attention, and he again attacked some of the problems concerning the rust fungi of cereals, an important field in which Marshall Ward had done pioneer work.

During the years that followed, Brooks was responsible for the development of the study of mycology and plant pathology at Cambridge. In this he was highly successful; he trained a large number of men and women for research positions in Britain, the Dominions and the Colonies. His eminence led to his election as president of the British Mycological Society in 1922 and he played a considerable part in extending the scope of that Society, later recognized by his appointment as one of its honorary members. His work at Cambridge received considerable impetus and assistance by the gift to the University from the Rockefeller Trustees of a large sum of money for the building and equipment of a modern department of plant pathology, together with provision for a field-station for experimental work. Brooks became reader in botany, and was elected to a fellowship in his College where he played an active part.

On the resignation of Sir Albert Seward in 1936 Brooks was elected professor of botany, and he occupied this position with distinction until he reached the age of retirement in 1948. During this time he devoted much attention to the development of the Cambridge Botanic Garden, and to the plans for its improvement by the use of the Reginald Cory bequest. He took an active part in University administration and served as president of the Cambridge Philosophical Society during 1945-47.

His activities were not confined to Cambridge. After holding the office of president of Section K (Botany) of the British Association in 1935, he was biological secretary of the Association until 1946. He became a Fellow of the Royal Society in 1930, and served on its Council during 1939-44. He was secretary of the First Imperial Botanical Conference in 1924, and one of the two secretaries of the Fifth International Botanical Congress in 1930. Later he gave much time and energy to the work of the Agricultural Research Council, of which he was a member from 1941 to the time of his death, apart from an intermission of three years; of late this work taxed his physical strength very severely. In 1947 he received the well-merited award of the C.B.E., he was made an honorary LL.D. of St. Andrews, an honorary Fellow of the Royal Society of Edinburgh and of the Botanical Society of Edinburgh.

Brooks was the author of a large number of original papers on mycology and plant pathology, he wrote an important book on "Plant Diseases" and he edited and largely re-wrote a new edition of D. H. Scott's elementary text-book of botany. Last year he was responsible for the publication of an interesting little book on the auriculas, written by his friend Sir Rowland Biffen, which the author had left in manuscript at the time of his death.

A remarkably modest and friendly man, with wide interests in plants of all kinds, in horticulture and in agriculture, an excellent teacher who took a great interest in his students, he had a host of friends all over the world who will remember him with gratitude and affection.

H. HAMSHAW THOMAS

F. T. BROOKS was a man of marked and unusual personality, some features of which seemed to hark back to an earlier and more robust age than ours. In him the child was certainly father of the man, for as a pupil at Sexey's School, Bruton, the leading traits of character that distinguished him in later life were clearly discernible. Although he was not an outstanding figure at games or athletics, he entered with great zest and *joie de vivre* into every activity of school life. As a scholar he was marked by his all-round ability, except in one respect: he did not shine in the workshops devoted to woodwork and metalwork. A thorough West-countryman by birth and upbringing, he took an intense interest in country life, and his inherent love of Nature quickened and grew under the fostering influence of his headmaster, W. A. Knight, a great pioneer of nature-study and of science-teaching in schools. Frequent botany rambles, in a countryside renowned for the wealth and variety of its flora, formed an important part of the school curriculum, and to the end of his life this apt pupil of an inspiring master remained an ardent field-botanist.

The path leading eventually to the chair of botany at Cambridge and a fellowship of Emmanuel College