it said that in the Far East large tracts of bamboo forest flower at long time-intervals, and the flowering is regarded as a bad omen. The bamboo fruits are much desired by rats which invade the area and afterwards set about ravaging stores of grain, so that ultimately famine may result.

Within limits, bamboo can be inferred in the upper part of the Muchoya profile from other observations. The bamboo is always accompanied by some plants which may exist also in the Montane rain forest. Thus one finds *Afrocrania* (Cornaceae), *Dombeya* (Sterculiaceae), *Lachnopylis* (Loganiaceae), *Mimulopsis* (Acanthaceae) and *Ilex* (Aquifoliaceae)[11]. Where we find pollen of these plants, but not of rain forest genera such as *Parinari* (Rosaceae), *Piptadenia* (Mimosaceae) and *Chrysophyllum* (Sapotaceae), then we may tentatively infer the presence of bamboo forest, though perhaps some of the first-mentioned genera could occur also in *Hagenia* scrub. I must add that bamboo does flower in some parts of Africa, and in my type-collection there is pollen taken from plants on Mt. Elgon and from the Aberdares in Kenya. The pollen is very large, and this, with the distinct pore morphology, distinguishes it from many pollens of the wild grasses.

With only this pollen profile for evidence, and little knowledge of the ecology of *Hagenia*, *Stoebe* and *Arundinaria*, one tends to fall back on climatic change as a cause for the former dominance of *Hagenia* and its replacement by bamboo. But we must be careful not to leap to a climatic interpretation because we are unable to discuss other perhaps potent ecological factors. We should also learn a lesson from the evolution of thought about European pollen profiles. These, at first, were explained almost wholly in terms of climate, but the most recent discussion[13] seems to find little room for climate and brings forward prominently succession, competition, and human interference. Therefore, it is right that we should emphasize the possible importance of these other causes for the 'shape' of the Muchoya profile.

Human interference perhaps may be ignored, because it is believed that the movement of people into the upper, cool parts of the Rukiga Mountains has been recent. But a reasonable explanation, on the other hand, in terms of ecological succession, could be constructed. Consider that *Hagenia* might arise in the place of bamboo if this vanished because of fire, or as a natural consequence of its flowering. I raise the possibility of fire because of the fragments of mica, augite and olivine in the lower several metres. These fragments must have come from a volcanic eruption, and, of course, if much ash had fallen on the landscape then fires might indeed have swept the bamboo. Afterwards it might not have recovered, for, unless the fire had immediately followed a rare flowering, there would have been no bamboo fruits to have given a new generation. But it seems improbable that there was a fire, and there is no layer of ash in the stratigraphy; and indeed the fragments of rock I mention are very minute and few. Since at present these considerations do not lead us to anything promising, we are possibly justified in assuming that the replacement of *Hagenia* by pure bamboo was caused by a change of climate—perhaps an amelioration—some hundreds or thousands of years ago. Without radiocarbon assay there is no possibility of dating any part of the profile. Interpretation of the profile will be very much easier when we have further profiles from the Rukiga Mountains. I have now commenced work on the 20·5-metres deep profile from Butongo (site 5). This site is not now in the bamboo forest, but is in the cultivated zone only 600 ft. below the present lower limit of the bamboo.

I have said nothing of the deposits actually hidden beneath lakes such as Victoria and Bunyonyi. These deposits cannot be sampled with the Hiller drill, which was used for the other places I have mentioned. A special device is necessary to obtain deep-water samples, and Lake Bunyonyi is about 130 ft. deep. We hope to use an ingenious device created by Dr. F. J. H. Mackereth[14] at the Freshwater Biological Association's Laboratories at Windermere, England. It is powered by compressed air and obtains cores 6 metres in length, and it can work down to a depth of 250 metres of water. Because the diameter of the core is 1½ in. it should be possible to study pollen, plankton and chemistry. This should prove especially interesting in Lake Bunyonyi which, as I said earlier, is periodically deoxygenated and is without indigenous fish.

I hope this short account has indicated the richness and fascination of the field open to the pollen analyst in Uganda. I wish to thank the many friends from whose foresight and co-operation I have benefited. I am intensely grateful to Dr. Edna Lind, head of the Botany Department at Makerere College. Dr. Lind perceived the possibilities for pollen analysis in Uganda and arranged for me to be sponsored by the Nuffield Foundation and by Makerere College.

[1] Godwin, H., *The History of the British Flora* (Cambridge, 1956).
[2] Hedberg, O., *Oikos*, **5**, 137 (1954)
[3] Wayland, E. J. *Proc. Prehist. Soc. E. Anglia*, **1** (1923). ; *Man.* Art. 124 (1924) ; "Pluvial Periods and Alluvial Tin", *Ann. Rep. Geol. Survey Uganda* (1927) ; "Pleistocene History and the Lake Victoria Region," *Ann. Rep. Geol. Survey Uganda* (1933) ; (Manuscript, 1959.)
[4] Brooks, C. E. P., *Quart. J. Roy. Met. Soc.*, **11** (1914).
[5] Bishop, W. W., and Posnansky, M., *The Uganda Journal*, **24**, 44 (1960).
[6] Solomon, J. D. in O'Brien's *The Prehistory of Uganda Protectorate* (Cambridge, 1939).
[7] Lind, E. M., *The Uganda Journal*, **20**, 166 (1956).
[8] Beadle, L. C. and Lind, E. M., *The Uganda Journal*, **24**, 84 (1960).
[9] Combe, A. D. and Simmons, W. C., "The Volcanic Area of Bufumbira", *Geological Survey Uganda, Memoir III* (1933).
[10] Hedberg, O., *Svensk Botanisk Tidskrift*, **45**, 140 (1951).
[11] Eggeling, W. J., *The Indigenous Trees of the Uganda Protectorate*, revised, and enlarged by Dale, I. R. (Government Printer, Entebbe, Uganda, 1956).
[12] Hedberg, O., *Symbolae Botanicae Upsalienses*, **15**, 217 (1957).
[13] Iversen, J., *Danmarks Geologiske Undersögelse*, **4**, 1 (1960).
[14] Mackereth, F. J. H., *Limnology and Oceanography*, **3**, 181 (1958).

OBITUARIES

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

T. R. ELLIOTT was born in 1877, in County Durham, and went to Cambridge in 1896, where he took the Natural Sciences Tripos and later was elected to a number of already famous studentships. It was while he held these that Elliott carried out a series of researches in physiology which, in the words of Sir Henry Dale, "were of well-nigh incomparable brilliance and authority, for a worker so young in years and experience".

His interests lay in the effects of the autonomic nervous system, and his attention was caught early

by the resemblance between these effects and those of adrenaline. These researches led him, far in advance of his time, to propose the concept of the chemical transmission of nerve impulses, thereby anticipating by nearly a quarter of a century the flood of productive work in this field. His election to the Royal Society in 1913 was a well-merited recognition of his brilliance.

In 1906, Elliott resumed his medical studies and, four short years later, he was appointed physician to University College Hospital, London. There he became closely associated with Thomas Lewis. This was the turning-point. The traditional structure of education in medicine had long been giving cause for concern, and the appointment of a Royal Commission under Lord Haldane to report on university education in London was the occasion for its searching analysis. Among the proposals made was that recommending the creation of whole-time professorial posts in clinical subjects. But the First World War came and delayed its implementation, and Elliott was in France by September 1914. Then followed four years of intensive work in which Elliott became the projection into the battlefield of the medical knowledge and skills which Walter Fletcher, of the old Medical Research Committee, was brilliantly mobilizing at home. As Elliott himself admitted, it was here that he discovered his power for combining science and administration.

The War ended; attention returned to the Haldane Report and Elliott became, inevitably, one of the first whole-time professors of medicine in London. It was expected that this would herald a spate of researches in the clinical field comparable to those that distinguished his early days in physiology. That this did not happen was largely Elliott's conscious decision. He recognized that, if clinical research was to draw level with the experimental biological sciences, then his generation had to sacrifice their personal advancement to developing and organizing the new scientific medicine; and the state of medical progress in Britain to-day is the present memorial to him and his fellows. The advancement of knowledge was his criterion. From the earliest days he was associated with the Medical Research Committee, and he was the only man who has ever served three full terms as a scientific member of its successor, the Medical Research Council. As an indication of the respect in which his judgment was held, it may be mentioned that, young as he was and not a member of the Committee, his advice was asked on the appointment of the first secretary, and it was he who suggested Walter Morley Fletcher.

But in the notices that have appeared since Elliott's death there has been one note common to all—respect for him as a man. Many men have been intelligent, upright and courageous, but in addition Elliott possessed an almost disconcerting ability to detect bias and an indifference to credit that, but for his tolerance, would have made him forbidding. It is no wonder that he remained the trusted counsellor of men with great responsibilities, or that, in need, his was the aid that was sought.

H. P. Himsworth

Rev. J. E. Hull

With the death of the Rev. J. E. Hull in October 1960 at the advanced age of ninety-seven we have lost the last of the Rev. O. Pickard-Cambridge's pupils in the study of spiders.

After leaving St. Bede's College, Hull took a degree in mathematics in the University of Durham before returning to St. Bede's as vice-principal in 1890. Later, his work as a clergyman in various Northumberland parishes confined his natural history work mainly to that county.

He shared with Dr. A. R. Jackson and W. Falconer the chief credit for making known the spider fauna of northern England. He described two British spiders new to science, and six of his proposed new genera have survived. He also did extensive work on mites and edited a northern quarterly journal, *The Vasculum*. His last paper was published when he was ninety-two.

W. S. Bristowe

Dr. M. F. E. Nicolai

Dr. M. F. Emilie Nicolai, algologist and biophysicist, director of the Hydrobiological Institute at Hilversum, Holland, died suddenly at her home in Holland on March 13. There can be few people whose passing has brought sorrow to such a wide circle of devoted friends.

Dr. Nicolai was born at The Hague on June 27, 1900 where she received her early education. In 1918 she entered the University of Leyden as a student in biology and in the subsequent years she studied botany, zoology, mineralogy, geology, chemistry and physics. Her doctor's degree was awarded in 1929 on a thesis "On Changes in Permeability in the Root Cells of *Sinapis alba*". She remained associated with Leyden until 1942 first as assistant, and later head assistant, to Prof. J. M. Janse and then, from 1931 onwards, to Prof. L. G. M. Baas Becking. During this time her published work lay in the fields of physiology and ecology, though one of her papers (on chlorophyll multifilms, with Dr. C. Weurman) already indicated her interest in the application of physical principles and methods in biology. Her first serious work in the fields both of algology and in biophysics came during this period when, in 1937, she visited the Eidgenossische Technische Hochschule, Zurich, to work under Prof. Dr. A. Frey-Wyssling on the cell wall structure of *Chaetomorpha*. It was no mere coincidence that at this same time my own interests had turned toward the related genus *Cladophora*, causing us afterwards to work closely together for so many years. In 1942 Dr. Nicolai transferred to the Fibre Research Institute, Delft, under Dr. J. R. H. van Nouhouys, and in 1946 became head of the Biological Department. Though, so far as I know, she never worked with him, she was deeply impressed by Prof. G. van Iterson, jun., and it was largely through his influence that in 1947 she came to England first as my research assistant and then as lecturer at Leeds. This was the beginning of a fruitful collaboration on wall structure in the algae lasting almost ten years, opening up a new field and laying down a foundation of work for many years still to come. It was during this period that she made her name as an algologist. Our collaboration terminated when her loyalty to her country led her in 1957 to accept the position of director of the newly founded Hydrobiological Institute in Holland, though she frequently returned to Leeds.

Dr. Nicolai was a botanist of wide experience and a first-class investigator, and for this alone her death would be a serious loss. But she was much else beside. Warm-hearted and generous and with friendliness overflowing to all, 'Nick's' intuitive