

of investigations. In the case of the sandal leaves, the ratio is lower in spiked sap than in normal material; on the other hand, the sap derived from shoots attacked by lac insects has been found to possess a higher ratio.

The average molecular weight of the solutes can be computed from (1) the total solids of the sap (C) and (2) depression of the freezing point, Δ .

$$M = C \cdot \frac{K}{\Delta}$$

where $K=1000 \times$ molecular lowering for a given solvent.

It has been found that host plants of lac

reputed to yield thick encrustations of lac, contain a sap whose solutes have a high average molecular weight, indicating the existence of high molecular compounds favouring the production of resin. The tissue fluids of the sandal leaf in the diseased condition contain solutes whose average molecular weight is low and indicate a disintegration of the high molecular proteins. It should be possible to make a further differentiation between the mean molecular weight of the electrolytes and that of the non-electrolytes in the sap, by taking into consideration the data for electrical conductivity. An attempt in this direction may lead to significant results.

Obituary.

Reverend Ethelbert Blatter, S.J.
(1877—1934).

REVEREND FATHER ETHELBERT BLATTER was born at Rebstein in Switzerland on the 15th September 1877. He received his early education at the Benedictine School at Sarnen in Unterwalden and later at Schwyz where he devoted himself to the study of modern languages. He joined the Society of Jesus on the 15th October 1896. This step caused great surprise among his numerous friends and relatives, for to them it seemed well-nigh unbelievable that the boisterous jovial, well-to-do lad they had known should decide to be one of the Jesuits. After completing his studies in Philosophy, he applied himself almost exclusively to the study of Botany. He came out to India in 1903 as Professor of Biology at St. Xavier's College, Bombay. After a stay of six years in India he went back to Europe in 1909 to complete his ecclesiastical studies and was finally ordained a priest on the 25th August 1912. On his return to Bombay in 1915 he once more took up work as Professor of Biology at St. Xavier's College of which he later became the Principal in 1919. In 1925 Father Blatter retired from his professorial duties to Panchgani where he remained till almost the end of his life. He passed away peacefully on the 20th May 1934 at St. Vincent's High School, at Poona.

From the period of his arrival in India in 1903 dates the commencement of a stream of publications in Botany which continued until his death. Father Blatter devoted his time and energy to the study of the

Asian flora. He travelled extensively and made large collections which formed the basis of his writings. His most important contribution between 1903 and 1909 was the "Palms of British India and Ceylon" published later in book form by the Oxford University Press. While in London he compiled "the Flora of Aden" and "the Flora of Arabia". With all the material he was collecting he built up a fine Herbarium which is now in St. Xavier's College. In 1926 he undertook to revise the "Flora of the Bombay Presidency" first published by Cooke. Twenty-one parts of this work have already been published. Among his other important publications, some of which are in collaboration with other workers, are "the Flora of the Indus Delta" "the Flora of Beluchistan," "the Flora of Waziristan," "the Ferns of Bombay," and "the Flowers of Kashmir". A monograph on "the Bombay Grasses" by Blatter and McCann is in course of publication.

He served the Bombay University in many capacities as a member of the Senate, the Syndicate and the Science Faculty, and he had much to do with the present University Reforms. He was the Vice-President of the Bombay Natural History Society and gave of his best to that Society. He was elected President of the Botany Section of the Indian Science Congress in 1926 and the President of the Indian Botanical Society in 1927.

In recognition of his work in Botany Fr. Blatter was awarded the Johannes Bruehl Memorial Medal for the year 1931. It was

a fitting tribute to his pioneer work on Asian Flora.

As a man Father Blatter was kind-hearted and generous, full of wit and humour, which never forsook him even under the most trying conditions of his health. His life was a selfless one, true to his calling as a Jesuit and to the science he loved. His premature death is a great loss to the science of Botany to which he rendered outstanding services.

R. H. D.

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Professor P. Sampat Iyengar, M.A.

IT is with deep regret that we record the premature death, on Tuesday, 24th July 1934, of Mr. P. Sampat Iyengar, retired Director-Professor of Geology in Mysore, at the early age of 55.

As an officer of the Mysore Geological Department for nearly thirty years, Mr. Sampat Iyengar published numerous important papers in the Records of the Department, and was largely responsible for formulating many of the fundamental ideas regarding the Geology of Mysore which are even to-day guiding the work and shaping the policy of the Mysore Geological Department. His address on "The Acid Rocks of Mysore" from the Presidential Chair of the Geology Section of the Indian Science Congress (Nagpur 1920) still stands as a valuable and authoritative statement on this aspect of Mysore geology. His very intimate and intensive knowledge of the Archæan rocks, both in and outside Mysore, together with his ripe experience and mature judgment in this field of study naturally gave him a prominent place in the foremost ranks of Indian geologists.

As Professor of Geology in the Mysore University for 12 years Mr. Sampat Iyengar was actively associated with the work of the University; and the present leading position which the Geology Section of the University occupies among similar institutions in India and the reputation which it enjoys as a place for instruction and centre of research, is in no small measure due to his untiring endeavours.

Apart from his eminence as a geologist, the late Mr. Sampat Iyengar possessed certain admirable traits of character which largely contributed to make his personality really 'dynamic'. An honest and whole-hearted devotion to duty, a burning enthusiasm for work, a frank and fearless expression of views, a stern sense of discipline and an uncompromising adherence to principles—these were some of Mr. Sampat Iyengar's outstanding virtues for which he will ever be remembered.

In his private life, Mr. Sampat Iyengar was orthodox, simple, and unostentatious. By his genial manners and genuine affection he had formed a large circle of friends to many of whom his death comes with all the poignancy of a personal bereavement.

L. RAMA RAO.

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WE deeply regret to announce the death of Dr. S. K. Mukerjee, M.Sc. (Allahabad), D.Sc. (London), Reader in Botany at the University of Lucknow, Honorary Secretary of the Indian Botanical Society, Fellow of the Linnean Society of London. He died at Lucknow on August 5, 1934, after a brief illness at the age of about 37 years.

An Alternative Atom.

IN a letter addressed to the *Sunday Statesman* (Aug. 5, 1934) Dr. R. Samuel, Dr.Phil. (Göttingen), F.Phys.Soc., Professor of Physics, Muslim University, Aligarh, has critically examined the theory of Dr. Tutin concerning the structure of the atom. Dr. Tutin's attack on the classical Rutherford-Bohr atom, which has received much publicity in the non-scientific press, according to the Professor, is "ill-founded and far from the truth." "In order to construct quantised orbits of the order of magnitude of the atoms, he has to assume new electrical forces of non-Coulombian character, which have never been observed and for whose

existence there is no evidence whatever. In order to explain Rutherford's experiments on the scattering of X-particles, he has to ignore these forces later on but in spite of this he is not able to come to an agreement between his theory and experimental results. Since in his theory the mass of the atom is not concentrated in the nucleus but assumed to form mainly the outer sphere of the atom, the theory falls into terrible and ridiculous difficulties, the moment he deals with isotopes. These few arguments may be sufficient to show that 'all his results are just pious hopes and no more, and most of them are demonstrably wrong'."