

Science Siftings

BY 'VOLT.'

The New Theory.

The fact that water, absorbed from the soil by the millions of fine hairs covering the fibrous ramifications of the roots, ascends to the top of lofty trees, carrying raw food material to the leaves, which give off the excess of moisture in the form of water-vapor, is one of those familiar phenomena which at first sight appear to be perfectly simple. In reality, writes Professor F. Cavers, D.Sc., F.L.S., in the *University Correspondent*, the ascent of water in trees presents some of the most difficult problems in the physiology of plants, and has for many years been the subject of controversy, numerous mutually contradictory theories having been successively set up and demolished, with the result that the question cannot even now be said to have been completely solved. Though the question is not generally regarded as finally settled yet, it would appear that the solution is to be found in the purely physical properties of the wood vessels and of the water stream itself, without relying upon any special vital activity on the part of the cells of the plant. The new physical theory of sap ascent is based upon the fact that a column of water possesses great cohesive strength, and can sustain a great tensile stress—in other words, that under certain conditions (corresponding exactly with those present in the wood vessels) a water column can transmit a pull just like a rigid solid, and that the water in the wood of high trees hangs there by virtue of its cohesive strength. According to this theory the flow of water is due to the tension set up in the leaves as they lose water by evaporation.

The Problem of Aeronautics.

An interesting problem of aeronautics—how far man should imitate the flight of birds and insects in his efforts to conquer the air—was discussed lately by Mr. Horace Darwin, when he delivered the first Wilbur Wright memorial lecture before the Aeronautical Society at the Royal United Service Institution. He described many of the wonderful instruments of measure which have been evolved as the science of aviation has progressed—instruments to measure speed during flight and during ascent or descent, and the 'yaw-meter,' which shows the direction of the wind and measures sidslips. With regard to the resemblances and the differences between the flight of men and the flight of birds, he said: 'These resemblances are remarkable, but there are great differences. The Wright brothers found no biplane bird to copy, and did not flap their wings. No flying animal uses a continuously rotating propeller to drive him forward on soaring wings, and it is perhaps hardly too much to say that if birds only knew how, they would now copy the Wright Brothers. Muscular action and the circulation of the blood, however, put supreme difficulties in the way of the development of the continuous rotation of a part of an animal. Cranks and connecting rods, as well as rotating valves to allow the circulation of the blood, would be required. The development of the power of flight in birds has been so slow that we cannot realise the time taken, or form the roughest estimate in years; but the perfection of these adaptations and the beauty of their skill, strength, and movement must strike anyone who has ever watched their flight. Some less advanced animals have only learnt to glide, and are now in the same stage of development as the Wrights were a few years ago. Perhaps these gliders developed more slowly or perhaps only began to learn the art many ages after birds had learnt to fly. A few plants also have developed wings to their seeds, so that they can glide away to more suitable places for germination and growth.'

The death is announced of Mr. M. J. Gill, head of the famous Catholic publishing firm, M. H. Gill and Sons, Ltd., Dublin.

Intercolonial

The death of the Rev. Father John Barry, of Coonabarabran, took place at his presbytery there on June 27, after a few days' illness. He had been in charge of Coonabarabran, which is a large parish, embracing Gilgandra and Gulargambone, for the past 10 years, and was universally liked and respected by all denominations.

The offices of the H.A.C.B. Society, Sydney, have been removed to the society's new three-storey building in Elizabeth street, near the Central Railway Station. The premises were blessed and opened on Saturday afternoon, June 28, by his Grace the Archbishop of Sydney in the presence of a representative gathering of members of the society.

Rev. Father J. C. Meagher, whose silver jubilee in the priesthood was celebrated recently at Dungog, of which parish he has been in charge for many years, was the recipient of several valuable presents from the children of St. Joseph's Convent School, the Children of Mary, and his parishioners. He was entertained at a banquet by the citizens, and presented with an illuminated address and a purse of sovereigns.

Under very favorable auspices, the Catholic Women's Club was opened in the Majestic Theatre Rooms, Flinders street, Melbourne, on Thursday night, June 26, by his Grace the Archbishop. His Grace the Coadjutor-Archbishop and Very Rev. Dean McCarthy, and the Lady Mayoress (Mrs. D. V. Hennessy), were also present. There was an overflow attendance. The club consists of a fine lounge-room, most artistically decorated; a library, and also a tea-room, which will be open to both Catholic men and women. The president (Mrs. Marion Miller-Knowles), in introducing the Archbishop, said the movement began four months ago, when 200 ladies enrolled themselves. Now the club had a membership of 1061, and promised to be a very big movement indeed.

A large and fashionable assemblage filled the Melbourne Town Hall on Monday evening, June 30, to consider a special appeal which was to be made to them by Lord Denman, P.C., K.C.M.G., K.G.V.O., to reduce the overdraft on the maintenance fund of St. Vincent's Hospital, which now has an overdraft of £8000, and towards the reduction of which the Government of Victoria had promised to contribute £2000, provided the remaining £6000 was raised by the public. The Governor-General, in the course of his address, said: I am myself not entirely without experience of hospital management, having been for some years on the committee of one of our great London hospitals at Home. Since I have been in Australia I have also had an opportunity of visiting a great many of its hospitals, but have never seen anywhere a hospital better administered, better equipped, nor more up to date than St. Vincent's. The appeal resulted in a sum of about £2000 being subscribed.

The ceremony of ordination was performed by his Grace Archbishop Mannix at St. Mary's Church, West Melbourne, on Sunday morning, June 29, the newly-ordained priest being Rev. John Bartley, O.F.M. Father Bartley, who is a son of the late Mr. John Bartley, of Bendigo, began his studies at the Franciscan College (St. Isidore's), Rome, but owing to ill-health he was forced to return to Australia. Proceeding to New Zealand he finished his ecclesiastical studies at the Marist Seminary, Meeanee, Hawke's Bay. The newly-ordained priest has two brothers in the sacred ministry—Rev. F. Bartley, S.M., M.A., St. Patrick's College, Wellington, and the Rev. Gerald Bartley, Essendon, Melbourne. Rev. Father Bartley, O.F.M., celebrated his first Mass on Monday at the Convent of the Sisters of Charity, East Melbourne. His two nephews served the Mass. On Wednesday he sang High Mass at the Convent of the Good Shepherd, Abbotsford, his two brothers acting as deacon and sub-deacon respectively. It was a real family reunion. The ten members of the family were present, some of them coming from Western Australia, New Zealand, and Northern parts.

Photographs!

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