

## Science Siftings

BY 'VOLT'

### Spiders' Threads.

The threads of the garden spider are fixed by astronomers in their telescopes for the purpose of giving fine lines in the field of view, by which the relative positions of stars may be accurately measured. For a century astronomers desired to make use of such lines of the greatest possible fineness, and procured at first silver wire drawn out to the extreme limit of tenuity attainable with that metal. They also tried hairs (1-500th of an inch thick) and threads of the silk-worm's cocoon, which are split into two component threads, each only 1-2000th of an inch thick. But in 1820 an English instrument-maker named Troughton introduced the spider's line. This can be readily obtained three or four times smaller in breadth than the silk-worm's thread, and has also advantages in its strength and freedom from twist. In order to obtain the thread the spider is carefully fixed on a miniature 'rack,' and the thread, which at the moment of issue from the body is a viscid liquid, is made to adhere to a winder, by turning which the desired length of firm but elastic thread can be procured. It has been proposed to use spider's silk in manufactures as a substitute for silk-worms' silk, and pioneers have woven gloves, stockings, and other articles from it. It appears that there are species of spider in other parts of the world whose thread is coarser and more suitable for this purpose than that of any British spiders. But it is estimated that the expense in feeding the spiders—which require insect food—would make the thread obtained from them far too costly to compete with silk-worm silk. A number of different kinds of the lower animals besides spiders have the power of producing threads. The caterpillars of some moths are especially noted for this, since their thread is familiar to us all as 'silk.' It is secreted as a viscid fluid by a pair of tubes opening at the mouth, and hardens on escape. Even some marine creatures—the mussels—produce threads, in this case from a gland or sac in the muscular foot, by means of which they fix themselves to rocks. A very big mussel—the Pinna—called 'Capo lungo' by the Mediterranean fishermen and 'Capy longy' at Plymouth, where they are also found, produces a sufficient quantity of fine horny threads to be used in weaving, and gloves have been made at Genoa from this shell-fish silk.

### Plants and Insect Life.

Every plant of any size has a number of insects associated with it, living more or less completely on its substance, or making its home in some part of the plant. Some trees are known to have more than a hundred and fifty kinds or species of insects thus dependent on them, those which are vegetarian serving in their turn as food to a variety of carnivorous insects. The ways in which insects are associated with plants may be briefly stated. It must be remembered that often, though not always, one particular species of plant, and that only, is capable of serving the needs of a given species of insect. Thus, the leaves of a given plant are the necessary food of the grubs of one or more insects which bite their food; its internal juices serve others which suck; its roots others; its nectar in the flower others, which in return serve the plant by carrying away its pollen and fertilising the other plants of the same species which they visit. Protection is sought and obtained from the same plant by insects which burrow in its leaves, or roll them up, or cut them into slices and carry them away, or hide in its bark, or in the flowers, or in other parts—or burrow for food and shelter into its wood. Others lay their eggs in the soft buds, producing or not producing according to their kind distorted growths, known as 'galls' (one plant is known to have as many as thirty species of gall-flies which make use of it). Other insects lay their eggs in the flower-buds and immature fruits, or place them on the plant so that the young grubs, when hatched, can at once eat into those soft parts. Others bore into the wood or into hard or fleshy fruits expressly to lay their eggs, or into the ripe seeds. Certain ants live in chambers specially provided by the woody parts of the plant for them, and benefit both themselves and the plant by devouring other insects which seek the plant in order to devour it. In a museum of natural history there should be exhibited at least one plant with specimens and enlarged models of all the insects which depend upon it for food, protection, or nursery.

At the special sale which is now taking place at the Unique Millinery Store, Lower Stuart street, Dunedin, all trimmed millinery and season's goods are being sold at extremely low prices....

## Intercolonial

His Lordship Bishop Doyle, of Lismore, arrived in Sydney on February 22 after a year's absence in America and Europe.

By the China, which sailed from Sydney on February 24, the Ven. Archdeacon Dalton (Murwillumbah), Rev. Fathers James Whyte (Forest Lodge), P. A. Holland (Nowra), J. Dunne (Bulli), and M. Hogan (Lithgow) left on a tour of Europe.

The Bishop's new palace at Goulburn was blessed and opened on Sunday, February 21, by his Eminence Cardinal Moran, assisted by the Bishops of Goulburn, Wilcannia, Bathurst, and Armidale. The erection of the palace cost £4600. The collection taken up at the ceremony amounted to £1150, of which sum his Lordship Bishop Gallagher contributed £500.

With regard to the reported serious illness of his Grace the Archbishop of Melbourne, of which we were advised by cable, the Very Rev. Dean Phelan, speaking to a representative of the *Advocate*, said there was no need for alarm. Only six days prior to the publication of the newspaper report the Dean had a cable message from his Grace on a business matter, and if he were recovering from a serious illness mention would be made of that fact.

Speaking at the ceremonies connected with the opening of his new episcopal palace at Goulburn on Sunday, February 21, Bishop Gallagher mentioned that it was exactly 39 years to the day since he celebrated his first Mass in the little church that then served for the Cathedral. His record both as a priest and prelate is rare, (says the *Catholic Press*), and he did not think of building a proper residence for himself, the priests of SS. Peter and Paul's, and their successors until everything else in the diocese was provided for. He gave £500 towards Sunday's collection, which amounted to £1150.

The Vicar-General of the Archdiocese of Melbourne (Very Rev. Dean Phelan) has made the following clerical changes:—Rev. T. English, from Castlemaine to South Melbourne, to have charge during the absence of Rev. R. Collins; Rev. P. H. Boyle, from Collingwood to Williamstown, to have charge during the absence of Rev. T. Brazil; Rev. M. D. Finan, from Brunswick to Seymour, to have charge during the absence of Rev. T. Considine, who is not in good health, and has been granted a few months' vacation.

The will of Mr. Patrick McGinnis, late of Iveagh, Studley Park Road, Kew, has been filled for probate. Testator, who died on November 24 last, left by will dated March 3, 1905, estate of the value of £1500 realty, and £37,834 personalty to his widow. The following bequests are made:—To the parish priest, Kew, £250 towards the erection of a new church; to the head of the Order of Trappists in Mount Melleray, Waterford, Ireland, £1000.

All who have seen the Archbishop since his return (says the *Tasmanian Monitor*) agree that he has benefited immensely by his trip. He never looked in better health, and never was to outward seeming in higher spirits. Last week was spent in a round of visits to the different institutions—Mt. St. Canice, St. Mary's College and schools, St. Joseph's School and Orphanage—when addresses of welcome were presented to him and nice entertainments were given in his honor. At all of them his Grace made most happy speeches.

His Eminence the Cardinal (says the *Catholic Press*) had a strenuous time at Goulburn on Sunday, February 21. As soon as he arrived there on Saturday afternoon he was welcomed by the Catholics. There was a procession to the Cathedral, where an address was presented. On Sunday he spoke at the Communion breakfast of the Hibernians and Guilds, and immediately afterwards opened the new episcopal palace. Straightway he went into SS. Peter and Paul's Cathedral, and presided and preached a great sermon at the Pontifical High Mass. In the afternoon he was busy again—opening a juvenile branch of the Hibernians. Monday he visited the schools, colleges, and institutions around Goulburn, and in the evening attended an entertainment given in his honor and that of the visiting prelates by the pupils of the Convent of Mercy. On Tuesday morning, accompanied by Bishop Gallagher, Monsignor O'Haran, and Father Lynch, C.S.S.R., his Eminence called on the Mayor at the Town Hall to thank Alderman Holloway for courtesies extended to him during his stay in the city. He left Goulburn by the 1 o'clock train with Bishop Dunne, of Bathurst, Bishop O'Connor, of Armidale, and Monsignor O'Haran, reaching Sydney the same afternoon.

The attention of our readers is directed to a list of the latest Catholic publications to be had from Messrs. Louis Gille and Co., Sydney and Melbourne....

## DEAR ME!

Forgotten that SYMINGTON'S COFFEE ESSENCE! Whatever shall I do? Call at the nearest Store and ask. They all keep it.