

Dr. Marcet has lately tested this curious theory by means of Chloroform, and the results obtained by that agent entirely confirm the conclusions which had been previously deduced from the action of poisons. On the 19th of last October he read the following statement to the Physical Society of Geneva:—

“If a drop or two of pure chloroform be placed on the point of the common petiole of a leaf of the Sensitive Plant, the petiole is soon seen to droop, and directly afterwards the leaflets collapse in succession, pair by pair, beginning with those that are situated at the extremity of each branch.* A minute or two afterwards (the time varying with the irritability of the plant), most of the leaves near that on which the chloroform was placed, and situate below it on the same stem, drooped one after the other, and their leaflets collapsed, although not in so decided a manner as those of the leaf to which the chloroform was applied. After a certain time, which varies with the condition of the plant, the leaves gradually open; but when touched they are no longer irritated so as to collapse, as they do in their natural condition. They remain in this passive state, benumbed, as it were, for a considerable time, and it is not generally until some hours have elapsed that they regain their original sensibility. If, however, while in this passive state, the leaves be again touched with chloroform, they collapse as before. It is not till after several doses that they lose their sensibility entirely, or at all events until the next day; sometimes they wither completely after too many applications of the chloroform. The purer the chloroform and the greater the excitability of the plant, the greater are the effects produced.

“If, instead of putting the chloroform on the base of the petiole, a little be dropped on the leaflets near the extremity of a branch, the effect is very nearly the same as before. The leaflets on the branch collapse pair by pair, the common petiole droops, then the leaflets on the other branches approach each other in their turn. At the end of two or three minutes the nearest opposite leaf, and if the plant is active, most of the other leaves lower down on the same stem, follow their example. When, after a time, the leaves re-open, they manifest the same insensibility as before.

“What is most curious in all this is the manner in which the action of the chloroform spreads from branch to branch and from leaf to leaf, though the liquid disappears by evaporation almost as soon as it is placed on the plant. The action, as has just been seen, seems to advance from the leaf to the stem, and then down the latter; as a general rule, those leaves which are above the one acted on by the chloroform are not affected. De Candolle, on making similar experiments on the same plant with a drop of nitric or sulphuric acid, observed, on the contrary, that the leaves above that touched were affected, while those below were not. This fact is explicable by considering the corrosive poison as borne along by the ascending sap, that is of course, from below upwards. But how are we to explain the apparent transmission of the effects of the chloroform in the opposite direction, from above downwards? Is it the descending sap which has the peculiar property of carrying the narcotic effects of this singular compound from one part of the Sensitive Plant to another? or can there be in this plant any special organs susceptible of being affected by certain vegetable poisons in a way not unlike that in which the nervous system of animals is affected? Notwithstanding the interesting facts made known by Dutrochet and others, this subject is still in too uncertain a state to enable a cautious man to give any opinion. However it may be, the fact is curious and well worth the attention of those who study such matters.

“Experiments of the same kind as the above, made with rectified ether, gave results somewhat similar to those just detailed. There was this difference, however, that whilst a drop of chloroform, placed on the common petiole of a leaf, at the end of a branch of the Sensitive Plant, made most of the other leaves below the same branch collapse, ether only affects,

as a general rule, the leaf on which it is placed—the neighbouring leaves not being generally affected. I may as well observe, however, that the experiments with the ether were made after the others, and at a time of the year when the sensibility of the plant is on the decrease, so that it is possible that the intensity of the effects might have been affected by this circumstance.”

We have just repeated the trial of chloroform, and with a similar result. There was, however, this difference, that here and there the leaflets remained paralysed, as it were, and still unable to open after eighteen hours' rest; they seem to be dead. This was apparently caused by excess of chloroform, a larger dose than that employed by Dr. Marcet having been used, in consequence of the sluggishness of the plant at this season. It is thus seen that overdoses of chloroform kill plants as well as animals, though small doses are innocuous.

Such experiments render it impossible to doubt the analogy, or rather identity, of animal and vegetable life, and should teach the gardener that if his plants are to be maintained in health, it can only be by his giving the same attentive study to their habits and peculiarities as is applied by medical men to those of man and other animals.—[*Gardeners' Chronicle.*]

MISCELLANEOUS.

FORMAL DEPOSITION OF THE POPE.—Rome, Dec. 29.—Yesterday evening, at sunset, the Castle of St. Angelo, by the consecutive discharge of one hundred and one great guns, announced to this metropolis and the world in general, that the dynasty which had reigned over Rome for 1,000 and 48 years has come to a close, and a new Government is to be called into being by the mandate of the whole population assembled in a constituent representative body by universal suffrage;—the great bell of the Capitol, which only tolls for the death of a Pope, pealed solemnly. It was exactly on the 24th November (the fatal night of the flight of Pio Nono) that in the year of our Lord, 800, Charlemagne arrived in Rome to be crowned on Christmas Day of that year by Leo III., and to institute and formally corroborate the donation of Pepin by the erection of the Papal Sovereignty. That arrangement, the keystone of the arch of European politics for the following eight centuries, was occasionally disturbed, and, in our own times, the Papacy has relapsed into its mere spiritual essence twice, under the two Popes of Pius VI. and VII.; but these occurrences were from without, by external pressure and accidental combination: the Popedom had a recuperative energy within the Roman States; but now the disconnecting agency is from within, and, for the first time, the Romans themselves have declared that no Priest shall hold a King's authority in Rome.

COMMISSION OF THE GENERAL ASSEMBLY OF THE FREE CHURCH.—The Commission of the General Assembly of the Free Church met in Edinburgh, November 15th. Mr. Alexander Dunlop, advocate, gave in an elaborate report from the Special Committee appointed by last Assembly to consider how the expenditure of the Church could be best economised and its management consolidated. The Committee proposed the appointment of a standing Finance Committee, consisting of nine elders and four ministers, to superintend the entire monetary affairs of the Church; besides various other changes by which a saving of about £783 will be effected yearly. The consideration of the report was delayed till the meeting of Commission in March. The subject of the Foreign Mission Scheme engaged some attention, with a view to an energetic effort being made throughout the Church in December next, to extricate that important Scheme from its present embarrassments. Dr. Buchanan, Convener of the Committee on the Sustentation Fund, gave in a report, recommending that the sum of £60 be declared the dividend for the half-year; and stating that the Fund is at the present time £600 less than it was at the same period last year. In the evening there was a discussion on the question of recalling Dr. Duff from India, and appointing him

to the vacant chair in the New College. A motion by Dr. Candlish in favour of this proposal was carried by thirty-two to twenty-four.—[*Glasgow Guardian.*]

FREE CHURCH PRESBYTERY OF GLASGOW.—At a meeting of this body, on the 3rd of January, the Rev. Mr. Menzies, Moderator, in the Chair, the following statement was made in reference to the *Sustentation Fund*. Dr. Buchanan said that it was well known to this Court and the Church generally that they had not been progressing recently in this fund. It had been rather retrograding; and the committee felt that it was absolutely necessary to do something to arrest the backward movement, and, if at all possible, without further delay, to bring the fund to the position which the General Assembly, in the meeting in 1847, determined to aim at. For the purpose of stirring up the office-bearers on this subject, the committee had instructed himself, as convener of the committee, to found upon one of their minutes a circular to be addressed to every minister and deacon's court of the Free Church at large. In that minute the committee had taken occasion to bring out what had not been sufficiently noticed or adverted to, the prodigious pressure on the resources of this fund, arising from the fact that a number of congregations contributed a very limited sum at all. He would bring some of the facts contained in the minute before the Presbytery. It appeared that at the date of the last Assembly, that there were thirty-six congregations of the Free Church which contributed less than £50 each. The sum which they contributed was £290, therefore, the average amount was only £16 7s 9d. Other twenty-five congregations averaged £27 each, exclusive of the thirty-six last named. Two hundred and ninety averaged only £73 each, and seventy averaged £113 each. These were the four classes into which the aid-receiving congregations had been arranged:—the congregations contributing less than £25, then those more than £25 and less than £50, then those more than £50 and less than £100, and under £125. They had six hundred and ninety-seven ministerial charges, of these only one hundred and sixty-seven contributed to the fund as much as they drew out of it, so that five hundred and thirty were debtors to the fund—the five hundred and thirty were debtors to the one hundred and sixty-seven congregations to the extent of £37,160. Now, it was impossible for any one who understood a scheme of this kind, not to see the danger to this fund was great and imminent, so long as the burden was unequally distributed. This committee had prepared an appeal to them, pressing on these five hundred and thirty congregations to make an effort to raise their contributions. There were sixteen congregations who had five hundred communicants, yet not one of these sustained themselves; and there was one with one thousand communicants, and not in the Highlands either, but in a great town, receiving aid from the fund. (Hear.) About thirty ministers had been raised to what was called the one-and-a-half money, and yet twenty-three of these congregations, he regretted to say, had fallen behind nearly £5 on the last half-year, from their former subscriptions. Unless that enormous load was taken off, the fund would be in a very precarious position, and like a pyramid placed on its narrow end, and they all knew that such was not a very stable position. After a few further remarks, the Reverend Doctor read the circular which had been prepared, and proceeded to say that he hoped that the step which the committee, after mature deliberation, had adopted, would meet with the sympathy of the members of the Courts of the Church. He would leave the matter in the hands of the Presbytery and of the Church, and hoped they would give the matter all their consideration. A conversation then ensued, in which Dr. Paterson, Mr. Gibson, Dr. Forbes, Mr. Brown, Mr. Roxburgh, and Mr. Leirie, took part. The matter then dropped.

CALL.—The Rev. Alex. Henderson, minister of the East United Presbyterian congregation, Dunblane, has received an invitation to proceed to Farbolton, Canada West, to be the minister of the Presbyterian Church there, and to found and superintend the Classical and Theological Seminary proposed to be established in that place.

* Previous to the experiment with chloroform, I took care to ascertain that a drop of water placed gently on a leaf of the Sensitive Plant produced no effect.