

2. Determine the mean hydraulic depth of the "new form of oval sewer," when running full, and compare it with that of a circular sewer running full whose radius is the same as that of the upper portion of the oval sewer. Compare the areas also.

3. State the points to be considered in fixing the position and size of a main outfall sewer.

4. Determine the capacity of a circular sewer to drain an area of 640 acres, populated to the extent of 100,000 inhabitants.

5. A weir was formed in one of the Canadian rivers, and it was found necessary to construct salmon gaps, so that the fish may be able to migrate up stream at the weirs during periods when the depth of the water is not sufficient if distributed over the total length of the weir. The gaps are 12 feet in width and 1 foot in depth. Calculate the quantity discharged over 2 of those gaps, the water on the level part of the weir being 5 feet deep.

H. TAYLOR BOVEY.

7th November, 1878.

[Answers to Questions 4 and 5, Lecture V., are unavoidably held over.]

HILLSIDE GLEANINGS.

"Love begets love," I said. We were talking of plants, and my friend deplored the fact that they would not live with her. "I can do anything with animal life," she said, "but plants seem so unresponsive." "I should think that would suit you," I said, "who argue so much against any show of affection between human beings; for a flower cannot tell you it loves you, though I do not agree with you as to its not replying to your loving treatment. If you wish to grow plants suited to a hot-house temperature, and attempt to make them live with the thermometer at 33°, or lower, part of the twenty-four hours, you need not expect success; neither will a hardy or green-house plant live in a temperature that reaches 60°, with the dry arid furnace heat so killing to its energy. But study their habits, the soil, situation and culture they need, give them loving care, and they will repay you with their voiceless flowers that speak volumes of nature and nature's God. True, it is not so fashionable as point lace, nor is it such an excuse for weak eyes; but no animal can reward you or delight you more than your blossoming rose, or fragrant heliotrope."

I know a lady whose pretty little Coleus was thriving well in its natural situation,—a sunny window in a small sized pot fitted for its little rootlets; but the lady was ambitious and wished to promote her favourite to the highest place,—a hanging-basket in a darkened room; so, like that curious boy in "Helen's Babies" who wanted to see the wheels go round, she took it up, admired the little white roots, and placed it in its new position, without a pot. The ruthless transplanting to a large loose space, the cool dark air was too much for its fragile life, and it became "sick unto death." Alas! if I dare moralize, I would say, How often in every day life might this comparison be applied.

It has often been my delight to see the fine thrifty plants of ivy that ornament so many windows. It is a vine of rather slow growth, but, given rich soil and plenty of room, will soon cover a cover a trellis, and to the eyes of English people must be ever dear as a reminder of the old quaint houses and castle walls, where this "rare old plant" was unrivalled in its picturesque beauty. With us it is the plant for November, and stands between our autumn flowers and budded hyacinths for ever green. And need there is of some living growth to redeem this month from its dreary dulness, when the days are short and gloomy, and the evenings alone seem the time for cheer. What matter, however, the wind and cloud and storm if the home light is bright and pleasant?

"Oh! warm, happy hearts, by love defended,
Ye shrink not to feel the winter near
Your sweet blossom days are never ended,
For love makes it summer all the year."

"The day is done." Even as the children close their books, the short afternoon is over, and the lamps must be lighted. It is during these dull days that I pity all school children, who must find a dreary monotony in the ceaseless round of study. Breakfast and school, a short morning and then again school; while the bag of books carried home in the afternoon prove how the hours of the long evening must be spent. I passed a bevy of young girls the other day, a bright gay group, with vivid colouring enough of cheek and hair, with garments of varied brilliant shades, and attitude of grace and beauty to have arrested the eyes of an artist. They were speaking of the cooking classes, and I then learned for the first time what a fine opportunity was afforded our school girls of becoming accomplished in this despised "art," which proves that men of sense, and with a knowledge of the needs of the day, have the management of these schools. It is worthy of comment in this paper that Sir Henry Cole is urging upon the British Education Department the necessity of establishing a "College of Domestic Economy." He proposes that there be laboratories and rooms and board for country students, free scholarships and diplomas given for trained teachers who may have gained a thorough knowledge of "household management," of "food and its preparation," or "the laws of health in food."

But this is only a scheme as yet, although in the hands of energetic men, and too much cannot be hoped from its success. But the "art" of cooking with which our young girls have a chance of becoming acquainted at this time is practical and present, while it cannot fail to be useful, and will, if fully carried out, be the infallible specific for the ills of the kitchen from which we suffer.

No thoughtful person can see the young girls of to-day, who are unused to domestic duty, with their whole minds given to excess of study or excess of frivolity, with often a mixture of both, without a fear for the future unless some radical change is effected by just such means as is here proposed. Make "the preparation of food" honorary, as are other studies,—elevate it, give it interest to our young people, and they will wish to make experiments at home; and if they will, can end the reign of terror that so long has ruled the kitchen, where servants, well aware of their employers' incompetency, resent interference.

But when the schools of "Domestic Economy" shall be a part of education, it will be soon seen that skilled workmanship will drive the unskilled out of the market, and the verse of good George Herbert become at last a verity, when

"A servant with this clause
Makes drudgery divine
Who sweeps a room as to 'hy laws,
Makes that, and the action fine."

THE LONELY PROPHET.

ARCHBISHOP LEIGHTON.

A frail, slight form,—no temple he
Grand, for abode of Deity;
Rather a bush, inflamed with grace,
And trembling in a desert place,
And unconsumed with fire,
Though burning high and higher.

A frail, slight form, and pale with care,
And paler from the raven hair
That folded from a forehead free,
God like of breadth and majesty—
A brow of thought supreme,
And mystic, glorious dream.

And over all that noble face,
Lay somewhat of soft pensiveness,
In a fine golden haze of thought,
That seemed to waver light and float
This way and that way still,
With no firm bent of will.

God made him beautiful, to be
Drawn to all beauty tenderly,
And conscious of all beauty, whether
In things of earth, or heaven, or neither;
So to rude men he seemed
Often as one that dreamed.

Beautiful spirit! fallen, alas!
On times when little beauty was;
Still seeking peace amid the strife,
Still working, weary of thy life,
Toiling in holy love,
Panting for heaven above.

I mark thee, in an evil day,
Alone upon a lonely way;
More sad, companionless thy fate,
Thy heart more truly desolate,
Than even the misty glen
Of persecuted men.

For none so lone on earth as he
Whose way of thought is high and free,
Beyond the mist, beyond the cloud,
Beyond the clamour of the crowd,
Moving where Jesus trod,
In the lone walk with God.

—Orwell.

II.—RECOLLECTIONS OF FIJI.—CANNIBALISM.

Cannibalism! I trust that the reader of the CANADIAN SPECTATOR, when he glances at the heading of this article, will not settle cosily down into the snug recesses of his chair and flatter himself that he is now going to read the revelations of one who has personally tasted human flesh, because, if so, he will be agreeably or disagreeably, just as his taste inclines, disappointed. It is my purpose, however, to relate certain facts and anecdotes in connection with the consumption of this ghastly food, which I trust may prove acceptable and interesting to the reader.

Of course every one knows, or has heard, of the Fijian Islands having been the hot-bed of cannibalism; I say having been, for, thanks to the strenuous exertions on the part of the Missionaries, and, secondly, to those whose labours were finally consummated by the annexation of the Islands to the British Crown, the taint of cannibalism has been nearly eradicated from the group.

Fiji has been associated in the youthful mind with the nursery legend of that terrible potentate, "Hoky-poky-winke-wum, King of the Cannibal Islands," and minds of a maturer age, while not exactly concurring in the existence of the aforementioned dignitary, have still regarded those islands as a place where Sydney Smith's "cold missionary on the sideboard" is a standard dish. Hoky-poky's proper name is Cakabau, or, as it is sometimes pronounced, Thackambau, the last king of Fiji; he is now an old man, slightly over six feet high, with snow-white hair, and is of a commanding presence; in his younger days, and before conversion to Christianity, he was a cannibal. Of him it is related, that when a youth, after having captured the island of Mbau, the seat of royalty, from his brother, whom he took prisoner, he cut out his tongue and ate it; after which little performance, he dispatched his relative and lunched off his brains. Many other stories are extant of the deeds of this potentate, but as His Majesty is now Christianized, and has altogether turned over a new leaf, I think we may bury his earlier life in oblivion.

I must now return to the point from which I wandered—namely, a relation