A CHURCH WITH BELLS.

"Bells," said a child, "I want to go,
Sir, to a church with bells."
And whether High, or Broad, or Low,
With hope my spirit swells
When such a church as this I find,
And hear the heavenly chime;
Oh, then, I have a holy mind,
Oh then, a happy time.
And, though my hours are weak and sad,
I feel my life sublime;
Of Love the first, and Love the last
If any service tells,
All thy anxiety is past,
I've found a church with bells.

I to an ancient Abbey went,
And sat beside a tomb;
'Twas on a showery day in Lent,
But near the Day of Bloom.
Along with me a blind man knelt,
No glories could he see;
But oh! the music how he felt,—
"Have mercy Lord!" sang we;
And angels from the window smiled
Upon both him and me.
Said I, "Antiquity and grace
Blend here their holy spells;
In truth this is a noble place,
This is a church with bells."

Whitewashed, upon a windy hill,
There stood a building square;
I entered gently, hoping still
That bells I might find there.
"Come, weary folks," an old man said,
"You have come,—come again,
'Tis every night you need your bed,
Not only now and then.
Lord, give us better, safer rest,"
The people said "Amen."
And when the kindly talk I heard,
That angry sorrow quells,
"Here sounds," said I, "the inviting word,
This is a church with bells."

I went the silent Friends to see,
And there no bells could ring;
For how can any music be
Where nobody will sing?
But as we all were sitting hushed,
Up rose a sister grey,
And said, with face a little flushed,
"This is a sunny day,
And Jesus is our inward light,
To guide us on our way."
"Ah yes," said I "this sister pure
The old glad tidings tells;
And here, too, I am very sure,
I've found a church with bells."

Then by a door, I heard men say,
"He is not 'sound' we fear."
Thought I, before I turn away,
I'll try if bells are here.
"Quit you like men," a strong voice cried,
"Nor hang the bulrush head,
Our father's God is by our side,
For truth our fathers bled.
Let no man sell his liberty,
For butter or for bread."
Said I, "That's no unholy note,
How loud and clear it swells,
St. Paul's a stirring man to quote,—
This is a church with bells."

Oh I have found of sweet bells eight,
And you may have the same;
I ring them early, ring them late,
And know them each by name:—
There's Faith, and Hope, and Love, and Peace,
And Joy and Liberty,
And then before the chime can cease,
Patience and Victory;
Come, neighbours, listen to the bells
That ring for you and me.
When windy skies are all aflame,
Of rest their chiming tells;
We've never been since Jesus came,
In want of Heavenly Bells. —*Thomas Lynch.*

SCIENTIFIC—SANITARY ENGINEERING.

Lectures by Professor H. T. Bovey, of McGill College.

LECTURE III.

8. *Sanitary Appliances of District.*

In any district in which the water carriage system is to be adopted for the conveyance away through sewers of fœcal and other refuse, the engineer will easily determine the probable volume of sewage to be dealt with.

Some authorities object to the universal introduction of the water-closet system:—(1) Because of the increased volume of water to be procured, if their use became general; (2) On the ground that they are the sole cause of the pollution of rivers and streams.

The great consumption of water, however, is not so much due to the general use of water-closets as to imperfect "fittings," &c.

Further, after carefully investigating the question, the Rivers Pollution Commissioners of Great Britain have concluded—"That it seems hopeless to anticipate any substantial reduction of sewage pollution by dealing with solid excrementitious matters only."

The same provision, indeed, should be made in the size of sewers, both in districts with ash-pits, earth-closets, &c., and in districts in which water-closets have been universally adopted.

Experiments have been made with the view of separating the fœcal matter from sewers, and also the urine from the solid fœces, but rather for agricultural than sanitary purposes.

9. *Position of Outfall and Disposition of Sewage.*

The "position of the outfall" is one of the first points to be fixed by the engineer, and to do so, he will first of all have to determine upon the mode of treatment of the sewage. The reasons for this are: (1) The liquid refuse must ultimately find its way into the sea, into a tidal river or estuary, into an inland river or watercourse forming the natural outfall of the district. (2) The prevailing inclination must be towards one or other of the points of ultimate discharge, although there may be considerable variation in the direction of the internal sewers, in consequence of internal undulations of the surface.

To prevent the pollution of the pure natural streams of a country, the sewage must be dealt with at some point between the ultimate point of discharge and the point at which the main bulk of the sewage is concentrated.

The further points to be considered in fixing the locality for the treatment of the sewage are:—(1) The existence of a site free from objection on the score of nuisance; (2) The means of reaching such site, either wholly by gravitation, or partly by gavitation and partly by pumping; (3) The expediency or necessity of first depositing the whole of the sewage upon a lower level, and then lifting it to the site upon which it is to be cleansed; (4) The price to be paid for the site.

In "*Seaboard Towns*" it will be found most economical to convey the sewage directly into the sea; but, generally speaking, it should be deodorized or otherwise treated before reaching the sea.

In "Towns on Estuaries and Tidal Rivers," the ebb and flow of the tide render it very difficult to deal effectually with the sewage. The sewage before being discharged into the water, even if such water be never used for drinking purposes, should be cleansed of its putrescible matters sufficiently to prevent any nuisance from the consequent stench. It *may* be necessary to separate the solid matters and to clarify the sewage by chemical precipitation, or by some other process, and also to purify it.

In "Inland Towns" the effluent sewage should, *without compromise*, be cleansed of all foul or noxious matters. Chemical or mechanical systems palliate in some degree the evils of pollution, but they should, almost invariably, be supplemented by "intermittent filtration" or "irrigation works." Hitherto, it has proved ineffectual to utilize the sewage in its fresh state upon properly prepared land.

The above remarks as to the disposal of liquid refuse, apply equally to "Villages and Hamlets." Land is easily found on which the sewage may be deposited and cleansed, but the difficulty lies in the organization of permanent and effective arrangements. It would seem especially the thing to apply the sewage to the land with the aid of some means of collecting the sewage, such as the self-acting sewage regulator.

All outfalls must be protected by special arrangements to exclude reverse currents of water or air.

Questions.

1. What influence has the physical outline of a district on the ventilation of sewers?

2. State the volume of sewage for which provision should be made, when laying down a system of sewers?

3. What precautions should be taken in obtaining "water supply" in the proximity of dwellings?

4. What are the objections to the water-closet system? State your opinion as these objections?

5. What is the best method of disposing of the sewage in "Inland Towns?"

H. TAYLOR BOVEY.

17th October, 1878.

ANSWERS TO QUESTIONS IN LECTURE NO. II.

(1.) In what way does a condition of low water in the soil affect the general health?

Ans. The general health of the inhabitants of any locality is materially affected by the lowering of the water level, proof of which we have from the fact that most of the epidemics happen during such times, and that when the water level of any place is lowered, as it is in a warm, dry season, it is almost sure to be followed by an unusual amount of sickness. The rising of the water level has almost precisely the same effect; so that whenever there has been a sudden fluctuation of this level, it is likely to be followed by sickness. We have an example of this in the prevalence of yellow fever in the South this