

PART IV.—NOTES AND NEWS.

*Sewage Irrigation at the Cumberland Asylum.**

THIS is an exhaustive clinical report of a severe visitation of dysentery at the Cumberland Asylum, and which Dr. Clouston proves beyond a question, to have been connected with the effluvia from a field over which the undiluted sewage of the asylum had been allowed to run "by open cuts over three acres of grass land. The direction of the cuts was often changed, to make the sewage run on different parts of the field, but this was not done very scientifically." The analysis of the symptoms, and the gradual tracing of them to the morbid influence of the sewage exhalations, are very ably recorded.

The whole of the facts related by Dr. Clouston, and the inferences from these facts, are thus briefly summed up:—

1. An epidemic of dysentery of a very fatal character occurred in the Cumberland and Westmorland Asylum, in the years 1864-65.

2. All the positive evidence that can usually be produced to determine the cause of any disease, can be produced to connect this epidemic of dysentery with exhalations from a field irrigated by sewage, as effect and cause. Ample negative evidence can be produced to show that no other probable cause of such an epidemic was in operation.

3. The old, weak, paralysed, and diseased patients were chiefly attacked, but it was not confined to them.

4. The majority of the patients attacked were inmates of the wards on the ground floor of the asylum, showing that the sewage effluvia is most concentrated near the ground. Little or no wind and a high barometrical pressure would seem to be the most favorable conditions for the injurious effects of the poison to manifest themselves.

5. It would seem to be unsafe to apply sewage in any form (*undiluted and not very scientifically irrigated*) to land with a stiff clay subsoil, within 350 yards of human habitations.

6. Diarrhoea in its ordinary form may also be caused by sewage exhalations.

7. There are strong reasons for believing that the sewage effluvia which caused dysentery and diarrhoea in some persons may have caused typhoid fever in others.

8. The sewage poison had a period of incubation in most cases before the dysentery appeared. The length of this period was probably from three to five days.

* 'Sewage Exhalations the Cause of Dysentery.' An Account of an Outbreak of Dysentery in the Cumberland and Westmorland Asylum, which was caused by the Effluvia from a Field irrigated by Sewage. By T. S. Clouston, M.D. Edin., Medical Superintendent. (A reprint from the 'Medical Times and Gazette,' June, 1865.)

9. The dysentery was of a very fatal character, and the ipecacuanha treatment, so successful in tropical dysentery, was not so in this epidemic.

10. The two morbid appearances most characteristic of this epidemic were, 1st, a soft membranous deposit on the mucous membrane of the intestines; and 2nd, the diseased condition of the lower part of the small as well as the large intestine in all the cases.

11. The poison which caused the dysentery seemed to occupy an intermediate position between the poison which causes the continued fevers, and that which produces ague and its concomitants."

It is a valuable and warning lesson which, Dr. Clouston here records, of the poisonous influences on the human system of sewage exhalations.

It is scarcely fair, however, to confound with *Sewage Irrigation*, properly so called, Dr. Clouston's fatal experiment.

Such irrigation must in the first place be done in a scientific manner, and next, the sewage must be amply diluted, otherwise, besides causing Dr. Clouston's form of dysentery, it will kill the grasses, whose growth it is proposed to stimulate. In the standard of all sewage experiments, the meadows at Craigintinny, near Edinburgh, which have now been so successfully irrigated for eighteen years as to raise the rental from 20s. an acre to £30, at Croydon, and at Carlisle, the sewage used for irrigation is largely diluted with the waste and surface water used in these towns. At the Cumberland Asylum, on the contrary, "the water from the baths and lavatories is not thrown into the sewage drains, it having been thought that the sewage would be too much diluted if mixed with it. The main drain conveys the sewage to a large vaulted close tank, 40 feet by 40 feet, and 6 feet 6 inches in height, situated about 150 yards from the nearest inhabited part of the asylum,—a small detached block—and 200 yards from the main building."

Thus, instead of a running stream of fresh sewage, amply diluted, Dr. Clouston in his experiment used stagnant, undiluted sewage, necessarily charged with foul gases. Further, no disinfectants appear to have been used at the Cumberland Asylum. The result was, that in little more than a year thirty-one persons were attacked by dysentery, of whom twenty died.

There are several county asylums where the whole of the sewage has for several years been applied to the land by surface irrigation, without any such ill effects as Dr. Clouston here records. In all such instances, the following precautions have been adopted:

1. The land has been thoroughly drained, so as to allow the sewage water to filter through and escape.
2. The sewage has been scientifically applied, *i. e.*, care has been taken that the channels were level, and the flow constant.
3. The sewage has been regularly deodorized by lime, carbolic acid, sulphate or chloride of iron, &c.
4. The sewage has been applied fresh, and not after being stored in a large tank, and after decomposition has taken place.

Opening of the Roman Bath at Colney Hatch (Middlesex Asylum), with Plans and Estimates for Radiating Chambers in Hospitals, Private Dwellings, &c.

THE Manager of the Hammam having been present at the opening of the bath at the Middlesex Asylum, thus describes the event:

"Last week, on Wednesday, the bath at Colney Hatch was started. I