

River water is open to the same danger as that of shallow wells, for most rivers receive the sewage discharge of the towns situated on them. Fortunately, river waters have a power of self-purification, for the sewage matter is further diluted by affluents, springs, and surface drainage. In addition to this, oxidation and purification are exerted by aquatic animals and by vegetable life, and flowing over rapids and falling over weirs assist in the purification of water. Thus, at Hampton Court, the Thames water contains no more sewage matter than it does over a hundred miles nearer its source, although the sewage of several towns is received between the two places.

At Hampton are several waterworks, which supply the needs of nearly the whole of London. Arrangements can sometimes be made for parties to go over the works and see how Thames water is purified. From the river, large volumes of water are pumped into tanks, where suspended impurities are allowed to sink to the bottom. The clear upper water is then drawn off and passed to filter beds. These beds have a foundation of unglazed pipes, through which the filtered water is drawn off to supply the service pipes. Above the foundation is a layer of coarse gravel; above that a layer of fine gravel; and above that a layer of not less than 12 in. of sand. When a filter bed has been in use for a few days, a superficial gelatinous deposit forms on the sand, and it is agreed that this film has the power of intercepting bacteria, so that only about 2 per cent. of the total number find their way into London drinking-water.

The efficacy of sand as a filtering medium was well brought home during the cholera epidemic which visited Hamburg in 1892. Hamburg, Altona, and Wandsbeck are three contiguous towns on the Elbe, and only differed from each other in their water supply. Wandsbeck was supplied by filtered water from a lake which was hardly exposed to faecal contamination, and during the epidemic was almost free. Hamburg was supplied with unfiltered water drawn from the Elbe at a point beyond the town. As the Elbe is a tidal river, sewage pollution would occasionally reach this point, and through drinking unfiltered water 17,000 of the inhabitants were attacked by cholera. The death-rate at that time is estimated as 13.4 per 1,000 of inhabitants. Altona, situated nearer the mouth of the Elbe, drew its water supply from a point below Hamburg. Although the water supply was more grossly charged with sewage than that of Hamburg, it was filtered through sand beds before being supplied to the houses, and Altona, like Wandsbeck, escaped almost free. Radical measures were then taken for the purification of the Hamburg water supply, and it is significant that the death-rate from typhoid, which in 1890 was twenty-eight in the 100,000, had fallen to six per 100,000 just six years after.

(To be continued.)

## Trained Nursing as a Profession for Women, from an Educational, Economic, and Social Aspect.\*

By Mrs. BEDFORD FENWICK,  
*President of the International Council of Nurses.*

It is scarcely necessary to remind the present audience that it was in the year 1836 Frederica Fliedner, wife of the Pastor of Kaiserswerth, animated by the love of her kind, and the faith which removes mountains, bought a house with borrowed capital, and, in spite of opposition from the mayor and people of the place, converted it into a hospital for the reception of the sick, in which women could be trained in the work of nursing without being subjected to the horrors abounding in the hospitals of the time. The great work accomplished by this woman of genius in her short span of life has extended its beneficence to our own day, and no trained nurse can stand upon German soil without recalling that it was in this country that the foundations of the modern system of nursing were laid. It was at Kaiserswerth that our own great Elizabeth Fry, and later Miss Florence Nightingale, studied the principles underlying the work which had proved a signal success, and adapted them to the needs of our own country, which in its turn handed them on to the great American Republic. Thus, wherever nursing exists, as a skilled profession for women, the name of Frederica Fliedner must be held in honour and veneration.

In what good stead the knowledge gained at Kaiserswerth served Miss Nightingale in her subsequent work in the Crimea all the world knows, and in 1857 she founded, in connection with St. Thomas's Hospital, the Nightingale Training-school for Nurses, with money raised by public subscription as a testimonial to her work there.

Since that date nearly every hospital in Great Britain has claimed to be a training-school for nurses, for it speedily became apparent, not only that the nursing of the sick could be more efficiently performed by this method, but also that the system was a most economical one.

While progress has been made in many hospitals on individual lines, we have as yet no co-ordinate system of training or standard of instruction, and we are now confronted by the fact that the very success of the training-school method has occasioned a new danger, for nearly every hospital, whether general or special, whether possessing the means of affording a thorough nursing education or not, and even many nursing homes, advertise for, and obtain, probationers, and subsequently confer certificates upon them, while the public has no means of distinguishing between a valuable and a valueless certificate.

\* Read at the International Congress of Women, Berlin, June 16th, 1904.

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