ternal trap), we consider so essential, that we will not consent to connect our name with any plan from which it is omitted."

The eminent engineer, Mr. Rogers Field, in a lecture in March last, to members of the "Institution of Foremen Builders and Clerks of Works," said: "The first object of a perfect system of house drainage should be the immediate removal of all foul matter directly it was produced. To effect this the drains must be of impervious material, and well and uniformly laid with a good fall. The best material was glazed stoneware, and in some cases ironstoneware pipes should be jointed with cement, not with clay. Clay joints were a great source of danger, especially when the drains were near or under houses. Everyone knows that cesspools must be avoided; but, unfortunately, there were a number of traps partaking of the nature of cesspools, which were very largely used."

"Various mechanical expedients have been suggested for supplanting traps, but the only reliable means to prevent the ingress of sewage gas into houses are thorough ventilation and disconnection. Efficient ventilation implies more than is generally supposed. It is not sufficient to afford relief of undue pressure, but a continuous current of fresh air must be created through the drains and pipes, to effect which two openings are necessary. This was illustrated by an experiment with smoke in a glass tube, when there was only one opening, the smoke would not escape from the tube; but when there were two openings it did.

"The most efficient means of all of preventing the ingress of sewage gas was 'disconnection,' or cutting off the direct communication between the sewer and the house drains. The lecturer then explained, by means of large diagrams, the

essential difference between direct communication and disconnection, and showed that when the house drains are in direct communication with the sewer, the air of the sewers is, as it were, laid on to houses; whereas, when efficient disconnection is used, the sewer air is 'cut off.' Nothing can be worse than connecting the waste pipes of sinks, baths, and overflow pipes of cisterns directly with soil-pipes and drains, as is so often done."

In this connection it will be well to draw attention to the plan proposed by Dr. Joseph Workman, late Superintendent Toronto Lunatic Asylum, in an early number of the SANITARY JOURNAL (No. 2, Vol. 11, page 33). As the Dr. says, he has adopted this plan in his own house in this city; and the writer has had the privilege of examining it, and it appears highly satisfactory. With a "constantly acting chimney," it certainly is a very valuable plan, especially in connection with ventilation of the soil-pipe below the trap. If it could be arranged in connection with a pan having a trap which could be seen in its deepest parts, it would, it seems, water-closet system render the absolutely perfect.

The following is a description of the plan, in the author's own words; readers of the early numbers of the JOURNAL will pardon its re-insertion here: "No matter how expensively or handsomely any water-closet may be constructed, unless it is provided with an efficient means of ventilation DOWNWARDS through the pan, offensive smells will frequently be telt in the apartment. If instead of the foul air finding escape upwards out of the pan, it be carried away in another direction, and a constant flow of fresh air into the pan be secured, no disagreeable smell will ever be felt: on the contrary such