which is boiling in the flask upon the left contains sand and clay in suspension, sulphate and carbonate of lime in solution, as well as salts of ammonia and common salt. We shall look in vain in this distillate (the condensed steam) for any traces of these, and although we may find traces of carbonic acid and ammonia, since these readily volatile substances may come over with the first portions of the water vapour, yet if we reject the first portion of distilled water, we shall find the remainder to be absolutely pure, since the salts mentioned above are not converted into vapour at the temperature at which water boils, and they therefore remain behind in the flask. Even the ammonia might have been prevented from coming over had we taken proper precautions in treating the water before applying heat. It will, however, be evident that distillation is too expensive a method to be practically available on the large scale for water purification: and it is only in such cases as on shipboard that water for drinking purposes is obtained in this way. A process quite analogous to this is, nevertheless, carried on by natural agencies on the large scale. The formation of clouds, and the precipitation of their watery burden, as rain, snow, etc., is but a vast distilling of the surface waters of the earth; and were it not for the impurities washed out of the air by it, rain water would be quite as pure as the distilled water flowing from this condenser. Indeed, were proper pains taken to reject from cisterns the first portions of each shower, as containing the bulk of the impurities of the air, and the dust and dirt from the roofs on which it falls, rain water might be collected and stored so as to form a perfectly wholesome and even palatable drinking water, since it is well aërated, and the insipidity due to absence of dissolved solids is less and less noticed as people become habituated to its use. I have figured in this diagram two original devices, by means of either of which a definite portion of each rain-fall may be automatically prevented from entering the cistern, and only the later portions of the shower allowed to flow into it; and I think that every cistern should be provided with a contrivance fitted to effect this separation of the earlier from the later portion of each rain-fall.

For purposes of brevity I shall omit any mention of sea water, or lake water; and devote the remainder of the evening to some remarks upon river and well waters; and in order to make it possible to define