Editorial

RUN-OFF FROM DRAINAGE AREAS.

In investigating the yield of drainage areas for water supply projects the general practice has been to measure the quantity of water drawn for consumption and to add to it the quantity wasted over the dam of the storage reservoir, or otherwise, and then to make an addition or subtraction, as the case may be, for the amount of water added to, or drawn from, storage. This gives approximately the natural flow of the stream as it would be if no storage reservoir existed. This approximation is generally found sufficiently accurate for practical purposes. There are times, however, when greater accuracy is necessary for best results, and in this connection there are other features which must be taken into account. A consideration of the whole is likewise necessary to make the records of yield obtained from certain drainage areas applicable to others.

The New England Waterworks Association has had a committee of nine investigating the problem since March, 1911. This committee, in a report which it submitted recently, emphasizes the importance of taking account of the extent of water surface upon the drainage area. When a considerable portion of an area consists of water surfaces, it is obvious that the evaporation causes the yield of the drainage area to be materially less than if the water surfaces did not exist. This is particularly so during summer months. The committee, therefore, advise that where accuracy is required the drainage area should be divided into land surfaces and water surfaces and the yield of each given separate consideration.

Swamps have water standing in them part of the year, and present damp surfaces much of the time, and may, therefore, be considered as intermediate between the upland from which the evaporation is least and the water surfaces from which the evaporation is greatest.

There are other corrections which it would be desirable to make, but which cannot be made because the necessary data are lacking. For instance, in the case of large rivers, it is not feasible to make corrections for the water drawn from or added to storage in the various reservoirs and millponds upon their drainage areas. Hence, the measured flow of such streams is not exactly the natural flow. The difference, however, is small except in the drier portions of the year, when the measured flow may be considerably more than the natural flow, and such streams cannot be used for deducing accurately the yield in dry times of drainage areas without storage.

It is pointed out that, under ordinary conditions, when the correction is made for water added to or drawn from a storage reservoir, the correction covers only the visible storage and not the storage in the interstices of the ground around the reservoir. It is generally impracticable to include this feature in the computations. As a rule, the amount of such invisible storage is small in comparison with the visible storage, but it may be large enough to materially affect the deduced natural yield of a drainage area in dry months.

On a drainage area where proper correction is made for storage in the reservoirs under the control of the water authorities, there are in some places other small reservoirs not under such control which are not included when making the corrections for storage.

In some instances, water is diverted from or into a drainage area in connection with systems of water supply and sewerage, and such diverted water is generally taken into account in preparing the records, but there is frequently some percolation or leakage past a dam, or through the natural barriers which retain a lake or reservoir, of which no account is taken.

STEEL RAIL PRICES.

For the first time since 1901, steel rails are now being quoted openly at less than \$28 per ton. This basic price was fixed for Bessemer rails at the time of the formation of the United States Steel Corporation and has been maintained by that corporation and the independent mills alike since that date. Very recently the Algoma Steel Company, a Canadian corporation, has entered the United States market, quoting open hearth rails at \$25 per ton on board cars at the mills, or \$27.60 f.o.b. at Chicago, as compared with \$30 at the mills quoted by the manufacturers in the United States. At least three railroads, the Pere Marquette, the Big Four, and the Toledo and Ohio Central, have contracted for rails at these prices.

Several reasons can be assigned for this cut by the Algoma Steel Company. The acute state of business in Canada, created by the European war and the recent removal of the tariff on steel products entering the United States from Canada coincident with the fact that there is no tariff on iron ore moving in the opposite direction, are however the principal factors.

From its geographical situation at Sault St. Marie this steel company is able to deliver rails by water at any of the lake ports and may therefore become a serious competitor of the mills in the United States. It will be interesting to note whether the Canadian roads do not demand a similar reduction.

OIL IN WESTERN CANADA.

Discussing the oil field of Western Canada at the Institution of Petroleum Technologists, Great Britain, Mr. Cunningham Craig said recently: "All drilling for oil is to some extent speculative, and no one who has studied these western prospective fields with any care has failed to point out over and over again that, though the rewards of success would be great, the possibility of complete failure in any one district is considerable. Yet it seems almost impossible that there cannot be a paying oilfield waiting for development somewhere between the far north and the international boundary. There will doubtless be many disappointments, for much of the development work now in progress was foredoomed to failure, but I believe, and I think that everyone who has travelled sufficiently in Western Canada will concur, that there is petroleum in these great territories and that it will be discovered and produced profitably at no very distant date."