asphalt and wood block in the matter of relative 20-year economy when built under those conditions, with capital bearing interest at various rates per annum, road statistics in Canada, as indicated by the actual results obtained, are the complete reverse of his conclusions. This is so universally the case throughout the provinces that we find, as a result, for every mile of brick and stone pavements combined, there are two miles of wood block (chiefly treated, in which state it was introduced into Canada only ten years ago) and eight miles of asphalt pavement. In our cities there are upwards of 800 miles of paved streets, only about 50 miles of which are built of brick and stone. When one considers the special conditions in which these types present favorable characteristics, viz., where graded streets are to bear heavy traffic, where noise does not count, or where unsanitariness is not a factor (if such is anywhere the case nowadays) the proportion, 800:50, may not be far astray.

As stated, the economy of road and pavement work is chiefly a matter of choosing the best pavement to suit the conditions to be imposed upon it. Care in ascertaining the requirements, and in selection, with those requirements prominently in the foreground, are the essentials. Without them, no comparable results need be expected from the application of any formula.

Although the results would scarcely be recognizable when compared with Mr. Trautschold's, owing to entirely different conditions and quantities to be reckoned with, Canadian road engineers may apply to advantage the method of procedure laid down in the article referred to. From their own personal experiences, they will, of course, see the necessity of using figures that comply more strictly with their practice, (such, for instance, as the cost of maintenance) than those used in exemplifying the formula.

LETTER TO THE EDITOR.

Re "Some Large Concrete Bridges."

Sir,—In the article entitled "Some Large Concrete Bridges," beginning on page 698 of May 7th, 1914, issue of *The Canadian Engineer*, there are several slight errors and omissions to which I beg to draw your attention, in order that readers will in no way find the interesting article misleading.

For instance, in the opening paragraph of the article it is stated that "there has been a gradual increase in the length of the spans and length over all," etc. This statement is incorrect, as the longest concrete bridge was one of the first ever built. It was built in France prior to 1865.

In describing the Wissahickon bridge, the writer states that "prior to this all traffic had to make a wide detour," etc. He apparently overlooks the fact that there had previously been an old wooden bridge on the same site. Some of the largest recent bridges are not mentioned, such as that at Auckland, and the statement is made that the Riverside bridge was built contemporary with that at Walnut Lane, whereas it was actually completed two years before the Walnut Lane bridge was begun.

Further, it is stated that a recent bridge spans the Connecticut River in the city of Washington.

H. G. TYRRELL,
Bridge and Structural Engineer.

Evanston, Ill., May 12, 1914.

FIBRED ASPHALT PLANT FOR CANADA.

Geo. A. Henderson, of St. Albans, West Virginia, announces that a Canadian company has been organized to manufacture the new pavement "Fibred Asphalt," patented in Canada by Mr. Henderson last December. A $20,000 factory will be erected in Toronto in June, where graded hard-wood fibre will be impregnated. A test pavement, the first of fibred asphalt in Canada, will be laid in Toronto within a few weeks, the first ever laid being at Memphis, Tenn., in 1912. The Good Roads Year Book of the American Highway Association publishes the following:

"The invention relates principally to the art of denaturing hard-wood and preserving it in the following manner: A billet of hard-wood is shredded into small particles of ununiform lengths of 1½ inches down to wood flour, the flour itself being eliminated from the aggregate by screening. The particles are denatured by the process used by the tannin extract manufacturers, in which process all sap, essence and the more evaporable and deteriable elements in the wood are extracted, the remaining particles being thereby rendered abnormally enlarged and porous. In their subsequently dried and heated condition the wood particles, because of their porosity, are susceptible of impregnation, by absorption, by a non-deteriable, non-evaporating matter (such as asphalt), in lieu of the sap, etc., removed. The heating of the dried particles to prevent the premature congealing of the molten asphalt before reaching the particles' pores, has also for its object the partial contracting of the enlarged particles. The consequent contraction in the size of the particles' pores correspondingly reduces the amount of asphalt required to completely fill them.

"The wood fibre is a waste product of tannin extract manufacturers, who use hard-wood and no bark in their process. The particles are taken from the leaches on endless belts; dried, screened, heated and then mechanically mixed with a predetermined uniform percentage of asphalt, sufficient to fill the pores and voids in the mass when finally contracted and compressed. The material, in its partially impregnated and partially contracted condition is deposited at the mouth of its mixer into moulds 4 by 6 feet, these blocks being compressed on all sides only 3 to 4 inches, and allowed to cool, when they will remain intact for shipment, but are readily disintegrated in a breaker stationed at the front of a portable re-heating machine, designed to travel over the road to be paved, in which machine the coated particles are deposited and heated to from 250 to 275° F.

"This heating results in the final contraction of the fiber to its normal size, as it was before being chipped from its original log, and the entrapping of its asphalt content, thereby insuring penetration to the most minute pore of the fiber, thus thoroughly preserving it, without affecting its natural resiliency. The mass emerges from the rear of the re-heating machine in a continuous 18-inch flow onto the previously prepared road base, where it is mechanically spread 4 inches thick, steam roller compression immediately reducing it to a compact mass 2 inches thick. The interlocking of the ununiform preserved sinues of the hard-wood, in conjunction with the substantial penetration of the binding asphalt, in addition to surrounding the particles, is relied upon for durability.

"Fibred asphalt may be laid on any substantial foundation, such as old macadam, crushed stone, concrete, old brick, granite or wood blocks or cobble stones. For use on country roads a curb or shoulder is not necessary."