the men receiving salaries above \$3,000. There is no longer an excuse for this, as the above review amply proves. The measure of seeming economy, also, is very small; because the engineers in the higher positions are few in number compared with the rank and file of professional workers.

Routine Workers in the Profession

It is frankly recognized that there is another class of technical work-of a routine order-which calls for little in the way of initiative, originality or judgment. Much of this routine technical work in the field, the office, the shop or the laboratory can be and is being done by boys and young men with limited education and no more training than that afforded by a correspondence school or a few months' study in a trade school. Most of this work does require, however, a degree of reliability and fidelity which deserves fair compensation. The best guide to fair rates of pay for this class of technical workers is found by comparison with the standard rates of wages paid to skilled workers in the trades. These workmen are now generally receiving rates of pay much higher than the routine technical worker, and in many cases higher than even the engineer who carries large responsibility for design or administration.

The federal government is now paying thousands of its highly-trained clerical and technical force less than a living wage. Except for the temporary bonus of \$240 a year for positions paying salaries of \$2,500 or less, no attention has been paid to the constantly diminishing purchasing power



PERCENTAGE OF INCREASE IN WHOLESALE PRICES OVER THE AVERAGE FOR 1913, AS SHOWN BY DUN'S AND BRADSTREET'S INDEX NUMBERS

of the salaries paid to this class of employees. On the other hand, the government has given full recognition to increased living costs in fixing the wages of organized labor.

A "shipfitter" in the Navy Yard, for example, receives \$1,750 a year while he is learning how to do his work; after three months' apprenticeship he gets \$2,000. If he is made a "straw boss" in charge of 12 or more men, he gets \$2,450, and if a "sub-foreman" in charge of 30 or more men, he gets \$2,900. A blacksmith (heavy fire) gets \$2,400. A "heavy hammer and machine forger" gets \$3,700.

In many instances the amount paid for skilled labor is greater than the amount paid to the trained government engineer. Over 40 of the labor crafts were awarded a rate of wage of \$2,000 and more by the Labor Adjustment Board.

The skilled laborer is not required to know how to read or write, and he may receive full pay after an experience varying from two weeks to six months. The government engineering employee, on the other hand, to get an equivalent amount of pay, must have had from two to eight years' experience if he is not a technical graduate, and in many instances will not be admitted at all without a technical degree, and then only with from two to four years' practical experience.

Many other comparisons might be made between the worker at a trade or the factory employee and the routine worker in engineering, showing how low is the pay of the latter compared with the former; but no further proof is necessary to show that the technical worker is not receiving what his services are worth. The inevitable result of such underpaid service is a deterioration in its quality. The men in these lower grades have, as a rule, not the same incentive of professional pride that often keeps the men carrying larger responsibilities faithfully at work, even when their pay is inadequate.

Even though a temporary over-supply of men trained in engineering work may make it possible to keep salaries for these brain workers below the wages of laborers, the inevitable result will be a dissatisfied working force which carries out the daily routine without energy or good will, and the public's work will not be done 'with 'efficiency or economy.

REPORT ON MONTREAL AQUEDUCT

R. S. & W. S. Lea Advise Administrative Commission to Complete Project as Water Supply Source at Cost of \$1,683,000, and to Build New Pumping Plant Costing \$850,000

ONE of the problems facing the Adminstrative Commission of Montreal is to decide how to utilize the work that has been done on the Montreal aqueduct project, which was suspended before the Commission was appointed. In an effort to solve this problem, the Commission requested W. S. and R. S. Lea, consulting engineers, Montreal, to investigate and advise on the engineering economics of the project as it now stands. Messrs. Lea have presented their report, submitting three schemes and discussing their relative advantages.

The first, which would cost the city \$1,683,000, is to use the new aqueduct as a water supply source for domestic purposes. The second scheme, which would cost the city \$6,000,000, is to use the aqueduct for water supply and limited power development. To carry out this scheme an auxiliary steam plant would be needed.

The third scheme, which would cost \$10,000,000, is along the lines of the power scheme of the original project, and would supply power for pumping water and for lighting streets.

The chief recommendations are as follows: "The main question we have been asked to deal with in this investigation is the completion of the aqueduct, and it is recommended that the aqueduct be completed without delay for water supply purposes only at an estimated cost of \$1,683,000.

"That a new motor-driven pumping plant be provided at an estimated cost of \$850,000, with an initial installation of five 30-million gallon per day units, and with provision in the building for the accommodation of three additional units operating on electrical power purchased from the Montreal Light, Heat and Power Co.

"That the rated capacity of the water filtration plant be increased to a total of 120 million gallons per day at an approximate cost of \$2,000,000.

"That additional elevated reservoir storage be installed in connection with such system to provide for eight hours' stand-by storage over and above the capacity required for equalizing purposes.

"The estimates of cost given above are for the aqueduct pumping plant and filter plant, and include engineering, inspection and interest during construction."

At the 28th annual meeting of the Association of Ontario Land Surveyors, held last week in Toronto, it was decided to co-operate with the Association of Dominion Land Surveyors in the formation of a national organization to promote the status of surveyors. The officers elected for the coming year are as follows: President, T. B. LeMay; vicepresident, G. A. McCubbin; secretary-treasurer, L. V. Rorke.