that sufficient of the mathematical and physical sciences, the historic and economic studies, and the languages make constituent parts of the curriculum, and that the spirit and order in which these are studied are right. It is probably in the latter that we are erring. The sciences, historical and economic studies, and languages are well represented in the curricula of many of our engineering schools, but there is a failure to impress on the mind of the student that the economic subjects are intimately related with the work of the profession. Perhaps here lies the explanation of the apparent failure of engineers to play their reasonable share in civic affairs. If that is the explanation, our methods of teaching ought to be promptly reformed.

SOME COSTS OF OPERATION OF THE ALBANY, N.Y., FILTER PLANT.

The filter plant at Albany, N.Y., comprises eight slow sand filters, constituting the original plant, and a preliminary filtration plant of sixteen units, each of 810 square feet filtering area, which was put in operation October 29th, 1908. In the report of H. J. Deutschbein, superintendent, for the year ending September 30th, 1909, the cost of operating this plant from October 3rd, 1908, to October 2nd, 1909, during which period 5,059 million gallons were filtered, was as follows:—

Pumping Station:	Total.	Cost per million gals.
Engineers and firemen	$ 7,962 18	$1 57
Incidental labor	815 87	0 16
Coal	7,292 87	1 43
Oil	305 86	0 06
Repairs and supplies	1,694 73	0 33
Ice	12 95	0 02
Total	$18,084 46	$3 57
Preliminary Filters:		
Attendants	$ 2,337 81	$0 46
Removing, washing and replacing sand	644 29	0 13
Total	$ 2,982 10	$0 59
Slow Sand Filters:		
Scraping beds	$ 779 41	$0 16
Removing scraped sand from beds	2,329 03	0 46
Washing dirty sand (for labor only —water used not charged)	502 76	0 09
Restoring washed sand to filters	676 05	0 13
Forking beds to obviate compacted sand layer	274 29	0 05
Removing sand from court to storage pile	764 44	0 15
Removing ice from filters	211 28	0 04
Removing, washing and restoring 14,134 cubic yards of sand (entire sand layers in filters 1, 3, 6 and 7)	3,872 10	0 77
Incidental labor, repairs, etc	546 94	0 11
Supplies	1,328 64	0 26
Ice	12 95	0 01
Total	$11,297 89	$2 23
Laboratory:		
Chemist	$ 1,550 00	$0 31
Laboratory help	1,926 36	0 38

AN EXAMPLE OF VARIED POWER USES IN A SMALL PLANT.

An installation of considerable interest for the varied uses to which the power is put is the power plant of the railroad repair shops of the New York Central lines at West Albany, N.Y. Electrical current is used for lighting and power to a considerable extent, both alternating and direct. For transmission from the power-house to the various parts of the shops the current, which is generated at 480 volts, three-phase, 60-cycle, is stepped up to 2,300 volts, and at each shop stepped down through transformers for operating the induction motors. Arc lights in the yards are on the alternating current circuit, while to provide direct current for incandescent lighting and about 40 per cent. of the motor load there is a direct current service at 250 volts, generated by three motor generator sets. Compressed air to the extent of 95,000,000 cubic feet per month is furnished at an average pressure of 90 pounds per square inch by two Ingersoll-Rand 360 horse-power compressors. This service is used for operating pneumatic tools, boiler tube cleaners, and for testing air-brake equipments, and various other uses. Hydraulic power is also used to a large extent, principally for pipe-testing and similar uses, and to supply the necessary amount of water under pressure a three million gallon service pump is provided.

Uninterrupted operation and ability to meet sudden demands are the essentials necessary in a plant providing such service, and, therefore, the boiler equipment was most carefully considered in the design of this station. The original equipment consisted of four 500 horse-power Franklin water-tube boilers equipped with Taylor gravity underfeed stokers, manufactured by the American Ship Windless Company. Later, when the station was enlarged, to this boiler equipment was added a battery of three 600 horse-power Edgemoor water-tube boilers, and these were also equipped with Taylor stokers. The large overload capacity and steady operation possible with these stokers dictated their choice for this plant.

NEW INCORPORATIONS.

Montreal.—Grimm Manufacturing Co., $150,000; J. H. Grimm, C. E. Grimm, C. E. Moore.

Belleville, Ont.—Sidney Electric Power Co., $500,000; A. B. Colville, J. B. Ferris, R. I. A. Humphries.

Oakville, Ont.—Oakville Construction Co., $25,000. J. W. West, W. Scott, Oakville; A. E. Cook, Toronto.

Toronto, Ont.—Excelsior Lumber and Construction Co., $100,000; J. W. Heffernan, F. C. Carter, A. Fleishman. Engineers' Club, of Toronto; A. B. Barry, C. M. Canniff, W. Chipman. Battleford-Saskatchewan Land Syndicate, $100,000; W. R. P. Parker, J. A. McEvoy, M. Gordon. Canadian Public Health Association; D. M. Anderson, T. Aird Murray, C.E., A. J. Harrington. Booth-Coulter Copper and Brass Co., $250,000; G. Booth, W. Coulter, W. E. Booth. Dominion Roofing Co., of Canada, $40,000; E. R. Maltby, C. J. Oille, G. R. Sproat.

Windsor, Ont.—Canadian Commercial Motor Car Co., $40,000; C. Thibault, E. D. Craig, E. C. Kenning. Burlington Windsor Blanket Co., $50,000; G. C. Rasch, W. G. Rasch, Burlington, Wis.; J. J. Horan, St. Louis, Miss.

Winnipeg, Man.—Trail Magazine, $100,000. H. J. Moorhouse, W. G. Bale, Winnipeg; J. A. L. Robinson, Regina.

British Columbia.—A. E. Tregent & Co., $25,000; Columbia Bitulithic, $150,000; Malcolm International Blue Line System, $10,000; Pacific Marine Brokerage Company, $25,000; Vancouver Motor Trades Association, $10,000.