

The present year will be a year of activity, of development, and of solid growth. A country rich in natural resources, largely free from over-speculation, captained by men of courage and resource, will not be unduly influenced by industrial depression in a neighboring nation.

THE STATUS OF AN ENGINEERS' CLUB.

Engineering must rank high among the professions. The engineer must be a man of skill and judgment; resourceful and courageous; liberally educated and broadly read. Yearly he is in more demand. Problems arise demanding immediate solution, allowing of no time for experiments.

Engineers must prepare themselves for the new opportunities. Books, engineering journals, his own experiences, all assist him, but to supplement these he should be a member of an engineers' club. Not just a member, either, but an active member, alive to the necessities and possibilities of such an organization.

When each member becomes an active force, so will the club.

It will be a social organization providing amusement, recreation, and opportunities for those chats so enjoyed by engineers.

It will be protective, guarding jealously the good name of fellow-members and of the profession—a protection just as potent as any legislative enactment.

It will be stimulative. The success of others will encourage; their presence will enthuse. Difficulties will dwindle before the suggestions of more experienced men. Success related will help others.

It will be an educational organization, with experience as the master, and not such a hard master, either, if you are willing to profit by the experience of others. An exchange of ideas will be good for you—for the other fellow also. The successful engineer is always willing to tell in a modest way, of work accomplished, of difficulties overcome, of experiments carried out.

There is no better clearing house for bright ideas than the engineers' club.

If you are a member of a club not meeting your ideal, perhaps you are not doing your part. If you are a member of a live society, perhaps you know a fellow-engineer who is not. Bring him in.

The remaining winter months should be months of activity, entertainment and profitable discussion for all our engineering societies and clubs.

OF RAILROADS.

The charters for building railways and other purposes which have been procured from Parliament, and under which nothing has been done in the way of construction, would make an interesting tabulation. There are many corporations, for example, empowered to generate electricity at Niagara Falls and given a license to use the waters from the Niagara River. There are railway charters without number, practically covering the same route. In the latter case, their charters are kept alive by "commencing work of construction" within two years. No amount of work is specified. To correct this abuse it is now proposed to require certain percentages of the road to be actually constructed and operated within two, three and four years after date, respectively, under pain of forfeiture. As the law now stands, every new road is to be completed within five years; but in practice the charters are renewed or extended after the five years have expired, although, in fact, the construction has been scarcely commenced, much less completed.

Even if the map of Canada is covered with a network of railways, which have progressed no further than the obtaining of a charter for their construction, those already built and those in course of construction are a

sufficient test of the many existing enterprises in Canadian railway realms. It has been suggested that the building of new lines will create such great competition that the prosperity of present companies will soon be seriously impaired. This is evidently the view of him who sees into the future only the length of his arm.

The traffic of our railroads is bound to decrease next year, is the opinion of the London Saturday Review, in stating its views that Canadian railroad shares at 150 are too high. This prediction is opposed to common-sense and facts. The record of railway development in the Dominion is a revelation. Here are a few figures, to June 30th of each year, given:—

| | Miles in operation. | Passengers carried. | Freight carried. | Gross earnings. |
|------|---------------------|---------------------|------------------|-----------------|
| | No. | No. | Tons. | |
| 1871 | 2,695 | | | \$ 14,485,648 |
| 1876 | 5,218 | 5,544,814 | 6,331,757 | 19,358,085 |
| 1881 | 7,331 | 6,943,671 | 12,065,323 | 27,987,509 |
| 1886 | 11,793 | 9,861,024 | 15,670,460 | 33,389,382 |
| 1891 | 13,838 | 13,222,568 | 21,753,021 | 48,192,099 |
| 1896 | 16,270 | 13,059,023 | 24,248,294 | 50,374,295 |
| 1901 | 18,140 | 18,385,722 | 36,999,371 | 72,898,749 |
| 1902 | 18,714 | 20,679,974 | 42,376,527 | 83,666,503 |
| 1903 | 18,988 | 22,148,742 | 47,373,417 | 98,064,527 |
| 1904 | 19,431 | 23,640,765 | 48,097,519 | 100,219,436 |
| 1905 | 20,487 | 25,288,723 | 50,893,957 | 106,467,109 |
| 1906 | 21,353 | 27,989,782 | 57,966,713 | 125,322,865 |

There is yet the completion of the Grand Trunk Pacific, and also of several minor railroad enterprises. As the steelrail finds its way into new areas, so will those districts sing the song of commerce. A railroad is capable of supporting a big stretch of country; but it must be near enough to industrial centres to be of material assistance. The railroad can create these centres. The man with the brains and a map who directs the course of new tracks does not overlook this fact.

SUPPLY AND DEMAND.

To obtain one single gramme of radium, the total known quantity now in existence, one thousand tons of mineral were required. Scarcity creates value. The extraordinary monetary worth of radium is obvious. Its commercial value will gain, perhaps, only by an increase in supply. Its extreme scarcity makes it as yet but a material for experiments. The man in the laboratory may yet have other things to tell us of it; but honors will fall thickest upon him who locates more than a few milligrammes of radium.

A despatch from Paris states that Professor Bordas, the Director of Laboratories at the French Ministry of Finance, has stated that the total known quantity of pure radium on the surface of the globe does not exceed one gramme, or 15.7-16 grains. This small quantity is divided up among the following people, in the approximate amounts stated, one milligramme being equal to .015 of a grain: Mme. Curie, 15 milligrammes; Sir William Ramsay, 20; Sir William Crookes, 20; Professor d'Arsenval, 20; Professor Bordas, 10; M. Becquerel, 10; Thomas Edison, 20.

The various medical and scientific institutes in the world possess between them about 30 centigrammes. The Societe des Produits Chimiques has about 30 other centigrammes in stock, and several persons, mostly manufacturers in different countries, possess between them about 20 centigrammes, so that not more than 10 centigrammes may be said to be in the hands of unknown persons.

Radium is extracted by means of a complicated system of washings and chemical reactions. The radium now existing has been entirely extracted from the "pitchblende of Joachimstadt," and it took a thousand tons of mineral to provide the single gramme of radium in existence.