

carry on improvements in uninhabited, or perhaps desolate districts where there has been little encouragement for the success of his projects financially after completion.

He has been compelled to use the greatest economy in all the details of the construction and management of his projects, which had the natural effect of making him inferior to no one in the planning and constructing of the most feasible and economical engineering structures.

On the other hand the European has been backed by an abundance of capital in old, thickly settled countries, and when successful has been the recipient of all possible honors and well cared for by his government in old age.

As a preparation for any of the branches of engineering a college course is of inestimable value to a person adapted to the business.

One reason that so many non-collegians have attained to such success is that they have been adapted to it, or they could never have succeeded. An engineer need not be a great mathematician, beyond having a good knowledge of the formulæ used; while the college man has in his course of mathematics unconsciously received a training in methods of thinking and reasoning which he otherwise undoubtedly could never have received, and with which he is able to grasp quickly the new departures of science which daily come before him; while the untrained man must needs wait to be told or shown, or possibly remains in ignorance of them. But a college graduate is by no means an engineer, for he has only made preparation for performing work which in all good reason demands that he should have some experience before he can perform it to the greatest advantage.

In the actual work one should not try to think according to the minute details of exact science, because it creates a stiffness and places a restraint upon the freedom of thought necessary to grasp the natural demands of problems at hand.