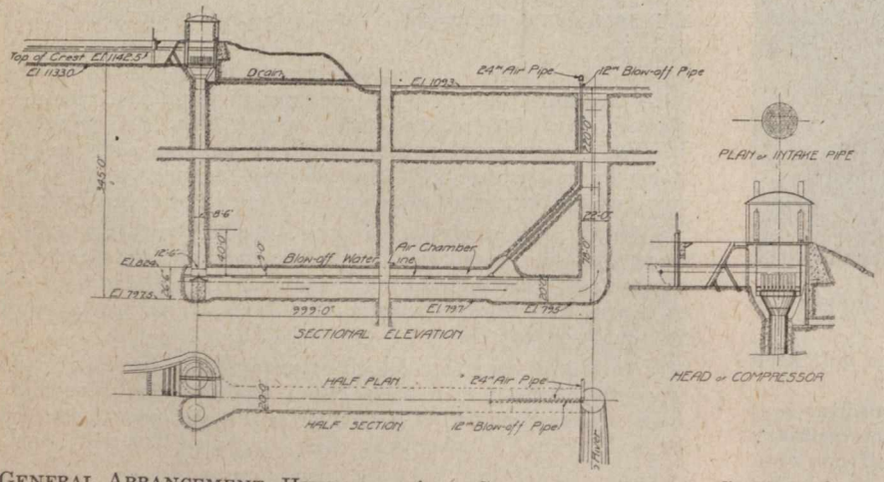
They are sure to notice inefficiency, but ready to give praise where praise is due.

The successful executive reproves, when necessary—sometimes severely—but takes care not to leave a sulky, resentful man. A workman of the proper calibre feels his failures and mistakes as keenly as does anyone else; he expects and accepts criticisms of the right sort with a determination not to let it happen again; he probably works harder than ever to redeem himself.

Workmen often are extremely skillful in handling difficult situations, and I've learned much from watching them. One day I saw a big Irish superintendent reproving his master mechanic, a very efficient man, for neglect of a part of his work. The master mechanic was much upset and chagrined. When the superintendent had said enough, he tactfully changed to a pleasant subject and drew a big red apple from his pocket. This he gravely gave to the master mechanic, who smiled his thanks, then with an exchange of a few more pleasant remarks each went on his way.

In talking to his superiors, the young engineer should preserve both self-respect and respect for authority. He should follow instructions implicitly, and in his own province try to anticipate and to do the obvious work without waiting to be told. He should acquaint himself with the design of the development, and in his own particular department



GENERAL ARRANGEMENT, HYDRAULIC AIR COMPRESSOR PLANT, COBALT, ONT.

learn why the method of developing the design is considered best. This is sometimes difficult, as the young graduate's knowledge of the subject may be limited to a few facts which may not apply to the work at hand. If this is the case he should, by study of drawings and intelligent questions, familiarize himself with the subject as presented in the development. If he forms the habit of analysis and care in thinking, gradually as he goes about his daily work he will begin to notice ways in which money or time can be saved or in which work may be done to better advantage. When he feels sure that his suggestion is a good one he should offer it to his superior, but should not be discouraged or angry if his suggestion is rejected by a man of broader experience. The more experienced engineer will gladly explain why it is not usable, and the young man is richer by the experience. Think and study, but never neglect the everyday routine. The valuable assistant, a future executive, is the one who assumes certain responsibilities and never under any circumstances neglects a single detail; excuses or reasons why things are not done never make things any easier for the young man; he has to produce a definite, accomplished piece of work at a given time in order to be a success.

I have tried to give an idea of some of the duties and responsibilities required of the young engineer employed on field work of a hydro-electric plant. Some may be interested in knowing what returns besides the financial the young engineer may expect from the years of hard work. First of the many compensations which may be mentioned is a practical knowledge of engineering which will be invaluable and which can be acquired in no other way; then those characteristics developed by constant contact with nature and men who work with their hands,—fortitude, human understanding and hardiness. In after years the memories of rare holidays spent on horseback on mountain trails or with a fishing rod by black pools in the swift running river are still vivid. The following line might have been said of the field engineer: "He had a heart to resolve, a head to contrive and a hand to execute."

METHODS OF SUPERVISING TIE RENEWALS*

TWO general methods of annual field inspection for maintaining control of tie renewals, so that ties will remain in service for their full life but will be removed at the proper time, are recommended by the tie committee of the American Railway Engineering Association, as follows: (1) By section foremen or their immediate superiors, or others directly responsible for the safety of the track; (2) by special inspectors chosen for their experience and knowledge of the requirements of their territory and not generally connected with or responsible for the track or territory inspected.

The first method has a tendency to provide adequate renewals, thereby assuring safety within the limits of available resources. It also provides a basic knowledge of local conditions, which no other method can cover. On the other hand, there will undoubtedly be a lack of uniformity under similar conditions on various territories and the possibility of excessive and uneconomical renewals.

The second method provides for training a small number of selected men to a predetermined standard of tie renewals and consepuent conservation of ties. It presents difficulties, however, in possible inadequate renewals at certain points, inability to obtain sufficient men and difficulty in finding employment for them outside of the renewal season. Conditions on various railway systems are so different that no one method can be established, but the committee points out that consideration must be given to the local conditions in determining which method is best for any particular road.

Whichever method is used, the spotting or marking of each tie to be removed is advisable. The section foremen, however, should be allowed some latitude for removing ties, independent of the spotting, which are broken or damaged or otherwise injured. A check of ties removed from time to time is considered essential. The use of statistics for approximate determination of tie requirements in advance of field inspection will be found desirable. When the number of ties available is less than the final inspection requirements indicate as being needed, the supply should be prorated, making due allowance for local conditions of traffic, curvature, grade and roadbed.

*Abstract of committee report, American Railway Engineering Association.

In a speech in the Ontario legislature last week, Hon. F. C. Biggs, Minister of Public Works and Highways, stated that in his opinion there is no reason why motor vehicle fees could not be increased within the next two years to an average of $15 per motor car, which would give an income of approximately $5,000,000 per annum to be devoted to road improvement. Mr. Biggs stated that the money appropriated by the Dominion government as federal aid to highways is, he understands, the money that has been collected as customs duty on imported automobiles and motor-trucks. However, the province of Ontario is to receive only about $6,000,000 over a period of the next five years, said Mr. Biggs, whereas last year Ontario alone paid $14,000,000 in customs duties on automobiles and motor-trucks.