

experiences of his own in getting things accomplished during the war.

Four important resolutions were unanimously adopted at the close of the business sessions of the organization conference:

1. Urging the payment of adequate salaries for the teachers of engineering in our technical institutions in order that adequately trained young engineering talent may be made regularly available.
2. Advocating the immediate adoption of appropriate measures to give effect to the recommendations made to Congress by the commission which recently reported upon a more adequate salary schedule for the engineering and other technical services of the federal government.
3. Indorsing the bill which has for some time been under consideration by Congress for the creation of a Department of Public Works.
4. Expressing the appreciation of the organization conference for the valuable work of the Engineering Council, especially its offers of assistance in making effective and operative the newly devised plan of organization, and expressing thanks to the Washington Society of Engineers and the Cosmos Club for their courtesy and assistance afforded during the sessions of the conference.

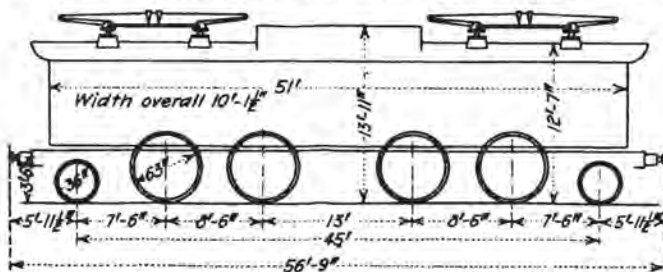
The Joint Conference Committee, which had so successfully formulated plans for the present conference, was charged with the duty of perfecting the permanent organization provided by the constitution. This committee is composed of members from the four "Founder societies" and has its headquarters at Engineering Societies Building, New York. Richard L. Humphrey, consulting engineer, Philadelphia, is chairman.

## Locomotive for Paulista (Brazil) Electrification

**3,000-Volt, Direct-Current System, with Provision  
for Regenerative Braking, Will Soon Be Installed—Vacuum Train Brakes to Be Used**

THE Paulista (Brazil) Railway has under way the electrification, at 3,000 volts, direct current, of the double-track line between Jundiahy and Campinas. Brief articles on this electrification were printed in the issues of the *ELECTRIC RAILWAY JOURNAL* for April 24, pages 855 and 878, and May 8, page 972.

Further information is now available as to details of the locomotives, which will be supplied by the West-



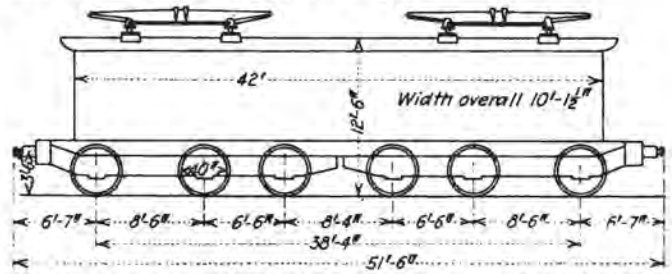
GENERAL ARRANGEMENT AND PRINCIPAL DIMENSIONS  
PASSENGER LOCOMOTIVE

inghouse Electric International Company for passenger and freight services respectively, both types of these locomotives being arranged for regenerative braking.

Each passenger locomotive will have two main running gears, each with a 2-4-0 wheel arrangement. These will be coupled back to back through an articulation link and will support a single cab. A two-wheel radial guiding truck and two driving axles in a rigid wheelbase will be included in each running gear. The two-wheel guiding truck will be of the Rushton side-equalized type. The locomotives will weigh 121 tons each and the details will be as given in Table I.

Each driving axle will be equipped with a twin-armature motor with quill drive. The pinion on each motor shaft will drive a single gear, mounted on a quill, which is centered in bearings in the motor frame and surrounds the drive axle. The motors will have forced ventilation, and each twin will have a one hour rating of 500 hp. and a continuous rating of 400 hp.

The nominal rating of the locomotive will be 2,000 hp., corresponding to a tractive effort of 17,000 lb. at 44 m.p.h. The maximum starting effort will be 44,000 lb. and the maximum speed 65 m.p.h.



DIAGRAMMATIC ELEVATION OF FREIGHT LOCOMOTIVE

Eight armatures per locomotive will be available for different motor combinations. The two armatures of each motor will be connected permanently in series and will be arranged to secure three motor combinations as follows: (1) All in series, giving one-quarter speed. (2) Two in series and two in parallel, giving one-half speed. (3) All in parallel, giving full speed.

In each of the three motor combinations the motor fields will be tapped, thus providing a total of six operating speeds. Shunt transition will be used in passing from one combination to another. The method of re-

TABLE I—CHARACTERISTICS OF PASSENGER LOCOMOTIVE

Classification	2-4-0 + 0-4-2
Length over buffers	59 ft. 9 in.
Length over cab	51 ft.
Total wheelbase	45 ft.
Rigid wheelbase	8 ft. 6 in.
Diameter of driving wheels	63 in.
Diameter of guiding wheels	36 in.
Weight of complete locomotive	242,000 lb.
Weight of mechanical parts	123,000 lb.
Weight of electrical equipment	119,000 lb.
Weight per driving axle	45,375 lb.
Weight per guiding axle	30,250 lb.

generation will be somewhat similar to that used on the Chicago, Milwaukee & St. Paul locomotives built by the Westinghouse company, but axle generators will not be used. Regeneration will be available in each of the three combinations.

Power for the auxiliaries and control will be obtained from the line through a motor-generator set, delivering current at approximately 80 volts to the blowers, air compressors, light and control. This motor generator will also furnish excitation for the main motor fields during regeneration.

The braking system will differ from the usual type used throughout this country, in that train vacuum brakes will be used instead of air brakes. The vacuum exhauster on the locomotive will have a capacity great enough to operate the brakes on the entire train. In addition to this exhauster a small compressor will be installed to supply compressed air to operate the locomotive brakes and control. Both the air and the vacuum brakes may be used at the same time. The use of the small compressor permits cutting out the large exhauster when the locomotive is switching or running light.

Each freight locomotive will have two main running gears, each with three driving axles in a rigid wheel-

base. The two running gears will be coupled through an articulation link. The total weight of the freight locomotive will be 94 tons. Table II gives the general physical characteristics of the freight locomotive.

The motor equipment will consist of six single-armature geared motors, with a one hour rating of 250 hp. and a continuous rating of 200 hp. with forced ventilation. These ratings are at a potential of 1,500 volts and the motors will be connected two in series.

The nominal rating of the locomotive will be 1,500 hp., corresponding to 25,500 lb. tractive effort at 22 m.p.h.

TABLE II—CHARACTERISTICS OF FREIGHT LOCOMOTIVE

Classification	0-6-0 + 0-6-0
Length over buffer	51 ft. 6 in.
Length over cab	42 ft.
Total wheelbase	38 ft. 4 in.
R'gld wheelbase	15 ft.
Diameter of driving wheels	40 in.
Weight of complete locomotive	188,000 lb.
Weight of mechanical parts	99,500 lb.
Weight of electrical equipment	88,500 lb.
Weight per driving axle	31,333 lb.

The maximum starting effort at 25 per cent adhesion will be 47,000 lb. and the maximum speed 40 m.p.h.

The six armatures will be arranged in the following three combinations: (1) All in series, giving one-third speed; (2) three in series, two in parallel, giving two-thirds speed; (3) two in parallel, three in series, giving full speed. Field control will be provided in each combination, as on the passenger locomotive, and the regenerative scheme will be similar to that on the other locomotive, as will also the auxiliaries, control equipment and brake equipment, using duplicate apparatus units.

As will be remembered from the previous articles the Paulista electrification equipment will be furnished part by the General Electric Company and part by the Westinghouse Company. General information regarding the G. E. locomotives was contained in the first two articles mentioned above.

## Association News

### Engineering Committees Whipping Reports Into Shape

ASSOCIATION headquarters have been the scene of much activity of late, Engineering Association committees being particularly in evidence. The equipment committee met on June 3 and 4, the heavy traction committee on June 4, the power generation committee on June 7 and the power distribution committee on June 8, 9 and 10. The way committee will meet on June 14 and 15.

At the meeting of the heavy traction committee, Chairman Sidney Withington, New Haven, Conn.; L. S. Wells, New York City, and J. C. Davidson, Roanoke, Va., were in attendance. The committee studied the results of a canvass made by means of a questionnaire, showing heavy electrical equipment on steam railroads, and arranged for the preparation of the data in useful and attractive form in the report. A salient feature of the committee's work this year, as previously, is to be the furnishing of adequate information on progress in heavy traction to the membership of the association.

The committee on power generation received reports from its sub-committees and devoted most of its time to the form in which power plant data will be presented

for convenient reference and discussion. The data will supplement those given in last year's report and will serve as standards of reference for estimating the economy of operation in plants of various sizes. The meeting was attended by Chairman A. B. Stitzer, New York City; H. E. Davis, Utica, N. Y.; A. H. Kruesi, Schenectady, N. Y.; F. A. Scheffler, New York City; E. H. Scofield, Minneapolis, Minn.; W. C. Slade, Providence, R. I.; H. B. Reynolds, New York City, and C. E. Bailey.

The three-day session of the power distribution committee was a strenuous one, as it was taken up almost entirely with detailed study of specifications, made with a view to suggesting necessary revisions. On account of the thoroughness with which details were considered, a vast amount of valuable technical information was brought out, which will doubtless be reflected in the discussion at Atlantic City. With but two exceptions all members of the committee were able to be present as follows: Charles R. Harte, New Haven, Conn., chairman; C. C. Beck, Mansfield, Ohio; R. W. Eaton, Providence, R. I.; H. H. Febrey, New York City; C. J. Hixson, Schenectady, N. Y.; Charles H. Jones, Chicago, Ill.; J. H. Libbey, Boston, Mass.; F. McVittie, Rochester, N. Y.; M. B. Rosevear, Newark, N. J., and W. Schaake, Pittsburgh, Pa.

### Claims Association Committee Meetings

AT THE New York headquarters on May 28 meetings were held by the Claims Association committee on revision of the constitution and by-laws and on interchange of claims statistics. The members in attendance were H. D. Briggs, Newark, N. J.; W. F. Weh, Cleveland, Ohio; J. S. Kubu, Utica, N. Y., and John J. Reynolds, Boston, Mass.

The purpose of the first-named committee is to revise the constitution and by-laws of the Claims Association so as to have it conform with the revised constitution of the parent association. The points needing revision were gone over at the meeting and arrangements were made for the preparation of a revised copy to be submitted to the executive committee of the Claims Association.

The committee on statistics arranged for a questionnaire to be sent out on the subject regarding which statistics can profitably be interchanged among the companies. The results will be compiled at the association office and furnished members only on request.

### Publicity Men in Conference

A MEETING of the committee of publicity men was held at the association offices in New York on June 5 for the purpose of considering a program of work to be carried out in addition to that already under way, and for the further purpose of considering the matter of co-ordination of its work with that of the committee on publicity recently appointed.

President Pardee, who sat with the committee, explained that the function of the newly appointed committee on publicity is to act in matters involving the publicity policy of the association, and in the appointment of the committee it was the purpose that the work of the two committees should be closely co-ordinated. Mr. Pardee advised the committee that the following executives had been invited to serve as members on the committee of publicity; Barron G. Collier, president Barron G. Collier, Inc., chairman; Horace