

## The TECHNICAL WORLD

[This Department is devoted to technical subjects of interest. Any questions sent to the Editor of the STATE COLLEGIAN or dropped in the box at 323 Main will be answered in subsequent issues by experts in the subject about which information is desired.]

### Mechanical.

The steam turbine though just coming into important consideration as a heat motor, has been one of the earliest known forms of motors. It was known as a "reaction wheel" to Hero (120 B. C.) and proposed by Banca in 1629 in the form familiar to us as the Laval type. The first forms were simple, that is they had but one wheel from which the power was derived. Later, these were "compounded." The Parsons is probably the best known of this form and its computed efficiency, without allowance for waste, is about 87 per cent. Actual consumption of steam is from 16 to 26 pounds per electric horse power with pressures ranging from 200 to 80 pounds. Speed is from 2000 to 5000 revolutions per minute. In small wheels the speed runs up as high as 35,000 R. P. M.

The sizes of turbines vary anywhere from 5 to 7500 H. P. The turbine tested in the Mechanical Laboratory, lately, developed 15 H. P. at a speed of about 30,000 R. P. M. consuming 50 pounds steam per horse power hour.

Turbines are high speed motors and as such are coming into extended use in power plants and marine work. Advantages claimed for the latter are:

- (1). Increase in speed, economy of steam, carrying power, stability of vessel, safety to machinery for war purposes.

- (2). Reduction in weight of machinery, space, initial cost, cost of attendance on machinery, vibration, size and weight of screw propeller and shafting.

The steam turbine, practically in its infancy at present, will in time supersede the steam engine in a great many instances and is rapidly gaining headway although comparatively little is known about it.

E. J. REIMEL '05.

### Electrical

The returns from the recent presidential election were distributed through the islands of Hawaii largely by wireless telegraphy.

The municipal lighting faction of the Milwaukee Council has met its second defeat. Their bill called for the issuing of \$150,000 bonds to construct a municipal plant.

The question of substituting electrical for steam power on the long distance railway systems of the country, is occupying the minds of electrical men to-day. This question and the possibility of using alternating currents for such purposes is discussed by J. Gilbert White on page 1010 of the *Electrical World and Engineer* for Dec. 12, 1904.

The Japanese Electrical Association, which corresponds to the National Electric Light Association of this country, has been meeting with unusual success. The organization, which was forwarded in 1892, consists of honorary members, individual members, and companies. The association conducts a continuous exhibit at Tokio, which is open at twelve every day except Sundays and holidays.

Harry G. Marsters, of Brocton, Mass., manager of Standard Oil in southern Mass., was killed while hanging up his telephone receiver. It appears that while in this act he had one hand upon an electric light and so completed a circuit which killed him. The lights in that part of the city have been shut off until it can be ascertained whether the Lighting on the Telephone Company is to blame.

The development of the telephone in the past decade has been remarkable. It is not a long time since a town of several thousand inhabitants was fortunate in having a pay-station. To-day such towns are a net work of private telephones, as well as commercial and long-distance lines. At present in many sections of the country the farmers have already formed independent companies. An interesting discussion of the cost of operating telephone systems in farming communities is to be found on page 1003 of the *Electrical World and Engineer* for Dec. 12.

### E. E. Society.

The Electrical Engineering Society held its regular weekly meeting in the Engineering building on Wednesday evening of last week. The following papers were read and discussed. "Heavy Electric Traffic on the Long Island Railroad." by Seguire '05. Continuation of the same, by Rainey. "Air Blast Transformers," by Weaver, '05. The members voted to have a supper at Harrison's, the following Wednesday night.

### Mining.

#### THE MINES AND MINERALS.

Sept. issue.—An article on *Assaying* by Evans Burkett. Gives an outline of methods and list of apparatus and materials used. It is to be continued through several papers.

Oct. issue.—*Bituminous Coal Breakers* by Lewis Stockett. As bituminous coal is not often treated in a breaker this process may be read with profit.

Same issue.—*The Kansas Salt Industry* by W. R. Crane. As the process carried on here is practically the same as in most other salt regions a general idea of the process can be obtained.

Nov. issue.—*Small Quick Running Fans* by James Tonge. This is an account of some new ventilators and the advantages claimed for them.

*Electrical and Steam Haulage* by Neil Hutchings. This a description of haulage as practiced by the Tennessee Coal, Iron and Railroad Co.

*The Hoisting Problem* by James R. Thompson. The article shows the relation of underground requirements, the engineering, mechanical, and the financial considerations.

Nov. 10th issue.—*The Mines of Laurium Greece* by Henry F. Collins. These mines are doubly interesting on account of their renewed commercial importance and history, having been worked by the Ancient Greeks.

Zern—"Mr. Robinson, what can you say of the grade of a mine railroad, using mule-power?"

"Billy"—(trying to bluff) "Well—that—depends"—

"Slip" Ames—"On the mule!"