STEAM TURBINE GENERATING PLANT.

A steam turbine for generating power is being installed by the Rockland Light & Power Co., of Nyack, N.Y. This company has for a number of years been engaged in furnishing light and power to territory around the town of Orangeburg, N.Y., where the generating station is located. The territory embraces the towns of Nyack, Grand View, Piermont, Sparkhill, Tappan, Orangeburg, Blauvelt, Nanuet, Spring Valley and Monsey, and is covered by five independent distributing systems, each fed by a separate transmission circuit from the power house at Orangeburg. The load consists mainly of incandescent lighting, but motors of considerable capacity are installed at a number of points. The present equipment of the station comprises a number of different types of boilers, engines and generators. The latter are belted outfits, and will be largely replaced by the new steam turbo-generator unit. The present system is a twophase, 3,300 volt alternating current system, each generator operating independently upon a separate circuit. In the new arangement, provision has been made for operating the entire system from the turbo-generator unit, the remaining machinery being held in reserve for periods of heavy load. The turbine is of the standard single cylinder, multiple-expansion type, built by the Westinghouse Machine Co., of Pittsburg, Pa., and is of the same type as installed in other power works, notably the Westinghouse Air Brake Company, Hartford Electric Light Co., and the Yale & Towns Mfg. Co., of Stamford, Conn. The turbine will be furnished with superheated steam at 125 lbs. pressure, this being accomplished by an independent superheater, with which a superheat of 100° to 125° F. will be obtainable. The mechanical equipment includes also a Snow condenser, capable of maintaining a high vacuum, an Alberger cooling tower for cooling the circulating water, and a mechanical draft outfit. The turbo-generator will be of the type recently standardized by the Westinghouse Electric and Manufacturing Company, for this class of service, and will furnish two-phase, 60 cycle current at 3,300 volts, directly to the station bus, from which the several transmission circuits extend in various directions to the local centres of distribution.

ONTARIO ASSOCIATION OF ARCHITECTS.

The annual convention of the above association was held at Toronto on the 13th and 14th of January. A number of interesting papers were read and discussed, one of the most interesting being by E. C. Shankland, C.E., of Chicago, on Modern Construction Methods, in which he referred to the growing use of concrete and the advantages it possesses as a building and foundation material. The following were elected officers: W. L. Symons, president; Geo. W. Gowanlock, 1st vice-president; Prof. C. H. C. Wright, 2nd vice-president; A. R. Denison, treasurer; Wm. R. Grey, registrar. A new order was formed in the association, to be known as the Order of Honorary Presidents. The charter members are Kivas Tulley, Henry Langley, James Smith and Joseph Connolly.

QUICKSAND.

Very little is known by the general public about quicksand, remarks a contemporary, and that little is usually obtained from novels. Such information is usually wrong, being composed of a pinch of truth and a handful of fiction. The sensational novel goes so far as to give to quicksand some attributes that belong only to living creatures. No ordinary observer could distinguish quicksand from any other if it were dried; and if he wished to restore its fatal property artificially, he would, in all probability, fail. Suppose he fills a bucket with it in the dry state, and soaks it with water; it does not in consequence become mobile. If he drains the water off from the bottom, the sand will be found wedged firmly in place, and if the water be measured it will be found to equal thirty per cent. of the bulk of the sand, or about twenty per cent. of its weight. From this we may infer that a cubic foot of dry sand weighs nearly 94 pounds. This, for sand, is very light weight, for there are other qualities of sand which weigh as much as 171 pounds. Quicksand, when examined under the microscope, will be seen to have rounded corners like river sand, as distinguished from angular or sharp sand, which will pack more solidly than the other. It is quicksand that is used in the hour-glass and in the smaller egg-boiler, partly because of its fineness and partly because it does not obscure the inner surface of the glass by scratching. The lightness of quicksand is the quality which will lead us most surely to the cause of its reputation, and to illustrate this, the bucketful of sand must be loaded with water from below, and made to overflow very slowly. The upward current will be found to loosen the sand, and to raise the surface very slightly, separating and lubricating the particles so that they are easily displaced. The bucket now contains quicksand, and this sand, from the support it receives from the water, has its weight or supporting power reduced. In the dry state it weighed nearly 94 pounds, but if weighed in the water it is reduced to 32½ pounds, and its mobility prevents any animal from walking on it. The mixture of sand and water weighs quite 112 pounds per cubic foot, or nearly twice the weight of water, and bulk for bulk, nearly twice the weight of a man, but it is too thick to swim in, and the person engulfed would soon be too exhausted to escape. He would probably die of suffocation if not drowned by an advancing tide, for quicksands are found mostly within the influence of tides. He would not be swallowed by the quicksand, because it is so much heavier than his body. Quicksands require in all cases an upward current which is not quick enough to form what is called a spring or fountain. It may be formed in two ways—in tidal rivers and on the shores of tidal seas the rising tide may saturate a porous stratum of ground below high-water mark, and when the tide falls a return current is established through the same porous (sandy) ground with a sufficient velocity to loosen the sand, as above described. This sand, as soon as the rising tide reverses the current, ceases to be quick. The other case is that when a slow current of fresh water finds an exit through a surface of sand above or below water. This is a permanent quicksand. Any sand and almost any material might have the quality of quicksand imparted to it by means of a suitable current.

FLASH BOILERS—WHY THEY DO NOT SCALE.

When flash boilers were first proposed for motor cars the experts who had not tried them said the scale deposited in such narrow tubes would choke them in no time. When the bolder spirits found that they did not choke at all the experts said the scale was blown off the inside wall of the tube by the rush of steam, or else cracked off by the heat of the tube. My theory, says J. Brown in the English Mechanic, is that scale never gets on. The experts were thinking simply that all boilers scaled, therefore this one would. They omitted to consider an essential difference. In ordinary boilers the water is in intimate contact with the iron, and the lime in solution, gradually depositing in crystalline form by evaporation of the solvent, fixes itself on the solid with which it is in contact. In the flash boiler the water is not in contact with the metal, but is separated from it by a layer of steam through which the heat passes to the water. Any solid deposited by evaporation is therefore isolated by this steam layer, and forms in small particles in the water. It has no chance to attach itself to the metal tube. The following very pretty and simple experiment illustrates this: Put into a clean silver spoon a few drops of lime water and evaporate to dryness by boiling over a spirit lamp. The lime is deposited on the silver in a rather tenacious coating. It may be cleaned instantly with a drop of dilute hydrochloric acid. After drying and polishing the spoon place it over the lamp and keep it hot while two or three drops of the lime water are allowed to fall into it. The liquid immediately assumes what used to be called the spheroidal state, i.e., it gathers up into a pretty head, which, supported on its layer of steam, runs about the bright bowl of the spoon. At first it is limpid, but soon becomes turbid by deposit in it of the lime in small particles. The motion of these indicates