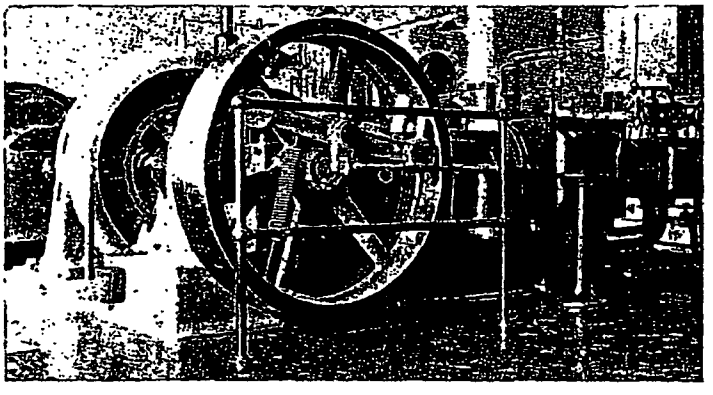
adjusted. A close examination should be made of all safety devices, all governor parts, nozzles and diaphragms, all wheels and wheel bucketing, shaft, bearings, shaft seals, interstage seals, casing joint surface, oil pumps, oil cooler, oil pressure controls, and oil tank. On reassembly, it includes resetting of rotor position and rotor float, realignment of unit, testing of governor, testing of overspeed trip device, and observation of operation of the unit as a whole.

For our final point, minimum maintenance costs, we must consider more than just the sum spent for labor and material on the unit itself. As the heart of the industrial plant, if the power unit breaks down because of worn parts or need of readjustment, the loss in production is always far more costly than a periodical inspection and overhaul. Again, such periodical overhaul holds the maintenance expenditure per year to a minimum by keeping the unit always in best of condition. Many parts can be refitted periodically so that their usefulness continues, but if let go for a greater time, complete replacement becomes necessary. Experience has shown that plants following such a schedule go through from year to year with no production shutdowns, and few minor repairs in between.

If no major repairs need to be made, the time required for such a periodical overhaul will be short and well worth the effort.

## ★ ★ VETERAN STEAM ENGINE STILL ON THE JOB

ALTHOUGH the advent of the unaflow engine, 15 or 20 years ago, definitely obsoleted the compound engine, there are still a number of the latter in operation, and giving a right good account of themselves. The photograph shows one of these old war horses still on duty. It is in the power plant of the A. & M. College of Texas, College Station, Texas, where it was installed in 1904. The engine is a McEwen (Ridgway) 10″ x 20″ x 16″ tandem-compound single-valve unit direct-connected to a 100-kw. alternator, running at 257 r.p.m., on 150 lbs. steam pressure, with atmospheric exhaust.



For about 25 years this unit was in steady operation. It gave a good account of itself and as the load in the University grew it assumed the extra duty imposed upon it. Records show that it frequently operated at a load of 150-kw. at 90% power factor, and neither the engine nor its generator showed any particular strain under that condition. With a more rapid growth of the University in late years, a modern turbo-generator installation has been necessary. Since that time, this old engine occasionally goes into service, and is being maintained for duty as a stand-by unit. For this reason, the equipment is kept in good operating condition as is everything in this power plant.

Through the courtesy of the Chief Engineer of this plant, Mr. Guy McHines, we secured a copy of a steam consumption test which was made on this unit in July, 1932. According to the results of this test the steam rate of 29.15 lbs. per indicated horsepower, and 43.8 lbs. per kilowatt is a good indication that the 28 years of hard service have by no means condemned this old fellow to the scrap heap. The mechanical efficiency was shown in test at 90%. This is even better than that usually obtained on a brand new engine when it is first started on the test block at the factory.

Incidentally, the A. & M. College of Texas has recently installed three Elliott mechanical drive turbines; a 100-hp. turbine driving a coal pulverizer, and two 40-hp. turbines driving pumps in the hot-water heating system. Also an Elliott 3000 g.p.m. deaerator.