lime water, equal parts. Hydrate of chloral is also advised, but must be administered by a physician. Nitrite of amyl is looked upon by Clapham as curative in 90 per cent of all cases treated. Three drops are inhaled from a hand kerchief held close to the nose, the patient being in bed. This is, however, too powerful a remedy to be placed in the hands of the laity.

There remains one point to be considered, to which the attention of the faculty and laity should be directed, as much ignorance prevails in this respect, namely, the effect of sea sickness upon pregnant women. The nausea attending this condition is as difficult to control as that which belongs to sea sickness. When the one is superimposed upon the other, continuous vomiting may set in with such violence that utter prostration results, retching continues, and the strength of the patient is exhausted and a typhoid condition sets in which results in death, not from sea sickness but from exhaustion. The testimony of the stewards of ocean vessels confirm this theory. and a recent case that came to the knowledge of the writer came near resulting fatally, and the patient had to be kept under the influence of morphia, hypodermically injected. A severe illness of two or three weeks resulted after coming ashore. Through all these vicissitudes the fœtus suffered no ill effects, and at the expiration of the usual time was delivered without accident. The danger of a sea voyage to a lady during the latter stages of pregnancy cannot be overestimated, not from the dangers of miscarriage, which has never been known to result, even during the ninth month, but from a return of the nausea and vomiting, which quickly exhausts the strength when no nourishment can be retained and even stimulants are rejected by the outraged stomach.

REPORT OF THE EXPERT.

We have received from Mr. John W. Hill a copy of his report as the expert appointed to superintend the test trials of automatic cut-off steam engines at the Millers' Exhibition, Cincinnati, O., June, 1880. It contains 90 pages, and for excellence of arrangement and clearness with which it exhibits the mathematical values of the performances of the tested engines, the report is a model. Five engines were entered for trial, but two of these were withdrawn, and the test was therefore confined to three, namely, a Harris-Corliss engine, built by William A. Harris, Providence, R. I.; a Reynolds-Corliss, built by E. P. Allis & Co., Milwaukee, Wis.; and a Wheelock engine, built by Jerome Wheelock, of Worcester, Mass. The following are some of the particulars of the several engines and their performances, as given in the report:

	Reynolds-Corliss.	Harris-Corliss.	Jerome Wheelock.
Cylinder	18·02″	18·03″	18·26″
Stroke	48″	48″	48″
Flywheel	16′	16′	16′
Weight of engine, exclusive of flywheel., lb	22,180	18,000	9,000
Weight of flywheel, lb.	14,694	11,950	12,000
Revolutions per minute	75·383	75·830	74·472
Factor of horse power	4·6039	4·6416	4·6666
Boiler pressure	95·83	96·09	96·25
Indicated horse power	162·9952	165·5781	158·3846
Friction of engine	10·2624	9 5734	7·8141
Net effective horse power.	143·1953	145·0766	143·9463
Coefficient of usefuleffect.	87·8516	87·6183	90·8845
Coal per ind. h. p. p. h., evaporation 10 to 1	1·9489	1·9364	1·9265
Steam per ind. h. p. p. h	14·886	13·755	13 915
Lb. of water expended per lb. of steam	30 881	32·532	24·743
Relative economy	0·98848	0·99487	1·00000

The engines were all fitted with liberating valve gear. The "Harris" and "Reynolds" using the original "Corliss" valves and gear, with special improvements of their own; and the "Wheelock" using a system of taper plug valves, placed below the base of the cylinder. The "Corliss" wrist-plates and valve rods are used by both Mr. Harris and Mr. Reynolds, but the latter has added a very ingenious liberating hook, which imposes a constant load upon the regulator, independent of the point of cut-off. In the "Wheelock" engine the eccentric hook engages with a stud on a small starting bar attached to the stem, and forming the lever or the forward exhaust valve. A link, with a gab at its forward end, extends back from the lever of the forward valve to the lever of the back exhaust valve. The motions of the exhaust valves are simultaneous in time and quantity. A short crab claw or liberating hook, pivoted to the lever of each of the exhaust valves, furnishes the opening movement of the corresponding steam valve.

The steam valves of the "Reynolds" and "Harris" engines were fitted with vacuum dash pots. The "Wheelock" engine was furnished with weight dash pots. The cut off movement of the "Harris" and "Reynolds" engines was very prompt, but with the "Wheelock" engine the closure of the steam port was rather tardy.

The "Reynolds" engine was fitted with a combined fly ball and mercurial regulator, which was so nicely adjusted that changes of load or steam pressure produced no material change in the motion of the engine.

The "Harris" engine was fitted with a "Porter" governor, the performance of which was only fair.

The "Wheelock" engine was furnished with a fly ball and spring governor, which, while inferior to the "Reynolds" regulator, controlled the motion of the engine, during the regulator test, much better than did the "Porter" governor on the "Harris" engine.

The "Reynolds" engine was fitted with an independent, single-acting air pump and jet condenser. During the condensing trial the air pump was driven by a belt from the engine shaft; but the machine is provided with a steam cylinder, slide valve, and piston, to work independently of the engine under ordinary circumstances. The arrangement of the air pump and condenser is very compact and convenient, and as demonstrated during the friction trial requires much less power to work it than the form heretofore in use with this type of engine.

The "Harris" engine used a double acting air pump and jet condenser. The air pump was driven from the crank pin by a light shackle bar and rocker arm.

The "Wheelock" engine was furnished with a "Bulkley" condenser; as is well known this form of condenser requires no air pump, the air present in the exhaust being carried down the descending leg of the condenser by induction.

According to Mr. Wheelock, his condenser was calculated for a larger delivery of exhaust steam, and as no means existed for the contraction of the steam aud water apertures in the condenser head, to the weight of steam actually exhausted, the condenser would not show as good results as a smaller machine.

So far as the vacuum is conducted, it did not equal the jet condensers of the "Harris" and "Reynolds" engines, but in economy of circulating water, it does not appear that the excess in size of the condenser worked any injury.

The general construction of the "Reynolds" engine was excellent, all parts were heavy and well fitted, and the design strikes the observer as being well calculated to successfully meet the natural working strains. Being entirely devoid of burnish or nickel plate, the engine had every indication of being built for service and not for display.

The "Harris" engine was in all respects similar to the engines furnished by this well known builder to his customers. The design appears lighter than the "Reynolds," with more polish and fewer details. The weights of the engines, exclusive of flywheels, do not vary greatly, with the excess in favor of the "Reynolds."

The "Harris" engine more nearly resembles the original "Corliss" than the "Reynolds," the form of the girder, and the valves, valve chambers, and valve gear, together with the regulating mechanism, being alike in the "Harris" engine and its celebrated predecessor; while Mr. Reynolds, in his design, retains only the four steam and exhaust valves and the wrist-plate motion, with the latter materially modified.

Although the "Harris" engine departs less from the original "Corliss" engine than the "Reynolds," Mr. Harris has added several valuable improvements of his own, chief of which are the cone bonnets, self-packing valve stems, and the Babbitt & Harris piston packing.

The "Wheelock" engine is a type of its own, with all the valves located below the cylinder in a common plane. This engine is a marvel of compactness and simplicity, and I might say oddity, as many of the peculiarities of the builder are reproduced in his engine.

Engineers of a fastidious turn have not been disposed to recognize Mr. Wheelock as in the front rank of automatic steam engine builders. But the record made by his engine in these trials may procure for him a more respectful consideration in the future. The whole engine is extremely light; the weight, exclusive of flywheel, being but one-half that of the "Harris," and less than half of the "Reynolds" weight. But the weights of the two latter engines include the air pump and condenser.

It did not appear, however, during the trials that the reduced weight of the "Wheelock" engine rendered it less capable of resisting the load strains than either of its more celebrated competitors.

All of the engines were new, and leaked slightly through the valves, and possibly in one instance past the piston, during the trials. Mr. Ellis, of the "Harris" engine, attempted to hasten the seating of the steam valves of his engine by filing, previous to the trials, with good results, as shown by the diagrams. No effort was made with either the "Reynolds" or "Wheelock" engines to seat the valves except by wear.

The foundations of the "Reynolds" and "Wheelock" engines were excellent in every respect, but the foundation of the "Harris" was very inferior to those of its two competitors. During the operation of the engine, previous to the trials, the foundation cracked under the pedestal, and required special bracing before the condensing load was put on.

Each engine was belted back from a sixteen foot pulley on the main shaft to a five foot pulley on a short counter or jack shaft, mounted in suspension hangers overhead. From a pair of four foot pulleys on the jack shaft, two twelve inch, double leather belts conveyed the motion to a pair of four foot pulleys on the test trial line shaft. At the remote end of the test trial line shaft motion was taken to a pair of No. 5 Gould's rotary power pumps, mounted upon a heavy timber foundation, under the line shaft, by four four-ply rubber belts, with forty two-inch pulleys on the line shaft, and thirty four-inch pulleys on the pump shafts.

The main belts were double, of select stock, twenty-four inches wide, and were made for the trials by the house of E. F. Bradford & Co., of Cincinnati.

All belts were drawn tight, and worked without binders.

The "Harris" engine occupied the position nearest the boilers, with the "Reynolds" next, and the "Wheelock" at the remote end of the main steam pipe.

The report closes with a discussion of the subject of the award which ought to be given for the first degree of merit. I believed, says the expert, and not without precedent, that the engine which upon trial would develop the highest economy condensing, would also develop the highest economy non-condensing, and that no material differences would occur in the relative regulation of the engines, nor in the consumption of condensing water, to effect a given vacuum under given conditions. But upon the record, which I believe was as accurate as skill and vigilance could possibly make it, it appears that while one engine develops the highest economy condensing, another engine develops the highest economy non condensing, and still a third produces a regulation under varying load trial, hitherto unheard of.

The engine which produces the best record condensing, also exhibits the best economy in the use of condensing water; but the condenser used upon this engine was a machine of independent manufacture, and not in common use by the builder of the engine.

The positions, twelve in number, of the respective engines for the various economies are summarized, and they show seven points in favor of the Wheelock engine, four for the Harris-Corliss, and one for the Reynolds-Corliss. But the actual difference in the performances of the engines, in either of the positions, is extremely small, and the report is submitted without comment or award.

As a whole the report forms a most valuable contribution to engineering knowledge, and the author is entitled to the highest credit for the thoroughly scientific manner in which the labors pertaining to the tests were conducted and recorded.

A GIGANTIC ARTIFICIAL MOON.

The colossal representation of the moon, which has been on exhibition at Steinway Hall, in this city, during the past week, does not appear to have attracted anything like the attention it deserves. On a half globe, sixteen feet in diameter, the mountains, plains, and other characteristics of the lunar surface visible from the earth are shown in relief, with shadings and colorings faithfully representing the moon as seen through a powerful telescope. It is by far the largest, most elaborate, and expensive portrait of the moon ever made; and seeing that it was constructed for and under the immediate direction of one of the most eminent of living selenographers, Dr. Schmidt, now Director of the Observatory at Athens, Greece, we may safely accept it as a faithful portrait. It certainly gives at a glance a clearer and more comprehensive idea of the physiography of the moon than could be got by much study with any other means short of a telescope of great power. When gradually lighted from one side by a powerful lime light, the varying phases of the moon, from new to full, are shown with impressive vividness.

The shadows of the mountain ranges, the black depths of the crater pits, the changing light upon the broad plains, and other lunar phenomena pass rapidly before the eye, enabling one to obtain in a few hours, indeed in a few moments, a more comprehensive knowledge of the lunar surface than can ever be had of the earth's surface until some enthusiastic geographer constructs in relief a terrestrial globe on a scale of corresponding magnitude.

The "moon" has been purchased and brought to this country for exhibition by Mr. E. Riverston, and it is to be hoped that it will ultimately find a permanent abiding place in some one of our public institutions. Meanwhile students of astronomy and all persons taking an interest in science will find the exhibition well worthy of attention.

A Bureau of Labor Statistics Wanted.

A meeting of delegates from trades unions and provident societies was held in this city recently to receive the report of a special committee charged with draughting a bill to be presented in the State Legislature to establish a bureau of labor statistics, in the interests of labor organizations and provident societies. The draught as submitted by the committee was adopted. It provides for the establishment of a separate department to be known as the Bureau of Labor Statistics, with the objects of collecting, assorting, systematizing, and presenting in annual reports to the Legislature statistical details about all branches of labor. It further requires the Governor to appoint two persons as commissioners, one of whom shall be selected by and from the labor unions and the other by and from the provident societies. The salaries of the commissioners are to be $2,000 each per annum, and an additional $10,000 a year is to be appropriated for the current expenses of the department. The commissioners are to have the power of visiting all public institutions, factories, workshops, and mines, and to summon witnesses.

With wisely chosen commissioners, and a bureau properly organized and administered, not a little public good might result from the collection and publication of statistics of the sort described. Organized as proposed, on a narrow trades union and provident society basis, the wished for bureau would, we fear, be of very little use to the community as a whole, and still less to the laboring portion of it. The proper function of a government bureau is to serve the people, not any special class, however deserving.

EXPORTERS of petroleum to Germany should not forget that the established test is 110° Fah., and that hereafter the oil will be examined by government experts and none allowed to enter Germany which is below this standard.