broom-corn, convinces me that this plant is of sufficient consequence to command their attention, and to procure for it a general and careful trial. The thing is deserving of experiment, to the north as well as to the south. The plant grows in every state in the Union. It is probable that the advantage will be with those who have most heat and sunshine, provided the people are equally industrious, and have this industry under the guidance of equal skill and intelligence; for, in all comparisons of this kind, these must be taken into the calculation, as in many instances, they have power, to more than compensate, for some deficiency in natural advantages.

The improvement, and increase of all useful productions, are objects of national importance; and, perhaps, the editors of newspapers may think these hints worth disseminating. In this case, I hope that they will also aid in making your useful repository more generally known, by giving credit to the Franklin Journal of Philadelphia.

Yours, &c.

SACCHARUM.

The foregoing remarks are from the pen of a gentleman, whose "eyes are in his head;" who is a careful observer of the works of nature, with a view to the application of her productions, to purposes of practical utility. In addition to the above, he has urged the propriety, of calling the attention of the agriculturist, to that important product, vegetable oil; the ground-nut, the seeds of white poppy, of sun-flower, of cotton, and many other plants, claim the attention, and promise to reward the labour of the husbandman. It is in the power of the editors of newspapers, to do much good, upon such subjects; particularly at a time when most of the productions of the soil, yield but little profit, and the farmer is, therefore, ready to listen to suggestions, which, in more prosperous times, would remain unheeded.—EDITOR.

Professor Renwick's Review of "An account of experiments to determine the figure of the Earth, by means of a pendulum, vibrating seconds in different latitudes, and on various other subjects of philosophical inquiry. By CAPTAIN EDWARD SABINE, F. R. S. &c."

(Continued from page 172.)

The method employed by the French philosophers, in operations of the same nature, at several points of the arc of the meridian, passing through France, and subsequently by Biot at Unst and Leith, is entirely different; and is the invention of Borda. He suspended, in front of an astronomical clock, a sphere of platinum, by means of a slender iron wire, whose length was about four times that of the clock pendulum; the wire was made of iron, in consequence of the great tenacity of that metal, which would permit it to be drawn of great fineness, without rendering the wire liable to break, by the weight of the ball: the coincidences of this wire, with a cross or mark upon the lens of the clock pendulum, were observed by means of a small telescope placed in front. After the pendulum was brought to rest, its extreme length from the point of suspension, to the lower surface of the sphere

rical body, was measured, while it remained suspended; the distance between the centres of oscillation and suspension, or the effective length, was found by calculation, founded on well known formulæ, on the supposition that the wire was devoid of weight; and a correction finally applied for the weight of the wire. In this method, each observation is entirely independent of any other, and rests upon its own merits; whilst in the method, employed by Captains Kater and Sabine, in which the *relation* only is determined, which the length of the seconds' pendulum, at the station to which the pendulum of comparison is carried, bears to the length at the station of the fundamental experiment. The correctness of the *absolute* length at those stations will depend upon the accuracy of the original determination. But this need not be a disadvantage, even in determining the *absolute* length at the several stations, because the fundamental experiment may be frequently repeated, until perfect accuracy may be considered as attained; and certainly is none, in the application of the results to the deduction of the figure of the earth: because in such case it is the *relation* only, and not the absolute length, which is the object of *precise* inquiry.

The method of Borda, has recently been altered by Biot, who uses a pendulum of less length; the apparatus may thus be more securely and conveniently carried from place to place, enclosed in a glass case. In spite of this improvement, the method of Kater is well entitled to the preference; the first experiment requires no greater care or precautions, and will occupy less time than every separate determination by the method of Borda, and in every subsequent trial, the British method is very much more speedy, is capable of more accurate and comparable results, and is less dependent either upon external circumstances, or upon the skill of the observer.

Besides the method which we have described, our author made use of two others, as checks upon his experiments; the first was that of an invariable pendulum attached to a clock; the second, arose from the variations in the rate of the astronomical clock in different latitudes: we refer to them only as having fully confirmed the results of his other experiments, for their principle is too well understood to need any illustration.

Captain Sabine, after having recounted his several observations of coincidences of the pendulums; of the rate of the clock with the invariable pendulums; of transits and altitudes of the sun and stars, for the rate of the astronomical clock and chronometers; of meridian altitudes of the heavenly bodies for the latitudes of the places of observation,—all with a fulness of detail, which will enable those who may desire to do so, to trace every step of the process from the original observations to the ultimate conclusions;—proceeds to combine his determinations, for the purpose of calculating the compression of the earth. The mode he employs, using the thirteen stations visited in his voyages, is that given by La Place, in the third book of the *Mécanique Céleste*, founded upon the principle of the least squares.

This calculation gives the fraction $\frac{1}{28875}$ for the compression: a very remarkable result, in consequence of its being the same that expresses

the ratio of the centrifugal, to the gravitating force. Not content with his own measures, he has next combined them with those of Kater, at the stations of the British, and of Biot, Arago, &c. at those of the French survey; and in every combination he is led to the same result. With such a confirmation, we are warranted in saying, that we conceive this value for the compression of the terrestrial spheroid, is more entitled to confidence, than any other that has yet been given; and when we consider its remarkable agreement with the ratio of the central forces, we cannot help believing that there may be some connexion between the external figure of the earth, and its internal constitution, that still remains to be investigated, and which we consider highly deserving the attention of the few mathematicians in the world, who are competent to the investigation.

This determination of an ellipticity of $\frac{1}{2888}$, differs much from any other, whether derived from former experiments with the pendulum, from the measure of contiguous, or of distant arcs of the meridian.

It is, however, entitled to the highest confidence, inasmuch, as it is the first that has been drawn from observations of the pendulum, unconnected with any other operation. It is very remarkable, that, whilst the pendulum has a right to be considered as a mode of determining the relation between the polar and equatorial axis, perhaps, more certain than any other, it has never, before the present day, formed the principal object of observation; but has always been confided to the same persons, who were employed either in performing geodetic operations, or in calculating their results. We would not charge these distinguished philosophers with unfairness; they are far above any such suspicion; but would merely remark the singular coincidence that has from time to time been found, between the deductions obtained by means of the pendulum, and by the actual measure of arcs, when used to confirm each other. The French commission, who reported the *Système Métrique*, inferred an ellipticity of $\frac{1}{338}$ by comparing the degrees measured in France with that measured in Peru; and this oblateness is employed by them as the foundation of that system, so beautiful in theory. La Place, who was one of that commission, calculated the compression of the earth, from 15 lengths of the pendulum, measured at different places, and inferred that it was $\frac{1}{338}$. This, if accurate, might have fairly been received as a strong confirmation; but on examination of his calculation, as given in the third book of the *Mécanique Céleste*, an error in taking out a logarithm will be detected; and correcting this mistake, the deduced ellipticity, by his method of calculation, would be increased to $\frac{1}{175}$. Since that period, and when the compression deduced from the measure of more distant arcs, became $\frac{1}{688}$; and that which agrees with the inequalities in the lunar motion, arising from the shape of the earth, is supposed to be about $\frac{1}{688}$; the same illustrious author, by admitting the new observations of Biot, and Arago, infers from the general combination of pendulum experiments, an ellipticity of $\frac{1}{10}$. No better proof can be afforded than this, of the facility with which the few observations that had been made, before the pendulum was taken up by Great Britain, as a distinct and independent method, could be

made to agree with any hypothetical oblateness of the terrestrial spheroid, when examined merely for the purpose of confirming or disproving the calculations, whose data are derived from other sources.

It is now time that the pendulum should assume the rank of an independent measure of the relation between the two diameters of the earth; and the credit is due to Captain Sabine, of having been the first experimental philosopher, who has distinctly asserted its equal claim, as well as proved by his experiments, its right to be so considered. His experiments have, in fact, done more than place it on an equality, as present authority, with the measurement of terrestrial degrees: in his hands, it has become the only method of deducing the figure of the earth, which, as yet, has given a precise and determinate result.

We fully concur in Captain Sabine's opinion, that the satisfactory and conclusive nature of the result, which the pendulum has afforded, when the experiments with it, have thus been duly and sufficiently extended, presents a strong ground of encouragement to attempt an equally conclusive result, by the comparison of terrestrial measurements undertaken on the same decisive scale, of which, his experiments with the pendulum, afford the example. He has suggested a proceeding towards the attainment of such a result, which we cannot do better than lay before our readers, adding our persuasion that it is well entitled to the serious consideration of every man of science, who, either in his public or private capacity, may have it in his power to promote its execution.

"The success which has thus attended the attempt to carry into effect, under the conditions most favourable for the experiment, the method of investigating the figure of the earth by means of the pendulum, and the consistent and precise result, far exceeding previous expectation, which, under such circumstances, it has been found to afford, encourage the belief, that an equally satisfactory conclusion, and one highly interesting in the comparison, might be obtained, by the measurement of terrestrial degrees, performed also under the requisite conditions to give its due efficiency to the method of experiment. Experience has fully shewn, that no result of decisive character is to be expected from the repetition or comparison of measurements in the middle latitudes; and that it is only from operations carried on, in portions of the meridian widely separated from each other, that such an event can be regarded as of probable accomplishment. The project of the original experimenters,—of those eminent men, who nearly a century ago, devised and executed corresponding measurements at the equator and at the arctic circle,—was of far more vigorous conception, than the steps of their successors have ventured to follow, even to the present period; and it is due to their memory to recognise, that the failure on that occasion, was not from insufficient extension of view, or from deficiency in the spirit of enterprise; but from the attempt having been made in the infancy of practical science, when the instruments were inferior, and the modes of their most advantageous employment, less understood, than they have since been rendered.

"The discordancies, which appear in the comparison of the mea-

measurements hitherto accomplished, are not so great as those which had resulted from the comparison of pendulum experiments, previously to the present attempt to give the latter method, its full and efficient trial: it has been also seen, that in proportion as the arcs have been enlarged, so as to include the continuous measurement of more extended portions of the meridian, and as the processes of operation have been conducted with improved means, and increased attention to accuracy, the anomalies have progressively diminished; the prospect, therefore, that they may be made wholly to disappear, by combining the interposition of the greatest interval between the measurements that the meridian of a hemisphere will admit, would seem sufficiently probable to justify and induce the undertaking.

"Through the munificent liberality, and splendid patronage of the East India Company, India already presents a determination of the arc contained between the 10th and 20th parallels: and as a consequence of the political changes which have recently taken place in South America, there is reason to hope, that the impediments to a measurement between the equator and the 10th degree, in the quarter of the globe, best suited for the operation, will speedily be removed.

"In regarding the polar extremities of the meridian, the attention is naturally directed in the first instance, to Spitzbergen, as the land of highest convenient access in either hemisphere; its qualification, in that respect, is indeed far beyond comparison with other lands, and is a point of very principal importance; its high latitude and convenience of access, do not, however, form its only suitability; for, on due consideration, it will be found to possess many very peculiar advantages for the operations of a triangulation.

"The general geological character of Spitzbergen, is a group of islands of primitive rock, the ordinary hills of which, are from 1000 to 2000 feet in height, commanding generally extensive views, and unincumbered with the vegetation which presents so great an obstacle to the connexion of stations in the more genial climates. The access to all parts of the interior is greatly facilitated by the extensive fiords and arms of the sea, by which the land is intersected in so remarkable a manner; these, whether frozen over, as in the early part of the season, or open to navigation, as in the later months, form routes of communication suited to the safe conveyance of instruments either in sledges* or in boats; the fiord, in particular, which separates the western and eastern divisions of Spitzbergen, would be of great avail; it extends in a due north and south direction for above 120 miles, with a breadth varying from ten to thirty miles, and communicates at its northern extremity, by a short passage across the land, with the head

* Sledges with reindeer trained to draft, and the Fins by whom they are managed, may be hired for the season, at Hammerfest, in any number that might be required. Spitzbergen abounds more in the food of the reindeer, and is more plentifully stocked with the animals themselves in their wild state, than any other arctic country which I have visited. The officers of the Griper killed more than fifty deer on the small islands which form the northern part of the harbour of Fairhaven.

of another fiord, proceeding to meet it from the northern shores of the island; and affording similar facilities for carrying on either a triangulation or a direct measurement, on the surface of the ice, at the level of the ocean. It is hardly necessary to add, that the latter operation would be unembarrassed by the inequalities of surface, and uncertain temperature of the apparatus, which occasion so much trouble, and require so much precaution in the usual determination of a base.

"The extent of the arc in the direction of the meridian, between the southern shores of Spitzbergen and the islands on its northern coast, in the eighty-first degree of latitude, is between four and five degrees. At the period of the celebrity of Spitzbergen as a fishing station, in the middle of the seventeenth century, when above 200 vessels, manned by 10 or 12,000 seamen, annually resorted to its vicinity, and frequented its harbours for the purposes of boiling oil, and when the harbours were divided by convention, amongst the vessels, in consequence of their numbers, according to the nation and towns to which they belonged, all parts of the coast were known to, and visited by the hardy and enterprising Dutch and German seamen, by whom the fishery was then principally conducted. The whales have long since deserted the haunts which their kind had enjoyed for ages before in unmolested security, and have sought retreats less accessible to man; the graves, which occupy every level spot around the harbours, contain the only, and, in that climate, the almost imperishable memorials of the once busy scene, which has reverted to its original solitude; even the accidental presence of a whaling ship, in the western harbours, is an event of rare occurrence,* and it is probable that more than half a century has elapsed, since any vessel has passed to the north-eastern shores; it is not surprising, therefore, that the delineation of land, represented in the charts of the period when Spitzbergen was so greatly frequented as existing to the east of the seven islands, and to extend in a northerly direction far into the eighty-second parallel, should neither have been established nor disproved by modern authorities; those persons who have had opportunities of becoming acquainted, by examination on the spot, with the remarkable correctness of the older charts in general, in the insertion and in the relative position (when not separated by much extent of ocean) of lands then recently discovered, will hesitate too hastily to reject their testimony, until it has been satisfactorily disproved; should land exist as represented in the charts of the period alluded to, even though not visible from Spitzbergen, its triangular connexion might be established on the surface of the ice, and latitudes yet unattained be included in the operations of the survey; nor would it be safe to assign too con-

* During the Griper's stay of three weeks in the neighbourhood of the harbour, of principal resort in earlier times, and in the middle of fishing season, not a single whale fish, or whaling ship was seen. The only vessels which now frequent the shores of Spitzbergen, are Norwegian sloops in quest of Sea Horses, and eider down. Their visits have been hitherto confined to the fiords and the islands on the southern and western coasts; they arrive early in March, and remain as late as November, making occasionally three voyages in a season.

fidently the northern limit of such operations, even in the absence of land, in our present ignorance of the facilities which the ice itself may afford, for their extension towards the pole.

"The measurement of a portion of the meridian, in the higher latitudes, is, however, one of the many experimental inquiries, beyond the reach of individual means to accomplish, for which the advancement of natural knowledge is delayed; if its accomplishment may be hoped for by that nation, which has been most forward in exploring the regions of the north—to whom its climates, and its natural difficulties are familiar—it must still await the existence of a channel in one of the departments of the state, through which the liberal disposition of the British government to forward every undertaking worthy of a great nation, and by which it may occupy an additional page in history, shall be rendered available to other branches of scientific research, than those which are immediately conducive to the interests of navigation."—p. 360—364.

There can be no question that the measurement of an arc of the meridian of Spitzbergen, of sufficient magnitude, to render consequential the irregularities in the direction of gravitation at its extremities, (and such would be an arc of $4\frac{1}{2}$ or 5 degrees,) would be one of the most important, as well as one of the most splendid, of those enterprises, for the advancement of general knowledge, which, from time to time, have received the support of enlightened governments, and have commanded the admiration of all civilized nations. To those persons, to whom the climates of the north, and the difficulties presented by its icy seas, and barren shores, are not as familiar as they are to our author, the natural impediments to the accomplishment of such an undertaking, may appear in a more serious light, than they are viewed by him, who has had experience of the means by which they may be surmounted, and has himself proved, that such extreme situations, are not incompatible with the utmost accuracy of experiment. But we do not hesitate to say, that the attempt, even if it should terminate in demonstrating the impracticability of accomplishment,* would do honour to the government, and the country, by which it should be made; and, that there is no country so competent to the undertaking, as Great Britain; nor any time so suitable as the present; when the experience which she has gained in her northern voyages, (which have long since ceased to have any more important practical object in view, than the acquisition of such experience, and the cultivation generally of a spirit of enterprise,) may be most advantageously applied in the attainment of a purpose, of the highest rank in the advancement of science; and in the general interest of which, the nations of every quarter of the globe, and of all succeeding periods, will participate. It is time that Great Bri-

* We are happy to have it in our power to state, that the proposed measurement of an arc at Spitzbergen, was brought under the notice of the President and Council of the Royal Society, previously to the last recess; and that the propriety of recommending to the government an undertaking so important to the advancement of natural knowledge, is now under consideration.—*Editor, Quarterly Journal.*

tain, pre-eminent as she is in commercial enterprise, and in that of maritime and geographical discovery, with wealth at command, and a government well disposed to "forward every undertaking worthy of a great nation, and by which it may occupy an additional page in history," should assert a like pre-eminence, (which she does not, at present, possess,) in enterprises of a higher character, than the mere tracing the direction of a river, or the completion of the outline of distant, and, for any useful purpose, unprofitable shores.

We proceed to notice, and we shall do so as briefly as possible, the bearing of Captain Sabine's experiments upon the application of the pendulum, as a standard of measure, and upon the experiments which are previously considered to have referred the British linear scale, to a definite length in nature. It is in this relation, that we consider his work as entitled to the greatest attention; because the pendulum furnishes, in all probability, the only natural standard of measure, that is invariable, determinate, and easily determinable; and as such, it has become the subject of legislative enactments, having been adopted in an act passed in the session of 1824, and referred to as the means of identifying the authentic, legal scale of Great Britain: there can be no doubt, however, after the perusal of Captain Sabine's remarks, in pages 364 to 372, that the provision made by the act, is inadequate for the purpose; and there cannot be a stronger evidence of the importance of more consideration being devoted to the subject, than that the provision of an act, designed expressly for the most distant posterity, should thus be shown to be incompetent to its purpose, even before the act itself has arrived in operation. The act declares the British imperial yard, to bear a certain proportion to the "pendulum vibrating seconds of mean time in the latitude of London, in a vacuum, at the level of the sea." It necessarily assumes, consequently: 1st, that the length in nature so referred to, is of a uniform magnitude; and 2d, not only that it has been measured, but that all future measurements must conduct to an identical result.

With respect to the first point, the experiments that are contained in the present volume, show, conclusively, that the latitude of the place, and its elevation above the mean level of the sea, are not the only, nor even the chief circumstances, that affect the length of the pendulum; and, consequently, that the measurement, in any one place, even supposing it to be correctly made, and reduced to the level of the sea, by an amount which should not be arbitrarily assumed, does not determine the *pendulum of the latitude*, because the nature, and density of the substances that compose the upper crust of the earth, at the place of observation, have a most important bearing, and which cannot be neglected. The clock, and the experimental pendulum, were found to be liable to variations, of not less than ten seconds per day, in the same latitude; according to the nature of the materials upon which they rested; and, as all the observations were necessarily made upon the land, it is inferred, that an equal variation in an opposite direction, might be considered as likely to occur, if the experiments could be performed at different points, on the surface of the ocean: the whole difference, then, that might arise from the

action of the different substances that are found on the surface of the globe, may, in the same latitude, amount to no less than twenty seconds; and the difference in the length of the pendulum, at stations differing in local circumstances, but still under the same parallel, might be equal to 0.01 of an inch; or nearly one-tenth of the whole difference of the intensities of gravity at the pole, and the equator, or to $\frac{1}{2000}$ th part of the absolute attraction of the earth. It would thus appear, that before the mean force of gravity, in any parallel of latitude, can be inferred with certainty, numerous observations, indeed an almost indefinite number, ought to be made, in or near that parallel, to produce, by their combination, a near result.

With respect also to the allowance to be applied to the length of a pendulum, measured at a height above the sea, to reduce it to what it would have been, if measured at the level, it is shown that the correction which has been recently proposed, for the error arising from the *figure* of the surface, by which the regular decrease of gravity, in proportion to the squares of the distances from the centre is affected, may be safely neglected; but that a far greater uncertainty than from external conformation, and for which it would be far more difficult to assign a specific correction, is involved by the variable density of the materials, on which the pendulum is raised above the surface of the sea. From these considerations, Captain Sabine concludes that the pendulum of a particular *latitude*, cannot become a standard of reference, because its length is not practically determinable; that the pendulum of a particular *city*, London for example, (whereby it is implied that a length measured in one part of the city, should be recoverable by a measurement made in some other part of the city,) is open to the same objections, though in a less degree; but that the more simple standard, and which is of determinate, and determinable magnitude, is the pendulum of a particular *spot*; it being understood that all future repetitions, designed to produce identical results, should be made identically at the same place.

We consider, that Captain Sabine has gone far towards proving, that, in this view, the pendulum is applicable to the proposed object; that, with proper precautions, and by adopting the method of experimenting, which he has pointed out, different observers, using different instruments, may arrive, with certainty, at identical conclusions: at least so nearly identical, as not to differ in the fourth place of decimals of a British inch.

But he has also shown, (pages 213 to 233,) that the method which was previously adopted, and employed in the experiments which are considered by the act of parliament to have determined the length of the seconds' pendulum in the latitude of London, does by no means insure identity on repetition within the limits declared in the act; because the method is not independent of individual peculiarity, or of accidental circumstance. The conviction is thus forced upon us, of how essential the experiment itself of repetition, is; and that it is expedient to prove, that a method will produce identical results, in other hands than the original experimenter, before it is officially bequeathed, for such purpose, to posterity.

The selection of a spot, the pendulum of which is to supply an invariable length in perpetuity, and which will require to be referred to, not less by foreign nations of the present day, who may desire to compare their standards with that of Great Britain, than by those of more distant ages, who may seek the recovery of the British measures, is by no means an indifferent consideration. It has happened, accidentally, that the original experiments were made in a private house in London: a circumstance which, in itself, must, sooner or later, have obliged their repetition elsewhere. But, if the length of the pendulum is affected by natural local circumstances, to the amount we have stated, (and we think the fact too clearly made out by Captain Sabine, to be questioned,) may not even artificial changes in the character of the place of experiment, produce a similar result, although in a less degree? Can we be assured that the vibrations of a pendulum, in Mr. Browne's house, in Portland place, are the same now, as when, not more than two centuries ago, its site was nearly a mile without the limits of the city? Nor are either of these times identical with that which would be found, were the future observer compelled to seek for the spot amongst masses of rubbish. Nor is this last view of the subject, however improbable or distant, one that is to be entirely neglected. The language, the arts, and the sciences, which are the boast of Great Britain at the present day, are founded upon a basis more secure than that of empire, and will exercise an intellectual supremacy over future ages, should even the fate that has attended the former "glories of the world," overwhelm, at some remote period, her proud metropolis. It must ever be remembered, that on the transmission of her scale, will depend the value to posterity, of every attainment which she either has made, or may make, in which linear measure is concerned; and that, consequently, her fame and her usefulness, in those distant times, may be materially influenced by the provision which she may now make, for its exact transmission.

For these, and for other reasons, which we have not space to state, we should consider it highly expedient, that, whenever Kater's original experiments shall be repeated, for the final verification of the British scale, the proceedings should take place in a public building, and at such a distance from any probable extension of dense population, as may secure a close resemblance to its present state, for centuries; and that, when the pendulum of that spot shall be considered as fully, and satisfactorily determined, other nations, which may be disposed to adopt a similar proceeding, should be invited to a direct comparison of the standards and measurements of the respective countries; not only for the more perfect assurance of accuracy, but in order that the places may be multiplied, on the globe, at which the British measures may be, hereafter, reproducible.

We perceive that we have already attained our limits, in the examination of the subjects contained in little more than half the work before us: the remainder consists of geographical, hydrographical, and magnetic notices of great interest, particularly the latter. The subjects, however, are distinct, and require, in fact, to be treated of, separately; we shall not, therefore, however worthy they may be of

notice, trespass further on the patience of our readers; but shall conclude with recommending its perusal to all persons who take an interest in such investigations, as one of the ablest works with which we are acquainted.

FOR THE FRANKLIN JOURNAL.

MECHANICAL JURISPRUDENCE.—No. 4.

BY P. A. BROWNE, ESQ.

On Mechanics' Liens.

The next point for consideration, as relates to the subject matter of the contract, is,

3. The contract of exchange of labour or materials.

It sometimes happens that mechanics and material men, instead of contracting, in the usual way, for money, stipulate with each other to exchange labour for labour, or materials for materials, or labour for materials. Whether persons thus situated, have a right to file claims against the buildings, has been made a question. The judges of the district court, McKean and Ingersoll, were divided in opinion, and the cause was removed to the supreme court, where it has been determined, that the lien is extended to such contracts. S. C. Dec. 1825. *Hinchman v. Lybrant*.

The time within which the contract is to be executed.

The materials may be furnished, either *before* the commencement of the building, or while it is progressing; but if they are furnished *after* the building is finished, no lien is created.

It is no uncommon thing to collect the materials for a building, and prepare the sashes, doors, &c. before the building is commenced; and when this is done in the regular course of business, there would be no equity in excluding them from a lien; but every man is required, to exercise *common care* and *prudence*, in the management of his concerns; and common care and prudence are wanting, where materials are furnished, *after* a building is finished.

Therefore, in the case of the Olympic Theatre, the court admitted as liens, all materials furnished *before* the building commenced, and *while it was progressing*, but they refused to admit any claims, for materials furnished, *after the building was finished*.

The place over which the contract operates.

The law of 1803 was confined to the city of Philadelphia, the district of Southwark, and the township of the Northern Liberties. The act of 1806 speaks of the city and county of Philadelphia; and by several subsequent acts, the benefit has been extended almost over the state.

The second general question is, "Upon *what* does the lien attach?"

The words of the act are, "all and every dwelling house, or other