

although such is their common appellation. The two first of these kind of sluices are formed on erroneous principles, and have failed to render any service to the navigation of the river. The errors in the first requiring detail, will be presently explained. The errors in the second kind, or in excavating channels in the bottom of the stream, consist in attempting, on a long line of a stream, inclining all the way in its whole length, to regulate the depth by partial cutting or deepening the bottom. Unless you bring water to a level the whole length of the line of its stream, any partial cutting or deepening in spots along the line, so inclined, only serves to transpose a shallow a little further up the line, or to make hollow basins of no service. And in a river where the chief failure in its navigation arises from the too long and too frequent deficiency of depth of water necessary for boating, owing to the great inclination of the plane of its stream, and to its consequent rapid discharge of water, if you smooth the plane by removing all obstructions, the rapidity will of course be increased, and the sooner will the deficiency in the depth be felt. The low dam or walling plan of improvement, though the opposite in its effect to the one described, and not so radically erroneous on general principles, is no less so in its application to such a river as Potomac. To make this manifest, some detail of the circumstances in which they are used and placed, is necessary. The ruins of this kind of work are to be seen some distance above Cumberland, not, however, reaching to Savage river, and extend at greater or less intervals to where the general depth of water is considerably increased, becoming more and more rare, as the water is more abundant. They consist in low dams running across from shore to shore, elevated about 18 inches or two feet from the bottom, and made of rounded stone picked up out of the bed of the river, of the size that a man can conveniently handle, the greater part not larger than a man's head, and raised on a broad basis of from 10 to 20 feet in width. This transverse low wall or dam is usually connected with two walls about the same height, but built on a narrower basis of from six to eight feet, placed parallel to each other, and to the shores, at the distance of 20 feet from each other, through which passage, by a gap in the transverse dam, it is intended to force the current of the river, and to deepen the water by collecting it into this artificial channel. The number of these transverse walls, connected, as stated, with 20 foot sluices, on the river, is very great, but it was not thought necessary to count them. Indeed, in such a state of ruin were the greater part of them found that they were difficult to be distinguished from the numerous fish-dams found along the whole course of the river. A few, but not enough, of them were in a sufficient state of preservation to be examined and to afford the means of ascertaining how far they were calculated to answer the ends intended. The commissioners are not prepared to say what might be the effect of this kind of walling on other rivers, but they are well assured that the river Potomac cannot be usefully confined by such contrivances, even if they were made in the best manner of which that kind of walling is susceptible. The bottom of the river, which forms the drain of a most mountainous region of such wide extent, is very unequal in its level, and abounds in shallows and basins, according to its obduracy or softness, and to the increased or diminished force of the current; sometimes weakened by expanding in widened plains, or in the formation of islands; sometimes increased by contraction between mountains and rocky banks, and above all by its flowing so rapidly, in consequence of the greatness of its fall compared to its length.—The result from such circumstances on this kind of work, situated in the bed of such a river, is, that these walls cannot be made sufficiently permanent, and if they could, so very many of them would be required to attain even a trifling depth, that the benefit would be infinitely too dear, or an absolute waste of money.—These walls, from their nature, cannot be tight, but if they could be made so, and the whole body of the water in such a river could be confined to a channel of 20 feet, the velocity of the current rushing through these short channels, with full room to spread after it has passed, would be increased in proportion to its confinement. And the whole volume of water in the river in the summer and dry seasons, especially above the south branch, would not be sufficient to give the depth required by boats of sufficient size to be useful in transportation. Where the quantity of water in this river is much increased by the larger tributaries, in order to give 18 inches depth, and less would be of no use, it would be necessary to continue the parallel walls much further than they have ever yet been attempted, so as to give them a length sufficient to reach over the whole extent of continued shallows, which were found in places to cover 3 and 4 miles. The effect of lengthening the sluice walls would be in some measure to lessen the velocity, and of course to increase the depth of the current, but

the evils are much too great to be usefully remedied by the small effects which could be produced by these means, if it were practicable to give durability to walls so built and so placed. Walls of this kind, when drawn so long, and winding and bending, as would be necessary to follow the course of the current, would be objectionable for other reasons independent of the increased cost and increased liability to destruction: such as the extreme difficulty of guiding a boat with sufficient accuracy in these narrow confined torrents so as to prevent her striking and bilging against or over the side walls in descending;\* and in ascending them, her progress would be very much retarded by the increased force of the current consequent on its confinement. Now on the supposition of a large proportion of the distance being so confined, many weeks would be added to the length of time consumed in a trip to and from market, already inconveniently long. In some places capsons would be required to be placed on the banks to overcome the opposing power of the current. For these reasons, and from the experience already had of the perishable nature and trifling utility of this sort of work, it appears that it would be idle to attempt any thing in future of this kind.

#### LOCK AND DAM NAVIGATION.

Another mode is by some relied upon, to improve the navigation of this river in consequence of its supposed greater cheapness, than a canal properly so called, and consists in deepening the water in the bed of the river, sufficiently for the purposes of navigation by high dams of large stone and solid construction, with a lock or two locks to each dam, and a short canal for the purposes of descending and ascending each level.

This mode has many and great inconveniences inseparable from it; the most important objection to it is the greater expensiveness of the kind of navigation which alone it affords, that is, in boats managed by men instead of boats drawn by horse; besides this general objection, many reasons may be adduced to shew why it cannot be advantageously adopted on the Potomac River; the general width of this river is too great, the fall is also too considerable, and the alluvial margins which alternate from the right to the left bank of the river, the whole length of its course to tide water, and which vary in elevation from fifteen to thirty feet, would, in high water, without enormous expense, form insecure abutments to the dams; this kind of margin being formed of loose earth, of comparative recent formation, would, when obstructions are placed in the bed of the river, be liable to be forced and washed away at the extremities of the dams; the dams themselves, although ever so solidly built, would require frequent repairs; the fall in the river from Cumberland to tide water being about 537 feet, would require about 53 dams, as the banks would not admit of a greater elevation being to the dams than 10 feet, without great risk of damaging the marginal property, and of increasing the liability to frequent injuries to the dams themselves; each dam would require a lock of the same lift as the dam, and also an entering canal with a guard lock, of considerable elevation, to be used in high water; add to these the danger of being thrown by the current over the dams, however judiciously located, below the guard lock, and the inconveniences, which would arise in high water; taking all these disadvantageous circumstances into the account, consider the number of dams, locks, &c. and their great length from 100 to 800 yards, and the necessary solidity required in their construction, and then calculate the other incidental expenses, the whole amount would be nearly equal to a regular built canal, and the advantages would be infinitely less. Upon a full view of the different plans therefore, it cannot for a moment be doubted, but that the adoption of a regular canal out of the river, though following its ravine, will be the most useful and durable improvement, and when the advantages and cost of each mode are relatively considered, incomparably the cheapest. The canal which, under all circumstances, the commissioners have thought best calculated to suit the localities of Potomac River, on which our estimates are founded, is one 30 feet wide at top, 20 feet at bottom, and 3 feet deep; the earth to be thrown out next to the river, to form a tow-path elevated two feet or thereabouts above the level of the water in the canal, and the track of the tow path to be 10 feet wide. The level of the canal to be generally elevated above the highest floods, except when it is found necessary to take in a supply of

\*The greater part of wrecks which of late years have occurred, according to information along the rivers, were in consequence of the boats being dashed against the sluice walls.

†Lock and Dam, is the kind of navigation adopted on the Schuylkill river, but that is a small narrow river, with high banks; and much damage it is said has been done to marginal property, in consequence of the dam.

water from the river, or to pass expensive ground along a rocky shore; thirty feet, it is supposed, is the necessary width to admit the passage of two boats of sufficient size to carry 25 tons, and to admit of a small platform on the bow of the boat, sufficient to take a horse in upon, as that in two places would be necessary, where, it has been found expedient to cross the river by means of a dam to avoid too expensive cutting or walling. In order to ascertain the practicability and cost of this plan, the commissioners have had the assistance of the late Engineer of the state of Virginia, on whose sound practical judgment and knowledge entire reliance may be placed, more especially after the test his estimates have undergone on that part of the James River, where part of the canal he had designed, has been completed.\* And it has been there found, that contractors and undertakers in sufficient number can be obtained from various parts of the United States, to undertake the works at the estimated cost, whenever the states think proper to authorise the cutting of a canal. The report and calculations on this plan made from Mr. Moore's field notes, by Mr. Isaac Briggs, who has been appointed his successor, as far as we proceeded before the adjournment, occasioned by the serious sickness of the greater part of the Commissioners and of the Engineers and Surveyors; that is, about half a mile below Goose Creek, and since to tide water, are herewith presented, and shew the utmost probable cost of such a canal for that distance; plans of the courses of the river and canal will likewise accompany the plan and calculations, and all be hereto annexed.

The commissioners have endeavored, in their examination of the manner and costs of improving this river, to take as complete a view of the subject as circumstances would permit. So as to present to the legislature such a representation as would enable them without losing sight of the ulterior advantages which must grow out of a canal so located, and out of the consequent future ramifications and extension of which it will necessarily be the parent, as to be able to shew, not only the entire cost of the undertaking as far as the national road at Cumberland, but the cost of so much as may now appear within the limits of the ways and means of the two states. With this view they directed the engineer in the outset, to make his calculations of the surveyed route in sections, so as to shew the whole cost of each section from one important point to another, along its whole course. This they supposed would place the commencement of this great work completely within the reach of the resources of the states, as whether the canal commenced for the present at Cumberland, and descended the river where the greatest obstructions to navigation are found as far as Williams' Port; or at tide water, and ascended the river, every section, when completed, would add to the whole value of the commerce and soil of the states, and therefrom something would at once be received in tolls. The level and survey of the whole course being at once ascertained and decided, any part of the work likely to afford the greatest benefit & profit might be completed in such a manner as to be united with the remainder without addition of cost, or any derangement of the plan.—This partial cutting in sections, would enable the states to keep their expenditures within reasonable bounds, and to guard against the necessity of oppressive burthens. At the same time that they would lay the foundation of an improvement, which when extended across the mountains and completed, it is no vain boast to say will be of greater importance than any other of which the topography of the United States is susceptible. [TO BE CONTINUED.]

\* Mr. Isaac Briggs, the present Engineer, was himself a contractor for the cutting of a part of the James River Canal, which has been completed, and can experimentally attest their correctness.

Printing-Press.—The London Courier of December 8th, says—"A newly invented printing press, called the British and Foreign Printing Machine, was exhibited a few days ago to a numerous body of printers and scientific men, who expressed themselves highly satisfied with its extraordinary powers. It appears admirably calculated for the printing of books, newspapers, and, in fact, for every description of work that can be done by machinery. In velocity of movement it rivals steam printing machines, and far excels them in clearness of impression and goodness of register. Two men and three boys were enabled to print at the rate of 25 sheets in a minute, every impression being remarkably clear and perfect. The Patentee, we understand, is Mr. T. Miller, of 76 Fleet street."

It is said that the members of the legislature of Illinois have also nominated and intend to support Mr. CLAY, as a suitable person to succeed Mr. Monroe in the presidency of the United States.

#### LATE FROM OLD AND NEW SPAIN.

CHARLESTON, JAN. 16.

By the schr. Eudora, Capt. Brookings, arrived last evening in 10 days from Havana, we have received from our obliging correspondent, the Gazettes of that place to the 4th inst. They contain extracts from Old and New Spain, of later date than before received. The Cadiz accounts are to the 14th of Nov. and from Vera Cruz they are to the 14th ult.

The accounts given in the Havana papers from Madrid, although brought down to the 15th of Nov. do not appear, from a hasty perusal, to be of much interest.

Under date of Cadiz 24th November, a private letter says, "I have just heard by a patrol in 10 days from Barcelona, that the factionists of Catalonia have evacuated Seo de Urgel, the national troops having presented themselves in that neighborhood and occupied the place."

The Spanish schr. Amiable Teresa, which arrived at Havana on the 27th ult. brought accounts from Mexico to the middle of Dec. By these, it appears that Gen. Davilla, the former Commandant of Vera Cruz, was to sail from that port shortly after her—that Iturbide was still in Jalapa, where he had an interview with Gen. Santa Ana, who, having been badly received, and ordered to proceed under arrest to Mexico, immediately returned to Vera Cruz, where he has since, at the head of his troops, PROCLAIMED THE REPUBLICAN GOVERNMENT, and has published, under date of the 3d ult. a long manifesto to the Mexican nation, and on the 6th, he also published a letter to Iturbide, in which he details the service he had rendered, to make him emperor, but finding that he had infringed upon his oath, and the treaties of Igoala and Cordova, he was now obliged to proclaim the Republic, which he did among 2000 bayonets, and the most sincere applause and vivas. This spirit of opposition to Iturbide, had also extended itself into the interior of Mexico, and Gen. Santa Ana, has been joined by several divisions of the army. A flag of truce was sent to the Castle of St. Juan de Ulua, by Gen. Santa Ana, but the only answer received was, that a more liberal interchange between the Castle and the city would be acceded to.

Immediately after the change of Government at Vera Cruz, the exportation of specie, &c. was permitted under the regulations of the 22d March, 1822.

On the 10th December Gen. Santa Ana left Vera Cruz, to attack Echevarri, Governor of Jalapa, who was at Soledad, short of provisions. On the 4th, the regiment No. 6 marched from the City of Mexico, for San Luis, where the republican standard had also been raised under the Marquis of Jaral.

The U. S. corvette John Adams, Capt. Renshaw, arrived at Havana the day before the Eudora sailed, last from Tampico.—The U. S. schooner Revenge, Lt. Levy, had been cruising on the coast of Florida, in co. with the U. S. revenue schooner Louisiana, Capt. Jackson, and was, when last heard from, at Matanzas.

#### VOICE OF MAINE.

PORTLAND, JAN. 17.

At a meeting composed of most of the members of both Branches of the Legislature of the State of Maine, holden at the representatives' chamber, in Portland, on the evening of the 16th January, 1823, pursuant to previous notice—Hon. John McDonald was called to the chair, and J. L. Child, Esq. appointed Secretary.—The following preamble and resolution were proposed and unanimously adopted, viz:

Whereas it has been represented that the people of this state are in favor of the Hon. Wm. Crawford for the next President; and it being proper to correct any false impression on this subject; therefore,

Resolved, That this convention entertain the highest respect for the distinguished talents and public services of the Hon. JOHN QUINCY ADAMS, and do fully believe that no man possesses better qualifications for the important office of President of the United States; but as the election of president will not take place for a considerable time to come, this convention do not deem it expedient to make a formal nomination of any person as candidate for that station.

Ordered, that the proceedings of this convention be published in all the newspapers in this town, signed by the chairman, and attested by the Secretary.

JOHN McDONALD, Chairman.  
Attest, James L. Childs, Secretary.

#### WEEKLY ALMANAC.

JAN. & FEB. 1823.	SUN RISES.	SUN SETS.	MOON'S PHASES.
29 Wednesday	6 57	5 3	Full 26 0 18.2
30 Thursday	6 58	5 4	Last 29 4 m.
31 Friday	6 55	5 5	New 10 10 1 m.
1 Saturday	6 54	5 6	First 18 5 36 a.
2 Sunday	6 53	5 7	
3 Monday	6 52	5 8	
4 Tuesday	6 51	5 9	