NATIONAL INTELLIGENCER,

AND

WASHINGTON ADVERTISER.

Vol. III. WASHINGTON CITY, PRINTED BY SAMUEL HARRISON SMITH, PENNSYLVANIA AVENUE. *No. CCCCXIX.*

Five Dolls. per ann. WEDNESDAY, JUNE 29, 1803. *Paid in Advance.*

New-Hampshire Legislature.

ANSWER OF THE SENATE TO THE GOVERNOR's SPEECH.

May it please your Excellency,

As the representatives of a free people, the senate of *New Hampshire* are highly gratified in the view of that prosperity and happiness which the citizens of the state so generally enjoy; and should any grievance be discovered, which will admit of legislative remedy, our endeavours shall be directed to apply that relief in the most prompt and effectual manner.

The new proportion for taxes, which the constitution requires to be made the present year, shall receive from us all that attention which the subject demands.

The importance of a well regulated militia, for the support of a free government, must be evident to every person of information. The adoption of those measures which may place the militia of this state in a respectable condition, we consider an object of the greatest magnitude.

Should the differences, now existing among some of the European nations with whom we have connections, terminate in war, we hope that every measure, consistent with the honour of the nation, will be adopted, to preserve a strict and an impartial neutrality; But should the aggressions of the ambitious and unprincipled compel us to take an attitude of defence, we trust that Americans will not be found wanting in courage and prowess to avenge the wrongs of their country.

To lessen the energies of our national government, in either of its branches, would, under existing circumstances, endanger the rational liberty we now enjoy, and eventually tend to subvert that system of government under which the United States have attained so great a degree of respectability and consequence in the political world.

The duties which the constitution enjoins upon the citizens and members of government, we feel in the strongest manner obligatory upon us; convinced that the practice of those official, moral, and social duties, together with a general dissemination of knowledge among the great body of the people, are indispensable requisites to the support of a free government.

Your excellency's official conduct hitherto, affords us the strongest evidence of your readiness to unite with the legislature in every measure which the public good may require.

ANSWER OF THE HOUSE.

May it please your Excellency,

Obedient to the constitution and the choice of our fellow-citizens, we are assembled to discharge the important duties of legislation. To meet your excellency again, invested with the office of First Magistrate of the State, inspires us with confidence to persevere in the duties of our department, under the assurance, that your talents and experience, so long recognized, will be united with our exertions for the public good.

The general happiness and prosperity, enjoyed throughout the state, is a proof that no grievances of magnitude exist; it is also a proof, that the public mind is actuated by that moderation and virtue, which alone can ensure our existence as a free people. To improve and persevere in such habits, is a primary duty. Whatever tends to deprave opinion, or deceive the public, should meet an early resistance.

Our jurisprudence has been greatly matured by the labours of former legislators. To improve, if possible, the principles by them adopted, will be more safe than to hazard the experiment of new systems. It is wisdom to profit by the admonitions of experience; and safe habits should be rendered permanent.—Restless ambition may suggest alteration, under the pretence of improvement; but we believe, that the best friend of a free people, is he, who administers to their peace by fostering laws and customs which have been proved salutary by practice.

The constitution of the United States, and of this state, contains precepts worthy the attention and sacred regard of a free people. As the pledges of our union and safety, we feel the necessity of advocating and defending their principles. That we may long continue in the practice of this sentiment, it will be necessary to cultivate the useful arts and sciences; to improve the public mind with literature, by rendering information equally attainable by all classes of people.

Agriculture is the laudable pursuit of most of our fellow-citizens. To give it every encouragement, by assisting commerce and the useful arts, will ever be the pleasure of virtuous legislators.

In the communication from the Executive of the United States, and in your excellency's address, we recognise, with pride, these sentiments respecting the militia which accord with our own. If we wish to avoid the necessity of a standing army; if we wish to repel national insult and injury; if we wish to preserve the dignity which belongs to a republic, we must become an armed nation, and array the strength given us by the God of Nature. At the present crisis, while the peace of Europe is uncertain, to assume a posture capable of maintaining a dignified neutrality, in the event of foreign war, we conceive to be our best interest.—Alarmed by recent occurrences, we feel the propriety of being able to prevent a repetition of national insult or injury.

The rapid increase of the population of the United States, admits of no diminution of our national energies; and we have reason to believe, that the immense number of foreigners, who have taken sanctuary under the mildness of our laws, have made no addition to our national harmony. If pursued by persecution in their native countries, our humanity offers an asylum; but we hope our indulgence will never warrant them in disturbing society.

We believe it to be substantially true, that virtue is a necessary spring of popular government; hence the necessity of cultivating good morals and correct information.

We assure your excellency of our prompt attention to your communications; and we shall be happy in uniting our efforts to promote the harmony and happiness of our constituents.

OF THE CONSTRUCTION OF IRON BRIDGES.

As bridges, and the method of constructing them, are becoming objects of great importance throughout the United States, and as there are at this time proposals for a bridge over the Delaware, and also a bridge beginning to be erected over the Schuylkill at Philadelphia, I present the public with some account of the construction of iron bridges.

The following memoir, on that subject, written last winter at the federal city, was intended to be presented to Congress. But as the session would necessarily be short, and as several of its members would be replaced by new elections on the ensuing session, it was judged better to let it lie over. In the mean time, on account of the bridges now in contemplation, or began, I give the memoir, the opportunity of appearing before the public and the persons concerned in those works.

THOMAS PAINE.

Bordentown on the Delaware,
New-Jersey, June 13, 1803.

TO THE CONGRESS OF THE U. STATES.

I have deposited in the office of the Secretary of State, and under the care of the patent office, two models of iron bridges; the one paste board, the other cast in metal. As they will shew by inspection the manner of constructing iron bridges, I shall not take up the time of Congress with a description by words.

My intention in presenting this memoir to Congress is to put the country in possession of the means and of the right of making use of the construction freely? As I do not intend to take any patent right for it.

As America abounds in rivers that interrupt the land communications, and as by the violence of floods, and the breaking of the ice in the spring, the bridges, depending for support from the bottom of the river, are frequently carried away, I turned my attention, after the revolutionary war was over, to find a method of constructing an arch, that might, without rendering the height inconvenient or the assent difficult, extend at once from shore to shore, over rivers of three, four, or five hundred feet and probably more.

The principle I took to begin with, & work upon, was that the small segment of a large circle was preferable to the great segment of a small circle. The appearance of such arches and the manner of forming and putting the parts together admit of many varieties, but the principle will be the same in all. The bridge architects I conversed with in England denied the principle, but it was generally supported by mathematicians, and experiment has now established the fact.

In 1786 I made three models, partly at Philadelphia, but mostly at Bordentown in the state of Jersey. One model was in wood, one in cast iron, and one in wrought iron connected with blocks, of wood, representing cast iron blocks, but all on the same principle as that of the small segment of a large circle.

I took the last mentioned one with me to France in 1787, and presented it to the academy of sciences at Paris for their opinion of it. The academy appointed a committee of three of their own body Mons. Le Roy, the Abbe Bossou, and Mons. Borda. The first was an acquaintance of Dr. Franklin, and of Mr. Jefferson, then Minister at Paris. The two others were celebrated as mathematicians. I presented it as a model for a bridge of a single arch of 400 feet span over the river Schuylkill at Philadelphia. The committee brought in a report which the academy adopted—that an arch on the principle and construction of the model, might, in their opinion, be extended 400 feet, the extent proposed.

In September of the same year, I sent the model to Sir Joseph Banks, President of the Royal Society in England, and soon after went there myself.

In order to ascertain the truth of the principle on a larger scale than could be shewn by a portable model of five or six feet in length, I went to the iron foundery of Messrs. Walkers, at Rotherham, in the county of Yorkshire in England, and had a compleat rib of 90 feet span, and 5 feet of height from the cord-line to the centre of the arch, manufactured and erected. It was a segment of a circle of 410 feet diameter; and until this was done, no experiment on a circle of such an extensive diameter had ever been made in architecture, or the practicability of it supposed.

The rib was erected between a wall of a furnace belonging to the iron-works, and the globe end of a brick building, which served as abutments: The weight of iron in the rib was three tons, and we loaded it with double its weight in pig iron. I wrote to Mr. Jefferson, who was then at Paris, an account of this experiment; and also Sir Joseph Banks in London, who in his answer to me says—"I look for many other bold improvements from your countrymen; the Americans, who think with vigour, and are not fettered with the trammels of science, before they are capable of exerting their mental faculties to advantage."

On the success of this experiment, I entered into an agreement with the iron-founders at Rotherham to cast and manufacture a compleat bridge, to be composed of five ribs of 110 feet span, and 5 feet of height from the cord-line, being a segment of a circle of 610 feet diameter, and to send it to London to be erected as a specimen for establishing a manufactory of iron bridges to be sent to any part of the world.

The bridge was erected at the village of Paddington near London, but being in a plain field where no advantage could be taken of abutments without the expence of building them, as in the former case, it served only as a specimen of the practicability of a manufactory of iron bridges. It was brought by sea, packed in the hold of a vessel from the place where it was made; and after standing a year, was taken down without injury to any of its parts, and might be erected any where else.

At this time my bridge operations became suspended. Mr. Edmund Burke published his attack on the French revolution and the system of representative government, and in defence of government by hereditary succession, a thing which is in its nature an absurdity because it is impossible to make wisdom hereditary; and therefore, so far as wisdom is necessary in a government, it must be looked for where it can be found. Sometimes in one family, sometimes in another. History informs us that the son of Solomon was a fool. He lost ten tribes out of twelve.* There are those in later times who lost thirteen.

The publication of this work of Mr. Burke, absurd in its principles and outrageous in its manner, drew me, as I have said, from my bridge operations, and my time became employed in defending a system then established and operating in America, and which I wished to see peaceably adopted in Europe—I therefore ceased my work on the bridge to employ myself on the more necessary work, *Rights of Man*, in answer to Mr. Burke.

* *2 Chron. Chap.* 10.

In 1792 a convention was elected in France for the express purpose of forming a constitution on the authority of the people, as had been done in America, of which convention I was elected a member. I was at that time in England, and knew nothing of my being elected till the arrival of the person who was sent officially to inform me of it.

During my residence in France, which was from 1792 to 1802, an iron bridge of 236 feet span and 34 of height from the cord line was erected over the river Wear at the town of Sunderland in the county of Durham in England. It was done chiefly at the expence of the two members in Parliament for that county, Milbanke and Burdon.

It happened that a very intimate friend of mine, Sir Robert Smyth (who was also an acquaintance of Mr. Monroe the American minister, and since of Mr. Livingston,) was then at Paris. He had been colleague in Parliament with Milbanke, and supposing that the persons who constructed the iron bridge at Sunderland had made free with my model, which was at the iron works where the Sunderland bridge was cast, he wrote to Milbanke on the subject, and the following is that gentleman's answer.

"With respect to the bridge over the river Wear at Sunderland, it certainly is a work well deserving admiration both for its structure and utility, and I have good grounds for saying, that the first idea was suggested by Mr. Paine's bridge exhibited at Paddington. What difference there may be in some part of the structure, or in the proportion of wrought and cast iron, I cannot pretend to say, Burdon having undertaken to build the bridge, in consequence of his having taken upon himself whatever the expense might be beyond between three and four thousand pounds (sterling) subscribed by myself and some other gentlemen. But whatever the mechanism might be it did not supersede the necessity of a center† [The writer has here confounded a center with a scaffolding] which center (continues the writer) was esteemed a very ingenious piece of workmanship, and taken from a plan sketched out by Mr. Nash an architect of great merit who had been consulted in the outset of business, when a bridge of stone was in contemplation.

"With respect therefore to any gratuity to Mr. Paine, though ever so desirous of rewarding the labors of an ingenious man, I do not feel, now, under the circumstances already described I have it in my power, having had nothing to do with the bridge after the payment of my subscription, Mr. Burdon then becoming accountable for the whole.—But if you can point out any mode, according to which it should be in my power to be instrumental in procuring him any compensation for the advantages the public may have derived from his ingenious model from which certainly the outline of the bridge at Sunderland was taken, be assured it will afford me very great satisfaction‡.

RA. MILBANKE."

The year before I left France the government of that country had it in contemplation to erect an iron bridge over the river Seine at Paris. As all edifices of public construction came under the congnizance of the minister of the interior.—(and as their plan was to erect a bridge of five iron arches of one hundred feet span each, instead of passing the river with a single arch, and which was going backward in practice, instead of forward as there was already an iron arch of 236 feet in existence) I wrote the minister of the interior, the citizen Chaptal, a memoir on the construction of iron bridges. The following is his answer:

The minister of the interior to the citizen Thomas Paine.

I have received, citizen, the observation that you have been so good as to address to me upon the construction of iron bridges. They will be of the greatest utility to us in a moment when this new kind of construction goes to be executed for the first time. I see with pleasure, citizen, that you have rights of more than one kind to the thankfulness of nations, and I give you cordially, the particular expression of my esteem.

CHAPTAL.

† *It is the technical term, meaning the boards and timber which form the arch upon which the permanent materials are laid: when a bridge is finished, the workmen they say are ready to strike centre, that is to take down the scaffolding.*

‡ *The original is in my possession.*

A short time before I left France a person came to me from London with plans and drawings for an iron bridge of one arch over the river Thames at London, of 600 feet-span, and sixty feet of height from the cord-line. The subject was then before a committee of the house of commons, but I knew not the proceedings thereon.

As this new construction of an arch for bridges, and the principles on which it is founded, originated in America, as the documents I have produced sufficiently prove, and is becoming an object of importance to the world, and to no part of it more than our own, on account of its numerous rivers, and as no experiment has been made in America to bring it into practice, further than on the models I have executed myself, and at my own expence, I beg leave to submit a proposal to Congress on the subject, which is,

To erect an experiment rib of about 400 feet span, to be the segment of a circle of at least 1000 feet diameter, and to let it remain exposed to public view, that the method of constructing such arches may be generally known.

It is an advantage peculiar to the construction of iron bridges, that the success of an arch of given extent and height, can be ascertained without being at the expence of building the bridge; which is, by the method I propose, that of erecting an experiment rib on the ground where advantage can be taken of two hills for abutments.

I began in this manner with the rib of 90 feet span, and five feet of height, being a segment of a circle of 410 feet diameter. The undertakers of the Sunderland bridge began in the same manner. They contracted with the iron founders for a single rib, and finding it to answer, had five more manufactured like it, and erected into a bridge consisting of six ribs, the experiment rib being one. But the Sunderland bridge does not carry the principle much further into practice than had been done by the rib of 90 feet span & five feet in height, being, as before said, a segment of a circle of 410 feet diameter. The Sunderland bridge being 206 feet span and 34 feet of height, gives the diameter of the circle of which it is a segment, to be 444 feet, within a few inches, which is but a larger segment of a circle of 34 feet more diameter.

The construction of those bridges does not come within the line of any established practice of business. The stone architect can derive but little from the theory or practice of his art that enters into the construction of an iron bridge; and the iron founder, though he may be expert in moulding and casting the parts, when the models are given to him, would be at a loss to proportion them unless he was acquainted with all the lines and properties belonging to a circle.

If it should appear to Congress that the construction of iron bridges will be of utility to the country, and they should direct that an experiment to be made for that purpose, I will furnish the proportions for the several parts of the work, and give my attendance to superintend the erection of it freely.

But in any case, I have to request that this memoir may be put on the Journals of Congress as an evidence hereafter, that this new construction of bridges originated in America.

THOMAS PAINE

Federal City.
Jan. 3, 1803.

N. B. The two models mentioned in the memoire, will, I expect, arrive at Philadelphia by the next packet from the federal city, and will remain for some time in Mr. Peale's Museum.

‡ *The original in French is in my possession.*

From the Richmond Examiner.

On the advantages which the American People would derive from the extensive establishment of Refined Manufactures.

No. I.

Preliminary Observations.

Before I enter upon the discussion of this very important subject, it will be proper, briefly to examine certain theoretical principles, which, in consequence of being supported by the reasonings of the celebrated author of 'Wealth of Nations,' have obtained the authority and currency of first principles, an authority and currency to which they are not, as I conceive, by their intrinsic evidence, entitled. Adam Smith contends that the improvement & cultivation of land is the most useful and productive mode in which human labour can be employed, that no country is ripe for the establishment of refined manufactures