RALEIGH REGISTER,

AND

North-Carolina State Gazette.

Ours are the plans of fair delightful Peace,
Unwarp'd by party rage, to live like Brothers.

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From the National Intelligencer.

TORPEDO WAR.

Our readers will recollect that, at the session of Congress preceding the last, a law was passed by that body making an appropriation for the purpose of making practical experiments on the use of the Torpedo, or sub-marine explosoin, invented by Mr. FULTON. As Congress thus far shewed their wishes for the success of the invention, the public have certainly a right to know the result of the experiments. We therefore, notwithstanding its length, lay before them the following report from the Navy Department to Congress on the subject.]

Navy Department, Feb. 12, 1811.

SIR—Under the authority of the act of Congress of the 30th of March, 1810, entitled "An act making an appropriation for the purpose of trying the practical use of the Torpedo or sub-marine explosion;" certain preliminary experiments have been made in the city and harbor of New-York. By letter, a copy of which is herewith transmitted and marked No. 1, Messrs. Walcott, Colden, Livingston, Lewis, Williams, Garnett, and Kemp, were requested to attend the experiments, and to report their opinions thereon, either jointly or severally. These gentlemen accordingly attended, and their opinions will be found in the papers A, B, C and D.

A. Letter and report signed by Mess. Wolcott, Kemp, Colden, Garnett and Williams.

B. Letter from Mr. Colden.

C. Letter from Mr. Livingston.

D. Letter from Mr. Lewis.

Commodore Rogers & Capt. Chauncey were also requested to attend the experiments, and to conduct the defence against the Torpedo. The commodore's observations, in which it is believed captain Chauncey concurs, will be found in paper E. which contains extracts of his journal kept on that occasion.

F. Is a letter from Mr. Fulton.

These papers contain all the material information, with respect to Mr. Fulton's Torpedo system, at this time in the possession of the Navy Department. They shew that Mr. Fulton has not, in the opinion of a majority of the committee, proved that the government ought to rely upon his system as a means of national defence. Mr. Fulton states, however, that he has made important improvements since the experiments were made; and as he appears very confident of success, it is contemplated to authorise further experiments in order to ascertain the effect of such improvements.

Of the five thousand dollars voted, about one thousand five hundred dollars have been expended, leaving an unexpended balance at this time of about three thousand five hundred dollars.

All which is respectfully submitted.

PAUL HAMILTON.

The Hon. Joseph B. Varnum,
Speaker of the House of Representatives.

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No. 1.

To Oliver Wolcott, Esquire.

NAVY DEPARTMENT.

SIR—Congress having, during their last session, provided for an experiment of Mr. Fulton's Torpedo system, it has been proposed by that gentleman that some preliminary experiments be made in the harbor of New-York, and that yourself, Mr. Colden, Mr. Chancellor Livingston, Mr. Lewis, Colonel Williams, Mr. Garnett and Doctor Kemp, should be invited to attend such preliminary experiments, and report your opinions either jointly or severally upon the merits of the system generally, so far as a satisfactory opinion may be formed from an observation of such experiments.

It will not, I hope, sir, be either inconvenient or disagreeable to you to attend Mr. Fulton's experiments, and to report your opinion upon his system; and I shall consider myself obliged by your rendering this service.

Favor me, if you please, with an answer to this letter.

I have the honor to be, with great respect, sir, your obed't serv't,

PAUL HAMILTON.

Same to

Cadwallader C. Colden, Esq.
Robert R. Livingston, Esq.
Morgan Lewis, Esq.
Colonel Jonathan Williams.
John Garnett, Esq.
Doctor John Kemp.

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(A.)

New-York, Jan. 22, 1811.

SIR—We have now the honor to submit to your consideration a statement of facts and observations, in relation to a certain experiment exhibited by Mr. Fulton, as requested in your letter of May 4th, 1810.

It seems to be generally admitted, that a ship may be destroyed by submarine explosions; but whether Mr. Fulton's system can be rendered practically useful, must as we conceive depend on future discoveries and improvements. The only opinion which we venture at this time to express with any degree of confidence is, that this system is at present too imperfectly demonstrated to justify the government in relying upon it as a means of public defence. In expressing this opinion we, however, disclaim the intention of attempting to discourage such investigations and experiments as the wisdom of government, aided by other lights and information than we have possessed, shall consider fit and useful.

We cannot conclude this report without suggesting a reflection, which has been strongly impressed on our minds during this investigation, and which we hope will not be thought unworthy the attention of government; namely, the necessity of an institution in the United States to which subjects of this nature might be referred. A legislative body, from the numerous more important objects which demand its attention, must be incapable of that patient and systematical investigation which is essential in all improvements of science. The many useful and ingenious discoveries made by Americans prove their inventive faculties and powers of combination; but that they may be usefully directed, a national institution appears to be requisite. Such an institution, patronized by government, would at all times be ready to examine the merit of any plan for improvements in civil or military science, and perhaps its approbation ought to precede the grant of any exclusive privilege.

Almost every state in Europe has such an establishment. In England there is a board of longitude, an institution for the improvement of naval architecture, an observatory, and a board of ordnance, to which a military academy is attached. In France an academy of sciences was established before the revolution, and since that period the national institute, which includes every department of science. It is not necessary to enumerate other similar institutions in different nations of Europe; and it cannot be doubted, that astonishing improvements in every department of art and science have resulted from their labors, and thereby entailed a debt of endless gratitude upon mankind. We therefore cannot but express our regret that America alone, while possessed of ample means, should be deprived of the advantage and glory which would result from uniting their efforts to those of other civilized nations. The present we deem an auspicious period for commencing the establishment, which we take the liberty to recommend to your patronage; as in addition to the resources of talent and learning already possessed, men of profound science in every department might probably be found, who, disconnected with political vicissitudes, would be desirous to find a refuge in our country, hitherto happily exempted from the agitations of Europe

We have the honor to be, with the highest respect, sir, your obedient servants,

Oliver Wolcott,
John Kemp,
Cadwallader D. Colden.
John Garnett,
Jonathan Williams.

The Hon. Paul Hamilton,
Secretary of the Navy.

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STATEMENT

Of facts and observations in relation to experiments exhibited by Mr. Robert Fulton, explanatory of his system of TORPEDO WAR, in and near the city of New-York, from September 21st to November 1st 1810.

ON the 21st of September, a majority of the persons named in the letter of the secretary of the navy, dated May 4, 1810, convened at the city hotel, where they were attended by commodore Rodgers and captain Chauncey, of the navy, and Mr. Robert Fulton. The object of this meeting was to agree on a mode of exhibiting the experiments proposed by Mr. Fulton, explanatory of his system of TORPEDO WAR, in such manner as would enable the commissioners to report their opinion of the merits of said system, so far as satisfactory opinions could be formed from observations of said experiments.

At this meeting, Mr. Fulton exhibited a torpedo lock, also a model of a torpedo, which he proposed to launch under the bottom of a ship, by means of a spar, projected from the bow of a boat or vessel; for which purpose, he requested that the frigate President might be removed from the North into the East river. To this proposal of Mr. Fulton, commodore Rodgers replied, that a removal of the frigate President would be attended with inconvenience; but, that the proposed experiments might be made either on the frigate in the North river, or on the brig Argus, then at anchor near the navy yard, in the East river. It was then agreed that the experiments should be made on the brig Argus, with blank torpedoes; and that such defence should be made against them as a vessel of war could exert, without having recourse to her guns, or the employment of active force.

Owing to unfavorable weather and other causes, the commissioners could not convene at the navy yard before the 26th of September; at which time they viewed the brig Argus, prepared for defence against the application of torpedoes, in the mode which had been previously suggested by Mr. Fulton. This defence consisted of a net, suspended from the bow of the brig, and reaching to the bottom; also, of spars lashed together and suspended from the bowsprit and yards, in such manner as would prevent boats from coming into contact with the brig. The studding of sail-booms were moreover armed with kentledge and heavy shot, and provided with grapnels, for the purpose of sinking or taking possession of any boat or torpedo which might come within reach. It was stated by the officers of the navy, that, these means of defence were such as are usually possessed by ships of war and that after the preparations were made, all the defences could be disposed in proper order, or replaced in a ship, in the term of fifteen minutes. After hearing the observations of commodore Rodgers, captain Chauncey and lieut. Lawrence, commander of the Argus, Mr. Fulton candidly admitted, that on the supposition that the net, before the brig, reached the bottom, he was then unprepared for an attack, by any means which he had at that time provided.

The commissioners viewed at the navy yard specimens of different torpedoes, and in particular *anchor torpedoes*, with the means proposed of securing them under water, in a position capable of annoying ships while passing over them. They also inspected a machine invented for the purpose of cutting the cables of ships while riding at anchor, the effect of which machine will be hereafter described.

At this meeting experiments were made of firing a harpoon, to which a small rope had been attached; the attempts to place the harpoon in the target did not succeed at a greater distance than fifteen feet, and at that distance the harpoon struck firmly, but obliquely.

On the 29th of September, the commissioners met at the Navy Yard; when, to demonstrate the effect which the guns of a ship of war would have upon a boat of the size and description of that which Mr. Fulton had prepared for exhibiting his experiments, Capt. Chauncey caused an old boat to be moored at about 90 yards distance, in which three boards were placed upwright, representing the size of men. At this object, a twenty-four pounder, loaded with cannister and grape shot, was discharged: the effect was, that seventy-three shot passed through the boat; eighteen shot penetrated through the first board, nine thro' the second, and five through the third.

At this meeting, an attempt was made to cut a cable under water, which failed; owing, as is suggested by Mr, Fulton, to the imperfection of the machinery. It was then determined to postpone further experiments till the 29th of October. On the 1st of Nov. the commissioners again convened at the Navy Yard, when Mr. Fulton succeeded in cutting a fourteen inch cable about six feet under water, without injuring his machinery. The operation was performed from an open boat, which remained about five minutes within pistol shot of the vessel at anchor.

The commissioners examined an *anchor torpedo* in the East river, which had several days remained under water; it was viewed when the ebb tide had just commenced, and when the current was feeble; the torpedo at that time appeared to preserve nearly a vertical position, as intended by Mr. Fulton; but no experiment was made of the effect of the effect of the machinery upon the bottom of a vessel.

At this and other meetings of the commissioners, various models were exhibited by Mr. Fulton of machines, by means of which it was supposed by him the defensive measures of the officers of the Navy might be counteracted and defeated: in opposition to which, they suggested counter projects. The duty of the commissioners being, however, confined to an observation of *experiments*, it is deemed unnecessary to report on this branch of the subject.

Oliver Walcott,
John Kemp,
Cadwallader D. Colden,
John Garnett,
Jonathan Williams.

New-York, January 22, 1811.

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(B.)

New-York, January 26, 1811.

SIR—I had the honor to receive a letter from you in May last, desiring my services as one of a committee to attend to a course of experiments to be made by Mr. Fulton on his torpedo system, and requesting that I would report to you, either separately or jointly with the other members of the committee, my opinions on the merits of Mr. Fulton's system, so far as satisfactory opinions might be formed from an observation of his experiments.

That gun-powder can be ignited under water with facility, and the infinite power of its expansibility, when exploded in that situation, seems to have been demonstrated by Mr. Fulton's experiments. The efficacy of his cable cutting machine, which requires but a very small charge, shews at once how easily powder may be fired under water, and that its force is equal to what it would be if exploded in the same machine in the atmosphere.

It seems to be proved that water is as resistible to a sudden impulse as a solid body: if so, a very small quantity of powder, if fired at any depth below the surface, as it cannot move the infinite weight of matter which resists its lateral pressure, must make way for its expansion through the perpendicular column of water with which it may be covered. When we see that the firmest rocks yield to the force of a small quantity of powder, we cannot doubt but that the strength of a vessel's bottom must be as nothing when exposed to the explosion of the charge of a torpedo.

If these may be taken as just principles, then if means can be found of placing a torpedo under the bottom of a hostile vessel, notwithstanding any act or forces he could use, the torpedo system would be complete. When we consider how much experience has been necessary to bring to perfection what are now considered as very simple operations, we should be cautious not to be discouraged by the failure of first essays. The history of powder, from the time of its first discovery till it was applied in the way in which it is now used, affords a striking example of the improvement to be derived from practice and experience. We should have had neither land nor floating batteries, nor armies with fire-locks, if the world had rested satisfied from the early experiments which were made with gun-powder, that there were no better means of applying it than the leathern gun, and the match, which were used in the infancy of the invention.

The committee saw no attempt on the part of Mr. Fulton to place a torpedo under the bottom of a vessel. He acknowledged that he was not prepared to overcome the means which had been adopted for defending the Argus against his floating torpedoes, and it appeared from Mr. Fulton's explanation of the manner of applying these instruments, that the defences of the vessel, independent of any force which might have been used, were insurmountable obstacles to the application of a torpedo in any way which Mr. Fulton had previously suggested. But though the means of defence, which were applied to the Argus, were only such as a vessel of war commonly carries as part of her equipment, and though they could be put in the state in which the committee saw them in a very short time, I cannot but think, that if the dread of torpedoes were to produce no other effect than to induce every hostile vessel of war which enters our ports, to protect herself in the way in which the Argus was protected, torpedoes will be no inconsiderable auxiliary in the defence of our harbors.

As to the anchored torpedo, no other experiment was attempted than to show, that when in the water, it might be retained in the position necessary for its having the desired effect. The tide, however, being slack or nearly so, at the time that the anchored torpedo was examined by the committee, its vertical position at that moment did not afford any evidence that it would resist a strong current; on the contrary, there was reason to believe, that in the way in which it was then anchored, it would yield to the pressure of a strong tide, so as to be driven to the bottom, or to lay nearly horizontally in the water; but it cannot be doubted, but that there are means of fixing a torpedo so that it will retain an upright position in the strongest tide.

Mr. Fulton's cable-cutter appears to be a very ingenious invention. Its efficacy, when properly applied to the cable of a vessel, has been demonstrated; and it seems that it may be applied, when the persons who are to manage it are at a considerable distance from the object intended to be effected. It was suggested by the officers of the navy, and it cannot be questioned, but there are many means, by chains and otherwise, of guarding a cable against this machine; but an invention which will oblige a hostile vessel, whenever she anchors in one of our ports, to guard her cables by the means above referred to, must be of great importance in a system of defence. A vessel of war surrounded by large booms and spars, with nets hanging from her bows as deep as the water, with her rigging loaded with weighty pieces of iron, and with grapnels and shot suspended from her yards to guard her against torpedoes, and with chains to defend her cables against the cable cutting machine, must be much less wieldy, and of course much less formidable for attack or defence than she would be without such incumbrances.

In Mr. Fulton's experiments it was obvious, that he had labored under great disadvantages for want of experience. Several of his experiments failed in the first instance from defects in the machinery, which it was obvious were easily to be remedied. The application of his cable cutting machine required as much nautical skill as is requisite to manage a boat in a strong tide way. For want of this skill, it was obvious that the cable cutting machine was not applied by Mr. Fulton with as much facility as it might have been by an experienced waterman. To make experiments upon this important subject which would be entirely satisfactory, would require the co-operation of a number of persons practised in the modes that have been, or may be suggested for applying Mr. Fulton's machines; we can as little judge of what may be the efficacy of a torpedo, when we see it in the hands of persons who have no experience with respect to it, as we could of the efficacy of a mortar, were we only to see it managed by men who had no practice in its use. Could Mr. Fulton have the means of making frequent experiments, and of training a number of men to the application of his machines, the government might be able to form a just estimate of the value of his systems.

The experiments which the committee witnessed, were too limited to authorise a confident opinion as to what may be the merits of Mr. Fulton's system. It is impossible to say how far the very ingenious suggestions made by Com. Rodgers and Captain Chauncey, for guarding a vessel as well against torpedoes as against the cable cutter, would on experiment be found effectual. But I think Mr. Fulton's experiments give us ground to suppose that the knowledge of gunpowder is yet in its infancy, and that in time this new application of its irresistible power, by submarine explosions may produce greater changes in the world than have been made by it since its introduction into Europe.

I have the honor to be, sir, with very high respect, your most obed't servant,

CADWALLADER D. COLDEN.

The Hon. Paul Hamilton.

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(C.)

Clermont, December 7, 1810.

SIR—My distance from New-York having prevented my meeting the gentlemen of the committee at the time they made up their report, and being so unfortunate as to differ with them in opinion as to the utility of torpedoes as a mean of defence in addition to those usually employed against a naval arrangement, I think it my duty, in com-