entertainment to them. There remain but two of this party now alive, viz: the lady after whom the steamer was named, and a clergyman, a friend of Mr. Anderson's. The writer of the article in the *Dumbarton Herald* is quite correct as to his statements of the fear and wonder which the appearance of the *Margery* excited on the coast, while on her passage to England, as well as among the English fleet; in most cases she was supposed to be a vessel on fire. The *Margery* was the first steamship that ever sailed in English waters, and made her first trip to Milton, below Gravesend, on the 23d January, 1815. She was ultimately taken to Paris, where not many years ago her timbers were still lying on the banks of the Seine. Mr. Anderson was, therefore, owner of the first steamer that was ever seen in London, and also in Paris; he also owned the first that ever crossed from Scotland to Ireland (viz: the *Greenock*, built soon after the *Margery*), which he took to Belfast; he also took the first to Londonderry—the *Princess Charlotte*. The late Mr. Anderson was grandfather to the Messrs. Gwynne, engineers, of Essex Street Wharves, whose large centrifugal pumping engine in the International Exhibition attracted so much admiration and attention during the past season.

For the Journal of the Franklin Institute.

On a National Academy of Science and Technological Institutions.

By JOHN W. NYSTROM, C. E.

It is very gratifying to know that Congress at its last session passed a bill to establish a *National Academy of Science*, which will no doubt be of great value to the country for the cultivation of the natural resources of our mind and for the improvement of our moral dignity and standing among nations in a political view, but at the same time, —considering the peculiar circumstances in which the country is now placed,—prosperity is of greater importance, and the former cannot be maintained without the latter. I am well convinced that we are behind some other nations in science, but am positively assured that we have more science in the country than we can properly manage; it is the *application of science to practice* which requires immediate attention and special institution.

In Europe they have institutions for the combined science and practice, the want of which is most severely felt in this country and for which we suffer most extremely. A *National Technological Institute*, with workshops and laboratories connected with Navy Yards and private establishments, are of more importance in this country than in Europe, for the reason that mechanical skill and inventive ingenuity are here more developed, and the want of applied science wastes away a proportionate quantity of time and money.

I may be mistaken, but am under the impression, that in the pre-

sent condition of our political system, an Academy of Science would not now answer the expected purpose, as it will a few years hence; while a Technological Institute would enable us to rise gradually and surely to the position due to us among nations, and when once so raised we would never fall.

I have adopted this country as my own, and care for its prosperity as much as any American that ever lived; my attempt to correct what I consider is wrong is in pure respect to you who came here a few days before me.

We have plenty of scientific books in the country, mostly written by Professors in Colleges, who have very little chance to apply their knowledge to practice, and are therefore destitute of practical examples. We oftentimes find most valuable formulas given by scientific men in such a shape that it requires to know as much or more than the author to employ them; they are not only not trained to a practical shape, but the meaning of letters are rarely explained in a technical language. It is surprising to see how excellently mathematicians have succeeded in keeping the simple science of the Calculus in such a perfect mystery; it reaches very few among us, not for the difficulty of learning it, but simply for the want of its application to practice. We find books on the Calculus of several hundred pages, and not a single practical example, which makes the science very difficult and tedious to learn, and when acquired, very rarely further developed, but stored away in the head so that it cannot be found when wanted.

We find simple formulas occupying several pages in explanation, which by a simple example applied to practice would by a few lines print it in the student so that he would never forget it. A *National Technological Institute* of high order would effectually remove such deficiencies.

Up to the present day the knowledge of steam-engineering is far behind our knowledge of science, for which the country suffers extremely. Our marine engines and boilers are not only unnecessarily complicated, but most extravagant in the consumption of fuel; our locomotive engineers ought to be ashamed of themselves when they come with their thunder-storm blowing out smoke and fire to suffocate passengers and set fire to houses and forests, which evil could be so advantageously employed to the general interest. My statements are not based on mere supposition, but on knowledge and experience; I know what I have seen, what I have done, and what you are doing, and will point out the evil if called for, but here is not the place to describe it.

Only a few years ago there was not a single propeller steamer in the United States with properly constructed air-pumps and foot-valves, for the want of knowledge of the physical laws by which it operates; errors of the same kind were committed in England and other countries. Propeller steamers designed to go to Europe succeeded some of them to make one passage, and some broke down at but a short

distance from the American shore and returned; most of those steamers existed but a short time. I will give names and describe the cases if necessary,—the U. S. Steamer *San Jacinto* was one of the number. When I saw the evil I worked out practical formulas and published the physical laws by which it operates, after which the errors in the air-pumps and foot-valves were corrected. I believe myself to be the first one who has worked out that theory when there was no publication of that kind in the whole world.

Had the subject of the expansion and other properties of steam been understood by the engineers in the Navy, it would have saved the Erie expansion experiments, and our men-of-war lately built would have given better satisfaction. I was the first one to prove the folly of the Erie expansion experiment, and published an article on the same in the *Scientific American* in January, 1861, but omitted to explain what deceived Mr. Isherwood in the experiments made on the stationary engine in New York. There is yet no publication so complete with practical formulas and tables of the expansion of steam, its economy and application to different kinds of engines, as that of my Pocket Book, which has been partly copied in Europe.

The knowledge of steamship performance has until lately been on a very low point. Steamship contractors have often bound themselves to accomplish more than established by physical laws, and the Navy Department has bound contractors with impossibilities for the want of proper knowledge of steamship performance. A few years ago an engineer imposed on the public some exaggerated statements of steamship performance, which I attempted to correct, but was overwhelmed with mystical proofs in aid of the exaggerations; a short time after the performance the steamer in question turned out a failure and disgrace to the country. There is yet no publication with so reliable data of steamship performance as that in my Pocket Book. I could point out thousands of cases where blunders were made in practice for the want of appreciation of, and disrespect to the science in our possession, but am afraid to be misunderstood, although I am well convinced that for the general interest many will consider it their agreeable duty to give my views a liberal consideration.

Translated for the Journal of the Franklin Institute.

On some New Properties of Sulphur. By M. DIETZENBACHER.

Note Presented to the Academy of Sciences of Paris.

By M. H. SAINTE-CLAIRE DEVILLE.

A small quantity of iodine, bromine, or fluorine modifies the physical and chemical properties of sulphur in a very remarkable way. The sulphur becomes soft, malleable at ordinary temperatures, and retains these properties for a considerable time. It is, moreover, partly or entirely transformed into that curious modification of sulphur discovered by *M. Charles Sainte-Claire Deville*, and called by him *insoluble sulphur*.