

Scientific American

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Great Increase of our Steam Marine.

The United States of America presents the most extraordinary spectacle of rapid progress in greatness and power, of any nation that has ever existed. There is an inherent vitality and energy in our people, which enables them to transform the waste places of our land into fruitful fields, and lonely deserts into teeming cities, and that with a facility and power akin to the skill ascribed to the old alchemists, in whose magic hands iron became gold, and brass shining silver.—With a most wonderful increase of cities, villages, and everything connected with industrial progress on land, no less wonderful has been our progress on sea—in building ships and subduing the winds and waves by the mighty power of steam. Six years ago there were only two mercantile steamships in the whole United States; these belonged to New York, and were but insignificant in size.—Then we had no mail steamships, and the star spangled banner had never floated but in a solitary instance in a foreign port above the quarter deck of an American steamer. The smoke from American funnels never was seen afar on the ocean, and in this respect England alone reigned mistress of the seas. But what a change has taken place in that short period. The four largest and as yet the fleetest ocean steamships in the world belong to our country, and the rivers Mersey in England, the Seine and Weser in France and Germany, are now visited regularly by eight American steamships of large tonnage and powerful engines. The two mail steamships Washington and Hermann, which ply between New York and Bremen are 1,700 tons burden each; the two which ply between New York and Havre—the Franklin and Humboldt, are 2,200 tons each; and the four of Collins' line of steamships are each 3,000 tons burden, making an Atlantic fleet of steamships amounting to 10,000 tons, burden. Six years ago not one of these vessels had disturbed the waters of the great deep.

Besides these noble vessels there are seventeen steamships of an aggregate tonnage of 21,912 tons plying regularly between New York and our Southern cities and the West Indies, and there are no less than 41 of an aggregate tonnage of 67,336 tons engaged in the New York, California, and Oregon trade. All these are American built steamships, and comprise a mercantile marine larger than that of all the other nations in the world—Great Britain excepted—put together. All this steam marine has been created in less than six years. Do these figures not exhibit a touch of power more wonderful than that of any genii of Oriental tale, that of Aladdin's wonderful lamp not excepted. Side by side with us, the people of Great Britain have been running a race in increasing their steam marine also. Within the same period they have built a greater number of steamships than we have, and the same circumstances which have operated so powerfully to open up new fields of trade with us, now operate upon them—we allude to the gold discoveries of California and Australia. It is difficult for the mind to entertain at once a just idea of the magnitude of these stupendous changes in our steam marine, a contemplation of them makes "the boldest hold his breath for a time." It is very natural to ask, "can our country go on much longer at such a rapid pace; will a period not arrive at no distant date, when like other nations of the old world, ours will also cease to make such strides in industrial progress—when it will, to use a common term, stand still? We have no affirmative answer to return. Our nation, if we keep united, and hot-headed men do not foolishly precipitate us into war with powerful foes, must go on with just as rapid strides for the next thousand years as it has for the last fifty. We have more natural resources of all those things which go to make a nation great and powerful than all the known kingdoms on this globe. We, like the House of David, must increase, while other nations, now great and powerful, will decrease.

A Mountebank Professor Lecturing on the Ericsson.

Our readers will bear with us for so frequently referring to the Ericsson. So many men from different motives have assailed us, because from the first we have given good reasons why hot air can never supersede steam,—that it is altogether inferior to it as a motive agent—we have to notice some of these attacks, lest our silence might be construed into an argument in favor of those who propagate falsehoods. We have stood decidedly alone upon this subject, and have done our duty conscientiously with a regard to truth only. Without any reason for so doing, many of our editorial brethren of the press, in various parts, have used language towards us which at present we will treat with silent contempt; we have laid up their words, and "will bide our time."

We learn by the "Louisville, (Ky.) Journal" of the 24th ult, that a certain Prof. Rainey delivered, on the evening of the 18th ult., a lecture in that place, on the Ericsson. The "Journal" says, "the lecture was delivered to one of the most intellectual houses to be obtained in Louisville." So far as it regards the capacity of judging of the comparative merit of steam and air engines, we suppose that many of those who heard the professor, might be considered *intellectually* far beneath a less imposing audience. We are sorry at least that any person in Louisville should have been imposed upon with any of the falsehoods represented to have been uttered by the lecturer, as represented in the "Journal." In the course of his lecture, this professor said (we quote from the "Journal") "while Mr. Ericsson's thoughts were turned on this subject (hot air as a motive power) many persons in Europe and even America, were experimenting on air engines, or such only as heated a new supply of air at every stroke. Mr. E. in the meantime discovered the regenerator, and proposed it to the Savans in London where he was residing. Prof. Faraday, among others, eagerly grasped at the theory, and was so pleased with it that he lectured on the new discovery in the Royal Institution, in London, &c. &c. He also supported it. About this time a Mr. Stirling, of Scotland, heard of the idea of a regenerator, which he saw at once was indispensable to an air engine, and attempted its construction, although he had no idea how Mr. Ericsson's regenerator was formed, as he had not permitted his development to go to the public. Mr. Stirling constructed a regenerator which was a tube from one half to two and a half miles long, and supposed that the air in passing through it would be heated, or that the hot air, in escaping, would deposit all its heat. It took the air too long to pass through, and produced too few strokes. When the air was heated in a tube, its expansion was lost to a great extent on its sides. This is the calorific engine that the Scientific American has so industriously paraded before the mechanical and scientific world, and which, as that journal knew nothing of the structure of Mr. Ericsson's engine, must be the only engine, and consequently it has deceived the people, by what the slightest observer will see is palpably misrepresented." All that we have quoted above from the "Louisville Journal," respecting Stirling's air engine, and what is asserted respecting our conduct, we pronounce to be falsehoods, uttered for the purpose of deceiving his audience regarding the real merits of the case.—We never published an illustration of Stirling's air engine in the Scientific American, but we did that of Capt. Ericsson—the one he first patented in 1833—in No. 20, on the 29th of last January. We copied it from Sir Richard Phillip's "Arts of Life," as we stated, and any one who has read that work knows this to be true. The said air engine of Capt. Ericsson, had a tubular regenerator, but whether the tube was half a mile or two miles and a half long we cannot tell, we can only say it was not so long as the falsehood uttered in the face of that intellectual audience in Louisville by this itinerant lecturer. The falsehood consists in this, that he said we put forth the air engine of Stirling having a tubular regenerator for Capt. Ericsson's, and thus deceived the people, whereas we never published Stirling's engine, the one we published with the tubular regenerator

was Ericsson's. If any of that audience in Louisville had read the work referred to, he could easily see that the professor was uttering what was not true. Let any one examine the said work, and dare to say that we deceived the public by *misrepresentation*, as this professor charges us. Our columns are open to Capt. Ericsson or any of those interested in his engine to contradict us in these statements if they can. We have resorted to no subterfuges nor misrepresentations in speaking of the Ericsson; we have had no personal interests to subserve, and no personal feelings to gratify in uttering our opinions respecting it. We have spoken of those connected with the enterprise as honorable men, and would be glad if it could prove successful. Our language has always been respectful, and no wilful untruths have we ever uttered about it.

Who this Prof. Rainey is we do not know. The "Louisville Journal" speaks of him as somebody of consequence. Only let a man have *Professor* before his name, and go among strangers, and then be he hungry or henpecked at home, he at once becomes a hero, and that too among no class of people so readily as among those who are so often called in snobbish language "*intellectual people*," not engineers and machinists mind you.

The "Journal" states, that "the professor intends going to London early in May, and will lecture in but three or four other cities." He had better go to school for a while longer; the most of his lecture reported in the "Journal" is derived from an old lecture delivered in Boston about Capt. Ericsson in 1843, by John O. Sargent. We can show any person the printed lecture. We hope the professor while on his way to London will visit New York and make the same statements here that he made in Louisville, as reported in the "Journal."

As the "Louisville Journal" receives the Scientific American regularly, the editor can turn back to No. 20, and see whether we are honest in the matter or not, by comparing the statements we have made with the work we have referred to, which is surely in some library in Louisville. By our last number he would also see that the Ericsson was already getting new crowns to its furnaces, although, as reported in the "Journal," the professor stated they could not burn out sooner than boilers. All we have said will come out straight before twelve months pass away.

In connection with this subject we would state that we have read with great satisfaction an editorial article in the "Albany (N. Y.) Evening Transcript" of the 31st ult., on hot air as a motive agent. The article was a reply to a correspondent, and exhibits a great amount of knowledge on the subject. One remark shows the editor to have looked into it far beneath the surface; it is this: "there are mechanical difficulties in the direct application of heat as a motive agent that cannot be overcome." This shows to us that he sees deeply into the difficulties of hot air.—Neither *dry* steam (stame) nor hot air can be profitably employed as motive agents, for steam is not only a motive agent but a lubricator also, and thus has qualities which hot air does not possess. Hot air engenders great friction, and renders valves and pistons so difficult of working tight, that it never can be employed with profit in comparison with steam as a motive agent.

Events of the Week.

DEATH OF ORFILA.—By the late news from Europe, we learn that Orfila, the celebrated chemist, is dead. He died in Paris at a good old age. He was a Spaniard by birth, and was a native of the Island of Minorca, and born in 1787. For a long time he was at the head of all the chemists in the world in Toxicology. He was naturalized in France in 1818, and in 1824 his learning and taste were so appreciated in Paris, that he was appointed to the chair of Chemistry in the Medical school, which he filled until he died on the 4th of last month (March.) He was a fine lecturer and very eloquent. He published a treatise on poisons as early as 1812. The amount of poisoning in Spain perhaps led his mind early in that direction. His first work he successively enlarged and heightened by numerous other works relating to Toxicology

Medical Chemistry, and Legal Medicine.—His Elements of Legal Medicine, which has passed through six editions, his published Lectures on Medical Jurisprudence, and the Juridical Exhumations, and some others of his writings form a body of medical jurisprudence, quoted as supreme authority in the criminal tribunals here. All the physical causes, indications, and effects of death by violence, are described and explained, and their analogies with those of natural death marked out.

He was consulted in every case of poisoning which took place in Paris for many years, his opinions were implicitly relied upon in every case, and the celebrated poisoning case of M. Lafarge, by his wife and her paramour, the accounts of which were published along with Orfila's investigations in many of our papers a few years ago, has rendered his name familiar to all our people, as well as our doctors and chemists. His was one of those complete minds whose faculties may be applied with equal success to a diversity of objects.

His administrative talents were excellent; he was a fine singer and understood engineering. One day at a general meeting of the French Northern Railway, a discussion arose among the principal men charged with the financial management of their great enterprise. The question in debate was surrounded with difficulties. Orfila presents his view, and proposes his solution of it. The Banker Rothschild, a chief manager of the Company, immediately begged the Professor to become one of its Directors. It was while returning home in the rain from one of their meetings that he felt the first symptoms of the malady that so soon put an end to his career of active usefulness. It is also said that his health had been injured by exhalations from the poisons with which he experimented.—Strong and true to the end, the final effort of his dying will was expressed in an order for the post-mortem examination of his body—his last contribution to the progress of science. He has left 120,000 francs to found prizes for the solution of questions most important to the advancement of Toxicology and of medicine generally.

DREADFUL STEAMBOAT EXPLOSION.—On the 23rd of last month while two steamboats, the Neptune and Farmer were racing from Houston to Galveston, in Texas, the boilers of the Farmer exploded with terrific violence, shattering the boat to pieces, killing the captain and a number of others, and severely wounded many of the passengers. Mr. Stackpole—a passenger—was expostulating with the Captain on the danger of racing when the accident took place, and the passengers had prepared a written protest against such reckless exposure of their lives. Many people have asserted and do assert that passengers are the cause of steamboat racing by a desire to beat an opposing boat. This is not true; passengers are in general opposed to racing, and here we have an evidence of this being so. When the Henry Clay was burned last summer, the passengers were opposed to the race, evidently carried on between that boat and another. The captain of the Farmer paid the penalty of his recklessness; what has been done to bring those in charge of the Henry Clay to justice. Had the owners and captain been poor, miserable, outcast men, they would perhaps have been hanged before this; but wealth and influence are just as powerful in arresting the arm of justice in our Republic as in any despotic country on the face of the earth; yea, in many cases more so. This is a stigma upon our moral character as a people, which we should wash out at once.

NEW HOT AIR ENTERPRIZE.—We understand that an experimental boat is now building in this city, under the superintendance of Mr. Renwick, ex-Examiner of the Patent Office, for a wealthy company, which is to be driven by hot air engines like those of Messrs. Stirling, with some improvements. Her propelling device is to be a central wheel, which is to be changed for some other device if found not to answer. They might as well save their money, it will never be of the least practical benefit. We want something better than steam, not interior, as hot air is. When it proves superior we will make a note of the matter, and faithfully report progress.