POLYTECHNIC ASSOCIATION OF THE AMERICAN INSTITUTE.

The Association held its regular weekly meeting at its room at the Cooper Institute, on Thursday evening, Oct. 9, Dr. Rowell in the chair.

FISH'S LAMP.

One of the subjects presented during the half-hour devoted to miscellaneous business was the heating attachment for kerosene lamps, invented by W. L. Fish, of Newark, and illustrated on page 64 of our current volume.

Prof. SEELY—Mr. President, it gives me great pleasure to say that I think this is one of the best things in a small way that we have had for years, and I think the Society will earn some credit to itself by introducing this lamp to the public. It is a little article but of very wide application. It will certainly be a convenient article in every household, and in many manufacturing operations it will be useful. I think that I shall find it of service in the laboratory. It will be useful, if we may employ the word useful in this application, wherever spirits are dispensed. I think if it was properly presented to the authorities it would be adopted at once in every hospital in the army.

Mr. TILLMAN—The evaporation of water by passing a chimney or flue through the vessel is very old, and I suppose that all there is new in this is the adaptation of the principle to lamps.

Mr. CHURCHILL—It seems to me that unless the cup is set over the top of the chimney, as proposed in some cases by the inventor, a considerable portion of the caloric will be lost.

FUEL IN THE ARTS.

The chairman having called the regular subject of the evening, "Fuel in the Arts," the discussion of this was renewed.

Dr. STEVENS—There has been no furnace yet constructed that will burn properly all kinds of coal. On the Ohio river it is found that a furnace suitable for burning the bituminous coal of one region is not adapted to that which is found in other localities. An entirely different system is required for burning anthracite, from that which is suited to bituminous coal. Anthracite coal after it is once on fire should never be distributed. At my house after trying different plans I adopted the system of kindling the fire in the fall and keeping it constantly burning till spring, making no more disturbance of the fire than was necessarily incidental to replenishing with coal and removing the ashes. Bituminous coal, on the other hand, should be frequently stirred.

Mr. VEEDER—I desire to see the inventive talent of the country directed to some plan for burning the heavy rock oils, in their crude state, just as they come from the ground. The refined kerosene oil, such as is burning in this lamp, is worth about 40 cents per gallon, but the crude oil has been sold in this market at 10 cents per gallon. I believe that if the minds of inventors are directed to the matter we shall have some plan devised for burning the crude oil so perfectly that the great expense of refining will be dispensed with.

Mr. TILLMAN—From the report in the SCIENTIFIC AMERICAN I infer that this Society endorsed, at the last meeting, the furnace invented by Mr. Siemen. This furnace merely heats the air for the blast, a very old device. That there is a saving of fuel over other hot blast furnaces amounting to fifty per cent I do not believe. If you burn carbon into carbonic acid you produce all of the heat which the carbon will yield. Mr. Siemen first forms carbonic oxide, and then carries this gas off to another part of the apparatus and there burns it, producing carbonic acid; but he generates no more heat than he would by direct combustion to carbonic acid in the first place. Carrying about his substances through pipes and flues will not get any more heat out of them.

Mr. FISHER—It seems to me best to get at facts in regard to what has been done rather than indulge in hopes and speculations of what may be done. Bituminous coal has been burned in locomotives on the Illinois Central Railroad, and an analysis of the gases in the fire-box showed that the combustion was perfect—there was no carbonic oxide, nor any hydrocarbons. The same results have been produced in other places. The problem of making a furnace that will burn bituminous coal without smoke is already solved.

Mr. DIBBEN—One word before we adjourn, in reply to Mr. Tillman's remarks on Siemens's furnace. I conversed last week with a friend who had charge of one of these furnaces, and he says the economy is as high as stated. The temperature of the escaping gases has been measured by a pyrometer, and it is found that while in ordinary furnaces the products of combustion enter the smoke stack at a temperature of 2,600° to 3,000°, by Siemens's regenerators all but 300° of this heat is taken from them and imparted to the air and gas before they are combined in combustion, thus utilizing 2,300° to 2,700° of heat which are now wasted. The coal is first distilled into combustible gases and then these gases are heated before they are burned; the air to burn them being also heated. The gases produced by this combustion pass through interstices in two masses of brick work; heating them, and giving up their own heat, so that they enter the stack at the low temperature named. When the brick work becomes heated the hot products of combustion are turned through two other masses of brick work, and the air and gas are drawn through the two which have just been heated. It is by this saving of waste heat that the great economy is effected.

The same subject was adopted for the discussion next week, and the Association adjourned.

MISCELLANEOUS SUMMARY.

INCREASE OF RATS.—The *Farmers' Gazette* (English) asserts and proves by figures that one pair of rats will have a progeny and descendants amounting to no less than 651,050 in three years. Now, unless this immense family can be kept down, they would then consume more food than would sustain 65,000 human beings. It will be far wiser in the farmer to turn his attention to the destruction of rats than of small birds.

[Certainly it will. Whoever engages in shooting small birds is a cruel man; whoever aids in exterminating rats is a benefactor. We should like some of our correspondents to give us the benefit of their experience in successfully driving out these pests. We need something beside dogs, cats and traps for this business.—EDS.

PERHAPS the most curious specimen of ancient figure-weaving on embroidery now to be found is that preserved in the old cathedral of Bayeaux in France. It is a piece of linen about 19 inches in breadth, and 67 yards in length, and contains the history of the conquest of England by William of Normandy, beginning with Harold's embassy, A. D. 1065, and ending with his death at the battle of Hastings in 1066. This curious work was executed by Matilda, wife of William, Duke of Normandy, afterward King of England, and the ladies of her court. It is a most beautiful and exquisite piece of needlework.

MANUFACTURING FRESH WATER AT FORT PULASKI.—All the water used by the Union forces (the Forty-eighth New York regiment) at Fort Pulaski, Georgia, is condensed from steam generated from the salt sea water by Frederick Gilmore, from Paterson, N. J. When the need of water was felt, Gilmore constructed a condenser inside the fort, the condensing machines manufacturing four thousand five hundred gallons per day more than is consumed by the troops. This makes good drinking water and is used for all ordinary purposes. Before the erection of these works all the water had to be brought down in vessels from Beaufort and Bay Point. Mr. Gilmore is now chief superintendent of the whole concern.

COTTON SMUGGLED TO EUROPE.—It is ascertained that large supplies of cotton for different ports of Europe are obtained on the Rio Grande, and Mexican vessels are engaged in supplying foreign ships. It is suspected that Texan planters convey their cotton to Brownsville, Texas, whence the article is clandestinely carried to the Mexican border. On the 8th of September there were 20 vessels there waiting, including an English steamer which had 60,000 pounds sterling with which to purchase cotton of the United States.

THE great Suez ship-canal, which is being cut through the Isthmus, to connect the Mediterranean with the Red Sea, will be 91 miles in length, 260 feet in width, and 26 feet deep.

PROPOSED NEW POSTAL CURRENCY.—A Washington correspondent says that parties in New England propose a new style of postal currency. It is to inclose the Post Office (or postal currency) stamp in a circle of white metal, covered by a piece of mica making a circular metallic case with the stamp protected from the wear and tear of use. It has been approved by all who have seen it. It is stated that, at the present rate of issue of the postal currency, it will take eight years to bring out the fifty millions authorized by Congress. The inventors of this new style of currency propose to get up the stamps themselves at their own cost if allowed to issue these metallic currency. They think that by employing the button factories of New England they can very nearly supply the demand at such an advance as will be satisfactory to the bankers and to the public.

A WRITER in the Boston *Post* says of lint:—Every ounce of lint sent to the army does mischief. Its only use is to cover up the blunders of bad surgery. It is seldom used by the best surgeons here. In the army it is crowded into wounds by men who know no other way to stop hemorrhage, and there it remains until it becomes filled with filth and maggots. It retains the discharges till they putrify, and produces an intolerable stench. The termination of its work is the death of the patient.

Is this true?

PRICES OF PROVISIONS, &c., IN RICHMOND, VA.—Coffee was selling in Richmond, a few days since, at $3 50 ℔ lb; tea at $16; sugar 60 cents @ $1; salt 60 cents ℔ quart; molasses $7 ℔ gallon; butter $1; potatoes $1 ℔ peck; United States Treasury Notes 100 ℔ cent premium; calico $1 50 ℔ yard; hoop skirts $15 a pair; a paper of pins $1 50; spool of cotton 50 cents; no ribbons to be obtained; gaiters $12 @ $15 ℔ pair.

AT a recent meeting of the Chemical Society, London, Mr. Greville Williams, F. R. S., read a paper, in which he stated that he had succeeded in obtaining the iodides of several alcohol radicals from Boghead naphtha. Acids, alcohols, ethers, aldehydes, alkaloids, &c., may now be produced from naphtha almost to infinity. Mr. Williams has already procured the iodides of amyle, œnanthyle, capryle, and the new alkaloids œnanthylamine and pelargonamine.

A "PAIN-FUL" EXPERIMENT.—A man named John Payne, of Keeseville, Essex County, N. Y., made a bet of $7 against a barrel of flour, recently, that he could carry the barrel of flour on his back from a store to his mother's residence, a quarter of a mile distant, up a steep hill, without resting. He accomplished the feat, and won the flour. Payne ought to be at the war.

DURING the present year six new steamers carrying 1,754 tuns have been built at Cincinnati, and the number of steamboats running on the Ohio river from that city is 186 of 46,435 tuns. The imports of Cincinnati for the year ending August 31, 1862, were valued at $108,292,823, the exports for the same period were valued at $76,449,862.

IMPORTS OF FOREIGN IRON.—The *Engineer* states that a large number of orders are being received from North America for general descriptions of iron, notwithstanding the rate of the exchanges and the high tariffs. Iron is now being taken from Liverpool to New York for 4s. sterling per tun.

TWELVE vessels laden with cotton from India arrived at Liverpool on the 26th of September. Their aggregate cargoes amounted to 546,000 bales. One of the vessels carried 6,056 bales, the smallest vessel 3,490 bales.

Ships for the South.

The Liverpool *Telegraph* says:—Besides the commissions committed to other ship-builders by the Confederate Government, which are being pushed forward with all possible dispatch, a large iron-plated ram is being constructed on the river Mersey, without any attempt being made at concealment. This ram will be of the most formidable character, and will attempt to run the blockade at Charleston. The same journal says that a vessel is lying at Liverpool, taking in a cargo of iron plates, destined for plating a Southern vessel, which is waiting their arrival at Charleston.