STRAW BRAID AND BETSY BAKER.

An exeeedingly interesting incident occurred at one of the meetings last year of the Rhode Island Society for the Encouragement of Domestic Industry, an account of which we have just received in the published transactions of the society. The incident of which we speak was the presentation to the society, by Governor Dyer, of a fine portrait of Mrs. Betsy Baker. This old lady, 61 years ago, in 1798, when she was 12 years of age, invented the art of braiding straw. She was not the first inventor, but she was an *original* inventor of the art. The facts have been collected by Judge Staples, the learned and able secretary of the society, and there is no doubt that Betsy Metcalf (as her name then was) invented, out of her own head, the art of straw-braiding; and that it was from her instructions that this branch of industry spread into Dedham, Wrentham, and the adjoining towns of Massachusetts, where it has grown up into its present gigantic dimensions, giving employment to 10,000 people. Judge Staples requested a relative of Mrs. Baker to write to her at Dedham, where she is now residing, and he had the satisfaction to receive, in reply, the following most interesting letter from the old lady herself, giving her own account of the invention. It will be seen that, with the exception of the word "learned," which is inaccurately used for "taught," the letter could not be improved. It presents the facts with a direct and simple brevity, which makes it a model for this sort of composition:—

"In compliance with your request, I will write an account of my learning to braid straw.

"At the age of 12 I commenced braiding. My father, Joel Metcalf, brought home some oat straw, which he had just moved, in June 1798. I cut the straw, and smoothed it with my scissors, and split it with my thumb nail. I had seen an imported bonnet, but never saw a piece of braid, and could not tell the number of straws. I commenced the common braid with six straws, and smoothed it with a junk bottle, and made part of a bonnet, but found that it did not look like the imported ones. I added another straw, and then it was right. An aunt, who resided in the family, encouraged me, while most of my friends said I should never learn. She would sit and hold the braid while I braided many yards, thus keeping it straight and in place.

"We could not make it white by exposing it to the sun, and knowing that brimstone would whiten other things, she put some in a pan, with some coals of fire, and set it out in the garden; then standing to the windward, she held the braid in the smoke, and thus bleached it.

"I then braided all sorts of trimming, but it was difficult to ascertain the number of strands. The first bonnet I made was of seven braid, with bobbin put in, like open work, and lined with pink satin. This was very much admired, and hundreds, I should think, came to see it.

"Soon after, I visited Dedham, and learned the ladies here, and made bonnets for several of them. There has been a story reported that I braided enough in the stage to defray my expenses. I did braid several yards, but not enough to pay my fare.

"After I returned to Providence, I learned Sally Richmond, a near neighbor, to braid all kinds. She went on a visit to Wrentham the next spring, I think, and learned them there.

"It has been published that they first began to braid in Wrentham, but it is a mistake. Mrs. John Whipple, after she was aged, told some one that she thought it was Hannah Metcalf who first braided; but this was a mistake, for she never braided. I learned them to braid from nearly all the towns around Providence, and never received any compensation for it. I learned all who came to make bonnets, free of expense. Many said I ought to get a patent, but I told them I did not wish to have my name sent to Congress.

"I could easily earn one dollar per day, and sometimes one dollar and fifty cents, for several weeks at a time. It became a very profitable business for several years.

"BETSY BAKER.

"West Dedham, Mass., Feb. 11, 1858."

The portrait of Mrs. Baker was painted for Governor Dyer by the best portrait-painter of the city, and the Society for the Encouragement of Domestic Industry may well regard it as a most valuable and useful ornament for their rooms.

THE WAY GERMAN MECHANICS WORK AND LIVE.

There are two brothers, Germans, manufacturers of cutlery, one of whom superintends the manufacturing operations in Solengen (Prussia), and the other sells the articles at his warehouse, No. 18 Cliff-street, in this city. From the latter, William Kind, Esq., we have received the following account of the mode in which the manufacture of cutlery in Germany is conducted. It gives us a striking view of German life, showing not only in industrial organization, but in social habits and arrangements, some curious contrasts to those which prevail in this country.

Solengen is a town of some 7,000 inhabitants, and the mechanics who make Mr. Kind's knives and scissors live in small villages scattered round the town at a distance of from two to four miles. The Germans all live in villages; they are so social that they could not bear to live alone, in scattered houses, as the Americans do. From one of these villages a blacksmith sends his wife to Mr. Kind's establishment in Solengen, for a quantity of iron and steel, to be forged into scissors. The material is weighed and delivered to the woman, who puts it upon her head and carries it home. After the blacksmith has forged it all into scissors, of sizes and forms according to directions, his wife puts them into a basket, and carries them back again, on her head, to the warehouse, and receives the pay for the work. From some other village a mechanic, whose trade is grinding and polishing, sends his wife to the town to procure a quantity of scissors to be ground and polished. After the return from the polisher's, they go to a third village to receive the screws and rivets; and sometimes to a fourth for an extra polish. On the roads leading out from Solengen may be seen these stout German women, with necks as straight as an arrow, trudging along three or four miles, with their ponderous burdens on their heads. The iron, from the time it leaves the warehouse for the blacksmith's, till the time that the scissors are finished, is carried on the top of women's heads an average distance of 12 miles.

This plan of operations for manufacturing differs somewhat from the course pursued in England and the United States. Here, a large building is erected in which all the workmen are collected together, all convenient tools and engines are provided; the scissors are forged by one man and passed directly to another who hardens and tempers them, another does the grinding, another the polishing, and another the riveting; thus great division of labor is secured, and all distant transportation of the material during the process of manufacture is avoided; all the heavy work, such as driving trip-hammers and turning grind-stones, being done by steam or water-power. The result is, that a given number of mechanics will make several times as many scissors in America as the same number will in Germany. When the scissors are sent into the market of the world, those made by the Germans will bring no more than those made by the Americans, being worth no more. As the American produces several times as many in the course of the year as the German does, the American realizes several times as much for his year's labor, as the German does for his. This matter is so plain, that it is astonishing that there are people yet who cannot understand that the tendency of labor-saving, or rather, labor-doing machinery, is to raise the wages of labor. The German mechanics engaged in the manufacture of which we have been speaking, are paid by the dozen, and earn from 25 to 40 cents per day.

Another feature in the case, from which the Americans might extract a profitable lesson is, that the German will obtain more pleasure for his 30 cents than the American will for his dollar and a half, or two dollars.

While the Americans, in fierce rivalry, are struggling to outshine one another in foolish display, the Germans, content in their mutual equality, pass their lives in friendly commune and social enjoyment.

TINNED AND ZINCED TUBES.

At the last monthly meeting of the Franklin Institute, Philadelphia, two tubes, taken from the Pirsson's fresh-water condenser of the steamer *Keystone State*, were laid upon the exhibition table, for the inspection of the members. Six months ago, after a use of several months, many of the original tubes were found to be much injured by the action of sea-water, owing to an impure copper having been used in their manufacture. The builders of the *Keystone's* machinery determined to coat the new tube with either zinc or tin, giving zinc the preference, on account of its superior conducting power, though more subject to the chemical action of sea water. However, some of the tubes were coated with tin, and the balance with zinc; and were put into the condenser side by side. The tube heads were of copper, and the external casing of cast-iron. A tube of each sort was placed before the meeting. The one coated with tin was perfect as when first put in, with the tin still remaining; whilst that coated with zinc was much corroded, particularly near the ends where it approached the tube heads; and the heads themselves were eaten away at the places of contact: thus, the coating of tin seems to be the best preservative of the tubes.

TO CHEMISTS—A DESIDERATUM.

For propelling carriages on common roads, for plowing, and for countless other purposes, we want an engine far less heavy in proportion to its power than the steam-engine. This can only be accomplished by getting rid of the boiler. It is true that our mechanical and philosophical inventors, who are going over the old field of reaction and percussion engines, may succeed in slightly reducing the weight of the steam-engine; but for any large step in this direction, we must look to the chemists. What we require is the combination of two substances, solid or liquid, which, on being brought into contact, will assume the gaseous form. It would seem that the place to look for this is among the organic products. In these the compound is not generally very permanent, but is disposed, as soon as the vital force which drew it together is removed, to decompose into its original elements. The organic products are so numerous that the field is a broad one, but success would reward almost any amount of research and experiment.

PUMPING WATER FOR IRRIGATION.

MESSRS. EDITORS:—Permit me, through the columns of your paper, to say a few words to your correspondents S——, of Canada West (page 85, present volume of the SCIENTIFIC AMERICAN), and W., of Elmira (page 151), relative to pumping water from great distances.

To S——, I would say his plan is practicable, notwithstanding W. says "your Canadian correspondent would find it impossible to irrigate his grounds on the plan proposed by him." The only drawback, if any, would be the cost. The objections brought by W. on account of water being a solid, and the consequent damage to reciprocating pumps, may be entirely overcome, so that there would be no difference, practically, in drawing water through a half-mile of pipe to an elevation of 25 feet or from a pump-well to the same hight, except the greater amount of friction and momentum due to the longer pipe. I speak advisedly and from some experience, and would guarantee the erection and efficient working of a reciprocating pump under the circumstances. Of course, I am assuming the pipe to be perfectly air-tight, and I assume this also to be practicable with a lead pipe, but with no other pipe that I am acquainted with.

The cost of a two-inch lead pipe one half mile in length, and the laying of it in the trench after it was dug, would amount to about $1,200. The power required to discharge the same amount of water as from a pump-well, would have to be increased in proportion to the increase of friction and momentum in the long pipe. The greatest objection to the plan is its expense, and S—— must determine as to the practicability of that matter and of its payability to him. J. D. R.

Philadelphia, Sept. 3, 1859.

THE IRON FURNACES OF OHIO.—The *Cincinnati Times* refers to a chart comprising a list of iron furnaces in the vicinity of Portsmouth, Ohio, published by Mr. McFarland of the Portsmouth *Tribune*. The entire number of furnaces is set down at 45. It also contains a list of 17 furnaces in Kentucky, making a total of 62. The yearly aggregate of pig-iron turned out from there is estimated at 155,000 tuns, with a value of $4,650,000. The number of hands employed at these furnaces is estimated at 6,200, receiving the total sum of $155,000 per month. The iron trade is quite a feature in the Scioto Valley and its neighborhood.