The Work of Different Countries.

An English journal of late date has the following:—

"Industry has many curious local attachments, and clings with feline fondness to particular spots. Thus, watches are made cheaply in Switzerland, where the men and women of fifty villages together are all busy on toothed wheels, mainsprings, and jeweled holes. Soap and cheap perfumes, nasty as well as cheap, are best compounded in central Germany. The Tyrol and the Black Forest have three resources for the long winter evenings, when the soil is frozen stiff, and the snow is heavy on the pine boughs—clocks, straw hats, and toys. All over Middle Europe you see the Black Forest clocks, made by peasants round the cottage hearth, as plentiful as Mr. Samuel Slick's lacquered time-pieces in Canada. Baden competes with Italy in straw-plaiting; while for toys, old Deutschland bears the bell.

"It is a curious thing that the toys which English children love so dearly, and which they break, maltreat, and demolish so vivaciously, should all be foreign. Here and there, perhaps, a rocking-horse, or a straight-legged spotted steed with his harness nailed to his body, may be the work of an English artisan, but not often.

"The wooden beasts and birds in the zoological collections, the puzzles, the bricks, the gaudily-dressed Turks and hussars, squeaking lambs, and creaking cards, come from Germany; so do marbles, Dutch dolls, and baby-houses. Paris gives us the superb waxen doll, in her satin and spangles. America sends over the gutta-percha uglinesses and clock-work mice.

"Quite two-thirds of the overshoes that keep our feet from wet bear the French or American eagle boastfully embossed upon their soles. On the other hand, England sells India-rubber tubing, water-proof cloth, and gutta-percha in fifty forms to Continental nations. The French buy more of our brandy than we do of theirs—an exchange of which we wish them joy; while our silks continue the cheapest, and theirs the richest and most tasteful. In all that relates to calico they own our merit; they prefer our broadcloth to their own, but declare, and justly, the superiority of their scarlet-dyed woollens to ours. As for boots, they are cut out by millions of pairs in France, sent to England to be closed, returned for the operation of 'cliching,' and re-exported as of pure Paris make.

"The Americans have great aptitude for the manufacture of small, delicate, labor-saving machines. It has always been an object with them to get through their work with as few hands as possible, and we owe to them all manner of dainty devices for economizing manual power. London is full of elegant little complications of steel rods no bigger than a wine bottle, devised for stitching all stitchable materials, for punching, drilling, and cutting, for metallurgy, and agriculture. Our own machinery is commonly of a grand and solid character—great massive engines that are to be found at work all over the world pumping water out of mines in the Andes, lashing the waves of far-off oceans into foam, crushing quartz in Victoria, and dragging burdens in Brazil.

"We cannot, perhaps, quite beat Prague in turning out stained glass and colored services glowing with the deep pure tints of enormous rubies, emeralds, and topazes; nor are our tubes and alembics so fit to go through fire as the Bohemian. The old ware of China, the old Japanese jars, the finest French and German porcelain, have a fragile beauty beyond our imitations. But our potteries only need the 'open sesame' of free trade to set their good and cheap products—plates that can bear heat, glass fairly cut into sharp facets, and vases modeled on choice shapes from Greece and Etruria—on every middle class table abroad. French housewives who store away their preserves in jars coated with poisonous white lead, and dare not heat the plates lest they should fly into fragments, and whose clumsy coffee-cups are an inch thick, are not slow to appreciate the merits of Mr. Gladstone's treaty of commerce."

Paraffine.

The uses of paraffine are truly astonishing. Several refineries are required to furnish enough to make chewing gum, which is highly recommended for constant use in ladies' sewing circles, and among gossipping neighbors, etc. A story is told of a Cincinnati refiner who had several tuns of paraffine on hand, nicely deodorized, and the demand was light. He sent a man through the towns of Ohio, and bought all the beeswax he could get, paying about forty cents. To one hundred pounds of beeswax he adds five hundred pounds of paraffine, same color and consistence and general appearance, but worth five cents a pound. Now they may detect the odor, he thought; so he put it up in oil barrels, putting the brand "Star Refinery," Cincinnati, Ohio, (the name, of course, is suppressed.) He anoints the barrels outside with petroleum, ships to New York to several merchants a hundred tuns of pure beeswax, with this blinder at one end of each invoice: "Boxes are scarce, and I send the wax in refined oil barrels; you can sell the barrels." The wax opens well—fine lot—very uniform—smells of the barrels a *little*—sells at eighty-eight cents per pound. Imagine the profits—five-sixths paraffine, one-sixth beeswax.

Production of Ammonia.

Shall we ever be able to produce ammonia on the great scale artificially? In the nitrogen of the atmosphere and the hydrogen of water, its elements are everywhere at hand; who will teach us how to compound them into volatile alkali, by a method practicable as a manufacturing process? Cheap ammonia would be a great boon to the agriculturist, and by no means to him only. Could this body be had for a few pounds per tun it would entirely revolutionize one of the chemical industries, and by far the most important of them all. There is a saying that the degree of civilization of a country may be judged of by the quantity of sulphuric acid which it consumes. This is because sulphuric acid has hitherto been the chief agent in the alkali manufacture, and has so lain at the base of the whole edifice of applied chemistry. With ammonia, at the price suggested, however, we should no longer use sulphuric acid in the manufacture of soda; instead of converting chloride of sodium into sulphate of soda by heating it with oil of vitriol, and then transforming this sulphate, first into sulphide and then into carbonate, by calcining it in contact with lime and coal, we should obtain bicarbonate of soda at one operation by adding ammonia to chloride of sodium, in solution, and passing carbonic acid gas through the mixture; and the saying just quoted would thus cease to be valid. What is of more importance, soda would be cheapened, and cheaper soda would mean cheaper soap, cheaper glass, and many other less tangible advantages. And this is only one of many results which would accrue from the command of cheap ammonia.

Well, some little fresh light has lately been thrown on the question of the synthesis of ammonia, which will never be obtainable cheaply enough for use in the soda manufacture unless it can be produced synthetically. In the first place, M. Decharme has published the results of a series of experiments on "the production of ammonia from air and water under the sole influence of the porosity of the soil." In these experiments he carefully deprived soil of whatever ammonia it might already contain, then moistened it, and then passed through it currents of air, also carefully deprived of its natural ammonia. After the air had passed for a longer or a shorter period, he tested the soil, and invariably found ammonia in it, proving that porous soil has the property of causing the nitrogen of air to combine with the hydrogen of water to form one of the most important elements of the food of plants. Hence "the good effect of airy drainage and plowing, the improvement of land by fallowing, the practicability of cultivation without manure, and the presence of nitrogen in plants grown in an artificial soil, in an atmosphere entirely freed from ammonia, and watered with chemically pure water." Second, At a recent meeting of the Chemical Society, Mr. Buckton, in exhibiting a specimen of the mineral *boussingaulite*, found in the neighborhood of the Soffioni of Tuscany, and containing eighty per cent of sulphate of ammonia, explained, by way of suggesting how this mineral was formed, that he had obtained sulphate of ammonia artificially by passing a mixture of sulphuretted hydrogen, air and steam through a heated earthenware tube. Under these circumstances, both the sulphuretted hydrogen and the steam are decomposed; the sulphur of the sulphuretted hydrogen uniting with the oxygen of the steam and of the air to form sulphuric acid, and the hydrogen both of the sulphuretted hydrogen and of the steam uniting with the nitrogen of the air to form ammonia. Lastly, this statement of Mr. Buckton's has led Mr. Wentworth L. Scott to publish the fact that he has found that ammonia is always produced when "deammoniated air is passed over small nodules of pumice stone, about 0·1 to 0·2 inch in diameter, and moistened with either pure water or dilute solutions of certain salts." Mr. Scott states that he has been engaged in researches in this direction for several years past, and promises to publish by-and-bye a full account of his experiments and their results. We are clearly making progress toward an end, the accomplishment of which would be as great an achievement as any of this age.—*Mechanics' Magazine.*

Rebel Abatis at Petersburg.

A war correspondent says:—Passing through our line of earthworks, no longer swarming with their garrison, and crossing the trench just beyond which sheltered our outer pickets, I found myself in the rebel rifle pits. A devious covered way led me to their abatis. Their manner of constructing this defence is very different from that of the Union engineers. Our system is very simple, consisting of stout poles, two inches in diameter and ten or fifteen feet long, planted firmly in the earth and inclining outward at an angle with the ground of about thirty degrees. The outer ends are sharpened, and beneath them, lying on the ground, are placed the bristling boughs and tops of evergreen trees. The poles are set very close together, and it seems as if it must be an impossibility for an enemy to break through them without a long pause and the aid of axes. The abatis on the rebel defences is most unlike this, in appearance and principle. It resembles somewhat a long row of saw-horses, set up together endwise, with the upper ends of the outer limbs sharpened to a point—and I think of no terms in which I can more clearly describe it. Each one of these saw-horses is distinct in itself, and as they are not very deeply imbedded in the ground, and may be easily pushed around by forces inside, they afford no obstacle to the egress of a column on a sortie, although they are formidable interruptions to the advance of an attacking party from without.

The Three Sand Rocks.

In boring for oil, no man expects to find it until he has reached and passed through a whitish sand rock, lying at depths varying from seventy-five to two hundred and seventy-five feet in the valleys. This is called, by way of distinction, the "first sand rock," although the borer may have passed through a dozen different sand rock, alternating with shales, before having reached the "sand rock." Very generally, a well, stopped after having penetrated this rock, yields a heavy, thick oil, considered specially valuable for lubricating purposes, and commanding nearly double the market value of the light oils. From one hundred to two hundred feet below this lies another, very similar, and called the "second sand rock." Having penetrated through this, the borer is usually rewarded with another "show of oil." This, too, is a very heavy oil, though not commonly so heavy as the former. From this rock is produced nearly all the oil along the Allegheny river, while the wells on French creek are nearly all completed in the "first sand rock." But, to reach the great oil fountains, the drill must make another plunge of from one hundred to two hundred feet, when a "third sand rock" is reached. From beneath this rock out gushes the pure, limpid, light oil. Here, too, are reached most, not all, the great "flowing," or rather spouting wells; some of them having deluged the land at first with 3,000 barrels per day—the "Empire well" for instance. The wells of Oil Creek are mostly in this rock.

The English Lock-out.

The Birmingham correspondent of the London *Engineer*, of March 24th, says:—

"The only change in the position of affairs relative to the lock-out, as compared with last week, is that an attempt is to be made to obtain a supply of non-unionists to go from South Staffordshire into the north of that county and start the furnaces which the men on strike refuse to work. A person who is well accredited has come forward and offered to obtain 500 men within a week, if he and his volunteers can be