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Mechanical Hobbies.

Almost every man has some foible, and it is a good thing that it is so. The man who never has an aspiration after things better, who never dreams nor doubts, is a poor mortal. He may do good in the world, to be sure, but it is only in a negative manner, like the rock that is chiselled by the artist—it is the delineation of a man, but, after all, it is only a stone. Give us a man with life in his soul—some vigor of thought and action about him, and although it be displayed in the most whimsical hobby, still we like him far better than the dull, ever-behind, thoughtless, hobbyless mortal, who has no thought of better things, and to whom the verb *to be* is a fathomless, dark nonentity.

We might speak of various hobbies, but we only wish to say a few words about mechanical ones. That was a most clever fellow of a Greek who could shoot peas through the eye of a needle—it was his hobby; it ended with himself, and that proved it to be a foolish one. Hero, of Alexandria, had a number of mechanical hobbies, but who dare say they were not more than trifles. His water blast, his experiments in steam, are living mementos of their author, who has slept in the grave for thousands of years. It is rather a common, wise, see-saw practice for people who cannot give a single reason for their opinions, to shake their heads at those fools, as they call them, who are possessed with the hobby mechanical. Dean Swift called Newton "a glass grinder, and maker of spectacles;" and he no doubt thought that his own most crazy reveries were Divine inspirations in comparison with Newton's mechanical contrivances—the embodiment of his thoughts in tangible forms and movements.

In every age there have been men with mechanical hobbies, and in every age to come they will find successors. The spirit we like, the practice we may condemn, at least so far as mere copying is concerned. It is true, that to produce works of art, to give the hand its skill, copying is positively necessary as a primary qualification, but we totally deprecate the hobby spirit which sees nothing beyond, and which strives for nothing better than the "what has been, or what is."

There are two mechanical hobbies which have possessed not a few men for a long time. There is no civilized country without its representatives in the class to which we refer, viz., the perpetual motion and rotary steam engine hobbyists. Within the past six months we have counted six patents granted in our country and England, for rotary engine inventions, happily none for perpetual motions—that being a somewhat reserved branch of patent discretion; but yet, for all this, we hear of a new perpetual motion about every two months. To invent a real perpetual motion—a mechanical one—is a hobby not to be despised, for it shows strong aspirations to do something better than has yet been done, but still it is as foolish a one as that of the Greek who became famous for shooting peas through the needle's eye—it is an impossibility. The rotary engine cannot be placed so low in the scale of hobbies as the perpetual motion, but still we believe that it is a vain waste of time in seeking for something better than the present, by working for the production of something far worse. Perpetual motion will only be discovered when the laws of inertia and gravitation are suspended; and rotary steam engines will supplant cylinder reciprocating ones, only when another form can be obtained superior to that of the round piston for packing, and for producing as little friction as it does, and this never will be. The form of a cylinder, with its round fitting piston, is the very finest and the only one adapted for distributing the power of steam economically to other machinery. If there is any fact stronger than another, to prove the truth of this averment, it is, that nearly one hundred patents have been granted for rotary engines—not two of which are now in actual operation.

We do not call up this subject to point to particular faults, but to direct the judgment to the consideration of "weighing all things well." It is not possible to enumerate faults neither is it our intention, we only throw out our views on the subject, and that not without cause, for we have perpetual motions presented to us almost every week, and rotary engines as often. A perpetual motion scheme is now before us, and it must have cost its author much time and study, and perhaps some sleepless nights; and yet it is one which is fully illustrated in the Marquis of Worcester's "Century of Inventions." In thus alluding to the principles comprised in mechanical inventions, we hope that we may be the agent of diverting some ingenious minds from a wrong to a right direction, and thus be the means of bringing something useful and enduring out of their *mechanical hobbies*.

The Coal Fields of the World.

No other country in the world is so richly favored with an abundance of coal as the United States of America. There are 124,735 square miles east of the Mississippi river, and 8,397 square miles west of it—this is all bituminous coal, comprising no less than an area of 133,132 square miles. In the State of Pennsylvania there are 437 square miles of anthracite coal. In all Great Britain there are only 8,139 square miles of bituminous coal, and in Great Britain and Ireland only 3,720 miles of anthracite. In British America there are 18,000 square miles of bituminous coal, which, by a most iniquitous monopoly grant, is lying almost as dead stock in the Provinces. Spain is richer in coal than any other nation of Europe out of England—she has 3,408 square miles; France 1,719, and Belgium 518, square miles. Although we have such vast coal fields, we use no quantity of coal at all in comparison with Great Britain. For domestic purpose we have had, and now have, such an abundance of wood, extending nearly throughout every part of our country, that we do not require coal, and will not for many years to come, especially in our northern rural districts. The annual production of coal, in Great Britain, is about 42,000,000 of tons per annum. In our country it is about 5,000,000 per annum—anthracite and bituminous. The production of American coal is becoming greater and greater every year. As we increase in population, the consumption of coal will increase in a greater ratio, for the use of wood is being curtailed year by year, consequently the coal consumption must not only increase with the increase of population, but also to supply the place of wood. Many of our farmers living within twenty miles of New York prefer coal to wood, and use it for fuel, while they have trees standing on their farms.

The coal fields of Britain are finely situated—none in the world can equal them for every purpose, both for ease of transportation and their proximity to iron and lime beds, for the manufacture of iron. Our resources in this respect, however, are but beginning to be developed, yet for foreign shipment, none of our fields, that we know of, are so convenient to the tide-water mark as those of England, but then we don't require them to be. Our great trade, and the one we must first look to, is our inland interior one. Our country is so extensive in area, and so various in climate, that we possess the sources of a great, it may be said, "foreign and domestic trade," within our own boundaries. At present but little coal is employed for locomotives. Wood is almost universally used. If coal was used in the form of coke, a greater amount of coal would be added to our productive list. It will yet come to this, for the forests are fast disappearing to fill the cribs of our iron horses.

The future presents a bright prospect for our coal trade. It was James Watt who said of Glasgow, stamping with his foot, "her wealth lies here," meaning her coal and iron fields. Well, it is just so with our country. Coal fields are more valuable than gold mines—we speak of essential value, for we could live and be lively without gold or silver, but not without coal to boil our tea kettles and warm our toes. Many years will not pass away, until we have railroads extending from

the Atlantic to the Pacific, and then there will be lines of steamships running from our far Western States across the Pacific to the Sandwich Islands, New Zealand, and China. All these will form one continuous steam line to Europe, by our Atlantic steamships; and then what an amount of coal will be necessary to keep up the steam.

Until the middle of the 18th century, nearly the whole of the great basin of the Mississippi, the valley of the Ohio, and the western slope of the Alleghany Mountains, constituting the great central coal-field of America, were partially occupied by Indian tribes; and for many years afterwards, this vast region was held to be of so little value, that the acquisition of the coal-fields did not in any respect influence the arrangements between the parties, made at sundry times by William Penn and his family, and subsequently by the proprietaries. By the treaty of 1768, the latter became possessed of nearly the whole area of bituminous coal-land of Pennsylvania, 'for the sum of \$10,000!' and about that time the presence of coal in certain places seems to have first become known. But it was not till 1828 that the first cargoes from the Alleghany coal-fields reached Philadelphia and Baltimore. Within the present limits of the city of Pittsburgh; in 1775, only a few cabins were standing; but, in our day, three-fourths of a million of tons of coals are annually received there; and the iron manufacture is so great as to confer upon the place the title of the Birmingham of America. Yet, vast as the produce is already in some places, it can scarcely be said to have begun; and it is impossible, to contemplate its gigantic proportions, and its enormous yet almost untouched resources, without being struck with the magnificent field it presents for future enterprise.

The great Pittsburg coal bed, running through the Monongahela Valley, is, in extent, half as large as all Scotland. The great coal product of our country is the anthracite; in England it is the reverse—the bituminous. More than three millions of tons of Pennsylvania anthracite is consumed every year; in England very little is used, and none at all, we believe, for family purposes. Pennsylvania, with her fine anthracite coal fields, has the prescience of greatness within her own bosom—no outward event but that of a natural increase of our population is required to ensure her solid progress in wealth and greatness. The states east of the Alleghenies must always be dependent on her for their fuel. What a change has been wrought in her since the good old days of straight-up-and-down William Penn. A century ago her coal region was a wild, stony country, termed the "Wilderness of St. Anthony," and for seventy-five years after, it was still the haunt of the bear and the panther; but now canals and railroads intersect it, and it is studded with villages of dusky-browed, hard-fisted coal miners, who dig out gold from beneath the rocks, and whose future success in this Pennsylvania wealth it is impossible to calculate.

The coal regions of Virginia are also very valuable, but have not been developed as they should be. Her vast beds of cannel coal will yet prove of more benefit to her than her gold mines. The coal beds of the great Mississippi Valley have scarcely been broached. They will yet form the grand sources of our coke manufacture for our locomotives and the manufacture of iron. The West—the Great West—what an illimitable prospect for thy progress. Without coal we verily believe that our nation never could arise to a very high elevation, either as a commercial or manufacturing one. We would rise to a certain point, and then stagnate for want of meat to send the blood through our industrial arteries. With coal no fears need be entertained about this, but every hope for a steady, sure, and certain progress in every department of national comfort, wealth and power. God has given us a country unequalled by any other for all natural resources, let us not fail to improve and be grateful for such blessings.

A lot of 4,000 sheep has been despatched from Senora to San Francisco, California, to exchange the mutton for gold.

Improvement in Tanning and the Treatment of Hides.

On our List of Patent Claims, this week, there is one of a *re-nou* for a new process of tanning, by a Mr. Hibbard of New York. We have seen a number of articles made from leather tanned by this process, and they looked well; whether they possess the enduring qualities of the leather tanned by the old process or not, we cannot tell, but there does not seem to be much that is new, at least about the tanning liquids, nor about the preparatory liquors either, but it often happens that great and good results are obtained by very simple means, especially in chemical processes. The Ohio Cultivator, in speaking of Mr. Hibbard's process, says:—"Mr. C. L. Whiting, of the firm of Vinton, Wright & Whiting, of Licking County, Ohio, exhibited to us, a few days since, specimens of sheep and calf skins tanned by this process; and the quality was such as to fully corroborate all that has been said in favor of the invention. Two of these gentlemen are experienced practical tanners, and they are firmly convinced that what has been claimed for it is true, to wit, that only about one-sixth of the usual time is required for tanning—that the quality of leather produced is vastly superior to any ever before offered in the American markets, including the choicest French and Turkish brands—that a saving of 20 to 25 per cent. of the cost of tanning materials is effected—and that the process is applicable to all kinds of skins and leather, including the heaviest article of sole and harness."

It has been stated that, by this process, the hair is removed from the skins in one-fifth the time usually required; that is, quicker than by the sweating process described in our last volume. It is also said that the skins are never changed in the tanning vats, only the strength of liquor kept up, by the addition of new and fresh liquors—such as oak or hemlock bark liquor, mixed with hydrochloric acid.

In connection with this subject, let us present some very important information relative to the removal of the hair from the hides, by a process recently brought before the Paris Academy of Sciences, by M. Boudet. While examining into the preparations of arsenical preparations used in France for depilatory powders; and also some of the preparations of the sulphuret of arsenic, lime and water, for the removing of wool from sheepskins, he found that neither the lime, arsenious acid, nor sulphuret of arsenic, had anything to do with the real result, but that it depended on the action of produced sulphuret of lime, formed by the re-action of lime on the sulphuret of arsenic. He proved that sulphuret of calcium (base of lime) acted powerfully for the removal of wool and hair from skins when employed alone. This suggested to him the employment of the sulphuret of sodium, or the hydrosulphate of soda (glauher salts) for the sulphuret of arsenic. This new agent succeeded beyond his hopes; so much so, that only a few hours after the application to a sheepskin, he detached the wool easily in one single sheet. The use of the sulphuret of sodium mixed with lime, for the removal of hair from hides, would be more expensive for the materials than Hibbard's process, but if a mixture of glauher salts (hydrosulphate of soda) and lime acts as a good preparation for the removal of hair, and we believe it is, the process may be a very cheap and good one. Some of our tanners should try it, as it is open and free for experiments.

Great Cave Discovered in Indiana.

A great cave has been discovered by a Mr. Coleman and others, about seven miles north of Leavenworth. The party who discovered it followed the main passage some four or five miles, according to their calculation, when they were admonished by their lights that they must return. On their way back, they visited some of the rooms which they had passed, in which they found large beds of epsom salts, in nearly a pure state. It also contains fine specimens of saltpetre, plaster of Paris, alabaster, &c., of which the party procured many fine specimens.

Vinegar and water is said to be an excellent wash for inflamed eyes.