Cigarette Smoking.

Scarcely less injurious, in a subtle and generally unrecognized way, than the hahit of taking "nips" of alcohol between meals, is the growing practice of smoking cigarettes the two act together fermentation follows, and hydration to 81.5 per cent. The experiment was afterward made cruincessantly. We have not a word to say against smoking at suitable times and in moderation, nor do our remarks at this moment apply to the use of cigars or pipes. It is against the habit of smoking cigarettes in large quantities, with the belief that these miniature doses of nicotine are peared. The slightest addition of active diastase sets it innocuous, we desire to enter a protest. The truth is that, perhaps, owing to the way the tobacco-leaf is shredded, coupled with the fact that it is brought into more direct relation with the mouth and air-passages than when it is smoked in a pipe or cigar, the effects produced on the nervous system by a free consumption of cigarettes are more ing, which we borrow from La Nature, was invented and marked and characteristic than those recognizable after recourse to other modes of smoking. A pulse-tracing made after the subject has smoked, say a dozen cigarettes, will, as a rule, be flatter and more indicative of depression than one tally a little to the rear of the seat, between the two large taken after the smoking of cigars. It is no uncommon practice for young men who smoke cigarettes habitually to consume from eight to twelve in an hour, and to keep this up for four or five hours daily. The total quantity of tobacco used may not seem large, but beyond question the volume of smoke to which the breath organs of the smoker are exposed, and the characteristics of that smoke as regards the proportion of nicotine introduced into the system, combine engine. Moreover, it required the action of the feet to start to place the organism very fully under the influence of the | the tricycle going. tobacco. A considerable number of cases have been brought under our notice during the last few months, in which youths and young men who have not yet completed the full term tricycle for sale, have been obliged to modify the whole of physical development have had their health seriously impaired by the practice of almost incessantly smoking cigarettes. It is well that the facts should be known, as the impression evidently prevails that any number of these little "whiffs" must needs be perfectly innocuous, whereas they often do infinite harm.-Lancet.

----The Discoverer of Beet Sugar.

On the 7th of last August a century had elapsed since the death of Andreas Sigismund Marggraf, the discoverer of beet root sugar. He was born March 3, 1709, in Berlin, and died August 7, 1782. At that day he ranked among the foremost of the chemists and physicists of his time. At the age of twenty-nine he was elected a member of the "Society of Sciences," at Berlin. In 1744 this society was reorganized under the title of the "Academy of Sciences and Fine Arts," and Marggraf was assigned to the physical section, and in 1760 became the director of that section.

In 1780 the Academy of Sciences, in Paris, nominated him as foreign member.

The domain of chemistry was enriched by him with a large number of important discoveries, and he it was who first to apply them, was lacking in the special knowledge necesappreciated the value of the microscope as an aid in chemical analysis and research. An investigation of the nature of the sap of plants led him to study those constituents to which it owes its sweet taste, and to the discovery of a substance present in different plants and exactly like the sugar obtained and strengthening them, and by replacing the horizontal from the sugar cane of India. He obtained sugar from different plants, especially from the mangolds, now known and cultivated under the name of sugar beets. He also instituted numerous experiments regarding the best method of prepar- construction, security, and speed. ing pure sugar from these plants. Marggraf was a man of science; he never thought of making any practical use of his discoveries, even when he was convinced of their practical turers desire to make it attain a speed of thirteen miles, and value.

His successor and pupil, Franz Carl Achard. who was born in Berlin, April 28, 1753, and died on his estate in action of the feet with that of steam. They will retain the Schlesia, April 20, 1821, converted Marggraf's discovery into a valuable agricultural reality, by devoting his mental and giving a fire easy to keep up, of giving out no smoke, and physical strength, as well as his means, to experiments on a of permitting a large amount of fuel to be carried within large scale. He died before he saw the fruits of his labors little space. ripen. Achard was the founder of the German beet sugar industry.

Fermentation of Dextrine.

of dextrine will not ferment when mixed with beer yeast; if sugar is added to this mixture a large portion of the dex- per hour. trine is decomposed just like sugar into alcohol and carbonic acid. The effect of the motion which is set up in the mission for the steam tricycle to run without restriction, sugar atoms by the yeast, upon the dextrine, which is indif- seeing that it emits no smoke, gives off no steam (owing to ferent to the yeast alone, seems to be very evident; before its condenser), will make but little noise, and will have the

malt extract made cold) and yeast are both added together. tive film, it was proved by another set of experiments that Malt extract alone does not hydrate the lower dextrines in the cold, nor does yeast alone effect any change; but when evidently must have preceded. Boiled extract of malt is without any action in this respect.

With maltose, as with canesugar, fermentation sometimes comes to a standstill when 50 or 60 per cent have disapgoing, and the whole mass is finally decomposed in the second fermentation.-Allg. Brau-Zeit.

THE STEAM VELOCIPEDE.

The steam tricycle shown in the accompanying engrav constructed by Sir Thomas Parkyns, who called it "The Baronet." The apparatus consisted of an ordinary tricycle, to which was adapted a small tubular boiler placed horizonwheels, and which was heated with petroleum; of a water reservoir, which served at the same time for condensation. by means of a worm; and of a cylinder with truck actuating three gearings, which, in controlling one another, gave motion to the wheels of the tricycle. The apparatus was arranged so as to be actuated with the feet alone, with the engine alone, or by the combined action of the feet and

Messrs. Bateman & Co., of Greenwich, who were commissioned by Sir Thomas Parkyns to construct his steam structure of it before offering it to the public; for the in-



SIR THOMAS PARKYNS' STEAM VELOCIPEDE.

ventor, although he possessed excellent ideas and knew how sary for the construction of a machine practically adapted for working.

These engineers began by studying the steam tricycle very closely, and, by modifying the form of certain parts boiler with a recently invented very powerful rotary motor, they hope in about six months to be able to offer the trade a steam tricycle which shall be perfectly irreproachable as to

Sir Thomas Parkyns' velocipede could scarcely exceed a speed of seven to nine miles an hour, but the new manufac to thus give it the power of ascending declivities of a certain grade, so that it will not be necessary to combine the mode of heating by petroleum, as this has the advantage of

Messrs. Bateman & Co. would have carried their studies of the new steam tricycle much further ere this had they not been overburdened with urgent work, and especially had there not been a law in England forbidding the use of Liebig, in his last essay on the subject, says: "A solution any steam motor on the streets unless it was preceded by a person on foot and ran at a maximum speed of three miles

> The inventor hopes, however, before long to obtain perappearance of one of those ordinary tricvcles that are met

by merely blowing coal smoke on the surface of water for a few seconds, the evaporation was retarded by from 77.3 cial as regards the analogy with fogs, by observing the rate of evaporation of drops of water suspended in platinum loops. When such drops were subjected to the action of coal smoke their rate of evaporation was found to be much retarded. Hence arise the so-called "dry fogs," which have been observed by Mr. Glaisher in balloon ascents, and by other observers on the ground level. Thus the worst effects of town fogs are due to domestic fires burning bituminous coal. Dr. Frankland thinks that if all manufacturing operations in London were suspended the fogs would be as bad as ever. He is also of opinion that the substitution of a sufficient number of smoke-consuming grates (assuming a smoke-consuming grate to have been invented) for all the 1,800,000 fireplaces now in London is quite hopeless. Dr. Frankland does not hesitate to express the opinion that only one remedy-the prohibition of the importation of bituminous coal-would be of any appreciable service. He considers that this proceeding would not materially raise the price of fuel, for the deliveries of anthracite would make up the deficiency, helped by the increased production of coke from the gas works.

----New Mode of Obtaining Oxygen from the Air.

P. Margis, in Paris, prepares oxygen for technical purposes by the dialysis of atmospheric air, using a peculiar form of dialyzer. Atmospheric air is pumped or forced through an India-rubber membrane several times. After passing the air once through the membrane it consists of about 40 per cent oxygen and only 60 of nitrogen, an increase of 20 per cent of oxygen. If passed again through the membrane it will contain 60 per cent of oxygen and 40 of nitrogen. A third membrane raises the percentage to 80 per cent; while a gas consisting of 95 per cent oxygen is obtained by the fourth passage.

The dialyzing membrane used by Margis is prepared by dissolving 50 parts of caoutchouc in 400 parts by weight of carbon disulphide or light petroleum ether (naphtha), specific gravity of 0.65, 20 parts of normal alcohol, and 10 parts of ether. A strip of taffeta is dipped in this solution, and after the solvent has all evaporated it is covered with a very thin and pliable coating of rubber. One or more of these strips of prepared taffeta are pressed between two pieces of wire gauze and form the dialyzing membrane.

The gas obtained by a single dialysis contains enough oxygen to increase the illuminating power of a rich gas or hydrocarbon ten times, if we accept the statement of the inventor. It also possesses all the properties needed for metallurgical purposes.

Like Mallet's process of making oxygen from the air by passing it through water, the exposure is not limited to the power required, but includes keeping several air pumps in order and preventing leaks of all kinds.

On the Digestibility of the Albuminoids in various Kinds of Food.

Drs. Stutzer, Fassbender, and Klinkenberg have been examining the digestibility of various kinds of food. The method employed is that of Stutzer, who extracts the ferment from the digestive organs of slaughtered animals, the membranes of the stomach and the pancreas, and allows a solution of it to act upon a weighed quantity of the food at the temperature of the blood. The amount of albumen left undigested is compared with the total amount previously present as found by special analysis. Indigestible albuminoids were found in blood, yolk of egg, meat, etc., but could not be detected in milk or in egg albumen. From the very extended series of results as given in the Chemiker Zeitung, we select the following examples in tabular form:

	Digestible Albumen.	Fat.	Carbo- Hydrates.	Phosphor ic acid.
Nestle's Children's food	9.9	5.1	79.3	0.4
Wahl's " "	1.8	1.2	86.3	0.1
Fresh white bread	7.2	0.3	60.7	0.5
Fresh black bread	4.2	1.1	52.1	0.2
Du Barry's Revalesciere	19	1.2	65.6	0.9
Link's Malt extract	2.2		63 0	0.3
Hoff's " (alcohol 1.2)	0.3		71.0	0.1
Lean beef (extract 2 6)	18.5	3.4		0.2
Beef soup (" 2.3)	1.2	0.5		0.3
Fowl (** 2.8)	16 5	28		0.4
Extract of meat (extract 53.8)	3.4	-		8.6
Smoked ham (" 54).	18.9	36.0		0.2
Cow's milk	4	3.2		
Condensed milk, Cham	8.8	10.4		0.2
Caviare (extract 2.0)	25.8	15.4	-	1.1
Oysters (" 86)	5.7	1.5		0.3

he dextrine breaks up into alcohol and carbonic acid it must be converted into sugar."

There seems to be some connection between this and the remark of Brown and Heron, that the converting power of the comparatively inactive barley albuminoids (barley diastase) can be increased after it is separated from the grain, and hence without the aid of germination. Extract of barley exposed at a temperature of 30° C. (86° Fahr.) to the action of ordinary yeast for a few hours, has its power of converting starch into sugar considerably increased by such treatment. A mixture of yeast and pure cane sugar exposed to the very same process produces a liquid that does not possess the power of acting on starch. It is clear that the growth of the yeast cells is able to cause certain changes in the albuminoids, which are produced through the action of the living plant cells in germination.

O'Sullivan also noticed something similar. In his essay on dextrines he says: "None of the dextrines herein described are fermentable by Saccharomyces cerevisia, but they

with in so great number in the streets of London.

Anthracite Coal Wanted in London.

Dr. Frankland says that if the average daily consumption of coal for domestic purposes in London in winter is taken at 33,333 tons, one product of the combustion of this enormous weight of coal, as ordinarily consumed imperfectly in open fire-grates, is 667,460,000 cubic feet of steam at 0° C. matter. This large formation of aqueous vapor is the great basis of all fogs; and when the steam produced from coal is accompanied, as invariably obtains, with tarry particles from the same source, the tar, by coating the particles of condensed steam, renders the fogs more persistent. Dr. Frankland has made many experiments on the retardation of evaporation by films of coal tar. He has found that the evaporation of water in a platinum dish placed in a strong draught of air was retarded in one experiment by 84 per cent, and in another by 78 6 per cent, when a thin film of coal tar was produce alcohol, carbonic acid, etc., if active diastase (i. e., placed on its surface. To show the thinness of the obstruction America.

A dozen ovsters weighed 86 grammes, or about 3 ounces. so that 14 ovsters contain as much digestible albumen as one hen's egg. Meat that had been used for soup still retained 17 per cent of albumen, but only 0.3 per cent of extractive

Rapid Raising of Coal.

On Saturday, August 9, the Briggs Shaft Colliery at Scranton, Pa., hoisted 612 mine cars in 5 hours. During that time it was stopped 15 minutes, but for which delay 32 more cars would have been raised. Each car was lifted 450 feet, emptied and lowered again. During the same time the colliery prepared and shipped 1,200 tons of coal. This record, it is claimed, is unprecedented, either in Europe