

mentation or peculiar shadow that makes the streaks on the end. The patternmaker and the fitter are so true to nature that I know the other things must be, although I am not acquainted with that particular style of table

Please, Mr Editor, do not cut out the "vegetables."—"Practique" in Wood Craft.

Perpetual Youth.

Is the elixir of life, that dream of the medieval alchemists, to be among the achievements of science in the future? Not, of course, in the sense of averting death altogether, but of staving it off of prolonging the period of youth? Certain aspects of the question are discussed by Dr Carl Snyder in an article in the *Monthly Review*, entitled "The Quest of Prolonged Youth." "It may be," he writes "that we shall never learn to avert old age. It may be, but there is no *a priori* certainty. Whether we do or not, it seems possible that we may at least learn its cause. Of this we at present know practically nothing." Weismann, Metchnikoff, and Demange have put forward conjectures on the subject, but no comprehensive theory has yet been advanced. Weismann holds that death was brought about by natural selection, that, for the welfare of organisms, their increase must be limited. Even if this explanation be admitted, it takes us a very little way. We want to know what changes take place in the organism that result in old age and death. Metchnikoff conjectures that old age is the work of certain cells, which he calls "macrophages," that attack the most active elements of the tissues—brain cells, liver cells, kidney cells etc.—and convert them into a sort of connective tissue unable to carry on their former functions. This hypothesis, however, is not yet generally accepted. A more definite theory is based on some recent extraordinary experiments by Dr. Wolfgang Weichardt, a German physician. He submitted guinea pigs to exercise on a miniature treadmill until they fell dead from exhaustion. Then he concocted from the fatigued muscles of the animals a juice or sap. When this juice was injected into the veins of unworked guinea pigs it produced in them all the outward signs of fatigue, and in from twenty to forty hours they died. Sap prepared from unworked animals had no such effect. These experiments seem to show that prolonged muscular activity produces in the muscles a poison which, circulating through the body of an animal, causes its death. In its action it is evidently similar to the poisons elaborated by bacteria. Dr Weichardt calls it "Ermudungs-Toxin" that is, fatigue toxin or poison. Following up these experiments, Dr Weichardt showed that, as in the case of bacterial poisons, a very little fatigue toxin injected into the veins of an animal acts as an anti-toxin. It is possible to inoculate an animal against fatigue. Animals and even human beings thus inoculated are capable of much more prolonged exertion than they are without it. These remarkable results are curiously near a conjecture by Metchnikoff, that cyto-toxins might be found which would reinforce the aging cells and stimulate them to renewed youth. The bearing of Dr Weichardt's investigations on the greater problem, that biologists have been approaching from various points of view, will be seen from Dr. Snyder's remark that old age is, in some sense, merely accumulated fatigue.

Aluminium.

Up to the present time there is only one manufacturing company in the United States engaged in the production of aluminium. This company is located at Niagara Falls, and has had a remarkable development. The industry began in this country in 1883, with an output of only 83 pounds. This was nearly doubled in the next year, and in 1885 amounted to 283 pounds. In 1890 it had grown to over 61,000 pounds; in 1898 to 920,000, and in 1900, to 7,150,000 pounds. The estimated output during 1905 reached the sum of 10,000,000 pounds, and the company is now increasing the capacity of its plant in the expectation that by the end of 1906 even the present enormous production will be doubled.

Luck is a fool; pluck, a hero.

NOTICE TO ADVERTISERS.

Change Advertisements for next issue should reach "Progress" Office not later than the 10th inst., otherwise they will have to be held over.

Pig-Iron Boom.

HUGE BRITISH EXPORTS TO GERMANY AND AMERICA.

Pig-iron is in the throes of a "boom," which will it is fondly believed, carry prices higher than for years. It comes about from the busy trade proceeding abroad—in Germany especially—but American doings are now receiving a share of attention to which they have long been a stranger.

There is absolutely not enough pig-iron and steel in Germany to give consumers what they want.

If proof of this is needed one piece of evidence will suffice. From January to September, 1906, there were shipped from Middlesbrough close on 400,000 tons of common British pig-iron to Belgium, Holland, and Germany, and the bulk was for the last-named country. Another proof is that Germany, which until a few months ago, had made a happy dumping-ground of the British market, is not only unable to offer any iron or steel to Britain, but is months behind with deliveries already contracted for, and British buyers are at their wits' end to know where to get what they want as quickly as they want it.

Six months or so ago the inability of Germany to sell to many British users would have been almost a matter of indifference, for America was then a seller. To-day America, like Germany, has not an ounce of stuff to spare. On the contrary, she has bought tens of thousands of tons of pig-iron here.

There seems really no one cause for the "boom" and the movement as a whole, can hardly be analysed further than to say that it is to all appearance one of the recurring periodical visitations of demand.

Shavings and Saw Dust.

A correspondent raises the question of what to do with the large quantities of shavings and saw dust incidental to the working of saw mills and wood-ware factories, now that their use in the furnaces of steam boilers is eclipsed by the substitution of engines driven by producer gas. He asks whether there is any other use, which invention if not custom may suggest, to the factory owner encumbered with the waste products of his working. In reply we have to remind our correspondent that some years ago there was a remarkable example of the profitable use of saw dust in Germany. In the year 1902, this waste product was used as fuel with good results. It was made into briquettes, octagon-shaped, 6½ in. by 3½ in. of a thickness of three quarters of an inch, weighing about half a pound. In the district surrounding the factory where these briquettes were

made the schools were heated by them, the combustion leaving very little ash and proceeding without a large flame. No binding ingredient was required, the saw dust being simply dried and pressed into the desired briquette state, and owing thus to the absence of tarry or oily substances there was no smoke in burning. The weight of each briquette indicated the pressure under which it took its shape, and the edges—the authority was the United States Consul at Berne, Mr. Frankenthal, who had investigated the subject and reported—looked like polished oak. The briquette, in fact, was heavier than a piece of hard wood of the same size. The demand created by the popularity of the fuel exceeded the supply of saw dust obtainable in the vicinity of the factory, and ship loads were therefore procured from Sweden, and cart loads from distant manufactories. Saw dust, which previously could be had for the asking, commanded a price as soon as it was known that a certain factory could make use of it. Even then it was profitable to manufacture the briquettes; but unfortunately the factory was destroyed by fire, and operations came to a stand still. There is certainly room for an invention for the utilisation of shavings, and perhaps the enquiry of our correspondent may lead to some development in this direction.

British Coal Trade.

The present year has been an astonishingly successful one for the British coal trade. During the first nine months total exports of coal, coke, and patent fuel amounted to 42,872,853 tons, as against 36,679,755 tons during the same period in 1905, an increase of over 6,000,000 tons. This is an extremely satisfactory result, and it points to 1906 being a record year for the export trade. As regards the value here again the figures are distinctly cheering, as will be seen from the following table extracted from the Board of Trade returns—

	1905	1906
Coal	£	£
Anthracite	649,379	868,300
Steam ..	14,196,453	16,957,004
Gas	2,549,835	3,088,778
Household	508,872	558,347
Other sorts	617,442	872,430
Total coal	18,521,981	22,344,859
Coke ..	385,699	424,974
Manufactured fuel	497,163	648,045
Total of coal, coke & manufactured fuel	19,404,843	23,417,878

As regards bunker coal shipments, the total for 1906 is 13,845,545 tons, an increase of 774,178 tons over last year's figure.

