THE GROWTH OF LARGE ELMS.

A Providence gentleman contributes to the *Journal* of that city an interesting description of the large elms in that neighborhood, with measurements of their girth and spread of limbs at different intervals of time. The latter facts are of more than local interest, since they give a clew to the rate of growth in old trees:

Of No. 1, an uncommonly beautiful tree, the girth at 5 feet from the ground was, in May, 1858, 13 feet 11 inches; in June, 1864, 14 feet 4 inches; in October, 1880, 15 feet 8 inches.

Of No. 2, the smallest circumference was, in May, 1858, 14 feet 9 inches; in June, 1864, 15 feet 2 inches; in October, 1880, 16 feet 6 inches.

Each of these trees gained 21 inches in girth in 21 years. The trees were probably set out in 1748 or 1749.

Of No. 3, at about 6 feet from the ground, the smallest place, the girth was, in May, 1858, 11 feet 11 inches; in October, 1880, 13 feet 4 inches; an increase of 17 inches in 22 years.

No. 4, a conspicuous elm on Congdon street, near Prospect Terrace, is, by its situation, symmetry, and magnificent Medusa-like head, perhaps the most remarkable tree within the old limits of the city. Its trunk is quite uniformly columnar. In January, 1858, it measured, 4 feet from the ground, 11 feet 8 inches; in October, 1880, 12 feet 10 inches; showing a growth of 14 inches in 22 years.

No. 5, perhaps the oldest tree in Providence, measured, at the smallest part between the ground and the branches, 11 feet and 5 or 6 inches in April, 1858; and 12 feet 9 inches in October, 1880.

No. 6, set out about 1790, measured at its smallest circumference, 3½ feet from the ground, January, 1858, 11 feet; April, 1862, 11 feet 4 inches; in 1868, 11 feet 11 inches; October, 1880, 12 feet 11 inches. For 22 years it has gained a full inch of circumference annually; in its entire growth, the yearly gain has been about 1½ inches.

No. 7 was set out in 1771, and shows signs of decay. The following measurements were made in July, 1858: Girth at the smallest place, 4½ feet up, 11 feet 2 inches; at 1 foot up, 14 feet; from bough-end to bough-end, north to south, 110 feet, or a little more. Subsequent measurements of its girth, at 4½ feet up, were: April, 1862, 11 feet 5 inches; in 1868, 11 feet 11 inches; November, 1880, 12 feet 3 inches.

No. 8, planted in 1786, is probably a century old. Its chief branch, spreading full 40 feet, shows marks of decay. The girth of this tree, at 6 feet up, was, in July, 1858, 9 feet 8 inches; in October, 1880, 10 feet 11 inches; a growth of 15 inches in 22 years.

Disappearance of Medicinal Plants.

At the recent meeting of the American Pharmaceutical Association, at Saratoga, the president, Mr. G. W. Sloan, in his annual address, spoke at some length on the growth and cultivation of medicinal plants in this country. He called attention to the fact that in California many native plants are disappearing before the incursions of herbaceous species introduced from Australia and Africa. He also discussed the effects of the destruction of forests in this country upon the production of native medicinal plants, commenting on the disappearance of many of the smaller herbaceous species and of shrubs, owing to the clearing away of the underbrush and the pasturage of the woodlands. An effort made in Illinois to raise from seed some of the plants used in pharmacy had met with but indifferent success. Yet, in botanical gardens, experience has demonstrated that almost every kind can be cultivated if judicious selection of the ground is made and close attention is paid to the habits of each plant. As the government shows no disposition to experiment in this direction, he thought the matter should be taken in hand by State Pharmaceutical Associations, in conjunction with State Boards of Agriculture, since the destruction of forests demands attention in respect to the extermination of medicinal plants, just as much as in other important particulars.

Where Our Forests are Going.

To make shoe pegs enough for American use consumes annually 100,000 cords of timber, and to make our lucifer matches, 300,000 cubic feet of the best pine are required every year. Lasts and boot-trees take 500,000 cords of birch, beech, and maple, and the handles of tools 500,000 more. The baking of our bricks consumes 2,000,000 cords of wood, or what would cover with forest about 50,000 acres of land. Telegraph poles already up represent 800,000 trees, and their annual repair consumes about 300,000 more. The ties of our railroads consume annually thirty years' growth of 75,000 acres, and to fence all our railroads would cost $45,000,000, with a yearly expenditure of $15,000,000 for repairs. These are some of the ways in which American forests are going. There are others; our packing boxes, for instance, cost, in 1874, $12,000,000, while the timber used each year in making wagons and agricultural implements is valued at more than $100,000,000.—*Fishkill Standard.*

The Possibilities of American Wheat.

Speaking of our gigantic crops of wheat, the *American Miller* remarks that few people, even in our own country, realize how inexhaustible our resources are for wheat growing. The total area of lands available for wheat culture in the United States is not less than 470,000,000 acres. Our entire wheat crop of the past year, phenomenal though it was, would not supply seed enough to sow so vast an area of wheat land.

Hydrophobia Five Years after Inoculation.

M. Colin related to the Académie de Médecine, at its last meeting, a remarkable instance of prolonged incubation of hydrophobia. The case was that of a man who died a few minutes after being admitted (on August 31) into the hospital, presenting maniacal excitation, expectoration, fear of drinking, and apprehensions, during more lucid moments, least he should injure those about him. The autopsy showed no lesions, but some small cicatrices were noted on the left wrist and in the front of the thorax. Further inquiries showed that the man had been ill two days only. On the first he complained of a severe pain in the hepatic region and extreme thirst, although he could not drink; as soon as he raised the cup to his lips he was seized with shivering and spasm. The next day he complained of severe sense of constriction in the pharynx and a feeling of a wish to bite. The symptoms thus seemed clearly those of hydrophobia. No history could be ascertained of a bite from a dog during the previous five years. On November 2, 1874, however, in Algeria, he had been bitten by a dog, which was attacking a comrade, to whose assistance he went, and who was also bitten. The latter had his wounds cauterized the next day, and died in eight days of hydrophobia. The patient of M. Colin was cauterized half an hour after the receipt of the bite. Some authorities, as Devergie, have maintained that the cases of prolonged incubation are really cases of "nervous hydrophobia;" but the symptomatology of such a case as this seems too precise for the theory that an attack so virulent could result from "nervousness." Hydrophobia is relatively common among the soldiers in Algeria, especially in the interior of the country, at the farms, where there are Arab dogs; and it is still more common among the civil population.

In regard to these prolonged periods of incubation in hydrophobia, of which this case presents an instance most remarkable, if not altogether beyond the reach of criticism, it is worth while to refer to one of the results obtained by M. Pasteur, of which we gave an account last week. It has long been a favorite explanation of these cases to suppose that the virus remained localized in the wound, developed there, and only caused the symptoms when, in consequence of some adventitious circumstance, it passed into the blood. M. Pasteur has shown that this explanation is, as regards some diseases, not a matter of theory but of fact. He has found that in the chronic cases of "cholera of fowls" the poison does develop in certain organs, and not, as in other cases, in the blood, and that when, after a variable period, the organized poison passes into the blood, severe symptoms come on rapidly, and the creature soon dies.—*Lancet.*

The Health of Cities.

Statistics compiled by the National Board of Health show that for the year ending October 31, 1880, the more important cities of the world rank as follows in comparative healthfulness. The death rate shows the number of deaths to each 1,000 persons during the year:

City.	Population.	Death rate.
Chicago	503,298	17·9
Philadelphia	850,000	18·3
St. Louis	333,577	18·8
Boston	375,000	20
Baltimore	393,796	20·9
London	3,254,260	21
Leeds	318,921	21·8
Glasgow	589,598	21·9
New York	1,203,223	23·4
Paris	1,988,806	24
Brooklyn	556,889	25·8
New Orleans	216,359	27·7
Lyons	342,815	27·7
Berlin	1,096,644	29·3
Dublin	314,666	32·9

Antidotes to Arsenic.

In the *American Journal of Pharmacy* for August, 1880, is an excellent method for preparing an antidote to arsenic, which is recommended by Dr. McCaw, a Canadian physician. The following is the formula: ℞. Tincture of chloride of iron, ʒ j.; bicarbonate of soda or potash, ʒ j.; tepid water, a teacupful. Mix.

Dr. McCaw gives a preference for this antidote over all others for two reasons: first, it formed the surest antidote; second, the ingredients are always accessible. That the ingredients are always accessible, the reader will readily see; that it is a sure antidote, I proved by the following experiment: Having prepared the antidote as above described, I let it drain on a filter for a short time, and then mixed a portion of the magma left on the filter with a solution of arsenic containing about half a grain. After stirring the mixture and filtering, the filtered liquid gave no evidence of the presence of arsenic by Marsh's test. This showed the antidote was a sure one.

I was also induced to test the efficacy of another antidote, viz., the freshly prepared sesquioxide of magnesia,* recommended by Bussy. ("U. S. Dispensatory," 14th ed., p. 30.) I dissolved an ounce of sulphate of magnesium in a small quantity of warm water, and added aqua ammonia to saturation, which threw down the proposed antidote. After draining for a short time on a filter, a portion of the magma was mixed with a solution of arsenic, and the mixture stirred and filtered. The filtered liquid gave no evidence of the presence of arsenic by Marsh's test. This would seem to show that the sesquioxide of magnesia is another sure antidote to arsenic, and the fact that the ingredients, Epsom salts and hartshorn, are so often found in the family, gives it an advantage over the antidote recommended by Dr. McCaw.—*Phil. Hoglan, in Pharmacist.*

*The author probably means the hydrated oxide, $Mg H_2O_2$, as we know of no sesquioxide of magnesium.—Ed. *P.*

MECHANICAL INVENTIONS.

Messrs. William G. Wilson and George S. Darling, of Chicago, Ill., have patented improvements in shuttle races for sewing machines. These improvements relate to circular race-ways for oscillating shuttles, and are designed to guide and steady the shuttle as it starts forward and insure its entering the loop of thread.

Mr. William E. Hill, of Big Rapids, Mich., has patented an improved machine for rolling and turning logs upon saw mill carriages and logways, turning the logs upon the head blocks, and pressing them back against the knees. It is simple, convenient, and effective.

An improved support for carriage tops, which can be adjusted forward and backward, as also sidewise, has been patented by Mr. Patrick B. Collins, of South Boston, Mass.

An improvement in bicycles has been patented by Mr. Henry W. Britton, of Stoughton, Mass. The object of this invention is to furnish bicycles so constructed that the rider can adjust his seat to keep it in proper position over the large wheel when riding upon inclined ground.

Mr. Jacob R. Scott, of Nyack, N. Y., has patented an improved machine for sewing boots and shoes, in which the stroke of the needle is automatically varied by the variation in the thickness of the material, so that each stitch will be drawn tight. The invention consists in devices operated by the presser foot to limit the upward stroke of the needle, and in a spring device attached to the horn for retaining the looper in the proper position relative to the needle. The needle bar is hung on a rocking lever supported on a vertical standard which rests at its lower end on a beveled slide block. The slide block is connected by a crank lever with the presser foot, so that the slide block is moved thereby to raise and lower the needle-carrying standard. The horn is fitted with a piece forming the bed and containing the looper.

An improved machine for grinding planer knives has been patented by Mr. Charles J. Le Roy, of Palestine, Texas. This invention relates to an apparatus that may be securely attached to the frame of a wood planing machine for grinding the revolving knives of the planer without removing the knives from its shaft or the shaft from its bearings upon the frame of the machine.

An improved saw-filing machine has been patented by Mr. Philip Bossert, of Lebeck, Mo. The invention consists in pivoting the file holder to a bar adapted to slide horizontally in a swinging frame that is pivoted to a carriage which slides parallel to the saw clamp.

An improved hub for vehicle wheels has been patented by Messrs. Alonzo Gandy and John R. Shugert, of Freeport, O. The object of this invention is to construct a hub for a vehicle wheel so that the box cannot move lengthwise or turn in the hub after the spokes are set, and so that the spoke tenons shall be potected from the contact of the hub or collars.

Mr. Francis Murphy, of New York city, has patented an improved apparatus for forcing exhaust steam from engine into boiler. The invention consists of two vertical cylinders with pistons, each having two suction and two discharge openings. The suction pipes connect with a closed tank, into which the engine exhausts; a check valve prevents the passage of the exhaust steam back to the engine.

Mr. George William Curtis, of Philadelphia, Pa., has patented an improvement in the class of car couplings in which the ordinary closed oval link is employed in connection with a coupling hook, which is pivoted and adapted to slide within a draw head.

Watchmaking in France.

Besançon almost monopolizes the watchmaking of France, all but 2,488 of the 444,798 watches manufactured last year coming from that town. Of the Besançon watches, 149,907 were gold and 292,403 silver, the whole being valued at over $4,000,000, half of which represents labor. Nearly all these watches are sold in France. The foundation of the watch trade at Besançon dates from the close of the last century, when a number of workmen from the Swiss side of the frontier, persecuted for their political opinions, took refuge there and were induced to remain. Since then this industry has continued to prosper; but it was not until after the conclusion of the treaty of commerce in 1860 that the business assumed anything like its present proportions. There is a school for teaching watchmaking at Besancon; but though liberally endowed by the municipality, it is said not to be well attended.

What Women Invent.

Some one who has taken the trouble to count the patents issued to women finds that the number for the year ending July, 1880, was seventy, or ten more than the average. Most of the inventions of women have to do with household appliance. Among the past year's are a jar lifter, a bag holder, a pillow-sham holder, a dress protector, two dust pans, a washing machine, a fluting iron, a dress chart, a fish boner, a sleeve adjuster, a lap table, a sewing machine treadle, a wash basin, an iron heater, sad irons, a garment stiffener, a folding chair, a wardrobe bed, a weather-strip, a churn, an invalid's bed, a strainer, a milk cooler, a sofa bed, a dipper, a paper dish, and a plaiting device.