THE JUBÆA SPECTABILIS PALM.

This very handsome palm, known also as the coquito palm, of Chili, is the only species of the genus, and is one of the most southern of American palms. It has a stout trunk, swollen in the middle, which, in its native country, sometimes attains a hight of nearly 40 feet. The summit is surmounted by a crown of large, spreading, pinnate leaves, of a full deep green color, and from 6 to 12 feet long, the leaflets being from 1 to 1½ feet long and about an inch wide, springing in pairs from nearly the same spot, and standing out in different directions. The leaf stalks are very thick at the base, where they are inclosed in a dense mass of rough brown fibers, which grow upon their lower edges. In an account of the Royal Gardens, at Lisbon, mention is made of a specimen growing there in the open air, which has attained a hight of 32 feet, and the trunk of which measures 13 feet 8 inches in circumference at its base. "In Chili," says the "Treasury of Botany," "a sweet sirup, called *miel de palm*, or palm honey, is prepared by boiling the sap of this tree to the consistence of treacle, and it forms a considerable article of trade, being much esteemed for domestic use as sugar. The sap is obtained by the very wasteful method of felling the trees and cutting off the crown of leaves, when it immediately begins to flow, and continues to do so for several months, until the tree is exhausted, providing a thin slice is shaved off the top every morning, each tree yielding about 90 gallons. The nuts are used by the Chilian confectioners in the preparation of sweetmeats, and by the boys as marbles."

The soil for this plant, says *The Garden*, from which we extract the engraving, should be a mixture of one half rich loam and one half a compost of peat, leaf mold, and sand. It withstands the winters in the open air near London, in a poor condition; but if grown in tubs in the conservatory in winter, and placed in the open air in summer, it will prove an excellent subject for association with the hardier palms.

THE JUBÆA SPECTABILIS PALM.

Gurjun Oil in Skin Diseases.

At a late meeting of the Medical Society of London, Professor Erasmus Wilson showed some of this new remedy, and stated that this material, which was also called wood oil, was an oleoresin, obtained from several species of the *dipterocarpus*, an immense tree growing on the Malayan coast of the Bay of Bengal, where it was so common as to be used instead of paint, for houses and ships.

In March, 1873, Dr. Dougall, of the Indian Medical Service, took charge of the convict establishment of the Andaman Islands, when he found twenty-four of the prisoners suffering from leprosy. He was deeply impressed with the misery of these poor people; and realizing the impracticability of availing himself of all known methods of treatment, he hit upon the idea of trying the gurjun oil, both as an internal and external remedy, and determined upon giving it a six months' trial. Dr. Dougall's method was to have the patients washed thoroughly in a neighboring stream, using dry earth instead of soap. They were then made to rub themselves for two hours with a liniment composed of gurjun oil and lime water, one part to three, and to swallow two drachms of the balsam, also combined with lime water. After this they had their breakfast, and were set to any work they were capable of doing. In the evening the same process was repeated, except the washing. The effects of this treatment, at the end of six months, were marvelous. Neuralgic pains were allayed, sensibility was restored to the anæsthetic skin, tubercles subsided, and ulcers healed. Dr. Dougall was astonished at the energy of these formerly helpless ones.

Mr. Erasmus Wilson remarked that he had used a liniment composed of equal parts of the gurjun oil and lime water, in cases of painful eczema, in lupus, and in cancer, with very encouraging results, and stated that Mr. Hancock had applied it in a case of cancer of the skin, with the effect of dispersing tubercles and healing ulcerations; but its most useful property was that of relieving pain. A lady in constant pain from cancer of the integument, who had been unable to sleep without narcotics for weeks, was relieved of all suffering, and enabled to sleep, by means of this liniment. Mr. Wilson suggested that this very simple remedy deserved a trial at the hands of the profession, and believed that it would be found a valuable agent of cure in many affections where the skin was painfully attacked.

A Vehicle Dynamometer.

The Royal Agricultural Society of England has recently employed a new instrument for determining the amount of work done in hauling vehicles along a circuitous course, the maximum, minimum, and mean pulls exerted, and the irregularity of strains arising from the varying rigidity of the load. The device is in brief a skeleton horse mounted on wheels and drawn by horses. It is harnessed in the shafts, and the body contains the necessary apparatus. It is believed that the figures obtained will give accurate results regarding the vexed questions of broad and narrow, large and small, wheels, hight of load, weight on horse's back, etc.

From a description of the invention published in the *Engineer*, we learn that it consists of a pair of parabolic steel springs, 4 feet long and connected together by a single joint at one end and a double one at the other. The front blade of these springs is attached at the middle of its length to a horizontal cast iron bed plate which forms a rigid foundation. The back spring plate is attached to a horizontal spindle, supported at its front end in an iron pedestal and at its back end in an oil cylinder. Between the bearing and cylinder, a cast iron swiveling draft plate is loosely jointed to the spindle. This swivel plate is designed to represent the shoulder and collar of a horse, and is fitted with draft chains and hooks, similar to those on collar hames. Beneath the draft plate are castors arranged to run upon the bed plate. The draft plate, with its joints and castors, will transmit the direct, horizontal components only, of the pull on any vehicle, to the main spindle, and will eliminate the transverse components of angular pulls, whether in a vertical or horizontal direction. A lever is jointed to the spindle to multiply any movement of the spindle three times on the horizontal counter bar above it, which carries in bearings upon it a small integrating disk, which touches and is set in motion by a large disk, which in its turn is driven at the rate of one revolution to the yard by a suitable beveled gear from one of the hindermost traveling wheels of the instrument. The driving gear to the large disk registers distances traveled in yards upon another counter. The moving counter bar has a pointer which indicates the draft at any time in pounds on an adjustable scale attached to the frame, and also a suitable arm, having a metallic pencil at its end, which will describe the variations of draft on a sheet of metallic paper wound round a cylinder, which is set in motion at will, at a speed proportional to the distance traveled. The ordinary saddle chain, usually attached to one of the shafts of the cart, is passed over a light wrought iron saddle suspended from one end of a lever; the load resting on the saddle, representing that on a horse's back, is registered on a spring balance at the other end of the lever. If found necessary for going down hill, "breeching" chains may be attached to the back end of the instrument, and in hauling carts a belly band may be passed beneath the instrument to avoid any risk of tilting backwards. For quickly testing the springs in the field, a bell crank lever is provided, having arms, one of which is connected with the main spindle, and the other can be loaded by known weights. The instrument is mounted upon a timber framed carriage, having four broad cast iron wheels. The carriage can be raised or lowered between moderate limits.

With this, as in other instruments, the actual number of foot pounds of work done in any experiment is determined by simply multiplying the register of the integrating counter by a constant depending on the spring in use. The product so obtained, divided by the number of feet run as indicated by the distance counter, gives the mean draft during the experiment. The actual draft at any time is indicated by the pointer, and also on the metallic card, if it is put into gear. It is obvious that this apparatus will have a very wide application, especially in the trial of reaping and mowing machines, portable engines, artillery, and in fact all vehicles drawn by shafts, and also in ascertaining the comparative resistances of roads for any given vehicle.

Dog Dentistry.

It is well known that the bites of rabid herbivorous animals are rarely dangerous, because their teeth are made flat-faced, for grinding their food without penetrating or tearing the tissues. Hence their bite is little more than a severe bruise, differing from that of a carnivorous animal, which pierces immediately through the skin. A veterinary surgeon of Paris, M. Bourrel, recently captured three mad dogs and, tightly securing them, proceeded to file down the teeth. These animals he let loose with six other dogs. The latter were immediately furiously attacked and frequently bitten, but in no case did the pointless teeth inflict more than a bruise. Not content with this, M. Bourrel put on a thin kid glove and then worried the mad dogs with his hand until they bit him several times. Although pinching quite hard, the glove was not broken in a single instance, while the skin beneath was uninjured.

As to whether we had better substitute a city dog dentist for the present pound master, we leave the question to the humanitarians who are endeavoring to abolish carbonic acid and the muzzle.

New Process of Determining the Alcohol in Wines.

If to a known volume of water larger and larger quantities of alcohol are added, the density and the superficial tension of the mixtures obtained are simultaneously diminished, and consequently there is an increase in the number of drops which they form if allowed to flow slowly from a given aperture. If this aperture has constant dimensions, the number of drops corresponding to each alcoholic mixture is constant also. The difference between the numbers thus found is large enough to furnish a basis for a very sensitive alcoholometric method. The instrument proposed is a pipette holding 0 3 cubic inch. It is filled with the alcoholic liquid under examination, and the number of drops escaping is counted. From this number the proportion of alcohol is calculated by the aid of tables which the author has drawn up. Slight traces of liquids more diffusible than alcohol, such as acetic ether, greatly increase the number of drops. —*M. Ducleaux.—Chemical News.*

Theory of Dissociation or Thermolysis.

The theory of dissociation may be summed up in the following propositions: 1. Dissociation is the opposite process to chemical combination, the gaseous body resuming its molecular motion which it lost on combination as heat, and converting it into a new form of motion. 2. The amount of heat which the dissociated bodies take up is exactly equal to that which they lose on combination. 3. The temperature of separation is higher than the temperature of combination. 4. Compounds whose constituents are not volatile cannot be separated by heat.—*Fr. Mohr.*

A New Double Ship.

Some years ago there were employed on what was then termed the Navy Yard Ferry, between New York and Brooklyn, a set of steam ferry boats having double hulls, propelled by a paddle wheel placed in the middle, between the hulls. The two vessels were coupled together by strong beams, and covered by a broad deck. These boats were roomy, and gave satisfaction except that they were slow.

Recently, in England, they have launched a new ferry boat, built on the above general plan, intended to ply across the English Channel, between Dover and Calais, 22 miles. At present they run very small boats, and passengers are greatly troubled with sea sickness. The new boat has two hulls, each 17 feet wide and 290 feet long, separated 26 feet, and united by a deck or superstructure 60 feet wide and 183 feet long. This makes a broad and comfortable boat for passengers, and will be a great improvement over the existing vessels. The new ship has been christened the Castalia. She will be propelled by a central wheel, with engines of great power. Each hull has a rudder at the bow and stern, making four rudders in all.

Palm Paper.

Mr. James P. Herron, of Washington, D. C., has invented a process of making paper from varieties of the palm. The material is cut or torn into pieces of suitable size, then cooked in a close digester, with thorough agitation and under steam pressure, in a weak solution of alkali, naphtha, benzine, or soap; then it is completely ground, while steam passes freely through the grinder and intermingles with the stock, reducing, bleaching, and finally washing it.