

**A MODERN ORCHID HOUSE.**

The beautiful tribe of orchids, are deservedly favorites with all lovers of graceful foliage; and we present herewith a view of a greenhouse devoted to their cultivation. A correspondent of the *Gardener's Chronicle*, who recently visited the extensive grounds in which this house is situated, states that in this garden (which, among other curiosities, compels fuchsias to do duty as bedding plants), there are at least 20,000 species of plants, grown in the garden, in some form or another. Every nook and corner, every house, every pit, every rockery, every border, teems with interesting plants of some sort or other.

Of orchids, the number is legion, and several houses are assigned to them. The owner, Mr. Saunders, does not confine his attention to the large flowered showy species, but includes in his collections a veritable host of the smaller flowering kinds whose blossoms yield in nothing but size to their larger compeers. Their beauty is, when looked for, quite as striking, often more so; while their conformation is very generally more interesting and extraordinary. These orchids swarm everywhere; above, below, on each side; and to make room for more, an ingenious device is adopted: that of erecting curved or bowed wire trellises along the sides of the houses near the glass; on these bows the tiny orchids cluster. Too thick, we hear some one say; not a bit of it. They are in the finest condition and vigor; the plants are not large, but they are in perfect health; and what roots they make!

If we were to describe literally a *catactum* of no great size which we saw hanging in a basket from the roof, we should scarcely be believed. Equally remarkable is the manner in which the roots in other cases cover the pots with a perfect network, creeping from pot to pot, more as *Creeping Jenny* would do than like an ordinary orchid. The secret of this unusually luxuriant root growth, Mr. Saunders believes, lies in the due aeration of the roots. He is a great advocate for the free access of air to the roots; and when the peculiar habit of orchids is considered, and the special structure of their roots borne in mind, there can be no doubt as to the soundness of his physiology.

A writer in the *Garden* recommends that every one who has convenience should grow the cool or mountain orchids. There are two distinct classes of amateurs who affect orchid culture, namely, the class who really love the plants for their sweetness and beauty, and those who grow them on account of their rarity and value. The latter strive mainly to possess rare plants, of which there are only a limited number in the country, and willingly pay high prices for them; while the former grow only the most beautiful, and think that the cheaper they can be obtained, and the more they are growing, the better. To the latter class the author claims to belong, and he says that he commenced orchid growing three years ago in a little lean-to fernery, on the north side of a high brick wall; and the house being naturally humid, his first pair of plants—*odontoglossum cordatum* and *o. Bictonense*—grew and flowered so vigorously that he was induced to add plants from time to time, until his little collection now numbers upwards of fifty species, and occupies the whole of the front shelf, the back of the house being formed of rockwork and planted with half hardy exotic ferns. No fire heat is used during the summer months, and the temperature rarely exceeds 55° during winter, except by means of sun heat, while it frequently descends as low as 40° on sharp frosty nights. In potting, small pots, well drained, should be used, and the compost is fibrous peat, coarse sand, and about one fifth of living *sphagnum*. The moss grows freely on the pot tops, and not only gives them a neat and clean appearance, but also keeps the roots of the plants moist; while at the same time, it keeps the compost clear of slimy confervoid growth, to which wet peat is generally subject. The plants require a liberal supply of water at the root nearly all the year round.

**The Lava Overflow of Oregon.**

Professor Le Conte, at a recent meeting of the California Academy of Sciences, stated that the great overflow of lava in the West proceeded from the Cascade Mountains in Oregon which were of themselves one vast mass of lava. From this point, the lava overflowed a great portion of Oregon Washington Territory, all of northern California, and vast sections of Nevada, Montana and Idaho. The lava floor covered an area of at least two hundred thousand square miles, as far as explored, and it would probably be found to extend

over a surface of three hundred thousand square miles, as its limit northwest had never been determined. The depth of the lava crust varied from upwards of three thousand feet in the Cascade and Blue Mountain region to one and two hundred feet and less at remote points on the outer edge of the overflow. Where the tremendous gorge of the Columbia river cut through the lava bed, it had a depth of three thousand five hundred feet. The eruption was comparatively recent, belonging to the latter part of the miocene period, extending perhaps into the post tertiary.

**Splicing Railway Carriages.**

Mr. W. H. Mills, the general manager of the Mexican Railway (from Vera Cruz to Puebla and Mexico), finding the short English cars unsuitable to the sharp curves of a newly opened extension of the line, decided to splice them together in couples, with a four wheeled American bogie truck under each end.

The carriages offered special advantages for this splicing together. The main frames, which are of rolled wrought iron, have been spliced or fished together with strong



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wrought iron joint plates 3 feet 6 inches long, well riveted, thus making each of the main frames in one continuous piece or girder. To assist in stiffening these frames, three tension or truss rods 1½ inches in diameter have been placed and carefully adjusted under the carriages. The carriage bodies, which are of teak, have also been strongly bolted together at the sides and roof. A four wheeled center pin bogie truck built by Gilbert, Bush & Co., Troy, N. Y., has been placed at each end of the carriage. In addition, the Westinghouse air brake is fitted up on all the carriages of the Mexican railway; one brake placed on the top of the carriage applies the brake shoes, which are of iron, to all the eight wheels at once.

The result of this splicing of two carriages together has been a perfect success, and all those that have been thus treated are now by far the easiest and smoothest running carriages on the line.

**THE DIAGNOSIS OF LIPOMATA.**—An excellent suggestion is made in a French journal. A character peculiar to lipomata resides in the property, belonging to all fatty tumors, of hardening under the action of cold. When, after the use of ice or the ether spray, in the case of a doubtful tumor, the growth becomes harder, the presumption is that it is lipoma.

MR. THOMAS SUTTON, the photographer, states that, if calico is dipped for an instant in dilute sulphuric acid, it is rendered waterproof.

**The Causes of Decay of Teeth.**

It has been charged against our brethren of the dental specialty, says the *Lancet*, that they are woefully at fault in regard to knowledge of the commonest of all things—caries of the teeth. That they extract teeth with skill, and stop them with even more skill, and in a nobly conservative spirit, is admitted; but the causes of decay in the teeth have remained obscure. The investigations of Leber and Rottenstein into this subject have at least the charm of pointing to definite conclusions. They admit, of course, that there are differences of teeth, constitutional and connected with race, making teeth more or less resistant to the great influences which determine decay. These are not, according to these authors, internal and vital so much as external and chemical. The process of decay begins from the surface, and if it can be controlled or arrested at the surface, it is entirely controlled. The great causes of caries are two, namely, acids and a certain fungus found abundantly in the mouth, *leptothrix buccalis*. This latter agent is characterized by certain microscopic appearances and by its reaction with iodine and acids, which give to the elements of leptothrix a beautiful violet tinge. Under the microscope the fungus appears as a gray, finely granular mass or matrix, with filaments delicate and stiff, which erect themselves above the surface of this granular substance so as to resemble an uneven turf. The fungus attains its greatest size in the interstices of the teeth. No one can deny nowadays the action of acids on the teeth, even weak acids, in dissolving the salts of the enamel and the dentine. All acids, both mineral and vegetable, act promptly on the teeth. Various experiments as to the action of acids on dental tissues are given, making the enamel, naturally transparent, first white, opaque, and milky, and, in a more advanced state, chalky, and then the dentine more transparent and softer, so as to be cut with a knife. The acids which may actually effect the first changes in the production of caries are such as are taken with food, or in medicines, or such as are formed in the mouth itself by some abnormality in our secretions, which should be alkaline, or by an acid fermentation of particles of food. But acids alone will not account for all the phenomena of caries in the teeth. They play a primary and principal part, making the teeth porous and soft. In this state, the tissues having lost their normal consistency, fungi penetrate both the canaliculi of the enamel and of the dentine, and by their proliferation produce softening and destructive effects much more rapid than the action of acids alone is able to accomplish. It is not pleasant to think that fungi exist in the mouths of all but the very cleanest of people. Bowditch, in examining forty persons of different professions, and living different kinds of life, found in almost all vegetable and animal parasites. The parasites were numerous in proportion to the neglect of cleanliness. The means ordinarily employed to clean the teeth had no effect on the parasites, while soapy water appeared to destroy them. If this be a true version of the causes of caries—the action of acids, supplemented by the action of

fungi—then it follows that the great means of preserving teeth is to preserve the most scrupulous cleanliness of the mouth and teeth, and to give to the rinsing liquids a slightly alkaline character, which is done by the admixture of a little soap. This is not so pleasant a dentifrice as some, but it is effective and scientific. Acids not only dissolve the salts of the teeth, but favor the increase of the fungi of the mouth. No increase of fungi and no action on the dental tissues occurs in solutions slightly alkaline, such as a weak solution of soap. The good effects of stopping teeth, in the light of these experiments, are intelligible. The penetration of acids and fungi is prevented.

**That \$40,000 Cow Again.**

It seems that the sale of the celebrated Eighth Duchess of Geneva, a shorthorn cow, recently referred to in our columns, knocked down at the New York Mills auction to Mr. R. Pavin Davis of Gloucestershire, England, at the enormous price of \$40,000, was effected through a mistake. The agent of the purchaser, during the excitement of the bidding, became confused as to the relative value of the pounds sterling and dollars, and offered far beyond his authorized limit. His principal immediately, on learning of the bargain, ordered the sale of the animal, which was recently consummated to Colonel Lewis G. Morris, of Fordham, N. Y., report says for the sum of \$30,000. The highly valued animal, therefore remains among the American breeders.