

Show is the Wonder of Admiring Thousands

SUN YIELDS TO ELECTRICITY

Very Latest Development in Modern Experimental Science.

VEGETATION BY ARC LIGHT

Radio-Culture is the Name that is Given to the New System of Supplementing the Rays of the Sun.

"Electrically ripened strawberries." "Try our arc-lamp lettuce." "Insist on having electrically grown violets: do not be imposed upon by the sun-raised flower," such may be some of the announcements which may meet the eye of the system of plant growing under electric light described by Messrs. S. L. Bastin and G. Clarke Nuttall, B.Sc., in the World's Work (London) for April, develops the commercial possibilities of which it gives promise.

As long ago as 1889 the eminent English scientist, Sir William Siemens, exhibited to a meeting of the Royal Society some strawberries which had been brought to perfection by the rays of an arc lamp, and later Prof. Lemstrom demonstrated that not only the flowers, but the roots also of plants could be powerfully stimulated by the electric current. Hitherto, however, investigations in this field have been mainly confined to the laboratory, and neither the market gardener nor the wealthy amateur plant grower has taken up the matter seriously. The method described in the World's Work is that of Mr. H. W. Thwaites, a civil engineer of many years' experience, and it is heralded in the following glowing terms:

Substitute for Sunlight.

"It has been proved beyond a shadow of a doubt that the beams from an electric arc lamp form a reasonable substitute for sunlight and a very good one at that. Under this new system the productivity of the plant is enormously increased, especially during the winter months. * * * The production of a plant in November and December is increased four and eight and one-half times respectively. The significance of this cannot be gainsaid, for under this system the grower is placed practically on the same footing as his envied competitor in California. Should these rosy expectations be realized in actual practice, the prospect opened is surely a most alluring one. The huge importations of foreign material would be almost unwarranted in a country which had an unlimited store of artificial sunshine at his command. The British grower would be placed in a strong position that he could vie with the almost compeer of his rivals to get the best of him on the market—in fact, something like a millennium in the horticultural world would have been reached."

The chief characteristic of Mr. Thwaites' project is its extreme simplicity, while at the same time it is far and away the most practical that has yet been advanced. It appears that the feeding, heating and lighting of the plants are all accomplished by means of a gas engine. A water jacket on the engine provides the heat and the perfect illumination of each part of every

plant is secured by the aid of an arc lamp, which is slowly moved all round the glass house and which can be placed in any position. It is claimed that the cost of heating by this plan is much less than by the ordinary furnace and boiler.

Interesting Tests at Cornell.

In speaking of the numerous experiments that have been made the writers in the World's Work refer to the notable series conducted at the Cornell University Agricultural station.

"Here a variety of market-garden plants, such as lettuce, endive, radishes, beets, spinach, cauliflower, were selected for operation and placed in a cool glass house. This house was divided into two compartments in such a way that a large electric lamp suspended outside and lighted by the ordinary street system could illuminate one compartment and not the other. During the day the whole house was exposed to daylight, but when night came one compartment was flooded with electric light and the other remained in a state of darkness. * * * After 11 o'clock at night both compartments were dark till daybreak."

The best results were obtained with lettuce, and spinach was in a month 10 to 15 per cent better than that grown in the ordinary way. Violets, daisies and other flowers bloomed more profusely and considerably earlier when stimulated for some hours nightly by the electric light.

What Has Been Done in Paris.

In Paris some experiments were conducted under very different conditions. A selection of plants, such as the water lily, geranium, sycamore, pea, strawberry, maize, etc., was kept in the covered market hall under suitable conditions as regards ventilation and moisture. The arc lamps were then turned on and kept alight unceasingly for six months. The results proved that continuous light tended not to stimulate, but to stunt the plants. One very curious condition was, however, induced—all the plants were intensely green. This question of color is dealt with by Mr. Clarke Nuttall in a separate paper in the same number of the World's Work.

All kinds of plants, such as oaks, maize, geranium, flax and strawberries, were grown under red, green and blue glass and in the ordinary transparent glass house.

"The net results of all experiments was that in the red light the plants flourished exceedingly and far outstripped their contemporaries in the normal class, while they were poles apart from the plants that had been assigned to the blue light, which had made no appreciable growth. * * * In the green glass-house plants took up an intermediate position; sometimes they were larger, sometimes smaller, than the normal; mostly they were inferior either in stockiness or health."

Power to Change Nature.

It was also found possible to change the color, shape, and size of leaves by varying the rays of the spectrum that illuminated them. It has also been found that the production of scent by a plant can be considerably increased by colored rays of light.

"In red light strawberry fruits have a most powerful strawberry odor, far surpassing that of the normal fruits, while the little crassula, which has naturally little or no scent to boast of, has a delicious fragrance almost like that of a banana. * * * The scent remains when

the plants are gathered and placed in a room."

Radio-culture, as this system of plant growing under colored glass is called, is still in the experimental stage; but it is ready suggests the building of red-colored glass-houses for forcing. The light itself will supply the stimulus without additional heating and manuring. And, more important still, as blue light is found to preserve the plants in a stationary condition.

"Instead of attempting to force plants into maturity out of the season, might it not be possible to take them when naturally blooming and keep them for longer or shorter times unchanged by its means. Why not retarding, rather than forcing, houses?"

LIGHT CURE FOR PAIN

Five Hundred Candle Power Does What Medicine Will Not Do.

Experiments are in progress at the New York Skin and Cancer hospital for the alleviation of pain by the use of intense light. So far the physicians are unwilling to express any definite opinions as to its efficacy, and content themselves by saying that their hospital tries every device which promises to be of assistance in curing or alleviating cancer. The results with the "light cure," however, have been sufficiently satisfactory to induce them to continue the experiments.

The patient is subjected to what is known as the lucidescence light. It is the ordinary electric light of 500 candle power, focused by parabolic reflectors on two spots. It is turned upon the seat of pain for fifteen or twenty minutes at a time, and much care has to be taken to prevent the burning of the flesh. The treatment is repeated two or three times at intervals of three or four hours, and in many cases the pain is reduced or driven away for several hours afterward.

So far the hospital physicians say they cannot explain in what way the light acts. They do not think it has any therapeutic value aside from the relief from pain, but they find it very useful for that. One of them said that he tried it upon himself for a raging toothache, and had found it drove the pain away for several hours.—New York Times.

New Cable in New York Harbor.

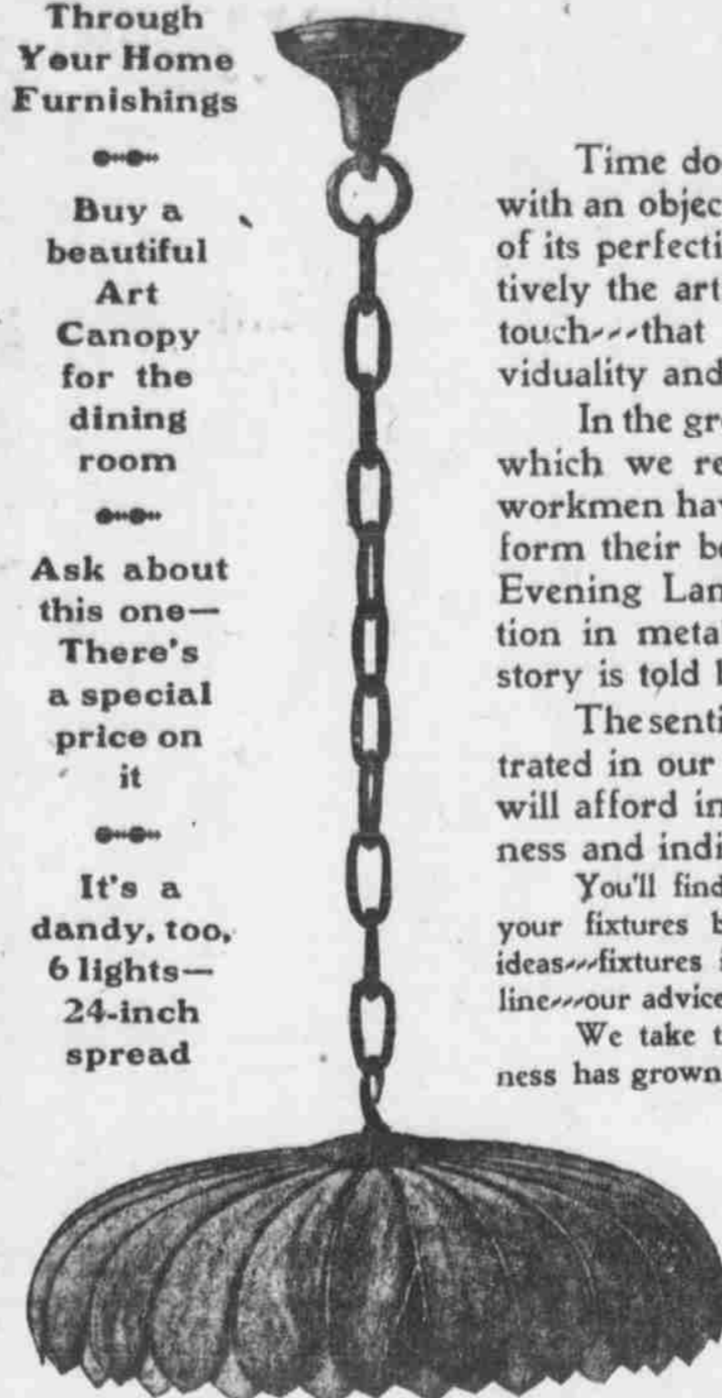
A government cable was laid, replacing the damaged cable from the New York barge office to Castle William, last week by the cable ship *Cyrus W. Field*. It took the *Field* twenty-two minutes to run out the 3,400 feet of cable, and thirty-five minutes to haul the old damaged cable in. The *Field* is an odd looking craft, with a huge reel at the winding on of cables. It patrols the coast from Maine to Fort Monroe, with the sole duty of looking out for the government cables. The craft belongs to what might be termed the army's navy—for the secretary of war has a mighty fleet under him.

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