

FUSED QUARTZ AS AID TO HEALTH

Makes Healing Ultra-Violet Rays Independent of Sun.

New York.—The perfected method of making fused quartz in quantities, as announced recently by the General Electric company, is expected to make man independent of the sun's rays so far as his ability to obtain ultra-violet rays are concerned, according to the opinion of scientists now engaged in experimenting with the newly developed material.

E. R. Berry, assistant director of the Thomson research laboratory of the General Electric company, announced that he had enlisted the services of Dr. W. T. Bovle, professor of bio-physics at Harvard medical school, and Dr. Clarence C. Little of the University of Maine and their institutions to further important experiments in the use of fused quartz.

The property which makes fused quartz stand out above all others is its ability to transmit ultra-violet rays, the healing chemical rays which, emitted by the sun, cause sunburn. These rays are excluded by ordinary window glass.

Now that Mr. Berry has made it possible to produce fused quartz in quantities, efforts are being made to learn whether it will be practicable to use the material in the extensive manufacture of electric bulbs.

Independent of the Sun. "If we can provide artificial illuminants that will emit ultra-violet rays we won't have to depend on the sun, which is so uncertain in winter," said Doctor Bovle. "We can get the sun's effects on cloudy days by using quartz bulbs or tubes with incandescent light."

Doctor Bovle is planning to erect on the grounds of Harvard university a greenhouse glassed with quartz in which will be determined certain effects of the rays upon growing plants with a view to applying any knowledge thus gained to improving human health or preventing human disease. Experiments with a similar object are to be made in the University of Maine laboratories, where conditions are considered especially favorable.

While those who have undertaken the experiments with quartz desire to refrain from raising false hopes as to the possibility of curing or preventing certain stubborn diseases, they feel encouraged that infant mortality from rickets, particularly in crowded cities, may be further reduced as a result of the work.

"We all know that exclusion of light results in the blanching of plants," said Doctor Bovle. "They may become more succulent for table purposes, but their tissues are not stout and well developed. This is because calcium and phosphorus salts are not deposited in the absence of the ultra-violet rays in sunlight."

"Similarly, if babies are submitted to the same absence of sunlight, or of ultra-violet rays, their bones do not grow, and hence rickets set in. This is a common disease, how common is not generally realized. It is perhaps little realized, either, that it is prevalent among the babies of the well-to-do who are not allowed to play in the streets."

"Remember that playing in the sun, behind window glass, does not expose the children to these beneficial rays. However, quartz windows which do admit these rays are now entirely within the bounds of possibility as a result of Mr. Berry's work."

The Havoc of Rickets. "But to get back to rickets. Autopsies on babies in Dresden showed that of those who were born in the fall and died in the spring, 96 per cent had rickets. Of those who were born in the spring and died in the fall only a very small percentage had rickets. The babies born in the spring were outdoors in the sunlight during the summer."

After remarking that the sun's effects could be obtained on cloudy days by the use of quartz bulbs, Doctor Bovle added: "Certain foods act sympathetically to sunlight. It is inconceivable that we could light our restaurants with sources of ultra-violet light so that while partaking of foods rich in phosphorus and calcium we could partake of light energy that would enable us to utilize these salts in normal manner."

"There are diseases other than rickets which are due to faulty metabolism, the 'machine gun sneeze' is one. Such diseases might be alleviated by feeding calcium lactate and using ultra-violet light in connection with it."

"Altogether, the availability of quartz suggests very interesting possibilities. With Doctor Little we are undertaking the investigation of the effects of the ultra-violet rays on the calcium metabolism of milk cows. The object, of course, is to see if the rays can have any effect on the milk we feed our babies. It is not improbable. Other animals feel the effect of the lack of these rays. Deep-sea fish do not produce bones, though living in water prodigally saturated with calcium salts. Fish of the same species living in the upper water, where the sun rays strike through, have bones in profusion."

Ultra-Violet Rays for Poultry. "Likewise poultrymen in the North are unable to grow chickens for early market satisfactorily. In the darkness of long winters the chickens suffer from 'weak legs.' This is nothing but rickets and ultra-violet rays cure them. Hughes of the Kansas ex-

periment station exposed hens to ultra-violet rays ten minutes a day and doubled their egg production. Further, the weight of the individual egg was increased 20 per cent.

"I am personally convinced that pine trees in our forests, deprived of light, suffer from rickets just as humans do. We shall hang ultra-violet quartz lights about the woods in the course of our experiments and see what the result is."

Doctor Bovle pointed out that the employment of ultra-violet rays is not new, that they were used by Egyptians, Romans and Greeks, but that their chemical nature was not known. Their identification and control are of recent accomplishment. Among others, Flinsen in Copenhagen succeeded in curing a skin form of tuberculosis and in showing the beneficial effects in the treatment of smallpox.

"In America, however, progress has been retarded and some such event as the production of this quartz has been needed to redirect attention to the subject," said Dr. Bovle. "American doctors did not understand the scientific side of ultra-violet therapy. Its use developed into a bad form of quackery. Apparatus called ultra-violet lamps which did not emit any of the rays Flinsen relied upon were used. The result has been that many reputable physicians of America have refused to have anything to do with it."

Essence of Sunlight the Year Round. Those conducting experiments with fused quartz point out that if the new quartz merely makes it possible eventually for the average home to have the essence of sunlight, artificial or natural, the year round, in bad weather and good, its meaning in health to countless thousands who, "grown under glass" have been deprived of the beneficial qualities of sunlight, heat excepted, is likely to prove measureless. It is believed that the action of the ultra-violet ray is sufficiently well known to make this possibility a prediction and that indoor living, or residence in regions overcast for long periods, need not be so hazardous in the future. If the views of some scientists are to be accepted, Mr. Berry will be regarded as the man who made "perpetual sunshine" possible.

"There are now opened possibilities of studying the effect of ultra-violet rays on the fundamental instinct of migration and hibernation and upon the inherited characters of animals and plants," according to President Little. "It will be possible also to compare the effect of ultra-violet and X-rays on identical material."

"Also, the fact that strains of mice at the university's laboratory have long been used for research with cancer lays open a field of prospective value in the relation between ultra-violet rays and biology and medicine."

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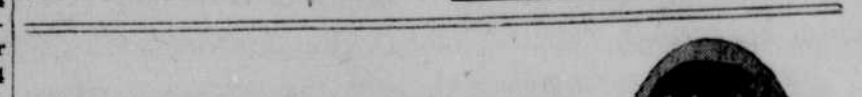
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