

high transmission of ultraviolet through popular window papers has already suggested to local medical institutions the use of such window materials in their tuberculosis clinics; owing to the high cost of ultraviolet transmitting glasses manufactured in the West, paper permits a very great economy."

The extra transmission of window paper for the ultraviolet rays has been

recognized in a rough way before. How much better was the paper has never been exactly known, however.

Physicians disagree on whether the apparently lower incidence of rickets among Oriental children is due to the use of the paper in the windows of their homes or to the difference in the type of clothing they wear.

*Science News Letter, March 16, 1935*

MEDICINE

## Rare, Fatal Muscle Weakness Checked by New Treatment

CONQUEST of a rare and usually fatal disease of muscle weakness seems a little closer, with the announcement by physicians in London of a new method of treating it.

The remedy, a complex chemical having the trade name of Prostigmin, is not a cure and provides only temporary relief. It is important, medical scientists point out, not only because it gives greater relief of symptoms than anything so far tried, but because it attacks the seat of the disorder. Apparently it repairs the mechanism damaged by the disease and consequently should lead to an understanding of its cause and possibly eventually to its cure.

Results of Prostigmin treatment in seven cases of the disease have just been reported by Dr. E. A. Blake Pritchard of University College Hospital (*Lancet*, Feb. 23). Dr. Pritchard used this treatment following the report by Dr. M. B. Walker, of St. Alfege's Hospital, of unmistakable improvement she observed in three patients treated with Prostigmin.

Myasthenia gravis is characterized by gradual weakness of the muscles, although they do not waste away. The

patient first notices that he is getting very tired. He sees double. Then he may have trouble in walking, or in lifting his arms or in grasping things. His jaw muscles become weaker, finally they may be so weak that he cannot chew. Various remedies have been tried, none, according to Dr. Pritchard, as successful as Prostigmin.

Dr. Pritchard found that his patients showed some improvement within the first five minutes after injection of Prostigmin and atropine. The latter drug is given to counteract the effects of Prostigmin on the heart. Within thirty minutes the patients improved to a degree far greater than when treated by any other method.

One young woman whose facial muscles had become so weak that she could not keep her mouth shut and had to support her jaw continuously with her hand, was able within a half hour to clench her teeth, blow out her cheeks with air, whistle and speak clearly. Unfortunately, the effect of the drug began to wear off within a few hours and was almost completely lost within eight hours.

The cause of this strange disease is

not known but it seems to be due to interference or blocking of the messages from nerves to muscles. According to the theory, stimuli to muscles, the orders to go into action, are conveyed by the liberation at the nerve endings of a substance called acetylcholine. In myasthenia gravis the order for action is not delivered to the muscles, either because not enough acetylcholine is formed or else because it is destroyed too rapidly.

Prostigmin appears to correct this fault, probably by delaying the destruction of acetylcholine at the endings of the nerves that give orders for muscle action, the editor of *The Lancet* says in commenting on Dr. Pritchard's results.

The ultimate usefulness of Prostigmin as a remedy for myasthenia gravis is somewhat doubtful, since this same medical authority points out that "it has yet to be learned whether frequent injection of the drug does more good than harm to sufferers from this disorder." But because its effect is more than palliative in that it affects directly the mechanism that is out of order, Prostigmin may prove a most significant clue to final solution of the problem of what causes this disease and how it may be cured.

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ENGINEERING

## Moscow Subway Now Ready for Opening

MOSCOW'S first subway is now ready for its official opening. A test train recently rolled over the seven miles of track.

To rush the job through 75,000 workmen were employed during 1934. What the 75,000 did in the two years was this:

Excavated 2,300,000 cubic meters of earth. Used 300,000 tons of cement; 580,000 cubic meters of timber; 90,000 tons of metal; and 960,000 cubic meters of rock, gravel and stone.

In the fifteen stations there are thirteen escalators in contrast to American subways where all but the deepest stations are "walk ups."

Scores of ancient and forgotten rivers and swamps were discovered as the track was pushed underground. Quick-sand and water-saturated sands offered technical problems successfully solved by construction engineers. An additional twelve and one half miles of track are already planned.

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