without dangers of injury to the eye or production of rapid erythema. The nature of the light is similar to daylight, and all objects appear in their natural colours. For this reason the lamp should be of practical use in photography and for general purposes of illumination. The spectroscopic examination and the biological investigations which have been described show that this lamp transmits rays of therapeutic value, and is in many respects "artificial sunlight." The lamp is manufactured by the Hewittie Electrical Company, Ltd., Horsham, Surrey.

THE INFLUENCE OF MOVEMENT ON THE TRUNK OF THE HUMAN BODY.

(NOTES ON PHYSIOLOGY AS SHOWN BY A STUDY OF SCOLIOSIS.)

BY

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In a study of the possible movements of individual vertebrae and the vertebral column as a whole, made prior to 1911, it was found that rotation of the trunk by means of the upper extremities was followed by rotation of the lumbar vertebrae in one direction and of the dorsal vertebrae in the opposite direction. This discovery of an apparent paradox led to an avid study of the influence of movement on the vertebral column. The study was undertaken in the hope that some light might be thrown on the subject of pathological scoliosis. In this brief paper will be shown what has been learned of the physiological in the study of the pathological.

The word "scoliosis" is taken from the Greek, and signifies twisted. It means more. At the time these studies were begun it was felt that there were two types of pathological scoliosis—namely, "functional" scoliosis and organic scoliosis. The first was characterized by lateral deviation of the spine and rotation of individual vertebrae without apparent change in their internal architecture. The second was characterized in addition by distinct bony change.

As years have passed it has become more common to accentuate the fact that scoliosis may be physiological or pathological. Of physiological scoliosis it may be said that the trunk assumes this position many times each day. Physiological scoliosis is due to posture, and in it there is never any change in the architecture of the individual vertebrae. Whenever the trunk is rotated or bent to the side a certain definite roll of the component parts of the trunk takes place. This roll forms a picture which is known as physiological scoliosis, and is the counterpart of pathological scoliosis. Every attitude is either one of strain or non-strain. Thus it is felt that physiological scoliosis may be the forerunner of pathological scoliosis.

The complex picture which is known as scoliosis, when analysed, is shown to be represented by a lateral deviation of the spine, or by lateral deviations of the spine. A posterior prominence of the ribs of one side is also seen—indeed, the rib wall seems often to become crushed in towards the spinal column. It is so flattened that frequently the posterior prominence becomes razor-like. On the opposite side the thoracic wall is broadened, and there is an anterior protuberance of the ribs. There is, indeed, a flattening of the ribs and a diminution of the thoracic cavity on one side, with a flanging out of the ribs and a corresponding increase of the thoracic cavity on the other side. The spinal column is usually curved in the dorsal region, the curve being convex towards the side on which the ribs are flattened. There are compensatory curves, usually in the cervical and lumbar region. The formation of these compensatory curves may depend on the laws of gravity.

This picture, known as scoliosis, is the same either in physiological scoliosis or in pathological scoliosis, with the difference that from physiological scoliosis, which is due to movement, there is a return to the so-called normal, or passive, position, while from pathological scoliosis there is no return to the normal. In physiological scoliosis there

is never change in the architecture of individual vertebrae, whereas in pathological scoliosis change is common.

Many endeavours have been made to use our knowledge of physiological scoliosis in order to treat pathological scoliosis. Superimposing physiological scoliosis of a reverse character on a pathological scoliosis already existing was practised. These endeavours were not successful because pathological scoliosis is always greater than physiological scoliosis, and it is impossible to change the greater by the lesser.

One of the most interesting physiological facts brought out in these studies of scoliosis was that rotation and lateralization (side-bending) both cause scoliosis of exactly the same character. The same picture is seen in either of these movements—indeed, it is impossible to turn the trunk as a whole without the occurrence of a certain definite order of movement of its component parts. It is also impossible to lateralize the trunk, or bend it to the side, without a certain definite order of movement of the individual parts taking place. The turning of the trunk to one side causes exactly the same change as the bending of the trunk to the same side.

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Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

MONILIASIS AND TUBERCULOSIS.

In 1914 a young woman was under my care with chronic bronchitis and asthma, from which she had suffered for several months. She was not doing well, and I sent her to a chest hospital, where her condition was diagnosed as tuberculosis. For domestic reasons, however, she refused to enter an institution, and I was enabled to make a number of careful examinations of her sputum. I did not find tubercle bacilli, but yeast cells were constantly present. Mouth contamination was excluded by the fact that all the sputa I examined were fresh, and from each one I picked out portions from the pellets. Fermentation reactions proved that the yeast cells were maltose, non-saccharose fermenting monilia—in fact, the thrush fungus. After prolonged treatment with alkalis, potassium iodide, and adrenaline, the patient recovered, and has been in good health since. In the case of this patient and other similar cases I did not attach importance to the presence of yeast cells, and assumed some other cause for the bronchial catarrh, until I read some papers by Colonel E. P. Marett of Jersey. In an examination of the sputa of a number of cases of suspected tuberculosis he found that 40 per cent. contained blastomycetes, 40 per cent. blastomycetes and tubercle bacilli, and 20 per cent. tubercle bacilli without blastomycetes. His experience suggested, furthermore, that the first class, if left untreated, soon passed into the second, a damaged lung being particularly susceptible to tuberculous infection, and that the outlook for the second class was less hopeful than for the class of pure tubercle bacillus infection. This latter class, he maintains, should be treated apart from the second in order that double infections might be avoided; the outlook for the second class may be improved by the immediate treatment of the curable blastomycetic infection; and the first class can be cured by means of alkalis, potassium iodide, and blastomycetic vaccines. I think it probable that Colonel Marett has brought to light a truth unsuspected by his predecessors—that chronic blastomycetic bronchial catarrhs occur frequently, and that they are the commonest precursors of tuberculosis in this country. The system of treatment he has devised is within the reach of everybody; its application cannot fail to secure greater efficiency in the treatment of tuberculosis and to diminish the frequency of the disease.

Ealing, W.13.

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