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FERDINAND VON ARLT (1812-1887)

Distinguished Austrian ophthalmologist, Professor of Diseases of the Eye at Vienna, who believed for a time that accommodation was produced by an elongation of the visual axis, but finally accepted the conclusions of Cramer and Helmholtz.

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Nuova Enciclopedia Italiana, Sixth Edition.

THE FUNDAMENTAL PRINCIPLE

Do you read imperfectly? Can you observe then that when you look at the first word, or the first letter, of a sentence you do not see best where you are looking; that you see other words, or other letters, just as well as or better than the one you are looking at? Do you observe also that the harder you try to see the worse you see?

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Patient reading fine print in a good light at thirteen inches, the object of vision being placed above the eye so as to be out of the line of the camera. Simultaneous retinoscopy indicated that the eye was focussed at thirteen inches. The glass was used with the retinoscope to determine the amount of the refraction.

Fig. 34. Straining to See at the Near-Point Produces Hypermetropia

When the room was darkened the patient failed to read the fine print at thirteen inches and the retinoscope indicated that the eye was focussed at a greater distance. When a conscious strain of considerable degree was made to see, the eye became hypermetropic.









No. 1.-Normal vision.

No. 2.—Same subject four years later with myopia. Note the strained expression.

No. 3.—Myopia increased by conscious effort to see a distant object.



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CAUSE AND CURE OF ERRORS OF REFRACTION



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FIG. 35. MYOPIA PRODUCED BY UNCONSCIOUS STRAIN TO SEE AT THE DISTANCE IS IN-CREASED BY CONSCIOUS STRAIN

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By W. H. BATES, M.D.

CENTRAL FIXATION PUBLISHING CO. New York City

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Nuova Enciclopedia Italiana, Sixth Edition.

TO THE MEMORY

OF THE

PIONEERS OF OPHTHALMOLOGY THIS BOOK IS GRATEFULLY DEDICATED

PREFACE

This book aims to be a collection of facts and not of theories, and insofar as it is, I do not fear successful contradiction. When explanations have been offered it has been done with considerable trepidation, because I have never been able to formulate a theory that would withstand the test of the facts either in my possession at the time, or accumulated later. The same is true of the theories of every other man, for a theory is only a guess, and you cannot guess or imagine the truth. No one has ever satisfactorily answered the question, "Why?" as most scientific men are well aware, and I did not feel that I could do better than others who had tried and failed. One cannot even draw conclusions safely from facts, because a conclusion is very much like a theory, and may be disproved or modified by facts accumulated later. In the science of ophthalmology, theories, often stated as facts, have served to obscure the truth and throttle investigation for more than a hundred years. The explanations of the phenomena of sight put forward by Young, von Graefe, Helmholtz and Donders have caused us to ignore or explain away a multitude of facts which otherwise would have led to the discovery of the truth about errors of refraction and the consequent prevention of an incalculable amount of human misery.

In presenting my experimental work to the public, I desire to acknowledge my indebtedness to Mrs. E. C. Lierman, whose co-operation during four years of arduous labor and prolonged failure made it possible to carry the work to a successful issue. I am also under great obligations to Miss Mary Dudderidge, who aided me in compiling the data for this book from my papers and other sources and to whom its literary excellence is entirely

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due. I would be glad, further, to acknowledge my debt to others who aided me with suggestions, or more direct assistance, but am unable to do so, as they have requested me not to mention their names in this connection.

As there has been a considerable demand for the book from the laity, an effort has been made to present the subject in such a way as to be intelligible to persons unfamiliar with ophthalmology.

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INTRODUCTORY

passive as the perception of sound, requiring no muscular action whatever. Near vision, it is assumed, was the exception, necessitating a muscular adjustment of such short duration that it was accomplished without placing any



FIG. 1. PATAGONIANS

The sight of this primitive pair and of the following groups of primitive people was tested at the World's Fair in St. Louis and found to be normal. The unaccustomed experience of having their pictures taken, however, has evidently so disturbed them that they were all, probably, myopic when they faced the camera. (see Chapter IX.)

appreciable burden upon the mechanism of accommodation. The fact that primitive woman was a seamstress, an embroiderer, a weaver, an artist in all sorts of fine and beautiful work, appears to have been generally forgotten. Yet Not an Annual, but a permanent Book of Reference, and in point of price and value the most wonderful publication of to-day

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