

left to right. For those cyclones which ceased to advance, left to right movements also predominated; the number of cases where the motion had a component opposite to that of the centre was greater than for the other two classes of cyclone.

There is little to add to the above summary, which includes the most striking features of the storms revealed by this new method of analysis. It must be remembered that the results obtained do not necessarily apply to the cyclones of other tropical regions, or to the earlier stages of the same storms. It may be assumed that those considered here had nearly all been in existence for several days; they were as a rule approaching the time of their recurve out of the tropical belt of easterly winds into the westerly winds of temperate latitudes. One would like very much to know the origin of the air that enters the system through the right rear quadrant, but since this would normally arrive from some point between east and south, *i.e.* from the open sea, the construction of trajectories can scarcely be possible, owing to paucity of observations. The author was unable to find in the surface temperature records any traces of discontinuity between the converging wind currents, but since both supplies of air must generally have been over warm ocean for many days, this does not prove that they were not in reality of widely different origin when traced sufficiently far back.

In conclusion, it may be said that although an explanation is still wanting of the precise mode of origin of tropical cyclones, a notable step forward has been made. Dr. Cline is to be congratulated on having produced a collection of facts which must prove indispensable to anyone seeking to provide such an explanation.

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### Psychology of Mental Imagery.

*Les visions de l'Enfer* (hallucinations hypnagogiques). Par Dr. Eug.-Bernard Leroy. (Bibliothèque de philosophie contemporaine.) Pp. xv + 132. (Paris: Félix Alcan, 1926.) 12 francs.

THIS is a small book, but an important contribution to the study of mental imagery in general, and in particular of that kind of imagery which is experienced in the hypnagogic state. Many people, just before falling asleep, or waking fully from sleep, pass through a stage in which they have visual (and sometimes other) imagery of a very striking kind. The fact has been known and reported upon in psychological literature for something more than a century; but the interesting

problems to which it gives rise have for the most part been cursorily and not very satisfactorily dealt with. Dr. Leroy limits himself to a psychological treatment of his subject, and puts his book before the public as a contribution to the psychology of hallucinations and dreams. For the physiological and pathological aspects of hypnagogic imagery he believes that methodical experimental work is still greatly needed; but in the present investigation he relies mainly upon his own experiences and those of persons whose sincerity he is able personally to guarantee.

In a very careful and detailed description of 'hypnagogic visions,' for which he has drawn upon the available literature as well as cited a number of original accounts, Dr. Leroy passes in review and compares with them after-images, phosphenes, entoptic glow (*Eigenlicht*), and the like. He then turns, in a second chapter, to an examination of the conditions of emergence of these images. This chapter is closely reasoned and particularly well documented. It leads to the important conclusions that such images are frequently hindrances to thought (which may go on in this transition stage between sleeping and waking), and that an appeal to the unconscious to explain their occurrence is "to invoke the *deus ex machina* of embarrassed psychologists." Psychoanalysts will scarcely agree with this opinion; and, indeed, Dr. Leroy omits altogether any consideration of psychoanalytic doctrine from his work.

Chapter iii. is concerned with the interpretation of hypnagogic imagery, which is here compared with normal memory imagery, the eidetic imagery reported by Jaensch, hallucinatory imagery and illusions. The characteristic most insisted upon is the involuntary nature of the hypnagogic images. The will can only influence them indirectly; and they require for their development a certain degree of psychic automatism.

In the final chapter, hypnagogic images are compared with those of the dream; and the transition from the half-waking state to that of sleep is discussed. The images are spectacles at which we passively assist; the dream is an adventure in which we take part.

Over and above the interest attaching directly to these different kinds of images in themselves, there is the greater interest in the different mental states which give rise to them. In theory and in practice the question is one which concerns both pure psychologists and psychotherapists; and Dr. Leroy's book will be read by both with profit.