

of the dream-life of delinquents, is of especial interest. It is greatly to be regretted that De Sanctis fails to give more exact details of his method of inquiry. Written answers would have been impossible from most of these subjects, so it is probable that the statistics are compiled from personal questioning; and, in this case, it is reasonable to suppose that De Sanctis made his questions concrete enough to secure naïve and reliable answers. A fuller account of his methods should, however, have been given, especially in view of the unequivocal interest of the results (p. 237). Less than one-fourth of the one hundred and twenty-five criminal subjects, and only one-seventh of the class of lowest criminals, are frequent dreamers; whereas one-fourth of the entire number, and two-fifths of the most depraved, are never conscious of dreaming. This suggests, of course, a low degree of mental activity on the part of these subjects, and this indication is strengthened by the observation that by far the greater part of delinquents' dreams are of an entirely unemotional nature. The most curious effect of this tendency is that the criminal seldom dreams of his own crime and when he dreams of it is as likely as not to be entirely unmoved. Twenty-two subjects, out of ninety-three, acknowledged the occurrence of dreams of this character, but half of these stated that such dreams were without emotion.

The emotional nature of the dream is a subject which De Sanctis treats at length, to the comparative disadvantage of such topics as imagery, association and thought in dreams. The chapter on '*Sogni ed Emozioni*,' which considers especially the relation of dream-emotions to those of the waking life, is one of the most suggestive of the entire volume. Its chief conclusions are these:

Nearly three-fifths of the normal adult subjects, and many of the hysterical and neurasthenic subjects, have dreams which are distinctly influenced by daytime emotional experiences. Chronic emotions, rather than unexpected and sudden feelings, and emotions of uncertainty, like doubt, suspicion, fear and hope, rather than feelings of settled grief, are reproduced in dreams. And, finally, De Sanctis records his conviction that only emotions of

medium intensity are radiated out into the dream-life, since, as he observes, extreme feeling 'consumes force' by the organic excitement which accompanies it. For this reason, and also because suspense rather than certainty marks the dream-feeling, we so seldom dream of the dead at times of recent bereavement.

Cases in which the dream emotion is carried over into the waking life are carefully considered. De Sanctis is of opinion that many cases of the fixed idea and of paranoia are directly traceable to dream experiences, and the extent of his observations lends force to his remark that a suggestion, given for instance in the hypnagogic state, which should effect the dream-life, might indirectly influence the abnormal waking condition.

The experimental observations undertaken by De Sanctis were few in number and are insufficiently reported. The results, such as they are, confirm those of the few published records and of certain unreported experiments of the writer of this notice, all of them tending to show the possibility of artificial modification of the imagery and the emotion of a dream through artificial stimulation. The experimental study of dreams should, however, be widely extended, though the difficulty of accurately reporting the dream experience by the waking memory affects the most important factor of the experimental solution of psychic problems.

De Sanctis briefly summarizes and very justly estimates the physiological theories concerning sleep and dreams. He himself lays stress upon the comparative absence of peripheral stimuli, during periods of cerebral excitation, as at least a sufficient basis for the explanation of the dream experience.

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GENERAL.

THE International Institute of Bibliography at Brussels has published a pamphlet discussing the plans of the Royal Society's Catalogue of Scientific Literature. These are criticised somewhat severely, it being claimed that the Royal Society's plans are defective owing to lack of experience in bibliography and the failure to consider catalogues already in operation.

The pamphlet also contains a paper by Professor Ch. Richet on the physiological schedule, and reprints from this JOURNAL Dr. H. H. Field's article on the catalogue.

PROFESSOR ROWLAND's table of solar spectrum wave-lengths originally printed in the *Astrophysical Journal* has been reprinted in a single volume containing 225 pages, and is offered for sale by the Press Division of the University of Chicago. The table gives the wave-lengths of nearly 20,000 lines measured from photographs made with the concave grating of the Johns Hopkins University.

BOOKS RECEIVED.

Descriptive General Chemistry. S. E. TILLMAN. New York, John Wiley & Sons; London, Chapman & Hall, Ltd. 1899. Pp. x + 429.

Elementary Studies in Chemistry. JOSEPH TORREY, JR. New York, Henry Holt & Co. 1899. Pp. viii + 487.

Insects; Their Structure and Life: A Primer of Entomology. London, J. M. Dent & Co. Pp. xi + 494.

SCIENTIFIC JOURNALS AND ARTICLES.

THE *American Naturalist* for August opens with an article by Vernon L. Kellog on 'The Hopkins Seaside Laboratory,' calculated to make Eastern naturalists envious of the advantages enjoyed by their friends on the Pacific coast. J. A. Allen discusses 'The North American Arboreal Squirrels,' in view of Mr. E. W. Nelson's recent revision of the Southern species of the group. William Trelease gives a brief biographical sketch of 'Alvin Wentworth Chapman,' and Thomas H. Montgomery, Jr., continues the 'Synopsis of North American Invertebrates,' with a short account of, and key to, the Gordiaceæ. An interesting account of 'An Abnormal Wave in Lake Erie' is given by Howard S. Reed. There is an unusually large number of reviews of zoological publications, and in the correspondence Dr. Alex Hrdlicka considers 'The Needs of American Anthropologists,' the greatest of which he believes to be the establishment of an Anthropological Institute to form a common, independent center.

The *American Journal of Science* for September contains the following articles:

Gas Thermometer at High Temperatures, by L. Holborn and A. L. Day.

Flicker Photometer, by O. N. Rood.

Quantitative Investigation of the Coherer, by A. Trowbridge.

Double Ammonium Phosphates of Beryllium, Zinc, and Cadmium in Analysis, by M. Austin.

Separation of Iron from Chromium, Zirconium and Beryllium by the Action of Gaseous Hydrochloric Acid on the Oxides, by F. S. Havens and A. F. Way.

Albertite-like Asphalt in the Choctaw Nation, Indian Territory, by J. A. Taff.

Notice of a New Meteorite from Murphy, Cherokee Co., N. C., by H. L. Ward.

Separation of Alumina from Molten Magmas, and the Formation of Corundum, by J. H. Pratt.

It will be remembered that a department of agriculture for the British West Indian Islands was created last year with Dr. Morris, of Kew Gardens, as Director. We also called attention at the time to the agricultural conference held at Barbados in January. A further step in advance has now been taken by the establishment of a *West Indian Bulletin*, containing a number of articles on the agricultural problems of the islands. Like our agricultural bulletins, it is sent without charge to residents.

DISCUSSION AND CORRESPONDENCE.

DARK LIGHTNING.

TO THE EDITOR OF SCIENCE: I have been greatly interested by some photographs showing the rare phenomena of dark lightning, which have recently been sent to me. So far as I know, the only explanation that has ever been offered to account for them is photographic reversal, due to extreme brilliancy. This appears to me to be wholly out of the question for two reasons. In the first place, a dark line on the picture, resulting from over-exposure of a very brilliant line, would be surrounded by bright edges, due to the lesser photographic action in the halation region. This is never present, so far as I know, the dark flashes being minute dark lines ramifying from or in the neighborhood of the main discharge. Secondly, from what evidence I can gather, the dark parts of the flash are not those which appear most brilliant to the observer. Mr. Jennings, of Philadelphia, who in 1890 secured a remarkable picture, reproduced in *Photographic Times Annual* for 1891, showing a very brilliant flash with