

in the Laurentian Rocks, and was determined by Principal Dawson and Dr. W. B. Carpenter. The nature of the singular body so-called has, however, been a matter of some dispute, various authorities denying that it is really more than a peculiar form of mineral structure. The last combatant who has made his appearance in the fight about *Eozoön* is Mr. J. H. Carter, F.R.S. This well known naturalist has come to the conclusion that *Eozoön* is not a fossil at all, and he says: "I am at a loss to conceive how the so-called *Eozoön Canadense* can be identified with foraminiferous structure, except by the wildest conjecture, and then such identification no longer becomes of any scientific value."

An attempt is made by Prof. H. Thurston in a paper read before the American Society of Civil Engineers to prove that Count Rumford was the first person to prove the immateriality of heat, and to indicate that it is a form of energy, his conclusions on this subject having been published a year before those of Davy. It

is also claimed that the Count was the first, nearly fifty years before Joule, to determine the mechanical equivalent of heat, and that his determination was almost perfectly accurate.

In continuation of his previous well-known researches on the phenomena of flight, M. Marcy has made a series of observations which prove how important a part the onward movement of a bird plays in increasing the efficiency of each wing-stroke. For, supposing that in its descent the wing did not continually come in contact with a fresh volume of air, it would act at a disadvantage, because the downward impulse which, at the commencement of each stroke, it gives to the air below it, would make that air so much less efficient a resisting medium; whilst, by continually coming in contact with a fresh body of air, the wing is always acting on it to the best advantage. For this reason, when a bird commences its flight, it turns towards the wind if possible, to make up for its lack of motion at starting.—(*Nature.*)

CURRENT LITERATURE.

THE *Contemporary* opens this month with an interesting paper by Archbishop Manning. In the previous number Mr. Fitzjames Stephen had offered some critical remarks upon the Archbishop's pamphlet, the subject of which was Cæsarism and Ultramontanism. This pamphlet was a laboured attempt to defend the Ultramontane position touching the relations between Church and State. Its principal propositions may be briefly stated thus:—The Church and State have separate and distinct spheres—the former reserving to itself jurisdiction over faith and morals. But there are mixed questions, regarding which there may be a conflict between the powers. In such cases the State must give way; because its power is derived from God, and the Church, being His infallible representative on earth, is alone competent to define the limits of jurisdiction. Mr. Stephen replied that, if this claim

could be established, the Pope would indeed be king of the world. "The distribution of property, the relation between the sexes, vice, crime, pauperism and war," would be under his control. To which he might have added an infinity of subjects, such as education, civil contracts, breaches of trust—in short, almost everything with which the State has to do. Moreover, we know from various Papal encyclicals that civil liberty, science, and the exercise of reason generally are regarded as "mixed questions" at Rome. Mr. Stephen urged that to make good so momentous an assertion of authority, the Church must demonstrate not one only but all of four propositions:—The existence of God; the truth of the historical portion of the Apostles' Creed; that Christ established a Church with the powers claimed; and that the Church of Rome is that Church. This demonstration the writer proceeded to argue, at some