plein air. These latter are, at the end of this time, all as fresh and healthily green as they were at the moment of cutting off the parent plant, notwithstanding the very hot weather we have recently experienced. It seems to me that this is a clear proof that the rôle of leaves is to *absorb* as well as *evaporate*, a point on which much doubt has often been expressed. G. PAUL.

Harrogate, September 29.

It has been proved over and over again, and it is easy to prove, that the leaves of some plants, though probably not of all, are capable, under certain conditions—usually abnormal conditions—of absorbing aqueous vapour or fluid water; but this action can hardly be regarded as a function, though I am not prepared to say that absorption of moisture by leaves is in no case a part of the every-day life of a plant. The return to turgidity of the leaves of a plant during the night is, however, in a general way, due, doubtless, to reduced transpiration, rather than absorption from the atmosphere. Yet in the absence of a counteracting current of water from the roots, the leaves of some plants, especially of those inhabiting almost rainless regions, but where the air sometimes reaches almost complete saturation, absorb moisture. At least, so it is asserted. With regard to absorption by detached leaves, or by leaves of detached branches, the development of the action depends, apart from other circumstances, on the amount of vital energy left; and this is determined, to a great extent, by age. The common Privet is a shrub of extraordinary vitality, rare in our native vegetation. I hardly need add that proof of leaves being able to absorb water may be had by inserting withered leaves in water by their upper halves, leaving the stalk out. If not too old, or too much dried, the whole leaves will regain turgidity, though the process may be a slow one.

W. BOTTING HEMSLEY.

Tertiary Fossil Ants in the Isle of Wight.

In a paper published in *NATURE* for August 22, p. 399, by Prof. C. Emery, on "The Origin of European and North American Ants," the author states that "the Sicilian amber of Miocene age contains genera which belong to the actual Indian and Australian fauna, while the Baltic amber contains the genera *Formica*, *Lasius*, and *Myrmica*." In the Bembridge limestone in the Isle of Wight, of Eocene age, the same as the Baltic amber, the following genera occur: *Formica*, *Myrmica*, and *Camponotus*, and some others not yet described. In my collection there are a large number of these Hymenoptera, generally well preserved, and seem to be more numerous than any of the other insects from the same beds. It is only of late years that any number of insects have been met with in the British tertiaries, and it is well to record the two genera referred to *Formica* and *Myrmica*, being found both in the Baltic amber and Bembridge limestone. Among the numerous fossil insects in my possession from the Lias, no trace of any ants has been observed, and it seems that they did not come into existence until the later Tertiary epoch.

P. B. BRODIE.

THE NORMAL SCHOOL AT PARIS.

IN connection with the celebrations of the centenary of the foundation of the École Normale in Paris, referred to at the time in these columns (vol. li. p. 613), a ponderous tome has been published¹ containing the complete history of the school, and details concerning the most renowned of its alumni. Opportunity is thus afforded of giving a sketch of the development of a school which has played an important part in the history of education for nearly a century, and which has been the training college of many of the most distinguished Professors in France.

The most elaborate article in the volume is a detailed history, by M. Paul Dupuy, on "L'École Normale de l'an III." That article has furnished the particulars with reference to the early history of the school given in this contribution.

When the Convention of the 9th Brumaire, An. III. (October 30, 1794), passed the decree to which the Normal

School owes its foundation, it realised an idea which had occupied the attention of the University and Parliament for many years. So far back as 1645 the University of Paris considered a proposal by the rector, Dumonstier, to provide the means for the education of teachers and principals. After the expulsion of the Jesuits in 1761, the Parliament of Paris began to carry out the idea by instituting fellowships and uniting at Louis-le-Grand the scholars of the small colleges of the University. At the time when Parliament was taking these steps, Barletti de Saint-Paul was forming a training school for teachers, in which his principles of personal pedagogy were taught; and Bernardin de Saint-Pierre pleaded for a college of instruction. "J'admire avec étonnement," he wrote in 1789, "que tous les arts ont parmi nous leur apprentissage, excepté le plus difficile de tous, celui de former les hommes." To the influence which these educational reformers had in bringing the matter before the Government of the Revolution must be added the impulse derived from Germany, through Alsace. Alsace was then the only province of France able to furnish ideas and models for popular instruction. It had been touched by the great pedagogic movement in Germany, and its great influence upon the three Revolutionary Assemblies makes it prominent in the history of the Normal School.

Practically every part of the educational system of France owes its development to the Republic. The Committee of Public Welfare early concerned itself with the question of national education, and Commissions were appointed to report upon the best means for developing an educational system. In 1793 a plan was put forward to establish normal schools for the training of teachers. Nothing definite was formulated, however, with reference to the Normal School until September 1794, when the Committee of Public Instruction adopted a series of articles, the first of which was to the effect that "there should be established, at Paris, a Normal School, where instruction in the art of teaching science should be given to persons already possessing scientific knowledge." At the end of the following month, the National Convention, after a discussion of the scheme and the subjects to be taught, passed a law for the establishment of Écoles normales. The idea was to establish these schools in various parts of France, but it was not then realised, and the Normal School at Paris is the only one that owes its existence directly to the law of the Convention. Referring to the designation of the schools, an official note reads: "The word *normal*, which has been applied to the schools newly decreed, is taken from geometry. It expresses really the perpendicular or level. In the sense employed in this case it announces that all knowledge belonging to science, to the arts, to belles-lettres, &c., will there be taught, and taught to all equally." Science was thus placed upon the same footing as the humanities. The methods and results of investigation were not to be known to a few, but were to be taught by the most eminent men it was possible to obtain. The first programme of the courses and professors shows the scope of the instruction given.

Subjects.	Professors.
Mathematics	Lagrange and Laplace.
Physics	Haüy.
Descriptive Geometry	Monge.
Natural History	Daubenton.
Chemistry	Berthollet.
Agriculture	Thouin.
Geography	Buache and Montelle.
History	Volney.
Morals	Bernardin de St. Pierre.
Grammar	Sicard.
Analysis of the Understanding	Garat.
Literature	La Harpe.

A glance at this list will show that the professors were selected on account of their eminence in different

¹ "Le Centenaire de l'École Normale." (Paris: Hachette et Cie.)