

We are also indebted to Hermite for the first proof that  $e$ , the base of the Napierian logarithms, is transcendental, a result which paved the way for Lindemann's proof that the same is true of  $\pi$ .

In 1862 Hermite was elected to a newly founded chair at the École Normale, and later on he also became professor at the École Polytechnique and the Sorbonne. Instead of continuing to teach on the old lines which he found still in vogue, Hermite introduced into his lectures the great discoveries of Gauss, Abel, Jacobi and Cauchy. He thus founded for France a new school of higher geometry, and the large number of mathematicians of distinction who have studied under him bear abundant testimony to the success of his innovation.

During the later period of his life Hermite appears to have directed his attention more especially to questions connected with the calculus. In conjunction with Darboux and Jordan, he presented the general theory of linear differential equations in an entirely new light, choosing the algebraic rather than the geometric method of presentation. His work on Lamé's equation leads to the solution of a large number of problems in applied mathematics.

The "Cours de M. Hermite" constitutes an important work on the theory of functions.

About eleven years ago Hermite delivered an inaugural address before the President of the French Republic, which was published in the *Bulletin des Sciences mathématiques* for January 1890. In 1892 he celebrated his jubilee, and it is remarkable that the same year witnessed also the jubilee of Pasteur. The new century and the new era in history which has come upon our country will both be the poorer for the loss of M. Hermite, but his works will be handed down to posterity.

An account of his work has been given in the *Comptes rendus* for January 21 by M. C. Jordan, himself the author of important papers on the fields of study which Hermite had chosen to work in. To this account we are indebted for much matter contained in the present notice, and we are glad that M. Jordan pleads for the publication of Hermite's collected works. Many of his ideas are scattered in journals or letters that are difficult of access, and it will be of inestimable use to mathematicians to have them printed in book form. G. H. B.

#### ADOLPHE CHATIN.

ADOLPHE CHATIN died on January 13 at the age of eighty-seven. He was a native of Dauphiné, and was born at Ile-Marianne-de-Saint-Quentin, near Tullins, "d'une famille peu fortunée," according to M. Gaston Bonnier, from whose éloge in the *Comptes rendus* of the Paris Academy (January 21) some of the following facts of his life-history are taken. He received his early education at Tullins, and at seventeen joined an apothecary at Saint-Marcellin. Three years later (1833) he went to Paris under an apothecary named Briant, who, recognising his pupil's capabilities, urged him to study pure science as well as pharmacy. Chatin, who always gratefully remembered his good friend's advice and encouragement, worked to such effect that he took bachelors degrees both in Letters and Science, and six years after his arrival in Paris obtained the degree of Doctor of Science. In the next year, 1840, he read his thesis before the School of Pharmacy, and was duly admitted. The somewhat ambitious title of this thesis, "The Comparative Anatomy of Plants applied to Classification," indicated the line of work in which he has done most service to botany. It was a short paper dealing with the occurrence, structure and general properties of albumen in plant-seeds. He took the view that the presence of endosperm in the seeds, implying a temporary arrest in the embryogeny of the plant, indicates a lower condition than that existing in the exalbuminous seed.

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"From this time," he tells us in the introduction to the "Anatomie Comparée des Végétaux," "comparative anatomy was (with plant symmetry) the principal object of my labours."

In 1844 he took the degree of Doctor of Medicine, and in 1848 was elected to the chair of Botany at the School of Pharmacy, his chief competitor being M. Payer. Twenty-five years later he became Director of the School, retiring in 1886 with the title of Honorary Director. In 1874 he was chosen a member of the Academy of Science, succeeding Claude Gay, and in 1897 became President of the Academy. He was also a member of the Academy of Medicine, and filled various other posts of honour.

His first memoir, published in 1837, was on the symmetry of structure of plant organs, and sixty years later appeared the last part of his studies on the symmetry of the vascular bundles of the petiole. His best-known work is the "Anatomie Comparée" (1856-1862), which was never completed. It consists of two parts, the larger illustrated by 113 plates, on Dicotyledonous Parasites, the smaller with 20 plates, on Aquatic Monocotyledons. It is difficult to estimate the value of this work. Its chief worth lies in the beautifully executed figures illustrating the anatomy of the stem, leaf and root of a large number of genera and species. Their preparation implies considerable skill and much hard, conscientious labour, with which the results, as embodied in the text of the book, are scarcely commensurate. But it is hard to judge the work of forty years ago from our present standpoint, and in helping to revive the study of plant-anatomy, which had fallen into neglect, Chatin did good service, and might well, in his later years, regard with some complaisance and pride its present important position as one of the factors in the evolution of a natural system of plant-classification.

Chatin also studied the organogeny of the flower, especially of the andrœcium, and collected the results of numerous small papers, which had previously appeared in the *Comptes rendus* and elsewhere, in a volume entitled "De l'Anthère" (1870)—a comparative account of the development, structure and mode of dehiscence of the anther in a number of families and genera. His memoir on the life-history and structure of *Vallisneria spiralis* is a useful piece of work, illustrated with characteristic elaborate detail. But he by no means restricted himself to the study of the symmetry and anatomy of plants; the subjects of his published works and papers comprise the results of chemical as well as botanical investigations. Among his earlier papers were several dealing with the occurrence of iodine in air and water, its presence in plant tissues and its effect on plant growth. He also wrote on the potato disease, the vine disease, and on the cultivation of truffles and other edible fungi, and published a small book on watercress.

For the past two years his health, hitherto robust, had been gradually failing, and his last days were spent in retirement at his country home at Essarts-le-Roi, near Rambouillet. His son, M. Joannes Chatin, a professor at the Sorbonne and a member of the Academy, has made a few contributions to botanical literature, but his work has been chiefly in other branches of science.

#### NOTES.

ARRANGEMENTS are being made by the Royal Academy of Sciences of Sweden, to celebrate the third centenary of the death of Tycho Brahe, the founder of modern practical astronomy, on October 24, 1901, by a special meeting. It is also proposed to further commemorate Tycho's work by the publication of a facsimile of the original edition of his celebrated "Astronomiæ instauratæ mechanica," a perfect copy of which is in the library of the Academy. It is well-known that when at Wandesburg