

LAMBERT ADOLPHE JACQUES QUETELET was born at Ghent on the 22nd of February, 1796. He had the misfortune of losing his father at the early age of seven; and the poverty of his family obliged him to seek his own livelihood at once on leaving the Lycée. He obtained an appointment as teacher of mathematics, drawing, grammar, &c. in a school at Oudenarde. At the end of a year he returned to Ghent; and in February 1815, the very day on which he completed his nineteenth year, he was appointed to the Chair of Mathematics at the New College, which had replaced the Lycée. This appointment was not a brilliant one; but with the private lessons which he had the opportunity of giving, it afforded him a subsistence, and he had the satisfaction of feeling himself independent. He had even some leisure to devote to science, his flute, drawing, and to literary composition. About this time he, in conjunction with his intimate friend and former schoolfellow Dandelin, wrote an opera, entitled "Jean Second ou Charles Quint dans les murs de Gand," which was favourably spoken of. Dandelin soon afterwards left Ghent; and Garnier, who had become Professor of Mathematics at the University of Ghent, persuaded Quetelet to return to science. He studied the higher mathematics under Garnier, and at the same time assisted the latter by giving some of his lectures.

In 1819 he took the degree of Doctor of Science, the first conferred in that University. On this occasion he gave a brilliant inaugural address, in which he made known his discovery of a new curve of the third degree.

This discovery of the "focale" was much noticed in the 'Annales Beligiques' and in the 'Mercure Belge,' and was spoken of by Garnier and Raoul as a great honour to the newly founded university.

At the beginning of August, M. Falck, Minister of Public Instruction, came to Ghent, and was present at the laying of the first stone of the New University Buildings. Quetelet was on this occasion presented to M. Falck, and the strong recommendation of him by two such men as Garnier and Raoul led to his appointment shortly afterwards to a Professorship of Elementary Mathematics at the Athenæum of Brussels.

This appointment was made in the beginning of October; and by a private arrangement Quetelet engaged to give one quarter of his salary to his aged predecessor, M. Delhayé, as a retiring pension.

In Brussels Quetelet soon became intimate with the French refugees, David, Arnault, &c., besides frequenting the society of artists and literary men, and the theatres, where Talma, Mademoiselle Mars, &c. gave a series of performances each year.

At this period he composed various verses, and published, in the 'Annales Beligiques,' in the year 1825, an "Essai sur la Romance."

On the 24th of February Quetelet was made a Member of the Royal Belgian Academy of Science, receiving the diploma from Van Hulthem.

The first memoir he presented to the Academy, after his reception,

was on the 14th of October, 1820, and was entitled "Mémoire sur une Formule Générale pour déterminer la surface d'un polygone formé sur une sphère par des arcs de grands ou de petits cercles, disposés entre eux d'une manière quelconque."

The following are the titles of other papers, also read in the Academy, between December 1820 and February 1826 :—

"Sur les Conchoïdes Circulaires." Note to "Mémoire sur les Caustiques." "Mémoire sur une nouvelle manière de considérer les Caustiques, produites soit par Réflexion, soit par Réfraction." "Résumé d'une nouvelle Théorie des Caustiques, suivi de différentes applications à la théorie des projections stéréographiques." "Démonstration et développements de la théorie des Caustiques secondaires."

Quetelet's researches, already noticed by Gergonne and other distinguished geometers, were particularly remarked on by Chasles, after the 'Correspondance Mathématique et Physique' had given them greater publicity.

Two other memoirs by Quetelet, inserted in the collection of the Academy, still remain to be noticed—the "Mémoire sur quelques constructions graphiques des orbites planétaires" and the "Mémoire sur différents sujets de Géométrie à trois dimensions."

The 'Correspondance Mathématique et Physique,' already mentioned, was commenced by Garnier and Quetelet early in the year 1825. Its contributors were dispersed after 1830, and it came to an end in 1839.

In 1822 Quetelet went, at the request of the Academy, with M. Kickx to explore the celebrated grotto known as the Trou de Han, and they drew up a report with plates.

In 1824 it was proposed that Quetelet should extend his teaching at the Athenæum, so as to include Elementary Physics, Natural History, and Chemistry. About the same time M. Thiry, Professor of the Higher Mathematics, resigned his post; and during the session 1824 and 1825 we find Quetelet teaching at the Athenæum the Descriptive Geometry of Monge, the Theory of Shadows and Perspective, and the Calculus of Probabilities of Lacroix. He also gave public lectures at the Museum on Experimental Physics and on the Elements of Astronomy, which he had substituted for Natural History and Chemistry. He had two classes, which he conducted simultaneously in adjoining rooms, passing from one to another, and perfect order is said to have reigned in each. His teaching is described as simple and natural: his arithmetical instruction was founded on a few general principles; and as soon as his pupils were initiated into algebraic notation and its first rules, he showed them how this admirable instrument could be made to solve ordinary problems. His talent for drawing was evident in his manner of tracing his geometrical figures.

His courses of Physics and Astronomy at the Museum attracted large

audiences of all classes of society. He had a true gift for exposition, and could with very simple apparatus make himself clearly understood. In fact he objected to complicated instruments, and said of them that they often serve only to distract the attention from the results which it is the object of the lesson to explain.

Quetelet composed several elementary works for his public courses of instruction. The first in date, "On Elementary Astronomy," appeared in 1826 at Paris, in the 'Bibliothèque Industrielle de Malher,' and was frequently reprinted in France and Belgium, and translated into several languages. In 1827 he published a much more complete work, his 'Astronomie Populaire.' This latter was shortly followed by 'Les Positions de Physique,' which is considered superior to the 'Astronomie.' He endeavoured subsequently, in a little volume entitled "De la Chaleur," to put into practice his idea of founding instruction in Elementary Physics on experiments within reach of all. His intention was to follow this up by similar treatises on Magnetism, Electricity, and Light. Quetelet wrote the chapter on Acoustics in the 'Physique,' contributed by M. Plateau to the 'Encyclopédie Populaire.' Finally, he published in 1828 'Instructions Populaires sur le Calcul des Probabilités,' which was a *résumé* of the lessons he had been giving for several years at Brussels.

His public courses of lectures had been more and more successful ever since 1824. The government now deemed it advisable to organize other lectures of the same kind; and towards the end of 1826 the Administrator General Van Ewyck requested of Quetelet, on the king's behalf, a report on the matter, and on the 17th December the Museum of Science and Literature was established by a royal decree at Brussels. Quetelet was chosen for the Chair of Physics and Astronomy; but as he already gave courses of lectures on these subjects in his capacity of Professor at the Athenæum, he obtained leave to give a course on the History of Science at the Museum. He did not, however, long continue to give this course, as he left the Athenæum at the beginning of the year 1828, when he transferred his courses of Physics and Astronomy, which he had been giving at the latter institution, to the programme of the Museum, and these he continued to give until the close of the session 1833 and 1834.

The usefulness of the Museum was much diminished by the Revolution of 1830; and after languishing for a few years that institution was finally absorbed in 1834 by the Free University. A proposal was made to Quetelet to join the Free University; but this he declined, stating that he considered such an appointment to be inconsistent with his duties at the Observatory, to which he had been appointed on condition of not taking any other. He proposed, however, to continue his courses at the Observatory, those of Physics and Meteorology during the winter, and that of Astronomy during the summer evenings. This proposal was not acceded to; and Quetelet for a short time gave up public teaching, in

which he had already been engaged for twenty years. He, however, soon entered on it again, for, by a royal decree, Jan. 6, 1836, he was appointed Professor of Astronomy and Geodesy at the *École Militaire*. During this time he paid much attention to falling stars, and gave a method for determining the height of *aérolites*, by making simultaneous observations from different points. He also made experiments on the declination and inclination of the needle.

Quetelet had very earnest views on the subject of education, and he had twice occasion to make them publicly known—once under the Government of the Low Countries, once after the Revolution of 1830.

In the Commission instituted by King William in 1828, he was one of the small minority who wished to emancipate public instruction. He demanded a reduction of the number of Universities, and the establishment of two Polytechnic Schools—one for the northern provinces of the kingdom, the other for the southern provinces. Finally, he maintained that the time had come for substituting the use of modern languages for that of Latin, still in use.

Between 1823 and 1832 Quetelet was much occupied with Statistics; and the papers he published on this subject have perhaps contributed more than any others to popularize his name.

The first memoir was read to the Academy, and entitled “*Mémoire sur la loi des naissances et de la mortalité à Bruxelles.*”

The second, also read to the Academy, “*Recherches sur la population, les naissances, les décès, les prisons, les dépôts de mendicité, &c. dans le Royaume des Pays-Bas.*”

A third, also read to the Academy, “*Recherches Statistiques sur le Royaume des Pays-Bas.*”

No new memoir appeared in 1830; but during the years 1831 and 1832 he devoted most of his time to Statistics, and published the following five memoirs on the subject:—

“*Recherches sur la loi de croissance de l’homme.*” “*Recherches sur le penchant au crime aux différents âges.*” “*Recherches sur le poids de l’homme aux différents âges.*” “*Recherches sur la reproduction et la mortalité,*” conjointly with M. Smits. “*La Statistique des Tribunaux de la Belgique pendant les années 1826 à 1831.*”

In the memoir “*Sur le penchant au crime,*” Quetelet worked out some of the ideas already made known by “*Les Recherches Statistiques sur le Royaume des Pays-Bas.*”

He passed in review the different causes tending either to develop or to lessen the disposition to crime, and denied that instruction in reading and writing had the purely beneficial influence usually ascribed to it.

In enumerating his works we must not omit two other papers:—

“*De l’influence des saisons sur les facultés de l’homme,*” and “*Sur la possibilité de mesurer l’influence des causes qui modifient les Éléments Sociaux.*”

Quetelet had been deputed by Government to attend the Meeting of the British Association for the Advancement of Science which was to be held at Cambridge, beginning on the 25th of June, 1833. He went by Paris, where he read at the Institute his memoir on Mortality.

At Cambridge he took a warm interest in the establishment of the Statistical Section, of which Malthus, Babbage, and other *savants* became members.

In London he was summoned before an Inquiry Commission instituted by Parliament, to furnish information on the mode of keeping the Civil Registers of Belgium, and on the Census of the 1st of January, 1830.

Quetelet was one of the most active members of the Academy of Sciences at Brussels, and was always very desirous of promoting its independence. In 1834 he was appointed Permanent Secretary.

In 1835 he brought out an 'Annuaire de l'Académie.' About this time also he wrote for the British Association a paper of great interest, entitled "Aperçu de l'état actuel des Sciences Mathématiques chez les Belges."

Quetelet was appointed by the House of Representatives one of the Central Jury of Science. He retained these functions for some time, and showed great kindness and sagacity in discharging them.

In the course of the year 1835 there appeared at Paris the chief of all Quetelet's works, "Sur l'homme et le développement de ses facultés, ou Essai de Physique Sociale." It was a *résumé* of all his previous works on Statistics.

In February 1836 Quetelet was charged with the execution of a Royal decree for the establishment of a little meridian in the cities of Antwerp, Ostend, Bruges, Ghent, and Liège, and for placing a meridian-instrument in the walls of the Cathedrals, Hôtels de Ville, or other suitable buildings in forty-one different towns.

In August 1839 Quetelet made a journey, in company with his wife, to France, Italy, and Tyrol. His object was threefold. In the first place, he was to compare, in conjunction with his fellow commissioners, Messrs. Dumortier and Teichman, the standard weights and measures of Belgium with those of France; secondly, he was to attend the Congress of Savants at Pisa; and thirdly, he purposed to revise the determinations of magnetic intensity obtained in 1830, of the correctness of which he entertained some doubts.

At the sitting of the 7th December the Academy received a report of the proceedings of the Commission in the month of August; and Quetelet also presented the results of the Magnetic Observations which he had made in Tyrol and Italy.

In 1839 Quetelet communicated to the Academy a new Catalogue of the most remarkable appearances of falling stars—the second which he had made, for he had early turned his attention to this subject. He

appears, however, to have been in some uncertainty as to the nature of these phenomena.

The year 1839 was marked at the Observatory by the commencement of the observations on the flowering of plants, and in the month of January was begun the first of a series of monthly magnetic observations. These last observations were made at the suggestion of the Royal Society of London. It was in the year 1839 that Quetelet was elected a Foreign Member of the Royal Society; and in May 1841 these observations were considerably extended, and were thenceforth made regularly day and night at intervals of two hours.

The year 1841 was an important period of Quetelet's life. He thought that the time was past for individuals to promote the advancement of science by their isolated efforts, and that further investigations would need to be conducted by people associated together in academic bodies. In 1842 he drew up a set of instructions as to the choice of subjects for the reports. These instructions embraced Meteorology and Physical Geography and the Animal Kingdom.

In 1846 Quetelet published "*Lettres à S.A.R. le duc régnant de Saxe Coburg sur la théorie des probabilités appliqués aux Sciences Morales et Politiques,*" which was reviewed by Sir John Herschel in the '*Edinburgh Review.*' Soon afterwards he published a work entitled "*Du Système Sociale et des lois qui le régissent.*"

The Revolution of 1848 turned Quetelet's thoughts to political questions; and in 1849 he read to the Academy a new note, entitled "*Fragments sur la manière dont il convient d'envisager les Sciences Politiques et sur l'intervention du gouvernement dans les affaires des particuliers.*" He also presented to the literary section of the Academy a '*Note sur la Nature des États constitutionnels, et sur quelques principes qui en dérivent.*'

Quetelet had in 1841 organized a general system of observation of the periodical phenomena of vegetation. Five years later he attempted to solve the question as to the influence of temperatures on these phenomena; and he was led to appreciate the influence of heat, not according to the sum of the mean daily temperatures, as did Réaumur, but by the sum of their squares.

The results of these researches on the electricity of the atmosphere appeared in 1849. Two years afterwards Quetelet made an important investigation on the shape, size, and velocity of atmospheric waves, according to the observations made in June, July, and August 1841, and of the system of atmospheric waves of Central Europe, according to hourly observations of the summer solstice of 1841 and of the winter solstice of 1843.

This work on atmospheric waves was an important step in meteorology, and paved the way for the recent labours in international meteorology, to which we owe the remarkable law of tempests of M. Marié-Davy. The researches on the temperature of the earth, of which the

accounts were first inserted in the 'Mémoires' of the Academy, and those on the atmospheric waves, which had appeared successively in the 'Annales' of the Observatory, were afterwards united with other works on meteorology, and published under the title "Sur le Climat de la Belgique."

Quetelet married in 1825 a daughter of M. Curtet, a French physician, and niece of the well-known chemist Professor van Mons, a highly accomplished lady, by whom he had a son and a daughter. He was very hospitable, and entertained at his house persons of distinction who came to Brussels—artists, savants, literary men, and politicians of all parties.

In July 1855 he was seized with a fit of apoplexy, which was pronounced by the physicians to be serious. His memory was much injured by it, although after a week or ten days he wished to resume work; and in the September following he was able to be present at the public Meeting of the Section of Fine Arts.

He continued to work during the remaining years of his life; and, in fact, when misfortune came heavily upon him by the loss of his wife, his daughter, and several of his grandchildren, work became his only consolation.

His son, M. Ernest Quetelet, had now taken the direction of the Observatory, and Quetelet occupied himself with Meteorology, Physical Geography, and Statistics. He continued to preside at the Central Commission, and assisted punctually at the International Congresses of Statistics, which were held in the great capitals of Europe. Six months before his death he made the fatiguing journey to St. Petersburg in consequence of a pressing invitation from the Grand Duke Constantine, under whose auspices the Statistical Congress was to be held. Neither the fear of cholera nor the anxious entreaties of his family could deter him from this enterprise. On his return he seemed refreshed, having been pleased by his reception. About this time also he had been made an Associate of the Academy of Moral and Political Science of the Institute of France; and ten days afterwards, in a congratulatory address sent to the Royal Academy of Belgium on the occasion of the hundredth anniversary of its foundation, the Academy of Sciences at Berlin proclaimed him the founder of a new science.

To the last he was punctual in fulfilling his duties as Perpetual Secretary of the Academy. On Monday, February 2, 1874, although already suffering from the attack of bronchitis which carried him off a fortnight later, he was present at the Literary Section. On the Thursday he went for the last time down to his study, and was with difficulty prevented from going to the Meeting of the Fine-Art Section. He became rapidly worse, and expired on the 17th of February.