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L I F E

OF

GODFREY WILLIAM VON LEIBNITZ.

ON THE BASIS OF THE

GERMAN WORK OF DR. G. E. GUHRAUER.

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BY  
*John M. Mackie*  
JOHN M. MACKIE.

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<sup>54</sup>  
BOSTON:  
GOULD, KENDALL AND LINCOLN,  
59 WASHINGTON STREET.  
1845.



Phil 3552.91

1873, March 22.  
Walker Request.

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## P R E F A C E .

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The Life of Leibnitz, by Dr. Guhrauer,\* upon the basis of which this work has been written, is the last and best of a large number of biographies of this celebrated mathematician and philosopher. The first of these, and the fountain from which all the later writers have, in a greater or less degree, derived their information, is a Memoir of Leibnitz by his secretary and assistant in historiography, John George Eckhart. After Eckhart, numerous German writers might be mentioned; such as Baring, Lamprecht, Christian Wolf, Feller, Rehberg, Ludovici, and Eberhard, who have made Leibnitz the subject of biographical notices more or less extensive and valuable. More important, however, were the classic

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\* Gottfried Wilhelm Freiherr von Leibnitz. Eine Biographie, von Dr. G. E. Guhrauer. Zwei Bände. Breslau; Vorlag von Ferdinand Hirt. 1842.

eulogy pronounced upon Leibnitz before the Academy of Sciences in Paris by Fontenelle ; and the detailed history of his life and writings, published in Amsterdam, in the French language, by M. de Neufoille, more commonly called Joncourt. In Italy, the Memoir by Lamprecht was translated by Barsotti, and also enriched with original additions. Whatever is interesting or important in any of these works, has been incorporated into the biography by Guhrauer, who has also availed himself of all the information which the course of time has brought to light respecting the character, the life, and the writings of his distinguished countryman.

I should have contented myself with simply translating the able and learned production of Dr. Guhrauer, had it not seemed to me, with all its merits, not entirely adapted to the wants of the American literary public. Like most German works of this kind, it is rather a collection of biographical materials, than a well arranged biography. It, also, contains much matter either wholly irrelevant, or possessing an interest only for the countrymen of Leibnitz. I have therefore re-written the Life, for the purpose of divesting it of its German peculiarities, and of presenting it in a more acceptable form to the English reader. In doing this, however, I have almost invariably re-produced the views and opinions, and, for the most part, as it suited my convenience, translated the language of the original author. Whenever it has been in my power to verify any of his results, or to correct any slight accidental error,

which came under my notice, I have done so. I have, however, added little, or nothing, to the German work ; and have taken away from it nothing that could be appropriately introduced into a popular biography, or that might be considered as possessing any historical interest for readers without the confines of Germany. All the merit of this work, therefore, is strictly due to the author of the German Life, except the credit, if there be any, of having condensed the original materials and presented them in a new form.

The opposition in which the philosophy of Leibnitz stood to that of Locke, and, still more, the unhappy controversy carried on between the former and Newton concerning the discovery of the differential calculus, which for half a century involved the scientific men of England and the continent in a general war of words, have prevented the great merits of Leibnitz from being duly appreciated in England or in this country. But ancient prejudices have been to such a degree obliterated, that, at the present day, a monument may without offence be erected in the temple of English literature to this illustrious German genius. He was the great thinker of his age in continental Europe ; he was the founder of modern German philosophy ; he exerted no unimportant influence on the general civilization of his countrymen ; and by his varied learning, together with his untiring zeal in the cause of letters, he gave a new impulse to every depart-

ment of useful study, and thus "yoked all the sciences abreast." I therefore indulge the hope that a *Life of Leibnitz*, in the English language, may prove an accession, however small, to the cause of letters and of science.

PROVIDENCE, R. I., OCT. 1, 1844.

# CONTENTS.

---

## CHAPTER I.

Birth and parentage of Leibnitz—His school-days—His precocity—He studies the ancient classics, and logic—His project of an alphabet of human thought—He studies the scholastic metaphysics and theology, - - - - 15

## CHAPTER II.

Leibnitz enters the University of Leipsic—Reads Descartes, and rejects the scholastic philosophy—Adam Scherzer and Jacob Thomasius—Pursuits and writings of Leibnitz at the University—He reads the writings of Lord Bacon, and other modern philosophers—Becomes a Nominalist—Enters upon the study of jurisprudence as a profession—Goes to the University of Jena—Vosius, and Erhard Weigel—Leibnitz returns to the University of Leipsic—Becomes master in philosophy—Death of his mother—He visits his relatives in Brunswick—Essays written by him—He is refused the degree of Doctor of Laws—Exiles himself from Saxony. - 26

## CHAPTER III.

Leibnitz receives his doctorate at the University of Altdorf  
 —Declines a professorship—Spends the winter of 1667 in  
 Nuremberg—Is made secretary of a society of Rosicrucians, 38

## CHAPTER IV.

Leibnitz becomes acquainted with von Boineburg—Goes to  
 Frankfort—Meets with Spener, the pietist—Publishes his  
 Methodus nova Jurisprudentiæ—Is engaged by the Elector  
 of Mentz in revising the laws of the German empire—  
 Hermann Conring—Literary and diplomatic labors of  
 Leibnitz—His theological writings—He edits the Anti-  
 Barbarus of Marius Nizolius—Attempt to reconcile the  
 doctrines of Aristotle with modern philosophy—His theory  
 of an universal ether—Possibility of transubstantiation, and  
 the real presence—His fame and honors—His correspon-  
 dence with Anthony Arnaud, and Spinoza, - - - - 43

## CHAPTER V.

Leibnitz becomes engaged in politics—Is present at a confer-  
 ence of German princes at Schwabach—Writes a pamphlet  
 on the political affairs of Germany—His journey to Stras-  
 burg—He proposes to Louis XIV the conquest of Egypt—  
 Goes to Paris—Enlists the Elector of Mentz in favor of  
 his project for the conquest of Egypt—Writes to the Duke  
 of Hanover respecting it—Its fate—Its relation to the expe-  
 dition of Bonaparte—His occupations in Paris—He invents  
 an improvement on the reckoning machine of Pascal—His  
 projected inventions—His acquaintances in Paris—Antho-

ny Arnaud—Leibnitz superintends the education of the son of Boineburg—Death of Boineburg—Leibnitz visits London—Robert Boyle—John Pell—Leibnitz's rivals in discovery—His mathematical attainments at this period—Death of the Elector of Mentz—His character, - - - - 55.

## CHAPTER VI.

Leibnitz returns to Paris—Declines entering the service of the Duke of Hanover, and also that of a minister of the king of Denmark—His neglect of professional studies—Society in Paris—Letter to John Bernouilli—Leibnitz's occupations in Paris—Baron von Schönborn—Leibnitz undertakes to edit the works of Martianus Capella—His intercourse with Huygens—His design of establishing himself permanently in Paris—Correspondence with his relatives respecting it—This design relinquished—Von Tschirnhausen, - - - - 74

## CHAPTER VII.

Leibnitz discovers the differential calculus—History of the controversy between Leibnitz and Newton respecting this discovery, - - - - - 91

## CHAPTER VIII.

Leibnitz accepts an invitation to enter the service of the Duke of Hanover—Returns to Germany by the way of London—Visits Hudde in Amsterdam, and Spinoza at the Hague—Arrives at Hanover—Character of the court—He becomes acquainted with Steno, apostolic vicar, and Molanus, abbot of Lockum—Introduces the invention of phosphorus into Hanover—His visit to Hamburg—His acquaint-



ance with John Joachim Becher—He studies the art of mining in the Hartz mountains—Attempts to drain the ducal mines—His geological investigations—He studies coining and currency—Is made court counsellor—His arduous public duties—His *De jure suprematus*, - - - 116

CHAPTER IX.

The influence of jurisprudence on Leibnitz's system of philosophy—His doctrine of theocracy—Compared with the systems of Hobbes and Puffendorf—His views of natural law—His idea of substance—Doctrine of monads—Pre-established harmony—Optimism—Theodicea—Form of Leibnitz's philosophy—His relation to Descartes and Spinoza—Peter Bayle—John Locke, - - - - 126

CHAPTER X.

Leibnitz's project of an universal language—He applies to Louis XIV for aid in executing it—His relation to the Church of Rome—His reasons for not joining it—Correspondence with the Landgrave of Hesse Rheinfels, and with Madame Brinon, on this subject—Spinola; Huet; Bossuet—Death of the Duke John Frederic, and succession of Ernest Augustus—Leibnitz wishes to reside in Vienna, and to become a foreign member of the Academy of Sciences in Paris—He writes a tract against Louis XIV, on the occasion of the seige of Vienna by the Turks—His intimate relation with the princes of the House of Brunswick—Character of Sophia, Duchess of Hanover—Molanus, - - - 145

## CHAPTER XI.

Conference in Hanover respecting church union—Leibnitz's *Systema Theologicum*—His correspondence with Pelisson, respecting the re-union of Protestants and Catholics—His letter to the Duchess Sophia, concerning the visions of Miss Von Asseburg—His religious toleration—Correspondence with Bossuet, on church union—Leibnitz's proposal to unite all Protestant sects against the Catholics, - 159

## CHAPTER XII.

Leibnitz engages to write the history of the House of Brunswick—Genealogies of German princes in the seventeenth century—Leibnitz's plan of a German historical society—He commences a journey to Italy—Proceeds by way of the Rhine to Vienna—His reception at the imperial court—Manifesto by him respecting the relations of the empire to the Turks and to Louis XIV—Leibnitz's occupations in Vienna.—Excursion to the mines of Hungary—He proceeds to Venice—Narrow escape at sea—He arrives in Rome—His acquaintance with Roman literati—He visits the catacombs—His proposal of introducing the study of natural science into the cloisters—Jesuit missions to China—Chinese civilization—He goes to Naples, Florence, Bologna, Modena.—His historical discoveries in Modena—He returns to Venice—Interesting letter on leaving Italy—Arrival at Hanover, 173

## CHAPTER XIII.

Leibnitz is occupied with affairs of state—He is made privy counsellor of justice—The multiplicity of his labors—His historical collections—His philological investigations—Improvement of the German language—His German style—Death of the Elector, Ernest Augustus, - - - - 19

## CHAPTER XIV.

- Plan of Leibnitz for uniting more closely the courts of Hanover and Brandenburg—Negotiations for the union of the Lutheran and the Reformed churches—Leibnitz's plan of an academy of sciences at Berlin—He is invited by the Elector of Brandenburg to Berlin—Is appointed president of the new society of sciences—His proposals for obtaining pecuniary aid for the society—Project of a society for the protection of authors—Culture of silk—His efforts to improve the science of medicine—He attempts to establish an academy of sciences at Dresden—Interest taken by him in popular education—Augustus Hermann Franke, - - 210

## CHAPTER XV.

- Leibnitz goes to Vienna to attend a conference on church union—He composes a manifesto in favor of the rights of Charles III to the crown of Spain—His labors in connection with the elevation of the Elector of Brandenburg to the honors of royalty—Arrival in Hanover of the English embassy with the act of succession; also of Toland—State papers written by Leibnitz for the Prussian government—➤ Negotiations for uniting the Protestant churches of Germany, Holland and England—The Theodicea, its origin, character and effects—Leibnitz's relation to the queen of Prussia—Her death—Leibnitz's grief—Diminution of his influence at the court of Prussia—Christian Wolf, - - 221

## CHAPTER XVI.

- Leibnitz visits the head quarters of Charles XII—Description of Charles—Leibnitz's intercourse with Peter the Great—Leibnitz visits Vienna—Wishes to change his place of

residence—His diplomatic labors at the imperial court—His  
 la Monadologie—Prince Eugene of Savoy—Leibnitz's pro-  
 ject of an academy of sciences at Vienna—His plans for  
 improving the finances of the emperor—Ker of Kersland—  
 Leibnitz's generosity—Academy of sciences opposed by  
 the Jesuits—Leibnitz receives the title of imperial court  
 counsellor—Decease of the Electoress Sophia—Its influ-  
 ence on Leibnitz—Estrangement of George Lewis from  
 Leibnitz—English politics—Death of Queen Anne—Leibnitz  
 returns to Hanover—Is not allowed to follow George I to  
 England—Plans for changing his residence—His views of  
 English affairs—His prophecy of a general revolution in  
 Europe—Completion of his history of the House of Bruns-  
 wick—His unfinished labors, - - - - - 240

## CHAPTER XVII.

The last sickness of Leibnitz—His death and burial, - - 263

## CHAPTER XVIII.

Description of Leibnitz's person and habits, by Eckhart—  
 Also by himself—Extracts from his letters—His religious  
 toleration—Recollections of him by a cotemporary—Charges  
 brought against his character—His defects as a writer—His  
 views of matrimony—Fondness for children—Report of his  
 having had a natural son, - - - - - 271



# LIFE OF LEIBNITZ.

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## CHAPTER I.

Birth and parentage of Leibnitz—His school-days—His precocity—He studies the ancient classics, and logic—His project of an alphabet of human thought—He studies the scholastic metaphysics and theology.

THE place which has the honor of having given birth to the illustrious subject of this biography, is Leipsic,—famed, since the Protestant Reformation, for its trade in books, and its cultivation of letters. In this venerable seat of learning, Leibnitz was ushered into life on the twenty-first day of June (O. S.), 1646; and, on the third day after his birth, baptized by the name of Godfrey William. To the astonishment of the bystanders, and the edification of his godly father, the child, at the baptismal font, opened his eyes, and raised his head to receive the consecrated water, as it dropped from the hand of the officiating clergyman. The father, noting the circumstance in his family journal, piously added,—“This is my desire: and so do I prophetically look

upon this occurrence as a sign of faith, and a most sure token, that this my son will walk through life with eyes upturned to heaven, burning with love to God, and abounding in wonderful works, to the honor of the Most High, the increase and purification of the Christian church, and the salvation of both his and our souls.”

Though the name of Leibnitz, or Leubnütz, might lead to the supposition that the family was of Sclavonian origin, and though many persons, clothed with high temporal and spiritual offices, bore this name in the middle ages, yet the pedigree of the great philosopher cannot be traced farther back than to the time of the Protestant Reformation. Both his great-grandfather, and his grandfather held honorable offices under government; and his father, Frederic Leibnitz, besides following the calling of a notary, was Professor of Philosophy in the University of Leipsic. The conduct of affairs being more congenial to the tastes of the father of Godfrey William than the pursuit of letters, he is not known to have distinguished himself by any writings of importance; though, in the course of a life of earnest and honorable labors, he rendered such practical services to society, as secured for him the respect, and endeared him to the memory, of his fellow-citizens. Frederic Leibnitz was thrice married. By his first wife, he had a son, who, after having studied the profession of divinity, became a teacher in Leipsic; he also had a daughter, who married a doctor of theology, and ecclesiastical super-

intendent. His second wife was childless. The third, Catherine, the mother of Godfrey William, was the daughter of a Leipsic civilian, not without repute in his day, by the name of William Schmuck. Left an orphan at the age of eleven years, she was carefully educated, partly in the family of a professor of theology, and partly in that of her guardian, a professor of law. This lady gave birth to but one child besides Godfrey William,—a daughter, Anna Catherine, who, marrying a clergyman of Leipsic, afterwards left a son, who inherited the fortune of his distinguished uncle.

When no more than six years old, Godfrey William had the misfortune to lose his father, who died in the fifty-fifth year of his age. The few distinct recollections of him retained by the son, are given in the following extract from the latter's posthumous Personal Recollections.

“I remember but two circumstances connected with my father. The first was, that, as I early learned to read, he took great pains to awaken in me an interest in history, both sacred and profane. This he endeavored to do, partly by means of a small book in the German language, and partly by repeated oral recitations; and with such a favorable result, as led him to indulge the brightest anticipations of my future progress. The other circumstance was in fact remarkable, and still remains as fresh in my memory as if it had happened but yesterday. The day was Sunday; and my mother had gone to hear the morning sermon. But my father lay sick



in his bed. Before being fully dressed, I was playing about the stove, and tripping it up and down a bench that stood between the wall and the table. The nursery-maid wishing to put on my clothes, I, full of my pranks, mounted the table; and, upon her attempting to seize me, I stepped backwards, and fell down upon the pavement. My father and the maid scream out: they look, and see me laughing at them, unhurt, though at no less a distance than three paces from the table. In this, my father recognized the special favor of God, and straightway dispatched some one with a note to the church, that, according to custom, thanks might be offered after the service. This affair became the subject of remark throughout the town; and my father, from this accident, or I know not what other dreams and prognostics, was led to indulge so great expectations of me, as often to expose himself to the playful satire of his friends. Unfortunately, however, I was not destined long to enjoy his friendly assistance, nor he to rejoice in my continued progress."

After the death of the father of Leibnitz, his mother, declining to form a second matrimonial connection, devoted herself exclusively to the education of her children. This lady was a pious, discreet and gentle-hearted mother; and exerted such a happy influence upon her son, that his mind became early imbued with the same moral and religious principles as had ruled in her own.

At a tender age, Godfrey William was sent to the then highly popular Nicolai-school in Leipsic, where

his extraordinary talent early manifested itself in an insatiable desire for mental aliment. This, however, his narrow-minded teacher strenuously refused to supply; and the eight years old boy did not obtain the food his mind so earnestly craved, without a contest, of which a circumstantial account is given in the Personal Confessions before mentioned.

“I found,” says Leibnitz, “in the progress of time, and with the increase of my intellectual strength, very great delight in the reading of history; and the German books that fell in my way, I never let pass from my hands, without having read them entirely through. At school I studied Latin; and should, without doubt, have made the usually slow progress in the study of this language, had not accident led me to a peculiar method of acquiring it. In the house where I resided, I chanced to meet with two books, which had been mislaid by some of the students. One of these volumes, I remember, was a copy of Livy; and the other, a chronological *The-saurus* by Sethus Calvisius. These works I seized upon with the greatest avidity. Calvisius I understood with but little difficulty, having a book on universal history in the German language, corresponding with it in many places. In Livy, on the contrary, I was often puzzled. Indeed, so little acquainted was I with the matters and things described by the ancient writers, and so unfamiliar with the elevated style and diction of the classical historians, that, to tell the truth, I did not fully comprehend a single line. But as the edition was an old

one, containing figures and wood engravings, I busily pored over these,—read here and there the words written beneath them,—and, little concerned about the more difficult passages, skipped lightly over what I did not understand. But after having gone through the entire book in this way several times, and having taken it up anew, after the lapse of a considerable interval of time, I was able to make out the sense of much that had been at first unintelligible. Highly delighted with this result, I continued my labors without any dictionary, until I penetrated still deeper into the meaning of the original, and attained to a clear understanding of the greater part of it. Meanwhile, some words having fallen from me in the school respecting these studies, the matter at once assumed a suspicious aspect in the eyes of my teacher, who proceeded forthwith to inquire how I had come to the knowledge of such things. To my confessions of what I had been doing, together with the narration of several particulars which were fresh in my memory, he at the time made no reply. But going to my guardians, he required them to see that I did not disturb the regular course of my studies by reading books adapted only to a later stage of progress,—adding that Livy was no more fit for me, than buskins for a pigmy. Such books, he said, should be taken from me at once ; and I be confined to the smaller catechism, and the picture book of Comenius. And, without doubt, he would have convinced my guardians of the propriety of this course, but for the intervention of a friendly noble-

man, who happened to be present at the interview. Struck with, shall I say the jealousy, or the simplicity of my teacher, that led him to measure all his scholars by one and the same rule, this gentleman, whose mind had been liberalized by travel and study, proceeded to show my patrons how improper it would be to allow the germs of a rising genius to be checked in their growth by the coarse severity of ill-judging teachers. On the contrary, he said, one should favor the promising boy, and grant him the use of all possible aids. Thereupon he caused me to be sent for, and observing nothing improper or unbecoming in my answers to his interrogatories, he did not desist from his benevolent efforts until after having extorted from my relatives the promise, that access should be allowed me to my father's library, which, since his death, had been scrupulously guarded by lock and key. This announcement was as great a source of delight to me, as if I had found a treasure. For I was burning to get sight of the ancients, then known to me only by names,—Cicero, Quintilian, Seneca, Pliny, Herodotus, Xenophon, Plato, the *Scriptores historiæ Augustæ*, and the numerous Christian fathers, both Greek and Latin. These I read as impulse prompted; and found in the society of this circle of authors the highest delight. Thus, before having completed my twelfth year, I had learned to read the Latin language with ease, and had begun to stammer in Greek. Verses I wrote with so much readiness and felicity, that one of my school-fellows being prevented by illness from

fulfilling his appointed task of delivering a discourse in rhyme on the evening before Whitsuntide, and no one, as there were scarcely three days then remaining, appearing to take his place, I offered myself to undertake the task; and shutting myself up in my room, composed without erasures, between the dawn of day and noon, three hundred hexameters, of such a character as to gain the approbation of my instructors. And these I recited on the day appointed."

But while Leibnitz was informing his mind by the study of the ancient classics,—learning from them, as he himself expresses it, to seek in words for *clearness*, and in things for *utility*,—he was at the same time exercising his speculative and inventive faculties, by original investigations in the science of logic. Of these pursuits, in the midst of which he first hit upon the thought of forming an *universal language*, to the invention of which he devoted considerable attention at different times in the course of his life, we take the following notice from his Personal Confessions.

"As now from the study of history, in which, even when a child, I took extraordinary delight, and from the writing of themes, both in prose and verse, which I prosecuted with such interest, as to awaken in the minds of my teachers the fear that I should never be good for any thing else but scribbling,—as now my attention was directed to the study of logic and philosophy, and I began to understand something of these matters, how many chimeras at once started up in my brain! These I noted down in

writing; and by their recital, sometimes filled my teachers with astonishment. I not only applied with ease the rules of logic to examples,—a feat performed by none of my school-mates,—but I also ventured to express doubts about the principles of the science, and made many original suggestions, which, reduced at the time to writing, were read by me in after life with no little gratification. Among other things, I suggested a doubt respecting the *predicaments*. As there are predicaments, or classes of *simple* ideas, said I, so ought there to be a new kind of predicaments, in which *propositions* also, or *complex terms*, would be naturally associated together. It must be understood that, at that time, I had not so much as dreamed of processes of demonstration, and did not know that geometricians did the very thing I required to be done, when they stated propositions in such order that one of them is demonstrated by the other. My doubt, accordingly, was an idle one; but still, as my teachers, instead of resolving it, contented themselves with merely saying that it did not become tyros to make discoveries in science, I continued to prosecute my speculations, and proposed to myself the task of inventing predicaments of propositions, or complex terms. While zealously engaged in the investigation of this subject, the singular reflection arose in my mind, as if by necessity, whether an *alphabet of human thought* might not be devised; and by means of the combination of the letters of this alphabet, and of the analysis of the words formed from them, an indefinite number of things be invent-

ed and tested. When this thought revealed itself clearly to my mind, I shouted for joy,—boyish joy, indeed, for the great importance of the subject was not then apparent to me. Afterwards, however, the farther I progressed in the knowledge of things, the more strongly was I confirmed in the resolution to continue the prosecution of an inquiry of such momentous interest.” This subject of an *universal language* we shall have occasion to recur to in a subsequent chapter.

To these logical exercises and meditations of the school, Leibnitz added at home, in the secluded library of his father, the study of metaphysics, in the scholastic writings of the middle ages, and of later times; as well as of theology, in the works of the most distinguished controversialists of the Roman and Protestant churches. “I lived at that time,” he remarks in his Confessions, “with Zabarella, Rubius, Fonseca, and other scholastics, with no ordinary delight, as I had before done with the historians; and carried matters so far, indeed, as to be able to read Suarez with as great facility, as other boys of the same age read fairy tales and romances. Thereupon, those who had the charge of my education,—to whom I am indebted for nothing so much as for not interfering with the course of my studies,—as they had before feared that I should become a poet by profession, now, not considering that my mind could not be satisfied by any one branch of learning, were alarmed lest I should for ever lose myself in the subtle speculations of the scholastics.”

The theological zeal of Leibnitz was fed by the perusal of such grave and learned works as *Lutheri de servo arbitrio*, *Jacobi Andreae Colloquium Mompelgardense*, and *Aegidii Hunii Scripta*. He took counsel, also, of both Lutherans and Calvinists, Jesuits and Arminians, Thomists and Jansenists. Instead, however, of being confounded and led astray by these polemical studies, his youthful faith appears to have become the more firmly grounded in the principles of the Augsburg Confession; and we are at no loss to discern, in the moderate orthodoxy of his early theological sentiments, the germs of his celebrated *Theodicea*, and of his later writings on church union.



## CHAPTER II.

Leibnitz enters the University of Leipsic—Reads Descartes, and rejects the scholastic philosophy—Adam Scherzer and Jacob Thomasius—Pursuits and writings of Leibnitz at the University—He reads the writings of Lord Bacon, and other modern philosophers—Becomes a Nominalist—Enters upon the study of jurisprudence as a profession—Goes to the University of Jena—Vosius, and Erhard Weigel—Leibnitz returns to the University of Leipsic—Becomes master in philosophy—Death of his mother—He visits his relatives in Brunswick—Essays written by him—He is refused the degree of Doctor of Laws—Exiles himself from Saxony.

At the age of fifteen, already a learned scholar and a self-taught thinker, Leibnitz entered the University of his native city. There, as before at the preparatory school, he was principally his own teacher, and adhered to the same methods of investigation which he had already applied with so much success to the study of logic. "Two things," says Leibnitz, in his Fragment of Personal Confessions, "were of special service to me, even from boyhood; first, that I was strictly a self-taught scholar; and secondly, that in the study of every science, even at the outset, and before I had made myself thoroughly acquainted with what was commonly known and

received in it, I sought to make original discoveries. By this course, I secured the advantage of not encumbering my mind with things of no value, which depended on authority, rather than intrinsic merit; and, also, that of never being satisfied until I had laid bare the roots and fibres of every science, and had discovered its fundamental principles, upon which all subordinate views and minor details naturally depended."

It was about the time of his passing from the school to the University, that a fixed and decisive direction was given to Leibnitz's philosophical views and studies. The writings of Descartes fell into his hands; and he was accordingly compelled to make choice between the ancient scholastic philosophy and modern physics. After long days of reflection, he decided in favor of the latter, though without losing sight of the ancients, especially Aristotle. Of the studies and meditations which led to this decision, we take the following account from a letter written by Leibnitz, in his old age, to Raymond of Montmort.

"I was still a child," says the writer, "when I first became acquainted with Aristotle; and even the scholastics were at an early age not repulsive to me,—a circumstance I do not by any means regret. Later in life, Plato and Plotinus, not to mention the other philosophers of antiquity whom I consulted, afforded me some satisfaction. On leaving the lower school, however, then a lad of fifteen, I fell upon the new philosophers; and, as I well remem-

ber, it was in a small grove in the neighborhood of Leipsic, called the Rosevale (Rosenthal), that, walking to and fro, in pleasing and solitary meditation, I was wont to take counsel with myself whether or not I should retain the *substantial forms* of the schoolmen. The mechanical philosophy gained at length the upper hand, and led me to the study of mathematics."

As at the school, so at the University, the course of studies ordinarily pursued, and the views of science generally entertained, by no means met the wants of our young universal genius. The lectures on mathematics, by a certain John Kühn, did not carry the student of those days beyond the Elements of Euclid; and these teachings being so obscure as to be unintelligible to the audience of tyros, Leibnitz sought by questions for such explanations from the worthy professor, as might enable him afterwards to enlighten the benighted intellects of his fellow-students. Leibnitz, therefore, did not advance beyond the threshold of mathematical science, until he went to Jena, to attend on the instructions of Weigel, who introduced him to a more thorough knowledge of arithmetical analysis and combination. Although these deficiencies were afterwards most abundantly supplied, yet the recollection of his early superficial training in this branch of knowledge, was, even late in life, a source of poignant regret. "The study of the mathematics," he once said, in speaking of his mathematical education, "was entirely neglected in the places where my mind received its early disci-

pline; and had I, like Pascal, spent my youth in Paris, I should perhaps have sooner made original contributions to science."

In philosophy, Leibnitz attended, during the first year of his academic course, the lectures of John Adam Scherzer, and Jacob Thomasius. The former, a representative of the pure scholasticism of the middle ages, developed in controversy such a vigorous and subtle power of intellect, as secured for him the respect of his pupil, and afterwards occasioned his being favorably mentioned in the *Theodicea*. Thomasius, father of the distinguished Christian Thomasius, can with more propriety, however, be called the teacher of Leibnitz, as the latter has himself testified. This philosopher belonged to the more elegant of the Peripatetics; and though born, according to the judgment of his pupil, too late to take an active part in the restoration of science, he was the first who introduced into Germany the thorough study of the history of philosophy. Foreseeing, moreover, even at the University, the future greatness of Leibnitz, he encouraged him in his studies; and bound his pupil to him by ties of esteem and gratitude, that lasted, as their mutual correspondence testifies, long after the dissolution of their academic relations.

In connection with these two names, we may mention the first printed treatise of Leibnitz, written on the occasion of his promotion to the degree of Bachelor of Philosophy, and entitled, *De Principio Individui*. The author was only seventeen years of

age; but Thomasius publicly declared that he was "already equal to the investigation of the most abstruse and complicated controversies." It would appear as if the youthful candidate had selected the theme of his essay for the purpose of displaying the astonishing range of his reading in the scholastic philosophy, and the facility with which he employed its methods of reasoning. Though he had himself for ever renounced the scholastic views and methods, still the selection of a theme of this character must be considered as an exceedingly significant fact in the history of his philosophical progress, for the principle of *individuality* was afterwards made by him the corner-stone of his system of metaphysics. Leibnitz, moreover, disclosed the starting-point of his philosophy, when, in the spirit of the new physical sciences of his time, though by no means in conformity with the prevailing sentiment of the German universities, he declared himself in favor of the doctrines of the Nominalists, as opposed to the Realists. The more he became acquainted with the writings of the reformers of philosophy, so much the more rapidly did his opposition increase to the unfruitful speculations of the scholastics. It was at this period that he became acquainted with the views of Lord Bacon, as stated in the *De Augmentis Scientiarum*, with the most stirring thoughts of Cardanus and Campanella, and with specimens of a better philosophy in the writings of Kepler, Galileo and Descartes. He lived, also, as if in the presence of Aristotle, Plato, Archimedes, Hipparchus, Dio-

phantus, and the other great teachers of the human race. And thus associated with the illustrious spirits of the past, he took courage; and, no longer regarding the short-sighted views of the minds by which he was surrounded, held fast to the belief in the advancement of science and the progress of mankind.

It was now time for the young scholar to make selection of one of the learned professions. Inspired with the determination of striving in life after whatever was highest and best, he was desirous of entering upon such a professional career as would enable him, while laboring for his own personal interests, to confer at the same time the greatest benefits upon his fellow-citizens. His relatives and teachers considering the legal profession as the best adapted to the free development of his talents, and the practical realization of his liberal principles, urged him to devote himself to the study of jurisprudence. Listening to these counsels, and influenced somewhat, no doubt, by the example of his father, and his still more distinguished uncle, John Strauch, of Brunswick, Leibnitz finally decided to enroll himself as a student of law. For some account of his progress in this branch of knowledge, we recur again to his *Fragment of Confessions*.

“Having made choice of the profession of the law,” says Leibnitz, “I gave up all other pursuits, and confined my attention exclusively to that occupation upon which I was to depend for a livelihood. The knowledge previously acquired of history and

philosophy, I now found, however, of essential service to me. It enabled me readily to apprehend the theory and principles of the science of law; and not setting a very high value on that which it cost me so little trouble to understand, I immediately entered upon the study of the practical part of my profession. A friend of mine, an assessor of the supreme court of justice in Leipsic, whose house I often visited, rendered me much assistance, by allowing me the perusal of legal documents, and teaching me by examples the methods of drawing up judgments. Accordingly, I very soon worked my way into the heart of the science of jurisprudence. The employment of a judge appeared to me very attractive; but, on the other hand, the artifices of the advocates, against which I firmly set my countenance, were so repulsive, that I never afterwards would engage in the business of bringing actions, although, in the estimation of all persons, I wrote my mother tongue with great correctness and dexterity. In this wise I passed my seventeenth year,—happy above all things that I had directed my studies, not by the opinions of others, but according to my own good pleasure. As a consequence of this, I invariably took the first rank in all discussions and exercises, whether public or private, as not only my teachers testified, but also the printed congratulations and *carmina* of my school-fellows.”

Not long after Leibnitz had obtained his baccalaurate, the course of his philosophical and legal studies at Leipsic was interrupted by a visit of six

months to Jena, the University of which place, since the reforms introduced by Ernest the Pious, had enjoyed a high reputation. Here the young civilian attended lectures on jurisprudence, by Falkner; and on history, by the learned Vosius. What most attracted him, however, was the instruction and society of the before-mentioned Erhard Weigel, professor of mathematics, between whom and Leibnitz there existed a kind of spiritual relationship. Weigel, besides being a mathematician,—although by no means a perfect master of his science, and not initiated into the views of the distinguished mathematical teachers in other parts of Europe,—had also some reputation as a moral philosopher, and an original writer on natural law. It was said at Jena, when Leibnitz was there, that Pufendorf had borrowed his since so celebrated Elements of Natural Law from the manuscripts of Weigel. The original powers of this author were displayed, not only in propounding various new, though somewhat fantastic theories in the sciences of mechanics and astronomy, but also, especially, in the application of the doctrine of numbers to the science of morals. Weigel, moreover, was highly instrumental in bringing the reigning scholastic philosophers into disrepute in the German universities; and very much to their vexation, though to the amusement of his hearers, he was wont to drive his opponents into a corner, by requiring them to express their empty Latin terminology in the German language. The endeavors of the ablest minds of the times, however, to harmonize the



true doctrines of Aristotle with the theories of the modern metaphysicians and natural philosophers, were also participated in by Weigel, whose views on this subject deeply interested the inquiring mind of his young pupil.

During the residence of Leibnitz in Jena, he was introduced by Vosius into an academic society, composed of professors and students, under the name of *Societas Quærentium*, the members of which assembled once a week, to interchange views respecting the merits of new or old books of any celebrity. This society continued in existence so late as the time when Schiller studied and taught at Jena. Leibnitz belonged to similar societies, also, at Leipsic, the papers of which are said to be still preserved in the library of the University.

On his return to Leipsic, Leibnitz diligently prosecuted his professional studies, under the direction of Professors Quirinus Schacher and Leonard Schwendendorfer. Other branches of learning, however, were not neglected. On the contrary, Leibnitz was actively engaged in collecting those almost boundless treasures of knowledge, which made him the wonder of all who knew him. But notwithstanding the accumulation of these stores of learning, no relaxation was made in his favor of the rule requiring the student of law to spend five years in his profession, before being admitted to the honors of a doctorate. This was to Leibnitz a source of considerable regret.

A painful interruption was occasioned in these pursuits, by the death of the mother of Leibnitz, in

1664. Not long before this afflicting event, her promising son, after having sustained a creditable examination, had been promoted to the degree of a Master in Philosophy. He therefore now found himself placed in a situation, both in science and in life, requiring greater self-reliance than he had been before called upon to manifest. An occasion for the exercise of this virtue in real life presented itself immediately. His mother, on her decease, left to him and his sister a small and involved property, in which his maternal aunt, wife of the distinguished civilian, John Strauch, of Brunswick, was also interested. Leibnitz, in consequence, was obliged to visit Brunswick; and though he was unsuccessful in accomplishing the object of his journey, yet the acquaintance of his learned uncle did not fail to exert upon him an important and encouraging influence. Strauch quickly discerned the great capacities of the young jurist; and some time afterwards sent him a learned epistle on the branch of law with which his nephew was then occupied. It is to be regretted, that in consequence of the misunderstanding and variance which at that time sprang up between the two families, the connection between the uncle and nephew was of very short duration.

In the same year, Leibnitz composed his essay as a Master in Philosophy, under the title of *Specimen Difficultatis in Jure, seu Quæstiones Philosophicæ amoeniores ex Jure collectæ*; and in the year following, he wrote and defended two treatises on Roman law, entitled, *De Conditionibus*. These compositions, revised and more or less modified, were published in

1672, in a collection of essays on legal subjects, under the title of *Specimina Juris*. In 1666, with a view of obtaining a place afterwards in the philosophical faculty, he also defended a treatise, with the title of *Disputatio Arithmetica de Complexionibus*, which was published in the same year as a part of a treatise, entitled, *De Arte Combinatoria*. This last publication is remarkable on account of its uniting in a focus all the manifold philosophical views and tendencies of this precocious thinker; and still more so, by reason of its containing the germs of the subsequent discoveries of the differential calculus, and of the plan of an universal language. Leibnitz himself afterwards said, that he considered this treatise as an announcement of these discoveries, and as a proof that they had been lying in his mind in embryo a long time before they were fully developed and published to the world.

Leibnitz having now completed his twentieth year, the time had arrived for him to apply for the degree of Doctor of Laws; and after having obtained this highest academic honor, to enter upon the business of professional life. But, strange to say, this honor was refused him! The true reasons of this surprising act of injustice never fully transpired, until the following explanation was given in his *Fragment of Confessions*.

“The faculty of law in the University of Leipsic,” says Leibnitz, “is composed of twelve assessors, who are not professors. These persons occupy themselves much more with legal pleadings, than with

lectures and literary disputations. Into this faculty, the doctors of laws in Leipsic are admitted in the order of the date of their doctorate, whenever vacancies are created by the retiring of any of the members. I saw that in case I obtained my doctorate at an early day, I should be one of the first to be admitted into the faculty, and be in a fair way of making my fortune. But here a great contention arose. Some of the candidates were desirous that they alone should be raised to the honors of a degree; and that the younger aspirants should be compelled modestly to wait until the next promotion. A majority of the faculty fell in with this proposition. But no sooner did I discover the finesse of my rivals, than I changed my plans, and resolved on expatriating myself."

This resolution was carried into effect; and thereby lost Leipsic and Saxony the great man who was destined to become the pride of the German nation. Leibnitz, on his part, never expressed a desire to return to the land of his birth; and it was said, that it was not without reluctance that he ever afterwards set his foot within his natal city. Certain it is, that no proposition was ever known to have been made by Saxony, for the purpose of effecting the return of her highly gifted son. The memory of the young jurist, in the city of his fathers, has passed away; and the curious traveller may inquire in vain of the good citizens of Leipsic for the house, or even the street, in which the great philosopher first saw the light.

### CHAPTER III.

Leibnitz receives his doctorate at the University of Altdorf—Declines a professorship—Spends the winter of 1667 in Nurenberg—Is made secretary of a society of Rosicrusians.

It was in the autumn of the year 1666, that Leibnitz bade adieu to his friends, and set out from Leipsic, with the design of seeking among strangers the honors denied him in his own country. The place to which he directed his steps, was the University of Altdorf, within the territory, and under the superintendence, of the imperial city of Nurenberg. Here, without delay, Leibnitz was admitted to an examination for the degree of Doctor of Laws, and to a defence of his already completed treatise, *De Casibus Perplexis*. This essay was printed in Altdorf, and afterwards inserted in the before mentioned collection of the *Specimina Juris*. Supported by a most brilliant oral examination and disputation in public, it procured for the meritorious candidate his doctorate with universal approbation. Of this ceremony he ever retained a lively recollection; and has left us the following pleasing description of it in his Confessions.

“In my twenty-first year,” says Leibnitz, “I received the degree of a doctor at the University of Altdorf, with great applause. In my public disputation, I expressed my thoughts so clearly and felicitously, that not only were the hearers astonished at this extraordinary and, especially in a jurist, unexpected degree of acuteness; but even my opponents publicly declared that they were extremely well satisfied. . . . Two superintendents of the schools, who were present at the promotion, took a peculiar way to express their admiration. For as I pronounced two discourses on the occasion, one in prose and the other in verse, the first was so perfect in form that it had the appearance of having been previously committed to memory. But as I proceeded to the recitation of the verses, being compelled from short-sightedness to hold the paper near to my eyes, they wondered that I had not rather committed the poetry to memory, as this could have been done more easily. Thereto I replied, that they were in error: I had not committed the prose oration to memory, but so far as the words were concerned, it had been entirely extemporaneous. As they could scarcely credit this, I pointed them to the example of the clergy, who, satisfying themselves with making an imperfect draft of their sermons, vary from it at pleasure, on delivery; and assured them, that what these clerical orators did in the German language, I could do with equal ease in the Latin. Thereupon I exhibited to them my manuscript, from the inspection of which they convinced themselves that it

contained very different words from those employed in the delivery of the oration. This performance gained for me great reputation in Nurenberg, so that soon afterwards the principal clergyman of the city, in behalf of the board of education, informed me that if I were disposed to accept a professorial chair in the University, the honor might be obtained for me. But my thoughts were turned in an entirely different direction." Leibnitz thought, it is most probable, that a reform of the sciences, such as was then already more or less distinctly contemplated by him, could hardly be effected within the narrow limits of an university; and though undoubtedly conscious of possessing the intellectual and oratorical gifts requisite for such a station, he preferred bravely to follow the intimations of the genius within, which warned him that the point esteemed by most scholars as the goal of their hopes and endeavors, was for him but the starting-point of his career.

It was natural that Leibnitz, cut off from those pecuniary prospects which had spread themselves out before him in the place of his birth, should look around for some means of support, in the strange land whither his sensitive and active spirit had allured him. The city which most readily presented itself as a place of residence, was Nurenberg, into whose learned circles his fame had already preceded him. This small but opulent republic, comprising, besides the metropolis, seven cities, a large number of villages and castles, together with the University of Altdorf, exhibited at that period the singular and

attractive spectacle of a free, active, and peculiarly German mode of life. The ancient industrial activity of Germany, every where else prostrated to the earth, had taken refuge, at that time, in the free cities of Augsburg and Nuremberg. This state of prosperity, this general activity of all classes of society, had preserved the inhabitants of these cities from that servile imitation of the French, which, prevailing throughout the country, and especially within the sphere of polite and courtly life, had undermined the pristine virtue of the German character. To this high tone of life and manners, Leibnitz was not insensible. For the fine arts, however, of which the birth-place of Albert Dürer presented so many splendid monuments, no taste had at that time been developed, either in the public mind, or in that of Leibnitz. He was more attracted by the useful, and also by those mystic arts, which, in the then infancy of natural philosophy, were intimately allied with the study of nature.

At the time Leibnitz took up his residence in Nuremberg, there existed in that city, as in many of the larger towns of Germany, a secret society of Rosicrucians. These considered themselves as adepts in the science of chemistry, and, zealously engaged in the business of experimenting, were not without some faint hopes of one day falling upon the precious discovery of the philosopher's stone. To penetrate within the charmed circle of this mysterious fraternity, appeared to the ardent spirit of the young philosopher an object well worthy of his ambition.



But young, and without influential friends, he could devise no better way of gratifying his desires, than by resorting to a singular artifice, to which, even in his old age, he could not refer without a smile. As we are informed by his secretary, Eckhart, he consulted the most profound books on chemistry to which he could get access, and noted down the obscurest forms of expression used in them. With the help of these terms and phrases, he wrote to the directors of the society a learned epistle, which he himself did not understand, and humbly sued for admission. One of the directors, a reverend clergyman, having, on reading the communication, no suspicion but that the youthful applicant was a regular adept in the science, not only introduced him into the laboratory of the society, but even went so far as to offer him the situation of secretary and assistant, with a small salary. This the young adventurer accepted, of course. His business in this office consisted in registering the experiments of the laboratory, and in making extracts from scientific works, for the use of the most distinguished members. In this singular occupation Leibnitz remained through the winter of 1666; not long enough, indeed, to realize the splendid dream of alchemy, but at least a sufficient time to convince him of its dangerous folly, and to qualify him for warning many persons, in the course of his life, against the fascinating arts of the "gold-making fraternity."

## CHAPTER IV.

Leibnitz becomes acquainted with von Boineburg—Goes to Frankfort—Meets with Spener, the pietist—Publishes his *Methodus nova Jurisprudentiæ*—Is engaged by the Elector of Mentz in revising the laws of the German empire—Hermann Conring—Literary and diplomatic labors of Leibnitz—His theological writings—He edits the *Anti-Barbarus* of Marius Nizolius—Attempt to reconcile the doctrines of Aristotle with modern philosophy—His theory of an universal ether—Possibility of transubstantiation, and the real presence—His fame and honors—His correspondence with Anthony Arnaud, and Spinoza.

In the spring of 1667, Leibnitz met in Nurenberg with a person whose acquaintance was destined to decide the course of his whole future life. This was the distinguished statesman and scholar, John Christian von Boineburg, who had been for a long time first minister of the noted Elector of Mentz, John Philip von Schönborn; but who, at the period of which we write, was residing in official disgrace and learned leisure, at Frankfort on the Main. Boineburg, who, like most of the great men of those days, dabbled a little in chemistry, became acquainted with Leibnitz through one of his alchemistic friends; or, according to another report, accidentally

fell in with him at the hotel where he was staying during his visit to Nuremberg. The sagacious courtier, discovering at their first interview the extraordinary talents of the philosopher of twenty-one, and forming at once the highest expectations of his future career, invited him to transfer his residence to Frankfort. This proposal Leibnitz accepted, though without any definite prospects even for the immediate future.

In Frankfort, Leibnitz found much greater facilities than he had enjoyed at Nuremberg, for mingling in the society of men both of learning and of business. Among other remarkable persons, he here made the acquaintance of the famous, though then youthful, divine, Philip Jacob Spener, father of the so called sect of German pietists. But from the very beginning of his residence in Frankfort, Leibnitz turned his thoughts towards the neighboring court of Mentz, the illustrious head of which was the munificent patron of every kind of talent. Impelled by the desire of bringing himself within the notice of this prince, and also encouraged by the solicitations of his friends, he published in 1668 an essay, entitled, *Methodus nova Discendæ Docendæque Jurisprudentiæ*, and preceded by an eloquent dedication to the Elector. This production, though composed in the course of a journey, without books, or any other helps, is exceedingly rich in valuable ideas; and is remarkable as being the first of Leibnitz's reformatory writings. Composed not altogether without reference to Lord Bacon's great work, *De Augmentis*

*Scientiarum*, its chief merit consisted in the ability and learning with which it exposed the deficiencies of the existing systems of laws, and pointed out the appropriate remedies. The new ideas of the young reformer created no little sensation, at the time, even among the most intelligent statesmen of the electoral court. In the eighteenth century, moreover, they were thought worthy by the learned Christian Wolf of being brought out in a new edition; and were also translated, not many years since, by a French jurist, into the language of his countrymen.

This essay, presented by Leibnitz in person to the Elector, procured for the author the favorable notice of this accomplished prince, and, afterwards, an honorable appointment in his service. It happened at that time, that a learned jurist, by the name of Herman Andrew Lasser, was engaged, by order of the government, in revising the system of Roman laws, for the purpose of better adapting it to the existing circumstances of the German empire. In this important undertaking, Leibnitz was associated with Lasser, as an assistant; and was allowed a small weekly compensation from the electoral treasury. In his new vocation, Leibnitz labored with such diligence as soon to take the lead in the joint enterprise; and a pamphlet, published in 1668 by the two jurists, entitled, *Ratio Corporis Juris reconcinandi*, was from the pen of the younger associate. He at that time also wrote a short essay on the same subject, in the German language. This, at first circulated in manuscript, was not formally published

until after the author's death. The great labor of revising the laws, however, interrupted as it was, on the part of the younger jurist, by a great variety of other pursuits, was never fully completed; and, indeed, the gradual introduction afterwards into Germany of new and original codes, rendered the accomplishment of the undertaking, even in the opinion of Leibnitz himself, quite inexpedient.

Baron von Boineburg soon became warmly interested in the character and progress of his young *protégé*, whom he thus introduces by letter, under date of April 22d, 1670, to the acquaintance of the noted statesman, Hermann Conring. "He is a young man from Leipsic, of four and twenty, doctor of laws, and learned beyond all credence. Being acquainted with the whole course of philosophy, he is a good mediator between the old and new systems. He is a mathematician, also, understanding physics, medicine, and the whole range of mechanics; and is, withal, ardent and industrious. In religion he is an independent thinker; and, for the rest, belongs to your [the Lutheran] church. The theory, and, what is to be wondered at, the practice, also, of law, is perfectly familiar to him. He is devoted to you with love and veneration."

During his residence both in Frankfort and Mentz, Leibnitz was, by turns, the secretary, librarian, advocate, counsellor and factor of his patron, who well knew how to make use of the various talents of his youthful favorite. One whole winter was spent by the latter in superintending the formation of a cata-

logue of the extensive library of the baron; and another, in assisting him to prepare for a mission he was about to undertake to Poland, as an advocate of the claims of the Palsgrave of Neuburg to the throne of that country, rendered vacant by the abdication of John Casimir. To produce an impression upon the Polish nation in favor of the Palsgrave, Leibnitz drew up an able and learned state paper, which was published in 1669, under the title of *Specimen Demonstrationum Politicarum pro Rege Polonorum eligendo, auctore Georgio Ulicovio Lithuano*. The authorship of this pamphlet was, at the time, kept strictly secret. Even the Palsgrave, for whom the writer had entered the lists against his numerous competitors, never discovered the name of his masked champion. Leibnitz himself first disclosed it, many years afterwards, to the then electoral house of Neuburg,—saying that it had been his intention to intimate his claims to the authorship, by the correspondence between the initials of his real name (Godefredus Vuilelmus Leibnitius), and of the assumed one. The result of the baron's mission is well known. The Poles, passing by all the foreign candidates for the honors of royalty, selected a prince from their own nation. But, though returning disappointed, Boineburg spoke to his friends none the less warmly in praise of his young assistant, whom, in his enthusiasm, he called *summus summarum rerum tractor et actor*.

An attempt was for the first time made in the above-mentioned pamphlet, to apply the method of

mathematical demonstration, previously employed by Spinoza in philosophy, and by Hobbes in natural law, to the solution of a question in politics and diplomacy;—an undertaking, indeed, that betrayed the youthfulness of the author, who was at the time but two and twenty. The views introduced, however, respecting the science of natural law, contained the characteristic features of the theory afterwards developed more fully by Leibnitz; but what gave to this production some value in the eyes of its author, even late in life, was the circumstance, that moral and political principles were here treated as elements in the calculation of probabilities. On the whole, the pamphlet created, at the time of its publication, no slight sensation among the then masters of political science.

✓ In the course of the ten years immediately preceding Leibnitz's residence in Mentz, considerable exertion had been made by certain leading Protestants, particularly Hermann Conring and the theological faculty of the liberal University of Helmstädt, and, on the other hand, by the Catholic chapters of Mentz and Cologne, to effect an union of the Protestant and Catholic churches, and thereby bring about a consolidation of the whole Germanic nation. At the same time, in consequence of the prevalence of the natural and mechanical philosophy of the schools of Bacon and Gassendi, and also of the refuge granted in his dominions, by the enlightened Elector of the Palatinate, to the Socinians expelled in 1663 from Poland, the doctrines of Socinianism,

and,—if we may credit the complaints of the theologians of those days,—of atheism, also, were beginning to take root in Germany. Boineburg, therefore, who possessed a deeply religious nature, and who, besides, had become a zealous convert from Lutheranism and Catholicism, became deeply interested, both in the project of uniting the Protestants and Catholics, and, also, in the efforts of the partizans of the orthodox churches to refute the opinions of the free-thinkers. In furthering these plans, the sympathies and services of Leibnitz were readily enlisted. In 1668, accordingly, he was induced to write a brief argument in defence of the doctrines of the divine existence, and the immortality of the human soul, against the attacks of the materialists and atheists. The manuscript, given to Boineburg, and afterwards to Spener and others, was finally published by Gottlieb Spizelius, in his *Epistola ad Reiserum de eradicando Atheismo*, under the title, selected by the editor, of *Confessio Naturæ contra Atheistas*. This argument, which continued to satisfy the mind of its author hardly for a single year, was, in fact, no more than a revised edition of an essay on the same subject, published two years before, in connection with his dissertation, *De Arte Combinatoria*. Not dissimilar in its contents to the preceding essay, was another brief paper, composed by Leibnitz in 1669, and published under the title of *Defensio Trinitatis per nova reperta Logica, contra Epistolam Ariani*. In this paper, written at the request of Boineburg, who had found himself no match in the polemical arena for so practised a dis-



putant as the Pole, Thissowatius, Leibnitz, without attempting to adduce new proofs of the doctrine of the trinity, contented himself with exposing the weak points in the reasoning of his opponents,—a task for which his early logical training most admirably qualified him. This method of argumentation always appeared to him abundantly adequate for satisfying the minds of those who were disturbed by doubts respecting the soundness of any part of the Lutheran theology, as well as for refuting the opinions of heretics.

At the solicitation of Boineburg, immediately after his return from Poland, Leibnitz was induced to edit a new edition of a learned work of the Italian, Marius Nizolius, originally published in 1553, with the title of *Anti-Barbarus, seu de veris principiis et vera ratione philosophandi contra Pseudophilosophos*.—The new edition contained an essay by the editor, on the style of the original work, and also on the peculiar advantages of the German language as a medium of philosophical communication. The work itself of Nizolius, being an attack upon the scholastic philosophy, rather on account of its barbarous style, than its faulty methods, does not appear to have been considered, even by Leibnitz, as possessing, at the time of its republication, much other than an historical value. The responsibility of the undertaking was thrown by the editor upon his Mecænas, to whom the new edition was dedicated.

✓ The writings of Leibnitz at this period of his life, show that he was earnestly engaged in attempting to reconcile the doctrines of the ancient peripatetics

with the discoveries of the modern experimental philosophers; and with the hope of thereby gaining an independent foundation, whereon to rear a metaphysical system of his own. In this transitional state of mind, he busied himself, in the year 1670, with the excogitation of a cosmological hypothesis, published soon afterwards in two parts, under the title of *Hypothesis Physica nova, seu Theoria motus concreti*, and *Theoria motus abstracti*. The first part, with the view of making his name known to the friends of science without the limits of his native land, was dedicated by the author to the Royal Society in London. This was probably done at the suggestion of Boineburg, who was a friend of the secretary, Oldenburg. Having been favorably reported upon by the distinguished mathematician, John Wallis, the essay was graciously received by the Society, and gratefully acknowledged through their secretary. The second part was dedicated to the Royal Academy in Paris, and was brought before that learned body by the king's librarian, Carcavi, to whom the author had been recommended by the French geometrician, Ferrand. This essay, in both its parts, which was considered by the author himself as no more than a "dream in natural philosophy," rejecting the vortices of the Cartesian theory, represented all the motions of the universe as derived from one universal movement. The principle or cause of this movement was symbolically represented by a fine ether, analogous to light, and which, entering the pores of physical substances in the direction of the earth's axis, produces under different condi-

tions all the various phenomena usually attributed to the principles of gravitation and elasticity. In this theory, the distinction between body and spirit was almost lost sight of, as appears in the declaration, *omne corpus est mens momentanea*; and the views expressed in it, respecting infinitely small and divisible particles of substance, may be regarded as the germs of the author's doctrine of monads.

Although the hypothesis of an universal ether was never entirely given up by Leibnitz, who remained to the last unable to adopt the purely mathematical conceptions of Newton on the subject of motion, yet the then prevalent view of nature, as a great self-regulating machine, was soon laid aside by him. This change of opinion appears to have taken place in consequence of some theological speculations into which he was led by Boineburg's desire to bring about a union of the Protestant and Catholic churches. The Cartesian doctrine, that material existence is composed of figure, extension and motion, appearing to Leibnitz to stand in direct contradiction to both the Catholic dogma of transubstantiation and the Lutheran belief in the *real presence*, his inquiries finally led him to the opinion, that the existence of material bodies supposes something previous to and independent of extension. This something he denominated *substance*, conceiving of it as combining together both the spiritual and the material element. And by this supposition of an immaterial principle in matter, he thought to do away, not only the appearance of absurdity in these theological dogmas, but, also, by showing their essential identity, to

bridge the chasm between the two churches. Later in life, Leibnitz gave up this mediating theory, as well indeed as all hopes of finding a better one to take its place; but still he ever held fast to his view of substance as the union of the material and the immaterial principles, and made it occupy a very important place in his peculiar system of philosophy. The project, likewise entertained at this time by Leibnitz, of uniting the Protestant and Catholic churches, was never altogether relinquished by him. He himself, however, remained true to the faith of his fathers; though his relatives in Saxony were not a little distressed, about this period, by reports that came to them of his having been converted to Romanism.

Meanwhile, the fame of Leibnitz, from his advantageous connection with a statesman so widely known as Boineburg, was gradually extending itself to the neighboring courts of Germany. As early as the close of the year 1669, the Duke of Hanover wished to engage him in his service; and a place, also, was offered him at the court of the reigning prince of Durlach. Both of these proposals, however, were declined,—the latter at the earnest solicitation of Lasser, with whom Leibnitz was associated in revising the laws. In the following year, however, he accepted the office of counsellor in the College of Appeals at Mentz,—the highest judicial tribunal in the electoral archbishopric. Leibnitz, at the time of this appointment, was not fully twenty-four years of age.

It was about this period, also, that Leibnitz com-

menced that epistolary correspondence with men distinguished for learning and genius, which, in the course of his life, extended itself to almost all quarters of civilized Europe, and which, in the absence of the literary journals of recent times, formed a very important bond of intercourse between him and the isolated scholars of the seventeenth century.

Through the intervention of von Boineburg, he entered into a correspondence on the subject of the union of the Protestant and Catholic churches, with Anthony Arnaud, a noted disciple of Cartesius, and member of the society of Port-Royalists. He also sent a short memorial, on the improvement of lenses, to that most profound metaphysician of his times, Benedict Spinoza. Having gotten the notion that a new kind of lenses might be formed, by means of which the true distances and sizes of objects might be measured from one and the same point of view, Leibnitz wrote to Spinoza, to ask his opinion of the proposed invention. This practical optician replied to his youthful and unknown correspondent, with his usual urbanity and obligingness, though forced to confess himself unable fully to understand the nature of the designed improvement. A letter written by Leibnitz, through the medium of Oldenburg, to another deep and original thinker of the age, Thomas Hobbes, as well as a second one, afterwards sent to the same person from Paris, appears never to have received an answer. These letters treated of some of the published views of the English philosopher, and were partly complimentary, partly critical.

## CHAPTER V.

Leibnitz becomes engaged in politics—Is present at a conference of German princes at Schwalbach—Writes a pamphlet on the political affairs of Germany—His journey to Strasburg—He proposes to Louis XIV the conquest of Egypt—Goes to Paris—Enlists the Elector of Mentz in favor of his project for the conquest of Egypt—Writes to the Duke of Hanover respecting it—Its fate—Its relation to the expedition of Bonaparte—His occupations in Paris—He invents an improvement on the reckoning machine of Pascal—His projected inventions—His acquaintances in Paris—Anthony Arnaud—Leibnitz superintends the education of the son of Boineburg—Death of Boineburg—Leibnitz visits London—Robert Boyle—John Pell—Leibnitz's rivals in discovery—His mathematical attainments at this period—Death of the Elector of Mentz—His character.

WE have now arrived at that period of the life of Leibnitz, when he began to take a more prominent part in politics. The subject which now chiefly occupied his attention, was the danger to which the German empire was exposed from the aggressive policy of Louis XIV. This great and ambitious monarch, after having invaded Holland, was threatening to turn his victorious arms against the dominions of his neighboring rival, the emperor. To avert so great a calamity, Leibnitz, in connection with

Boineburg, engaged actively in the patriotic endeavor to effect an union of the German princes in the neighborhood of the Rhine. In the month of July, 1670, the Electors of Mentz and Triers, together with the Duke of Lorraine, met in Schwalbach, to consult together respecting the defensive measures that should be taken by them, in view of the critical condition of political affairs in western Germany. The Duke deemed it highly important, for the security of his dominions against the encroachments of Louis XIV, that they should all join the triple alliance formed against France by England, Holland and Sweden. Boineburg, who, together with Leibnitz, was present at the meeting, opposed this policy; and the latter, under the advice and direction of his friend, drew up, within the short space of three days, a pamphlet, entitled, "Reflections upon the manner in which, under existing circumstances, the public safety, both internal and external, may be preserved, and the present state of the empire be firmly maintained." (*Bedenken, welchergestalt securitas publica interna et externa und status præsens im Reich jetzigen Umständen nach auf festen Fuss zu stellen.*) The object of this pamphlet was to oppose the proposed union of the Germanic princes with the triple alliance,—a measure, it was alleged, that would be sure to call down on them the indignation of Louis; and instead thereof, to recommend the formation of a league among these princes themselves. This German league, it was designed, should maintain a standing army of 20,000 men,

intended in reality, though not ostensibly, to prevent the invasion threatened by France; and should also act in concert, in effecting various improvements in the internal affairs and relations of their several dominions. The views of the writer of the pamphlet were eloquently and patriotically enforced by a reference to the internal wants of the empire, as well as to the fearful storm then already lowering on the western horizon.

The fears entertained by Leibnitz, of an attack on the part of France, were soon realized. Irritated by the strenuous attempts of the Duke of Lorraine to unite the German princes in opposing the encroachments of their ambitious neighbor, Louis, before the expiration of the summer of 1670, overran the duchy of Lorraine, and filled it, together with the adjacent bishoprics, with an army of 20,000 men. In this posture of affairs, Leibnitz composed, in the following November, a continuation of the above-mentioned pamphlet, still urging the formation of the league before recommended. At the same time, however, he predicted, with no little sagacity, as the event proved, that the arms of the common enemy would be directed, in the ensuing season, not against Germany, but Holland. The particular measure advocated by Leibnitz, in these pamphlets, was never carried into execution; but a similar alliance was formed, the year following, between the emperor and several of the German potentates, for their mutual protection, though ostensibly for the maintenance of the peace of Westphalia.



The political and judicial occupations of Leibnitz were interrupted for a time, in the summer of 1671, by a visit to Strasburg,—apparently in the service of his patron, whose son was then attending, in that city, upon the instructions of the eminent statesman and scholar, Böcler. With this gentleman, Leibnitz had the opportunity of holding several conversations, which, later in life, he often referred to with pleasure. On his return, while sailing down the river so dear to every patriotic German, his spirit was saddened by reflections upon the exposed situation of his country; and on meeting again with Boineburg, he disclosed to him a plan he had several months been revolving in his mind, for warding off the dangers which threatened the peace of the empire. This was no less than the famous project of proposing to Louis XIV to direct the French arms towards the coast of Egypt, with a view of subjugating the infidels beneath the pyramids of the Ptolemies. The thought was, indeed, not altogether original with Leibnitz. As long ago as the early part of the fourteenth century, the Venetian, Marino Sanuto, made, in his *Secreta Fidelium Crucis*, a similar proposal to the Pope of Rome. With this book Leibnitz was acquainted. With him, however, originated the design of calling the attention of Louis to this subject; as his, also, were the labors which grew out of its execution. Even in his Schwalbach pamphlet, he had suggested the plan of a general crusade of the Christian powers against the barbarians and unbelievers. France, he there said, was destined to

lead the armies of Christendom to the Levant,—to destroy the nests of pirates who infested the Mediterranean,—to take forcible possession of Egypt,—and even send her colonies to the remote regions of the Indies. On the occasion, also, of the election of a successor to the bishop of Mentz, in 1671, Leibnitz composed a congratulatory poem in Latin, in which, apostrophizing Louis XIV, he alluded to the expedition to Egypt, and embellished his chivalrous project with the graces of verse. It was not until the year following, however, that Leibnitz really took a serious view of his project, and united with Joineburg in earnest labors to effect its realization. He then entered upon the composition of a detailed memorial to the king of France, in which the conquest of Egypt and the destruction of the Turkish empire were proposed to the ambitious monarch, as a substitute for the contemplated campaign against Holland. The manuscript of this work, mostly in Leibnitz's own hand-writing, is still preserved among his papers, in the royal library of Hanover. Along with this is also a smaller manuscript, likewise in Leibnitz's hand-writing, to which some one has given the title of *De Expeditione Ægyptica, Epistola ad Regem Franciæ Scripta*. In both of these memorials, the last of which only has been published, the greater advantages to be gained from the expedition to Egypt, compared with those to be anticipated from the war against Holland, are set forth with all the eloquence, learning and acuteness of which the writer was master. Owing, however, to important

changes in the posture of European affairs, these papers, prepared with no little study of politics, geography, and military tactics, were not presented to the illustrious personage for whom they were intended.

The project, however, was not given up. Boineburg, having some private business to be transacted in Paris, proposed that Leibnitz, instead of sending his memorials to the French monarch, should carry them in person. To this plan, the latter, who from youth had cast a wistful eye towards this chief seat of whatever, at that period of history, exalted and embellished life, listened with no slight satisfaction. Accordingly, he drew up a very brief statement of the advantages which the king of France might derive from a "certain expedition," the details of which the writer was ready to explain to any person his Majesty might graciously appoint to receive them. The general tendency of this note was, to dissuade Louis from the war against Holland, while, at the same time, it was intimated that the proposed expedition, by breaking up an important branch of the trade of the Dutch, would, in fact, be more detrimental to their interests than would be a direct invasion of their territory.

But the formation of a league by France and England against Holland, rendered an attack by the French monarch upon the latter country inevitable. Boineburg and Leibnitz, therefore, were compelled so far to change their plans, as to propose the expedition to Egypt as an advantageous undertaking, to

be attempted after the conclusion of the war, which, it was foreseen, would be a short one. To the first note, accordingly, Leibnitz added a second, written in Latin, urging the most Christian king to undertake the proposed expedition, upon the re-establishment of peace. Both of these notes, in the handwriting of Leibnitz, are preserved in the archives of the embassy of foreign affairs in Paris.

A few weeks after the notes had been dispatched to the king of France, an answer was received, through the minister of foreign affairs, saying that his Majesty would be happy to listen to any communications respecting the subject suggested. Accordingly, in March, 1672, Leibnitz, accompanied by a servant, set off on his singular mission to the court of Louis XIV. Besides being supplied by his patron with the means for defraying his travelling expenses, Leibnitz was also furnished with a letter of introduction to the minister de Pomponne, wherein the bearer was described as "*un homme qui, quoique l'apparence n'y soit pas, pourra fort bien effectuer ce qu'il promet.*" Arrived in Paris, Leibnitz proceeded to request the favor of the promised audience. For the rest, all that is known is, that his propositions were heard, considered, and rejected. He remained in Paris, however, partly to attend to the private concerns of his patron, and partly to await the arrival of Boineburg himself, who, together with his son, was soon expected in the French metropolis.

But notwithstanding the coolness with which their project had been received by the king of France, the

hope of preventing the ascendancy of French influence in the German empire, by directing the ambition of Louis to the plains of the East, was by no means relinquished, either by Leibnitz or Boineburg. They now resorted to the expedient of endeavoring to procure the co-operation of the Elector of Mentz in the accomplishment of their purpose. Leibnitz accordingly drew up a paper, to which the title has been given of *Consilium Ægyptiacum*, wherein he gave an exposition of a plan for engaging the king of France, on the conclusion of the war with Holland, in a crusade against the infidels of Egypt; while, at the same time, the emperor and the Poles should make an attack upon the Turks by land. The Elector caught eagerly at the patriotic proposal; and straightway sent a detailed communication on the subject to the French monarch, then encamped at Doesfeld. He even went so far as to offer to mediate with the other European powers, that they should not interfere to prevent the speedy adjustment of the terms of a peace with Holland, in order that Louis might be able to set off at an early day, for the banks of the Nile. It so happened, however, that at the very time these propositions were addressed to the pious and heroic feelings of the royal breast, his most Christian Majesty was secretly negotiating with the Sublime Porte for the renewal of the friendly and commercial relations that had formerly subsisted between their respective courts and countries. The answer, therefore, sent by Louis to the French ambassador at the Electoral court, was

as follows: "As to the project of a holy war, I have nothing to say. You know that since the days of Louis the Pious, such expeditions have gone out of fashion."

Still Leibnitz was not disheartened. Having for some time carried on a literary correspondence with the Duke of Hanover, John Frederic, he resolved to make use of the acquaintance he enjoyed with this enlightened prince, to enlist his influence, if possible, in favor of the Egyptian expedition. He accordingly sent to Hanover a lengthy and very able communication on the subject. In this paper, the writer so far resorted to the diplomatic finesse that was usually practised in the European courts at that period, as to conceal from the Duke the fact that his scheme had already been rejected by the royal personage whose assistance was represented as absolutely indispensable to its execution. But both the arts and the arguments of Leibnitz proved to be of no avail. The letter, on the whole, however, so much interested John Frederic, that he immediately sent to the writer a flattering invitation to enter into his service.

All these negotiations, growing out of the project of the Egyptian expedition, remained, even until the commencement of the French revolution, a profound secret. The reason why Leibnitz so suddenly left Mentz for Paris, was never known, even to his most intimate friends and relatives. The general impression was, that he was to superintend the education of the son of Boineburg, in the French metropolis. The report, moreover, so widely circulated and cred-

ited in the beginning of the present century, that Napoleon obtained the hint of his Egyptian campaign from the memorials of Leibnitz to Louis XIV, was entirely without foundation. It was not until after the conquest of Hanover, in 1803, that Napoleon heard of the existence of these manuscripts among the papers of Leibnitz, and received, through General Mortier, a copy of the *Consilium Ægyptiacum*.

While awaiting the arrival of Boineburg in Paris, Leibnitz, being prevented by the absence of the court from attending to the private business of his patron, devoted his time exclusively to the cultivation of his mind, and the collection of useful information which the French capital on all sides presented. At times he buried himself, as he says, in the libraries, where he discovered several rare and valuable documents, particularly in history. Though not then initiated in the higher branches of mathematical analysis, he nevertheless amused himself with some attempts at making discoveries in this department of science. Having heard of Pascal's curious reckoning machine, he at once invented an improvement on it, and thereby attracted the attention of the minister, Colbert, who encouraged him to construct a model, with his improvements, and sent him suitable artificers, to render the necessary assistance. Pascal's machine went through the processes of addition and subtraction only; but that of Leibnitz was constructed to execute those, also, of multiplication and division, as well as of the extraction of the square and cube

roots; and was designed to be used in topographical, astronomical, trigonometrical, and various other complicated calculations. Such eminent persons as Arnaud, Huygens, Thevenot, and even the friends of Pascal, examined the model with admiration, and confessed that the French invention was not to be compared with it. In the year following, it was exhibited before the Royal Academy of Sciences.

The mind of Leibnitz, at this period, was occupied, also, with manifold and somewhat fantastic projects in mechanics. He thought of inventing an instrument for the perfection of geometrical calculations, whereby the nature and contents of all conceivable lines and figures could be determined without any difficulty. In navigation, as he wrote to the Duke of Hanover, he only wanted to verify a certain experiment, which had been given out as true, in order to devise a new method of finding the longitude of any given place, so that the mariner might ascertain his position without help of sun, moon or stars. In hydrostatics, he had restored the lost invention of Drebbel, by means of which a ship could dive under water, on the occasion of a storm, or for the purpose of escaping from pirates, and reappear on the surface at pleasure. In pneumatics, he had discovered a method, whereby, with the application of comparatively little power, the atmosphere could be so compressed in the barrel of a gun, or other receptacle, as to generate a force greater than that resulting from the explosion of gunpowder. This pressure was to be obtained by water; and by means of it, engines



could be constructed of such power, that a vessel propelled by them would be able to sail directly against the wind, and could, no more than a cannon ball, be detained in its course by storms. In optics, he had invented catadioptrical tubes, in which, by means of mirrors, many rays of light, that were lost in the ordinary instruments, would be preserved; and to this invention was to be added, finally, that of a method, previously sought in vain, for measuring from the same point of view different perspective distances. Of these curious projects, none, except the reckoning machine, was ever made public, much less carried into execution. In the year 1675, however, Leibnitz, being still a resident in Paris, published a letter in the *Journal des Savans*, respecting a plan of his for the improvement of watches. In this communication, the writer attempted to show that watches might be constructed on purely abstract, mechanical principles, without a reference to the oscillations of the pendulum.

In the reign of Louis XIV, the French were far in advance of their neighbors beyond the Rhine, in the various mechanical arts; and Leibnitz, who suffered no improvements, either in art or science, to escape his attention, did not fail to make use of the opportunities, presented to him during his residence in Paris, to gain such information on these subjects as might be of service to his countrymen. He conversed frequently with the most skilful mechanics; and was only hindered by want of pecuniary means from extracting from them the most important secrets.

But it was not only with artizans that Leibnitz held intercourse. He mingled gladly, likewise, in the society of the distinguished men of genius, both natives and foreigners, whom the munificent patronage of Louis had assembled in his capital. Of many of these persons, we shall have occasion to speak in a subsequent part of our narrative. During the earlier part of his residence in Paris, he was often in the society of Anthony Arnaud, uncle of the minister, Arnaud de Pomponne, with the former of whom he had corresponded on the subject of church union. Arnaud, besides being one of the most eminent theologians of the age, was also well versed in some branches of the mathematics: and could therefore appreciate the mathematical talents of the young universal genius. He was, however, of an excitable temperament; and did not always preserve his equanimity of mind in his discussions with Leibnitz. Of the truth of this assertion, a rather curious illustration may be seen in the following extract from a letter of Leibnitz to the Landgrave of Hesse-Rheinfels.

“It is about fifteen years,” wrote Leibnitz, in 1686, “since I one day went to visit Arnaud, in his house in the Faubourg St. Marceau. He had collected together four or six of the chiefs of his party, among them Messieurs Nicole and St. Amand, for the purpose, as I suppose, of introducing me to their acquaintance. In the course of the interview, I was led to speak of a short prayer, about the length of that by our Lord, which comprehended, in excellent

order, every thing that could be desired. It was as follows. 'O, only living, eternal, almighty, omniscient and omnipresent God; the only living, true and supreme God; I, thy poor creature,—I believe and I hope in thee, I love thee above all, I adore thee, I praise thee, I thank thee, and I give myself up to thee. Forgive me my sins, and grant unto me this day, as to all men, whatever according to thy will is conducive both to our temporal and our eternal welfare; and preserve us from all evil. Amen.' As soon as Arnaud heard this, he cried out, as we were all sitting together in a circle, 'That is good for nothing,—there is no mention of our Lord Jesus Christ in it.' For the moment, I was a little startled by so severe and unexpected a criticism. Nevertheless, preserving my presence of mind, I immediately replied, 'For this reason must also our Lord's prayer, and all the petitions which occur in the Acts and Epistles of the apostles, and especially that of St. Peter, offered on the occasion of the election of a successor to the apostle Judas, be good for nothing; for in these prayers no mention is made of Christ, or of the Trinity.' Thereupon my good fellow was thrown into confusion, and we went out for a moment to take breath." Arnaud nevertheless remained strongly attached to his young friend, who still continued to frequent his house.

Shortly after the occurrence of this incident, the Baron von Schönborn, son-in-law of Boineburg, arrived at the French court, on a special mission from the Elector of Mentz; and with him came

the son of von Boineburg, Philip William. The ambassador was directed, by his government, to endeavor to persuade the French monarch to consent that the interests of the German empire, so far as they had been involved in the war against Holland, should be taken into consideration by the congress which was soon to convene for the purpose of framing a treaty of peace; and also that Cologne should be selected as the place for the meeting of this congress. In case the king of France should not give his consent to these propositions, von Schönborn was farther instructed to proceed to London, to endeavor to accomplish the same object through the intervention of Charles II; and in this event, Leibnitz was ordered to accompany him.

Boineburg entrusted his son particularly to the care of Leibnitz; and the latter, accordingly, assisted by von Schönborn, took charge of the education of the promising youth of sixteen, who afterwards distinguished himself as governor of Erfurt, was elevated to the rank of count, and became known by the name of the great Boineburg. The elder Boineburg died suddenly, but a few days after having committed his son to the supervision of the friend in whom, to the last, he most fully confided. As his first duty, Leibnitz did every thing in his power to console the deeply afflicted young man; and also wrote a very kind letter of condolence to his bereaved mother.

Having failed of accomplishing his object at the court of Louis XIV, the electoral ambassador, together with Leibnitz, left Paris in January, 1673, for

London. Being both ignorant of the English language, they were obliged to have recourse to an interpreter. Arrived at St. James's, they found Charles II no less disinclined than had been Louis XIV to comply with the wishes of the Elector. The visit to London, however, was by no means without its advantages to Leibnitz. He spent his time, mostly, in making the acquaintance of those great men whose names belong to this golden age of English science. The city of London at that period could boast of a Prince Robert in mechanics, a Boyle in chemistry, a Hook in microscopical observations, a Ray in botany, a Sydenham in medicine, and a Wren in architecture.

It happened to Leibnitz, as it does not unfrequently to self-taught men, that many of his discoveries were made so late as to expose him to the charge of plagiarism. Thus when at London, he learned that a discovery, made by him in that department of pure mathematics with which he was most familiar,—in the doctrine of the finite series and combinations of numbers,—had been anticipated by another person. Visiting Boyle one day, he happened to fall in with the eminent mathematician, John Pell. The conversation turned upon the subject of numbers; and in the course of it, Leibnitz mentioned that he was in possession of a method whereby, with the help of a certain kind of differences, called by him *differentiæ generatrices*, he could sum up the terms of any constantly increasing or decreasing series. After Leibnitz had explained his theory, Pell remarked

that a formula of that kind had been discovered long before by the able French mathematician, Regnaud, and been fully explained in a work by Gabriel Mouton, entitled, *Observationes diametrorum solis et lune apparentium*. This book Leibnitz had never before heard of. Anxious to learn how far his discovery had been anticipated, he hastened to his friend Oldenburg, and procuring the work of Mouton, found that Pell had indeed told him the truth; but that still there was enough in his discovery which was peculiar to it, to prove not only its originality, but also its superior value, in comparison with that of Regnaud. Its superiority consisted in this, that Leibnitz was able, by means of the same principles, to calculate any progression, consisting of terms whose numerators were unity, and whose denominators were any order of figurate numbers. The next day, Leibnitz wrote an account of the circumstances under which he first heard of the discovery of Regnaud; and deposited it, as a historical document, in the hands of Oldenburg. It afterwards became an important item of evidence in the famous dispute between the author and Sir Isaac Newton, respecting the discovery of the differential calculus. In this same paper, Leibnitz observed that he had early discovered a beautiful law in numerical series, which had escaped the observation of Pascal, in his work on that subject; modestly adding, that "accident rules in discovery, which does not always disclose the most valuable truths to the greatest minds, but frequently reveals them to persons of moderate

capacity." Pell, it may also here be remarked, mentioned Mercator's treatise on the rectification of the hyperbola to Leibnitz, who took a copy of it with him to Paris.

Leibnitz, moreover, met in London with a rival, by the name of Moreland, who claimed the honor of having invented a reckoning machine similar to that of the German philosopher. This, Leibnitz satisfied his mind, however, was merely a combination of the reckoning staff of Napier with the machine of Pascal. A model of his own invention, brought with him to London, was favorably received by the Royal Society.

This first visit of Leibnitz to London constituted, as he himself also considered it, an important fact in his unfortunate controversy with Newton; and he afterwards, in a letter to the Abbé Conti, who was one of the mediators between the controversialists, gave the following account of the progress which, at that early period, he had made in mathematical learning. "It ought to be known," he wrote, in the year 1716, "that at the time I first visited England, in 1673, I had not the least knowledge of the infinite series of Mercator; and as little of the advancement then made in the science of geometry, by the adoption of the new methods of investigation. I was not even thoroughly versed in the analysis of Descartes. Mathematics were studied by me only incidentally. I was acquainted simply with the geometry of indivisibles by Cavallieri; and a book by father Leotaud, containing the quadratures of the phases of the moon

and similar figures,—a work which had considerably excited my curiosity. But more pleasure had been experienced in the investigation of the qualities of numbers, to which study I had been led in writing the short tract on the Art of Combination, published in 1666, when I was hardly out of my boyhood. And as I afterwards observed the use of the differences in making calculations, I applied them to the series of numbers. It may be seen, from my early correspondence with Oldenburg, that this was at that time the extent of my progress.”

To Leibnitz's studies and pursuits in London, an end was suddenly put, by the unexpected news of the decease of the Elector of Mentz. In this prince, Leibnitz lost not only a master he was proud to serve, but also a patron from whom he had received the kindest personal favors. In his eyes, the Elector always remained the ideal of a great ruler. In his *Theodicea*, Leibnitz spoke highly of the influence of John Philip upon the culture of the German mind; and also in one of his letters, written after the establishment of the peace of Nimeguen, defending his late master from the charge of having entertained the design of betraying his country to France, he pronounced him to be “a sublime genius, who labored for nothing less than the universal welfare of Christendom.”



## CHAPTER VI.

Leibnitz returns to Paris—Declines entering the service of the Duke of Hanover, and also that of a minister of the king of Denmark—His neglect of professional studies—Society in Paris—Letter to John Bernouilli—Leibnitz's occupations in Paris—Baron von Schönborn—Leibnitz undertakes to edit the works of Martianus Capella—His intercourse with Huygens—His design of establishing himself permanently in Paris—Correspondence with his relatives respecting it—This design relinquished—Von Tschirnhausen.

IN consequence of the death of the Elector of Mentz, von Schönborn returned, early in March, to Paris. Leibnitz accompanied him, bearing away, as he expressed it, "the bloom and fragrance of English literature,—all for forty thalers." Meanwhile, Louis XIV had given his assent to the before-mentioned propositions of the electoral court; and Charles II did not long persist in his opposition to them. Von Schönborn, therefore, immediately returned to Mentz; but Leibnitz, fettered to Paris by his scientific interests, and not wishing to go back to Germany in the then threatening state of political affairs, remained behind. The latter, however, had already favorably recommended himself to the new Elector, Charles

Henry, of Beilstein-Metternich, formerly Bishop of Speier, by his verses written on the occasion of the election of the bishop as the future successor of John Philip; and he accordingly readily obtained permission to prolong still further his sojourn in Paris.

It was soon after his return from London, that Leibnitz, as we have before narrated, wrote to the Duke of Hanover respecting the Egyptian expedition, and received in reply an invitation to enter into the ducal service. The offer, however, of the title of counsellor at the court of Hanover, together with a salary of six hundred rix dollars a year, did not present a very strong inducement for Leibnitz to exchange his connection with the court of the Elector, and his situation in the great capital of the arts and sciences, for a provincial residence in the then unattractive north of Germany.

Not much more inviting was a proposal made at this time to Leibnitz, to enter into the service of one of the ministers of the king of Denmark. Already, in 1672, a devoted friend of his, Habbeus von Lichtenstern, then residing at Hamburg, in the employment of the Danish monarch, had solicited Leibnitz to accept an office, which he was ready to procure for him at the court of Copenhagen. But this proposal, made at the time Leibnitz was busily occupied in negotiations for enlisting Louis XIV in a crusade to the East, had not been accepted. After the interval of a year, however, Lichtenstern renewed his solicitations. He had recommended his friend to the first minister of the king of Denmark, who, in

consequence, wished to obtain the services of Leibnitz, as his secretary, and offered him a home in his house, an appropriate salary, and the prospect of future promotion. Although the reply of Leibnitz to his friend did not contain an absolute refusal, yet he gave him to understand that he could not at that time comply with the wishes of the Danish minister. "You know my disposition," he wrote, confidentially, to Lichtenstern, "which does not incline me to heap up gold, nor to surrender myself up to the ordinary pleasures of men; but I find my happiness in making some solid contributions to the general welfare. If, therefore, you think the Danish minister to be of a serious turn of mind, inclined to favor by his influence obviously useful and practical projects,—of which I cannot doubt, when I consider his high rank and extensive reputation; and if you also think that I might expect to win his confidence, in a measure,—for I am not accustomed to subject myself to the political caprices of the great lords, and would much rather hold myself aloof from these occupations, than live in continual restlessness,—this presupposed, I am ready, sir, to receive your commands; and I hope that my zeal will not altogether fail of doing useful service. But I must confess to you a failing I am subject to, and which passes in the world for a very serious one. I mean that I am often forgetful of ceremonies, and do not always, at first sight, make a favorable impression. In case much stress is laid upon these matters,—as I do not believe there is,—and if one must indulge in deep potations, in order

to be of consequence, you will at once understand that I should not be in my element." Instead, however, of accepting the offer of the minister, Count *Güldenlow*, Leibnitz, on his part, made a proposition to enter into the service of the king of Denmark. He proposed to reside in Paris, for the purpose of collecting and transmitting to the court of Copenhagen information respecting the various industrial arts of France, and also respecting any improvements that might be made, from time to time, in science and literature. The stipulation was also made, that he should receive the title of counsellor to the Danish king. But it appears from the result, that the Danish minister could not comply with the requirements of Leibnitz; as, well, also, from the tone of the letters and propositions of the latter, that he did not seriously wish to form the proposed connection with Denmark.

Having declined these invitations from the north, Leibnitz remained at Paris, in the capacity of counsellor to the Elector. The ties, however, which bound him to the electoral court, were fast growing weaker. The possibility of not returning to Mentz had occurred to him, even before leaving that place; and he had accordingly committed all his books and valuable papers to the care of his fellow-laborer, *Lasser*. The smallness, also, of the remuneration received from the Elector, compelling him to depend partly on his private means for support, forced him to entertain the thought of seeking elsewhere for a permanent settlement. But he still continued to

retain a deep interest in the great enterprise of revising the German system of laws, though no convenient opportunity for continuing the work presented itself during his residence in Paris; and even on his removal to Hanover, and after the death of Lasser, he sent to Mentz for all the documents pertaining to this matter left by his associate, with the design of completing their mutual labors. This design, however, as we have before stated, was never more than partially fulfilled. But Leibnitz excused his neglect of jurisprudence during the four years of his residence in Paris, by the consideration that the studies in which he was then engaged were intimately connected with that science. In fact the fruits of these pursuits were plainly visible in his writings, on the principles of natural law; and even in his simplification of the method of reckoning interest, as explained in his *Meditatio juridico-mathematica de interusurio simplice*, which was published in the year 1683.

Whether Leibnitz, though known to have been acquainted with many personages high in rank and royal favor, mingled much in the gayeties of Parisian society, we are not informed; nor are there any beyond the most meagre records of the influence exerted upon his mind by the fine arts which at that period decorated the most splendid capital of Europe. The creative powers of Racine were then just reaching their point of culmination; and Moliere died a year after the arrival of Leibnitz. The latter once saw the great comedian on the stage in one of his

own plays; and also witnessed, with a satisfaction not soon forgotten, the performance of the *Ombre de Moliere*, composed in honor of the departed poet. The connection of Leibnitz with the houses of Boineburg and Schönborn must indeed have given him an introduction to the society of the most cultivated Parisian circles; and thereby have enabled him, by associating with the elegance and fashion which surrounded the throne of Louis XIV, to perfect himself in the social arts and accomplishments then deemed indispensable to a courtier. But we possess no information on this point beyond mere hints, such as may be derived from the following letter of Leibnitz to John Bernouilli, under date of June 24, 1707. The writer, after having spoken of the great self-love and stubbornness of the learned Abbé Gallois, thus proceeded: "I was formerly intimately acquainted with him, when he possessed the favor of the minister, Colbert. One day I called upon Colbert, in company with the noble Duke of Chevreuse, son-in-law of the minister. There I met Gallois, who was engaged in conversation with the younger Colbert, also called Croissy, a short time before the latter left for Nimuguen, to attend the negotiations respecting a treaty of peace. The Abbé seemed intent, by means of ludicrous remarks, on moving the laughter of his young companion. For myself, I could not but be surprised that a man, not without distinction, should court the favor of the great by the use of wit that lacked not much of being scurrilous. But it was said that even the elder Colbert, in mo-

ments of relaxation from the labors of his office, allowed himself to be entertained by the loquacity of the Abbé."

While living in Paris, Leibnitz was frequently engaged, by persons of distinction, to draw up memorials to the court, or to prepare state papers of importance. To this employment he was indebted, in a great measure, for the ease and propriety with which he wrote the French language; and for the possession, accordingly, of an accomplishment almost indispensable to an author, who, in the age of Louis XIV aspired to the honor of an European reputation. He also derived his support, for the time being, mostly from this occupation; while his scientific discoveries afforded him merely recreation and mental discipline. These did not even give him reputation, he being in no haste to make them public. In a letter to Oldenburg, July 15, 1674, he wrote respecting his occupations in Paris, as follows: "My mind is burdened by a great variety of labors, in part required of me by my friends, and in part by persons of rank. Therefore I have much less time than I could wish to devote to the study of nature and to mathematical investigations. Nevertheless, I steal as much of it as I can, and will rather gratify my mind with these favorite pursuits, than occupy myself with matters more for my pecuniary interest."

About the time when Leibnitz made this general confession to his friend in London, his services were engaged in the adjustment of certain private affairs of no little importance. The Duke of Meklenburg-

Schwerin, hated and persecuted by his subjects at home, repaired in 1674 to Paris. This prince had separated from his first wife, who was a Protestant; and thereupon, having himself gone over to the church of Rome, married a Catholic lady. But unhappy at heart, he was anxious to obtain a divorce from his second wife, provided such a step would be sanctioned by the laws of the land. The question was one of very great difficulty. The Duke having been recommended to Leibnitz for counsel, the latter decided in his favor. And long afterwards, on the appearance of the able work of Launoy on the royal prerogative in matters of marriage and divorce, Leibnitz had the satisfaction of seeing his opinion confirmed by that very high authority.

Some portion of the time of Leibnitz, moreover, was occupied in obtaining payment of the claims of the late Baron von Boineburg on the French government; as well as in superintending the education of the son of the latter, Philip William. This youth had been commended by both his parents to the care of Leibnitz, who showed his attachment to the memory of his patron, by the fidelity with which he discharged the duties of a friend, counsellor and instructor to the son and heir of the deceased. Philip William proved, however, to be somewhat impatient of restraint, and, though endowed with remarkable gifts of comprehension and memory, manifested at that time a greater fondness for the sports which invigorated the body, than for the severe studies designed to develop the mind. This



disinclination to apply himself to books, Leibnitz zealously struggled against; and endeavored continually to imbue the mind of his young friend with a respect for useful learning and moral principle. The connection, however, between the pupil and his teacher, so important as it was to the former, did not continue longer than one year, some misunderstanding having sprung up between them, through the fault of the relatives of Boineburg at Mentz. But the most pleasant relations were afterwards maintained, and a protracted correspondence kept up between the two friends, when Leibnitz at Hanover was reaping the fruits of an European reputation, and Boineburg at Frankfort and Erfurt had risen to even a higher eminence than his father before him. With the Baron von Schönborn, also, Leibnitz remained on the most confidential terms, although it does not appear that they had much intercourse with each other after the latter left Paris. Before that event, however, Leibnitz made frequent applications to him for the discharge of friendly offices, and among other things, solicited through him the payment of his stipend from the government at Mentz. But von Schönborn advised him to relinquish all hopes of remittances from that quarter, on account of the unsettled state of the times, and to remain in Paris until the political troubles should be entirely overpast.

His mode of life at Paris gave Leibnitz no leisure for the projection and execution of any great work in science, although there was no lack of occasions

for the application of his learning or the exercise of his intellect. When he had been about a year in the French capital, proposals were made to him to edit some one of the ancient authors, then in a course of publication under the patronage of the Duke of Montausier, and the learned superintendence of Huet, subsequently bishop of Avranches. Huet payed Leibnitz the compliment of inviting him to select a work, the editing of which would require not only classical learning, but also an extensive acquaintance with the arts and sciences of the moderns. The author finally fixed upon was Martianus Capella, the encyclopædian form of whose writings, their critical difficulties, and especially the ample opportunities furnished by them for learned and scientific comment, rendered the task of editing them highly attractive to Leibnitz, as it had likewise before appeared to the youthful mind of Hugo Grotius. Sometime afterwards, having finished a small portion of his task, and being doubtful whether the remainder would ever be completed, Leibnitz sent what he had written to Huet, begging him at the same time not to complain of his delay, as his labors had been frequently interrupted. Indeed, the multiplicity of his pursuits prevented him from ever finishing this first and last attempt in philological criticism, engaged in out of good-will to the undertaking of Huet, but which lay too far aside from the pursuits of the philosopher and the mathematician, to become the subject of heartfelt interest.

Meanwhile, so much attached had Leibnitz become to Paris, that, in the year 1675, he seriously formed the plan of establishing himself permanently in that metropolis. Of the details of this plan, some notion may be formed from the following extract from a letter of his, under date of Oct. 20, 1675, to Ægidius Strauch, one of his relatives in Germany: "Having, by my labor, and the blessing of God, amassed some little property, I have found an opportunity of making such an investment of it, as will yield a certain and permanent income. Several distinguished persons of rank, from whom I have received many favors, have proposed to me to purchase a certain office, or charge, the proceeds of which would, in the course of time, suffice to discharge the small debt necessary to be contracted at the outset. These persons, having an important voice in the matter, retain the office for me, and prevent others, who are willing to give a larger sum for it, from anticipating me. For myself, I cannot but think that the circumstances are specially ordered by God, who makes all things so wonderfully harmonize together; and that it would be both ingratitude and folly in me, declining his proffered favor, to prefer uncertain hopes to a certain resting-place. I think thus favorably of the office, because, 1. It will yield about eight hundred rix dollars annually, which is far more than the interest of what I shall have to give for it. 2. In time of peace I may calculate on its producing an annual income of one thousand rix dollars. 3. Even this sum may be increased, by the improvement of oppor-

tunities as they may occur. 4. The situation is an honorable one. 5. It will never compel me to act against my country. 6. It may be held by Protestants, as it has been before. 7. It requires but moderate labor, and involves but light responsibilities. 8. It will allow of occasional visits to my native country. 9. It will furnish me with opportunities of serving my relatives and friends. 10. I could at any time dispose of the office."

But in order to carry his design of permanently locating himself in Paris into execution, Leibnitz was obliged to apply to his relatives in Saxony for pecuniary assistance. These, however, were somewhat estranged from one whom for many years they had not seen, nor even so much as heard of. In fact, all the letters which Leibnitz had written to his relatives, since his arrival in France, had, by some unlucky mischance, failed of reaching their destination. All, therefore, that his kinsmen knew of him was, that he had suddenly left Mentz, for reasons known to no one,—that he had gone to Paris, and afterwards to London, in the suite of the electoral embassy, and that he was soon about to return to Germany. His friends in Saxony had looked not without distrust, even upon his connection with a Catholic prince and prelate in Mentz; but upon their learning that he had gone so far from them as Paris and London, their suspicions of both his piety and his patriotism were so excited as to betray them into open complaints. Thus he received from his brother, John Frederic, a letter, under date of

Jan. 7, 1674, full of severe reproaches. These were read by the accused, however, rather with pity than indignation; and in reply to them, he satisfied himself with merely saying, that as he had written more than one letter to his relatives, in the course of the year, the charge of neglect was made against him without cause. But this reply, also, never came into the hands of his anxious brother. John Frederic therefore forwarded another admonitory epistle to Paris, which, upon its reception, called forth a reply, wherein Leibnitz warmly defended himself against the charges of having lost his interest in either his father-land or his faith. The following is an extract from it:

“My maxims are honest and generous. Never from motives of self-interest have I done the least thing for which my conscience upbraids me. In the presence of nobles and princes, many of whom have shown me no ordinary favors, I have fearlessly, but also rationally, maintained my freedom of religious opinion; and been regarded none the less graciously, for they appreciated the sincerity of my convictions. I have aimed to do no man injury, and have therefore never had an enemy. Artifice I have thought it at no time necessary to resort to; and straight paths have advanced me farther than crooked ones have many others. Having experienced the good fortune, wherever I came, that persons of gentility wished to make my acquaintance and enjoy my society, I have had, as can be proved by the letters of several eminent princes

and gentlemen, not so much a deficiency as a superabundance of distinguished friends. My circumstances are such as lead me to perceive that God never forsakes those who attend to his call and their own duty. This I say, not to represent myself as perfect, for I freely confess that, from want of experience, I have committed faults, both many and grievous. But these have been corrected by fortune, that is, by Providence; and my good-will and correct intentions, which, by the help of God, I will never swerve from, have been favorably regarded. This I write, because you may have had doubts respecting my conduct,—unquestionably from want of information merely, as my absence has not allowed me, by circumstantial intelligence, to allay any suspicions with which your mind may have been visited."

At the same time, Leibnitz wrote to his relative, *Ægidius Strauch*, the letter from which an extract has before been given, and wherein he also made a direct appeal to the generosity of his friends, stating that, as the purchase of the proposed situation would involve an expense of several thousand rix dollars, he was under the necessity of looking to them for the sum of five hundred. This request he felt at liberty to make, partly on the strength of a claim, which had descended from his parents to their children, on the treasury of *Altenburg*; partly because for several years he had not applied to his friends for any pecuniary assistance whatever; also for the reason that he was not without hope of being able, at

some future day, to return their favors; and finally, that he might be saved from the shame of having his patrons and acquaintances in Paris think him, from inability to raise so small a sum, the son of a peasant, or a beggar. In this same letter, moreover, the writer, referring to the suspicions which had arisen in the minds of his relatives respecting his conduct, declared that, so far as his country was concerned, he was not without abundant proof of his zeal in its behalf; and that, with respect to his attachment to Protestantism, he had often said, in the presence of persons of rank and influence, that, were he ever so well convinced of both the correctness and the safety of the Romish doctrines,—as in fact he was not,—he notwithstanding would never adopt them, under circumstances liable to render him obnoxious to the suspicion of having acted from motives of self-interest. In conclusion, said Leibnitz, “I hope, after having fully arranged my affairs, to make a visit next spring to Germany,—believing that some credit will be reflected as well upon my friends as myself, when I shall have at length brought my ship into port, and be no longer compelled to run after other people, even though they be princes. For my experience has taught me that one will then first be eagerly sought after by the world, when he has placed himself in a situation where he no longer needs to seek after it. . . . Not having seen Italy, it is my intention to return home by the way of a portion of France which I have not yet visited, of Italy, Austria and Prague; and on

my journey back to Paris, to pass through Hamburg, Holland and England,—God vouchsafing me life and health for this purpose.”

But earnest and affectionate as was the appeal of Leibnitz to his relatives, that he might not pass in Paris for “the son of a peasant or a beggar,” it appears to have proved unavailing. At the commencement of the year 1676, we find him still in doubt about his future career, having entirely given up his plan of purchasing a situation and settling down for life in Paris. He was completely free, however, from all anxiety respecting his situation,—partly, no doubt, in consequence of a present of considerable value from the Duke of Hanover. The year 1676, therefore, was devoted by Leibnitz, with renewed zeal and success, to the prosecution of his literary occupations. He at this time, moreover, gained a valuable friend and fellow-student in his countryman, afterwards the noted Walter von Tschirnhausen, who had fought as a volunteer in the campaign of 1672 against the French in Holland, and had afterwards traveled extensively on the continent. Tschirnhausen, bringing letters from Oldenburg, was cordially received by Leibnitz, who, interchanging opinions with him on the subjects of philosophy and analogy, communicated to him those views which were afterwards made the foundation of Tschirnhausen’s able work, entitled, *Medicina Mentis*. Leibnitz early foresaw the future eminence of his gifted friend, while Tschirnhausen, on his part, acknowledged his indebtedness to the intercourse he



enjoyed in Paris with his illustrious countryman. This harmonious relation between the two continued uninterrupted until the death of Tschirnhausen, in 1708,—an event deplored by the survivor as the loss of “an old friend and excellent promoter of their mutual studies.”

## CHAPTER VII.

Leibnitz discovers the differential calculus—History of the controversy between Leibnitz and Newton respecting this discovery.

WE have now arrived, in our narrative, at the period when Leibnitz made his name immortal, by the discovery of the differential calculus. His short visit to England, in the winter of 1673, had served to awaken in his mind a very strong desire to perfect himself in geometrical analysis,—a desire still more inflamed, no doubt, by his subsequent nomination as a member of the Royal Society in London. This honor, conferred upon him one year after the admission, into the same Society, of Sir Isaac Newton, of whose name Leibnitz had then hardly heard, but which was destined afterwards to be most intimately associated with his own, appears to have been solicited, according to custom, by the exhibition of a model of his reckoning machine. Hitherto, Leibnitz had been his own teacher in the mathematics; but the circumstance which took place, as before narrated; on the occasion of his meeting with Pell, had revealed to him the disadvantages attending such an isolated and unassisted course of study. Accordingly,

on his return to Paris, he availed himself of the instructions of the celebrated Christian Huygens, by whose assistance he soon made himself master of the higher mechanics and analysis; and to whom, next to Galileo and Descartes, he acknowledged himself most indebted in his mathematical pursuits. He read, at that time, the book of Huygens, *De horologio oscillatorio*, together with the Letters of Pascal, and the work of Gregory, of St. Vincent, *De quadratura circuli et sectionibus conicis*.

It was in the course of this year (1673) that Leibnitz first entered upon that career of original mathematical investigation which he afterwards pursued with such brilliant success. The first discovery made by him was that of the differential calculus, the following account of which we extract from a letter of his, written to the Countess Kielmansegge, in the year 1716:

“Becoming intimately associated, after my return from London to Paris, with Mr. Huygens, the distinguished geometrician, I began to find great pleasure in geometrical investigations. I made rapid progress in my inquiries, and discovered a series of numbers, which accomplish for the circle, what Mercator has done for the hyperbola. This discovery created no slight sensation in Paris. Huygens gave it currency; and this, among other circumstances, was the reason of my being offered a place in the Royal Academy of Sciences.\* He

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\* This offer was declined by Leibnitz, because coupled with the condition that he should unite himself with the Church of Rome.

believed that I was the first person who had done any thing of the kind respecting the circle; and in this opinion I wrote, under date of July 15, 1674, to Oldenburg, with whom, though many letters had passed between us, I had never before held any communication, on topics of this character. Oldenburg replied, December 8, 1674, that a Mr. Newton, of Cambridge, had already done similar things, respecting not only the circle, but all other kinds of figures also, and sent me specimens. Meanwhile, the specimen sent by me was sufficiently acknowledged by Mr. Newton.

“But this,” continued Leibnitz, “is not the main point in the matter. For I went further, and combining my early observations on the differences of numbers, with my recent investigations in geometry, I found, in the year 1676, so far as I can recollect, a new calculus, called by me, the differential calculus, and which, applied to geometry, has done wonders. But as I was obliged to return to Germany, having been called thither by the Duke of Hanover, uncle of our King George I, and had also many things to attend to during the brief remainder of my residence in Paris, one can easily understand that I had but little time for remaining in my chamber, and prosecuting my meditations.”

Still more expressly, and in perfect accordance with every thing published by him, Leibnitz wrote, April 9, 1716, to the Abbé Conti, who then acted as a mediator between the two principal parties, in the controversy respecting the discovery of the differential calculus, as follows :

“It was through Oldenburg that I first learned something respecting the performances of Mr. Newton; but I knew nothing about the extraction of the roots of equations by means of series, nor of the regressions or extractions of an infinite equation. I was still something of a novice in these matters. Nevertheless, I soon (1675) found an universal method, by arbitrary series (*series arbitrarii*), and arrived finally at my differential calculus,—a discovery to which I was led, in part, by the reflections made in my early years, upon the differences of numerical series, and published in the tract, *De arte combinatoria*. For I arrived at this result, not like Newton, through the fluxions of lines, but by the differences of numbers; inasmuch as I at last observed that these differences applied to constantly increasing quantities, disappear in comparison with the different quantities, while, on the other hand, they continue to subsist in the series of numbers. And I believe this way to be the most analytical, since the geometrical calculus of differences, which is identical with the calculus of fluxions, is, in fact, nothing more than a special case of the analytical calculus of differences in general; and this special case is more convenient from the disappearance of the differences.” In conclusion, Leibnitz remarks, that plain marks of his peculiar discovery were contained in a letter which, under date of August 27, 1676, he wrote to Oldenburg, to be communicated to Newton.

The three decisive points above stated by Leib-

nitz, viz., the time of his discovery, its difference from the fluxionary calculus of Newton, and the documentary confirmation of it in his correspondence with Oldenburg, have, in recent times, been strongly urged in favor of the German mathematician, by the great heroes in modern geometry, the peers of both Leibnitz and Newton. These are Euler, Lagrange, Laplace, Poisson; and to them is to be added an eminent mathematician of our own day, M. Biot. The latter lays great stress upon the above-mentioned letter (August 27, 1676), written to Oldenburg and Newton, by Leibnitz, immediately before his leaving Paris for Hanover. This was in reply to a previous letter of Newton to Oldenburg, bearing date, June 23, 1676, and containing the results of the writer's investigations on the subject of series, together with the formula of the binomial theorem. The letter, however, was destitute of demonstrations of any kind, Newton merely saying, that "he was in possession of a method whereby, in the case of any given series, he could ascertain the quadratures of the curves from which they proceed, as well as the volume and the centre of gravity of bodies described by these curves." All this, observes Biot, Newton could do by means of the fluxions he had discovered in 1665; but then the same thing could also be done by another process, made known by Mercator. This, too, is what Leibnitz affirmed in his reply of August 27, 1676, adding, that "he made use of another method to accomplish these objects, which consisted in resolving the given

curve into its linear elements, and transforming these infinitely small elements into other equivalents; that as to the questions respecting the way to ascend from the tangents to the curves, he had treated many of them by a direct analysis; and that one of these (which he also adduced) had, by means of such a method of procedure, been mere play for him." From this information respecting his new method, which, in a general way, he called *transmutations*, and by means of which, all possible curves might be reduced to simple ones, it may clearly be inferred, that Leibnitz then made use of infinitesimal quantities. "All this," remarks Biot, "was more than sufficient to show Newton that Leibnitz was at least on the way to a calculus similar to the fluxionary,—that he was close upon it, if not then in actual possession of it."

Therefore Newton, in his reply to the last mentioned letter, made through Oldenburg, October 24, 1676, took the pains to inform Leibnitz, that he himself, likewise, was in possession of certain new methods, whose application to tangents and quadratures he pointed out. But instead of explaining the nature of these methods, he concealed them in two sentences of transposed characters, in order, it would appear, to have a proof of the priority of his discovery in Leibnitz's own hands. This unwillingness to make his discoveries public was, indeed, shared by Newton with the greatest geometers and natural philosophers of his century. But still, by pursuing this course, he left an opportunity, even

though he were, at this period, in possession of his method of fluxions, for any other person to come in and share the honors of the discovery. For the rules of literary justice require the publication of a discovery as the only unquestionable proof of its existence, and of the period of its origin; and whosoever chooses to retain for himself the sole use and benefit of any new method or result in science, runs the risk of being obliged to divide his fame with another.

This disposition, so common among mathematicians, to withhold their discoveries, did not at all belong to Leibnitz. To the letter of Newton containing the transposed characters, Leibnitz replied, under date of June 21, 1677, with a plain and full exposition of the infinitesimal calculus, with its algorithm, its rules, the mode of forming the differential equations, and the application of this process to problems in analytical geometry. The figures employed in this exposition are marked with the same letters, and exhibit the same mode of notation, which Leibnitz had used in his letter to Oldenburg, written immediately before leaving Paris, wherein he explained the method of transmutation,—a circumstance going far to convince us of the identity of the two methods. Upon this letter (August 27, 1676), accordingly, too much stress cannot be laid, in an examination of the respective merits of the two illustrious rivals. And yet this letter, which seemed to Newton of sufficient importance to elicit the reply containing the transposed characters,—this letter, as



Biot observes, Brewster, the latest biographer of Newton, has taken no notice of whatever!

In fine,—still to express the views of Biot,—a succession of ideas so clear and connected as that contained in Leibnitz's exposition of the differential calculus, united with a perfectly abstract mode of generating magnitudes, and expressed by a particular algorithm as remarkable for its simplicity as its exactitude in all applications of it to analytical and geometrical questions, must, in the eyes of geometers, be regarded as furnishing strong evidence of the originality of the discovery by Leibnitz;—of his discovery, not of the calculus of fluxions, possessed by Newton unquestionably before the year 1669; though burdened with the idea of motion, and destitute of an algorithm, but of the abstract differential calculus, with its algorithm, its complete metaphysics, and its universal methods. And so, in fact, have the four greatest authorities which can be quoted on this subject decided; although Euler, Lagrange, Laplace and Poisson, all agree that the germ of the methods of both Leibnitz and Newton existed previously in the discoveries of Peter Fermat. Laplace has clearly set forth the error of the Royal Society in London, which, undertaking to decide between the conflicting claims of Leibnitz and Newton, affirmed that “the differential method is one and the same with the method of fluxions, excepting in the name and the mode of notation.” Laplace saw in the notation itself the principle of the new calculus; and Poisson decided that “the differential calculus did not originate farther back than with Leibnitz, the

originator of the algorithm and the notation, which, since the origin of this calculus, have every where gained the ascendancy, and to which the infinitesimal analysis owes all its advances."

With this brief statement of the essential difference between the differential calculus and the method of fluxions, of the time of the origin of the former, and of its superiority over the latter, the question respecting the originality of Leibnitz's great discovery may be considered as settled. But after the solution of the main historical problem, we have still to narrate the progress of a personal controversy, which not only enlisted on different sides the most distinguished scientific men of Europe, but even brought out two great nations in hostile array against each other.

As has been already mentioned, to Newton's letter containing the transposed characters, Leibnitz replied with a full exposition of the principles of his differential calculus. He had, moreover, the frankness to make in this reply the following declaration: "I suspect that what Newton wished to conceal respecting the method of drawing tangents, is not very different from these discoveries of my own." (*Arbitror, quæ celare voluit Newtonus de tangentibus ducendis, ab his non abludere.*) Newton, however, instead of reciprocating this candor, at once broke off the correspondence with the German mathematician; and, in consequence, all intercourse between the illustrious competitors, who indeed had never seen, and but rarely written directly to, each other, was

discontinued for the remainder of their lives. This singular step on the part of Newton has been attributed by his friends to the death, soon afterwards, of Oldenburg, who, as secretary of the Royal Society, was accustomed to form a medium of communication between its distant members,—as if the same friendly office could not have been performed by his successor, and as if, after having received a letter of such importance as that containing the original documentary evidence of the discovery of the differential calculus, Newton needed the intervention of a third person, in order to find out Leibnitz. The benefits which, in the course of almost half a century, would have accrued to science from the harmonious connection, thus unceremoniously dissolved, of these two great philosophers, can hardly be too highly estimated, when we consider the valuable fruits of even their isolated labors,—not to mention the influence which would have been exerted by their mutual friendship upon the cause of virtue, not merely in a single nation, or during the course of one or more generations, but upon the civilized portion of the human race, throughout all time. Leibnitz, be it observed, had simply expressed the conjecture that what was concealed in Newton's transposed characters, did not differ very widely from the principles of his own differential calculus; and must undoubtedly have awaited the confirmation of this so freely volunteered acknowledgment with no little interest. But Newton chose to make no reply; and the German mathematician had the dissatisfaction of seeing

his secret, at that time communicated to no other person, in the possession of a rival, whose frankness, at least, he was tempted to look upon with suspicion.

During several successive years, Leibnitz occupied his leisure in developing and perfecting the analysis of infinitesimal quantities, until, in 1684, he proceeded to publish the results of his labors in the *Acta Eruditorum*; and thereby called forth the admiration of the whole scientific world at the richness and brilliancy of his discovery. Even the brothers Bernouilli, and the Marquis de l'Hopital, who might well pass for masters in mathematical science, confessed themselves the pupils of the author of the new methods; and Huygens, also, notwithstanding some reluctance at first, finally thought it not beneath his own reputation to offer the most cordial and grateful acknowledgments to the fortunate discoverer of the differential calculus. The generous sentiments of Leibnitz himself respecting the publication of his discovery may be learned from the following remarks made ten years afterwards: "I gave the elements of the new analysis several years since to the public, having a greater regard for the general good than for my own reputation, which I might perhaps have more promoted by keeping the methods longer in my possession. But it gives me pleasure to see the fruits of seeds scattered by my own hand growing in the gardens of others. For it lay neither in my power to carry out this discovery sufficiently, nor were there wanting objects to invite me into new paths of investigation. This, indeed, I always con-

sidered the main thing; and ever prized the methods far higher than the particular illustrations of them, notwithstanding these last are generally received with the greatest applause."

In the year 1684, Leibnitz published the essay, *Nova methodus pro maximis et minimis*; but made in it no allusion whatever to the correspondence carried on between Newton and himself, respecting the differential calculus. This circumstance, of itself, shows the sensitiveness of his mind on account of the neglect of Newton to answer his last letter, containing the exposition of his great discovery; and certain it is, as may be learned from the correspondence between Huygens and Fatio de Duillier, that the omission in this essay of any reference to Newton was not a little displeasing to the latter. In this essay, moreover, as indeed in every thing written by Leibnitz after the publication of the differential calculus, one will look in vain for a recognition of the claims of any person besides himself to the honor of that discovery. He claimed this honor himself, as he was confessedly the first person who published it to the world, both in its principles and their applications.

When, then, Newton, two years after the last mentioned essay of Leibnitz, published his *Principia*, containing a general explanation of the fluxionary method, together with the great discoveries made by means of it, he took no notice of the differential calculus before given to the public by Leibnitz. To the second lemma of the second book, however, he

added his famous scholium respecting his correspondence with the German mathematician. It was as follows: "In a correspondence which took place about ten years ago between that very skilful geometrician, G. W. Leibnitz, and myself, I announced to him that I possessed a method of determining maxima and minima, of drawing tangents, and of performing similar operations, which was equally applicable to rational and irrational quantities, and concealed the same in transposed letters, involving this sentence, (*data equatione quocunque fluentes quantitates involvente, fluxiones invenire et vice versa.*) This illustrious man replied that he also had fallen on a method of the same kind, and he communicated to me his method, which scarcely differed from mine, except in the notation [and in the idea of the generation of quantities.]"\*

The object of this scholium, as its author afterwards declared, was to establish the priority of his discovery of the method of fluxions, which he considered identical with the differential calculus, published two years before by Leibnitz. But it was construed by Leibnitz and his friends as an acknowledgment, on the part of Newton, of the rights of the former; and was, in consequence, entirely left out in the third edition of the Principia. Biot, though he put the same interpretation on the scholium as Leibnitz and his friends did, observed that there was an ambiguity in the words, "this illustri-

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\* These words in brackets are in the second edition, and not in the first.

ous man replied that he had fallen on a method of the same kind." For to a person who was unacquainted with the correspondence between the two mathematicians (which had in fact not then been made public), these words, in the connection in which they stood, might have conveyed the idea that Leibnitz had found out the key to the transposed characters; while Leibnitz, on the contrary, had given no such intimation, but merely thrown out a conjecture altogether characteristic of the frankness and generosity of his character. It is a circumstance, we may add, not easily reconcilable with the sincerity of Newton, that he omitted in the scholium all reference to the important letter of Leibnitz, of August 24, 1676.

The Principia, one of the greatest monuments of human genius the world has ever witnessed, instead of reconciling Leibnitz to his illustrious rival, had, unfortunately, the effect to widen still farther the separation. No one, in fact, was so reluctant as Leibnitz to acknowledge the great merits of this work; no one did so much as he to oppose the influence of it on the continent. One is tempted, with Biot, to believe that he never read the book, or at most, had merely looked over it. And when we consider that it was written in the synthetic form, which Leibnitz was averse to employing in mathematical investigations, and especially that the thorough study of the work would have required much more time and labor than Leibnitz had to spare for mathematical studies, the conjecture acquires a

good degree of probability. In fact, Leibnitz derived his first knowledge of the Principia from an extract from it in the *Acta Eruditorum* for 1689, which he received while travelling in Italy; and to which he immediately replied, in an essay published in the same journal, with the title of *Tentamen de motuum celestium causis*. We must remember, moreover, that Leibnitz's opposition to the natural philosophy of Newton grew, in part, out of his peculiar metaphysical principles, as may be seen in his correspondence with Samuel Clark; and it must also be confessed that the Newtonian mechanism of the heavens contained many imperfections, which, afterwards removed by Laplace, were at the time carried out by Leibnitz to their false and absurd consequences.

We have now to turn our attention for a moment to one of the subordinate persons in this controversy. Among the zealous disciples of Newton, was M. Nicolas Fatio de Duillier, a Swiss mathematician resident in London; and though he lived to see his name cast out with dishonor, he succeeded at one period of his life in gaining the confidence of the most distinguished natural philosophers of his time. This person, having taken offence at some neglect of him by Leibnitz, had the presumption, in his correspondence with Huygens, to declare that Leibnitz, instead of being the original author of the differential calculus, had obtained his first idea of it from Newton's letter to him on the subject; and also to express his surprise that Leibnitz had made no reference to this information in the *Acta Eruditorum*. This



charge, together with several gratuitous aspersions on the character of Leibnitz, Fatio took occasion to make public, in a paper communicated to the Royal Society in 1699, on the line of quickest descent. "Compelled by the evidence of facts," said he, "I hold Newton to have been the first inventor of this calculus, and the earliest by several years; and whether Leibnitz, the second inventor, has borrowed any thing from the other, I would prefer to my own judgment that of those who have seen the letters, and other copies of the same manuscripts of Newton." This attack called forth from Leibnitz a reply in the *Acta Eruditorum*, entitled, *Responsio ad Du. Nic. Fatii Duillierii imputationes*. This reply, though full of irony in its allusions to Fatio, was temperate and dignified in its tone, and made the most honorable mention of Newton. "At least," said the writer, referring to Newton, "the excellent man appeared, in several conversations with friends of mine, to manifest a kind disposition towards me, and made to them no complaints, so far as I know. In public, also, he has spoken of me in terms which it would be most unjust to find fault with. I, too, have acknowledged his great services on appropriate occasions; and he best knows, as in his *Principia* he has also explicitly and publicly testified, that neither of us is indebted, for the geometrical discoveries made in common by us both, to any light kindled by the other, but to his own meditations; and that these discoveries were explained and set forth by me so long as ten years ago (accordingly about the year

1676). At least, when I published my elements of the differential calculus, in 1684, I knew nothing of his discoveries in this department, except what he himself had told me in one of his letters, wherein he stated that he could draw tangents without getting rid of the irrational quantities,—which was no more than Huygens, as he himself afterwards informed me, could also do, though he was not further acquainted with this calculus. That Newton had accomplished much more than this, I first learned on meeting with his *Principia*; but that he was occupied with a calculus so similar to the differential, was not known to me until the appearance of the first two parts of the work of Wallis, to which my attention was called by Huygens, who sent me an extract referring to Newton.”

The appearance of constraint so obvious in the foregoing acknowledgment of the rights of Newton, while the writer at the same time claims for himself the honor of an original discoverer, and appeals to the celebrated scholium in the *Principia*, as a confirmation of his claims, shows that as there had been much irony in his allusions to *Fatio*, so there was some insincerity in his compliments to Newton. And when we consider the expression in the *Responsio*, “a calculus so similar to the differential,” and also observe the whole tenor of this reply describing the relation sustained by the writer to Newton, we can hardly refrain from believing that Leibnitz intended not only to disavow the charge of plagiarism brought against him by the friend and

intimate associate of Newton, but even to suggest that Newton might be guilty of this very crime himself. The sensibilities of Leibnitz must have been deeply wounded by an accusation of this kind, proceeding from a person so closely allied to Newton; and we accordingly find him soon afterwards retorting the charge.

In 1704, Newton, in publishing his celebrated work on optics, appended to it two treatises, composed a long time before, on the method of fluxions. This was obviously done for the purpose of vindicating his claim to the priority of his calculus, considered by him as identical with the differential. Thereupon appeared in the *Acta Eruditorum* of the next year, an anonymous critique upon this work, in which occurred the passage following. "Instead, therefore, of the differences of Leibnitz, Newton applies, and has always applied, fluxions, . . . and made elegant use of them in his Principia, and other writings published afterwards; as also Honoratus Fabrius, in his Synopsi Geometrica, substituted progressive motion in place of the indivisibles of Cavallieri." (Pro differentiis igitur Leibnitianis D. Newtonus adhibet, semperque adhibuit, fluxiones, . . . iisque tam in suis Principiis Naturæ Mathematicis, tum in aliis post editis, eleganter est usus; quem admodum et Honoratus Fabrius in sua Synopsi Geometrica, motuumque progressus Cavallerianæ methodo substituit.) As now Fabrius, instead of being the author of the method here referred to, had borrowed it from Cavallieri, merely changing the

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The friends of Newton knowing, at least, that the *Acta Eruditorum* was the organ of Leibnitz, even if the obnoxious article were not from his pen, were extremely offended at the accusation contained in it. Accordingly, in 1708, one of Newton's most zealous disciples, John Keill, Professor of astronomy at Oxford, published a paper in the philosophical transactions of the Royal Society, wherein he reiterated the charge of plagiarism, made against Leibnitz, by Fatio, declaring that "the same calculus (Newton's) was afterwards published by Leibnitz, the name and the mode of notation being changed." Hereupon Leibnitz, under date of March 4, 1711,

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wrote to Sir Hans Sloane, complaining of the injustice that had been done him by Keill, and calling upon the Society to compel him to disown the accusation of plagiarism, implied in the words which had been used by him. Keill, in consequence, addressed to the Secretary of the Royal Society a communication, wherein he declared, by way of apology, that he had not designed to say that Leibnitz had known either the name of Newton's method, or the form of notation employed in it; but merely that "Newton was the first inventor of fluxions, or of the differential calculus, and that he had given, in two letters to Oldenburg, and which he had transmitted to Leibnitz, indications of it sufficiently intelligible to an acute mind, from which Leibnitz derived, or at least might derive, the principles of his calculus." But this explanation did not satisfy Leibnitz. He saw himself accused of a grave offence, by a member of a literary society to which he belonged; and though this person was much his junior in years, and his inferior in reputation, yet his accusation was countenanced by individuals of far higher distinction, and he felt bound, in compliance with the usages of the Society, to defend himself. Leibnitz, therefore, again wrote to Hans Sloane, under date of December 29, 1711, expressing his disapprobation of the modified statements of Keill, together with his belief that neither Newton nor his learned associates would give them countenance. Upon the reception of this letter from Leibnitz, the Royal Society constituted itself a tribu-

nal for investigating and determining the merits of the controversy. A commission was appointed to examine the letters and documents preserved in the archives of the Society, and to make a report on the whole matter; but no notice was given of the fact to Leibnitz, that he might appear, by his friends or otherwise, in his defence. The commission, starting with the assumption that the fluxionary and the differential calculus were identical, considered the question they were appointed to decide, to be, not who had discovered the one, and who the other calculus, but who was the original author of the methods which, under different names and different methods of notation, were one and the same. Accordingly, after an examination had been made of the correspondence of Barrow, Collins, Oldenburg, Gregory, Newton and Leibnitz, being in fact not all the documents necessary to exhibit the claims of both parties, the question was decided by chronology alone in favor of the English philosopher. The report of the committee, pronouncing Newton to be the first discoverer of the fluxionary or differential calculus, together with such papers as had been followed in its formation, and also critical remarks on these documents, by Keill, for the purpose of supporting the committee's decision, were published by the Society, in January, 1713, under the title of *Commercium Epistolicum D. Johannis Collins et aliorum de analysi promota, jussu Societatis Regiæ in lucem editum*; and were gratuitously circulated throughout Europe.

But this report, as partial to the claims of Newton as one made by a similar society of German philosophers would, no doubt, have been to Leibnitz, only added fuel to the flames of controversy. It was, indeed, no easy task to smother the animosity which, first enkindled forty years before, had been constantly fanned by so many persons, both in England and on the continent. Leibnitz had not done greater injustice to Newton than the Royal Society had now done to himself; but he was, for a time, too indignant at the *ex parte* statements of the English committee to make any public reply.

A year after the publication of the Society's report, however, there appeared a *Charta Volans* on the same subject, without the name either of the author or of the place of publication, but purporting to have been written by a friend of Leibnitz. This loose sheet contained an extract from a letter written, under date of July 7, 1713, by "a mathematician of the first rank," afterwards known to have been John Bernouilli. In this extract, the opinion was expressed and supported by reasons stated at large, that Newton's method of fluxions was a plagiarism from the differential calculus of Leibnitz. The extract was also preceded and followed by statements confirmatory of the charge contained in it. Published in the *Journal Litteraire*, and extensively circulated, this sheet excited general attention, and deeply wounded the feelings of Newton. Biot has remarked, that Bernouilli, in this letter, made only one observation of importance, which referred to the

characteristic difference in the notation employed by the two rival philosophers; and that, in many particulars, he did Newton manifest injustice. But Bernouilli, it may be said, by way of apology, never expected that the letter would be made public. The person who did publish it, and who was the author of the pamphlet, as we are informed by Bernouilli, was Leibnitz himself. This fact was known at the time to Bernouilli alone, to whom Leibnitz communicated it by letter, bearing date August 13, 1713. In addition to the *Charta Volans*, Leibnitz designed to write, at his leisure, a complete history of the differential calculus, accompanied by a selection from the correspondence between himself and others respecting it. This was to be in reply to the *Commercium Epistolicum* published by the Royal Society; but death overtook him at his task.

At this period, when the controversy between Leibnitz and Newton had become personal, the Abbé Conti, a noble Venetian, and John Chamberlayne, the linguist, offered themselves, in accordance with the wishes of George I, of England, as mediators. Thereupon, the two great champions proceeded, in their letters to their mediating friends, to pour out upon the heads of each other the vials of bitterness which this prolonged controversy had at length filled to overflowing. In consequence of countless and most unfortunate misunderstandings, each retracted whatever of confidence or acknowledgment he had expressed towards the other. And we are

sorry to feel called upon to add, Newton, not weary of the acrimonious dispute protracted up to the decease of Leibnitz, persevered in his accusations even after the lips of his great rival, closed in death, were no longer able to defend his memory. An edition of the *Commercium Epistolicum*, prepared for general circulation, together with two letters of Leibnitz, newly obtained by Newton, and accompanied with a bitter refutation of them from the pen of the latter, was published after the death of Leibnitz. To the excuse of this procedure, urged by the friends of Newton, that the refutation was written previously to Leibnitz's decease, Biot replied, "I grant that Newton *wrote* the refutation before the death of Leibnitz, that he at first showed it only to his friends, and, when Leibnitz was dead and gone, did no more than *publish* it. Better," he adds, "were the words of Leibnitz, who, refraining from publishing his work against Locke's *Essay on Human Understanding* after the decease of the latter, wrote to a friend, 'I have always been unwilling to lay before the public, refutations of authors no longer living, even though these refutations might, with perfect propriety, have appeared, and been communicated to them, during their lifetime.'"

Thus ended the unhappy strife which, after embittering the last years of both Leibnitz and Newton, kept the learned portion of their respective nations in unfriendly separation for a whole age. To the prejudices naturally growing out of it, is also to be

attributed, in part, the fact that the greatness of the German mathematician and philosopher was never rightly appreciated in France, during the prevalence of the philosophy of Newton and Locke in that country, and has not been fully acknowledged in England, even to the present day.



## CHAPTER VIII.

Leibnitz accepts an invitation to enter the service of the Duke of Hanover—Returns to Germany by the way of London—Visits Hudde in Amsterdam, and Spinoza at the Hague—Arrives at Hanover—Character of the court—He becomes acquainted with Steno, apostolic vicar, and Molanus, abbot of Lockum—Introduces the invention of phosphorus into Hanover—His visit to Hamburg—His acquaintance with John Joachim Becher—He studies the art of mining in the Hartz mountains—Attempts to drain the ducal mines—His geological investigations—He studies coining and currency—Is made court counsellor—His arduous public duties—His *De jure suprematus*.

FROM the narration of the unhappy controversy between Leibnitz and Newton, we now return to that period in the life of the former when he left Paris to enter into the service of the Duke of Hanover. This prince, in the year 1676, invited Leibnitz, for the third time, to take up his residence in Hanover, offering him the offices of counsellor and librarian. Leibnitz accepted the invitation; and returning the papers of Blaise Pascal, on conic sections, which had been entrusted to him by the heirs of the French mathematician, for the purpose of being edited, he hastened away from the city where, a

little time before, he had thought of establishing a permanent home.

In returning to Germany, Leibnitz made a circuit through London and Amsterdam. In the former city he spent only a single week, but made several new acquaintances, and among them that of Collins, the friend of Newton. In Amsterdam he visited the great Dutch mathematician, Hudde, to his interview with whom he alluded in a letter to Oldenburg as follows: "I had, while in Amsterdam, some conversation with Huddeus, whose time is wholly engrossed by affairs of state. For he is one of the twelve burgomasters of the city, who administer the government in succession. A short time ago it was his turn to be burgomaster, but he now fills the office of treasurer. It is certain that his papers must contain much that is most excellent. The method of tangents published by Slusins had, for a long time, been known to him; and his own is more comprehensive. Mercator's quadrature of the hyperbola was also known to him as early as the year 1662."

From Amsterdam Leibnitz turned aside to the Hague, to visit that remarkable thinker, Benedict Spinoza. In his *Theodicea*, Leibnitz observes, that in his interview with Spinoza, the latter conversed respecting the course of his education, and narrated many characteristic anecdotes pertaining to the history of the times. He spoke particularly of his teacher in the Latin language, Van den Ende, whom, previously to his engaging in the conspiracy

of the Chevalier de Rohan, Leibnitz had sought out and conversed with in Paris. It is to be regretted that so little is known concerning the interview of Leibnitz with Spinoza, as the conversation and personal appearance of this illustrious Jew, then but a step or two from the borders of the grave, can hardly have failed to produce a deep impression upon the mind, and to have been long cherished in the memory of the young man of thirty.

Arriving at his journey's end near the close of December, Leibnitz was graciously received by the Duke, to whom he was already known by his letters and writings,—by the high ecclesiastical dignitaries, to whom he brought a flattering introduction from Anthony Arnaud,—and by the court generally, which was, at that time, one of the most elegant and cultivated in Germany. The Duke, a recent convert to Popery, was surrounded, indeed, by Roman Catholics; but the mildness of Leibnitz's disposition and the liberality of his sentiments placed him at once in such harmonious relations, both to prince and courtiers, that he, who not long before tired of serving the great, was anxious to establish himself in social independence, soon became so well pleased with his new situation, as to pronounce the service of so magnanimous a prince preferable to the enjoyment of the most perfect freedom.

At the period of which we write, the court of John Frederic was graced by the presence of several literary persons of distinction. Among these was the apostolic vicar, Nicholas Steno, from Denmark.

Earlier in life a distinguished physician, anatomist and geologist, he had suddenly changed his religion, his profession and his mode of life; but thereby converted an eminent natural philosopher into a very moderate divine. Another person, still more prominent, was Gerhard Molanus, abbot of Lockum, and president of the consistory in Hanover, a man of extensive knowledge and most excellent character, and, in the judgment of Leibnitz, "an incomparable theologian." By Molanus, Leibnitz was also made acquainted with a friend of the former, Arnold Eckhart, a zealous disciple of Cartesius, both in mathematics and metaphysics; and with whom Leibnitz carried on, for a considerable time, a dispute by letter, respecting questions in mathematical analysis, and also concerning the Cartesian proof of the existence of God.

Some time during the first year of his residence in Hanover, Leibnitz manifested his interest in the useful arts by introducing to the notice of the Duke and his court, a discovery which soon attracted attention throughout Europe. This was the discovery of phosphorus, by one Brand, of Hamburg, who fell upon it accidentally while endeavoring, according to the directions of a book on alchymy, to extract from urine a fluid substance, which, it was supposed, would change silver into gold. At the solicitation of Leibnitz, Brand was sent for by the Duke, to come to Hanover; and after his arrival, having tried several experiments with success, he was generously rewarded, by John Frederic, with a pen-

sion. Specimens of the new compound were forwarded, by Leibnitz to Huygens, as well as a learned account of the discovery to the Academy of Sciences in Paris.

Towards the end of the year 1678, Leibnitz, commissioned by the Duke, purchased in Hamburg the library formerly belonging to the learned physician and natural philosopher, Martin Fogel, then recently deceased,—a collection of books which forms no unimportant part of the present royal library in Hanover. While in Hamburg, Leibnitz made the acquaintance of the gifted but eccentric chemist and mechanician, John Joachim Becher. This person may be considered as the representative of chemical science in Germany at that period, as Leméry was in France, and Boyle in England. He it was who laid the foundation of the phlogistic theory, which, reduced to a system by Stahl, prevailed universally until the discoveries of Lavoisier. It happened that Leibnitz, in conversation with this no less whimsical and malicious, than brilliant genius, let fall some remarks respecting a project of his for improving the then very clumsy travelling carriages of Germany; and having, shortly afterwards, given mortal offence to Becher, by interfering to prevent him from interesting the mind of the then reigning Duke of Hanover in the speculations of alchemy, this fantastic philosopher, in a book written about five years afterwards, and entitled *Foolish Wisdom and Wise Folly*, did not fail, bearing in memory the unlucky project of the travelling car-

riages, to adduce as a signal example of wise follies, "Leibnitz's post-wagons, constructed to travel in six hours from Hanover to Amsterdam!" This pleasantry gave Leibnitz some uneasiness. Whether it prevented his ever attempting to realize his contemplated improvements, is not certainly known, though it is quite plain that the German postilions of the present day have received no information, historical or traditionary, touching any such sort of betterments.

Not long after his arrival in Hanover, Leibnitz became deeply interested in the mining operations carried on by the Duke in the Hartz mountains. The valuable silver mines in that region were very seriously damaged by the water which was constantly running in from the heights above; and Leibnitz, encouraged by the promise of an annual salary of two thousand thalers in case of success, earnestly undertook to devise some means of preventing this evil. He, accordingly, for a number of years, spent several months annually in those romantic regions, then the scene of numerous popular fables, and since made classic by the immortal author of the *Faust*. But the practical hindrances which were constantly thrown in his way by the subordinate agents and workmen, compelled him, after the application of no little time and pains to the accomplishment of his design, finally to abandon it. The time, however, spent by Leibnitz in the mountains was not lost. Accustomed to make himself thoroughly master of every branch of knowledge to which his attention was directed, he embraced the opportunity thus

furnished of making himself perfectly familiar with the arts of mining and coining, and also of investigating the important uses they might be made to subserve in the general economy. Like Copernicus before him, Locke at about the same time, and Newton afterwards, Leibnitz made coining and currency the objects of prolonged reflection. His views upon these subjects were afterwards communicated to several German princes, and contributed in no small degree to make the Hanoverian currency, at that time, equal if not superior to that of any country of Europe. Nor were these the only fruits of his meditations in the Hartz. Besides becoming completely versed in the mineralogical learning of the times, he entered upon the study of geology, and made an extensive collection of geological observations, the results of which, together with similar information afterwards obtained in his travels in the north of Germany, Dalmatia and Italy, were set forth in his *Protogäa*, written in 1691, but not published until after his death. Besides sending a manuscript copy of this work to the Sorbonne, he gave a brief account of his labors in this department of science in the *Acta Eruditorum* of 1693, and also a popular notice of them in his *Theodicea*. To his praise, be it said, that in an age when the theological sentiments prevailing even among Protestants presented a serious obstacle to the formation of correct views in geology, Leibnitz was the first person in Germany who made the various layers composing the earth's surface the foundation of a general geo-

logical theory respecting the origin and structure of our planet. He also took the view, to which currency was afterwards given by the brilliant name of Buffon, that the various strata of the surface of the earth were formed by the processes of cooling and evaporation, occasioned by the withdrawal of heat from the circumference of the globe to the centre; and to him belongs the merit, accordingly, of having given so early a right direction to inquiries in geology. Moreover, Leibnitz devoted considerable attention to the collection and preservation of the remains of extinct races of animals, and did considerable towards diffusing an interest in these subjects among persons of distinction and learning.

Hitherto we have seen Leibnitz acting more in an individual than an official capacity; but in 1678, he was raised by the Duke to the office of court counsellor, and compelled to take upon himself the discharge of arduous public duties. By virtue of his new office, he was also a judge in the court of chancery; and was, accordingly, restored to that professional life from which he had retired on his departure from Mentz. In the discharge of these judicial duties,—not to mention the attention given to the ducal library, and the maintenance of an extensive literary correspondence,—so much of the time of Leibnitz was consumed that only a very little leisure remained for the prosecution of his favorite scientific pursuits. Indeed, not content to lead, like Spinoza, merely a life of philosophic abstraction, he was ambitious, also, to take part in the



11

## CHAPTER IX.

The influence of jurisprudence on Leibnitz's system of philosophy—His doctrine of theocracy—Compared with the systems of Hobbes and Puffendorf—His views of natural law—His idea of substance—Doctrine of monads—Pre-established harmony—Optimism—Theodicea—Form of Leibnitz's philosophy—His relation to Descartes and Spinoza—Peter Bayle—John Locke.

IN early life, Leibnitz was attached to the Cartesian philosophy; but his reflections at a later period on natural law, and the constitution of civil society, leading him to the study of the human mind, and then to that of the external world, he finally arrived at results respecting the nature of soul and matter, which differed widely from those of Descartes, and constituted the foundations of a peculiar system of metaphysics. It was not theology, as in the case of the scholastics, nor physics, as in that of the great philosophers who in modern times brought about the restoration of the sciences, but jurisprudence, from which Leibnitz started in his career as a metaphysician, and from which his system of philosophy derived its characteristic features. The idea of right, of justice, gave tone even to the university

essay, *De Arte Combinatoria*; it assumed a still more prominent rank in the *Methodus nova*; it was the guiding thought to the principles laid down on the subject of natural law in the *Theodicea*; and was introduced in the treatise, mentioned at the close of the preceding chapter, *De jure suprematus*, as the key for resolving what, though in form but a dispute about diplomatic etiquette, was in fact a question involving important points in the general law of the empire. This simple idea of right, however, gradually expanded itself into that of theocracy, which last finally conducted Leibnitz to his great doctrine of a pre-established harmony. The idea of theocracy was, indeed, the great idea of his age. It manifested itself distinctly, though imperfectly, in the despotic rule of Louis XIV, and other cotemporaneous princes in Europe, especially in Germany; and was speculatively expressed in the treatises on natural law, written by Hobbes and Puffendorf. The difference, however, between Leibnitz and these cotemporaneous expounders of the law of nature, was, that he beheld the realization of his ideal of absolute monarchy in the eternal kingdom of God only, and never expected to find it in the government of any earthly potentate. He acknowledged the right and truth of human monarchy, only when united by moral and religious relations to the city of God; while Hobbes received human ordinances as in themselves absolute, and Puffendorf attempted to form a system of natural law entirely independent of both religious doctrines and moral precepts. Leib-

nitz, therefore, sympathized less with the views of the German than with those of the English writer ; and while he expressed but little respect for Puffendorf, he spoke in praise of Hobbes, even when engaged in refuting him. In opposition to the former, he maintained that the principles of religion were the only true foundation of law, natural or civil. Of the latter he wrote in his *De jure suprematus* as follows : "The demonstrations of Hobbes can be realized only in that republic in which God is king, and whom alone all confide in. I do not believe that Hobbes's monarchies are to be found either among civilized or savage nations. In fact, I hold them to be both impossible and undesirable, inasmuch as the persons, in whose hands the supreme power is to be lodged, possess not the virtue of angels. Men will prefer to have their own will, and look themselves after their own welfare, until they have confidence in the supreme wisdom and power of their rulers."

Leibnitz deduced the principles of natural law from the idea of theocracy. These, to express his views in a word, are three in number,—strict right, equity, and piety (*jus strictum, æquitas, pietas*); to which correspond the three sciences of law, politics, and theology, or morals. The first, strict right, is indeed nothing more than the right of war and peace ; and its rule is, to offend no one (*neminem lædire*), so that there may be given to no one the right of war, or any right within the state against the state. The rule of equity, which is superior to

mere right, is to do what is just to all men (*sum cuique tribuere*). Piety, which again is more perfect than the preceding, consists in doing that which is acceptable to the higher powers,—to God, who is supreme by nature, and to the civil power, which is so by compact; and its law is, to live virtuously (*honeste vivere*). These principles may be found fully unfolded in the *Methodus nova*, in the state paper drawn up for the Palsgrave of Neuburg, *Specimen demonstrationum*, and also in the able preface to the *Codex juris diplomaticus*.

Notwithstanding the fact that the philosophical views of Leibnitz received their tone and coloring mainly from his legal studies, it so happened that the occasion on which he first caught a glimpse of the leading idea of his metaphysical system, was furnished by the investigation of a problem in theology. As has been mentioned in an earlier part of this work, Leibnitz, while residing at Mentz, undertook, at the request of his patron, Baron von Boineburg, to refute the Cartesian doctrine, that matter and spirit are two different substances, the essence of the first consisting in extension, and that of the second in thought. This was done with the design to prove the possibility, if not the actual truth, of the theological dogmas of the real presence and transubstantiation; and thereby promote an union between the Lutheran and Catholic churches. Leibnitz accordingly discarded the atoms of Descartes as the primary elements of bodies; or, rather, he attributed to them a spiritual nature. Thus in 1671 he wrote to

Anthony Arnaud, one of the most zealous as well as celebrated Cartesians and Jansenists, "that the essence of matter does not consist in extension; that even the substance of matter is without extension, and not subject to the limitations of space." The same views, also, were two years later repeated in a letter to the Duke of Hanover.

But Leibnitz was then far from having attained to that view of substance which afterwards appeared to him satisfactory and final. Substance was at that time conceived of by him as the spiritual principle of bodies,—which was, in fact, a mere abstract conception, serving no other purpose than to explain to one who received this view how the body of Christ might be in different places at the same time. Body and soul still appeared to him to stand over against each other, as having each a separate and peculiar nature.

But as Leibnitz advanced further in the study of geometrical analysis, he obtained views of the spiritual character of substance, which appeared to him more clear and satisfactory. These he even proceeded to apply to the explanation of natural phenomena, as also to the resolution of questions in mechanics. He considered the supersensuous substance as the principle of motion in the material world, and called it *power*. This moving power was original and really existing; while the things moved by it had a merely phenominal or apparent existence. Accordingly, in 1686, Leibnitz published, in the *Acta Eruditorum*, "A short demonstration of a

memorable error of Cartesius and others, concerning the natural law, according to which they think that God always maintains the same quantity of motion; whereby they pervert mechanics." In this paper, the writer aimed to show that the quantity of power, though not of motion, remained always the same in nature. For the power did not cease to exist, when the action of it was obstructed. He also showed that its direction remained ever unchanged. The statement of this new opinion in dynamics gave rise to a singular and obstinate controversy respecting the measure of living forces (*vires vivæ*), which was not ended until the time of D'Alembert.

In these views of Leibnitz, the idea of substance was combined with that of motion; but afterwards he relieved the first idea of this limitation. Forming a more purely abstract notion of substance, he pronounced it to be energy in general, uncreated, indestructible, unlimited, whose activity, unlike the *potentiæ* of the scholastics, is in itself, and whose qualities are deducible from the very nature of its own idea. But individualized, it exists in the form of souls (*entelechies*), or monads. Substance in general, then, is God, the original monad; and from him are derived all individual substances, which together constitute the created universe. These particular monads, independent of time and space, which are mere relations of simultaneous and successive existences, comprise whatever is real and substantial in nature. All else is but appearance, phenomenon, "a regulated dream."

The essential attributes of a monad are an impulse or striving (*conatus*) to evolve multiplicity out of its unity, and to perceive this multiplicity in its unity. In the original monad, or God, these attributes are absolute and infinite.

Created substances, or monads, arise by perpetual flashings, as of lightning, from the infinite monad, whose creative power is limited only by the receptibility of the creature. Whatever perfection the derived monads have is from God; their imperfection springs out of the limitation of their own nature.

Each of the monads is placed by God in relations to the universe. Each, in perceiving and striving to accomplish its own aims, perceives and strives to accomplish, by virtue of a pre-established harmony of things, the aims of the infinite whole. The different monads, therefore, may be said to be so many mirrors, reflecting the totality of things.

But all monads do not represent infinity in the same way and to the same degree. For God has given to them different measures of perfection,—subordinating them one to another in such wise, that a particular monad may contain in its nature the grounds *a priori* of the nature of others, it being active in reference to them, and they passive in reference to it. Each monad may be represented as an eye, looking at the whole creation from its particular point of view. In this different degree of perfection, or different mode of reflecting the infinite, consists the individuality of the different monads.

Every monad, moreover, sustains not only a harmonious relation to the universe which it strives to represent, but also more directly and immediately to a number of particular monads, which of themselves form a totality, wherein some act as ruling and some as serving, or, in other words, as active and passive monads. Such totalities are men, the lower animals, and plants. The soul of one of these rules the monads constituting the body, while each of the latter, in turn, is the ruling monad of others subordinated to it, and so on *ad infinitum*. Every organized body, accordingly, Leibnitz regarded as a divine machine, or natural automaton, containing also within itself other smaller machines,—or, in other words, being made conformable to some plan, even in its minutest parts. Thus the limb of an animal, or the branch of a plant, is full of other animals and plants, of which each has its ruling *entelechie* or soul. Matter being divided, in fact, into infinitely small parts, and each of these representing the universe, it follows that the smallest atom contains a world of animated existence. This view of Leibnitz may perhaps not improperly be regarded as anticipatory of the discovery recently made in physiology of the cellular system, which extends through all vegetable and animal organizations.

In accordance with these views, and also with the physiological hypotheses of his cotemporaries, Swammerdam, Walphigi and Leewenhoek, Leibnitz taught that an animal existed, body and soul, before conception, in the sperm; and that by means of conception,



it was merely made to undergo a great transformation. As generation, moreover, was but development and increase, so death was no more than envelopment and diminution. There may be, said Leibnitz, metamorphosis, but no metempsychosis, among animals. The soul changes its organs gradually, and is at no time completely deprived of them, so that not only the soul, but the animal even, is indestructible. Only God is without body.

The relation which appears to us to subsist between the superior and inferior monads, depends upon the perfection of their impulses and perceptions. We say, appears to us to subsist, because the relation between monads is in fact merely ideal; for each monad in any given body is the centre of a system of its own, and a mirror also of the entire creation. When the representations of the infinite by the individual are obscure and confused, they are called by Leibnitz perceptions. Clear perceptions, accompanied with attention and memory, are called by him apperceptions. Plants are merely perceptive; but monads capable of apperception, such as the lower animals, receive the name of souls; those which, besides, by an act of reflection know themselves, that is, possess reason, are denominated spirits, to which class belongs man. There is also a similar gradation in impulses, from the simplest kind of impulse, or striving, common to all monads, to desires which are possessed by the lower animals, and to will, which belongs to beings endowed with reason.

The created spirits, such as man, show the finite-

ness of their nature, in that they are not pure spirits. They acquire their knowledge, not only through reason, but also by apperception, like the inferior animals, and by perception, like the plants. And though they represent the universe in themselves, yet they perceive distinctly but a limited portion of it,—that part only which by its nearness or its magnitude comes within the reach of their vision. The rest is but confusedly represented. God alone clearly represents and comprehends that which is, and was, and shall or can be. Every monad, indeed, strives after the infinite; the present, both in time and place, the past and the future, also, are the objects of its desires and perfections; but each one strives after and perceives its object with more or less obscurity. Therefore there is room for infinite development and improvement in the created monads.

The connection between body and soul is the subject, not of apperception, but of perception only. The infinite number of the motions and changes in the organization of a substance, prevents them from becoming more than very faintly and obscurely perceptible. But there is no movement whatsoever in the body, whether voluntary or involuntary, which is not represented in the mind; as there is no thought, however abstract, to which there is not something in the bodily organization corresponding.

This exact correspondence between the perceptions of the soul and the changes in the body, is a consequence of the harmonious relation pre-established between the two. But there is no physical influence

exerted by the body on the soul. Both act in accordance with their own laws; and their movements partake of the harmony which, established from eternity, pervades all things, because both have alike for their end the representation of the universe. Bodies are moved by efficient, souls by final, causes; but both, notwithstanding the spontaneity of the action of the ruling monad, or the soul, as well as the serving monads, or the body, are moved in exact correspondence with each other. Thus the corporeal world and the spiritual world may be represented, in accordance with this Leibnitzian doctrine of a pre-established harmony, as related to each other like two clocks, which, though separate from each other, are so constructed as to mark simultaneously the same hours.

That which specially distinguishes the spirit of man from the souls of the lower animals, is its knowledge of necessary and universal truths. These make science possible, and elevate man to the knowledge of himself and of God.

All science is founded on two principles;—*the principle of contradiction*, by which we judge every thing to be false which implies at the same time affirmation and negation, and every thing to be true which is the opposite to what is contradictory or false; and *the principle of the sufficient reason*, according to which we determine that no fact really takes place, without a reason sufficient for its occurring so, rather than otherwise.

The first principle leads the philosopher, in his

analysis, to those primitive ideas which are capable of no further analysis, inasmuch as they express the identity of a thing with itself. At bottom, however, it is the same as the principle of identity. It constitutes the unity of the human mind, and is the basis of all theories which have necessary truths for their object.

But the principle of the sufficient reason makes manifest the objective continuity of the monads, and thus binds the universe together. By it, moreover, the finite spirit elevates itself to the image of God, as the only sufficient cause of the origin and order of all things, and to the idea of the totality of things united in all its parts by a pre-established harmony. Hereby, too, the spirit, ceasing to be merely a mirror of things external, becomes an image of God, and imitates his creative power.

These two great principles of identity and of the sufficient reason have not only a real existence in the world, but also an ideal one in the infinite reason and love of the Supreme Being. It was an error of Descartes, says Leibnitz, to represent the principles of geometry as established by the arbitrary will of God, for even the divine mind itself cannot think except in accordance with these universal laws.

Of the infinite number of worlds conceivable by the divine mind, it was impossible for more than one actually to exist, and the present one was selected as the best, according to the principle of the sufficient reason. All that is logically possible is not practically possible; and the perfection of this world was

limited by the degree of perfection belonging to the monads which in the mind of God claimed, each one according to its grade of excellence, to be realized. This is the *optimism* of Leibnitz.

But as it was the superior perfection of this system of things, in comparison with all other possible systems, that caused it to be brought into actual existence, it follows, that this world must, on the whole, be wisely and well ordered. There may be particular irregularities and defects, but these do not affect the harmony of the great whole, nor even that of a single monad. As certain geometrical lines, seen in any particular parts only, may appear to be irregular, which viewed in their entirety, are perceived to be drawn according to a regular plan, so the order of the world, as well as of each particular monad, considered as a whole, is promoted even by the disorders apparent in particulars. This is true of imperfections, both in the physical and moral world; and it justifies the wisdom and goodness of God, both as the architect of the universe and the ruler of all intelligences. This is the doctrine of Leibnitz's Theodicea.

All men, as well as spirits superior to them, are members of that state which is governed by the greatest and best of monarchs, the city of God. This universal monarchy in the moral world is the most exalted of all the works of the Creator, and most gloriously displays his goodness.

There exists a perfect harmony between the kingdoms of nature and of grace. All the works of

God, as the Creator of the universe, conspire to promote the accomplishment of his plans as governor of the celestial city of spirits. Thus, for example, this planet will be destroyed and renovated by the ordinary agencies of nature, at the precise time requisite for the punishment of the wicked and the reward of the just. The consequences of sin and of virtue are made sure by the ordinances of nature. All things conspire to promote the welfare and happiness of those who, trusting in Providence, do their duty; who, in the spirit of love, labor to advance the great purposes of God, while they contentedly submit to the imperfections of the present state of things.

An affectionate faith in God, that he has so ordered the world as to secure the greatest possible amount of happiness and virtue, procures for the soul a foretaste of future felicity, gives it more than the patience of the Stoics, a true, solid peace. But as our knowledge of the infinite is imperfect, so, consequently, is our happiness, which consists, in fact, not in the complete satisfaction of all desires, but in a constant advancement to new perfections and higher delights.

Such, very briefly stated, is Leibnitz's doctrine of morals, and his system of philosophy built upon it. In one respect, the Leibnitzian theocratic philosophy resembles that of Plato, as it makes physics a kind of objective ethics. From his cotemporaries he differed in resolving all questions in morals and theology by a reference to the universal principles

which enter into the structure of the universe. The same universality and general harmony, it may be added, which pervade his speculative system, also characterized his life, so that from the great principles of his philosophy we may the better understand the true spirit of his conduct. Much of the wisdom of his thinking passed likewise into his living.

In form, the philosophy of Leibnitz is imperfect and fragmentary. Unlike his great cotemporary, Spinoza, he did not sit down in tranquil seclusion to write works for posterity, but stated his views, to a great extent, in occasional essays, published at the time in magazines, and rarely without some reference to important questions of the day in politics or theology. This constant reference to different parties and persons gives, indeed, to his philosophy the appearance of less completeness and originality than actually belonged to it. But Leibnitz labored more faithfully for the cause of truth than for the reputation of originality; and, instead of being ambitious to construct a perfectly new system, he was the first among the modern philosophers who sought to reconcile his own views with those of the great thinkers of antiquity and the middle ages. "I have found," Leibnitz wrote, in 1714, to Raymond de Montmort, "that the greater number of sects are right in much which they affirm, but not in what they deny. The formalists, like the Platonists and Aristotelians, are in the right when they recognize the fountain of things in the final and formal causes; but they are in the wrong when they neglect the

efficient and material causes, and, like Henry More, in England, and certain Platonists, conclude that there are appearances which cannot be accounted for mechanically. On the other side, the materialists, or those who occupy themselves exclusively with mechanical philosophy, are in error in discarding metaphysics and attempting to explain everything directly or indirectly through the imagination. I flatter myself that I have penetrated into the harmony of the different kingdoms; and have seen that both parties are right, if they only would not exclude each other."

Far in advance of the spirit of his times, and even anticipating the universality of our own, Leibnitz acknowledged that there were truths of the highest importance to be found in the writings of earlier times. The oriental sages, he said, had great and beautiful thoughts; the Greeks added dialectical form; the Christian fathers rejected the errors of Greek philosophy; and the scholastics sought to make the truths of heathenism subservient to the advancement of Christianity. With Descartes, however, he found fault as disposed to overlook the merits of preceding philosophers, and to consider science as beginning and ending with himself.

But while Leibnitz looked with no friendly eyes upon the founder of the Cartesian philosophy, he appreciated what was good in it, and held some of its disciples in the highest esteem. Among these he especially cultivated the friendship of Mallebranche and Anthony Arnaud. With the latter he



remained in correspondence until the day of his death; and communicating his speculations to him from time to time in letters of great length, he at last succeeded in prevailing upon his friend to relinquish the philosophy of Descartes, in many particulars, for that of his own.

To the relation between Leibnitz and Spinoza we have before alluded. The former had already laid the corner-stone of his system, when he first received the work of the latter on ethics. It was natural, therefore, that Leibnitz should have been repelled by this remarkable book, although it cannot have failed to exert no little influence upon him. This it must have done, if in no other way, by compelling him to struggle hard to maintain his ground in the face of so powerful an opponent. He considered Spinoza's system of philosophy as the last extreme of Cartesianism, and made use of it as such in his contests with the Cartesians. But his opposition to Spinoza directly was only occasional, because this philosopher was then not made the subject of lectures at the universities, but was rather despised than studied. Descartes, on the contrary, had a host of followers, and with these Leibnitz frequently became so earnestly engaged in controversy, as to be led to do more to diminish the influence of this master than he would otherwise have wished to do.

Excepting in the case of the Cartesians, Leibnitz was always grateful for the advantages derived from the critical examination of his views by clear-sighted antagonists. And to none was he more

indebted than to that remarkable man, who lacked nothing but the power of invention to have been equal in intellect to the greatest of his cotemporaries, and whose extensive influence upon the culture of his age far exceeded that of most of them,—Peter Bayle. To the exceptions which this more skeptical than critical writer took in his celebrated dictionary to the ideas of Leibnitz, we owe the most careful and thorough investigation of them by their author. Compelled vigorously to defend his system at all points, Leibnitz, in one of his replies to his adversary, compared himself to Antaeus in the fable, who, thrown to the ground, arose with increased strength for the victory. Even after the death of this great critic, Leibnitz, when controverting the opinions of the former, in the *Theodicea*, could not refrain from asking, with sufficient naivete, “And what would Bayle have said to this?”

A still more formidable opponent Leibnitz, and also the whole German school of philosophy, met with in his great English cotemporary, John Locke. For a refutation of Leibnitz, the main aim of whose system was to establish the doctrine of innate ideas by the theory of monads, would have undermined the common ground of speculative idealism, occupied also by Descartes and Spinoza. In opposition to these ideal philosophers, Locke came forward with a system of sensualism. His great work on ~~the~~ human understanding, published in 1688, immediately attracted the earnest attention of Leibnitz. But having at that time only just commenced the

formation of his own system of metaphysics, he was not prepared to refute that of his more advanced opponent; and, in fact, he was the first among the more prominent philosophers, to acknowledge the great merits of the *Essay on Human Understanding*, as well as those of the other works of Locke. Leibnitz accordingly contented himself, for the time being, with writing down, without any design of publication, such reflections as occurred to him while reading the essay, and afterwards sent them to Locke. These were published, in connection with the papers left by Locke, under the title of *Reflexions sur l'Essay de l'entendement humain de Mr. Locke*. They contained, if nothing else, the remark, which was a whole volume in itself, that "the question respecting the *origin* of our ideas and maxims, is not a preliminary one in philosophy; and a person must have made great advances in this science, in order to answer it correctly."

In the summer of 1703, Leibnitz being then, with several members of the Hanoverian court, at Herrenhausen, took up again the *Essay on Human Understanding*, and set forth at large his views respecting it, in the form of a dialogue between a disciple of Locke and one of his own philosophy. These swelled, at length, into a book, under the title of *Nouveaux essays sur l'entendement humain*; one, notwithstanding its fragmentary character, of the most valuable and comprehensive of the philosophical works of Leibnitz, but which, in consequence of the death of Locke, was not published during the author's life-time.

## CHAPTER X.

Leibnitz's project of an universal language—He applies to Louis XIV for aid in executing it—His relation to the Church of Rome—His reasons for not joining it—Correspondence with the Landgrave of Hesse Rheinfels, and with Madame Brinon, on this subject—Spinola; Huet; Bossuet—Death of the Duke John Frederic, and succession of Ernest Augustus—Leibnitz wishes to reside in Vienna, and to become a foreign member of the Academy of Sciences in Paris—He writes a tract against Louis XIV, on the occasion of the siege of Vienna by the Turks—His intimate relation with the princes of the House of Brunswick—Character of Sophia, Duchess of Hanover—Molanus.

In the first years of Leibnitz's residence in Hanover, he devoted some portion of his leisure to a subject which he considered of the greatest importance; and which, having from early life occasionally occupied his attention, continued to be a favorite study, even until his death. We refer to his project of an universal language, or philosophical alphabet of thought. Impressed with a lively sense of the imperfection of ordinary language as a medium for the communication of philosophical ideas, and also of the amount of precious time that might be saved if the ideas of philosophy were expressed in a lan-

guage universally intelligible, Leibnitz was possessed his life long with the belief, that a philosophical language might be constructed which would express all kinds of abstract truth with the same precision and adequateness as the principles of arithmetic or algebra were denoted by figures and letters. For this purpose, characters, as expressive as those supposed to have been given to things by Adam, were to be invented, which should be the signs of those few primitive thoughts from which all others are more or less directly derived. Out of these characters, formulas were to be constructed; and by means of these formulas, various relations between thoughts to be established, and inferences deduced, with the same freedom from error as by the processes of arithmetic or geometry. In the invention of these philosophical characters, however, Leibnitz never made any progress, though he appears to have thought it no difficult matter to devise them. But the thoughts which were to be expressed by these characters, he was ready enough to supply. These were, indeed, to be the principles of his own speculative system, which, with the self-confidence so characteristic of great original minds, he considered as containing the pure elements of truth, and worthy of being incorporated into the universal language of philosophy.

Nor was this universal language to be applied only to the truths of philosophy. In the prosaic spirit of his times, Leibnitz imagined that an aethetical calculus, similar in principle to the philo-

sophical, might be constructed, which would direct and assist the sons of genius in the composition of works of art. Thus music was defined by him as "an arithmetic of the soul, which knows not that it reckons;" and the high delights of painting and poetry were attributed to the perception, more or less distinct, of proportion and system.

This splendid, but somewhat cabalistic project, ever remained a project merely in the head of its inventor; and it is only from obscure hints, gathered from his writings and letters at large, that we derive the means of forming any notion of its general character. There is no doubt, however, that Leibnitz himself entertained as high expectations of general utility from the realization of this phantom, which he chased through life, as he ever could have indulged in his youth from the discovery of the precious stone of alchymy.

This visionary project for the improvement of science can hardly fail to remind us of the famous plan for extending Christianity by the conquest of Egypt, and especially as Leibnitz again had recourse to Louis XIV, as the proper patron of an undertaking fraught with so important benefits to mankind. Shortly after the peace of Nimuguen, he addressed to this monarch, who, crowned with victory, was then standing on the summit of his military career, two memorials, wherein the latter was solicited to interest himself in a general reform of science, by means of the proposed philosophical language; and thus, in imitation of Alexander and Aristotle, of the

emperor Justinian, of Leo, the philosopher, and of Almanzor or Mirandola, the great chief of the Arabians, to make his name conspicuous in the history of the peaceful and beneficent triumphs of letters. These memorials were entitled, the one, *Préceptes pour avancer les sciences*; the other, *Discours touchant la méthode de la certitude et l'art d'inventer, pour finir les disputes et pour faire en peu de temps de grands progrès*. Not without fears lest the prevalence of false views in science, and the constant strife of heterogeneous opinions, might bring about the return of the dark ages of ignorance, the writer proposed that the quintessence of the best books should be extracted, selections added from the observations and experiments of the ablest minds in every profession, and, thereby, a collection made, in forms convenient for use, of all the great truths which had been discovered in the progress of the race. A suggestion was also added respecting the advantages that might be expected to accrue to the interests of learning and humanity, if prizes were offered for discoveries in science and inventions in the arts, and also for the bringing to light of any valuable knowledge that might lie buried beneath the rubbish of literature. Whether these memorials ever reached the royal personage for whom they were designed, or what reception they met with, is not known. They may serve, however, as illustrations, if not of the practical good sense of Leibnitz, at least of the constancy and ardor with which he labored for the improvement of science, and the best good of mankind.

The expectations of Leibnitz were no less exaggerated respecting the wonders to be accomplished by his projected philosophical language in the sphere of morals and religion. He considered it a means of preserving and extending the truths of Christianity inferior only to "the miracles of a holy apostle, or the victory of a great monarch." But without dwelling upon this vagary, we may take this opportunity to give some account of the relation which Leibnitz personally sustained to religion and the church.

The subject of the reunion of the Protestant and Catholic churches was one of the great topics of the latter part of the seventeenth century; and to the accomplishment of this important religious and political measure, in which Leibnitz began actively to interest himself some time before the death of John Frederic, he devoted more or less of his time for the space of twenty years. It was not for the satisfaction of any personal religious scruples, however, that Leibnitz took so zealous a part in attempting to restore the Protestants to the bosom of the mother church; although, as we shall see, he was somewhat favorably disposed to the Romish communion, and was, accordingly, often solicited by his Catholic friends to place himself within the pale of certain salvation. He was inspired merely with the desire of effecting a realization of his speculative idea of a hierarchy, as developed in his writings on politics and natural law. Therefore it was that, with all his commendation of many of the Catholic institu-



tions, and his reverence, even, for those of her dogmas which appeared to him susceptible of a philosophical interpretation, he nevertheless firmly resisted all solicitations to enrol himself among the spiritual subjects of the Roman pontiff.

The views of Leibnitz on this point cannot, perhaps, be better stated than in his own words, extracted from a letter, written in January, 1684, to his friend, Landgrave Ernest, of Hesse-Rheinfels. After having claimed to be spiritually, though not externally, a member of the holy Catholic communion, and having acknowledged the divine right of the papal hierarchy, together with the dogma of the infallibility of the church in all those articles of faith esteemed necessary for salvation, he proceeds as follows :

“To return to myself, then, I entertain certain philosophical opinions, the truth of which I think myself able to demonstrate, and which it would be utterly impossible for me, with my present constitution of mind, to discredit, so long as I see no method of proving the contrary. These opinions, though to the best of my knowledge contradictory neither to Scripture, tradition, nor the decrees of any council, are, notwithstanding, disapproved and subjected to the censorship by certain theologians of the school, who imagine the opposite of them to be essential to an orthodox faith.

“It may be replied, that I could escape this censorship by silence. But this would not answer. For these principles are of great importance; and in

case I should wish to speak of the valuable discoveries which I think I have made in the method of investigating truth, and of extending human knowledge, it would be necessary for me to lay these principles down as fundamental. It is true that had I been born in the Romish church, I would have left it only when excommunicated, or when denied the privilege of the communion, as I might have been, on refusing to subscribe to certain traditionary opinions. Now, however, having been born and educated without the pale of the Church of Rome, it would be neither sincere nor safe, I think, to apply for admission into it,—knowing as I do that this application would very likely be refused when my true sentiments should have been made known. One must constantly restrain himself and conceal his thoughts, or expose himself to a *Turpius ejicitur, quam non admittitur hospes*. This, to many persons, would be very vexatious; and, in my own case, it would entirely break up my peace of mind,—not to mention the civil dangers attendant on secession. True, it is possible that opinions condemned by the monks, might be approved, or at least tolerated by many pious bishops and theologians; but it is not safe to expose one to a *perhaps*. One must endeavor to learn the true state of the case beforehand.”

Not unlike the preceding, were the sentiments communicated in the following extract from a letter to the learned, but assuming and fanatical Madame Brinon, Secretary of the Abbess of Maubuisson:

"You are right, Madame," he wrote in 1691, "in regarding me as a Catholic at heart. I am one openly even, for it is only obstinacy that makes the heretic; and of this, thank God, my conscience does not accuse me. The essence of Catholicism consists not in external communion with Rome, else would they who are wrongfully excommunicated cease to be Catholics contrary to their will and without their fault. The true and essential communion, which unites us to the body of Christ, consists in love. All those, therefore, who are instrumental in upholding schism, by unkindly throwing hindrances in the way of reconciliation, are themselves schismatics; while those persons, on the contrary, who are willing to do whatever they can in order to gain an entrance into the external communion, are, in fact, true Catholics."

It is plain that the concessions made by Leibnitz, respecting the divine right of the papal supremacy and the excellence of many of the institutions and doctrines of the Roman Catholic church, proceeded directly from his speculative idea of a hierarchy; and that the reunion of the Lutheran with the mother church was an historical postulate of his political system. On this account was it that the philosopher preferred an union on the basis of the Romish, rather than the Lutheran church; and that to accomplish this union, he was willing to look with an eye of indulgence upon some of the practical abuses of the Catholics, and to endeavor to show the compatibility of their dogmas with those of Protes-

tant Christians; while, on the other hand, whenever the question of his personal conversion was raised, descending from the heights of speculation, he attacked, in his capacity as a dissenter, both the tenets and the practices of Romanism, and called for the positive proof of the dogmas whose mere possible truth he had before admitted, in his character as a philosopher. Leibnitz, it must be confessed, however, did not always make a sufficiently broad distinction between things so widely separated as ideal and historical Catholicism; nor will he entirely escape the charge of indecision in his theological views, from those who are more decided in their preference of either the invisible church of Christ, or of the visible communion of Rome.

Besides his correspondence with the Landgrave of Hesse-Rheinfels, he also conferred on the subject of church union with the noted theologian and diplomatist, Spinola, Bishop of Thina, in Croatia, who, in 1679, came as imperial ambassador to Hanover. He corresponded, likewise, on the same subject, with Huet, afterwards Bishop of Avranches, and with Bossuet, Bishop of Meaux, through the latter of whom he attempted, not altogether without success, to interest Louis XIV in favor of the proposed religious coalition.

To these irenic negotiations an end was suddenly put, in 1679, by the decease of the Duke of Hanover. The virtues of this estimable prince were, at the time, gratefully celebrated by Leibnitz in three different eulogies, one of which was in

Latin, and another in French verse. In the Latin poem, Leibnitz showed himself no mean master of that species of composition,—not to mention the prophetic merit which, on the elevation of a Hanoverian prince to the throne of England, the author was not altogether disinclined to attribute to the concluding stanzas:

“*Et Superi majora parant; sed talia Parcæ  
Noscere mortalem prohibent, vil dicere vatem.*”

Though confirmed in office by the succeeding Duke, Ernest Augustus, Leibnitz seems to have thought it advisable, considering the uncertainty of princes' favors, to apply for the then vacant post of imperial librarian in Vienna. Whether he was unsuccessful in his application, or whether he finally preferred to remain in Hanover, is not known. From similar motives, he also, at about the same time, sought, through the intervention of Huygens, and his patron, the Duke of Chevreuse, to be appointed a foreign member of the Royal Academy of Sciences in Paris. This honor, however, could not then be bestowed on him in conformity with the constitution of the Society, though it was granted a number of years afterwards upon the removal of the constitutional hindrance.

The new Duke, Ernest Augustus, previous to his accession to the head of the Hanoverian government, had taken such an active part in the war against France, as to have gained the name of a brave general and a true patriot. It was with his approbation,

therefore, when the Turks, attacking the eastern bulwark of European civilization, had laid seige to Vienna, that Leibnitz again resumed his pen, to warn his countrymen against the still greater dangers which threatened the safety of the German Empire, from the ambitious monarch of the West. At that time residing in the Hartz mountains, for the purpose of draining the ducal mines, Leibnitz wrote a very valuable political tract against Louis XIV, under the title of *Mars Christianissimus, auctore Germano Gallo-Græco, ou Apologie des Armes du Roy très Chretien contre les Chretiens*. The object of this pamphlet, which was translated into the German language, was to expose the aim and general scope of the French policy. To accomplish this object, the writer, under the form of irony, took the side of the friends of France in Germany, then called Gallo-Græcos; and developed such a correct understanding of the great political movements of the times, as to give to his pamphlet no little historical value, and to attract to it very general notice. The authorship of the *Mars Christianissimus* was never acknowledged, except to the Duke, with whose approbation it was published, although the writer occasionally took the liberty of referring to it in his correspondence, as to a work not unworthy of attention.

After the tide of Moslem invasion had been turned back by the gallant interposition of John Sobieski, Louis XIV still continued his hostile demonstrations against the German empire, and

finally compelled the emperor to accede to an inglorious truce of twenty years. Ernest Augustus long withheld his assent to a measure so dishonorable to the Germanic princes; but certain domestic and political circumstances finally made it the turning point of his course of foreign policy. Active negotiations, at this period, were going on between the courts of Hanover and Berlin, to effect a matrimonial union between the Electoral prince Frederic, and the only, as she was also the beautiful and intellectual, princess of Hanover, Sophia Charlotte, the pupil of Leibnitz. But the consent of the Elector of Brandenburg could be attained only by the accession of Ernest Augustus to the truce with France. The Duke accordingly yielded, and in the end even went so far as to exchange his alliance with the emperor for one with his former enemy, Louis XIV. Not that he broke off all friendly communication with the head of the German empire, for although a degree of coldness sprang up between the two powers, yet the strength of their mutual interests did not fail to preserve in secret a tolerably good understanding between them. The three young princes of Hanover, whose prospects in life had been somewhat obscured by the law of primogeniture, which Ernest Augustus, not without the counsel and assistance of Leibnitz, had recently introduced into the duchy, looked to the emperor for employment; and the Duke himself, having resolved to aspire after the honors of an Elector of the empire, found it necessary to obtain, first of all, the consent of the court of Vienna.

But while the rising fortunes of Hanover were fast eclipsing those of the other branches of the House of Brunswick, the subordinate princes of this family became still more intimately connected with the leading member of it; and Leibnitz, in consequence, found himself at this period in the central point of these related courts. The personal influence of the philosopher in this circle of princely personages was very great. He early won the affection of the two Dukes of Wolfenbüttel,—was, at a later period, appointed chief director of their library,—and was esteemed not only as the ornament of their table whenever he came to Wolfenbüttel, or to Brunswick, but also as a valuable counsellor in all matters pertaining to literature, science or religion. Both of these dignitaries were men of learning; and with one of them, Anthony Ullrich, the author of two romances of some merit, Leibnitz maintained for a long time an active correspondence.

Nor may we here omit to mention the connection of Leibnitz with the excellent and accomplished Sophia, Duchess of Hanover. This lady, if inferior in extensive learning and in devotion to science, to her sister, the celebrated Princess Elizabeth, of Bohemia, excelled her far in brilliancy of intellect and in political insight. She wrote Latin with elegance, spoke and wrote most of the living languages, and was a zealous student of philosophy. With Leibnitz, who was her guide in abstract and scientific studies, she entered into the warmest friendship, and corresponded with him whenever



they were separated. In the letters of Leibnitz to her, pleasantry was usually mingled with earnestness; some of them contained, indeed, very detailed expositions of his metaphysical theories; others touched upon history, recent literature, coinage and natural history. Many of them, on account of their importance, were sent by the Duchess to her relatives in France, especially to the genial and strong-minded Duchess of Orleans, and also to various persons at different foreign courts. Though differing from her husband in religious views,—the Duchess belonging to the Reformed, and the Duke to the Lutheran church,—she resembled him in the liberality with which he tolerated opinions and practices in religion not agreeing with his own, as she did generally in the generosity of his sentiments, and the elevation of his ambition.

In the society of the Duchess, Leibnitz often met the humane and liberal-minded, as well as learned, Molanus. These two scholars frequently came together in the morning, at the residence of their mutual friend, for the purpose of conversing with her on some interesting topic in philosophy. It generally fell to the lot of Leibnitz to pronounce judgment upon the views presented by Molanus on the one side, and the Duchess on the other; while at times he himself received from his princely mistress no feeble assistance in the maintenance of his opinions.

## CHAPTER XI.

Conference in Hanover respecting church union—Leibnitz's *Systema Theologicum*—His correspondence with Pelisson, respecting the reunion of Protestants and Catholics—His letter to the Duchess Sophia, concerning the visions of Miss Von Asseburg—His religious toleration—Correspondence with Bossuet, on church union—Leibnitz's proposal to unite all Protestant sects against the Catholics.

THE return of Spinola to the court of Hanover, in the year 1683, called the attention of Leibnitz once more to the subject of the reunion of the Protestants and the Roman Catholics. Having wasted no little time at Berlin in attempting to persuade the Elector of Brandenburg to accede to his irenic projects, the zealous Bishop of Thina, whose spirits were incapable of being depressed by failure, came to negotiate in favor of church union with the liberal-minded successor of John Frederic. Ernest Augustus, in fact, was, from political considerations, not disinclined to favor a measure which met not only with the approbation of the most intelligent theologians of his dominions, but also with that of the emperor, whose assistance he was anxious to secure in his efforts to obtain the title of Elector. The

concessions, too, proposed by Spinola to be made on the part of the Catholics, were very liberal. Taking Bossuet's celebrated *Exposition de la Foi* as the basis of his views, he proposed that the Protestants should unite themselves with the Church of Rome without giving up any thing essential, either in their faith or practice; their clergy should retain the right of marriage; the two parties should be called, the one, Old Catholic, and the other, New Catholic; in token of their spiritual and fraternal union, they should, from time to time, commune with each other; the Protestants agreeing no longer to apply to the Pope the name of Antichrist, but to acknowledge him as the chief patriarch in Christendom; the Pope, on his part, should issue a bull, pronouncing the Protestants free from the sin of heresy; and especially, the authority of the Council of Trent, with its anathemas, should be suspended until a future general council, composed of both parties, could be called to settle all points of disagreement.

To confer with Spinola, the Duke appointed Molanus and several other theologians, who, strange to say, speedily agreed on the terms of reunion. These were substantially the same as those proposed by the Bishop of Thina, according to which, the Protestants should be admitted into the Romish communion, and each party should tolerate the dogmas of the other, especially those respecting transubstantiation, until they could be harmonized by a future ecumenical council. As a result of the discussions of this conference, a tract was published

in 1691, entitled *Regulæ circa Christianorum omnium ecclesiasticum unionem*, which was afterwards made the basis of similar negotiations in Hungary and in France.

Leibnitz, it appears, hardly expected any practical issues from this effort of the friends of union. On the contrary, the character of Spinola, the posture of political affairs at that period, and especially the almost insurmountable obstacles which would be likely ever to stand in the way of the proposed council, seemed to him absolutely to forbid the indulgence of any but the feeblest expectations of success. He was of opinion that the only way of bringing together churches so far separated from each other, was, by mutually agreeing on some common principles of religious belief. Accordingly he proposed to the Duke to write such a treatise on the points of disagreement between the Protestants and the Catholics, as might furnish an exposition of doctrines to which the leading minds of both parties would assent. This, for the purpose of giving it greater effect, was to be so written as to appear to have emanated from the pen of a Catholic. This design, however, not meeting with the approbation of Ernest Augustus, was never carried into effect; but long after the death of Leibnitz an imperfect sketch of such an exposition of the Romish doctrines was found among his papers, and published, as if expressing the real sentiments of the author, under the imposing title of Leibnitz's *Systema Theologicum*. This work, in fact, was very extensively regarded

as the writer's religious will and testament; and as such was translated no longer ago than the year 1819, into the French language, and soon afterwards republished in Germany also.

Meanwhile, in 1684, Spinola, provided with the treatise of the Hanoverian theologians, proceeded to Rome, where his views and propositions were received with great favor by Innocent XI, and the highest dignitaries of the church. But no practical result followed. And the same may be said of his efforts in the same cause afterwards made in Hungary; of those of his successor, the Count of Buckheim, undertaken in 1698, in Hanover, and finally of those prosecuted by Leibnitz himself, in Vienna, whither, at the request of the emperor, he went in 1700, to attend a conference on the subject of church union.

Previously, however, to this visit to Vienna, Leibnitz, through the mediation of the learned and gifted Madame de Brinon, Secretary of the Abbess of Maubuisson, carried on, in the years 1691-2, a correspondence on the subject of the toleration of differences in religion with Pelisson, historiographer to Louis XIV. This author, who wrote not more elegantly on historical, than learnedly on theological subjects, had, in some of his writings, accused the Protestants of indifference to religion, on account of their disbelief in the infallibility of the church; and it was to the refutation of this charge that Leibnitz applied the principles of his peculiar system of philosophy in the letters which, together with those of

his opponent, were afterwards published under the title of *Lettres de Mr. Leibnitz et de Mr. Pelisson de la tolérance et des différens de la religion.*

This correspondence, the publication of which excited considerable attention in Europe, was conducted with great urbanity on both sides, although Leibnitz boldly denounced many of the errors and abuses of the Romish church, and required their reformation as a necessary preliminary to the acceptance of any terms of union on the part of the Protestants. Pelisson testified his regard for his correspondent by asking him for a brief sketch of his life and doctrines,—a favor which was willingly granted. It may be added, that in one of his letters, Leibnitz replied to a question respecting his views on the dogma of transubstantiation with more than usual explicitness. "I hold," he says, "to the Augsburg Confession, which supposes a real presence of the body of Jesus Christ, and beholds in this sacrament something mysterious. This view appears to be conformable to the opinions of antiquity, and to the words of the text, the natural sense of which we ought to preserve as far as possible."

Not dissimilar in its principles and tendencies, and still more interesting, was the correspondence which took place between Leibnitz and the Duchess of Hanover, while the latter was spending some time, in the year 1691, in Ebsdorf. At this watering place there happened then to be residing a lady of the ancient and noble family of Asseburg, together with her three daughters. Herself a pious ent

ast, she had devoted one of these, Rosamund, even before birth, to the Saviour; and had, probably, at an early day, made the child acquainted with the solemn dedication. When still very young, Rosamund believed that Jesus was wont to appear to her in all his splendor, and make to her various kinds of revelations, of which, even before she was well able to write, she was accustomed to keep a record. This young maiden, at the time the Duchess was residing at Ebsdorf, was beginning to excite a good deal of attention by means of her supposed faculty of giving appropriate answers to questions laid before her in sealed letters, and written in foreign languages altogether unknown by her. These replies she, in common with many others, thought were communicated to her by the Saviour. Sometimes, however, she was unsuccessful; and then she declared that Jesus would not always answer her, but only when it pleased him. On one occasion she was greatly grieved, and wept bitterly because, as she said, the Saviour was angry with her as he had never been before. This singular phenomenon, exciting the attention of the highest personages in the land, gave rise to very different opinions, and aroused the most violent passions of religious controversy. To the orthodox divines, the replies and sayings of Rosamund seemed to savor of heresy; to the more enlightened they appeared ridiculous; but both thought the foolish girl ought to be shut up in prison. Molanus drily remarked, that such expressions as, "my queen," "my little dove," which

Rosamund pretended Jesus employed in addressing her, were not usual, so far as was known, in the communications of the celestials.

To the Duchess, who requested the opinion of Leibnitz respecting this miracle, as it was by many persons esteemed, he replied, in terms evincing a degree of philosophic liberality not very common in those days of narrow-mindedness and bigotry. "There are persons," he wrote, alluding to Molanus, "who treat the matter cavalierly, and believe that the young prophetess should be dispatched straightway to Pymont. For myself, I am clearly of opinion there is no supernatural agency in the affair; and that there must be some embellishment in the story of the English letter of Dr. Scott, to which, without opening it, she is said to have given an answer dictated by the Saviour. Meanwhile I am filled with astonishment at the nature of the human mind, of whose powers and capabilities we have no adequate conception. On meeting with persons like these, instead of rebuking and endeavoring to alter them, we ought much rather to desire to retain them in so exalted a state of mind, as one treasures up a curiosity or a cabinet-piece." Here the writer mentions the characteristic marks whereby dreams and visions may be distinguished from real perceptions; and adds the remark, that men of vivid imagination, as is sometimes the case with young persons educated in cloisters, can call up apparitions before their mind's eye as distinct as the reality, and especially when the appearances have some connec-



tion with things actually existing. "I often think," he continues, "that Ezekiel had studied the art of architecture, or was a court engineer, because he saw in his visions such magnificent edifices. But a prophet in the country, like Amos, beholds only landscapes or rural pictures; while the statesman Daniel gives rules, in his visions, to the monarchies of the world. This maiden whom your Highness has seen, may not, indeed, be compared with prophets like these; however, she believes she sees Jesus Christ before her eyes, because among Protestants there are no other saints to be seen. The burning love, which, fanned by the hearing of sermons and by private reading, she bears to the Saviour, has at length obtained for her the gracious gift of beholding his image or appearance. For why should I not call it a gift of grace? It does her only good, it renders her happy, it makes her the subject of the most beautiful sentiments."

As the Dukes of Wolfenbüttel and Celle were present with the Duchess Sophia in Ebsdorf, Leibnitz took that opportunity to inculcate upon them the propriety of tolerating such religious sects, though erroneous, as were not likely to do any harm to the state. "The best course," he writes, "is to let these good people have their own way so long as they engage in nothing that may lead to practical consequences. I learn from history that sects have generally sprung up from too great oppression of those who entertained some peculiar opinion; and under pretence of preventing heresies, one has only

established them. Generally such notions disappear of themselves when they have lost the charm of novelty; but when one makes a great noise about them, and undertakes to put them down by argument and persecution, it is the same as endeavoring to put out the fire with the bellows. Heresy is like a torch, which will become extinguished if left alone, but which is kept burning by violent motions to and fro. Sometimes, from fear of a dearth of heretics, the theologians do all they can to find them out; and in order to make the unbelievers immortal, they give them party names, as Chiliasts, Jansenists, Quietists and Pietists. Often one arrives at the honor of being a heresiarch before he knows it, as the deceased Payon, an able preacher in France, whose pupils and friends were treated by Mr. Jurieu and others as Payonists." In the same spirit of liberality, Leibnitz interested himself warmly in aiding the superintendent, Petersen, who had been deposed from office in consequence of proclaiming the approach of the reign of Christ, which he considered to be heralded by the prophecies of Rosamund von Asseburg. At a later period, also, Leibnitz interceded with the spiritual authorities at Vienna, in behalf of the Pietists, who were in danger of persecution from the bigoted partizans of Romanism.

Not long after the termination of his correspondence with the duchess Sophia, and that before mentioned with Pelisson, Leibnitz commenced one of still greater importance with the celebrated Bossuet,

bishop of Meaux. The subject of discussion was the same as that treated of in the letters between Leibnitz and Pelisson,—the union of the Protestant and Roman Catholic churches. The interest of Bossuet in this project was first awakened by Molanus, who sent to the former the preliminaries of a religious peace, as agreed upon by the Hanoverian conference, as well as some other communications pertaining to the same subject. But the latter at length gave place to Leibnitz. The ground taken by the French prelate with his German correspondents, was, that the course pursued by Spinola and the other members of the conference at Hanover, could never accomplish the end desired; that first to effect an union in form, as proposed by the Hanoverian theologians, and afterwards to endeavor to agree upon the terms of one in reality, was to invert the order of reason; and that, disposed as the Catholic church might be to yield for the sake of peace many points comparatively unimportant in discipline, she nevertheless would never consent to surrender any of the cardinal points of her theological system. The sacrament of the supper might be administered in two different forms, to suit each party; certain explanations of some of the Catholic dogmas might be made, rendering them more consonant with the creed of the Protestants; but the Church of Rome could never so far depart from her dignity and from truth as to surrender a tittle of the doctrines established by her councils. Though firmly believing that these doctrines were the only true and possible

foundation of the proposed union, Bossuet showed great moderation and liberality of mind in the treatment of all subordinate matters. Leibnitz, as we have before observed, was, at heart, not in favor of the course pursued by Spinola and Molanus, but saw, with Bossuet, the necessity of coming to some agreement on doctrinal points, before instituting a formal union of the two churches. He however was compelled, in this case, to advocate the sentiments of the court of Hanover, instead of his own. This circumstance made his position a false one, and was indeed fatal to the success of his argument. No matter how gallantly he might defend the principle of the Reformation, no matter what unanswerable historical and theological objections he might urge against the Council of Trent, his opponent could notwithstanding calmly reply,—if you do not choose to return to the true church, you can remain where you are; but if you do return, it can be only on such principles as she believes to be safe and orthodox. Not the principles of the Romish church, as such, therefore, not the acuteness and erudition of Bossuet, not his great personal and official influence, but the truer position assumed by him in the controversy was it, which gave him a decided logical and moral superiority over his antagonist. It was in vain that the German philosopher supported his false position with a splendor of learning and argumentation which secured for him a rank among the first Protestant theologians; he lost both his cause and his temper.

Bossuet at length became so convinced that they could arrive at no practical result, that in 1694 he broke off the correspondence; but five years afterwards, at the request of the Duke Anthony Ulrich, Leibnitz renewed it. The question upon which the dispute then turned, was, whether the Council of Trent had the right to introduce the Apocrypha into the canon, and consequently, to hurl its anathemas against the Protestants for rejecting it. On this subject Leibnitz reasoned with such force of argument and such copiousness of learning as to elicit the admiration of even the biographer of his opponent; and having in his turn the best of the argument, he in 1701 discontinued the correspondence.

The spirit maintained in this controversy by Bossuet, was highly creditable to his character as a Christian prelate. Confident of his well-chosen position, he wrote with candor and with calmness; avoided alike the somewhat assuming and authoritative tone of Arnaud, and the courtly, flattering manner of Pelisson; and, especially, abstained, as others had not done, from all attempts to gain a proselyte in the person of his distinguished correspondent. But this very firmness, seriousness, and manly reserve of the Bishop of Meaux served only the more to excite the temper of Leibnitz, though himself accustomed to make an imposing impression upon others by the philosophic repose and dignity of his bearing. Even at the outset, the latter became personal in his remarks, and indulged in very bitter observations, both against Bossuet and the church

whose cause he advocated. Characters, indeed, like Leibnitz and Bossuet necessarily repel each other. The divine accused the philosopher of being ambitious of mingling in too many matters; he charged him with intruding into the domain of theology; and when Leibnitz happened to write an epigram on the invention of bombs, Bossuet blamed him for aspiring to be a poet. On the other hand, the German imputed to the Frenchman a want of good temper (*son humeur étoit un peu chagrin*); he found fault with the asceticism which the French theologians opposed to the cheerfulness and hilarity of men of the world, while the foulest corruption was known to reign at the French court, under the mask of piety; and when, in 1694, a violent controversy arose between the French ecclesiastics and players, on account of the proposition made by Father Caffaro to admit the latter to the sacraments, Leibnitz, taking side with the persecuted, came out against the party of the Bishop of Meaux with the following *jeu d'esprit*.

*Aux Docteurs Anticomédiens.*

Sevères Directeurs des hommes,  
 Savez-vous, qu'au Siècle où nous sommes,  
 Un Molière édifie autant, que vos leçons ?  
 Le vice bien raillié n'est pas sans pénitence,  
 Il faut pour reformer la France,  
 La Comédie, ou les Dragons.

Upon the conclusion of his correspondence with Bossuet, Leibnitz finally relinquished the project of

effecting an union between the Protestants and the Catholics. The reason of this abandonment of a long-cherished purpose lay in the altered posture of the political affairs of Europe. The unjust and obstinate war waged by Louis XIV against the emperor, in 1688, had given to the Catholic king a dangerous ascendancy over the Protestant states of Germany; while, at the same time, the revolution in England had opened to the house of Hanover the prospect of ascending the throne of Great Britain. Leibnitz, therefore, in harmony with the wishes of the Hanoverian court, ceased at the commencement of the eighteenth century to advocate the ecclesiastical alliance of the north of Germany with the south of Europe; and proposed in its stead the union of the different Protestant churches in Germany, Switzerland, Holland and England, against the Catholic powers of Europe, and especially against France.

## CHAPTER XII.

Leibnitz engages to write the history of the house of Brunswick—Genealogies of German princes in the seventeenth century—Leibnitz's plan of a German historical society—He commences a journey to Italy—Proceeds by way of the Rhine to Vienna—His reception at the imperial court—Manifesto by him respecting the relations of the empire to the Turks and to Louis XIV—Leibnitz's occupations in Vienna—Excursion to the mines of Hungary—He proceeds to Venice—Narrow escape at sea—He arrives in Rome—His acquaintance with Roman literati—He visits the catacombs—His proposal of introducing the study of natural science into the cloisters—Jesuit missions to China—Chinese civilization—He goes to Naples, Florence, Bologna, Modena—His historical discoveries in Modena—He returns to Venice—Interesting letter on leaving Italy—Arrival at Hanover.

BUT while thus occupied as a theologian in advocating the interests of his ducal master and of Protestantism in Germany, the attention of Leibnitz was called as early as the year 1686 to an undertaking of a purely literary character. This was the composition of an historical work on the genealogy of the house of Brunswick,—a labor designed to extend the reputation of this line of princes, and indirectly, also, to throw light upon the history of the German empire.



The genealogy of princes passed in the age of Louis XIV for the most important branch of historical investigation. The whole state was so concentrated in the person of the ruler, and those intimately connected with him, the legal rights of the people depended so much upon the private rights of the governing families, that these genealogies, besides the lustre conferred by them upon persons descended from a noble ancestry, possessed the highest political importance in relation to all inheritances of land and contracts respecting the acquisition of territory. But at the same time, no branch of history was so perverted by the flatteries and falsehoods of historians. Most German princes, at that period, were well pleased to see their origin traced back, if not to Charlemagne, at least to the noble families of modern Italy; and there were not wanting authors, who, with affected erudition, pretended to prove the genealogical connection of some of the reigning families of Germany with the most illustrious patricians of ancient Rome. The learned rivalled each other in presenting to the great such genealogical deductions, in illuminated manuscripts, with the hope that their elegant flattery would be munificently rewarded. Thus Ernest Augustus once received a favor of this kind from a Dutch nobleman and prelate, which, profusely embellished with beautiful pictures, traced the ancestral line of the Duke back to the person of the Roman emperor Augustus, and thence down to the times of Romulus and Remus. This fantastic labor, however, could hardly satisfy the sound judg-

ment of such a man as the Duke, though it appears to have served as a means of calling his attention to the origin of his family. He accordingly commissioned Leibnitz to inquire into the matter, who, far from seeking to rise by the low arts practised by other writers of genealogies, avowed the opinion that the house of Brunswick was not of Italian, but of German descent. To substantiate this view, he entered into a correspondence with the learned Anthony Magliabechi, librarian of the Grand Duke of Tuscany. In 1687, moreover, he was ordered by the Duke to set out upon a journey to various parts of Germany, and also to Italy, to collect information respecting the early history of the house of Brunswick. Thus was to be fulfilled the wish, ten years before vainly entertained, of visiting the cradle of modern science, the country of Galileo; and that, too, not merely for the purpose of investigating a single question in history, but with various and important aims, that readily suggested themselves to a mind of such general interests.

The history of Germany presented at that time a field which had been but little cultivated. A new interest in this matter, however, was then just springing up; and, as was to have been expected, Leibnitz took the lead in the patriotic movement, encouraging it at various courts by his influence and counsel, and especially by connecting the theme on which he was himself engaged with the history of the empire. Shortly before commencing his journey to Italy, having been informed by Job Ludolf, the learned

founder of the study of Ethiopian philology in Europe, respecting Paullini's project of a German historical society, Leibnitz zealously embraced the proposal, and at once framed a number of important rules for the regulation of such an institution. His plan was, that the society should be constructed on the same principles as the associations for the promotion of physical science. The leading maxim of Leibnitz, in the study of historical subjects, was well expressed by him in the following sentence, taken from one of his letters, written soon after he had commenced his history of the house of Brunswick : "*Didici in mathematicis ingenio, in natura experimentis, in legibus divinis humanisque auctoritate, in historia testimoniis nitendum esse.*"

In the autumn of 1687, Leibnitz, well supplied by the Duke with letters of introduction, commenced his journey. His immediate destination was Vienna, where, besides accomplishing his literary purposes, he was to execute several important private commissions for both the Duke and the Duchess. His route lay through Hessa, the middle Rhine, Franconia, Bavaria, and Bohemia; and in every place he explored diligently all the libraries, archives and ancient monuments. Every where, also, for the purpose of adding to his experience and his stores of knowledge, he sought out men of learning, and made inquiries respecting the existing institutions of society. Whatever was remarkable he noticed in his journal, a portion of which is still extant. In Marburg he visited Waldschmidt, an

eminent mechanic and natural philosopher, who gratified him with a view of several interesting physiological experiments. He made a digression to Rheinfels, to see his friend, the Landgrave Ernest, who had often invited him to his little court, which, in comparison with that of Hanover, he called the court of the "king of Ivetot." The Landgrave dismissed him, after a short stay, with a flattering letter of introduction to the Elector of the Palatinate, the same person for whom Leibnitz, years before, had written his *Specimen demonstrationum politicarum*. The secret of the authorship of this tract was not disclosed by Leibnitz on meeting with the Elector, though he might have done it with advantage.

At length Leibnitz arrived at Frankfort, the place where he had won some of his earliest laurels. There, to his great satisfaction, he made personally the acquaintance of Job Ludolf, to whom he long continued to communicate, in the most confidential manner, not only his views and plans generally, but his private feelings and wishes also. He likewise met some of his former friends in this place; and as the quantity of historical materials collected by him was rapidly increasing, he here procured a young scholar to accompany him to Vienna, for the purpose of making extracts from rare books and manuscripts. Munich, with its numerous neighboring cloisters, supplied him with a rich booty; and several weeks were spent in securing it. In Salzburg, Leibnitz made the acquaintance of the famous cabal-ist, Christian Knorr, with whom he engaged in

interesting conversations respecting the testimony furnished by the cabalistic Jews in favor of Christianity. Knorr, among other things, showed him a work in manuscript, entitled *Messias puer*, which consisted of extracts from a life of Jesus, from the time of the annunciation until his baptism. Of Knorr, Leibnitz afterwards spoke to his friends in terms of the highest esteem.

In May, 1688, Leibnitz arrived in Vienna, where he met with a reception entirely worthy of his fame as a philosopher, and of his rank at the court of Hanover. The respectful manner in which he had always spoken in his writings of the emperor, prepared the way, notwithstanding he was a Protestant, and notwithstanding the alliance subsisting between Hanover and France, for him easily to gain the confidence of the chief minister of state. Accordingly, not only were the treasures of the library generously opened to his investigation, but he was placed in a situation favorable to the execution of his diplomatic commissions, and even admitted to a knowledge of some of the secrets of the imperial cabinet.

At the time Leibnitz arrived in Vienna, the city was rejoicing over an event before unheard of in Christendom. This was the arrival in the tent of the emperor and his allies of an embassy from their ancient enemy, the Ottoman Porte, humbly suing for a cessation of hostilities. And so high had the confidence of the allied powers arisen, in consequence of their victories at Moharz and Belgrade, and such was the confusion in the heart of the

Turkish empire attendant upon the dethronement of Mohammed IV, that the friends of Christianity were then in doubt whether to comply with the request of the enemy, or to continue the war until they should have expelled the barbarians entirely from Europe. Leibnitz, notwithstanding he still cherished the project of a crusade against the Eastern infidels, and reverted to it in all his published writings of this period, was of opinion that the dangers which threatened the safety of the German empire from the ambition of Louis XIV, ought to deter the emperor from driving his Ottoman enemies to extremities; and in this view he was confirmed by the suggestions of his friend Ludolf, who during his whole life was possessed with the idea,—not unlike that for the realization of which Leibnitz had undertaken his mission to the court of France,—of effecting an alliance between the Christian powers of Europe and the negroes of Abyssinia, for the purpose of expelling the Turks from Egypt.

The project entertained by the emperor, however, was, in connection with Louis XIV, to drive the descendants of Mohammed back to their homes in the East, and to divide the conquered territories between the victors. This fact we learn from a manifesto, published several years afterwards by Leibnitz, in favor of the claims of the Archduke Charles to the throne of Spain. But it has never been mentioned by any other writer; and we know not certainly whether the emperor's design was actually communicated to the French monarch, nor

what part Leibnitz may have had in originating or advocating it. In conformity with this purpose, therefore, the Christian and allied powers refused to make peace with their Moslem enemies, and that even after the bursting on the western borders of the empire of the storm which Leibnitz some time before had anxiously anticipated.

Louis XIV, in fact, openly declared war against the German empire, in the autumn of 1688, and forthwith planted his victorious standards upon the banks of the Rhine. The excuse alleged for violating the twenty years' truce, was, a design which it was pretended was entertained by the emperor of making peace with the Turks, and then invading France with all his forces. To this allegation the imperial manifesto replied with great spirit, showing that the pretences of Louis were entirely without foundation, and that they were an unwarrantable attack on both the character and the rights of Charles VI. The traces of the able pen of Leibnitz are so distinctly visible in this paper, that there can be no doubt of his having been the author of it. "It may be regarded," says a recent German historian of celebrity, "as a masterpiece of political eloquence upon the relations, external and internal, of the German empire, and after an oblivion of a hundred and fifty years, well deserves the attention of the nineteenth century."

But while thus interested in the affairs of state, Leibnitz did not forget the immediate object of his visit to Vienna. He also rendered important assist-

ance to the Hanoverian agent at the imperial court, who was engaged in advocating the claims of his master, in opposition to those of the Elector of Brandenburg, to the possession of Friesland. At the request of the Duchess Sophia, Leibnitz also obtained from the government at Vienna the promotion of a prince of Hanover in the imperial army. Nor was the project of a German historical society lost sight of by the historian of the House of Brunswick, during his residence in Vienna. On the contrary, he warmly commended it to the attention of many persons of rank and learning, and even bespoke for it the patronage of the emperor. But in this, as in many other great plans for the promotion of science and civilization, Leibnitz was in advance of his age. The society, notwithstanding the zeal with which he advocated it, never went into actual operation, from want of a sufficiently strong common interest among its members. Some of his time, moreover, was devoted by Leibnitz to the service of his learned friends in various places. For Ludolf he procured a copy of a rabbinical codex in the Hebrew language; and for Baluzius, the librarian of the French minister Colbert, he offered to transcribe with his own hand a Greek codex. This last being a very ancient manuscript, and one difficult of transcription on account of its antiquated abbreviations, Leibnitz said he could find no suitable person in Vienna to do the work for him, all studies except those of scholastic philosophy and practical jurisprudence being then sadly neglected in that city. He at the



same time acknowledged that he himself, not having occasion often to make use of the Greek language, devoted but little attention to it. Before leaving Vienna, it may be further added, Leibnitz made an excursion to the imperial gold mines in Hungary, for the purpose of extending his knowledge of mining operations.

At length, after a residence of almost nine months in Vienna, Leibnitz resumed his journey, though not until having first been abundantly supplied by his Viennese friends with letters of introduction to the courts, the statesmen and the literati of upper and middle Italy. His first stopping-place was Venice. What were the first impressions made by the beautiful queen of the Adriatic, or by the brilliant skies and happy life of Italy, upon the hyperborean philosopher, is not known. We are merely informed that he made an excursion to the imperial quicksilver mines in Istria; and that on leaving Venice he came near losing his life at sea. "From Venice," relates Eckhart, "he proceeded along the coast in a small bark, with no other passengers. But a severe storm overtook him; and, as he has often told me, the sailors, not supposing that he was acquainted with their language, began to debate in his presence the question whether they should throw him overboard, and take possession of his property. Without letting it be observed that he understood them, he took out a rosary he had with him, and pretended to say his prayers. But seeing this, one of the sailors, in opposition to the others, declared that as the man

was no heretic, he could not have the heart to take his life. Accordingly he escaped, and disembarked at Mesola."

Travelling slowly, and every where making inquiries and observations, he reached Rome in the month of October, at the commencement of the pontificate of Alexander VIII. His arrival was too late for him to see the distinguished pupil of Cartesius, queen Christina, of Sweden; but still it occurred before the enthusiasm for science which she had awakened among the Romans had entirely subsided. The fame of the German philosopher had preceded him to Rome; and not only did he obtain free access to the treasures of science and art contained in the eternal city; but the most eminent literati, both native and foreign, voluntarily paid their respects and offered their services to him. With some of these, indeed, he was already acquainted, through the medium of letters. Among the high dignitaries of the church to whom he had access, may be mentioned the eminent cardinal von Bouillon, ambassador of Louis XIV, in whose house he had the pleasure of hearing the opera *Amadis*. By Francesco Nazari, a noted mathematician, and publisher of the *Giornale di litterati*, he was introduced to Adrian Auzulus, one of the founders of the Royal Academy of Sciences at Paris, and who was engaged with Nazari in investigations in natural philosophy. Both of these scholars Leibnitz often met with during his residence in Rome. Through them he also made the acquaintance of Giampini, founder of an *Accademia*

*fisico-mathematica*, in which were numbered many of the most illustrious living names of Roman science. Introduced into this fraternity of scholars, and received by them as a member, Leibnitz was most favorably impressed by the fine humanity and the vigorous labors of these new friends, and especially by the munificence of the founder of the association, displayed in the purchase of valuable instruments. On the other hand, the learning and sociability of Leibnitz endeared him to the Academy; and long after his departure from Rome, his name was kindly remembered in this scientific circle. In fact, there was in Rome no society of literati, whether assembling in palace, library or coffee-room, and whether devoted to theology, literature or antiquities, into which Leibnitz was not admitted, either as a member or a guest. The admiration and friendly regard which was here entertained for him, appears also from the fact that he was offered the office of an overseer of the Vatican library. This offer, however, being coupled with the condition that he should enter the Romish church, he was, of course, obliged to decline it; and notwithstanding, as he afterwards said, the situation was but a stepping-stone to the rank of a cardinal.

The famous antiquarian, Raphael Fabretti, secretary of Alexander VIII, took great pleasure in showing Leibnitz all the renowned antiquities of the city; and among other places, took him to the Catacombs. "And as Leibnitz would not believe that a certain red substance, which was to be seen in bowls and

bottles that stood upon many of the graves, was congealed blood, but rather held it to be earth or dust of that color, Fabretti, in order to remove his incredulity, poured warm water into one of the bowls, the contents of which soon revealed themselves in the form of real blood. Thereupon it lacked little but that Leibnitz would have been convinced, and have gone from the tombs of the martyrs solemnly impressed and edified." At least, so says our Italian informant.

This willingness, in matters of little importance, to believe in Rome as did the Romans, may at least have produced this good effect, that it secured for the Protestant philosopher the good-will of those with whom he was connected, and thus gave him the power of communicating important but unpalatable truths without offence. Accordingly he urged the astronomer, Bianchini, as well as other mathematicians in Rome, and, later, the eminent geometer, Viviani, in Florence, to attempt to persuade the new pope to put an end to the tyrannical opposition of certain religious zealots to modern astronomy, and to allow greater freedom of scientific investigation. Leibnitz went farther. He earnestly sought to gain over the Italian literati to a project which had recently occurred to him, of introducing the study of natural science into the cloisters. Great progress in knowledge was anticipated by him, in case so many minds could be made to consider the study of the works of God as an act of piety, and thus be induced to devote to useful scientific pursuits

the hours commonly spent in indolence and in dreams. Two or three years later, also, on the occasion of a dispute between two Romanists respecting the propriety of banishing all studies whatsoever from the cloisters, Leibnitz wrote an earnest letter to Magliabechi on the subject. "What," he asked, "is more consonant with piety than the contemplation of the wonderful works of God and Providence, as they appear in nature, also in history, in the government of the church and of the human race? To deny these studies to piety, is the same as taking from it its natural nourishment, and leaving it merely the dry meditations from which the unsatisfied soul readily passes to abstract and empty speculations, and at last runs the risk of falling into most dangerous illusions."

Among the persons at Rome whose conversation Leibnitz found most agreeable and instructive, was the Jesuit father, Claudius Philip Grimaldi, then preparing to go to China to act as mandarin and president of a mathematical society under the learned emperor, Cham-Hi. The seventeenth century, listening to the exaggerated reports of the Jesuit missionaries to the East, entertained an extravagant notion of the state of Chinese art and science. The condition, however, of this remarkable people was well calculated to awaken the interest of the age of Louis XIV; and Leibnitz, when a young man, formed such magnificent conceptions of this remote empire, as to call it, in his first memorial to the French king, the France of the East. His inter-

History of Leibnitz

course with Grimaldi tended to confirm his youthful views of this foreign civilization. He was inclined to the opinion that the Chinese had formerly been in possession of profound systems of philosophy and theology, which in his time were concealed in symbols no longer understood by the Chinese themselves. In co-operation with the Jesuits, he also endeavored to defend the modern religious doctrines of these Asiatics from the charges, then made against them, of materialism and atheism. It was about this time, likewise, that Leibnitz invented the *Dyadik*, or reckoning with zero and unity, whereby he thought to furnish an expressive symbol of the Christian doctrine of the creation of the world out of nothing. And a description of this invention was sent to Grimaldi in China, with the hope that the mathematical monarch of that heathen realm might see, in this illustration of the mystery of the creation, a convincing proof of the excellence of the Christian religion and philosophy. The author of this new arithmetic farther supposed that this invention would serve as a key to the secrets of Fohi, the founder of the Chinese empire. These were written in the book *Yekin*, in twenty-four hieroglyphical characters, which, being connected with the doctrine of combinations, presented no slight attractions to the German mathematician.

It must not be supposed, however, that Leibnitz formed any other than moderate notions respecting the existing condition of science and culture in China. He considered the scholars of that country

as far behind those of Europe, in the theoretical sciences, in astronomy, geometry, and the art of war ; and it was probably from vexation on account of the general disorder and immorality by which he was surrounded, that in some of his writings he suggested that while the European Christians were establishing missions in China, to teach the children of the sun the truths of revelation, the Chinese, in turn, should send missionaries to Europe, to teach their western brethren the true doctrines and practice of natural religion. Leibnitz, however, was very solicitous to ascertain the real state of Oriental learning, and therefore became so much interested in the Chinese mission of the Jesuits, as to engage zealously in their defence against the envy and hatred of the other orders of the Romish priesthood. But at the same time, he confessed that many members of the society of which he appeared as the apologist, were too violent in their character, and some were ready to serve their order through both right and wrong. Moreover, while advocating the cause of the Jesuit missionaries, he took no little pains to induce the Protestant churches in Prussia and England to establish evangelical missions in China. It is true that several members of the Order of Jesus, not appreciating the high philosophical position occupied by their defender, presumed to address him on the subject of his personal conversion to Romanism ; but Leibnitz, in his reply, gave them to understand that he had no thoughts of changing his religion, and that if he favored the Jesuit missions

to China, it was because he considered the knowledge of a corrupt form of Christianity better than no acquaintance with it at all.

It was not merely from religious considerations, it may be added, that Leibnitz interested himself in the cause of Chinese missions. On his first acquaintance with Grimaldi, he had devised the plan of forming an epistolary connection with the Catholic missionaries in China and India, for the purpose of collecting information respecting the countries, inhabitants and languages of Upper Asia, about which little was at that time known by Europeans. He also requested his friends in different parts of Germany, particularly Ludolf, to prepare questions respecting matters of scientific interest, that he might obtain through his correspondents in the East the greatest variety of curious and valuable facts. In turn, Leibnitz procured for Grimaldi letters of introduction from the King of Poland to the Shah of Persia; and also labored, though without effect, to persuade the eccentric sinologist, Andrew Müller, of Berlin, to publish a *Clavis Sinica* for the benefit of the Jesuit father.

Before leaving Rome, Leibnitz, as we learn from a passing allusion in one of his letters, made a short excursion to Naples; and, on his return, having spent in all but a single month in the eternal city, he set off for Florence. Except the attendance of Leibnitz at a private opera given in the palace of the French ambassador, we have no information from which it appears that he devoted any portion of this



short month to the study of the beautiful arts of the modern, or the impressive ruins of the ancient, metropolis. Deeply absorbed as he was in the acquisition of information for his great historical work, as well as in the promotion of the cause of science and piety, not only in Italy, but even to the regions of the remotest East, it is probable that the northern philosopher gave little heed either to the beautiful canvass of Raphael and Michael Angelo, to the immortal relics of the Grecian chisel, or to the mouldering monuments of ancient Roman magnificence.

At Florence he was very graciously received by the Grand Duke and the princes of the court, especially by the learned mathematician, Prince Gasto. The latter, about three years afterwards, did Leibnitz the honor to send him for solution a problem (*Constructio testudinis quadrabilis hemisphæricæ*), which was originated by the geometrician Viviani, the last pupil of Galileo, and which Leibnitz solved the same day he received it in a variety of ways, by means of the differential calculus. Leibnitz also made the acquaintance of Viviani himself, as well as that of the excellent mathematician and learned scholar, the Abbot Bodenus, Baron of Bodenhause. But the most cordial reception he received from his friend Magliabechi, who, as librarian, rendered him valuable assistance in his historical and antiquarian researches. His gratitude for this service was expressed by Leibnitz in a short Latin poem, entitled *Elegia ad Magliabechum*, wherein, as his friend lived surrounded by his books, and was

backward in publishing the results of his labors, the poet addressed to him the following appeal:

“ Quid juvat, immensas librorum condere moles,  
Queis tua Pyramidas provocat arcta domus?  
Omnia quid legisse juvat, tibi si legis uni?  
Et paucis viva est bibliotheca domi?  
Incipe jam tandem diffundere flumina mentis,  
Incipe doctrinæ spargere grandis opes!”

Provided by Magliabechi with letters to the most distinguished literati of northern Italy, Leibnitz continued his journey to Bologna. Here he became acquainted with the chemist and mathematician, Domenico Guilielmini, who afterwards testified his respect for the German savant by selecting him as umpire in a dispute between himself and Professor Papin, of Marburg, respecting a new method invented by the former for obtaining the measure of running water. Guilielmini introduced Leibnitz to the eminent anatomist Walphighi, with whom “he spent many hours in pleasing and profitable conversation.”

At length, towards the end of the year 1689, our traveller reached Modena, the proper goal of his journey. Among the antiquarian treasures in the archives, which were freely opened to him, he found unquestionable evidence of a connection between the houses of Brunswick and Este,—a connection which, though asserted by such historians as Faleti and Pigna, was rather obscured than proved by them. This fact he also found to be confirmed by

the inscriptions on the monuments of the ancient Margraves of Este, and their common progenitor Azo. Besides communicating his discovery to Maillon, the father of modern diplomacy, he also made it known to the Duke of Hanover. To the Duchess he at the same time intimated the hope of being successful in the negotiation which had been entrusted to him, of endeavoring to effect a matrimonial alliance between the Duke of Modena, and one of the daughters of the late Duke of Hanover. The predecessor of Leibnitz had failed in making any progress in this matter; but his own labors appear, if we may judge from the result, to have been more effectual. Circumstances, however, prevented the union from being consummated until five years afterwards. The happy event was celebrated by Leibnitz by the publication of an account of his genealogical discovery made at Modena, entitled, *Lettre sur la connexion ancienne des maisons de Brunswic et d'Este*; and also by the composition of an essay, circulated in manuscript under the title of *Quelques remarques sur la famille, parenté et alliance de Madame la Princesse Charlotte, maintenant Duchesse de Modène*. These papers were also afterwards used by him in a negotiation in which he was successfully engaged for the purpose of forming a matrimonial union between Joseph, afterwards emperor Joseph I, and another Hanoverian princess.

During a residence of two months at Modena, Leibnitz became acquainted with the learned physician, Ramazzini; and as two years later, the latter

sent to his German friend his very valuable medical work, entitled, *Annals of Lombardy*, Leibnitz very earnestly recommended it to the attention of the physicians of Germany. At the same time he proposed that they should transmit annually an account of their observations to the president of the society of naturalists at Vienna, to be appended to the journals of the society.

The last few weeks of Leibnitz's Italian journey were spent in Venice, where matters of business appear to have occupied his attention. A Venetian nobleman, Andreini, introduced him to several patricians of learning, among whom were Foscarini, to whom had been entrusted the continuation of the history of the republic, the Senator Girolano Corrado, a connoisseur in coins, and Dandolo, author of a valuable work on Turkish literature. From the letters of Leibnitz to Magliabechi, we learn that the former did not find in this opulent republic much which was new and remarkable, either in literature or science. He made numerous observations, however, on natural phenomena, examined the lagunes, and paid a visit to the mines of Illyria. Opportunity was also found to undertake several excursions to different cities in upper Italy. At Padua, becoming acquainted with a gifted young professor of medicine and astronomy, he encouraged him, in imitation of the example of the famous Borelli, to apply the principles of mathematics to the art of healing.

Finally, mention must not be omitted of the interesting letter written by Leibnitz, a few days before leaving Italy, to Anthony Arnaud, wherein the writer shows, that amid all the distractions of the Italian journey, he did not fail to recur with pleasure to the contemplation of the high themes of philosophy. The whole epistle breathes an inward content, and an exhilarating freshness of thought and feeling, which indicate a mind kept serene by philosophic meditation,—one neither jaded by the fatigues of travel, nor dissipated by the excitement of foreign novelties. “As this journey,” he writes, “has served to free me in part from my ordinary occupations, and to furnish my mind with recreation, so have I had the satisfaction of engaging in conversation with many gifted persons respecting science and learning; and to some I have communicated my peculiar views, with which you are acquainted, in order to learn something from their doubts and difficulties. Many of these persons being dissatisfied with the commonly received philosophy, have found in some of my doctrines extraordinary satisfaction.”

Turning aside to Vienna, for the purpose of executing some commissions there for the Duke, Ernest Augustus, Leibnitz, after an absence of nearly two years and a half, returned again to Hanover.

## CHAPTER XIII.

**Leibnitz is occupied with affairs of state—He is made privy counsellor of justice—The multiplicity of his labors—His historical collections—His philological investigations—Improvement of the German language—His German style—Death of the Elector, Ernest Augustus.**

ON his return from Italy, Leibnitz was obliged to postpone the examination and arrangement of the historical treasures he had brought with him, until after having given his attention to some urgent affairs of state. These concerned particularly the attempt of the Duke of Hanover to attain to the rank and honors of an Elector of the German empire,—an endeavor in which he was warmly opposed, from a variety of personal, religious and political motives, by several princes, both Protestant and Catholic. In this struggle to elevate the dignity of the Hanoverian family, Ernest Augustus received very able assistance from Leibnitz, who wrote many valuable papers, both historical and legal, in favor of the claims of his master, and who, in the course of his negotiations with various diplomatic agents, found occasion to enlist on his side the influence of his

former pupil, the Baron von Boineburg, at that time residing at Vienna as first chamberlain of the emperor. The efforts of Leibnitz were not in vain; and after a severe contest of several years' duration, the Duke finally obtained the object of his ambition.

Somewhat less successful was Leibnitz in a petty dispute into which he was led in connection with the one preceding, respecting the rival pretensions of the Dukes of Hanover and Würtemberg to be the bearer of the standard of the empire. Though a mere question about forms and ceremonies, the philosophic diplomatist did not fail, by connecting it with general views of German history, and by bringing to the solution of it the most exact and profound erudition, to imprint upon the discussion the seal of his transcendent genius.

In recognition of the services of Leibnitz in increasing the power and importance of his house, the new Elector, in 1696, appointed him to the office of privy counsellor of justice, which, in consequence of the abolition of the chancellorship, was the highest judicial office in the country, next to that of vice-chancellor. When, however, some years later, the vice-chancellorship was vacated by the death of the former incumbent, Leibnitz was ambitious of being promoted to this rank, also; but notwithstanding both the Electress Sophia and her daughter, the queen of Prussia, seconded his application, it was rejected by the Elector, George Lewis, who was resolved on abolishing the office. At the same time, Leibnitz applied, with no better success,

for the provostship of Hefeld, alleging, in favor of the appointment, that he hoped to be serviceable in improving the educational establishments of that place. On this occasion, the Electoress Sophia, though always willing to serve her friend, could not refrain from expressing her surprise to Leibnitz, that he should wish to occupy a station which would bring with it so much and so disagreeable drudgery. His real motives in seeking the situation are not known.

But after the return of Leibnitz from Italy, no burden rested so heavily upon his shoulders as the history of the House of Brunswick, the writing of which thenceforward became the great labor of his life. The first plan of this work was laid in 1692, before the Elector, who gave it his approbation. But from the plan to its execution, the road was long and toilsome; and, most plainly, Leibnitz, who dwelled in the infinite world of ideas, and could not bear to give up any of his great projects for the advancement of science, was not the man to compile a voluminous work of historical details. He accordingly made but slow progress. What more, indeed, could have been expected, considering the multiplicity of his pursuits? "I cannot describe to you," he wrote, under date of September 5, 1695, to Vincent Placcius, the philologist, "how distracted a life I am leading. I search for different things in the archives, and look over old papers and MSS. never printed, hoping to get some light respecting the history of the House of Brunswick. Letters I



receive and answer in great numbers. But I have so much that is new in the mathematics, so many thoughts in philosophy, so numerous literary observations of other kinds, which I do not wish to lose, that I am often at a loss what to do first, and feel the truth of Ovid's exclamation, *Inopem me copia fecit*. Twenty years and more is it since the French and English saw my reckoning machine. . . Since that time, Oldenburg, Huygens and Arnaud have besought me to publish a description of this work; but I have always deferred it, because at first I had only a small model, sufficient for the purpose of demonstration to mechanics, though not for use. Now, however, with help of laborers whom I have had with me, the machine is so far completed that multiplication can be performed as far as with twelve figures. It is a year since I progressed so far; but the workmen are still here, engaged in manufacturing a number of these machines, to supply the orders for them in different places. I could gladly give a description of the invention, but there is no time for it."

"I am anxious, before all things, to finish my dynamics, wherein I think I have revealed the true laws of matter, by means of which problems may be solved respecting the motion of bodies, to which the ordinary rules are inadequate. My friends who are acquainted with the higher geometry which I have founded, urge me to publish my *science of infinites*, which contains the fundamental principles of my new analysis. To this is to be added a new *Char-*

*acteristica situs*, on which I am engaged, as well as things of a still more universal character, respecting the art of invention. But all these labors, except the historical, are prosecuted as it were by stealth. For you know at courts very different things are sought and expected. Accordingly, I am obliged from time to time to treat of questions involving the rights of the people, or of the princes of the empire, especially those of my master. So much, however, have I obtained from princely favor, as to be excused, to a good degree, from all attention to private processes. I will take care that you receive the essay I wrote, by order, upon the standard of the empire; please give me your opinion of it. Meanwhile, I am obliged often to treat with the bishops of Neustadt and Meaux, with Pelisson and others, upon the subject of church union. Nor are these writings of mine despised by the most distinguished theologians. The letters and papers which this religious controversy has obliged me to write could hardly be enumerated. So much, by way of excusing my promised meditations on your work: *Accessiones ad ethicam et jus Naturæ*. I am, however, taking the trouble, with the help of a young assistant, to bring my legal reflections into some order, which I would gladly submit to your judgment." Leibnitz, indeed, assisted by two jurists, resumed at this period his youthful labor of revising the German *Corpus juris*. Of these efforts the results were never published, but are probably preserved among the papers of one of these associates, in some of the public libraries of Germany.

But the preceding letter does not give an account of all the occupations of Leibnitz at this period. As we learn from a letter to Magliabechi, he had been projecting the plan of a Theodicea; his reflections and observations upon external nature, also, in compliance with the solicitations made to him from England and France, he had thought of completing; he had been busy in contriving various kinds of novel machines; and, finally, had made new discoveries in mathematical and metaphysical science. "Considering all this," he concludes his letter by saying, "I trust that you will excuse my delay in writing to you; and will furthermore wish me the assistance of young persons or other friends possessed of learning, acuteness and diligence, that I may make greater progress. For I can suggest much to others, but cannot alone execute all that occurs to me; and I would gladly give to others the fame of many of my inventions, if only the public welfare, the good of the race and the glory of God might thereby be promoted."

With all these employments, together with frequent journeys to the different neighboring courts, and the ill-health, besides, with which towards the close of the seventeenth century he began to be afflicted, it is almost matter of wonder that Leibnitz was able to accomplish so much as he did, in the departments of law and history.

Of the historical compilations made by Leibnitz as historiographer of the court of Hanover, one of the most important was his *Codex juris gentium*

*diplomaticus*. This work consisted of one volume published in 1693, and a supplement seven years afterwards, under the title of *Mantissa codicis juris gentium diplomatici*. Numerous requests were made to the author, not only from different parts of Germany, but also from England, Scandinavia, France and Italy, that he would extend the work, as originally contemplated, to three volumes; and in the preface to the *Mantissa*, he boasted that what he had published had served to convince the potentates of Europe of the importance of bringing to light the historical documents that had been secreted for ages in the obscurity of their archives. But Leibnitz wished to set an example merely, in this department of historical labor. To a friend who desired him to make similar compilations at the other European courts, he replied, "God forbid. I have no wish to become a transcriber. In this matter you will by no means find in me the bias usually attributed to the Germans. And do you not think, my dear sir, that the advice you give me is like proposing to your friend to marry an ill-tempered woman? For to set a man about a task which will occupy him through his whole life, is the same as marrying him." It may be added, that Leibnitz composed, probably about this period, a patriotic essay, entitled, "A proposal for the appointment of at least one person in Germany, to investigate the *jura Imperii ex archivis, historiis, documentisque*, for the purpose of bringing the same to light, or of keeping a watchful eye upon their preservation."

Another historical collection, published by Leibnitz in 1698, in two volumes, bore the title of *Accessiones historicae*, and contained many valuable materials which had been overlooked by preceding compilers. A collection still more comprehensive was made public between the years 1707–11, under the name of *Scriptores rerum Brunsvicensium illustrationi inservientes*. This work pointed out the original sources, not only of the particular history of the House of Brunswick, but also, to a considerable extent, of the general history of Christian Europe, during the middle ages. No less than one hundred and fifty-seven original authorities for the history of the mediæval period preceding the Protestant reformation were mentioned; and critical and biographical notices given of every author.

Besides these compilations, Leibnitz, towards the evening of his life, either himself published, or in some way introduced to the public, a great number of smaller treatises, pertaining to the subject of history; and it may easily be conceived, therefore, that all these historical labors must have occupied the best portion of the later years of his life. He would probably have lived to see the publication of his *Annales rerum Brunsvicensium*, had he not adopted a too comprehensive plan; and had he not also aimed to investigate so thoroughly the ultimate grounds and philosophical connections of every event within the range of his history. For after his return from Italy, he resolved on nothing less than to write a full and philosophical history of the House of

**Brunswick**, from the earliest time up to the administration of the Elector Ernest Augustus.

At the same time Leibnitz was engaged in these historical researches, he also devoted some portion of his leisure to the investigation of the origin and connection of languages. In this latter field of inquiry, his labors cannot fail to excite admiration, not only on account of the scientific tact which guided him in his combinations, but also the unbounded extent of his researches, stretching in fact over the universal history of the human race. As has been before mentioned, he spent some considerable time on his project of an universal philosophical language; and later in life, etymology became with him a means of playful recreation. Thus in one of his letters to Job Ludolf, he filled whole pages with etymological remarks, equally sportive and profound, on the words *cuckold* and *coward* (Hahnrei, Bärenhäuter). Still more instructive were the applications of his linguistic learning to the subjects of the origin of the different human races, and of their historical and geographical relations to each other. Looking upon the languages of the various tribes as the principal documents in inquiries of this sort, he pointed out two methods of procedure,—one the collecting together the greatest possible amount of information respecting the languages themselves; and the other, the application to them of scientific principles of etymology. In the first direction, the activity of Leibnitz was almost without limits. Missionaries, travellers, ambassadors and kings were

taxed, to enable him to carry his inquiries into the most distant regions of the globe, especially into Asia, the cradle of the human race. In investigating the dialects of barbarous tribes, he generally made the Lord's prayer the basis of his interrogatories; and when John Chamberlain published his great work upon this prayer in different languages, Leibnitz expressed his acknowledgments to him in a tasteful and learned epistle, which was afterwards incorporated into his book by Chamberlain.

In these investigations respecting the relationship of languages, and of the tribes which spoke them, Leibnitz pursued the true scientific course of interpreting the meaning of words by historical documents, or oral traditions. He never would admit that there was any thing arbitrary or accidental in the structure and signification of language. The hypothesis of an original, universal language was favorably regarded by him; but he did not, like the theologians of his time, consider the Hebrew as the primitive tongue, although undoubtedly nearly related to it. In his essay, entitled *Brevis designatio meditationum de originibus gentium, ductis potissimum ex indicio linguarum*, which in 1710 was incorporated into the *Miscellanea Berolinensia*, he advocated the opinion that out of the primitive language there sprang in the course of time two principal dialects, the one spoken by the tribes of the north, and the other by those of the south of Asia; and which he called the Japhetic and the Aramean. To the Aramean belonged the Arabic and Hebrew lan-

guages; while under the Japhetic, more commonly called by Leibnitz the Celto-Scythian, were classed most of the dialects now known as the Indo-Germanic,—the Germanic being considered by him as the type of the Greek and Latin tongues. The inhabitants of Europe were supposed by Leibnitz to have come from the East; and a favorite hypothesis with him was, that the fables of Prometheus and the battles of the Titans and giants with the gods were founded on a historical tradition of the invasion of western Asia and Greece by the Celts or Scythians. This invasion was supposed to have occurred at the time when these countries were governed by kings, who were afterwards regarded as gods. The binding of Prometheus to Caucasus confirms the opinion of his having been a Scythian; and the act itself denoted the expulsion of the Scythians from the soil of Greece.

The patriotism of Leibnitz led him to give more attention to the critical investigation of the German than of any other language; and after the peace of Ryswick, in 1697, which filled his mind with anxieties for the future weal of his country, he composed the classical and truly patriotic essay, entitled, "*Unpremeditated thoughts respecting the use and improvement of the German language.*" In this essay, written within the space of a few days, the author treated of the language of the Germans as the organ of their life and literature. The great deficiency of this organ was stated to be its lack of a sufficient number of words and phrases for the expression of



abstract thought, and the more delicate sentiments. At the same time, ways for supplying this defect were pointed out, worthy of the universality of his views and the extraordinary acuteness of his intellect. No person has delineated so vividly the very great imperfections of the German language, towards the end of the seventeenth century. The preacher in the pulpit, he said, the judge in the seat of justice, and the citizen in his ordinary writing and conversation, all seemed bent on corrupting their mother tongue with wretched French; and were preparing themselves, by the neglect of their language, ultimately for the loss of their liberty. Though by no means a purist in his views on this subject, he early raised his voice against the prevailing imitation of the French in language, as well as in life and manners; and at a later period, scourged the debasing tendency of the times with the lash of poetical satire. His views on the subject of the German language generally appeared so correct, almost a century afterwards, to the Berlin Academy of Science, that they thought they could not do better than adopt the plan of Leibnitz, in their endeavors to improve their mother tongue.

Leibnitz, however, did not by any means escape censure for using the French language to such an extent in his books and letters. The Latin was employed by him in common with the literati of his day generally; but few Germans wrote so extensively in French. Klopstock, in consequence, proposed to banish him from the national republic of letters.

But the poet must have overlooked the great number of writings, both published and unpublished, which were composed by the philosopher in his native tongue, and which abundantly entitle him to a place among the national authors. Many, indeed, of his early letters were rather thickly sprinkled over with French and Latin words and phrases, as was natural in a youthful writer. But the memorials on public safety were written in a style so pure, flowing and vigorous, that the reader even of the present day meets with but little that he can wish to have altered; and from the later productions of his pen there may be selected a goodly number of German compositions to prove that the rules which he laid down for the improvement of his native tongue, he himself also followed with great fidelity and marked success. Leibnitz, moreover, wrote much of which it was not known that he was the author. Thus, to his pen is to be attributed the larger portion of the learned magazine, entitled "Monthly extracts from new books," and published by Eckhart, who, in 1714, became Leibnitz's private secretary. Many of the best specimens of the German style of Leibnitz may, in fact, be found in this periodical, and among these a lengthy translation from Locke's Essay on the Human Understanding.

But in estimating the propriety of the course pursued by Leibnitz, in reference to the use of the French language, his aims as an author must also be taken into consideration. He wished to gain the attention of the ablest minds and the most influential

persons in Europe. He wished, also, by the use of the French language, to counteract the effects of French ambition and diplomacy, as in the case of his political pamphlets and manifestos; and so great was the perfection of his style, as well as the brilliancy of his genius, that his was the only German name at that time mentioned with envy in the capital of Louis XIV.

In 1698, Leibnitz met with a great personal loss in the decease of the Elector, Ernest Augustus. The son and successor of the latter, George Lewis, confirmed Leibnitz in the external honors he had enjoyed under the father; but the dissimilarity of the characters of the two princes made a very great difference in his real situation. In the funeral eulogy composed by him on the character of Ernest Augustus, he said in praise of his deceased master, that he knew how both to choose and to protect his friends,—that he took the part of the accused,—that he never harbored suspicion and distrust,—that he circumspectly avoided saying any thing to the disadvantage of others,—that he preserved inviolate the secrets which were committed to him, and that, notwithstanding his superiority of station, he was truly kindhearted, and took a generous interest in the fortunes of persons even in the humblest circumstances. There were not wanting dark sides, however, to the administration of this Elector. A plot laid by one of the younger princes to get possession of the government for himself in the place of his elder brother, was the occasion of many

unhappy events which have often been recorded in history and even been made the subject of romance. But as no writings have ever been published, tending to show that Leibnitz was in any way implicated in any of these transactions, we forbear to give any account of them.

## CHAPTER XIV.

Plan of Leibnitz for uniting more closely the courts of Hanover and Brandenburg—Negotiations for the union of the Lutheran and the Reformed churches—Leibnitz's plan of an academy of sciences at Berlin—He is invited by the Elector of Brandenburg to Berlin—He is appointed president of the new society of sciences—His proposals for obtaining pecuniary aid for the society—Project of a society for the protection of authors—Culture of silk—His efforts to improve the science of medicine—He attempts to establish an academy of sciences at Dresden—Interest taken by him in popular education—Augustus Hermann Franke.

WE have now arrived at that period in our narrative, when our attention is called to the connection which Leibnitz formed with the court of Brandenburg, and which for ever secured for his name a conspicuous place in the literary history of Prussia.

Notwithstanding the marriage of the Electoral prince of Brandenburg to the cultivated and gifted Hanoverian princess, Sophia Charlotte, a degree of coldness had existed between the courts of Hanover and Berlin, on account of the jealousy felt by the latter at the elevation of Duke Ernest Augustus to the rank of an Elector of the empire. To remove

this coldness, and introduce more friendly relations between the two courts, Leibnitz offered his services as a mediator. The plan for the accomplishment of this object, presented by him to his former pupil, the princess Sophia Charlotte, and also to her mother, the Electoress Sophia, proposed that some office for the supervision of the interests of art and science should be given him by the Brandenburg court, whereby he would be required frequently to visit Berlin, and thus be enabled to maintain a friendly communication between the two related houses. The ultimate objects, however, which Leibnitz had in view were no less than to found an academy of science in the Prussian capital; and by establishing more amicable relations between the Lutheran Elector of Hanover and the reformed Elector of Brandenburg, to effect an union of the Protestant churches of Germany, and even of Europe.

For the purpose of accomplishing the latter design, Leibnitz, as early as the year 1697, entered into correspondence with the Prussian cabinet secretary, Cuneau, eminent for his attainments in mathematical science. The former specified in his letters three degrees of union,—the first being purely civil, consisting in a good understanding between the different sects, and a cheerful co-operation against the Catholics; the second going so far as to secure on all sides ecclesiastical toleration, to the exclusion of mutual anathemas; and the third producing conformity of religious belief. Despairing, however, of

bringing about entire harmony of opinion on the subjects of predestination and the eucharist, Leibnitz was satisfied with attempting to secure the two lower degrees of union. And we accordingly find him at this period endeavoring to negotiate an alliance between the Protestant churches, before having brought the opposing parties to similar views on the great points of dogmatic divinity.

In the execution of his plan of a general union of Protestant Christians, Leibnitz applied for assistance to the liberal-minded University of Helmstädt. He also opened a correspondence with the learned and accomplished von Spanheim, privy counsellor at the court of Berlin, who was successful in enlisting the Elector in favor of the proposed union. Frederic III, however, was not satisfied with the plan of striving merely for ecclesiastical toleration. He wished to establish a closer union; and to bring the Lutherans and Reformed together in one church, to be called the Evangelical. Taking at once an active interest in the cause, he authorized his court preacher, Jablonski, a man of moderate and liberal sentiments, to draw up the terms of union. These, when published, gained the approbation of the Helmstädt theologians, and called forth a friendly reply, entitled, *Via ad pacem*, from the pens of Leibnitz and Molanus. Jablonski afterwards visited Hanover, to confer, among others, with Leibnitz; and upon his return to Berlin, entered into correspondence with him respecting the execution of their plan. Leibnitz also wrote a tract, by the title of *Tentamen irenicum*,

mainly for the purpose of gaining over the celebrated Spener, who, however, was too much of a sectarist to regard the project of church union with favor. Application was likewise made through the English ambassador, Cresset, in Celle, for the co-operation of the English ministry, though with but faint hopes of success. But the subject of union having been taken in hand by the theologians, it became less a matter of interest to the statesmen; the jealousy, also, of the bigoted, in both the Reformed and the Lutheran churches, became aroused; war, in the commencement of the eighteenth century, spread itself from the north and west over Germany; the elevation of the Elector of Brandenburg to the honors of royalty, and of the Elector of Hanover to the throne of England, introduced great changes into the relations of the two related houses; and thus this effort of Leibnitz to break down the exclusive barriers of sectarianism, and to unite Christians of different names in one fellowship, was destined to prove a failure. His plans for universal toleration in religion were too far in advance of the age, to stand at that time any chance of being realized.

In the accomplishment of the other great object which Leibnitz had in view, in his proposed connection with the court of Brandenburg, he was more successful. Frederic III was indeed not a little pleased with the thought of being considered a patron of letters. About that time he had also consented to the introduction into his dominions of the Gregorian calendar, in favor of which Leibnitz had



zealously interested himself; and it was partly to superintend the erection of an astronomical observatory in Berlin, as well as to carry into execution the plan of founding an academy of sciences, that the latter was invited by the Elector of Brandenburg to make a visit to his capital.

Leibnitz arrived in Berlin in the spring of 1700, just as the court was celebrating with extraordinary splendor the nuptials of one of the Brandenburg princes. In these festivities he was obliged to take part, though much less interested in the shows of pleasure than in the cause of science. Of one of the operas given on the joyous occasion, he spoke with interest; but respecting his situation, on the whole, he wrote to the Electoress Sophia: "*Me voilà donc bien dérangé et bien hors de mon élément.*" Nor were these gala-days hardly passed, before a grand masquerade was given in honor of the birthday of the Elector, which was also the day of the foundation of the academy of sciences. The character assigned to Leibnitz to represent in these courtly frivolities was that of an astrologer; but his place was kindly taken by another person. He therefore had nothing more to do but to survey through an eye-glass the fantastic display, of which he gave the Electoress Sophia a humorous description.

The object of the society of sciences, as it was originally called by Leibnitz, was fully set forth by him in the charter. In its sentiments and aims, the society was designed to be strictly German. It was to endeavor to improve the German language,—to

promote the study of the history of the German states and churches,—and to seek, by its learned labors, to become the honor and ornament of the whole German people. The society, moreover, was not to strive to encourage the study of science in the abstract merely, but also in its applications to the material and spiritual interests of the country. “The labors of such a society,” said Leibnitz, in one of his memorials to Frederic III, “should not be directed merely to the gratification of a scientific curiosity and the performance of fruitless experiments, or simply to the discovery of useful truths, without any application of the same; but the uses of science should be pointed out, even at the outset, and such inventions be made as would redound to the honor of the originator and the benefit of the public. The aim of the society, accordingly, should be to improve not only the arts and sciences, but also agriculture, manufactures, commerce, and, in a word, whatever is useful in the support of life.” To accomplish these objects, Leibnitz designed the society to be intimately connected with the different administrative departments of government; and for the sake of collecting valuable practical information from all quarters of the globe, he further proposed that it should have the oversight over the foreign missions of the Prussian churches. This last matter was one of no little interest to Leibnitz, who endeavored also to interest the English, through the Archbishop of Canterbury, in the cause of acquiring useful knowledge from remote nations; and when the Czar,

Peter the Great, was in Berlin, in 1695, Leibnitz likewise made an effort to obtain the protection of this prince for Protestant missionaries within the imperial dominions.

It is rather a singular circumstance connected with the founding of this society, that Leibnitz was chosen president of it for life before there were any members appointed. But, as Frederic the Great said, Leibnitz was a society of sciences by himself; and upon him the success of the institution almost entirely depended. The office was accepted by him (he having been previously appointed privy counsellor of justice), with the understanding that he should visit Berlin as often as his duties in Hanover would permit. The organization of the society, partly owing to impediments occasioned by the then prevailing war, took place very slowly; and for the first ten years of its existence, the letters of the president were full of complaints on this account. The building of the observatory also advanced with no greater rapidity. There was no place for the members of the society, consisting of eighty persons, to assemble; and up to the year 1710 there can hardly be said to have been any society in existence. The war preventing the raising of funds, the president displayed no little ingenuity in devising numerous and, in some instances, very singular methods for supplying the requisite resources. Among other things, he proposed that the monopoly of the trade in books should be given to the society. It was indeed one of the favorite, though at the same time one of the most

extravagant, projects of Leibnitz, in his later years, to establish a society of German authors, for the protection of the fraternity from the power of publishers and booksellers. A committee, according to this plan, was to be appointed by the society, to decide what MSS. were worthy of being printed; and then each member should subscribe for most or all of the books relating to his particular branch of study. It was hoped that in time funds would accumulate in the treasury of the society, which might be applied to the assistance of poor and deserving scholars, or to defray the expenses of useful experiments and investigations.

Still another proposal made by Leibnitz for obtaining pecuniary aid for the society of sciences, was, that it should engage in the culture of silk. In 1707, accordingly, he procured the consent of the king of Prussia to this project, who caused the royal gardens at Potsdam and elsewhere to be planted with white mulberry trees. He himself, also, as we learn from Eckhart, made a small experiment in the business at Hanover; and persuaded the Elector, as well as the Duke of Wolfenbüttel, to do the same. But the loss both to prince and philosopher turned out to be greater than the profit. Leibnitz, however, persevered in the matter until his death,—it being his disposition, as his secretary remarked, never to yield to difficulties, but to prosecute every thing he undertook to extremity. Privilege, moreover, was obtained to plant mulberry trees and raise silk worms in all parts of Saxony. But the business never

prospered; and in Prussia the plantations gradually went to ruin, until they were taken under the fostering protection of Frederic the Great.

In this connection, we may allude to the efforts made by Leibnitz, in 1701, to improve the science and practice of medicine. These resulted in a royal edict, commanding all the physicians in Prussia to send to the government annually an abstract of all the important observations made in the course of their professional practice, as materials for the composition of a history of medicine. In this science Leibnitz laid great stress upon observations and experiments, and little on theories, as may be seen in his report respecting the introduction of ipecacuanha, addressed to the Leopold Society, and entitled, *Relatio de novo Antidysenterico Americano*. He also strenuously advocated the importance of the study of comparative anatomy, and published an essay on the subject, under the title of *Animadversiones circa assertiones aliquas theoriæ medicæ veræ Stahlîi*. Attention to botany was likewise strongly recommended, in a letter *de methodo botanica* to the physician, Gakenholz. The interest felt by Leibnitz in the advancement of the science of medicine was very great; and he was wont to say, that next to virtue the greatest attention ought to be paid to health.

It has been stated that the difficulties attending the establishment of the society of sciences in Berlin were very discouraging; but this circumstance did not deter Leibnitz from attempting to found a similar

institution in Dresden, under the auspices of Augustus, Elector of Saxony and King of Poland. This monarch was kindly disposed towards Leibnitz, besides being a generous patron of the arts and sciences. A sketch of a literary and scientific academy was therefore presented to Augustus through the medium of the royal confessor, Father Vota, a skilful mathematician, with whom Leibnitz had long been acquainted. The views contained in this paper were very similar to those stated in the charter of the society of sciences in Berlin, except that the importance of the education of the young was dwelt upon at large, and particularly with reference to the youthful prince, afterwards Augustus II. But the war in which the Polish king was then engaged with Charles XII, prevented him from paying that attention to literary subjects which was requisite for the founding of the proposed society; and the project therefore fell through. The views expressed by Leibnitz respecting the education of the prince Augustus, it may be added, had been previously expressed by him in a very remarkable essay, entitled, *Projet de l'Education d'un Prince*. This essay portrayed his ideal of a great and good ruler.

Leibnitz also deeply interested himself in the cause of popular education. The schools of Germany, especially the Protestant part of it, were at this period in a condition truly deplorable; and Leibnitz, who had long made the education of the young a subject of reflection, was about to co-operate with

Erhard Weigel in some plan for the reform of the schools, when the latter was removed by death. After this event, a correspondence respecting the same object was entered into with Leibnitz by Herrmann Augustus Franke, who made himself for ever illustrious by the foundation of the orphan asylum in Halle, and whose bread of charity has given immortal life to thousands upon thousands of fatherless and motherless children. Not only were the intentions of this friend of God and man approved by Leibnitz, but he also advised that an application should be made to Peter the Great, then in Germany, for the establishment of similar asylums in Russia; and recommended, likewise, that these schools should be made nurseries of Protestant missionaries. War, however, which destroys so many of the costly monuments of human beneficence, frustrated completely the hopes and plans entertained by Leibnitz of a reform of popular education.

## CHAPTER XV.

**Leibnitz goes to Vienna to attend a conference on church union—**  
He composes a manifesto in favor of the rights of Charles III to the crown of Spain—His labors in connection with the elevation of the Elector of Brandenburg to the honors of royalty—Arrival in Hanover of the English embassy with the act of succession; also of Toland—State papers written by Leibnitz for the Prussian government—Negotiations for uniting the Protestant churches of Germany, Holland and England—The Theodicea, its origin, character and effects—Leibnitz's relation to the queen of Prussia—Her death—Leibnitz's grief—Diminution of his influence at the court of Prussia—Christian Wolf.

HAVING given in the preceding chapter an account of the establishment of the society of sciences in Berlin, we return in our narrative to the year 1700. In the summer of this year, Leibnitz was invited to accompany the Electoress Sophia, and her daughter Sophia Charlotte, ostensibly on a journey to the baths of Aix la Chapelle, though in reality on a secret diplomatic mission to the court of Holland. But the invitation was declined, Leibnitz preferring to try the effect of the waters of Töplitz in curing a bad cold he had taken in the spring, and designing also to continue his journey as far as to Vienna.



The object of this journey, undertaken at the request of the emperor, was to attend a conference on the subject of church union, to which reference has been made in a preceding chapter. Leaving Töplitz, considerably improved in health, Leibnitz proceeded to the Austrian capital, where he served the emperor in a manner highly satisfactory to the latter, though rather in the province of diplomacy than of theology. The death of Charles II, of Spain, happening at this time, it is probable that the opinion of the Hanoverian sage was taken respecting the critical posture of the political affairs of Europe. This we infer mainly from the fact that three years afterwards Leibnitz was called upon to furnish a manifesto in favor of the rights of Charles III to the Spanish crown, in opposition to the usurpation of Louis XIV in behalf of his grandson. This master-piece of diplomatic argumentation was published, anonymously of course, under the title of *Manifeste contenant les Droits de Charles III, Roi d'Espagne, et les justes motifs de son Expédition*. It was written to subserve the interests, not merely of king Charles, but also of all the European powers who had allied themselves against the supremacy of Louis ; and developed with extraordinary ability the moral and religious injuries which the policy of this despotic monarch had inflicted upon the people of France, and indirectly upon Europe.

Remaining in Vienna until near the end of the year 1700, Leibnitz returned to Hanover just before the coronation of the Elector of Brandenburg as king

of Prussia. The claims of this prince to the honors of royalty had been ably, though anonymously, advocated by the philosopher of Hanover; and much was afterwards done by him likewise, especially in Eckhart's literary journal, to elucidate the rights and extol the importance of the new kingdom. Sophia Charlotte, soon after her elevation to the throne; having retired with a single friend to the castle of Lützenburg, to escape the observation and homage which her new honors attracted, invited Leibnitz to visit her in her seclusion, saying to him, "think not that I prefer this greatness and these crowns, about which they make such a bustle here, to the conversations on philosophy we have had together in Lützenburg." But Leibnitz excused himself from paying his court at that time to her Majesty, on account of the arrival in Hanover of the English embassy; with the act of succession passed by the Parliament of Great Britain in favor of the House of Brunswick. The ambassador, Count Macclesfield, brought letters to Leibnitz from Bishop Burnet, who had previously been in Hanover, and upon whose work on the Thirty-nine Articles of the Church of England the German philosopher had written a series of observations.

The English ambassador was accompanied by a large number of noble and gifted persons, among whom may be particularly mentioned the famous Toland, precursor of Tindal and Collins, and head of the English free-thinkers in the early part of the eighteenth century. The hatred entertained by this

writer against the Catholics and the Stuarts had made him zealously in favor of the House of Hanover; and the fame of the liberal and intelligent Electoress Sophia, and of her daughter, the queen of Prussia, attracted him to Germany. But these illustrious ladies receiving the Christian theism of Leibnitz instead of the deism of the English free-thinkers, the presence of Toland and his friends in Hanover was not looked upon very favorably by the Electoress Sophia, who also from political motives did not like to encourage teachers of religious views obnoxious to the people of England. Leibnitz therefore was obliged to devise ways of politely detaining Toland from attendance at court. But the Irish free-thinker did not fail every where to indulge in attacks upon the Scriptures and the church, and liberally to circulate his *Christianity not mysterious*. A copy of this work was presented to Leibnitz, who took occasion, even during the visit of the author in Hanover, to defend the church against this attack of rationalism, in an essay published in connection with the posthumous writings of Toland, under the title of *Annotatiunculæ subitanæ ad Tolandi librum de Christianismo Mysteriis carente*. The views expressed in this defence were founded on the doctrine of monads. Leibnitz afterwards met with Toland in Berlin, where the latter was disputing upon subjects connected with the Scriptures in presence of the queen and her theologians; and in 1710, on the reception of Toland's *Adeisidæmon, sive Titus Livius a superstitione vindicatus*, he replied to it in a lengthy

epistle, maintaining the doctrine of an intelligent and supermundane first cause.

During the visit, above alluded to, of Leibnitz to Berlin, he was assiduous, not only as a teacher of philosophy, but also as a statesman, in serving his friend the queen. His stay was protracted through several months; and he was enabled to accomplish much towards keeping up a friendly understanding between the courts of Berlin and Hanover. In this connection may be mentioned two important state papers, drawn up by Leibnitz in the interest of the Prussian government, entitled, the one, *Information Sommaire touchant le Droit incontestable de La Majeste le Roi de Prusse à la Succession de son Grand père le Prince Frédéric Henri de Glorieuse Mémoire, fondé sur son Testament et sur le Fidei-commis perpetuel, établi dans la Maison de Nassau-Orange, par droit d'ainesse et en faveur des Femmes au default des Mâles*; and the other, *Traité Sommaire du droit de Frédéric I, Roi de Prusse, à la Souveraineté de Neufchâtel et de Valangin en Suisse*. The object of these papers is sufficiently explained by their title. They were anonymous, but their authorship is unquestionable.

Here we recur once more, and for the last time in this narrative, to the subject of the union of the Lutheran and the Reformed churches. The negotiations respecting this matter between the Lutheran court of Hanover and the Reformed court of Berlin in the early part of the eighteenth century progressed but slowly. They were not indeed given up at once,

especially on the part of the king of Prussia. But Leibnitz gradually took less and less interest in them, until at length, in the year 1706, he ceased from all efforts in the cause to which formerly he had been so devoted. This change was owing to the express orders of the Elector, who, from the altered posture of political affairs, was no longer in favor of the union of the two churches. The event, however, which finally put an end to the negotiations, was the conversion to Romanism of the Duke Anton Ulrich. This step having been countenanced in a written opinion on the subject by the theological faculty of the University of Helmstädt, the opponents of the House of Brunswick in England took occasion to charge the Hanoverian government with a leaning to Catholicism. The Helmstädt theologians were therefore obliged to protest against the construction which was put upon their words; and Leibnitz also was compelled to relinquish all efforts for uniting the Lutherans with either the Church of Rome or that of Calvin.

The Elector, however, was by no means opposed to a connection between the Protestant churches of Germany and the Episcopal church of England. Accordingly, we find Leibnitz favoring the efforts which were made in the beginning of the eighteenth century to introduce the organization, or at least the liturgy, of the English church into Prussia and Hanover. He addressed a memorial to Frederic I, wherein, adducing the English adage, "No bishop, no king," he recommended the establishment of a

hierarchy in connection with and subordinate to the throne. In 1704 the English liturgy was translated, and a copy sent in the name of the king of Prussia to the Archbishop of Canterbury, with a request that he would give his advice respecting the mode of introducing into Germany the organization of the Church of England. But this prelate, offended because the Helmstädt divines would not avow in express words an abhorrence of Popery, would hold no connection with the Protestant churches of Germany; and the whole matter, therefore, was dropped. In 1710, however, the king of Prussia recurred to the subject; and a correspondence was commenced between Jablonski and others on the part of Prussia, and the Archbishop of York, Bolinbroke, then secretary of state, Lord Raby, the English ambassador at the court of Prussia, and the chaplain of the latter, the Rev. Mr. Ayerst, on the side of England. It was thought that much would be gained by interesting the Elector of Hanover in the cause; and with this end in view Leibnitz was applied to, who cheerfully co-operated with the parties in Prussia and England. But after a long correspondence nothing was brought to pass, there being no general desire in Germany to change the existing forms of church government. On the death of Frederic I, who took a lively personal interest in the project of introducing the English ecclesiastical system into his dominions, the negotiations were brought to a final close. Unlike the famous correspondence between Leibnitz and Bossuet, or that even between the former and

Pelisson, neither the negotiations for uniting the Lutheran and Reformed churches, nor for introducing into Germany the English form of ecclesiastical government, added any thing to the literature or the theological science of the age. Leibnitz, too, in his later writings on these subjects, did little else than advocate the measures which state policy dictated, and express, instead of his own liberal and philosophical sentiments, the merely political views of his master.

It is to the interest, however, Leibnitz took in removing the barriers which separated the members of the visible church of Christ, that we are indirectly indebted for the great literary production of his later years. We refer, of course, to the Theodicea. The real importance of this work, viewed in its relations to the age of Louis XIV, consists not in the sketch it contains of the author's philosophical system, but rather in the application of his philosophical views to the solution of questions respecting the doctrines of the atonement, of the eucharist, of grace and works, of freedom and predestination. These were the same questions the discussion of which dissolved the unity of the church in the sixteenth century; which throughout the century following gave rise to the most violent civil as well as theological disputes, in different Christian sects and parties; and the effects of which were plainly perceptible up to the middle of the eighteenth century. One need but recall, for example, the controversies between the Jansenists and the Molinists, the Gomarists and the

Arminians, the adherents of the Lutheran and the Reformed confessions of faith. These religious disputes served to give to the idea of a Theodicea, or a justification of God on account of the evil in the world, the first place in a system of Christian ethics, and to require for the treatment of the questions involved in it, a mind which could survey the whole field of theological controversy from the heights of Christian philosophy.

The subject of the Theodicea had been revolving in the mind of Leibnitz for a long course of years. Even in youth he began to reflect upon the great themes of liberty and predestination; as early as the year 1671, he wrote an essay which was circulated in manuscript among German theologians of all persuasions, wherein such matters as the freedom of the human will, the prescience of God, and election, were treated of; and in the year 1697, in a letter to Magliabechi, he first made use of the term Theodicea. From his letters written a few years later, it appears that he wished not to write upon this important theme until after having presented his views orally to a considerable number of the most intelligent Protestant theologians, with the hope of gaining their approval of his sentiments, and preventing the same, when made public, from becoming the subject of acrimonious controversy. A design of this kind, however, he found no convenient opportunity for executing; and so numerous were the demands constantly made upon his attention, that it is doubtful whether the Theodicea would ever have been written



but for the impulse communicated to its author from intercourse with his illustrious pupil in philosophy, the queen of Prussia. This lady was of so thoughtful and inquisitive a turn of mind, as sometimes to complain, that her teacher, in his conversations with her, treated of philosophical themes too superficially; and according to the testimony of Frederic the Great, Leibnitz was obliged to reply, "It is not possible to satisfy you; you desire to know the wherefore of the wherefore." Being in the habit of frequently reading and explaining to her, in the castle of Lützenburg, the writings of Peter Bayle, Leibnitz was induced to commit his thoughts to writing, and thus originated the *Theodicea*. It was published in 1710, under the title of *Essais de Théodicée sur la bonté de Dieu, la liberté de l'homme et l'origine du mal*. The works of Bayle, it will be remembered, were the great fountain from which the eighteenth century derived its skepticism in religion and philosophy. This author, distinguished alike for his erudition and his acuteness, made it the business of his life to undermine the influence of theologians, by showing the inutility of their controversies; and, though himself unconscious of his destructive tendencies, he paved the way for the infidelity of his still more celebrated countryman and successor, Voltaire.

The circumstances which led to the composition of the *Theodicea* are more fully explained in a letter from the author to Thomas Burnet. "The greatest part of this book," he writes, "was composed by

piecemeal, while I was much in the society of the late queen of Prussia. These matters were then discussed in connection with Bayle's Dictionary and his other works, to which much attention was at that time given. In our conversations, I was accustomed to reply to the objections of Bayle, and to show that they were not so weighty as many persons, unfriendly to religion, would have us suppose. Her Majesty quite often desired me to write down my replies, that she might devote more time to their consideration; and, moreover, to write them in French, in order that they might be read not only by her, but also by others in foreign countries, who were unacquainted with the Latin language. To comply with the wishes of this great princess, and in accordance with the suggestions of my friends in Berlin, I have collected these writings, made additions to them, and therefrom formed this work."

Of the principles set forth in the *Theodicea*, we shall not here give any account, because they have, in substance, been stated in a preceding chapter, in connection with Leibnitz's doctrine of monads. Suffice it to say, that its truths were drawn from the depths of the author's experience; and that by frequent digressions into the domains of history, education and physics, he was able to present his readers with learned and attractive illustrations. The work was, therefore, calculated alike to please, to instruct, and to edify. Its extraordinary effect upon readers of various lands and confessions, upon princes, literati, and pious persons in the humble walks of life,

shows that it grew out of the inmost spirit and wants of the age in which it was written, and that it fulfilled a high destiny. Somewhat remarkable is it, by the way, that a theological work so generally circulated, and treating of so many thorny problems, should not have been made the occasion of new controversies. Its influence in Germany, to which the national pride taken in the work somewhat contributed, continued to be felt, even until the time of Kant, notwithstanding the scornful caricatures of optimism, by the author of *Candide*, and notwithstanding the introduction of a sensuous and material philosophy from France and England. In France it is still put, together with the writings of classic authors, into the hands of the youth. In England only, owing to the unpopularity of its author on account of his unhappy controversy with Newton, was the *Theodicea* received coldly. The particular friends of Leibnitz in that country, however, welcomed this fruitful labor of genius; and the Princess of Wales was desirous of having it translated into English.

The apology of Sextus, at the close of the *Theodicea*, has so frequently been made the subject of critical comment, that a brief abstract of it in this place may not be inappropriate. The parable is designed to illustrate the doctrine of optimism; and the ground-work of it is taken from a dialogue on free-will, by Laurentius Valla, in opposition to Boethius. Sextus, the son of Tarquin the Proud, goes to Delphi to consult Apollo respecting his des-

tiny. The god predicts to him that he will violate Lucretia. Sextus being grieved at this prophecy, Apollo replies that it is not his fault; he has the power merely of foreseeing the future; Jupiter has the disposition of all things, and to him the complaint of Sextus should be addressed. Here ends the dialogue of Valla, which advocates the foreknowledge of God, at the expense of his goodness. But Leibnitz, not satisfied with this conclusion, continued it agreeably to his own principles, as follows:—Sextus goes to Dodona to complain to Jupiter of the crime he is destined to perpetrate. Jupiter replies, that he only needs to stay away from Rome. But Sextus declares that he cannot relinquish the prospect of being a king, and departs. After his withdrawal, the high priest, Theodorus, inquires of Jupiter, why he has not given another *will* to Sextus? Instead of an answer, Theodorus is sent to Minerva to ask the reason. The goddess shows him the palace of destinies, wherein are representations of all possible worlds, from the best to the poorest. In the last and best of these worlds, the high priest sees Sextus go to Rome and violate the wife of his friend. "You see," says the goddess of wisdom, "it was not my father who made Sextus wicked. He was so from all eternity, and in consequence of his will. Jupiter has only bestowed upon him the existence he could not refuse in the best of all possible worlds; he has but transferred him from the region of possible to that of actual beings. What great events does the crime of Sextus draw after it? The liberty

of Rome, the rise of a government abounding in civil and military virtues, and of an empire destined to conquer and civilize the world." Theodorus returns thanks to Minerva, and acknowledges the justice of the king of gods and men.

We cannot here pass by without notice, the singular tradition which sprang up soon after the death of Leibnitz, that the author of the Theodicea did not express in this work, his own personal convictions, but that he agreed substantially with the skeptic whose arguments he refuted. This suspicion had no better origin than a mere jest of Leibnitz's. He having inquired of Prof. Pfaffius, of Tübingen, with whom he was in the habit of corresponding, his opinion of the Theodicea, this theologian with equal good-nature and narrowmindedness replied, "It seems to me you have invented that theological system only in jest, while at the bottom you receive the doctrines of Bayle; but it is necessary that some one give the dangerous principles of Bayle a serious and thorough refutation." This, in fact, he was designing to do himself. What other reply, then, did the presumptuous professor deserve than the ironical one which was given him. He expected indeed, an angry answer; but Leibnitz contented himself with writing as follows: "You are right, venerable sir, in what you say respecting the Theodicea. You have hit the nail on the head; and I wonder that no one before has taken this view of my intentions. For it is not the business of philosophers always to treat of subjects seriously; they who, as you correctly

observe, so tax the powers of their mind in the invention of hypotheses. You who are a theologian, you will pursue the theological course in the refutation of errors." \* \* \* Leibnitz could not have foreseen the singular abuse to which the learned professor subjected this mere piece of pleasantry, or the number of persons who so readily adopted the false construction put upon it, else he would have been more circumspect in his remarks. It is true, the *Theodicea* was not composed for strictly logical thinkers, or persons who apply philosophical tests to whatever they read; and so far the book might truly be considered less a labor than a recreation of the mind of its author. Leibnitz, also, was careful to abstain in this book from any scientific investigation of the dogmas of the Christian church, out of regard to the scruples, and from distrust of the metaphysical capacities of those for whose improvement it was written; but not surely because he was opposed to subjecting these matters to philosophical analysis, nor because he was not expressing, though in a popular form, his own settled and serious convictions.

The royal personage for whom the *Theodicea* was particularly written, did not live to witness its completion. Her demise took place in Hanover, while Leibnitz was absent on a visit to Berlin. Frederic the Great, in his *Memoirs of the House of Brandenburg*, relates that "the queen in her last hours, mentioned the name of Leibnitz. One of the ladies by her bedside bursting into tears, the queen

said to her, ' Weep not for me, for I am now going to satisfy my curiosity respecting the origin of things which Leibnitz has never been able to explain to me,—respecting space, the infinite, existence and non-existence; and for the king, my husband, I prepare the spectacle of a funeral ceremony which will give him a new opportunity of making a magnificent parade.' She recommended with her last breath the learned men she had favored, to the attentions of her brother, the Elector." "This princess," says the same royal author, "possessed the knowledge of a learned, and the spirit of a great man. She thought it not beneath a queen to bestow her regards on a philosopher; and as those persons to whom heaven vouchsafes gifted souls, elevate themselves to an equality with monarchs, so she esteemed Leibnitz well worthy of her friendship."

The news of the death of the queen affected Leibnitz very deeply. He immediately set out for Hanover; but not before the ambassadors and other dignitaries in Berlin, knowing the intimacy which had subsisted between Leibnitz and the departed queen, had paid him formal visits of condolence. The regrets of bereaved friendship were expressed not only in the letters of Leibnitz, written at the time of the mournful event; but they continued to breathe a subdued sadness over his correspondence for a long time afterwards. To Miss Von Pöllnitz, the common friend of the departed queen, and of her instructor in philosophy, he wrote as follows: "I infer your feelings from my own. I weep not; I complain not; but I know not where to look for

relief. The loss of the queen appears to me like a dream; but when I awake from my revery, I find it but too true. Your misfortune is not greater than mine, only your feelings are more lively, and you stood in the midst of the general calamity. This encourages me to write to you, and to beg that you will moderate your sorrows, if possible, lest you do yourself an injury. It is not by excessive grief that we shall best honor the memory of one of the most perfect princesses of the earth; but rather by our admiration of her virtues,—and the reasonable world will be on our side. My letter is more philosophical than my heart, and I am unable to follow my own counsel; but it is, notwithstanding, rational.” During the first months of his affliction, his usual employments were very much disarranged; his correspondence was for the most part neglected; and he himself narrowly escaped a severe attack of illness. He had also to regret the loss of the letters of the queen, the most of which were destroyed after her decease; and which, he declared would have favorably compared with those of Christina of Sweden.

After the death of the queen, Leibnitz had less occasion than before to visit Berlin; and in the latter part of his life he refrained altogether from going thither. Indeed as early as the year 1700, he ceased to act as president of the society of sciences, the direction of which, without his knowledge, was at that time given to another person. His pension as president was also withholden, notwithstanding the efforts made by him to obtain it.



In fact, the fortunes of the society, as well as the influence of its founder, began to decline after the death of the excellent Sophia Charlotte; and the accession of the new king, Frederic William I, to the throne, was any thing but favorable to the progress of the arts and sciences in Prussia. Some mutual jealousies also having sprung up between the courts of Prussia and Hanover, the presence of Leibnitz in Berlin became, partly on that account, no longer acceptable to Frederic William. Indeed, the visit of Leibnitz to the Prussian capital in 1711, having been considerably protracted in consequence of an injury received from a fall, the court even presumed to intimate that his illness was feigned, and that he was remaining there in the capacity of a spy. On the other hand, the Elector, somewhat displeased at the frequent journeys of Leibnitz to Berlin, was himself disposed to believe that the philosopher was not unwilling to find an excuse for lingering in a city he was supposed to prefer to Hanover. Leibnitz accordingly never afterwards went to Berlin to remain there any length of time.

But before his visits to Berlin entirely ceased, he there met with a person who afterwards became his most celebrated follower. This was Christian Wolf. The attention of Leibnitz had before been directed to Wolf by means of a treatise written by the latter on the mathematical treatment of moral philosophy; and from the year 1704 to the death of Leibnitz, he maintained with his young disciple an active correspondence. The elder of the two appears to have thought more highly of the mathematical than of the

speculative talents of the younger; and therefore to have proposed to him to undertake the business of introducing the differential calculus into the high schools of Germany. Entertaining these views of the talents of his disciple, Leibnitz, in one of his letters to a friend, remarked that he had never corresponded much with Wolf on philosophical themes, and that the latter was not acquainted with his peculiar system of metaphysics, except so far as it had been made public. But Wolf, hearing of this remark, took advantage of it to lay claim to the honor of being himself considered an original and independent thinker in philosophy. He even went so far as to declare that he had arrived by original inquiries at the same results in speculation as Leibnitz;—a declaration, however, which no one will credit who sees that, while the conclusions of the latter grew logically out of his premises, the former, viewing these premises as superfluous, left them entirely out of his system. The truth is, that Wolf was ambitious of being thought a philosopher by the side of his master, and was not at all content with being one by means of him. He even presumed to say that the writings of Leibnitz were without philosophical method, without clearness and precision; their author, forsooth, not being, like himself, an university professor. But immethodical as were the works of the one, they have ever remained one of the living fountains of modern philosophy, while the voluminous though well arranged productions of the other are merely known to have had a place among the things that were.

## CHAPTER XVI.

Leibnitz visits the head quarters of Charles XII—Description of Charles—Leibnitz's intercourse with Peter the Great—Leibnitz visits Vienna—Wishes to change his place of residence—His diplomatic labors at the imperial court—His *la Monadologie*—Prince Eugene of Savoy—Leibnitz's project of an academy of sciences at Vienna—His plans for improving the finances of the emperor—Ker of Kersland—Leibnitz's generosity—Academy of sciences opposed by the Jesuits—Leibnitz receives the title of imperial court counsellor—Decease of the Electoress Sophia—Its influence on Leibnitz—Estrangement of George Lewis from Leibnitz—English politics—Death of Queen Anne—Leibnitz returns to Hanover—Is not allowed to follow George I to England—Plans for changing his residence—His views of English affairs—His prophecy of a general revolution in Europe—Completion of his history of the House of Brunswick—His unfinished labors.

IN the year 1707 the attention of Germany was intently fixed upon the struggle between Peter the Great, of Russia, and Charles XII, of Sweden, for the possession of Saxony;—a struggle which showed how the most extraordinary physical energies, when not under the direction of a ruling idea, must in the end inevitably succumb to the forces of genius. It happened that Leibnitz, shortly after his return from Berlin, was sent on a secret mission to the head

quarters of Charles XII, in Altranstädt, near Leipsic. At that time the Swedish tent was honored by the presence of three crowned heads, Charles himself, Augustus of Saxony, and Stanislaus of Poland; besides that also of the representatives of the principal courts of Europe. The adventurous king of Sweden appeared at that moment to be holding in his hand the balance of the powers of Europe; but he was less a statesman than a warrior. Marlborough, however, who was both, had succeeded in warding off the danger which threatened the coalition against France, by gaining over Sweden also to the cause of the confederates. Thereupon Prussia and Hanover leagued themselves more closely with Charles XII; and it was with reference to this measure, most likely, that Leibnitz was sent to Altranstädt, and that he returned from that place by the way of Berlin. Leibnitz saw the Swedish monarch at his dinner table; and afterwards gave the following description of him to Lord Raby, the English ambassador at the court of Prussia. "I saw Charles at dinner. This lasted for half an hour, during which time his Majesty spoke not a word. Once only he raised his eyes from the table, to look at a young prince of Würtemberg on his left, who was playing with a dog, and who thereupon immediately ceased. The physiognomy of the king may be said to be very good; but his dress and bearing are those of a knight of the old school. As I had waited a week for his return to the camp, I was not able to stay longer; although the hope was held out

to me of being admitted to an audience with his Majesty, as, just on the point of my departure, were the young Count von Platen and Herr Fabrice. But what could I have said to him? His praise, even when deserved, he hears not willingly; and he never speaks of affairs of state. Of any thing relating to war, however, he talks well, as I was assured by Herr von Schulenburg, who had held a conversation of two hours with him. Also, when Count von Flemmung, shortly before my arrival in Leipsic, was admitted to an audience with Charles, and dined with him, the king continued the conversation after dinner, and showed his good humor by once indulging in a jest. Your Excellency must have read the printed report of the king's having danced at the nuptials of one of his generals." It is worthy of remark that the philosopher, who was so much accustomed to converse with royalty, felt obliged to ask himself the question respecting Charles XII, "but what can I say to him?" In the case of the other great monarch whom Leibnitz was soon to meet, it was very different. The latter experienced no difficulty in finding other topics of conversation with Peter the Great, besides those of war and politics.

Leibnitz had long turned his eyes with interest towards the mighty empire which, after the Muscovite victory over Charles XII, at Pultawa, had sprung suddenly into life in regions beyond what was then considered the eastern bulwark of European civilization. Even when advocating the cause of the Palsgrave of Neuburg before the Electors of Poland, he

had bidden that country beware of the future ascendancy of a prince of Russia,—although, on the whole, he anticipated great advantages to Christendom from the establishment of a new Christian kingdom. Leibnitz was prepared, therefore, to meet with interest the illustrious founder of the modern empire of Russia, who in turn showed his sagacity, in consulting the German philosopher respecting his plans for civilizing his extensive and barbarous dominions.

Leibnitz met Peter the Great on several different occasions. The first meeting took place in the year 1697, at the castle of Koppenbrück, where Peter visited incognito the Elector of Hanover. But the emperor wishing to avoid any particular attentions, Leibnitz had at this time no opportunity of holding personal intercourse with him. The only written account given by Leibnitz of the appearance of the Czar, is the following very brief one, taken from a letter of his to Thomas Burnet. “Respecting the Muscovites, I must speak to you of this famous embassy with which the monarch himself is connected incognito. We saw them in the neighborhood while passing through the country. Although the prince has not our manners, yet he possesses no ordinary genius. \* \* \* The Czar, who speaks a little Dutch or German, said to the Electoresses of Brandenburg and Hanover, who supped with him at Koppenbrück, that he was about to build seventy-five vessels of war, to be used on the Black Sea. He is now thinking only how he can worry the Turks. His greatest pleasure is in navigation, the art of

which he has studied for the purpose of making himself master of the Euxine. He is going, I believe, to Holland, to inform himself by personal observation of every thing connected with navigation; and it is thought that he will go to Venice also for the purpose of seeing her marine and her famous arsenal."

Several years later, Leibnitz had a better opportunity of becoming acquainted with Peter at Torgau, when the philosopher conversed freely with his majesty, and obtained from the latter the promise of assistance in the prosecution of his physical and linguistic investigations. These promises referred particularly to the making of observations in different parts of Russia, upon the magnetic declination, and to the instituting of inquiries respecting the subject of language, not only in Russia, but also in Siberia and China. Not long after this interview, Leibnitz, in writing to one of the emperor's principal military officers, for the purpose of recommending to him a skilful physician and naturalist, took occasion to invite his attention to a number of methods for promoting the education of the Russians, such as the establishment of libraries and observatories, and the appointment of able teachers of the arts and sciences. In the same spirit, and for the accomplishment of the same great object, Leibnitz, shortly before his death, entered into correspondence with several of the most eminent statesmen in immediate connection with the Czar, and sent to them numerous memorials which, preserved in the archives at Moscow, have never yet been made public.

About a year after the interview above described, the Russian emperor invited Leibnitz to join him at Carlsbad, where the former was spending a short time previous to the campaign in Swedish Pomerania. It was at this time that the Czar gave to his German adviser the title of privy counsellor of justice, with a pension of one thousand albertusthalers. Then, also, the project of an academy of sciences was suggested by Leibnitz to Peter, who interested himself deeply in the matter, though the plan proposed was not carried into effect until after his death. From the period of this meeting, the new privy counsellor looked to the great Muscovite for the patronage of every important discovery that was made in Europe. Thus Leibnitz took measures to have a model of his reckoning machine constructed with important improvements, with the design of sending it to the Czar; but it appears never to have been completed.

Instead of returning directly to Hanover from Carlsbad, Leibnitz, having an opportunity of going to Vienna free of expense, set his face towards the south. Arrived at the Austrian capital, he excused this journey to the Elector, on the ground that the emperor was disposed to render him important assistance in his historical studies. There were other reasons, however, for his wishing to visit Vienna. Tired of living in Hanover, where, excepting his excellent friend and mistress, the Electoress Sophia, no one understood or appreciated him, Leibnitz, in fact, had long been wishing to change his place of



residence to some larger city. The unpleasant nature of the relations in which he stood, at this period, with the Hanoverian courtiers, may be learned from the following extract from a letter to his friend Thomas Burnet. "The narrow limitations, both physical and mental, within which I am confined, are owing to the circumstance that I do not live in a large city, like Paris or London, abounding with learned men from whom one can learn something, and derive some assistance. For there are many things which cannot be executed by a single isolated individual. But here one hardly meets with any one to speak to; or rather one passes in this place for a poor courtier who undertakes to discourse about matters of learning. Were it not for the Electoress Sophia, one would speak still more unfrequently of such subjects."

It was under such circumstances that Leibnitz conceived the desire to spend a portion of each year in London,—a desire he was prevented from gratifying only by his obligations to the Elector. One of the principal inducements to visiting England, was the wish he entertained to unite himself to that society of minds, including among others, Boyle, Bentley and even Newton, which was engaged in defending the doctrines of Christianity against the attacks of the English deists. To his friend Burnet, he also expressed an earnest wish to make the acquaintance of the "excellent persons in whom England was so rich." But his project stood a poor chance of being realized, at a time when the

Elector was beginning to insist more urgently than before, on his completing the history of the House of Brunswick. Leibnitz himself appears to have underrated the labor requisite for the accomplishment of his task; but it was destined to confine him for the remainder of his days more closely than ever to Hanover.

Leibnitz, accordingly, was in no hurry to return to the north. One circumstance that operated to detain him in Vienna, was the prevalence there at that time, of a fatal malady, supposed by many to have been the plague, which rendered the journey of a traveller from the infected city, one of no little vexation and difficulty. Another was the execution of the diplomatic commissions with which, after his arrival at Vienna, he had been entrusted by the Elector. The services of Leibnitz were also highly acceptable at that juncture to the imperial court, on account of the critical posture of the political affairs of Europe. Charles VI, convinced of the perfect right of his house to the throne of Spain, was firmly resolved on refusing to accept the terms of the proposed peace of Utrecht, by which his family and the German empire were to be robbed of the fruits of the victories won by the allies under Eugene of Savoy and Marlborough. In this determination Leibnitz did every thing in his power to strengthen the emperor. He also addressed a memorial to his majesty respecting the propositions made by the imperial ambassador at Utrecht on the subject of the peace; and was otherwise active

respecting this matter, as will more fully appear whenever the state papers pertaining to the transaction shall have been published.

Another question in diplomacy, respecting which, the emperor availed himself of the counsel and services of the Hanoverian sage, concerned the right of succession to the throne of the grand duchy of Florence. But without dwelling on this subject, we pass to the consideration of the literary labors of Leibnitz in Vienna. He here composed the well known sketch of his philosophical system, entitled *La Monadologie*, though usually called *Principia philosophicæ*. This was done while the author was living on terms of intimacy with the celebrated Eugene of Savoy, a prince as remarkable for his knowledge of science, and his cultivation of letters, as for his sagacity in the cabinet and his heroism in the field. The manuscript having been given to Eugene, for whose use it was specially designed, he set so high a value on it as to be quite unwilling to let it go out of his hands. Count Bonneval, a friend of the prince, was therefore induced to write complainingly to Leibnitz, saying, "Eugene preserves your manuscript as the priests at Naples do the blood of saint Januarius; that is, he lets me kiss it, and thereupon he locks it up again in his writing-desk."

It was from his intercourse with Prince Eugene that Leibnitz was led to entertain the hope of being able to carry into execution his cherished project of founding an academy of sciences in Vienna. His

plan was a very comprehensive one. There was to be connected with the academy, a library of the most valuable literary productions, a cabinet of coins and antiques, a chemical laboratory, an observatory, a magazine for models and machines, a botanical garden, a collection of minerals and geological specimens, schools for anatomy and surgery. Provision, still further, was to be made for the examination of MSS. and diplomas, for the collection of statistics, for medical reports, and for journeys with the view of making investigations in the provinces of literature, art and nature. Rewards were to be given for discoveries, and pecuniary assistance granted to persons who should devote themselves to different kinds of scientific investigations. It was proposed that the society should be under the supervision and patronage of one of the most distinguished persons of the imperial court, and that there should be affiliated branches established in different parts of the Austrian territory. Leibnitz, though not to be president of the institution, was to reside in Vienna, and to receive for his services a salary of six thousand gulden, which sum, however, on account of the depressed state of the imperial finances, was afterwards reduced to two thousand. An academy on this plan, more or less modified, would perhaps have been actually established, had the life of the projector been spared somewhat longer. Charles VI took the matter into serious consideration. Prince Eugene, as well as many other distinguished courtiers, interested himself in it ; and Leibnitz, on leaving Vienna, was assured by the

emperor, the empress, and the ministry, that the work should be accomplished.

The project miscarried notwithstanding. After his return to Hanover, Leibnitz did all he could by letter, to urge on the work ; but in truth, the finances of Charles were then in no condition to justify the requisite outlay of capital. This hindrance to the execution of the plan was not concealed from Leibnitz ; but, on the contrary, the emperor solicited him to give his opinion respecting the best methods of improving the finances of the state, and to enter into consultation on the subject with the Scotch diplomatist, John Ker of Kersland. This person was at once inspired with great confidence in the abilities of the German philosopher ; and devised, in concert with him, various plans for the relief of the treasury of the emperor, all of which, however, proved unavailing. The finances of Ker himself, it may be added, owing to considerable sums spent by him in gratuitously advocating the claims of the House of Brunswick to the throne of England, were hardly in a better condition than those of the emperor ; and Leibnitz, with a generosity that redounds not a little to his credit, cancelled from his own purse debts of his friend to the amount of two hundred and thirty pounds sterling. This pleasing fact we learn from the confessions of Ker himself, though he was not aware of it at the time of its occurrence.

Another hindrance to the execution of the plan of founding an academy of sciences in Vienna, arose from the secret opposition of the Jesuits, the cause of

whose Christian missions Leibnitz had formerly so boldly advocated. These priests had thought, because Leibnitz, who was not accustomed to attend places of public worship, had frequently been attracted to the catholic church in Vienna by the eloquence of one of their order, that he was ready to become a convert to the mother church. They even referred to the expected change in the great philosopher as an argument in their attempts at proselyting. But when they found out that Leibnitz had no design of changing his religion, they did not fail to suggest to influential persons at court, that an academy of sciences at Vienna, under the direction of a Protestant, would be in the highest degree dangerous to the interests of both the church and the state. Their suggestions were doubtless not without effect.

Leibnitz, during his visit to Vienna, was treated with very great favor by the emperor, the empress, and the empress-mother. He had private access to the imperial cabinet, whither he was frequently invited to give his advice respecting secret affairs of state. As a public testimony of his regard for the philosopher, Charles VI bestowed on him the title of imperial court-counsellor, — the highest honor in the empire which could be conferred on a Protestant, and one to which Leibnitz had long been aspiring. With this title some trifling emoluments also appear to have been connected. The precise time, indeed, when this honor was conferred on Leibnitz has not been ascertained, as no diploma has ever come to light, and he himself never referred to the subject in

any of his letters. He must have been made a baron of the empire several years before, probably at the coronation of Joseph as king of Rome in 1690, since in the appointment to the office of president of the society of sciences in Berlin, he was called Herr von Leibnitz, and in one of his letters to Bossuet in 1692, he subscribed his name with this title. This designation, however, was rarely made use of by him. The armorial bearings he employed were those of his paternal great-uncle, Paul von Leibnitz, who had been raised to the rank of a noble by the emperor Rudolph.

But while Leibnitz was protracting his visit in Vienna, events of considerable importance were transpiring in Hanover. One of these was the decease of the Electoress Sophia. This able princess departed this life at the age of eighty-four, after a very short illness, brought on, it was supposed, by a letter received by her son, George Lewis, from the queen of England, who being strictly in favor of the Pretender, severely reproached the Elector for having applied to the parliament for a letter of citation as a peer of England, without having previously consulted with her respecting the matter. The Electoress remained until the last, in full possession of her extraordinary faculties. Between two and three weeks before her death, she wrote Leibnitz a long letter on the affairs of England, to use his own words, "as full of correct judgments as if written by the prime minister, and at the same time as lively in its tone as if from the pen of a 'young princess Sophia,' as the English called her."

The death of his protectress was a heavy blow to Leibnitz. It destroyed nearly all the little interest he had left in Hanover, and annihilated his prospects of one day rendering himself useful as the friend and counsellor of a queen of England. George Lewis, who was wont to call Leibnitz his living dictionary, prized indeed the great philosopher as a faithful servant and an illustrious ornament of his court ; but unlike his predecessor, he never regarded him as a friend, nor entered at any time into a confidential correspondence with him. Though proud of the European reputation of the historian of his house, the Elector, nevertheless, was jealous of the honors conferred upon him by the emperor, and grudged, also, the time spent by him at the courts of Berlin and Vienna. One day during the absence of Leibnitz at the latter city, as search was made about Hanover for a lost puppy, the Elector, half in jest and half in earnest, exclaimed, " So must I cause my Leibnitz to be hunted up, to find out where in the world he may have hid himself." 7

Leibnitz favored, moreover, the views of the deceased Electoress respecting English affairs too much, to be a favorite with George Lewis. As is well known, the mother had been jealous of the influence of her son in the kingdom, to whose throne she had herself cherished hopes of succeeding. She, also, was not inclined to follow so much the counsels of the whigs in England, as were the Elector and his minister, Bernstorff ; but, in accordance with the views of Leibnitz, she preferred to



endeavor to unite the more moderate members of both the great political parties of the country. Leibnitz himself, indeed, on the question of the Hanoverian succession, as well as of the allied war against France, was strongly opposed to the policy of the tories, but he was too liberal in his sentiments and too universal in his aims, to attach himself exclusively to either party. With these views he wrote to Ker, as follows: "The king must by all means leave to his nation the free choice of the members of parliament; and oppose, also, the hateful intrigues and corruption which have existed under former reigns. Such a course of conduct will surround him with men of honor and ability, who will act from disinterested principles, and will have regard for the general welfare of the nation. I hope and wish that our German ministers may never presume to meddle with the affairs of England, for they would not only commit a great impropriety, but also prevent the king from gaining the confidence and affection of his subjects."

The death of Queen Anne, and the subsequent call of the Elector George Lewis to the English throne, were events which took place while Leibnitz was still in Vienna. But on being summoned by his friend Ker of Kersland, to pay his court and offer his counsels to the new king, he set out immediately for Hanover. Owing, however, to the badness of the weather and his advanced age, he did not arrive at the end of the journey until several days after the departure of his Majesty. He was

obliged, therefore, for the time being, to content himself with forwarding his congratulations to his master by letter, and with indulging the hope of soon following him to London. This design of Leibnitz, however, was, from the outset, firmly opposed by Bernstorff. And when, a year afterwards, the former applied for permission to visit London, the latter returned a direct refusal, adding, also, that Leibnitz would best gratify the wishes of his royal master by immediately resuming the long neglected history of the House of Brunswick. This letter deeply wounded the feelings of the venerable sage, already hurt by the stoppage of his salary during his absence in Vienna, and especially by the derogatory tone in which, shortly before leaving Hanover, the king had alluded, in a postscript to one of his orders to his ministers, to the labors of his historiographer. The latter entered into an explanation and defence of his conduct, remarking in one of his letters to Bernstorff, that this treatment little comported with the labors, the sacrifices and the zeal of so many years spent in the service of the government; and concluding still another to the same person, with the declaration, "*Il m'a touché plus que je ne saurais dire, de voir que, pendant que l'Europe me rend justice, on ne le fait pas, où j'aurais le plus de droit de l'attendre.*"

Most probably it was this estrangement of George I from the tried and faithful servant of his house, as well as partly, no doubt, the desire of the former to ingratiate himself in the good opinions of his En-

glish subjects, that led him to incline to the side of Newton in the great controversy between this philosopher and Leibnitz. The king applied for information respecting the merits of the dispute, to the Abbé Conti, who attempted to act as a mediator between the two rivals; but as this person viewed the question at issue as one merely respecting the priority of the discovery of the method of fluxions and of the differential calculus, his opinions were, naturally, favorable to the Englishman. George I, therefore, on his visit, in 1716, to his ancestral dominions, said to Leibnitz, that "the Abbé Conti was coming over to Germany to convert him." But this monarch was, nevertheless, proud of the German as well as the English philosopher; and is reported to have said, "I think myself happy in possessing two kingdoms, in one of which I have the honor of reckoning a Leibnitz, and in the other a Newton, among my subjects."

Long discontented, as we have seen, with his residence in Hanover, and somewhat mortified at the widely circulated report of his being no longer in the good graces of his royal master, Leibnitz turned his thoughts in his old age towards that splendid city where in earlier years he had designed to establish his home, to the sunny skies and learned society of the capital of Louis XIV. Shortly before the death of this monarch, and but a year before his own, the aged philosopher communicated his desire of changing his residence to the Parisian Jesuit Tournemine. With this learned father, Leibnitz was then engaged

in a scientific controversy respecting a treatise published by the latter the year before, under the title of *De origine Francorum*, and which, translated into the French, the author caused to be presented in a neatly executed manuscript, to Louis XIV. The letter of Leibnitz to Tournemine was also communicated to this monarch, who expressed himself highly pleased with the design disclosed in it; and declared himself ready to do whatever he could to render the residence of the German philosopher in Paris as pleasant, as the latter should render his services useful to the French nation. This we learn from Tournemine; but the good father did not inform us of his unsuccessful attempt to make a proselyte of his German correspondent. Nor do we learn from the French ecclesiastic, the reasons which induced Leibnitz to change his determination of spending the evening of his life in Paris. Whatever these were, they could hardly have been the death of Louis, because Leibnitz was sufficiently well acquainted with the Regent, and was also a friend of the Duchess of Orleans, the Regent's mother.

But Paris was not the only place to which Leibnitz looked for a refuge in his declining years. Notwithstanding the poor success of his former applications for leave to visit London, the interest he took in English affairs prevented him from relinquishing his wish to establish himself in that metropolis. But the Hanoverian advisers of George I, knowing that the philosopher would use his influence to prevent their selfish interference in the administration of the

English government, continued firmly to oppose the proposed visit, so that in the end, Leibnitz, in despair of accomplishing his purpose, declared to his friend Ker, that he had finally decided to take up his abode, upon the completion of his historical labors, in Vienna. Somewhat later, however, it may be added, Leibnitz expressed a desire to the minister, von Bernstorff to be appointed British historiographer to George I,—proposing, in case of his receiving that appointment, to incorporate in his annals, a portion of the early history of England connected with that of the ancestors of the family of Brunswick; and at the same time adducing precedents to show that the granting of his request would be no violation of the laws of the British realm against the holding of offices by foreigners. That this wish remained ungratified may readily be inferred from the relations subsisting between the parties. Notwithstanding the unwillingness, however, of George I, to see Leibnitz in London, the latter did not cease to take very great interest in the success and popularity of his royal master's administration. In proof of this fact may be adduced the pamphlet written by Leibnitz under the title of *Anti-Jacobite, ou Faussetés de l'Avis aux propriétaires Anglais*, being in reply to a Jacobite attack on the House of Brunswick, entitled, *Avis aux propriétaires Anglais*. The authorship of this pamphlet was denied, indeed, by Leibnitz; but the style in which it was written, and especially the liberal spirit with which it advocated the reconciliation of the two political parties of Great

Britain, leave no doubt of its having emanated from the pen of the great philosopher. The writer maintained with great clearness and force of argument, the importance of rendering such protection to agriculture, the basis of national prosperity, on the one side, and to manufactures and commerce, on the other, as to secure a harmonious development of these two conflicting interests. He also insisted on the importance of remedying the disorders which were then tending to diminish the influence of piety and morality upon the national character; of guarding against the injurious effects of the stipulations in the treaty of Utrecht; and of thwarting the schemes of the enemies of the crown in the whole realm.

The attention given by Leibnitz to the public affairs of England was owing in part to the fact that he attached great importance to the influence which was to be exerted by that country in the future social and political regeneration of Europe. His prophetic views on this point were expressed in his "*New Essays on the Human Understanding*," as follows, "I find," says the author, "that opinions bordering close upon license, which take possession of the governing minds of the great world and creep into works of polite literature, are preparing the way for *the universal revolution with which Europe is threatened*, and are utterly destroying what there is left of the magnanimous feelings of the ancient Greeks and Romans, who set the love of country and a care for posterity before the accumulation of property, or even the preservation of life. Those

“public spirits” as the English call them, are fast disappearing and already out of fashion; and they will continue still more rapidly to diminish, unless supported by good morals and by the true religion which even natural reason teaches. \* \* \* Patriotism is scouted; the persons who interest themselves for universal aims are ridiculed; and whenever a well-meaning man asks what will posterity say, the reply is, *alors comme alors!* But it may happen that these persons will themselves experience the evils they suppose to be reserved for others. If they cure themselves of the spiritual epidemic whose pernicious effects begin to show themselves, they will perhaps escape these calamities; but if not, then will Providence heal society even by the revolution which this disease must naturally end in. For happen what may, all things will finally work together for the best; although this result cannot take place without the chastisement of those who even by their evil acts have brought about a general good.”

•In consequence of the dissatisfaction expressed by George I, and his ministers in Hanover, at the slow progress of Leibnitz’s historical labors, the latter was induced in the last years of his life to devote his attention almost exclusively to his great task. In these endeavors, by order of the king, he was assisted by his former secretary, Eckhart. As a fruit of the increased diligence of Leibnitz, the first volume of the *Annales Imperii Occidentis Brunsvicensis* was ready for the press at the end of the year 1715; but the author preferred that it should not be published until

after the completion of the second and last volume, which was promised in the course of the year following. Leibnitz kept his word. But it speaks little for the sincerity of the pressing requests made by the Hanoverian ministry for the completion of this history, that when it was completed they took no pains whatever to publish it. The contents of the *Annales* previously to their recent publication were known principally from a sketch of them committed to paper by Leibnitz, and afterwards communicated by Eckhart to Fontenelle. Scheid also published some episodes of the original work, together with the *Origines Guelphicae* composed by Eckhart from materials collected by Leibnitz. The ideas of the latter may indeed not unfrequently be detected by careful criticism, in the writings of his secretary and associate, who, it used to be said at Hanover, was fond of decking himself with the plumes of the great philosopher. The high idea entertained of the *Annales* by the author himself may be inferred from the remark following. "I venture to affirm," he said, "that nothing of this kind has yet been published respecting the middle ages, wherein so many errors in the history of the German Empire have been corrected, and wherein historical facts have been placed in a clearer light."

In the last year of his life the aged author of the *Brunswick Annals* was contemplating, after the termination of his great labor, the execution of a large number of literary and scientific projects. He designed, among other things, the publication of his



mathematical correspondence, as an answer to the *Commercium epistolicum*, which had come out under the auspices of the royal society in London ; also of his *Dynamics*, together with other mathematical and philosophical labors. He likewise proposed to give an elaborate exposition of his views respecting the natural philosophy of Newton. His various essays, moreover, were to be collected and edited ; and, finally, a complete and demonstrative statement was to be made of his peculiar system of metaphysics. Many of his projects or ideas for the advancement of science, however, he did not design to lay before the public, because, as he said, the times were not ripe for such things, and he had a great aversion to being misunderstood and misrepresented. With that strong self-confidence which usually belongs to men of genius, he once declared, referring to certain important consequences to be deduced from his doctrine of continuity, "*Je me flatté d'en avoir quelques idées, mais ce siècle n'est point fait pour les recevoir.*"

## CHAPTER XVII.

### The last sickness of Leibnitz—His death and burial.

BUT in the midst of the plans mentioned at the close of the preceding chapter, and which were entertained by this veteran in science with all the ardor of a man in his prime, Leibnitz was overtaken, though not surprised, by a presentiment of the near approach of death. As early as the year 1696, in a letter to Thomas Burnet, on the occasion of a report of his decease having been circulated in England, he said, "If death will only grant me the time requisite for the execution of the works already projected by me, I will promise to enter upon no new undertaking, and industriously to prosecute the old ones; and even such an agreement would defer the end of life no inconsiderable period. But death troubles himself neither with the execution of our projects, nor with the improvement of science." A similar report, owing, probably, to the prevalence of a pestilence in Vienna, was spread abroad when Leibnitz was last in that city; but to this he pleasantly replied, that, according to the German adage,

false reports of the death of a person were sure signs of a long life. Leibnitz, indeed, had always felt authorized from the character of his physical constitution, to anticipate a life of more than the ordinary duration.

Meanwhile, after the return of Leibnitz from Vienna, the progress made by the arthritis in his system interrupted the continuity of his labors. From his fiftieth year, previously to which his health had rarely been impaired by illness of any kind, Leibnitz began to suffer considerably from this malady, which was accompanied also by frequent attacks of vertigo. On account of these infirmities, he often took the advice of Dr. Behren, of Hildesheim, who wrote a history of the disease of his patient; but, like Cartesius, Leibnitz liked best to be his own physician. In the last years of his life, a tumor was formed in his right leg, in consequence of his sedentary mode of life; and, therefore, he gladly embraced every favorable opportunity for making short journeys. These evils, however, were borne with perfect cheerfulness. In 1715 he wrote, "I suffer from time to time in my feet; occasionally the disease passes into my hands; but head and stomach, thank God, still do their duty." "My complaint," he said, on another occasion, "is not very painful, but it hinders me from being active elsewhere than in my chamber, where I always find the time too short; and, therefore, I have no ennui at all, which is a piece of good fortune in misfortune." In the month of March, 1716, his letters

spoke of his disease as one easily to be borne, and not attended by pain when he remained perfectly quiet. His return from Pymont, near the end of August, whither he had gone to pay, for the last time, his homage to George I, found him in the best of spirits. After that excursion he never again left Hanover, but devoted himself to the completion of his Annals, though occasionally diverted from it by lighter occupations. Among these was the formation of a plan of a library for Count von Boineburg, his former pupil, then the chief magistrate of Erfurt, who having established a professorship of history and law at the university of that city, was also about to lay there the foundations of a public library. This, according to Eckhart, was the last labor of Leibnitz; and it was left unfinished.

In November, Leibnitz's fatal malady severely attacked his shoulders. Thereupon he took, as usual, a strong dose of a decoction which had been given him two years before, by a Jesuit in Vienna. But his constitution was too much reduced to bear off the medicine. The disease attacked the vital organs; and he was seized with violent pains and convulsions. This occurred in the evening of the fourteenth of November; and at nine o'clock, Leibnitz hearing of the arrival in Hanover of a physician whose advice he had enjoyed in Pymont, Dr. Seip, requested his attendance. This gentleman coming in immediately, the patient, though somewhat distressed for breath, entered into conversation with him respecting his disease and its remedies, making

throughout his discourse numerous allusions to the doctrines of alchymy, and relating how the noted Furtenbach, in Florence, had succeeded in converting the half of an iron nail into gold. The doctor observing at length that the pulse of his patient was growing more feeble, and that a cold sweat had appeared on his hands, informed him that his condition had become dangerous. To this Leibnitz replied, that his hands and feet had, from his youth, been liable to be cold, also his pulse weak, and that in case of any illness he had various remedies he was accustomed to resort to. But the doctor, not thinking these appropriate to the patient's critical situation, requested leave to go himself and prepare others more suitable. Hardly had the physician left, however, when Leibnitz, in a very severe attack of pain, himself detected the approach of the fatal messenger of dissolution. Thereupon he expressed a desire to write, and pen and paper having been brought to him, he undertook to do so; but what he had written appearing to him illegible, he tore the paper and lay down again. Towards ten o'clock he made a second unsuccessful attempt to write, and then drawing his cap over his eyes, he lay down on his side and gently fell asleep. When Dr. Seip returned with his medicine, he found that Leibnitz was no more.

“When Leibnitz was near his end,” relates Eckhart, “his servant asking him whether he did not wish to partake of the sacrament, the former replied that they should leave him in peace; he had done

no man wrong, and had nothing to confess." According to the testimony of others, when one of the bystanders reminded the dying philosopher that he was soon to pass from time to eternity, he mildly answered, "Also are other men mortal."

Dr. Seip relates, that he saw lying upon Leibnitz's couch and the chairs surrounding it, a number of letters and books, among which last was his favorite *Barclay Argenis*, in which he had read shortly before his death, and which is still retained on his study-chair, in the royal library of Hanover; also his own *Nova Methodus juris*, with alterations written on the margin, *Lynker's Instructorium forense*, *Pontan's Progymnasmata*, *Alberti Interesse Religiosum*, etc. These, together with all the other books and papers of Leibnitz, were, immediately after his decease, taken possession of by the ministry, and deposited for safe keeping, partly, in the secret archives of state, and, partly, in the royal library. The money left by the deceased, which, including gold and silver medallions, amounted to from fourteen to sixteen thousand thalers, was delivered to Leibnitz's nephew and only heir, the Rev. Frederic Simon Löffler, who appears, however, to have inherited from his illustrious uncle little besides his property, and whose wife was so weak a woman as, upon the sight of such a sum of money brought into her house, to fall, from joy and terror, senseless to the floor.

The death of this great man was an event of as little importance in the eyes of the Hanoverian

courtiers, as had been his life. This indifference was owing, in part, undoubtedly, to the circumstance that Leibnitz, towards the close of his life, had lost the favor of his royal master. One friend of the departed, Ker, of Kersland, happened to arrive in Hanover the same day on which Leibnitz died, and was deeply grieved not only at the sad event, but also at the little notice taken of it by the Hanoverians. For, according to the representations of Ker, the funeral was more like that of a highwayman than of one who had been the ornament of his country. This is confirmed by Eckhart, upon whom alone devolved the care of giving the great Leibnitz honorable burial. Through his agency a costly coffin was procured, having engraved at its head the armorial bearings of the deceased; at its foot, his name, and the dates of his birth and death; on the right side his motto, *Pars vitæ, quoties perditur hora, perit*; on the top, an unit contained in a cipher, with the superscription, *Omnia ad unum*; on the bottom, an eagle soaring, and gazing at the sun, with the superscription, *Haurit de lumine lumen*; on the left side the lines of Horace,

Virtus recludens immeritis mori  
Cælum, negata tentat iter via,  
Cætusque mortales et udam  
Linqvit humum fugiente penna.

On the upper side of the lid stood Bernouilli's favorite symbol, which had been also highly prized by Leibnitz, being a spiral line, with the superscrip-

tion, *Inclinata resurget*; and on the lower side, a phœnix, in the act of being consumed by fire, with the superscription, *Servabit cinis honorem*.

We are informed by Eckhart, that although the whole court was invited to attend the funeral solemnities, no one appeared on the occasion except himself. The deceased having during his life time been considered an unbeliever, no clergyman followed his remains to the grave. "Leibnitz went seldom or never to church," says Eckhart, "and communed very unfrequently. The clergy, on this account, upbraided him in public; but he heeded them not. God knows what were his motives. The common people generally called him a *nothingarian*. (*Lövenix, d. i. Glauber nichts.*")

Thus were the remains of the great mathematician and founder of German philosophy committed to the earth! How unlike the burial given by a proud and grateful country to the mortal part of Leibnitz's illustrious English contemporary. The nobles of the land bore the pall of Newton, and the assembled people followed his body to its sacred and fit resting place in Westminster Abbey.

The royal academy of sciences in Berlin took no notice of the loss of their founder and first president. The London society, of which Leibnitz was one of the oldest and most distinguished members, remained silent upon the death of the rival of Newton. Only the academy in Paris paid that respect which was due from scientific Europe to the memory of one of the greatest philosophers of the age.



The ashes of Leibnitz repose in what is called the court church of Hanover. For half a century after his death, there was nothing to mark the spot of this precious deposit ; but it is now indicated by a copper plate in one of the aisles, bearing the inscription, *Ossa Leibnitii*. Towards the end of the eighteenth century the indifference which the Hanoverians had felt towards the living philosopher, gave place to the most enthusiastic veneration for his memory. The inhabitants of the town which had taken no notice of his death, then generously united with the government in erecting on a rising ground, near the royal library, a circular temple to the genius of their illustrious fellow-citizen. A monument still more durable and appropriate is yet due from his country to the father of German philosophy ; and that is, an edition of his complete works.\*

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\* These are now in the course of publication at Hanover, from the MSS. of the royal library, edited by G. H. Pertz.

## CHAPTER XVIII.

**Description of Leibnitz's person and habits, by Eckhart—Also by himself—Extracts from his letters—His religious toleration—Recollections of him by a cotemporary—Charges brought against his character—His defects as a writer—His views of matrimony—Fondness for children—Report of his having had a natural son.**

In conclusion, we lay before our readers a few particulars concerning the character of Leibnitz, which have not been introduced in a previous part of this work.

From the Memoir of Leibnitz by his secretary and assistant in historiography, we select the following minute description of the appearance and mode of life of the great philosopher.

“With respect to his physical constitution,” says Eckhart, “he was of the middle stature; had rather a large head, hair which in his youth had been black, and small and short-sighted, but keen and scrutinizing eyes. On account of his short-sightedness, he preferred to read small rather than large print, and himself made use of diminutive characters in writing. He was early bald, and had upon the crown of his

A great reader, Leibnitz made extracts from every thing he read, and wrote down on small pieces of paper his reflections upon every book of importance. These, however, as soon as written, he laid away in a cabinet constructed for the purpose; and, on account of the extraordinary retentiveness of his memory, never had occasion to refer to them afterwards. Indeed, so incomparable was this faculty in Leibnitz, that in his old age he could recite from memory the most beautiful passages of the ancient poets, particularly Virgil, sacred hymns also, and whatever else he had read in his youth. He was eager to take part in all matters relating to learning; and whenever he heard of any new discovery, he gave himself no rest until he had fully informed himself respecting it. His correspondence was very extensive, and occupied the greater portion of his time, — and the more because, in case of any letters of importance, he was in the habit of sketching or re-writing them twice, and, often, three or four times, before suffering them to pass from his hands. The most distinguished literati of Europe made communications to him, and when persons of no reputation even wrote to him, he always answered their letters and gave them information."

"His self-conceit, which would admit of no contradiction, even in cases where he immediately saw his error, was his greatest failing. Still, afterwards he was sure to follow his best convictions. Towards his domestics he was very indulgent; inclined, indeed, to fits of passion, but quickly pacified."

Besides the foregoing account of Eckhart's, Leib-

nitz himself, when about fifty years of age, wrote a description of his external and internal man, for his friend and physician, Doct. Behren ; and of this also we give a translation as follows :

“ His father,” he wrote, speaking of himself in the third person, “ was of a slender frame, of a temperament rather sanguine than choleric, and was accustomed to suffer much from the gravel. The disease which occasioned his death was a kind of consumption, of eight days’ duration, and unattended by pain. His mother died of a catarrhal affection.”

“ His own temperament appears to have been neither purely sanguine, choleric, phlegmatic, nor melancholic ; — not sanguine, on account of the paleness of his countenance, and because he is not active in his habits ; not choleric, because he is not fond of drinks, has soft hair, a keen appetite, and enjoys sound sleep ; not phlegmatic, by reason of the lively action of his feelings, and the spare habit of his person ; not melancholy, since he is entirely free from hypochondria, thinks rapidly, and has an active will. The choleric tendencies, however, seem to have the ascendancy.”

“ He is spare in person, of moderate height, has a pale countenance, never perspires, is subject to coldness in his hands and feet, which, like his fingers, are too long in proportion to his other limbs. The hair of his head is brown ; on his limbs it is very thin. From his youth his sight has been imperfect. His voice is weak, but clear ; it is also flexible, but not rich in its intonations, so that the gutturals, and the

letter K, are not easily enunciated by him. He has weak lungs, a dry and fiery liver, and his hands are covered with lines. He is fond of saccharine substances, as sugar, which he is in the habit of mingling in his wine. Strong odors also are grateful to him; and he is firmly convinced that odors, when not too stimulating, are serviceable in recruiting the animal spirits. He never has a cold or cough; seldom sneezes; seldom expectorates phlegm, but often saliva, especially after drinking, and in proportion to what he drinks. His eyes are not very abundantly supplied with moisture, but are rather drier than they should be. Therefore he cannot see well at a distance, but near by his sight is so much the keener. His sleep at night is uninterrupted, because he goes late to bed, and much prefers sitting up at night to working early in the morning."

"From his earliest years he has been accustomed to a sedentary mode of life, and taken little exercise. He has read a great deal, and reflected still more. In most departments of knowledge he is self-taught; and is always eager to penetrate deeper into things than is usual, and to make new discoveries."

"His inclination to conversation is not so great as to meditation and solitude. But once engaged in discourse, he proceeds in it with interest, finding more satisfaction in playful and jocose remarks than in active sports and exercises."

"He quickly flies into a passion; but his anger, easily aroused, is also easily allayed."

"One will never see him excessively hurried, nor

deeply dejected. Pain and joy he experiences only in moderation. Laughter often changes the features of his countenance, without agitating at all his internal frame."

"Timid in commencing an undertaking, he is bold in carrying it through. On account of the weakness of his visual organs, he is destitute of a lively imagination; and from the imperfection of his memory, a small loss at the present moment affects him more deeply than the greatest one in the past."

"Endowed with excellent gifts of judgment and invention, it is not difficult for him to excogitate, to read and to write many things,—to discourse on the spur of the moment, and to penetrate by meditation, whenever it is necessary, to the centre of any notion or idea. Hence I infer that he possesses a dry and spirituous brain."

"The animal spirits are very active in him. Therefore I fear, in consequence of constant application to study, of incessant meditation, and of the spareness of his person, that he will die of some inflammatory disease, or of consumption."

From the letters of Leibnitz we extract the following passages, characteristic of his liberal and tolerant spirit. "When I err in my estimate of persons," he wrote to Raymond, "I prefer to err on the side of charity. And it is the same with respect to their writings. I endeavor to find in them not what may be blamed, but what may be praised, and that from which I may learn something. This course is not exactly in fashion; but it is the most just and the

most useful. Nevertheless, though there are few books, or persons in whom I cannot find something of use to me, I know how to make a difference in granting them my confidence."

"Believe not," he wrote to Placcius, "that I think unfavorably of your excellent work, *Medicina moralis*, or that I have not read it, because I have not found fault with it. Know that no one has a less censorious spirit than I have. It sounds strange; but I approve of the most I read in the writings of others, to say nothing of yours. Knowing what different views are taken of things, I almost always discover something in all books which serves either to excuse or to defend them. Therefore I meet with few things in reading which displease me, although some things of course please me more than others."

In advocating the cause of religious toleration, Leibnitz was fond of relating an anecdote he had heard in England respecting the two English theologians and controversialists, the brothers John and William Rainold. They lived in the reign of Elizabeth; John residing in the Spanish Netherlands had become a Catholic, while William remaining in England, had continued a Protestant. In their letters to each other, they disputed zealously upon religious questions, but without being able to reconcile their opinions. At length they agreed on a time and place for having a personal interview, thinking thereby to succeed better in their pious designs. In truth they were both successful. Both conquered, both were conquered. Each was convinced by the rea-

sonings of the other, and each regretted that he had convinced the other. Accordingly they exchanged both their religion and their places of residence—John going to England, and William remaining in the Netherlands. Each afterwards defended his faith with great ardor. John wrote against Bellarmin respecting the holy scriptures, and also upon the idolatry of the Romish church; while his brother opposed Whitaker and Berengarius, and published a work with the design of showing that the followers of Calvin did not differ materially from the believers in the Koran. To some one who remarked that it was not for man to determine which of the brothers exchanged golden weapons for iron ones, or whether both were received at the gate of heaven, Leibnitz replied that God doubtless had mercy on both the Rainolds, as each contended with pious zeal for his sincere convictions; and that we should take care not, by want of charity for either of them, to bring ourselves into condemnation.

A great number of literary men of every profession and with every degree of attainments, were indebted to the recommendations of Leibnitz for various kinds of offices and appointments. On his journeys he gladly availed himself of the society of these persons who revered him as a father and a benefactor; and whenever his friends in turn came to Hanover, they were always sure of a welcome. One of these, von Uffenbach, a Frankfort patrician, has given us the following rather curious account of his visit to the great philosopher.



“In the afternoon,” says this writer, “we made it our first business to send in our names to the learned and far-famed Herr Privy Counsellor von Leibnitz, who immediately invited us to call on him. Although he is more than sixty years of age, and makes a strange appearance clad in fir stockings, a dressing gown lined with the same material, large socks made of felt, instead of slippers, and a long, singular looking wig, nevertheless he is a very polite and social person, and entertained us with remarks on politics and various literary topics. \* \* \* I succeeded at length in breaking off the conversation for the purpose of asking him to show me his library, as well as that of the Elector, which I was extremely anxious to get sight of. But, as I had been led to expect would be the case, he declined, being very reluctant to let any one see them. As to the Electoral library, he said it was a *bibliothèque de cabinet*, containing nothing but some new books on history, and was in such disorder that he could not think of admitting any one. Other persons assured me, however, that the books in this library were very numerous and valuable; but that it was a peculiarity of Leibnitz’s, that he liked to worm in it alone. Not even the Elector himself, therefore, could get a chance of seeing it, the Herr Privy Counsellor always alleging that it had not been put in order. He made the same excuse for not letting us see his own library, and added that there was nothing remarkable in it, except a few codices which he would bring to us. This he also did.”

There are always persons who take delight in exposing the infirmities, real or pretended, of the great and good. Thus two charges,—to mention only the most serious ones,—have been brought against Leibnitz; one that he loved money, and the other that he was inclined to flattery. Eckhart himself, in his communications made to Fontenelle respecting his illustrious countryman, said that “Leibnitz had a love for money which was almost sordid. He used his money, however, not for his own convenience, but preferred to let himself be cheated out of it by mechanics and servants, and expended large sums on the arithmetical machine which was completed shortly before his death.” But the justification is contained in the charge itself. Leibnitz expended his property, not upon his own person for pleasures, or show, or convenience, but rather devoted it to great and noble purposes. In proof of this, his remarkable generosity to his friend Ker of Kersland, which has already been mentioned, may be referred to. True he often sued to princes for pensions; and had all his annual dues been, as they were not, fully paid, his income would have been a tolerably large one. But where else than to the princes of the land should Leibnitz have looked for compensation for his days and nights of labor, and for the means of living in a style suited to his conspicuous position? Did the German nation do any thing for its great philosopher? Leibnitz, in fact, never received any pecuniary compensation for his writings, whether published in journals or elsewhere. His *Theodicea*

enriched the booksellers, but paid nothing to its author. Europe enjoyed the rich fruits of his diligence and his genius gratuitously. Besides, the payment of his pensions and salaries depended always upon the good-will of those who paid them, and was constantly liable to fail by the occurrence of war. For in the frequent wars of those days, there was nothing in which kings thought they could so easily economize as in the salaries paid for the support of science and the maintenance of men of learning. Leibnitz as a prudent man, therefore, was obliged to make some provision against the loss of court favor, and the ruinous consequences of war and conquest.

The other charge brought against Leibnitz of liking to flatter and to be flattered, has not much better foundation than the preceding one. He did indeed look upon his extensive fame, reaching even to the remotest East, in the light of a reward of his labors. He was also conscious of the greatness of his mental endowments; and did not by any means undervalue the contributions made by him to the cause of science and civilization. It gratified him, moreover, to receive the grateful acknowledgments of persons seeking for the truth, and even of those not particularly remarkable for their intellectual attainments, as for example, of a Hamburg philologist, who celebrated the praises of the philosopher in Greek verse. Nor was he averse to being regarded as a learned oracle. But among all those who from various lands, from different ranks of life, and from opposing

churches, were connected in some way with the sage of Hanover, some, naturally enough, were not satisfied with him ; and these are the persons chiefly, who have accused him of a love of flattery, as also of double-mindedness, and of indifference in religion. He was charged with making his system conform to the leading doctrines of all parties ; but, as Lessing well remarked, the converse was the truth,—he endeavored to make these doctrines conform to his system. Leibnitz, in fact, in the investigation of truth, took no account of the prevailing opinions of men ; but, firmly convinced of the correctness of his own principles, he took pains to lead different minds by different paths to the same point of view which he occupied himself. *En général*, said he, *il est bon, qu'on se mette à la portée de tout le monde, pourvu que la vérité n'en souffre pas.*

In the writings of Leibnitz, one of the greatest deficiencies is their want of form. He never threw his whole force into any of his works ; and in comparison with the perfection of the mind whence they emanated, they appear partial and fragmentary. If we speak of authors as a class, a question might almost be raised, whether Leibnitz, notwithstanding the multiplicity of his writings, strictly belonged to it. The products of his pen are for the most part, conversations, sometimes with individuals, sometimes with the public. The letter was the form of composition in which he most excelled ; and his extensive, though for the most part unpublished correspondence, must be considered as composing the

great body of the Leibnitzian literature. Instead of valuing the form of literary productions, he sought in them only for materials. Accordingly, his own writings are frequently deficient in connection, and are seldom arranged with much felicity. His style likewise is apt to be involved, unequal, and discursive. He esteemed knowledge for its practical applications mainly, for its power of improving the character and condition of man both here and hereafter. The history of the past was to him worthless but for its relations to the present, as the present was important from its connection with the future. *Le présent est gros de l'avenir*, was one of his mottoes. But though valuing learning, not so much for itself as its uses, he was to the last none the less enthusiastic in the acquisition of it. Late in life he commenced the study of the Russian language, saying, — *inter senes discipulos facilius nunc locum tuear, quam olim inter pueros doctos. Nam cum Socrate semper ad discendum paratus sum.*

As Leibnitz prized knowledge only so far as it was wisdom and power, so he esteemed poetry and art but as means for promoting morality and piety. Accordingly, in the spirit of Plato, he proposed that the imagination of the community should be cultivated and kept pure by means of the fine arts; the stage should mirror the beauty of the divine life; the powers of music should be enlisted in the service of the church; poetry should be employed to sing in fascinating strains the felicities of the future state; and thus all the graces of art become ministering

handmaids in the temple of virtue. But these views, though they may serve to show the goodness of Leibnitz's intentions, must, in the present condition of aesthetical science, be considered as derogatory to the dignity of the arts of design. They follow naturally, however, from the low place assigned in his philosophical system, to works of the imagination. But these sentiments upon the religious use of art, it may be added, were not at all times entertained by Leibnitz; on the contrary, we find him in his aphorisms assuming the Protestant point of view, and advocating opinions directly the opposite.

Another great fault, both in the writings and the life of Leibnitz, is the absence of that vein of sentiment, so remarkably characteristic of the German nation.

Leibnitz was hardly acquainted with any other love than that which had humanity for its object. Although he could be devotedly attached in friendship, as may be seen in his regrets for the loss of the queen of Prussia, it is not known that he ever seriously entertained a desire to enter into the state of matrimony. When in his fiftieth year, he did, indeed, once make proposals to a lady; but, as she requested time for reflection, the philosopher himself finally thought better of the matter. He was afterwards wont to say that he had always supposed there was time enough for matrimony, until at length he had found out it was altogether too late. To him has also been attributed the saying, "Marriage is a good thing, — only a wise man must spend his whole

life in meditating it." Eckhart relates, however, that Leibnitz was very much pleased with the society of ladies, and never grudged the time spent in conversing with them. There was found, too, among his papers, an essay entitled, *A Bridal Present*, consisting of familiar rules for maintaining affection between husband and wife, and displaying a very deep insight into the subject of which it treated.

Leibnitz was a friend of children. It is related of him that he often sent for them to come into his room, that he might enjoy the sight of their merriment; and that, after having amused himself with their plays, he dismissed them well supplied with sweet cakes. And in this connection, we may allude to a report that Leibnitz was the father of a natural son. This matter was first publicly alluded to in 1730, in the *Recueil de Littérature*, published in Amsterdam, and afterwards in the *Lettres Juives*, from which sources later writers derived the story. But Eckhart makes no mention of it; Nemeitz rejected it as a fabrication of Leibnitz's enemies, because he had never heard of any such report in Hanover; and Jocourt does the same. Ludovici is silent on the subject.

There seems good reason for believing that Leibnitz had a young man in his service, who bore a striking resemblance to himself, and to whom he was much attached. This person was called William Dillinger, and followed the profession of a painter. But it is somewhat strange, if this person were the son of Leibnitz, that the latter should never in any

way have recognized him as such, and have made no pecuniary provision for him by will or otherwise; and still more remarkable that Dillinger himself should not have claimed relationship with the great philosopher.

In 1789, however, almost thirty years after the death of Dillinger, a daughter of his, then living in a destitute condition in Möckern, near Magdeburg, the charity of the public was solicited in her behalf, as a grand-daughter of Leibnitz. It was declared in one of the public journals, that Dillinger, who had lived and died in Möckern, in poor circumstances, was the son of Leibnitz, — that there had existed a striking likeness between the two, — and that the former had made no secret to his intimate friends of his true origin. Dillinger, it was further related, had in his life-time told many persons that the great philosopher had entertained a strong affection for him, — had sent him to the academy to learn the art of painting, — and afterwards bestowed upon him a great many favors; but he, becoming self-willed, had, on some provocation, deserted Leibnitz, and thereby lost the inheritance upon which he had set his hopes.

There is hardly evidence enough in this case to enable one to form a very decided opinion upon the matter. It may be that the circumstance of Leibnitz having a young man in his employment who strikingly resembled himself, led to the suspicion, and afterwards to the report, that this person was his own son. But, on the other hand, there are no circumstances in the case which render it impossible to



believe that the alleged confessions of Dillinger do not contain the truth. It is very certain that Leibnitz never acknowledged himself a father; and never, like Cartesius before him, declared that he was free from the vow of celibacy.

There were several portraits of Leibnitz, taken at different periods in the course of his life. The best likeness of him now extant, is an excellent and very rare engraving by Bernigeroth, taken from an original painting, executed at the request of the queen of Prussia, Sophia Louisa, third wife of Frederic I. This original is no longer in existence, and the artist's name is now unknown. It represents Leibnitz as upwards of sixty years of age; and is, according to good authorities, a correct likeness.

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