

Alexander von Humboldt and the spirit of two centuries / by Dr Bernstein.

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ALEXANDER VON HUMBOLDT

AND

THE SPIRIT OF TWO CENTURIES.

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BY

DR BERNSTEIN.

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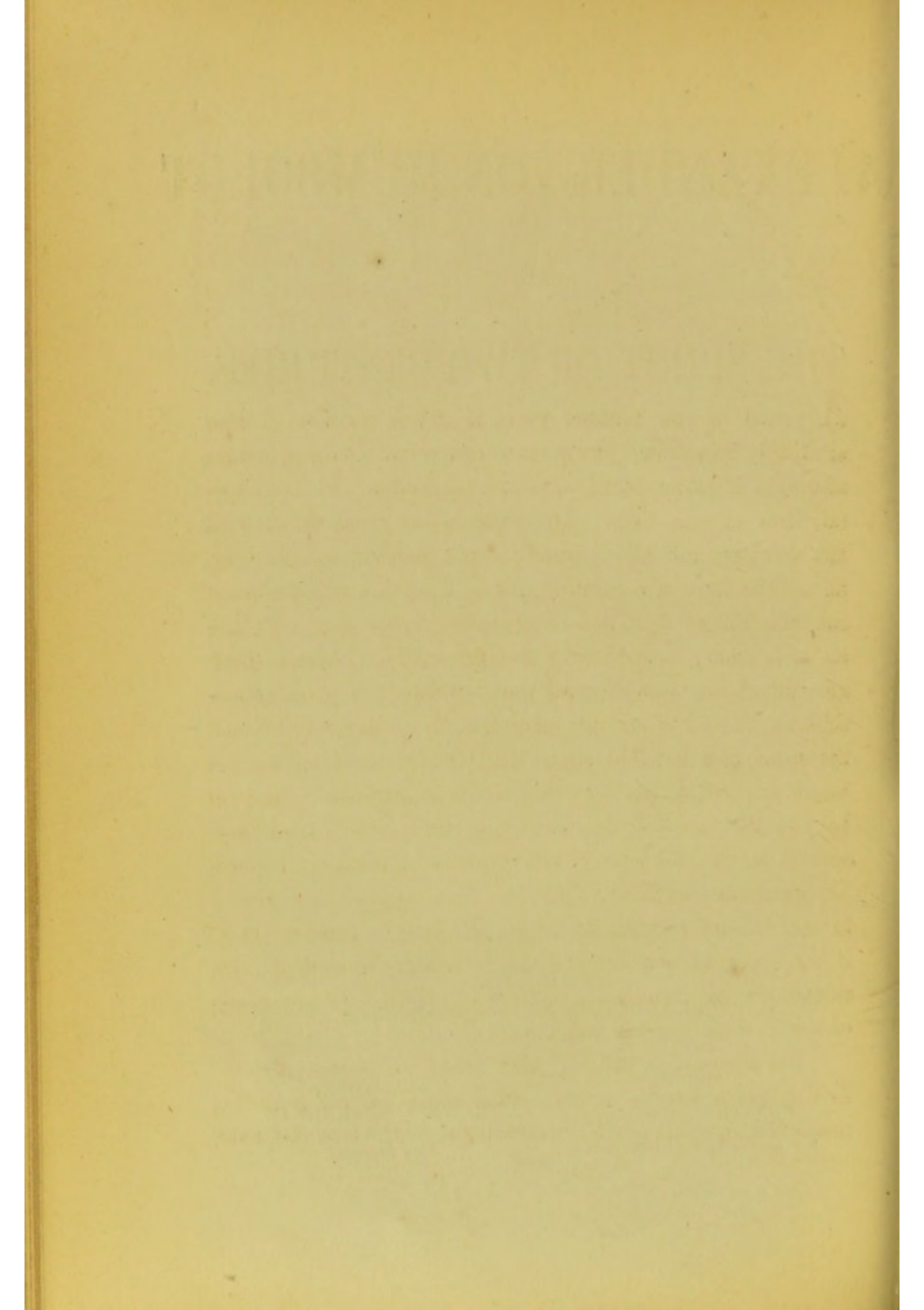
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A period of one hundred years is not a division of time arbitrarily chosen simply for the more convenient survey of human affairs; it is rather based on a close connection with the natural term of our lives. According to the usual duration of life, three generations — grand-parents, parents, and children, fill up the term of a hundred years. They are contemporary one with the another, and reciprocally exercise great influence on each other, both directly and personally. Beyond three generations, as between great grand-parents and great grandchildren, the tie of a closer relationship is already cut; beyond the space of a hundred years, that which is *personal* has no longer any effect, but only that which is *historical*. To him belongs the fame of *historical significance*, whose name and actions are held in grateful remembrance by mankind, beyond his hundredth birthday. He who lives beyond this period in the memory of man, has begun to belong to posterity; and if we apply to this survival the consolatory epithet of „*immortality*“, this immortality commences on the first centenary of the birth of a great man.

But the case is different with what we term a *century*. The epochs of human history neither begin nor end with the completion, or opening of a round hundred years. Great epochs of



various natures occur within one and the same century, and are transmitted from one age to the other. A century is only an arbitrarily chosen round in the ladder of eternity. When we speak of the spirit of an age, we do not mean the direction of mind of men living; that changes with every new century; but we only use it figuratively to designate the entire character of a special period, — that which gives its specific stamp to an epoch in the history of mankind. A period of one hundred years has elapsed since the birth of that man, in honour of whose memory, festive celebrations have been arranged throughout the civilized world. The term of time is past in which ordinary men, moving within the narrower sphere of noble duties, have survived in the remembrance of two successive generations from thenceforth to sink into oblivion; and the new century of *non-oblivion*, has begun for the enlightened and light bringing minds of the human race. We stand confronting the tablet on which is inscribed the name of Alexander von Humboldt, before the temple of immortality to which he henceforth belongs. To millions of living beings, themselves destined to perish in oblivion, it is granted to erect a visible monument for all coming ages, to the memory of an immortal man, to one, whose life and actions bear in truth the exalted stamp of two centuries.

A few observations therefore, on Alexander von Humboldt, in the spirit of the two centuries in which he lived, will be a preparation worthy of the day on which the first century succeeding his birth, has terminated, and the new epoch of his immortal existence commences.

The latter half of the 18<sup>th</sup> century, differs from the first half of the 19<sup>th</sup>, in its specific intellectual character, even as the bright ideal of youth differs from the grave struggles and



toils of manhood. The gloomy characteristic of minds enslaved by religion, had been overcome. Freed from the fetters of the authority of the Catholic Church, a spirit of liberty influenced the higher classes in France, and paved the way to a period of enlightenment, which now in a frivolous manner, and now in a spirit of deep earnestness, held out the prospect of a grand regeneration in the views and regulations of society. The superior class of persons in Germany, who, in the latter part of last century, had no specific national home education, and were entirely ruled by the more highly cultivated minds which dominated in France, were no less weary of the obstinate disputations of the Protestant Theologians, than of the fetters with which the Jesuits had loaded them. In the courts of Vienna and Berlin, there reigned a spirit of humanity and philosophy, which strove to introduce great reforms in the condition of society. Voltaire, Rousseau, Diderot, and d'Alembert, animated now by their wit and fervour, and now by philosophical, and strictly scientific observations, a zeal for the reorganization of society, which they thought might be easily attained by the noble determination on the part of the higher classes, and by raising the people from the condition of total ignorance into which they had fallen. Philosophy and Reform was the basis of the endeavours made by Frederick the Great in the Protestant districts of Germany, and by Joseph the Second in the Catholic. Fortunate circumstances, and other influences, had produced the revival of a vigorous and tolerant spirit in German literature. Engel, Garve, Jacobi, Moses Mendelssohn, refined the sentiment for philosophical speculations, and implanted principles of universal philanthropy and toleration in the minds of men, who had hitherto shown bitter enmity towards each other in the theological controversy. Klopstock, Lessing, Goethe, Herder



and Schiller, imparted quite a new direction to the public mind. Research, thought, feeling, poetry, philosophy in the noblest sense of universal philanthropy, took the place of faith, controversy, persecution, and of exclusiveness. The idea of elevating mankind to a higher degree of knowledge began to mature, and great exertions were made to reform the plan of education for youth. Men inspired by a purely philanthropic spirit shook off the chains of former prejudices, and seriously commenced the task of endeavouring to form a more enlightened, and a better race of men. Thus in those days when Alexander von Humboldt first saw the light of the world, an ardent desire for social reform was already awakened in the minds of educated persons, who however, found a state of society, which was not only very far below their ideal, but ran entirely counter to it.

A great historical event now occurred which showed the most noble minds, in characters of flame and blood, that the step from an ideal to its realisation, was not so easy to take, as they, in their philanthropy and liberal-mindedness, had imagined.

The French Revolution took its origin in the hope of realizing in the world by means of *reform*, those ideas of humanity and justice, which had been until now warmly promoted by all educated persons, but, who unfortunately, were greatly in the minority. The opposition of the privileged classes forced this *reform* into a fierce and bloody *revolution*; the natural consequence being, that all timid and weak minds now abandoned the ideal, and sought peace and protection under the old system, which had indeed promised them the motto, „liberty, equality and fraternity,“ but had failed in fulfilling that promise.

A glance over the term of a hundred years, proves



the magnitude and importance of the conflict which all Europe had to pass through, in order to shake off the power of the mere *idea*, and through an epoch of frightful wars and gloomy reaction, at length to strike into the path leading to the realization of actual progress. The like struggle which science had to undergo during this period, does not however, lie so clear and open before the eyes of the world.

Simultaneously with the tolerant and ennobling idea of a new social system, a change came over the spirit of science, which liberating itself from ancient creeds and superstitions with a bold ideal flight, presumed to be able to comprehend the phenomena of Nature. The belief in Animal Magnetism, in the sympathy of the powers of Nature, in a Symbolization of the system of the world, went hand in hand, through every thinking mind of that period, along with a noble philanthropic, intellectual, and unprejudiced view of men and things, as opposed to the more narrow minded views of the past. Just as some men foolishly fancied themselves able to transform the social world by means of a certain formula of human rights, others imagined themselves capable of understanding the phenomena of nature by means of philosophical speculations. But as the struggle of the ideal with reality, constitutes the turning-point of this period in the politico-social world, so did the philosophic symbolical view of nature, oppose itself almost simultaneously in the department of science, to the discoveries and examinations of the real phenomena of nature. As we must perceive that, in the political and social world a tedious struggle can alone lead us step by step to a better condition of society, it is also plainly to be observed in the department of Natural Philosophy, that only minute investigation, and a careful enquiry into highly complicated



causes, can gradually advance our actual knowledge, and thus it is not *ideal speculation*, but *actual experiment* which can bring about the true progress of science.

It would be a noble task for a great thinker and enquirer to compare the gradual progress of the History of Nations during the last hundred years, with that of the History of civilization which is identical with that of the natural sciences, and to explain the mutual influence they have exercised on one another. The turning-point in the mind which pervaded the two centuries over which this period extends, would then become much more clear than it has hitherto been. — It is true, that in the general History of this term, an *individual* is wanting in whom it is faithfully reflected. It is only in the History of civilization, or more properly speaking in that of the knowledge of Nature, that we are so fortunate as to be able to boast of a man in whose thoughts and works, in whose investigations and labours, the spirit of two centuries is reflected. The hundred years which have elapsed since the birth of Alexander von Humboldt, are replete with improvements; and this indefatigably active man stood untiringly at the head of all human knowledge. In the contemplation of his life, is comprised the observation of the tenor of his mind, whose noble strivings cover the whole of that space of time.

When Alexander von Humboldt first saw the light of the world, on the fourteenth of September 1769, in Berlin, the dawn of a new era had commenced in the finest minds of that period.

In France, where the idea of a great reformation in society first existed, Rousseau had given to the world a completely transformed system of the principles of education. It



is true, that the basis of his argument was founded on the erroneous principle that civilization removed man from Nature, greatly to his disadvantage, and he proposed therefore, a kind of *return* to Nature as the only remedy. Here he had forgotten however, that man can only fulfil his task when he has made himself Master of the powers of nature, rendering them subservient to him, as is the case in a high degree, at the present time. Nevertheless his renowned work "Emil", made a deep impression on the minds of the people by its criticism of the system of education then prevailing, and it also incited the Germans to use the most strenuous efforts to do away with that mechanical mode of teaching, which consists in exercising only the *memory* of children, and to base the development of the mental faculties of the young, on a method of instruction, tending to call into life the *self-activity* of the child

Both Humboldt's Father, — a Major in a regiment of Dragoons under Frederick the Great, and Chamberlain to the Princess of Prussia, — and his highly gifted wife, were imbued with a lively sense of the principles of the new system of education. They chose Joachim Heinrich Campe as tutor to their two sons, Alexander, and William; Alexander was five, and William seven years of age. Campe, who acquired later a considerable reputation, was peculiarly fitted for the position he was called on to fill as instructor of youth.

The method of instruction pursued by Campe, is not only familiar to us, but also to our children, who even at the present day peruse his unrivalled "Robinson", with the greatest delight. The method of freeing the fancy of children from the fetters of the world of fiction, and of attracting them towards the natural objects which surround them; of inciting them by the lively description of natural adventures to examine into the



natural causes and consequences of our actions, and above all of awakening them to reflection, this method, I say is acknowledged by all rational instructors of youth, as the one best suited to the nature of a child. It is that system, (cultivated by Pestalozzi and Fröbel), which has provided the excellent race of teachers who have accomplished so much in Germany, and which not even the mutilation of reactionary regulations has been able to destroy.

William, and Alexander von Humboldt enjoyed the benefit of this excellent tutor's instructions only for the term of one year; during this time they resided in Tegel, a parental country-seat, situated near Berlin. It may be questioned whether such a short period of instruction at this tender age, could have any decided effect on the life and future career of these rare boys. It is however undoubted that the spirit of Campe was the creative spirit of that time, a spirit which penetrated the minds of their parents, of the friends who frequented the house, as also of their later teachers. Campe's personal influence may have been transient, but the intellectual atmosphere in which the boys grew up, undoubtedly bore lasting fruit. They were not only models of the excellent rational method of education which we find described in Campe's writings, but they remained its faithful adherents and admirers in the maturer years of manhood, and of old age.

Campe quitted Humboldt's family in 1776, to repair to Dessau, where he was appointed director of Basedow's *Philantropin*, (a denomination given to an educational establishment in Dessau founded by Basedow on what are termed natural principles.) In after years he established, his celebrated school in Hamburgh, which was a model of the new method of instruction. Major von Humboldt now chose a very talen-



ted young man as tutor for his sons, Christian Kunth, who also soon became one of their dearest friends, and continued so to the end of his life. After the death of Major von Humboldt in 1779, Kunth assisted their intellectual and highly-gifted Mother in the education of her two sons, and remained with them as the most influential guide of their youth, until 1783, when it was considered advisable to remove them to Berlin for the purpose of extending their knowledge, and of affording them the opportunity of gaining an insight into those sciences in which Kunth was unable to give them the requisite degree of instruction.

It is a splendid testimony to the natural method of education that, the different endowments of the brothers began to unfold and to take definitive form in the early years of childhood. — The method of training which now prevails in our grammar schools, imposes on the rising generation such a strict and uniform "pensum" of knowledge, that a personal inclination for a particular branch of science can hardly come to any development. In the education received by the Humboldts, free scope was left for the unfolding of the individual talents of each, although they both shared the same course of instruction. Philology, Philosophy, Mathematics, History and Natural Philosophy, were the studies with which they were now occupied. They were expounded to them by teachers who were soon on terms of the most intimate friendship with their pupils; but, in spite of their participation in one another's tasks, it was soon seen that the study of language was the bent of William's inclination, while Alexander showed a particular predilection for Natural Philosophy.

It was in Berlin, that the youths found a social circle in which the highest principles of toleration, and the refined



refined freedom of manners of that period were practised. The natural consequence of the deep impression, which Moses Mendelssohn made on his contemporaries, was, that the active philanthropy of one of the noblest and best of men, not only attached particular importance to the doing away with the prejudices against the Jews, but also practically realized the principles of human love, by associating with the best educated Jewish families. The house of the celebrated Physician Markus Herz, and his wife Henrietta, a prodigy of beauty and talent, formed the centre point of this circle of liberal thinking men, in which the noble youths with their highly talented teachers, sought and found recreation, together with incitement to intellectual pursuits. There they made the acquaintance of the friend and pupil of Moses Mendelssohn, David Friedländer, to whom Alexander was united by a tie of friendship which continued unbroken long after the days of youth had passed away. The witty Rahel Levin, who was afterwards married to Varnhagen von Ense, made such an impression on William von Humboldt, that a close intimacy was formed between them, which years did not destroy; and later Varnhagen became the most intimate friend of Alexander, to whom he remained faithful till his death. It was here too, that the breath of a pure atmosphere pervaded the minds of the youths, — the atmosphere of German literature, in which Lessing, and Goethe in his first works, had kindled a new spirit, but which as we know, had hitherto derived its principal nurture from French literature alone.

It was the mild and tolerant bent of that period that guarded the two youths from the prejudices and foibles of their high station. As the sons of a Royal Chamberlain, and of high birth, all the advantages of a rapid and pecuniarily



brilliant career exempt from toil, were open to them in the service of the court; but the attractions of science, the spirit of aspiring citizen-ship, the love of independence, and the principle of acquiring something by their own merit, and not by the favour of others, were the propelling forces of their life and labours. Nor did they seek to attain office, preferment or high station, but were penetrated by the new spirit of the times which laid the highest value on *self-gained acquisitions*. For this reason, the youths were extremely beloved and respected by their teachers who, being imbued with the same tolerant, and enlightened spirit, knew how to value the rare endowments, and nobility of mind in their pupils.

Thus the youths were prepared by private instruction for the Berlin university. Their faithful tutor and friend first accompanied them to the university of Frankfurt on the Oder, where William studied jurisprudence, and Alexander pursuing his inclination for scientific studies, chose cameralistics (the science of finance, or public revenue), and chiefly political economy.

Two years later, in 1788, the two Brothers removed to the university of Göttingen, and it was there that they received those impressions which fixed for life, the bent of mind that had already pre-determined their career.

At this university there was a man called Christian Gottlob Heyne, the son of a poor weaver who had by a singular fate risen to become Professor of Rhetoric. His particular branch was Archæology which he treated in a brilliant style, imparting to it a new impetus, from which it may be said to date its revival as a science. He understood how to overstep the narrow limits of the usual philological studies, and to bring before the eyes of his astonished pupils the very



spirit and life which animated antiquity. He was the principal prop of the "Göttinger Literary Advertiser", which still exists, and was formerly the archives of *literæ humaniores*. The impression which Heyne made on William very decidedly influenced his future labours. Archæology, languages, and especially the development of language, became henceforth Wilhelm von Humboldt's main branches of study.

There were also two other men, who exercised a great influence over the bent of Alexander's mind.

The one, George Christoph Lichtenberg, was Professor of Natural Philosophy, and Astronomy. He had attained great distinction in several branches of science, and some important discoveries in electricity bear his name to this day. But that which distinguished him above every thing else, was the wit and humour with which he understood how to season his literary productions. He was not a stranger to the science of language, and was capable of conversing on literature in a free and refined manner; but above all, he was a special friend of enlightenment, a humanist, who combated the mystical arts of a Lavater with wit and humour; a man of the people, and who may truly be regarded as the first popular German writer. His writings are even capable of affording enjoyment at the present day, owing to the easy and lively manner with which he contrives to make the difficult department of Natural Philosophy universally intelligible. The fine satire with which he combats for enlightenment, and against gloomy views of religion, may serve as a model for the present time. Alexander who was much inclined to be very satirical against hypocrisy, could not but be deeply impressed by him. But the acquaintance of one of the most celebrated men of that time,



whose life, character and activity in science were, and still remain, of imperishable value, exercised a much deeper and more lasting influence on Alexander von Humboldt.

Johann Georg Forster, son-in-law of the above-named Professor Heyne, was the son of a distinguished man of science, who had prosecuted the study of Mathematics, Philosophy, Philology, Natural Philosophy, and Ethnography with great success. This man was born in Dirschau, and became a country parson in a little Prussian village, where he occupied himself with the most profound studies, and attracted the notice of the Empress Catharine II by his work on Colonization. She summoned him to Petersburg to draw up a code of laws on colonization. His son, Johann Georg, accompanied him. Requited with ingratitude in Russia, Forster removed with his son to England, where he gained a scanty living for them both. He then accepted the commission to accompany Captain Cook as Naturalist on his second voyage of discovery round the world; this journey his son George made with him. On his return, his overfrankness of speech got him into difficulties with the English authorities; but at length his wanderings came to a close when he found a place of rest in Halle, where he was appointed Professor at the University. Here he taught Natural History with the most brilliant success. He spoke and wrote 17 living, and dead languages. He was the first German who sailed round the world. He possessed an extraordinary knowledge of Literature, Botany, and Zoology, and was one of the greatest discoverers of the 18<sup>th</sup> century. His son shared in all his labours, and published his works in the German language, of which he showed himself a perfect master. He inherited besides from



his father, that spirit of openness, faithful observation of Nature, and that undaunted philanthropy which were the leading features of that age.

It was in the house of his father-in-law, in Göttingen, that Alexander von Humboldt became acquainted with the son Georg Forster. His high souled views of the world; his brilliant knowledge of languages; his happy discoveries in the department of Natural Philosophy; his acute observations on life and on nations; his undaunted courage, and his unshaken liberality of sentiments, met a congenial response in the mind of Alexander, and excited within him the ardour of emulation. Forster's keenness of intellect, depth of feeling, firmness of character, and his extremely rare taste for literary productivity, were all reflected in this young man of almost similar endowments, and kindled within him the ardent desire, in like manner to extend his knowledge, and to strengthen his powers of observation, to gratify which at a later period he wandered forth beyond the limits of his native country. The intellectual circumnavigater in short, incited the young student of nineteen to perform similar noble achievements as himself in the field of science.

It was in Göttingen that the tidings of that event, which shook the world to its foundations almost, viz. the Revolution in France, seized the minds of the Brothers Humboldt with such an overwhelming power. The highest ideal of a new and wide view of things appeared at once to be fulfilled in Paris, and to assume the form of reality. William, whom all this deeply affected, hastened to Paris with his teacher Campe, in order to observe more closely the grand events which were to usher in a complete transformation of the world at large. Alexander remained in Göttingen, but the current of events bore his mind along on the scream, and in the direction of these



loftiest aims. The noble idea of a regenerated humanity, of liberty, of freedom from the yoke of absolutism, and from the bonds of an arid confession; of a time when brotherly love should again revive, liberty become a reality, and equality and fraternity be established among the children of men, — this thought fired Alexander's mind, and generated within him a desire as deep as it was inextinguishable, to perform great deeds in science; for science he regarded as the basis of all he hoped for, in the regeneration and ennoblization of mankind.

The concluding decennary of the preceeding Century ushered in a political convulsion in Europe the last throes of which we have yet to pass through. The rights of man in social life, the rights of the people in political life, such as they, in their original ideality, floated before the minds of the instigators of the great Revolution, are to this very day the aim and object of all sound politics, notwithstanding the disfigurement those ideas underwent at the bloody hands of the demagogues. Though beaten back from time to time by reactionary movements, we are at this moment just in the very midst of our labours, endeavouring to realize the democratic ideas of that grand revolutionary period. The years which have passed since then, have not in any degree effaced the first outlines of the ideal; we have simply been taught that, their realisation depends on their going hand in hand with the spread of knowledge and education among the people; and this is a benefit to be slowly acquired, not seized with the hand of a conqueror.

The best minds of those days recognised this fact. It is a distinguishing mark of spirit of the second half of the former century that, along with the projects for a social and political reorganization, a peaceful revolution was quietly preparing in



the realms of science. Just as the humanists led the way to the height of the Ideal in political and social transformations, which served later as a scaling ladder for the Revolution; so in like manner had students of natural philosophy so reconstructed science, that it has since become the key destined to unlock the wealth of knowledge to future times.

A powerful assault was at the same time directed against the crumbling and obsolete creeds. A system of enquiry and investigation went hand in hand with the projects for a new division of human society, with the ultimate view to the reconstruction of the system of the world.

Hard as it is for us to carry ourselves back to a time when the idea of common human rights was something unheard of, for the millions it was meant to liberate, — something at once terrible and exciting; it is equally hard for us to produce a picture of the mental life of a period when the elements of natural science, rattled off now-a-days by every school-child, made their way as new, bold, and startling ideas. Should lightning, — the destroying fire sent by an angry God, be indeed nothing but the electric spark we can produce artificially! The tempest, God's messenger, only a commotion in the atmosphere subject to well-defined natural laws!

The Heaven of faith, — though long ago subverted by Copernicus, lived on in the fancy of mankind as a vault studded with stars shutting out the throne of God from the earth. The volcanoes, indicating a fire in the bowels of the earth, and revealing the history of the origin of our planet, were still in the imagination of the people, the flaming signs of a nether-world, presided over by demons. Mountains and countries, clouds and ocean, were riddles which owed their existence to the caprice or the wisdom of a Creator. They did



not dream wherefore life and breath were bound up so closely in one another. Nothing was known of the chemical components of the air, the water, the rocks, the earth, the metals. They gazed astonished at the balloon and the thunder-rod; and admired the long-suffering of the Almighty, who admitted of such heretical encroachments on His department. Nay, the justifiableness of vaccination was a subject of a debate in pious circles, sure that the vengeance of God would overtake the presumptuous sons of men. Simultaneously with the awakening of the feeling of justice in the humanists, and their consequent striving after new ideals for the division of classes in human society, bold revolutionary ideas in the realm of human knowledge began to make their way. These two new directions were in strict connection with one another. But only he, who possessed the courage to break through the supposed order of the world to arrive at new truths in natural science, only he it was, who had the heart to devote the old accustomed order of society to oblivion, and to prophesy, and to promote a new order. Just as we can see now-a-days in so-called Conservative circles, a closely-knit political resistance holding out against the rights of man, with what they term a religious abhorrence of the natural sciences, so too, in the dawning of our modern times, progress in the one sphere was inseparably connected with progress in the other; whoever acknowledged the basis of a new era in the one revolution, followed the train of reformation in the domains of the other.

But both tendencies shared a similar lot as regarded faults and frailties.

As in the politico-social rush after a complete change, they fancied that, without the preparatory labour of educating the masses, (a labour still requiring all our powers), they



were able to usher in at once a new order, even so in the circles of the students of the natural sciences, did they hope to rise with a few powerful strokes of their pinions to the heights of the knowledge of the things around them. A mystical symbolic notion of the powers of nature and of life, began to spread abroad, giving in a poetic dress, speculations and natural truths, half philosophic, half experimental, out of which a cosmos was to be constructed according to pleasure.

Nevertheless, just in these defects and weaknesses of the past century, there were hidden strong indications of a striving after truth.

In all their attempts at political and social transformations, we darkly feel the hidden impulses to a unity in the order of humanity, a unity, which is one day to do away with all divisions of ranks and races, absorbing them in the ethical law of brotherly love; so likewise, notwithstanding the divisions of special labour in the departement of the natural sciences, we still have a presentiment of a deeper underlying connection between all the individual appearances in the unity of the order of the world. The comprehension of the individual appearances; the enquiry into the grand fundamental laws of nature, no matter how various they show as separate forces; the gathering together of what was scattered, indefatigable experimenting in order to discover definite meeting points of common knowledge, is a gift altogether and in a high degree peculiar to the minds of the last century. In the researches of our age, we can boast of only one such trait, in the doctrine of the "Equivalent of the Forces."

And now in the worthy appreciation of two centuries, it will be easier for us to explain in a clear, and intelligible manner, the decided line, that ran through Alexander von



Humboldt's life as an investigator, — the grand bent which, along with the unwearied earnestness of the special research of our century, unites the breadth and boldness of combination, peculiar to the enquirer of last century; the grand impulse, which along with the unremitting endeavour after truth divested of fantastic notions, which distinguishes our century, combines the ideal attempt to educate the masses, which is a noble badge of the love of man to man of the bye-gone century. At the age of twenty, Alexander von Humboldt set out on his first journey accompanied by George Forster a man of much experience, and who had long recognised the rare and extraordinary capabilities of the lad. To us who are whisked from the Spree to the Rhine in the hours between sunset and dawn per express, their journey seems a very small affair. But in those days a journey to Holland, Belgium and England was an arduous undertaking; — for Humboldt, accompanied by George Forster, — of the greatest significance. It offered rich material for the study of men, lands and peoples; but it offered still more as a study of nature. Our travellers explored with ardent zeal and assiduity the nature of mountains, rocks, plants, water-sheds and the basin of the ocean. Fired by all he saw and learned, the aspiring young student, at the side of his highly endowed companion, was seized with a longing to become acquainted with the distant quarters of our globe, and to peer into the marvels of the torrid zone. The project of a journey thither matured in his breast, and at the side of a warm man, whose deep enquiring mind had led him to overstep the narrow limits of the usual life of a student. Alexander had equally freed himself from the fetters of society, of office and of domestic life, resolved to follow the impulse within him to acquire



knowledge, an impulse, which was to carry him beyond the regions, that had hitherto been the goal of scientific investigation, But what in Forster's restless life had worked like an irresistible force of nature impelling him on from adventure to adventure, took a systematic form in the mind of his youthful friend; the latter conceived a well-ordered enterprise, for which the fitting moment was to be watched and the interval spent in thoughtful preparations.

Alexander von Humboldt was an ideal nature, but still all his projects were feasible, bearing the character of system and order. This happy union was the distinguishing trait of his manhood and his old age, and we trace it up to his earliest youth.

Home returned from his first journey, we see him applying himself at once to a practical object. He had obtained a nearer insight into the formation of mountains, and his unerring instinct told him that, the physics of the globe could not possibly be comprehended, till the learned were more in a position to comprehend how the mountains and vallies had taken their rise, and how continents and oceans had come to assume their present conformation. In order to make the first approach to this fundamental study of nature, he made up his mind to acquire an exact knowledge of the working of mines, then but very imperfectly understood. But again resolved not to be behind hand in anything connected with the practical and industrial points of his study, he looked upon a certain mercantile preparation as necessary. With this view, in 1790, our young student repaired to the commercial school in Hamburg, whence he learned book-keeping perfecting himself meanwhile in modern languages.

Intercourse with Klopstock and his friends excited and nourished within Humboldt that noble literary bent, which



adorns all his writings of a scientific tenor, and with the wealth and fulness of poetic thought and images.

Thus equipped, Humboldt repaired to the Academy in Freiberg in the Erzgebirge, where Director Werner exercised a fine stimulating influence on his pupils. Werner was the author of a theory according to which all the varieties of rock were but deposits from the water, which had formerly encompassed our whole earth. And further, in pursuance of his theory, the mountain ranges and vallies owed their origin to the great bodies of water working their way underground, and washing away the earth from beneath. This partial view, which was laterrectified by the doctrine that the rocks owed their origin to the cooling and hardening of the fiery fluid of which our globe once consisted, and which doctrine was again supplemented by that of the volcanic formation of the mountains.

This partial view I say, excited at that time a commotion in the world of enquirers, and attracted students of talent. In Freiberg, Humboldt made the acquaintance of the young scholar Leopold von Buch, who later became the chief advocate for the theory of the volcanic formations. The familiar intercourse of the two young men ended in a friendship, which exercised no small influence on their mutual education, and which remained fresh and ever-new to the end of life.

At the age of twenty-two, Humboldt entered the service of the state, first as assistant, and afterwards as inspector of the mines.

But this official employment was nothing but a preparation for his further studies, which carried him far beyond the narrow limits of an office-holder. The letters of Humboldt bearing this date, show us clearly he does not dream of sticking to this one particular departement; still as long



as he filled the office, his duties absorbed him entirely, that the attention of his superiors was attracted by his untiring assiduity. Nevertheless, the narrow career that had satisfied, and will continue to satisfy thousands, did not suffice for the aspiring youth. He was already at work with his pen on separate branches of natural science. He busied himself with an enquiry into the nature of the noxious gases, which endanger the lives of so many in the mines, and he tried to invent a lamp to prevent the igniting of those gases. He early became aware of how necessary it was to impart to the miner thorough instruction about the powers of nature around him, to lead him to enquire into the causes of the natural appearances, and put within his reach the means to counteract their effects. The young man therefore, established a school for the miners which he carried on alone without any aid from the state. The nobler direction of the human mind of last century, gave him the strength and perseverance to accomplish this excellent idea, the success of which engaged for the time his whole attention. — While the French Revolution, which was just reaching its culminating point, imparted a mighty impulse to the national and political history of Europe, the mental history of man, by reason of the successful discoveries in physics and chemistry, was taking a no less bold leap forwards. With indefatigable zeal, Humboldt, though so much occupied, followed up those scientific impulses. Galvani's discovery, that the limbs of a freshly killed animal made life-like motions when brought under the influence of an electric stream, dazzled the students and scholars of those days, and misled them into thinking they had discovered the long, but vainly sought for, „elixir vitae“. He was likewise hurried away by the errors of the time, into fancying like



the rest, he had detected in the isolated fact, the key to the secrets of nature. One of his earlier works of a more poetic than scientific purport, bears witness to poetic, symbolic, and speculative views, which seem then to have had charms for him. However, the spirit of special research, that grand distinguishing mark of our times, nevertheless animated the mind of the young man, and preserved him from the madness which later, led German so-called natural philosophy, almost to the verge of an abyss. Experimenting, faithful observation, love of truth which is not ashamed to own an error, brought him back to the path of the exact sciences. Galvani's great discovery, at first almost entirely supplanted in the fields of physiology by Volta's physical enlargements and generalizations, received its just acknowledgement from his exact and careful experimenting. A work of his "On the irritated fibres of the muscles and the nerves", uttered truths that for almost half a century escaped observation, till at length Matencci in Italy, resumed those labours, and Du Bois-Reymond in Berlin, built up a structure of scientific discovery on the foundations already laid by Humboldt.

Our young active student and official was so overwhelmed with marks of distinction, that had his character been less firm than it was, he might have suffered himself to be captivated by the pleasures and rewards of the path already entered on. He was regarded as an authority on all mining questions; from the Ministers who esteemed him highly, he received important commissions to travel over all those districts which gave a hope of mineral wealth. But the impulse to pursue his researches deeper, and to carry them further, was more powerful in him than in thousands of his contemporaries. No isolated observation in the rich domains of the natural



sciences, which were then with rapid strides advancing to their present high status, could quench his thirst for universal knowledge. Astronomy, physics, chemistry, botany, mineralogy, geology, and physical geography, were for him but preparatory steps to the acquirement of the deeper knowledge of the physics of the earth, which he always regarded as the total result of the union of the individual forces. In order to gratify this impulse, to try and discover the key to the Whole, a closer acquaintance with the New World was an imperative necessity, and an intimate knowledge of the tropical countries, where the powers of nature work with gigantic force, where volcanoes might be observed in full play changing and transforming the surface of the earth; where the primeval forest was still the representative of the age of the creation; where in the world of plants and animals, individuals and species, that have disappeared from the Old World are still to be found. Warmed by the poetic breath of the still unknown regions that mightily stirred the longings of his breast, there gleamed before him a new world of knowledge, capable of satisfying his mental yearning. The spirit of the former century, which had struck out for itself an ideal speculative path to the unity of all knowledge, nay, had even aspired after omniscience, was moderated and chastened in Alexander von Humboldt by the exact method of realistic investigation peculiar to our century, and who consequently rendered it more productive while at the same time elevating it.

The only tie, that held back the eager young enquirer and bound him to his home, was his mother whom he loved and venerated, and whom he wished to spare the anxieties and sorrows of a long separation, and a journey encompassed with danger. In the year 1796 this tie was loosened by the death



of his mother, which left him to follow the bent for enquiry in the New World, which had been maturing within him.

The first step taken by Alexander towards the realization of his great designs indicates the strong dash of idealism in his character. His resolution to renounce office, honours and dignities; to part from his brother, who was now happily settled in the bosom of a family of his own, and holding intercourse with the best minds of the times, — with Goethe and Schiller for instance — is proof sufficient of the power with which the desire to explore and to investigate had seized on him. But his aspirations come out in a stronger light, when we behold the young man of seven and twenty, selling his paternal inheritance of Ringenwalde in Neumark, in order to devote the proceeds, — his sole wealth, amounting to some seventy thousand thalers (£ 10,000), to the purposes of his journey. And so fixed and immovable was the young man's resolution, that his friends attempted not to interfere, nay, notwithstanding the pain which the separation caused them, they contributed all in their power by word or deed, to further his designs.

In fact all his familiar friends could not but have been aware that, from the time of his meeting with George Forster the intervening years had been only a period of serious preparation for the carrying out of his projects. The youth had grown up to manhood, which to others but too frequently brings the fading of the ideal dreams of youth, but which for him only brought added strength to his. Fresh years of trial came to test the maturity of his resolution. In those days a journey into foreign parts was not without its immense difficulties, to be scarcely imagined to ourselves in our days, when steam has brought all the countries of the earth



into daily connection. At that time moreover, another obstacle presented itself to the accomplishment of such a plan, an obstacle, which the civilization of now-a-days has happily done away with. The war with France was raging in Europe, and it was a common occurrence to see vessels, even peaceful merchantmen, captured on the open seas; no matter under what flag a man sailed, he had to make up his mind to the possibility of being stopped by an enemy's ship, and seized as a good prize. The passport of neutrality offered no protection; that of science, respected now-a-days even by the barbarians, was then not even regarded by the most civilised states.

Thus passed two years more in vainly waiting and hoping to find a vessel to bear the naturalist to foreign regions. But they were not lost for Humboldt, nor were they in any way a serious obstacle to the final execution of his plans. He used them to extend his knowledge by travelling about Europe. He explored the Alps for example, and this gave an essentially new turn to his geological views. Werner's theory of the manner of formation of the strata of our earth had received significant additions by Humboldt's early friend, the keen-sighted Leopold von Buch, who correctly recognised in the formation of the mountains, the volcanic action of the earth.

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Humboldt embraced this new theory with all the vigour of his unprejudiced mind. His stay in Paris gave him an opportunity of providing himself with good instruments for the purpose, and of practice in taking measurements and making observations. It was on the occasion of this visit that Humboldt associated on the most friendly terms with the first natural philosopher of that time, and gathered from him new points



of view in manifold branches of research. It was then, likewise, he took the aeronautic trip with the celebrated physicist Gay-Lussac, in order to make observations on the composition of the atmosphere in the higher regions of the air.

He was completely absorbed in astronomy, meteorology, mensuration and in making magnetic observations, thus pursuing with unabated assiduity the preparations for his great journey. But the greatest benefit he derived from this stay in Paris was his meeting with Aimé Bonpland who later became his travelling companion, and between whom and Humboldt there existed such profound mental sympathy, that their friendship was as long and lasting as their lives.

Many plans for their journey were drawn out, and given up again. But at length they departed for Spain, where they succeeded in obtaining from government letters of recommendation for all the countries of South America under Spanish rule, and where after long tarrying they found a ship which was lucky enough to escape the blockading squadron of the English, by running out under cover of a thick fog. Thus on June 5, 1799, the happy day dawned when the man of thirty beheld his boyhood's dream and his ardent longing, about to be realised, the happy day likewise, which from henceforth forms a new era in science.

To tell the tale of Humboldt, journey, would be tell the tale not of one science, but of many, to each one of which multitudes of human lives have been devoted. It is the poet's privilege alone however, to be able to give with a few bold strokes in the compressed space of a drama, and reflected in the person of his hero, not only a life, but a whole age.

The waves of the Atlantic now rolled around our travellers. The profound harmony, which existed between Mother Nature



and her faithful son, was already felt on the ocean. Humboldt never became sea-sick. Weakly in his childhood, he, when grown to manhood, was upheld, from his perfect devotion to science by an iron resolution and an untiring perseverance. Already at the very outset, we find him at work, casting his never failing, peering eye on all things around; testing the temperature of the sea-water, watching the currents at sea, examining its phosphorescence, and proving the temperature of the atmosphere, the currents of air, and likewise making astronomical observations, and watching and taking account of every natural appearance. Busied the whole day with experiments and measurements, in the evening, in the midst of his astronomical labours, we behold the young philosopher yielding to the delicious but melancholy feeling of calculating his distance from the regions of home. In the new southern constellations emerging out of the ocean, the blue of the firmament is deeper, the sparkling of the fixed stars more vivid, his swarms of falling stars grander, and more magnificent. Everything excites highly poetic sensations but which at the same time serves but as an intellectual stimulous to meditate systematically on the nature of these appearances, their laws and their forces. Before retiring to snatch his few hours of repose, he first enters in his note-book the results of his measurements, remarks on his observations, and an outline of the course of his day's thought. But the fear of being captured by hostile cruising vessels, does not admit of light being used on board ship, wherefore all his writing has to be done in some cramped space and with such light as a dark lantern yields.

This true son of nature is thus borne happily over to the Canary Islands, the out-posts of the New-World, having



on his passage out already laid the foundations to a new science known as „The natural philosophy of the Ocean“, and now of immense importance for commerce and navigation; and he no sooner touched foreign soil than another branch of science begins to bud under his observations. Humboldt and his highly-gifted companion Bonpland, commenced the ascent of the Peak of Teneriffe, passing from the base to the summit through every zone of a regularly decreasing temperature. They pass the region of the date, the palm, the cacao-tree. The thermometer and the barometer sink the higher they ascend, and a new vegetation, as exhibited in the banana and the vine, — clothes the earth. The orange, the cypress and the myrtle are to be found at a still greater elevation; the chestnut and the laurel form a new zone in the higher regions reaching to the colder climatic girdle, where the juniper and the fir, greet the travellers with reminiscences of home. But the ascent continues until there where the Alpine broom clothes the lava, and at length only grasses and lichens cover the summit of the volcano, again making room at the peak for the mosses as they are found in the coldest zones at the poles, where they barely manage to exist. — Thus arrived at the utmost elevation, having wandered from the warmest to the coldest zone, there dawns already within the travellers the fundamental idea for a Geography of plants, and which indeed has become a splendid branch of a new science.

From the summit, the wanderers send their eye over the volcanic isles around them, and the fecund notion of a secret connection between the volcanoes and the earthquakes takes root; in fact it is the germ of a new science which was later to overturn the then prevailing ideas on geology, and which received repeated confirmation from observations repeated



during their travels. Never however, amid his scientific labours does the feeling for all the wondrous beauty of the scenery forsake Humboldt. He views it at once with the eye of the enquirer, and the mind of the poet. He takes up at one glance the harmony and the unity of the True, and the Beautiful.

The travellers now proceed to the New World. They touch its soil at Venezuela, where at once every faculty is engaged in the consideration of an unknown world of human beings with new manners, and new modes of life, placed in a luxuriant landscape to which they were utter strangers. Here we again discover that in Humboldt's noble nature, deep sympathy for the fate of man was hardly less lively within him, than his aptitude for making observations, and his feeling for tropic splendour. The True and the Beautiful are not alone the bearers of his life; the third element of man's being, the Good, joined them in perfecting this noble character. Nothing can be more elevating and stimulating than what he tells us of all he sees and discovers by means of his scientific instincts, as he proceeds on his way searching and exploring. Nothing is more impressive than what he, with his eye for the picturesque, describes of the scenery around him, but nothing is more touching than what he ever and ever again gives us in his reflections on the lot of humanity, on the liberty and the mental life of the uncivilized children of nature. Nevertheless, the natural scenery where he had to pursue his researches, was savage almost impenetrable; the beauty of the forests, the grandeur of the rivers, the magnificence of the mountains conceal terrors and dangers; and the human race, the original inhabitants of the wilderness appear before him under so savage a form, that the club of the Jambo threatens him,



and his companion is struck down with a blow that causes him weeks of suffering.

Humboldt's travels through South America, is civilization on a journey of discovery through the territories of a rankly luxuriant primeval wilderness. The travellers leave behind them the pleasures and enjoyments of the civilised spots, and the kindness bestowed on them by the European inhabitants. The unknown world is what they have come to seek and from which nothing holds them back; not hardships, not deprivation of the usual necessities of life, not peril from savage beasts, not hostility from the no less savage natives, not impenetrable primeval forests, not earth-quakes, or rivers, cataracts, or rocky walls deter them. The Oronoco is an undiscovered world. The saying goes, that this mighty stream divides behind the impenetrable primeval forests, and rocky chasms, and pours half of its floods into the Amazon river. Here is a wonder of nature which must be traced and explored! They set out with Indians for their guides; their boats are the hollowed trunks of trees. Their frail bark is so entirely filled with their collection of plants and instruments that the travellers have no choice left but to repose on their treasures. When ever an astronomical observation is to be taken, or a meteorological mensuration to be made, they are compelled to seek a landing-place miles distant to disembark, in order to get at the necessary instrument in their canoe. The muskitoes torture them so cruelly that Humboldt is many a time reduced to take his few notes at night by the light of their fire. Thus they accomplish a journey of more than eighteen hundred English miles, in a frail canoe, on waters alive with crocodiles, past banks where the tiger bursts through the jungle unscared, to quench his thirst, and where in order



to land and pass the night, they have first to clear a spot with their axes. Nevertheless, wherever science demands it, they make the needful observations and measurements, they collect the insects and plants which are likely to extend their knowledge, and shun neither danger of life, nor the most arduous labours where they hope to increase the store of their scientific facts. During the night while reposing in their hammocks, crocodiles, allured by the watch-fire, crowded to the shore and in the near jungle resounded the din of savage warfare when the Jaguare hunts the wild boar. Lack of every common comfort, and often of food, was their daily lot; but their journals contain no complaints; on the contrary they are only filled with their fresh delight in their devotion to science and of the mighty impressions they receive from the grandeur of the scenery and the wondrous developments of nature around them.

After such a trip lasting some two months and a half, and on which let me add, they happily reached the fork of the Oronoco, they would then return to their accustomed haunts where they arranged the treasures they had discovered and brought with them in order to despatch them to Europe. A portion of these including Humboldt's manuscripts, reached the Old World in safety, while another was lost on the homeward voyage. They indulge however, in but a short rest, for, with their renewed strength they long to face new dangers, make new discoveries. For months they wander over steppes, and make their way along the banks of rivers, struggling with the hardships of the wilds and the scarcity of food; but they are richly rewarded by the discovery of mud-volcanoes, collections of new treasures in the worlds of plants and insects; by astronomical and geographical mensurations, which add



immensely to the knowledge of the New Hemisphere. They had already arranged their plans so as to push on further and to include Mexico in the sphere of their exploration, when the tidings reach them of a French expedition under Baudin, bound on scientific research, and which had sailed for Peru. Our travellers resolve without delay to hasten thither, to meet Baudin on the coast of the South Sea and to join him. It was a journey of more than a thousand English miles which, though bootless as far as its main object was concerned, repaid them as richly in scientific results, as it was encompassed with difficulties and hardships.

Again embarked in a canoe, for two months they navigate the Magdalena river upward to cross the Cordilleras by passes rising 10,000 feet in front of them. They made their way through ravines which the rains had cut twenty feet deep in the clay strata, and so narrow as to leave no room for turning did they happen to meet an ox bearing loads. They had then no choice left but either, to scramble up the side of the mountain pass holding on by the roots of the trees till the meeting was happily avoided; or to return often a couple or so of English miles to find a spot wide enough for the beast of burden to pass them. The ground under their feet soaked with, and slippery from the water, renders every step uncertain, and it is so cut up by the hoofs of animals that in setting their foot down they cannot guess where it may step. Added to those inconveniences the ravines they pass have frequently such a close roofing of interwing branches, that an almost midnight darkness prevails. And thus, up-borne by their indefatigable zeal as searchers for the truth of nature in this still undiscovered land, our travellers ascended the Cordilleras. The descent is accompanied by other, but



equally invincible obstacles presented in the shape of boggy ground grown over with the bambus, and through which they have to pass by untrodden ways. The coverings for their feet had become so torn and tattered that they were compelled to continue their wanderings barefoot. This however, did not prevent them from clambering their way up to volcanoes, and adding observation to observation to solve the riddle of the formations of mountains, and to grapple with the secrets of the different stratas of rock.

Then they reach Quito where they learn that their endeavours to join Baudin's expedition have been made in vain; but a new unexplored territory lies before them in all the splendour of the tropical zone, wherefore they resolve at once to set out anew on a further journey of discovery. The volcanic ground, where the inhabitants are as much accustomed to hear the thunder of the earth-quake rolling under their feet, as others in the air above them, is a suitable spot above all others for the explorer to make his researches. It was from here that they climbed to Chimborazo, then regarded as the loftiest mountain in the world. They reached a height of 18,000 feet, higher than the foot of man had ever gone before. The rarefied air of that altitude made their limbs heavy, breathing a work of labour, and caused the blood to ooze painfully out of mouth and eyes. But their thirst for knowledge having found a source at which to take a long satisfactory draught made them disregarding of every pain and inconvenience.

From Quito the two brave hearts plan to cross the Andes, and thus to reach Lima, where Humboldt desires to make his observations on the transit of Mercury. Here it was that Humboldt reached the port of Callao, made the important



discovery of the cold polar stream along the coast of Chili and Peru, and which in honour of the discoverer has received the name of the Humboldt current. They now embark from here to reach Mexico, the original object of their journey. For a whole year they roamed through every district of that country, ever adding to their store of observations. Then it was that the deep pity and commiseration for the sufferings of the slaves touched the heart of Humboldt, and dictated the word of prophesy touching those future times when philanthropy would reach even them, and restore them their liberty. And now after a five years' absence, spent as we have seen, the longing awakes within him to see his home again, and after travelling over the United States he embarked at the Mouth of the Delaware to return again to Europe.

Humboldt found his European home essentially changed. The notions of liberty, already dimmed by the passions brought to bear on the Revolution, had been wholly effaced from the minds of the people by Napoleon's abuse of them. When the common fancy is filled with the military fame of a blood-thirsty conqueror, our ideals hide their heads, or are turned to mockery in the wild exultant shout of those shallow-brained fools whom success dazzles. It is in such moments, that science, the intellectual emancipator of mankind, comes to aid and cheer her followers, and to elevate them above the sorrows of the day and of a generation that gives itself up to the worship of egotism, under the pretext of admiration of power.

Humboldt's stay in Germany, where his relations and friends received the long lost one with every demonstration of joy and delight, was of short duration. In those days, Germany had not become what it now is, an abode for experimental science. During the first thirty years of this



century, Germany had fallen under the dominion of a mental aberration, which under the title of philosophy, found amusement in playing with words, and in looking down with an incredible upliftedness of mind on all science, that was not reasoned out a priori, but drawn from experience.

Humboldt kept himself aloof from this unhappy direction. He gave the German nation his "Ansichten der Natur" (Views of Nature), a work, rich in contemplation on all things in nature, and which both from its noble style, and its picturesque descriptions, possesses a lasting value. He felt himself drawn to Paris, where then, and for long after, natural science was at its highest, and where too, lovers of science awaited his coming, to arrange in conjunction with him, the materials collected during his five years of travel, and to assign them their places amid the treasures already garnered up.

With the exception of a few intervals, Humboldt, made Paris his residence for the next twenty years. He required this long term of years, and all the aid he could there find, to master the material, even though but in part. Humboldt's assiduity as a writer during those many years, stands for ever as a monument of his power of intellectual labour, which certainly never before, and perhaps never since, has been equalled.

The actual treasure he brought back with him from his travels, contained above seven hundred astronomical observations.

He further brought with him four hundred und fifty-nine measurements of the heights of the mountains of South America. On no occasion had he failed to make thermometrical and meteorological observations. All these had to be arranged and brought into a compact system, on which was based a new branch of science called climatical geography. His collection



of plants contained no fewer than 3,500 new specimens, all awaiting examination, and to be classified among those already known. Zoology too, received an increase such as no one explorer had ever contributed in such abundance. But we are constrained to give Humboldt our highest meed of admiration for the assiduity, and profoundness of comprehension with which he followed the traces of the civilization of the original inhabitants of South America, collecting inscriptions and fragments of sculpture, and bringing them with him across the ocean. His researches took in the descent, language, manners, stadium of culture, wanderings, inscriptions, modes of calculating time of the ancient Peruvians and Mexicans, — nations devoted to destruction from the ruthlessness of their European conquerors. In connection with those researches, we have for those explored territories some attempts at statistics, a branch of knowledge then in its infancy; and added to all, special observations on the magnetic meridian, on the electric fishes which Humboldt saw on his travels, on the manner of breathing of crocodiles, and on many other cognate materials drawn from all departments of natural science, which were all thereby greatly enriched and much extended. And over all the disjointed materials, each department of which suffices to fill up a human life, the one grand comprehensive point of view was never forgotten, — I mean that which regards the individual and the single, as ever in connection with the whole, — which, out of climate, mountains, streams, geological formations, plants and man, nature and culture recreates an harmonious whole. — The most active and able scholars, artists and thinkers combined in the gigantic labour of reducing those treasures to shape and form. Oltmanns, Kunth, Bonpland, Cuvier, Latreille, Valencier, Arago, Gay-Lussac,



were all engaged in the auxilliary labours of the special departments. The master himself was not to be outdone by any, in assiduity and power of work. The twenty years of arduous labour lie embalmed in the great edition of the gigantic work consisting of seventeen folios, and eleven quarto volumes. A perfect copy of this work with all its coloured copper-plates, costs, no less than 2,500 Thalers (£ 370); and the publication of it did cost no less than 220,000 Thalers (£ 11,498).

Again and again in the course of these twenty years, Humboldt was almost tempted to desist from his gigantic labours. His brother William sought to persuade him to enter the Prussian civil service. Chancellor Hardenberg offered him the port-folio for public instruction; the Russian government desired to induce him to join the expedition to Asia. But Humboldt would not lay on himself the fetters of a dependent post, and the journey to Asia had to be delayed for the time, on account of Napoleon's Russian campaign. From time to time Humboldt complied with the demands of Frederic William III, undertaking missions of a diplomatic nature, accompanying the king on his journeys to Italy. But he stuck to his chief labour, and remained faithful to it in the full liberty of the private scholar who devotes his whole time to science.

Humboldt did not return to Berlin in order to fix his abode there permanently, until 1827. The king respecting science in him, made it a point of honour to nominate him one of his Chamberlains. Meanwhile too, the mental aberration of the so-called speculative philosophy, having reached its culminating point, the younger men of letters began to renounce the dialectic insanity, and began to pursue the path of strict research. Humboldt lived to have the joy of seeing



exact science flourish in his German home, and able to take its place worthily at the side of France, once so far in advance of it. Nevertheless, as a noble individual trait of this admirable man who faithfully preserved in his heart the ideals of his youth, — those of the preceding century, and which remained fresh notwithstanding all the sad days of the restoration, — he longed to present to the people himself what he had acquired. He did what in Germany was then something unheard of, — he delivered public lectures to a mixed audience descending from the chair of learning to spread out of the abundance of his intellectual treasures before the uninitiated, whom then a wider boundary line separated from those belonging to the learned classes than now.

With a preference for the generalization of knowledge, one of the characteristics of last century, Humboldt joined not only strict research but likewise the beautiful artistic from which our century has received from our great poets Goethe and Schiller.

His lectures roused an immense interest. They were delivered extempore, and hurried away his audience in enthusiasm; he thus paved the way for the entrance of the thought that all knowledge whatever, only then receives its highest value when it commingles with the culture of the living men forming a nation's mind, and raising them to that elevation at which liberty can alone bear fruits of promise and hope.

In the year 1829, in his sixtieth year, Humboldt realized his wish so long entertained, of exploring the North West of Asia. The emperor of Russia made it a point of honour to provide the traveller and his whole suite of scholars with every possible convenience on their expedition. Compared with his former journey, this one was like a triumphal progress.



Wherever he made halt, officials and professionals were there to offer him their services. With him were two friends and fellow-workers, the Professors Ehrenberg and Gustav Rose of Berlin. Those three men divided the work as follows: Humboldt kept for himself the taking of meteorological, magnetic and astronomic, geographic, likewise geognostical and physical observations; while Ehrenberg undertook the zoological and botanical, and Gustav Rose the mineralogical and chemical researches. All these arrangements and divisions of labour made this scientific expedition a marvel of its kind, both for the limited time it required, and the wealth of knowledge with which it enriched science. It laid the foundation to the knowledge of countries stretching from Moskow to the Chinese frontier territories, and from thence to the Caspian Sea. The Ural and the Altai mountains were drawn into the circle of scientific exploration, and offered an excellent opportunity for supplementing and completing the history already known, of how the surface of the earth came to assume its present form. Above all, the opportunity for making magnetic observations was increased by the establishment of numerous stations, and thus occasion was offered for the erection of systematic magnetic observations which thanks to Humboldt, speedily spread almost over the whole of the habitable earth.

The indefatigable explorer was again called from his labours to fulfil a political mission. The July Revolution of 1830, coupled with Louis Philippe's ascending the throne, occasioned Russia to send a special embassy to Paris to seal the peace between the two states. Humboldt at his sovereign's desire undertook this mission for which indeed no more suitable personage could be found. The hero of intellectual conquests



could not but be an envoy of peace between two peoples of aspiring mind.

A few years later, he suffered a severe blow in the death of his brother William whose noble character, enlightened mind, philological acuteness, whose unshaken love of liberty as a statesman, refined aesthetic sense for what ever is beautiful, and his perfect devotion to truth, made him the best and most faithful friend of his brother in whose reputation he rejoiced without any admixture of envy. Such a couple of brothers, both equally gifted though in such different branches of learning, the world has seldom witnessed. The death of the one, on the 8<sup>th</sup> of April 1835, left a gap in the life of the other which could never be filled up. But labour in the service of science is the never-failing remedy for such pain, and William himself was the occasion of his brother seeking such. He had bequeathed to his brother a work on the language of the Kawi, the preface to which is a sublime monument of the power of profound thought on the origin of human thinking. The editing and publishing of this great work was the balm which soothed the pain of Alexander's wounded heart.

And what embellished Humboldt's life in the home of his fathers, was the paramount influence which was ceded to him in all branches of learning. Not an institution took its rise but what found in him a faithful countenancer. Every distinguished talent found in him an adviser and an assistant. He promoted the erection of the best astronomical observatories; saw to the procuring of the best instruments for the observatories of Bonn, Königsberg, and Berlin. Through his means, rising young men were provided with situations which encouraged them. His letters brought strength and courage to hundreds of aspiring souls to devote themselves to the



arduous career of learning. So far as his name was known in the civilised world, so far did his correspondence extend, diffusing incitement and encouragement. He was the centre point in which all discoveries and deeds accomplished met; a central sun for all who lived and moved in the light of science. In the noblest sense he was the representative of brotherly love, in his love to the spirit of humanity. He himself remained to the last a scholar, and an aspirant, who sought and found the highest enjoyment of existence in an ever widening circle of knowledge.

With the change of rulers in Prussia in 1840, there began a time of anxiety and depression for the old man of seventy. Not that King Frederick William IV. abated in aught of the veneration paid Humboldt by his father. Nay, he honoured him, with a warm friendship, and seemed to wish to impart a heightened glory to his throne, by associating familiarly with him. But rarely indeed had fate ever brought two such unusually gifted individuals into so close a contact, between whose characters, turn of thought, and convictions, there lay such an impassable gulf.

Humboldt, filled with the most exalted, and tolerant ideas of, and for humanity, such as the 18<sup>th</sup> century had implanted in his breast, and with all its distinguishing marks being still, a true son of the 19<sup>th</sup> century, i. e., an advocate for that unconstrained pursuit of knowledge which, free of prejudice, knows no authority but that of untiring research. Frederick William IV. was the very reverse of all this. He viewed the Revolution of the former century in the light of the Fall of Man from the original divine order of things, and which it was the task of the nineteenth to make good again, by leading back her erring, children in humble acknowlege-



ment, to the old paths. He regarded himself as chosen King by the grace of God in order to effect this; as provided with power to crush his enemies, and with a spirit to inform the erring. He was filled with the idea of an artistically-romantic re-formation of the Age in which all the beauty and pomp of the Middle Ages should be revived, the guilds come again into efficacy, and the people yield a ready obedience; the whole was to offer a picture of true Germanism, and to put to shame the revolutionary liberalism of the Upper Rhine, which had staked and lost the true liberty of faith and the joyful security of the subject.

The King was a man of learning, but in departments remote from the learning of our own times; a reformer, but in the spirit of retrogression. An adversary to the bureaucratic government, which however, he desired to do away with, merely to substitute in its place the discretionary power of a ruling aristocracy. He patronized men of a diametrically opposite turn of mind from Humboldt. Eichhorn, Hassenpflug, Stahl, Gerlach, were the representatives and promoters of a direction of thought, which not only ran counter to a man of Humboldt's way of thinking, but which awoke the conviction in every clear-sighted man of those days, that the ship of the state was steering to meet storms and convulsions.

Humboldt was perfectly well aware of how things stood, and often complained of the oppressive moral atmosphere like that preceding a thunderstorm. All the hasty attempts of the King to introduce reforms in the sense of the Middle Ages, he called an aiming at an object which lay behind the mark's man. Personally attached to his sovereign, treated by him with distinction and favour, and his companion on all



his journeys, he still found not one mental fibre that ran in unison with his. He knew he was regarded but as an ornament of the crown, utterly devoid of influence, as he understood it. Ever more convinced of this, the old man turned inwards to gather the enjoyment from his own life, and mindful of the ideals of better times, he resolved to garner up the treasures of his knowledge in a work which he designed should be as all-comprehensive in its plan, as universally intelligible in its style.

This resolution which he had long nourished within him, he carried out at the age of seventy-five, and the result was the "Cosmos", which for centuries will still be the most magnificent compendium of the knowledge of Alexander von Humboldt's times. Humboldt himself best characterizes this cosmopolitan book in a letter to Varnhagen, to whom he faithfully confided his joys and sorrows, thoughts and sentiments. He writes. "The wild fancy has seized me to embody in one work the whole material world; everything that we now know of the various appearances in the atmospheric space above us, and of life on earth, from the nebulae down to the geography of the mosses on the granit rocks, a work which is at once to stimulate by the liveliness of its style, and to delight the mind by being replete with thought. Alongside of the facts, every great and important idea that casts a ray of light from whatever quarter, must likewise be noted. It must in short represent an epoch of the intellectual development of mankind and what ever is known of nature." He carried out this "wild fancy", and in doing so immortally crowned his life-long labours.

The second volume of Cosmos was not yet published, when the storm of revolution coming again from France, shook all Europe in the year 1848. The convulsion seized



the Prussian state, and laid the foundation to a new epoch of national existence which no later reaction has had any power to really overturn. From that moment the people felt themselves called on openly to make known their wishes and desires, so that, — though a government may feel at variance with the spirit of the people, — still that spirit or mind can never be ignored, or turned from its purpose. And with this political awaking of the people, the serious and earnest desire after enlightenment and knowledge also awoke; from this point political struggles and political liberty cannot any more be separated from the endeavour and striving after an insight into the workings of nature. As the ideal characteristics of two centuries were represented in the one man, so is the deep sentiment of nationality upborne by the same trait. Alexander von Humboldt is himself a noble emblem of the unfettered mind, and of free enquiry, and has become an Ideal after which all people will strive.

The people's instinct taught them this even in the midst of the days of revolution when, the mere name of Humboldt, commanded reverence from the masses who were ignorant alike of his intellect and his labours. But the enthusiasm for him reached its highest point, on learning in the most grievous times of reaction, that the grandest man of the age, along with the body of the people, was hated and slandered by the eye-servers of the ruling powers. When the saying went abroad, "science must turn" back, it was consoling to the people to know that, in the face of this insolent utterance, Alexander von Humboldt was giving his voice openly and boldly for the people's party. Further the news, that the man of eighty was bent on finishing his *Cosmos*, a work that was in itself the grandest of protests against the ruling narrow-mindedness of a so-



called piety that sought to fetter the spirit of liberty and enquiry, passed from lip to lip with the exultant joy that greets a triumph achieved. The fact may likewise console us for him that when, at almost the age of ninety he departed this life (May 6, 1859), the early reaction had been successfully opposed, and a new era had dawned when the people animated with fresh courage, strove for the achievement of knowledge and liberty.

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Ten years have since then passed over Alexander von Humboldt's grave. Marvels have been achieved in the realms of science, — but he lived not to learn that the slaves in the North American States were liberated. The joyous tidings of the laying of the cable that joins continent to continent, fell on dead ears. Nay in the kingdom of science unknown to him any more, are the grand conquests that have been gained by means of the spectral analysis, which has extended our knowledge to limits hidden even from a Humboldt. The coming decades will, we doubt not, bring the fruits in the fields of human knowledge to a still higher stage of maturity, throwing Humboldt's revelations into the back-ground of history; for restlessly creative like nature, and eternally progressive as the mind, we see how each great man as he rises above the surface, sinks back again to the level of our common perception, disclosing new tasks to be achieved, and new objects for the attainment of future generations. But, though his actual amount of knowledge is now left far behind, his life and his labours will shine out immortally as long as men



can be touched by human greatness. He was himself an ideal of a mind marching unswervingly and unerringly up to its object. The charm of youth misled him not; the snares of wealth entangled him not; the fetters of office he suffered not to lie on him with leaden weight; the dangers of the wilds had no terrors for him; the overwhelming burden of work did not oppress him, nor did the brightness of fame dazzle him; the homage of the great led him not astray; the air of courts had no power to taint him; the poisonous sting of the pious slanderers did not affright him, and the repose of age robbed him not of his powers of work. Onwards in every year of his existence; onwards in every zone; onwards, be the circumstances around him what they might; ever onwards, the living ideal of the Beautiful, the Good, and the True, he himself becoming an ideal of immortal deserving, to strive after which, will be the pride of all men, and of all times.

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