

(Translation of Hebrew title page)

[N.B.: it should be noted that the German title page is not an exact translation of the Hebrew title page — *the Translator*]

This is the book of
THE ORIGINS OF MAN

[TOLDOT ADÁM]

*In the day that God created man
In the likeness of God made he him.*

Genesis, Chapter 5, Verse 1.

NAPHTALI LEWY
(*HASHACHAR, 6TH YEAR*)

VIENNA, 1874

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ARDESHIR MEHTA,
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CHAPTER OF CREATION

One scripture says, And Moses came unto the tent of the congregation to speak with him, and another scripture says, And Moses was not able to enter into the tent of the congregation, because the cloud abode thereupon. It is said from now, all the time the cloud was there, Moses did not enter it. When the cloud departed thence he entered and spake with him. (*Sifra, Midot Aaron* Passage 8) (*Torat Cohanim Ch. Leviticus*).

[Translator's note: The *Sifra* is a collection of homilies on the book of *Leviticus*]

Every researcher and seeker after wisdom who wishes to put his words and thoughts — with which he occupies himself to determine their truth — to the test, examines on the one hand his observations, and on the other the expressions of research and study; for at the doors of success lies the danger, that before the investigator has reached the summits of truth, he may fall into the pit without it, and the well and mine-shaft of untruth may be dug for him; and against every sentence of truth rises up its antagonist, the argument of doubt, to divert it, and after argument to crush it. Hence, ever since seekers after wisdom set their hearts to inquire after that wisdom which is dependent upon the purity and accuracy of study conducted by the mind, and reached the first step on the rungs of the ladder of their intelligence, they saw the certain loss which is prepared as a stumbling block and the distant and doubtful wages for the complacent; and therefore proclaimed loudly to those who would forget: Forbid your sons from conducting theoretical research and do not climb the steps thereof, lest your heads be filled with the dew of old age before your hands are filled by the priest of the temple of research.

The seeker will find truth of this statement in the books of our forebears, our fathers and forefathers, spread out and arranged according to the subjects of their teaching and which confirm [it] and those in whom remains the spirit, foresee the enormity of this study, which glitters through the crevices of original ancient utterances which have come down to us to teach us, that even the elect of the LORD whose testimony is beyond reproach, and *Nazirites* to wisdom born, even they upon arriving at the sanctuary of research and study in the awe of the name of the LORD were beaten by stones, and the cloud of doubt darkened the light of their attainment until they beheld vain sights and obstacles along the path of their inquiry, which caused them to stray in the mists of a pathless desert; then they believed no longer in their strength for they stood

[Translator's note: In Biblical times, *Nazirites* were those dedicated to the LORD, often from birth, like Samson]

on one leg as in the beginning to dedicate and adore, and serve in their innocence that which was holy in their eyes before they became engulfed in the cloud of dust of surprise, skepticism, questions and doubt. These were the elect of wisdom and *Nazirites* of insight from birth who were called to officiate in the temple of wisdom, who knew from their past the sea-waves of wisdom-attainment and far-sightedness, [knew] that their foot had been sent forth into the abyss, in the channels of which lay the lair of dragons, sharp of eye and with mouth wide open to swallow them up, a veritable trap on the road to knowledge in every branch of science [or “wisdom”]. The doubts that bring every inquirer and every researcher to disaster in time, were called by Rabbi Yossi Hagalili by the name of “Angels of Tribulation”, and the disturbing and antagonistic judgement [or “sentence”] on the path of logic and of study was: “The Cloud”, hence in the *Sifra*, Chapter 8 he says that the priests could not stand to serve before the Cloud for it was filled with glory only the house of God, [which] teaches that it was permitted to the “Angels of Tribulation” and thus the passage which says “And I laid the palms of my hands upon thee” teaches that permission was given to the Angels of Tribulation.

This idea is hoisted high in the books of our wise ancestors, who took care to uphold and strengthen the faith of our holy forebears, and everyone who plumbs the depths of our books, and sails on the waters of Hebrew literature will know and understand the profundity of the above-mentioned idea and will comprehend that our eyes should not be astonished to look with a penetrating gaze upon the expanses of knowledge which follow in the wake of our handiwork.

And it is said of established knowledge and of the purer and clearer kinds of study: As we find it good to forbid inquiry, research, seeking and study to the general multitude of seekers and to those who boast of their gift of intelligence, coming by this quality to even one of the many extremities of wisdom of which even the tiniest part is hidden from them, who do not know where the place of understanding lies, and whence wisdom may be found; so we find it even better and more beneficial that those few survivors bestowed with understanding and intelligence in overflowing measure, and who have turned their hearts away from every concern of the day, and set their eye to wisdom and understanding with all the skill at their command, gorged themselves [figuratively speaking] with every book of teaching and wisdom, which have been their

[Translator’s note: — the author of this article uses the same Hebrew term for both “science” and “wisdom”, doubtless because he was writing at a time when Hebrew equivalents for modern terms had not been coined, as they are today]

only companions from generation to generation; to those whose hearts are harder [literally, “stronger”] than sapphire, and as to a rock firmly planted in the heart are shackled his faith and his religion, [upon whom] no storm rages, brewing over his head, and no cloud, fog or darkness blots out the sun of his knowledge, and the glow of his attainment as amber upholds his life and affirms [it]; to these who have come forth from darkness unto light, who have seen the rainbow in the cloud, and whose ears have heard the clap of the thunderbolt; and are now far from the place of their fear and their dread, standing on the mountain of the LORD with the staff of God in their hand, solitary survivors of the people of the LORD: that it is right and proper for such as these to engage in inquiry and research and logic and study and philosophy in every subject of teaching and wisdom [or “science”].

And we know the heart of the reader, and the soul of the inquirer of a new book of which the author is still counted among the living, that he shall lack the honour of the wise and shall begin his utterances, turn from the sacred to the profane and from light to darkness, and shall not fortify himself against us even to shout after us, that we have gotten ourselves horns, and like one of the heroes, men of renown, we have caught hold of a shield and barrier to walk towards the battle-array of Israel. — Nevertheless we shall not turn our hands back from teaching our hand to fight and our fingers from the battle of research [or “inquiry”], for we are secure in our soul for only the spirit of intelligence will beat within us, our soul has yearned and even longed for the courts of understanding, and the desire for knowledge which has found a nest for itself within us, will remove every bridle from our mouths, enlarge our hearts and deploy our tongues to speak from the purity of the well of goodness. And know, O reader, if your soul yet is afraid of the visions of the armies, open these chapters which lie before you, to unite our honour in your assembly, for we did not enter inside and within, to remove the veil before your eyes had we not thought deeply upon our knowledge for we shall raise the cloud wrapped around the face of the inquirer above the eye of our examination. We did not enter to speak with you there, — that even you as of this day that which is spoken in you should arouse you from your astonishment [which is] within you, and were you to become alarmed at the sights you see — and now that we have brought near the place to its work, and the opening of the tent of the congregation which Moses shall testify to us is opened, we entered to speak to you from there, [but] not in visions and riddles shall I here

[Translator’s Note: the author uses the same Hebrew term for both the words “research” and “inquiry”.]

speak with you. And this is the right way, and the path to our God the God of Truth, from the day of the beginning of prophecy [when it was] common among the elect of the generation, and to teach did the LORD give [them] their hearts, to teach the sons of their generation the straight way, and the right and proper action in their eyes, which those in the way are to do according to their learning and study. For this is the teaching of man who rose step by step to perfection, and became worthy of the gift of Nahaliel which was searched after, gave his soul to spread wings over all the ends [of the earth], and from the heights of its dwelling which is among the stars, looks [down] upon those walking [below] in the low lands, like a mother [bird] hovering over her fledglings, giving food to her chicks, and life to the brood under her. — The intelligent [person] who loves to gaze upon spirituality and the ancient scriptures shall easily find according to our preface a sublime and exalted idea [or “concept”] at the beginning of our true words, wherein we have placed as an indication of our desire and in which are included introductions of the Rabbis noted in our books and which justify in their time that which we shall place before you in the coming chapters and this is a secret of the LORD to those who fear Him which the wise [man] will soon find and this is the light which separates from darkness, and the profit [or “superiority”] of knowledge.

SECOND CHAPTER

Rabbi Yehuda says, Light is created first, as for instance a king who requested that a palace be built and the place for it being dark, what did he do: he lit candles and lanterns, to know how to lay the foundations [thereof]; thus light was created first (*Midrash Rabbah* chapter 3) Whence was light was created? He replied that the Holy One, Blessed be He, enveloped Himself in it as in a robe and it shone the radiance of its glory from [one] end of the world to the [other] end (*Ibid.*)

[Translator's note: the *Midrash Rabbah* is an old collection of legends on passages from the *Torah*, and from the scrolls such as that of *Esther*]

In this chapter we shall look at the act of creation according to our knowledge in proportion to the state of the precious knowledge in our generation so that we may come in the next chapter to the boundary of the inquiry to which we bounded ourselves in the chapter on creation in its entirety. And as an introduction to our method [we would] have you understand the Book of Nature which is the key to the Book of Teaching (*Torah*) in the passage on creation which comes to teach us the way which leads us to the knowledge of man, according to the power of his senses and his gift of intelligence, by means of which man attains perfection of soul in the law of nature. On this paved road the man of research may walk securely and with profit, and no obstacle arises before him; for the door to the temple of nature, which generations of researchers have come unto, is open before him. There are many libraries filled with books on nature in which author after author has chosen for himself the path which was correct and proper in his eyes to teach understanding and intelligence to those of his generation in the realm of nature, in the construction of the world and its improvement [or "evolution"] as he understands, and among them those who found true judgement to judge from the late to the early, to give signs and portents that the laws and the foundations known at this time to those of this world, were the reasons for bringing the world into existence. Each and every one of the writers of books in such subjects throws forth ideas according to daily experiences according to the study of nature established by [the] institutions [of learning], and thus it is easy for such a writer to bring forth the work for its sake, and it is also easy for those who study deeply in his book to extract that which pleases their souls from within his book. But it not so in case of the essay we have before us. The aim of our looking into books on nature is, to gaze with pleasure upon the pure teaching which is hidden from us under curtains which hide the teaching of nature and to show it to all those who read it

[Translator's note: the *Torah* is the first five books of the Bible, namely *Genesis*, *Exodus*, *Leviticus*, *Numbers* and *Deuteronomy*; it is sometimes also called the *Pentateuch*]

[Translator's note: at the time when this article was written, there being no officially accepted Hebrew word for "evolution", the author has used the word *hishtalmut*, which literally means "achieving perfection", in that regard; but it is not always clear as to when he uses the word in this sense, as meaning "evolution", and when, at other times, he uses it in its more traditional sense; and so in translation there is a degree of ambiguity which unfortunately cannot be avoided]

and request it, for much goodness is yet hidden in the lockets of its utterances [of] which till this day their mysteries have not been revealed. The more we raise up our hearts to lift the curtain in order that we may gaze upon face of the son of nature [*i.e.*, man] which our *Torah* describes to us with the human stylus, the development of his ascent on the ladder of improvement, creation and perfection, the more will the eye of the reader see the hidden portions of the teaching of nature revealed in the teaching [or "*Torah*": the word literally means "teaching"] of creation, and in this subject our *Torah* has surpassed the boundaries of the discovered and known laws of nature as of this day. Our trend which points in this direction hides in its bosom, apart from the previous desire which looks backwards from the beginning — the difficulty and strangeness which appears clearly in the eyes of the inquirer and the reader who is not accustomed from youth to leave behind what his ears are used to hearing as a general rule, and the clean text engraved upon his heart [and] in his memory with a sapphire stylus, and it is hard to change the old to the new, to accustom his ear and his heart to this. And we find always from this that it profits a man, if he sends forth his feet of inquiry into the expanse, a new path is paved before him, and before those of his generation is paved a wide road which rises to the heights of the house of freedom, in the wake of demands like these is known the soul of the inquirer, the freedom of his spirit and of his will, his taste [in] the principles of this thoughts in the subjects into which he is given to look. And this is the immortal spirit and soul of man which establishes for itself a memorial and an eternal name among the living, generation after generation and its demands, signalling for eternity action and selection of soul in the world of science and like a spectator giving unto the entire generation the ability to gaze upon their differences of opinion and upon the general state of intelligence among [those of] that generation.

Many have been the wise men and Rabbis who already tried their powers to find solutions to the riddles and the questions concerning the Creator and the creation of the world, their relationship and their actions concerning man, his being and his [inherent] value, the relationship of his soul and capabilities in comparison with every living thing, the goal of man's soul and its powers, and some among them found solutions in the teachings of faith and some in the wisdom of religion and of traditions, some in Greek philosophy and some in the pure critique of wisdom understanding and knowledge, and some tried with the help of the heroes who dedicate their

days to the wisdom of the *Kabbalah* which is hidden wisdom [and] which only those who delve in such things can know and appreciate — we [for our part] have set our faces to search for solutions in the study and science of nature, [and] accordingly the reader should know in advance that this road is [kept] before our eyes in every corner of our research, and from this point of view places us on our wave, we go forth to find where dwells the light, and from this point of view [*lit.*, “from this side”] we shall try to inquire of our beloved *Torah*, we sons of Jacob — [we who] meditate upon it day and night [and have done so] for thousands of years, — as to how creation took place by itself and natural science in the essence of its mysteries. And the road to this inquiry, by itself, [lies] in the understanding of those who wrote our *Torah*, which is the aim of all our toil, therefore it is not our desire to bewilder and confuse our reader [*lit.*, “confuse our essay”] with the words of our forebears known even to us, for the ornament of the methods of the first [to delve into these subjects], you will see with the eye of your intelligence — there will be dovetailed references in our book, and in spite of that our heart did not turn to the subject which is before us only on knowledge of nature, which helps it to arrive at the goals of our inquiry, and this you will find in every explanation of the book of our *Torah* and our ancestors — an excessive attempt to compare the appearance of our *Torah* to the work and appearance of nature, to the Greek studies famous among our nation, which bound in shackles every action and reality in nature and dragged along behind the laws of logic and the teachings of philosophy, as is known to those who hold fast to wisdom. And against those with imagination whom the researcher Lessing mocks that his blood with the power of their imagination shows nature, to the visions of the ancients, are seen in view in our books, which never shone on these ancients the light of the wisdom of nature. Against distortions like these shall be our attempt, in a straight path and a wide road, upon which our foot shall stride without encountering obstacle or narrow place, we shall pass upon the king’s highway, walking along on the eternal pathways of our *Torah*, and establish in the area of its study and its stories taken from nature the reality which is behind it are drawn the true ideas and every free request which is in it we shall know the true power of the living soul which is within us. —

The beginning of our handiwork is to take sight of the dearth of our attainment [of the knowledge] of all creation, from astronomical science which [plays a] leading [role] in our generation and

that is looking into the discoveries of the English astronomer Bradley [and in particular that] which is known by the term “*Die Abirruug [sic!] des Lichtes*” and science expresses it as “aberration” and we shall keep it in our sights along the path we are treading. The discovery of the above-mentioned astronomer is based on the following study: the speed of the light of the stars which courses in the expanses of the universe which is connected to the rotation of the earth which rotates and travels along its path, is subject to the jurisdiction of the intelligence, for we do not see the stars actually in the place they lie, but slightly displaced to the side on which the wind of the globe blows. And to establish the matter on [a] simpler path easier to grasp, we shall consider the daily experience, which the actions of every day will express to us and prove to us the idea of the disposition of the exalted subject which we are discussing.

Let us cause to bring before our eyes this vision: A steam railway locomotive travels at speed, and a man shoots an arrow from his quiver [or a bullet from a gun] at the target which is the wall of the locomotive, breaks through one of its sides, and the arrowhead [or bullet] makes a hole in the opposite side, up to the point that the walls of the wagon attest to the holes made in them. We shall now wait till the locomotive comes to rest and approach and see the pierced holes and it becomes clear to us that the arrow or the bullet paved for itself a path which we had not paved [for it] at the beginning of our proposition. The two holes seen by us in the walls of the wagon are not lined up with each other, but the opening of the hole in which the arrow entered is further forward from the other hole, which is in the opposite wall of the wagon, [and is] is somewhat to the back of the wagon. If we push a rod through the holes from end to end we shall bend the rod backwards in a diagonal fashion; and the observer, will certainly judge that the marksman shot his arrow at his target [so as] to go through it and set his face at a diagonal. Although this was not so, for the marksman aimed his arrow as straight as could be, and the arrow or the bullet also flew straight into the railway train, yet the observer will believe that its path was bent on account of the testimony of the walls of the wagon for [they lie] along a path which is not straight and which was unexpected. To explain this phenomenon requires a little observation: during the time the lead bullet burst through the external wall, and flew through with all its speed — the width of the locomotive — to penetrate the other wall from the inside, and that from one wall of the locomotive to its opposite wall, in this amount of time the wagon of the locomotive travelled a certain dis-

tance forwards on the earth, and the second wall which was penetrated in its time was therefore not exactly opposite the first but was now a certain distance behind the place where the first hole was created.

The experiment explained above, teaches us a large number of things about the light of the stars which impinges upon the earth, which is ceaselessly rotating and revolving in its course. Let us bring before us the following image: An observer of the stars watches a particular star through his instrument; we find that the observer and his instrument, as well as the earth upon which they are located, are travelling at speed round and around the sun. The light of a distant star shining from afar, travelling through space, flashes on the upper surface of the glass of the instrument, and thence to the lower surface thereof behind which lies the eye of the observer; and during this brief time, the earth moves a certain distance forwards. The ray of light falls like the arrow or bullet — into the observation instrument at an angle, if indeed the instrument is aimed in a straight line at the star. And if the observer wishes to aim at the star which is shooting rays of light, like arrows, into his instrument, he will have to cause the windows of his chamber to face the forward side, that is in the direction in which the earth is moving in its course, and we cannot call by the same name this situation, except that the star appears to be in a location, in which it most definitely does not lie.

In the degree in which we gauge the instrument of observation, we gauge also the eye of man. The glittering of the ray of light shines first upon the pupil of the eye and a little later falls upon the retina, at which location a string [of the retina] is stretched and a sensation of light occurs. Although this is a short span of time, within these short moments the earth moves a little; here too the ray of light paves for itself a path at an angle and we obtain an abundance of light from a location at which in reality there is no star at all! —

This phenomenon which we have called light aberration will be before our eyes in the explanation of the new discovery and an introduction to the subject at the threshold of which our article now lies.

As in the case of many discoveries in science, so it happened in the case of aberration: the inquirer was searching for the solution to quite another problem, and this discovery appeared to him.

Bradley was trying what other sky-gazers had already tried; research into the estimation of the distance of the stationary stars from the earth. He well knew in his heart that the measure of these distances is beyond telling, the stationary star nearest to us is thousands upon thousands of times farther away from us than is the sun, withal the strength of his desire prevailed and his pride grew strong to have command over this matter which had evaded researchers from time immemorial, and for an entire year he gazed with his eye at a star so that he might break through the veils which hide that law. —

The scientist said in his heart, if he were to incline his instrument to a star which faces the path of the earth as it revolves around the sun, during the course of a year he would see a change in the location and the position of that star and that would be something from which he might learn, to know the distance of that star from the earth.

In his estimation, this star should at least have shown some slight movement from right to left; when the earth went down in its revolution, the star should have shown some rise; when the earth moved to the left the star should have shown some movement to the right; and if the earth were to return to its path step by step, the star should have been seen as if it were held back to some extent. Hope appeared in Bradley's heart. For the window of his experiment, for during space of an entire year, which the earth would describe for itself around the sun there would be a substantial spherical movement in the opposite direction, in the image of his star, and according to the relationship of the great circumference of the earth's revolution, against the rim of the star, [which would] stand in judgement to the end of its path in the calculation of its distance from the earth. This project was perfect, [and] founded in the path of science; however in its time the handiwork of the observing instrument was not completed, which handiwork was completed by the astronomer Bessel in our generation who carried it to completion.

And behold, when the above-mentioned astronomer dived into the depths of the great caverns, he found that which he had not especially requested; he saw that the stationary star does not lie in the place of its resting when the earth changes its movement. And after concentrated, precise and penetrating observations to which he dedicated many years, the heavens were laid bare before him like

a book for the star was seen by the eye of the observer, — under the movement to sway backwards, when the earth passed before it — as before his face was witnessed moving. And this sight according to his previous method, brought him to the sure [or worthy] idea, which we spoke of above — that the ray of light which falls into the lenses of the instrument, or into the pupil of the eye, because of the simultaneous movement of the earth, is bound to be seen diverging from the straight line and its distribution bent, and its light will go astray.

That which Bradley discovered about a [single] star that its light appears to come from a location in which it does not actually lie, is revealed to us as of this day as applying to all the stars, and from the finding of its utterances and proofs that the aberration of light from all stars is the same emerges a triumphant vision and a decisive proof: that every ray of light, coming from every one of the heavenly bodies, and shining on every corner of the world, will always be displaced by a certain amount and that is in one second one-and-forty thousand German *parsangs*.

[Translator's note: One *parsang* was an old measure of distance, about 4 miles]

The law and theory established as a result of this discovery about rays of light applies [*lit.*, “moved”] not only in every expanse of the world, but even this law applies to all light whether great or small, whether it be far from us or near to us; one-and-forty thousand *parsangs* in one second, will measure every ray of light whether it is bright or dim, near or distant, coming to us from every end [of the universe].

With the help of this law the great scientist Bessel measured the distance of a fixed star in the constellation of the Swan, one of those nearest the sun and found it to be at a distance of fourteen billion *parsangs*, which is very hard for human beings to understand for a locomotive capable of travelling at the rate of two hundred *parsangs* per day would take two hundred million days to get there — and only with the help of the speed of light can we give any kind of meaning to such a great distance: the light leaving this star, travelling at the speed of light, takes ten years and three months to reach us. The astronomers Schtroffe and Ergalander also girded up their loins, and tried to find the distances of other fixed stars and found that according to the speed of light, the light from one star would reach its neighbour after more than ten years; and according to their estimations it is clear that of ten stars, appearing to us grouped together in the evening skies, the farthest is ten times

[Translator's note: the names Schtroffe and Ergalander are given in the original in Hebrew letters, and it is not clear whether the romanisation given here is correct]

the distance from us as compared to the one nearest to us. And according to the theory well established in the eyes of all scientists of our generation, who have pondered upon the speed of light, a ray of light from this tenth star reaches us after having travelled well over a hundred years — !

Even then we would not be satisfied with having conceptualised such a great distance, were not our instruments showing us stars in the evening skies by the hundreds and the thousands, [each of] which [is] certainly sufficiently distant from [the] other to require the light from each to reach its neighbour after ten years, and that one of the hundreds, is a hundred times more distant than the first which sends its light to us and that it is one of thousands which puts to shame [even] that distance, and whose light falls now into our eyes, this star has been sending its light to us for the last ten thousand years, and ten thousand years ago the sparks of light began to fly on the wings of speed and with all the velocity and power at their rays' command, the voyage coming to an end at this time — and if the law of aberration proves that even to the light of the fixed stars the law of speed applies, which we have proved for light in general, then we come to the great recognition, that in the discovery of the law of the speed of light, is recognised a great law of nature, for the truth of this law of nature has reigned these ten thousand years, and this is a time period more ancient than [that which] our forefathers believed to have been the very time of creation, and this clear knowledge will allow us to enter into the sanctuary of our observation.

From the days of yore, from the years of one generation to the next, philosophers of the time have tried to introduce to us the concept of the unknown, [the concept of] limitless time and the place upon which there is no dawn. However there is a great difference between the concept and knowledge which is [a result of] fine study in fundamental spiritual inquiry on the one hand, and the concept which is derived [*lit.*, “extracted”] from the [actual] existence of the world, on the other. The great and lofty law of the speed of light, in conjunction with all the other devices of the study of science in our generation, measuring with special accuracy the distance of fixed stars from us, will give power and strength to the researcher to make a decision regarding the foundations of truth, regarding the axiom of nature which is the concept [derived] from the world generally, this law will prepare the warm-hearted man to find a measuring stick to measure out and draw a line upon times and

seasons, on expanses and areas not given to limits according to our concepts.

The speed of light, which in a short time passes over and exchanges faraway locations and the lofty idea, that the messenger or angel of light [spoken figuratively] which comes to us from [great] distances, travels along its path for ten thousand years before it reaches us, and began its journey at times and seasons which have long ceased to exist; both as one come to teach us the equivalence of space and time, in a relationship the more clear to the mind of man here on earth.

The light of the sun reaches us, approximately eight minutes after having left its resting place, the light of the moon after about a second and a quarter, the light from the planet Mars after forty minutes, twenty eight asteroids between Mars and Jupiter, sending their light to us after fifty minutes, and Jupiter after an hour and eighteen minutes, and Saturn after six hours, while Neptune after nine hours: all calculated accurately and exactly according to the law of the speed of light.

The law of the speed of light is a law which includes all the laws of nature, and points to the general cause which describes every portion of the limitless universe. And this law is the key to most of the sublime knowledge and discoveries in our times, and will enlighten us in the essay we are attempting [here].

During most of our being occupied with this inquiry we shall [have to] change our knowledge and our attainments which we have had since our youth. Now shall be broadened the limit of our knowledge of our [very] lack of knowledge, which is the aim of knowledge, and we shall know that we cannot give a measure and a value to the number of days the world has existed, the world which in its entirety is long [of duration], in the measuring of another place distant many *parsangs* in a moment, in which we shall measure traces of the lights of the sky, from the earliest days of the world, we shall measure the insignificance of our attainments, and the minuteness of our being and our existence in the universe. The great natural law we spoke of earlier teaches us to recognise creation from a different aspect from that we had thought of hitherto. We shall understand that there in the sublime heights, there beyond the existing lights [of the heavens], already there were since time immemorial thousands of worlds older [than ours] and there deep in the abyss of the great sea — from which rages the foundation of

the light or as the great Humboldt would call it, the vapour of the world — there will yet be found world-systems unknowable!

From our understanding of the laws of nature and of the existence of worlds which are clear to us we have obtained a great light and it becomes clear to us that far from us, inhabitants of the earth, is the knowledge of the beginnings of nature — that which is known by the name of “the science of that which lies beyond nature” — and it is not in our hands to erect boundaries to the world, to set law and beginning to any entity, since reality is far more ancient than any of our achievements, and that which we attribute to the first cause, the initial hypothesis, the first action, has no relationship [to it] at all, and there is no trustworthy word in reality for the beginning that has no beginning, but that we speak of sublime matters hidden from the masses of people, [and] that approximately is the reduced nature [or “dearth” or “paucity”] of our attainments. And this dearth is according to the preparation of the soul in the heights of knowledge and the capacity to grasp and attain in fine and vigorous studies. From the day of applying the hidden science of discoveries in existing nature, and solutions to old riddles [which] were discovered and known in the halls of learning — as will be clear and as we shall show in the chapters that follow — from that was discovered the dearth [or “paucity”] of our learning, and our humble status [*lit.*, “value”], and we shall think of having pride in the human race, if we shall rise up to speak of the marvels of the far-flung universe, where doubtless exist creatures far better than ourselves, and their attainments no doubt greater and firmer than ours — even though [it] will [be] desire[d] to discover the secrets of the First Will, and it may seem that that which is higher than the Highest is seen eye to eye, and [that] we can converse with and attain the Creator of limitless Reality!

The speed of light is the great teacher who will enlighten our eyes to conceive [of] creation in general, and will portray in our minds that which is called the Ancient of Days and of No Place, and that in fact is our initial concept, what we may call the “method of reduction” in creation, and to that pointed Rabbi Yehuda in our study even though in his days it was not known, in the measurement of the speed of light, but with the keenness of his intellect, and with the finest internal feeling, he grasped the most accurate measure of the dearth of human attainment in the [conceptualisation of] initial creation, and he too went up in his inquiry above all those of his generation and dared the strength of his soul

[Translator's note: the name Humboldt is given in the original in Hebrew letters and it is not entirely clear what the romanisation should be]

[Translator's note: later on in this essay the author translates the term “method of reduction” into German as “*System der Beschraenkigung*”; this may give a somewhat better idea of what he means by this term, which in general seems somewhat obscure]

to interpret for the sake of scientific knowledge — which stands against information and habit in the people and decided against counting and calculating the order of the world which is conventional in the mouths of men, to deny them their knowledge and non-recognition; and in the garb of [a] parable erected world boundaries, which he called: “How to lay the foundations” for inestimable time, since he saw that there is something prior to the lowly world — which is called in our tongue: “For he requested that a palace be constructed”, a prior, older and higher world, and from it, by which I mean, from the beginning of knowing and understanding in it will begin the calculation of world order not capable of being systematised, and according to the system [or “method”] of reduction built his esteemed and enlightened essay, which awakens strength to listen with great attention, to these words: “Rabbi Yehuda says”:

Light was created first.

Thus grew [or “increased in stature”] the school [or “system”] of the study [of] light, in the study of the beginning of creation, until it was set firmly as a foundation in their eyes and they asked: Whence was light created? For in this question is laid the well known question [*lit.*, “doubt”]: “What is inside [light]?” — which stands to uncover the foundation all absolute attainments — and permitted themselves to teach: That within it the Holy One, Blessed be He, covered Himself [or “was enveloped”]. How great was the strength of the wise men of that generation to imagine a form for its Creator and to fix for the teaching that the Holy One Himself, Blessed be He, is enveloped by light and shines the radiance of His splendour from one end of the world to the other.

Even though we cannot ascribe a lie to our souls and to our forefathers, relating to them all the new discoveries which in our generation have been indulged in by the wise men of the time, since all know [that] at the time in which our fathers and forefathers of blessed memory lived there were not yet available the tools and other means which bring to clear and pure knowledge, all the same we can decide without hypocrisy and narrowness of inclination — that they of blessed memory sometimes also saw far and uttered words after [them] according to their penetrating gaze, and these are the true foundations laid at the foundations of their utterances [and] will prove and unify in fact the matters that stand at the height of the world of science in our generation — [and] their utter-

ances touching lofty matters like these are not set apart from the general problems which hide all things that are yearned for — which is in contrast to the experience of simple people — [but are] in short hidden expressions, and therefore it is necessary to go over their utterances several times until one reaches their intended object [or “objective”], and especially in the study of the science of nature and [of] what lies behind nature. And that in my opinion is the foundation of the *Kabbalah*, which hid the studies of sciences such as astronomy and its studies in secrets of tractates of the *Mishnah* and parts of such tractates, upon which was commented: From the beginning emanated ten “spheres” [*Sefirot*] and the first “sphere” (called the *Kether Eliyon* [*literal translation*: “Highest Crown”], or the Ancient Holy One) emerged, and after that Wisdom [*Hochmah*] and Understanding [*Binah*] and these are the three reliable [or “trustworthy”] connections. However it was never possible for the world to relate [suitably] to them and grasp them and due to their grandeur they broke and descended lower and their lights arose to their places, and this is the secret of the refraction of the instruments [of God in creating the universe — according to Talmudic doctrine]. And to these hypotheses of the *Kabbalah* known according to science to recognise by it the First Cause according to the method of reduction, but they clothed their words in gowns of secrecy as Rabbi Yehuda enlightened us in our *Midrash*.

[Translator’s note: the *Mishnah* is the codification of Jewish oral law]

[Translator’s note re. “*sefirot*”, *hochmah*” and “*binah*”: these are terms used in the *Kabbalah* and known generally in their Hebrew forms, even among English speaking persons]

[Here a footnote in the original, as follows: *Zohar Bereshit* and *Elei Hamlachim* chapter *Veyishlach*].

THIRD CHAPTER

“In the beginning God created the heavens”, and did not explain, and where is the explanation? It is as follows: He “stretcheth out the heavens as a curtain” (*Isai.* 40, verse 22); “...and the earth”, and did not explain, and where is the explanation? It is as follows: because of snow he said the existence of the earth [like] mud solidifying *etc.* (see *Job*, chapter 37, verse 6 and chapter 38, verse 38)

Unto the goal desired of us, to lay the cornerstone to our method of reduction, at which we hinted in the previous chapters we shall add unto in order to strengthen the well founded idea — according to our thinking — in the present chapter and we shall say: though many secrets of the forces of nature have been discovered in our generation, and with a strong hand wise men have put theory into practice, nevertheless much remains to be discovered, which for scientists remains a secret and a mystery. For instance we feel heat and we see light, and even though we can devise stratagems to discover heat and light, science by itself is still in the dark concerning the above-mentioned two [matters]. We have paid great attention to the forces of nature, the results of heat and light, where their rays turn back, and how we can gather them as one and separate them and reinstate them back to their former state, but the hand of human research has not yet found the strength to come face to face before the essence of heat and light (*ueber dem Wesen dem Lichtes und der Waerme*); that the hidden forces of nature are a quality which cannot be separated from the essence of their carriers, is a conclusion we cannot decide upon from heat and light as understood.

And if in a single survey we should look upon that which we have discovered, our understanding will not even then rise and into our hand be given a measuring rod [or “criterion”] to measure the paucity [or “dearth”] of our attainment. Let us take for the target of our inquiry, a grain of sand which a man may trample beneath his heel, and let us look at it, and we shall see in this grain of sand a marvellous building magnificently constructed in the sanctuary of which are imprisoned and dwell hidden and different forces. Not easily will we be able to pulverise or separate into pieces the grain of sand, for its fundamental particles (*die Atome*) strongly bind themselves to each other and hold it together, and the force of attraction [between them] acts strongly because of their proximity to each other. The grain lays itself bare to the warmth of the day, and

thereupon will be seen the force of repulsion acting between it and its neighbour. The force of attraction which acts in the vicinity of the grain of sand, and attracts [things] from a distance unto it, is tested and examined since it is similar to the force of attraction which pertains to the earth, and is the same for all the limitless heavenly bodies in their forces. And after we discover and find that not only does iron possess magnetism, but that upon all things whatsoever is imprinted the force of magnetism, we shall decide, that along with the rest of the secret forces, magnetism also lies in the grain of sand. A grain of sand is visible to our eyes: the electric light kindles its fire within it, it is also seen that it is a compound body (*ein chemisch zusammengesetzter Körper*). And [even] when we have found from the smallest grain of sand [that] it is in every thing that is around us, a dwelling place for all the hidden forces which are sensitive to our examination as a result of their action, even then we do not know the essence of the universe — .

We shall not desire with this to return to the questions and doubts that have asked [and troubled the minds of] philosophers from generation to generation: What is force? What is matter in which force dwells? Is there existence of force separate from [that of matter]? Or is there in reality no matter, only forces which act upon our senses which make us feel that there is matter? Questions such as these will take us far from the boundaries of our inquiry, for we well know that like them [*i.e., like the philosophers*] we shall be led astray in vain, and the consciousness of man has not yet reached the solution to these questions, yet one notable question we shall wish to exclude from the rest of the questions asked of us: Are all the different forces to which we are sensitive (as we have noted above) are they in fact different from each other, or are they but “awakenings” and they awaken us to recognise them for they all emerged from a single great force which includes [them] all, and which is not known to us?

Even though we do not possess in our hands a clear and sufficient answer to reply to this question, yet the signs and portents which we have seen in the firmament of science, will tell us that in truth the different forces do emerge from a single great force.

The force of attraction between fundamental particles is very similar to the force of attraction which is in metals, the force of attraction in metals is made visible and is known according to the laws of attraction in a lodestone [or “magnet”]. The force of the

lodestone can be brought into existence [*lit.* “given birth”] by means of electricity, and the source of all the revelations of chemistry is, according to those surmises close to the truth, electricity — and all these sights show us one force existing in everything that exists, and this raises the subject in the scale [or “ladder”] of the science of nature upon which will climb all those who would climb thereupon in the generation, and according to the testimony of the celebrated scientist Bernstein (may his light shine!) according to whose principles [or “foundations”] we supported the beginning of this our article — we shall exalt the researcher Pohl who with the greatness of his diligence and the fineness of his study showed all that electro-magnetism is the source of the force which moves heavenly bodies.

The sublime [or “exalted”] study which has risen in our generation to the highest rung of the ladder of the science of nature, and to which all researchers and scientists in the field have lifted up their eyes, is the study of the book of creation which was also heard from the mouths of our forefathers of blessed memory who according to our opinion walked upon the path of the spirit of the science of nature — and if they did not discover in their days the secret of atoms, of electricity and of chemistry — nevertheless looked far ahead and grasped the truths founded in the world of reality, in which shall be united the ideas of the first and of the last. The force of attraction which is in the grain of sand — which those of blessed memory called by the name “*dok*” the atomic force, the magnetic force are results of the father-force electricity which unites and sets into motion the inferior and unknown and unthought-of “*dok*”, this force unites the heavens and the exalted and eternal hosts; thus thought also our wise men and in this manner applied [it] to give meaning to the book of creation: “In the beginning God created the heaven and what is the meaning [of this]? As follows: it is extended as “*dok*” in the heavens. The extending of the heavens and the secret of their unity [or “harmony”] is none other than the extending of atoms in this “*dok*” which we can observe and of which we can make use; “...and the earth”, and what is the meaning [or this]? As follows: in the solidifying of the earth into a solid and this explains more clearly the expression of his lips regarding the connection of the “*dok*” and the grain of sand, and the final outcome prove how clods of earth stuck together —.

The sublime study mentioned above, teaches us to search for and find the one uniting force which will be found only through the

[*Translator's note:* the term “*dok*” is used in the quotation at the head of this chapter, and signifies something like “curtain”, “fine-ness” or “thin-ness”, and is used poetically for signifying “the heavens”; but its full meaning cannot be adequately rendered into English]

[*Translator's note:* the word “*dok*” comes from a similar Hebrew root as the Hebrew word for “sticking together”, and the author seems to be making use of this similarity to prove his point, which however cannot be proven in the same manner in the English language]

study of nature and not through the deviant [or “perverse”, “aberrant”] way which was followed by many generations who only with the diligence of their debate, and the keenness of their intellect, philosophers, “philosophised” for themselves a path to arrive at the secret of the world, of the universe and all that in them exists. Were a man to desire to pass before us that which the great philosophers have begun to do from the time of Aristotle to Hegel to enable us to understand natural science, we should see a chain of a multitude of follies, errors, mistakes dressed up in the garb of science. When they went astray by the way of the philosophers in their desire to demonstrate that the seven planets unite the seven colours and the seven sounds, then they, the wise ones of wealth, forsake [and] crossed the sea in their [attempting to] “gild the lily” [*lit.*: “in their enriching of wealth and setting a crown thereupon”] — which no doubt have their roots in ancient astronomy — were these layers-down of numbers to rise from their graves and recognise the changes between their stars and ours, they would be ashamed and would have to admit that there is no straight, sure and trustworthy road for the researcher and the inquirer save that of the science of nature, for only along that path can we hope to [attain] light. But we too have admit, that we too cannot yet attain [knowledge of] nature in its entirety, for there exist in the real world things which cannot be understood by human senses and only a small part of nature lends itself to be known and become clear to us through our senses. And who knows how many hundreds and thousands of years will pass and men will stand before this gate closed and locked up and having no opening — though we do have to thank very much the years of the century in which we are living, in which the sun of science has come out to spread its glow upon many generations which [hitherto] walked in darkness, and we shall leave our sons to inherit even more than what was bequeathed to us by philosophers of generations past. Therefore we too in this our writing shall desire to profit from [this] enlightened period, and after we have mentioned all these [things], the reader will observe that it is impossible with the help of man’s senses to attain in an absolute way [an understanding of] what the world is, what the soul is, and what is revelation by *tsimtsum*, and therefore we have laid our cornerstone for all the observations which we observe, and all that our teaching teaches us is the value of the dearth [or “paucity”] of our attainments and not at all in an absolute way.

And for the sake of establishing for the reader the truth of our words herein expressed we shall bring out one example from the

[Translator’s note: *tsimtsum*, which literally means “contraction”, is the Kabbalistic doctrine explaining how God contracts Himself to make room for the universe]

[entire] collection of nature's secrets, with the help of which we shall make an analogy with the rest according to the method of reduction (*im System der Beschraenkung*) and this is the secret of the force of electricity which is found and discovered in thunder and lightning, as a result of different currents of air moving one against its neighbour, [whence] comes into being a layer of air possessing electric force, what I wish to say is, one layer of air receives [a] positive electric charge and the layer which lies next to it, negative. If the air is very humid, the electrical charges cancel each other and nothing visible issues therefrom, and therefore during moist and cold periods, thunder is almost never heard and lightning almost never seen. Not so the case if between the charged layers of air (or between cloud layers) there is a third layer of air which is dry, in which case the two electrical charges get separated, and the charges increase, in the one layer the positive charge and in the other layer the negative charge, and gradually the two clouds get closer together, each being attracted by its neighbour, and the closer they get to each other the greater the electricity, the layer of dry air between the two narrows and gets smaller until it is very thin indeed, and the two electric forces unite in a flash of fire which leaps over, and in a twinkling of an eye is born an illuminating [flash of] lightning, and rolling thunder is heard. In this manner lightning will not set alight the earth below, only spit [the arrows of its] quiver between two clouds, which by the force of attraction are concentrated thickly together (*durch die Anziehung sich verdichten*) and they bring down to the earth the object [*lit.*, "target"] of their vigour —

And when deep investigation brought about the clear knowledge that lightning is born of electricity which causes it to come into being in the air at times when far-flung winds join forces, and in the pressing together of their sides one against its neighbour rub layers of air and bring forth electricity in its free state, then did the wise researcher in natural sciences Franklin dare the strength of his spirit to try whether he could succeed in divert the spark of electricity to whosoever might desire [it], if he could succeed in paving a path to the spark of lightning which emerges from the clouds of the sky by means of an electrical machine, and command it "go along this path!" — he said and [so] it was, he commanded and [so] it stood!

Franklin the researcher and inquirer into the marvels of the science of nature improved [man's knowledge] of the foundation of this secret more than all the keen philosophers. Thousands of years

passed without [our] knowing the principal force hidden in the treasures of nature and what did their inferences and conclusions profit us? And men like Franklin, inventors and teachers of the true ways of the secret forces of nature admit and answer with full mouth that the way of creation is still hidden from them, even as a matter of fact electricity by means of which they said to themselves they could find the key to solve the riddles of the world, even [about it] they admit that they have not found its essence and inner reality even though we observe and feel the activity of the globe itself which in its entirety is an electrical machine telling man its tales — nevertheless there is no one who knows and can say upon what its essence is founded, even though the wise of heart who inquire into nature answer and tell us: the length and breadth of action of electricity is limitless, indeed it is the entire universe, yet before us lies a great secret, for which only the science (of nature) will pave a circle [or “will resolve”], and it, even science itself, stands before the gate and it is not in its power to conduct the general survey of everything that is done along [even] one of its paths.

Though in general, if it is desired to limit and concentrate our knowledge, we get a sentence [or “theory”] closest to a decision in this manner: Every mass and every thing in the real world possesses a force of attraction which attracts its fellow mass. The force increases with the size of the object, and this force unites and complements the calculated number of atoms in the object and thus it is for every mass.

When we are convinced hereby that a ball of lead possess a force of attraction which emerges into action by means of a pendulum (*Pendel-vorrichtung*), all according to its size and weight, then this force appertains to the earth and the heavenly bodies [too]. And regarding the truth of this action there is no doubt in natural science. Let us imagine in our minds a space empty of all heavenly bodies, whether earth, sun, moon, stars or planets, and let us [further] imagine that in all this vast empty space only two atoms exist, tens of millions of “parsangs” distant from each other, even then between these two atoms a force of attraction exists. But this force will be very weak, because the weight of these two atoms is almost beyond measurement, and because the force of attraction decreases proportionally to the square of the distance: and yet very gradually the two will come nearer each other, and even if it takes tens of millions of years, [eventually] they will come together and become one object.

And if there are many atoms in the universe the law of movement and coming together applies to all of them and thus it may be said of them that from them are born the heavenly bodies, which we see with our eyes, the sun and the moon and all the [heavenly] host.

From a general result such as this, the inquirer may broaden his limits unto the beginning of creation, or at least unto the heavenly bodies, for truly it is not right nor fitting for the spirit of man to penetrate further, to reach the mists wherein lies the secret of God. And if it is also said that the heavenly bodies come into existence as a result of tiny atoms which the force of attraction caused to adhere together and become as one, even then science does not profit [from it] very much, for ultimately the question stands [before us]: How and in what manner did the atoms themselves come into existence? and how do they come by this force of attraction?

The man who does not desire to be led astray in vain in his soul, will admit, that the solutions that have been offered by the science of nature have not succeeded to calm the heart of the questioner; questions such as these are not within the jurisdiction of natural science, they are above its limits and total knowledge is [available] only on the path of the system of reduction, and natural science [may] decide that one master force rules over the entire universe, but with this arises the question whether this ruling force (*der waltende Geist*) lies within nature, or is above it? That is, does the entire universe act according to eternal forces which appertain to its inseparable foundations [or “principles”], or according to a single force which stands outside the partition of the foundations [or “principles”], and according to its commands rules the forces in the entire universe? And to this question too we shall be able to answer only with the help of the system of reduction for in nature is known only one ruling force. The stars move according to established laws, but we do not know unto what; even if the acute human mind is able to calculate and measure the movement of the stars, and formulate for it a law, yet this law is only [applicable to] two bodies — as the discovery of the law of gravitation and movement by the researcher Newton is known — but the movement of three bodies, which by reason of the force of one changes the movement of the two [others], and which itself changes its movement by reason of the other two, the accurate calculation of this movement has not been possible for the keenest and finest human mind and this riddle is known in natural science as the

“Three-Body Problem” (*das Problem der drei Koerper*), which our eyes see for nature solves it daily with regard to the relationship between the sun, the moon and the earth, added to which is the change in the movement of stars without number as a result of the three. From this we judge that even to these riddles to which in nature itself are found solutions, we do not possess a criterion to measure the one [single] spirit which rules and commands the rules and laws in any one of its tens of millions of its ways — even though we dare in our souls to inquire of its ways on high and borne above nature. But in this rises up the spirit of man and his stature grows even unto the height of heavenly bodies for he understands and observes his existence and that of his fellow-man — for the [heavenly] bodies mentioned above are without understanding, and only according to their laws are they compelled to move and stand still.

The attainments of the human spirit are thought of as nothing in comparison with the spirit that rules in nature; however in comparison with nature which lacks understanding, like a creating instrument appears the human spirit and its knowledge is great and exalted. And in this we human beings may marvel, that without us nature would neither know nor recognise its own existence and reality, and only after we were born did nature attain, even though we were born in its lap, its [own] degree [or “exalted position”] as a result of our knowledge, and not only is the case, as the great researcher Bernstein has suggested, that man is a necessary member of nature, but that he is the most necessary member [of all] and he renders complete [or “renders perfect”] all of nature.

And now after we have come to this idea, that man is the choicest [part of] nature, and by his creation the rest of creation attained self-knowledge, now let us stand by this saying and set our eye to an examination of the results of man, the improvement in his character and traits, which he deserved [or “to which he laid claim”] from his having burst forth from the womb that created him, consciousness and feeling, inclination and desire, freedom of knowledge, and freedom of spirit, which are gifts given unto man tens of millions of years ago, this inquiry and this knowledge will be for us the door to learn and to understand the meaning of creation according to the *Torah* of Moses our Great Teacher, which is our intention in particular —

That which we have called “awakening”, which the Germans call “*Energie*”, we do not find in lifeless nature (*der todten Natur*) nor even in plants is it known or found; only among animals who possess life with nerves (*nervenleben*) and in man who lives a life of the spirit which is linked to the action of nerves which spread out from the brain, only among them can we find the essence of feeling and consciousness — .

[Translator's note: the original in Hebrew for the word translated as “awakening” is *hit'orerut*, which literally translated means “awakening”, “animation”, “excitement” and probably refers here to “consciousness”; this term appears frequently in the paragraphs that follow]

Regarding forces of lifeless nature such as that in the chemical and electrical magnet, which exhibits to us attraction and repulsion, combination and separation to the point that sparks of fire accompanied by tumultuous sounds are obtained therefrom, even so there does not rule in them the essence of “consciousness” which is seen in animals. Among animals we observe that their running about [or “movement”] over long distances is an outcome of consciousness, among man it is noted that his walking and movement is according to [his] will. If the brain of a man is preoccupied with an idea, the consciousness of his body rises, and even without his will he may hurry along on his way, and if the idea is swept away from him and he is satisfied in it he [may] suddenly stand still and not continue walking. From all this it is seen by us that will is in the brain and it causes consciousness to be awakened in the nerves. The brain evokes consciousness and desires action in great and heightened measure, and when the will imparts to the nerves of a limb a large [amount of] consciousness [or “energy” — see note above] to lift and carry a heavy load, greater than their power [to do so], then the brain imparts to itself a measure of consciousness, in the thinking researcher and the poet — to lift up his ideas on the wings of heightened thought, for this is the power of consciousness, to increase and carry at times the action of man and the power of his thought to a very high level indeed.

From this we arrive at the theory [or “generalisation”]: that the large brain which is in man, which is not only the seat of thought but also the seat of self-consciousness (*der Sitz dem Bewusstseins*), is also the general force appertaining to the principle of [or “the measure of” — the word is ambiguous] consciousness.

Many researchers in nature think that the thoughts of man indeed change according to the quality of [his] food, and even if we cannot so decree in absolute terms, yet nevertheless the wise men of our generation are agreed that better foods exert a considerable

action on the brain and impart to it a greater capacity towards consciousness — .

And when we have noted that the large brain of man is the seat in high degree [of that] which surrounds man with the sensation of consciousness, then it will be more easy for us to prove on the [same] level that the brain is that which enriches the life of man in the highest degree even by the awakening of thought, even though these principles do not have a foundation in thoughts and ideas, and they are known [by] the feelings of inclination and aversion [or “likes and dislikes”] (*Neigungen und Abneigungen*). As a result of these feelings a man will train himself and behave and conduct [himself] a great deal more [suitably] than he would [otherwise] conduct [himself] according to his ideas. For instance the desire for wealth and riches is greater than all others, if we ask a very wealthy and old man, Why do you run after profit, and bring yourself [to walk] upon dangerous paths [or, “take great risks”], think of the value of your wealth and [of] your years, would you not be satisfied to spend your days in peace and quiet! And if the man answers you honestly, [he will say], It is not my thinking and my intellect that inclines towards pursuing [wealth] and acquiring [it], but a desire which I do not understand [which] rules within me, [and] which takes away from me moments of rest, and I have been under its control all my life. These feelings reside in the heart of every man and mankind has brought forth, and will bring forth, every deed and enterprise on account of them, and only by means of these feelings differing in their goals, has been brought forth the improvement in the perfection of man in the world of deeds, and therefore natural science has ascribed to them a great advantage, as we shall see in this chapter.

These paired traits which hang upon man throughout his life, have a parallel in the growth of plants (*mit der Triebkraft der Pflanze*) and the natural tendency (*instinkt*) of animals, even though man is exalted in his inclinations [or “instincts”], for which his will and his spirit pave a pathway. And his inclinations [can be] divided into three kinds or types. The inner machine: digestion, nutrition, circulation of blood, exchange of matter [or “metabolism”] (*Stoffwechsel*) in these things man resembles the plant, [since they] perform their functions without his knowledge or will. And with the beast he may be equated, for like it he with his senses takes in everything that is and exists in the world of reality. But he also rises above these two types [of living things] in his spiritual life for

he [can] construct in his imagination a chain of different forms, and solve riddles of the visions of nature, dominate nature and put it in the palms of his hands, and this ability accrues [*lit.*, “comes”] to him even after the two first [mentioned] abilities, gradually reaching this level. Man reaches the higher rungs of the ladder of perfection only because of inclination and aversion which bind together the spirit and the will, which is not the case in the animal and the plant which are compelled, and [that] without [their] knowledge, to do that which their instincts and tendencies compel them to do. And this will be seen clearly by means of this example: Attachment to life is not known among plants, and animals know or desire life, but in man attachment to life is the strongest and is felt in him as a sublime desire and he knows and recognises his desire for life, and all his actions are aimed only at the goal of life. And although in his instincts man is even raised and borne above the plant and the animal, yet in that spirit there is strength and power to crush under its feet even the perfected instincts which reside in the heart of man. The spirit rules over all, and the man of spirit will at the [proper] time sacrifice even his instinct of life-preservation in the attempt to strengthen the voice of his spirit and to show unto all the truth that in him lies, and from this we see that that which we call spiritual or of the spirit, has the power not only to pave a path towards the instincts but even to upturn them and to choose death over life — .

Natural science has increased its signs in our generation to show that the source and foundation of the instincts of man, are not within the members of the body, as believed our wise men of old: that love, hate, pity, worry reside in the heart, anger issues from the liver and wrath in the gall bladder is found — only [that] the instincts have the power to act upon the working of the heart, and all the nerves are connected to one principal source which is the brain. And this too has become clear that the main members [of the body] also reflect upon the brain, and awaken images and likenesses [*lit.*, “pictures”] which rest in the bosom of slumber. The seat of the instincts is in the brain and the beginnings of their actions is recognised in the principal members [of the body].

The improvement and perfection of the instincts rises step by step, from the level of the plant to the animal and from the animal to the human. The child in the beginning days of his life is at the level of the plant, and is somewhat less than the animal, for the [human] infant sucks whatever is given to his mouth even if it does not quench his thirst, [compared to] the calf which upon being born

walks straight to its mother's teats and sucks at that which is proper for him to suck. And after not too much time he [the child] rises step by step and reaches the measure of natural instinct, and after not too great a time he becomes perfected and conscious of his spirituality, and the child rises and reaches the perfection of his instincts. It is hard to distinguish between these two states [*lit.*, "cleavings"], between the time of the natural instinct of the child and the time of ripening of the instinct, for they both come as one during his sucking from his mother's breasts, and soon to that is added [*lit.*, "joined"] the love of his parents, and after that the love of mankind in general, which is the ladder of perfection [or "evolution"] in self-knowledge. The first year in the life of the child upon the earth is full of many and great changes in human nature and in it are perfected the values and orders of instincts which prepare man to walk at the head of all life on earth.

All these which we saw regarding instincts and regarding that which we call spiritual, emerges from the hemisphere of the large brain, and according to the opinion of science in our generation there is no doubt that the power of thought (*Denkkraft*) resides in the large brain, and according to its size and quantity the idea has grown, and the wise men of our generation have laid [a] cornerstone to inquire about the construction of the skull of the brain and tried to find in it all of man's talents and traits.

If the large brain is in the state of perfection and improvement, then it is easy to relate to its spiritual ability in overflowing measure; researchers and doctors of medicine have tested this [hypothesis] in different tests and this rule has emerged clearly [therefrom]. And these tests testify unto the development of man, from the elite of animal life to human life, and even the characteristics of the forehead.

Translator's note: Re. the following words in the footnote: *Burdach* [this word is unclear: it is a German word written in Hebrew characters] *von Beue* [again unclear, for the same reason] *und leben dem Gehirns* [again unclear]; [then two words that are completely indecipherable, most of the obscurity arising from the small print of the footnote, which is very badly reproduced in the photocopy, which is on page 21 of the original]

[Here a footnote, as follows: For although the brain of man is large, larger comparatively than that of the beast, yet we cannot draw conclusions regarding man's capabilities from his skull, for the shape of the skull is not always the same as the shape of the brain, and therefore many scientists have risen up against the scientist Gall who constructed the theory of the skull (*Kranioskopie*) *ein Burdach von Beue und leben dem Gehirns* testifies unto the spiritual aptitude peculiar [or "special"] to man. This inquiry will open for us a gate of alignment unto the aim of that which we seek after in the subject of creation, and with this we have completed the opening and introduction in the third chapter.

FOURTH CHAPTER

The *Torah* knows what is prior to the creation of the world but you have no business inquiring of aught save 'since man was placed upon earth'. (*Job* 20, 4) (*Midrash Rabbah* Ch. 8)

Researchers have already attempted to keep track of the roots of the genuses and the creatures according to their species, and have come to research the development [or "evolution"] from the plant to the world of animals *etc.* as for instance: in muddy stagnant waters we can see with the help of the microscope green round [things] moving in their hundreds in a drop hanging from the eye of a needle — their movement resembling [that of] worms, the covering of their bodies made of a net and their cavities [*lit.*, "holes"] empty, and within them also roll tiny round [things]. And when the covering of the round [things] are opened the tiny round [things] emerge separated, and move around in space like independent creatures. No mouth or member is seen on them and yet they do not rest in one place like a plant, but move about in space all their lives. The hypothesis is that these are the transition [stages] between the plant and the animal, and similarly in the seas are seen many islands which stand [as] on bridges built by corals. The "*Polipen*" [*i.e.*, "polyps", in German] are little animals from whose bodies emerges a mud-like substance which hardens and becomes like stone. The "*Polipen*" spread over many miles and like a tree its branches multiply and harden in the sea until coralline rock (*Korallen-Felsen*) forms from them, and it is said of them "ships dash against them and they break [into pieces]". Such hypotheses have brought about the decided theory that the animal kingdom emerged from the vegetable kingdom, and hands [of scientists] have proven that in ancient rocks are found remains of plants, which existed hundreds of millions of years before there were animals in the world, and by all this we can set our seal to the theory that plants gave rise to animals. Moreover they strengthen the proximal hypothesis that the worms found in very young children [*lit.*, "children of soft teeth"] are born without father or mother and without egg or yolk and these [also] teach us [and give us an] idea about the origins and beginnings of the creatures. [Researchers] have also researched and demonstrated that not all the species of animals that have existed are with us today, [some of] them lived long, long ago on the earth, only some species at infrequent times emerged into the world [literally, "into the air of the world"]. From this [observation] everyone is agreed with one voice that man is the youngest

species on the face of the earth. The crust of the earth is the grave of all living things — it hides in its bosom the traces and remains of all things that have lived on the face of the earth. The various rocks that are on the crust of the earth which conceal the remains of living things and of animals, are from ancient times distant from each other and differ in their nature. And if we classify the types of rock according to their age — which every type will by itself attest, up to many millions of years then we can find exactly which plant and which animal is the oldest on the floor of the rocks. These rocks are for us as tablets that chronicle the [history of] the world of the plant and of the animal, and from these tablets we read that animal species humbler in their degree [or “status”] lived at such and such a time, and rocks found in layers lying higher [than these] are witnesses to traces of species of animals and plants which were improved [or “evolved”] and larger according to [their] degree. Remains of human bones are found only in layers of rock which lie at this time on the surface of the earth, and this is absolute testimony to the [fact that] man was created last.

Even though darkness is yet cast upon the chronicles of the improvement and perfection [or “evolution”] of the animal kingdom, yet in this we can emerge unto the light of science that the animal kingdom has risen from the humble to the exalted or from lower to higher, earlier there were in the animal kingdom simple and lowly species, before there were higher species living in life.

Corals are from the lowly species, after them came into being species which do not possess a nervous system like the *Muschelthiere* [shellfish], whose claim to independence lies in their coverings. After this came the animals with rings (*Ringelthiere*) like the scorpion (*Skorpionen, Krebsen*). And in more recent [*lit.*, “younger”] periods came into being swimming species, like fishes frogs and suchlike, and after that the flying species, and after a long time mammals which give birth to life in their image and likeness, unto the most recent [*lit.*, “latest”] times when man emerged into the world.

Wise men inquirers into nature have paid attention to this subject which we are discussing, and the teachings and beliefs of many of these wise men have shocked [or “jolted”] the hearts of their students [sufficiently so as] to [cause them to] believe in all their [new] hypotheses, and to discard the ancient speculations, passed down to us from years gone by. And I have come here not to split

hairs in argument but only to show that even in our holy *Torah* there is no contradiction to these hypotheses and surmises, which the wise men of our generation have laid down, and [which have] set back the date of the creation of the world [to a date] far earlier than was thought in days gone by, and [in fact] we shall be able to find no contradiction between their utterances and the *Torah* and vice versa for even in it [*i.e.*, the *Torah*] we shall see the order of evolution from the moss on the wall to the cedars of Lebanon — from the worm to the perfected man — but it [the *Torah*] shall set a limit and a boundary to the first days which fell into tens of thousands of years and are no more, the thread of the chronicles of man from the first foundation shall not be seen for this is against its method as we shall observe generally from the beginning of creation, it shall set its utterances only upon the beginnings of the improvements that were necessary for the perfected man, and after that will lay bare before us the order of man's emergence from the wild state to the perfected.

The aim of our *Torah* is not [*lit.*, “does not come”] to teach the foundations of the science of the stars. But to the place which touches and is necessary to the subject, only in passing does the first chapter remind [us] of the true foundation (that which we can attain [or “grasp”] of the total construction of the world is what we can indicate as [being] from the beginning of our attainment [or “grasping”] and not from the absolute beginning) that “God created the heaven and the earth”. And the basic point of the first chapter is only the elucidation of the concept which the intellect conceives from [observation of] everything that is found in the lower and humbler world (and this in the opinion of the Rabbi 'Ak"i is the appellation [or “nomenclature”] of the ten sayings [of God] by which the world was created, *etc.*) and after having spoken of the general concept the *Torah* begins to portray the state of the earth from the beginning of its emergence to its present state of being and reality, that it was a ball of gas and after that it passed over to a liquid state, all this is meant by the word *tohu* unto which arrived the liquid ball [of the earth], as it cooled down [literally, “between the straits of cold and freezing”]. The upper crust froze and this state is called [in the *Torah*] *bohu*. The space of the universe [literally, “the emptiness of the world”] generally, in which floated the hosts of the heavens and the planets [literally: “the earths”] like islands in the sea is called [in the *Torah*] by the name of “the deep” [*tehom*, literally “abyss”] since the sea of ether has no location, boundary or limit. Or perhaps the *Torah* looks upon [or

[Translator's note: the name 'Ak"i is the abbreviated form of the Rabbi's name; however, I do not know what the full name is]

[Translator's note: in the King James version of the English Bible the words *tohu* and *vohu* (or *bohu*) in the book of *Genesis*, chapter 1, verse 2, are translated as “without form, and void”; but there seems to be no agreement among scholars regarding the accurate English translations for these Hebrew terms]

“views”] the beginning of reality, the two atoms that attract and repel, or the positive and the negative, which by their combination which is given only unto the imagination, become the beginnings of the being of the earth, the mother (*Materia*) of all that exists); and the finest of the fine atoms, and those most devoid of form as made clear in the third chapter, are called in the language of the *Torah tohu* and *vohu*, by these names giving strength [*lit.*, “giving weapons”] to the theory [literally, “*Torah*”] of the concept of atoms, [in which] are laid the main concepts best able to realise the emergence of being into action, and when the two forces emerged as action in reality, the space of the universe lay in darkness, and no ray of light shone. — Though the *Torah* knows that there in the skies above lights and suns in the tens of thousands [exist], since time immemorial [having] emerged to course their ways — as the *Midrash* says: he lit lamps and lanterns to know how to lay the foundations [thereof]? — and the *Torah* also knows many watery substances in the expanses of space in the place designated on the face of “the deep” [*tehom*] of the space in the universe, that first were there at the creation of the lower world which it [the *Torah*] calls by the name “earth” [*arets*], but even after this initial knowledge, its way in [or “to”] the heavens was not paved, its judgements were not set upon on the laws of the stars, on the lights of the heavens, and on the heavenly host, the many worlds and the rest of their goings [and comings], but only arouses the ear to listen to the general [or “overall”] knowledge [of these matters], and in a few verses includes all its sentences concerning them, and immediately returns to the head [or “main concern”] of its study, to speak of the chronology of nature, and the evolution of man from nothing upon the earth.

And but [a single] one of its passages [*lit.*, “hypotheses” or “surmises”] will teach us understanding in the method of cognisance and the theory [or “concept”] of reduction in the course of its text. For if we observe creation from its beginning, its reality and its existence, and pay attention to the inquiry of the beginnings of the force of creation, we shall not seek the spiritual force within matter itself but we must seek the force above the limits of matter, for the spiritual is external to it and stands above it. Our *Torah* presents matter to us in [the form of] the primeval watery matter,

[Translator’s note: perhaps the author intends here to allow himself a play upon words, *Torah* and “theory”? This is sometimes done in modern (Israeli) Hebrew: as for example “*Torat ha-yachasut*”, “Theory of Relativity”]

Here a footnote, as follows: “The *Midrash Rabbah* calls the two known [or “well known”] atoms by the name: The Holy One, Blessed be He, put two bundles [or “bales of hay”] one of fire and the other of snow and opened the one to the other, and from them the world was created — (the name of the chapter is ... [here an illegible word, the obscurity caused by imperfections of the Xeroxing on page 23])

and the spiritual force, [in the form of] the spiritual force of creation which stands above it [as] “the spirit of God moved upon the face of the waters”. The spirit of G-d [that] moved upon the face of the waters, is the spirit of G-d which creates everything and sustains everything, and establishes everything, He is the God of the world.

After laying down in the beginning the emergence of reality — and all only according to the concept [or “theory”] of reduction and certainly not [or “absolutely not”] at the absolute beginning — the *Torah* gazes upon that very place of darkness in the abyss of the space of the universe, — upon which “he sought to build a palace and that is the same place of darkness — what did [he] do? [or, “what action did [he] perform”?] After [those which were] “without form, and void” [*tohu* and *vohu*] were compiled, God said: The light of the world that was created shall begin to light up and shine its rays upon this formlessness and emptiness [here again, *tohu* and *vohu*], this light rolled away the darkness — and “there was light” and with that the emergence of creation was completed.

The *Torah* speaks according to [*lit.* “in”] the method of the system of reduction; after having looked at what was done in the beginning [literally, “the first act”, *viz.* creation] according to the most conventional concept, it turns its examining eye upon the earth as it might appear to the eye of the observer, and calls out a name for it according to the laws of gravity [literally, “laws of weight”]: since the *Torah* knows what preceded the laying down of the creation of the world, that all the lines of gravitation [literally, “lines of weight”] on the entire face of the earth, unite at the central focus of the earth, and the form of the earth is [that of] a perfect sphere, and therefore the lines of gravitation meet inside the earth, and stand all of them vertically (*Senkrecht*); the face of the earth is called and described as the upper surface and by this name is not called the [actual] upper surface with all the tall mountains and the wide valleys, but the abstract upper surface by itself (*ideale Oberfleche*) in this manner: Let us imagine the Atlantic ocean, and the Southern Sea (*Sued-see*) and all the seas that encircle their shores and [let us further suppose that] they are taken out each to the boundary of its neighbour so that they join together, and become connected [as it were] in a strong chain in their flow and course. And let us imagine for a moment that they are resting and standing still in their flow and course, then shall easily be seen in their mirror (*Spiegel*), one part of the earth’s globe bounded by

[*Translator’s note:* it should be noted that at times the author does not spell out the name of God in full, for orthodox Jewish custom forbids doing so except in the holy scriptures; however, the author is not quite rigorous in this custom]

[*Tr. Note:* “he sought to build a palace” — referring to the quote at head of Chapter Two]

the shores of oceans and seas — . And if we were to think in our minds that the parts of the earth's globe with all their ups and downs and twists and turns, in every section of the surface were to spread out below and above until they gather together in one place, then in this state [the earth] would appear to the eye a complete sphere. The abstract upper surface is also known as the “sea level” (*Niveauflaeche*).

The abstract [or “simplified”] surface which is seen in the midst of the great mirror of connected seas (*eine ideale Oberflaeche die mittelst das ungeheiren Spiegel der verbindenden-meere dargestellt werden kann*) our Holy *Torah* calls in the book of creation by the name “firmament in the midst of the waters” and regarding the internal review in the order of creation according to the method of the concept of reduction the *Torah* says: “and God said, Let there be a firmament in the midst of the waters”.

In this way we shall resolve all the texts of the Bible attributing to God everything, which human attainment grasps according to understanding knowledge and wisdom. The Father of Prophets laid the cornerstone to this method, and from the beginnings of the Biblical texts pertaining to the subject of creation we can recognise the method in the divinity of our LORD Moses [who] gave us the *Torah*. After him came the Prophets [who] gazed upon the face of The LORD in all their visions exultations and prophecies, who with [the help of] this earlier knowledge were to solve many riddles in different texts of the Bible, which speak of things of lower value but nevertheless relating to the things of the LORD which in our eyes are considered as absolute — .

Even though according to the method of the concept of reduction remain [to be discussed] the heavens, the higher world and all the hosts of the wide open heavens, of which there is no number limit boundary or end, capable of being conceptualised only by the sublimest of conceptualisations, and in evaluating such concepts we can even ascribe [or “allocate”] degrees [of value to] prophecy — for all that we have profited from this method [in the knowledge] that there is nothing absolute in that which we find [around us], and in a general way we shall say that the *Torah* has established the concept of reduction at the sublimest level that the hand of the intellect of man touches [spoken figuratively].

The proper inquiry of the first section of our *Torah*, yet lies far away from the limits of our knowledge, [and] yet many genera-

[Translator's note: the original Hebrew word used here for “firmament” is *reki'a*, which can mean, in addition to “firmament”, also “expanse”, “canopy”, or “vault”; while a related phrase, *kav reki'a*, means “horizon”, which interpretation more clearly explains the author's argument given here]

“Father of Prophets”: *i.e.*, Moses, who according to tradition gave the *Torah* to mankind]

tions will solve problems of the nature of reality, and yet centuries will unravel mysteries of their existence in the first ancient affair as the days of writing man on the earth. Hear the flowery language of a [certain] German who says: Let us hear what Mr. Alexander von Humboldt in his book *Kosmos* tells us: “The most adorned and magnificent life of Nature [made so] as a result of wealth and perfection will be perceived only as song and music to the passers-by, and we can say that in the 35th Psalm of David the entire form of the cosmos is seen” — and I say that in the one passage from the words “In the beginning” to “These are the generations of the heavens and the earth” the entire cosmos and the songs of David which carry [or “deal with”] the subject of creation are included, and the great natural scientists — among the generations of these wise men of the world, began to clarify and interpret the passage [of the Bible] on creation, according to the knowledge of nature in the method of reduction in their generations and it still remains covered with a veil, of which the science of nature has not raised the curtain to this day — . And I have touched merely the outskirts [or “extremity”] of the passage to clarify [or “explain”] [it], I shall leave the rest to the inquirers after nature who stand before the sanctuary of nature itself to serve, and they and those that come after them dealing in the affair will come one by one into its chambers, and only in a general way have I decided according to the saying of our forebears within which is contained all the glory of the *Torah*: “The *Torah* knows what predates the existence of the world”. And here I come with this to begin my inquiries and preoccupations to seek after the root of human origin, his wild [or “savage”] as well as [his] perfected state, and I have supported my foundations by the second half of the above saying, [which] complements [it]: “But you have no business to inquire about aught save ‘since man was placed upon earth’.”

The saying which complements the aim of our seeking, which emerged from the mouths of our forebears, will open for us an opening in the body of the affair of creation which our *Torah* begins [as follows]: “These are the generations [toldot] of the heavens and the earth when they were created”. The ear will explain to us [so that we may] hear: the story of creation is but the story of the order of existence of man on the earth for only for his sake and for his honour, thinks our *Torah*, was intended the creation from that yesterday [which existed] before the son of nature [*i.e.*, man] was

[Here a footnote: *Juedische Presse* Nr. 30 Jahr. 871.

called into existence living and sturdy upon the earth. The passage on creation in our *Torah* is the first passage which explains the body of the contents of the aim of creation. Hence it is required of us to come to the inquiry of the explanation in order to stand at the root of the matter, its essence and source — .

THE ORIGINS OF MAN

A.

THE EARLY [OR FIRST] VEGETABLE KINGDOM

In the existence of reality [that] which natural science recognises after the earliest days is the finding of the life of plants; the vegetable kingdom, is the first dominion of life for in the oldest rocks has been discovered, that they are the outcome of the family of plants, which began to multiply on earth. The archipelagos of islands which are hoisted on the seas, called *Korallen Inseln* [*sic*; “coral islands”, in German] whose inhabitants are *Polipen* [“polyps”, in German] a species of living thing from inside of which a muddy substance spreads, which hardens into stone — and of which tens of thousands, live together in clumps, and like the plants of a field grow and multiply, and for all that they harden in the inky [mirks] like a rock. Only across their faces is seen the location of the mouth, and their sides [are seen] like delicate hands — moving this way and that — and these rocks are the ancient tombstones of the vegetable kingdom, “the mother of rocks”; and our eyes see with the help of the microscope, how in one moment are created from the leaf of a plant of the field placed on a plate with hot water poured over it, tens of thousands of living creatures, which are [called] infusoria (*Infusorien*), of different and marvellous descriptions. The little creatures tell their tale and prove that the vegetable kingdom is the mother of all living things — . And though it is agreed in science that the vegetable kingdom, is the most ancient and the earliest, for all that science has not succeeded to show and instruct [regarding] all the different types of species which belong to the family of plants according to their species in [all] their lands. With the discovery of the New World, an entire new family in the vegetable kingdom was discovered. Nature by itself raises a controlling hand over these families, it does not wait till man comes to be a “help meet” for it, but it gradually guides these who come out of its loins, transfers and leads family [after] family from [one] end of the world to [the other] end, transports them on the by-ways of the world, hands them over and delivers them with [the help of] a hand stretched out to do its bidding.

And what are these stretched out [hands], happy to do its bidding? — [they are] the waves of the sea flowing and coursing ceaselessly in their courses (for the sea by itself does not flow, only the places [within it] called ocean currents (*Meerestroeme*))

[Translator's note: the term used here for “help meet” is *ezer kenegdo*, which is exactly the term used in *Genesis 2, 20* for the future Eve who was formed from Adam's rib, and which is translated in the *King James Bible* as “help meet”]

like the Gulf [Stream], which emerges from the place where South- and North-America meet, and makes its wondrous way up to the continent of Europe, and emerges [thence] to flow to the shores of West Africa, and returns to the place from which it originated — they carry on the arms of their waves, plants and trees to the ends of the earth. The flows of the sea also easily repair [*lit.*, “heal”] the valleys [or “chasms”] of the earth, rendering them suitable and prepared to be sown in them the seeds of the living [plants]; they carry on the wings of their streams the remains of the most perfected [or “evolved”] plants to the stretches of the earth containing warmth (*Waerme*) and there they lay down the load they carry on the face of that earth so that after hundreds and thousands of years they may improve the earth and render it peaty (*Torf-arten*) [with] glowing embers and stony embers by their tens of thousands. This earth which was cold earlier changes gradually to a state of warmth, until as a result of this change, this transformation, and this passing of thousands of years, the earth is improved [to the point that it can] receive and take into its bosom the seeds of plants, [so that they may] lay down root and bring forth fruit like a plant [should]

Even though the winds have blown the pollen of flowers and plants over thousands of “parsangs”, to fertilise other flowers blooming [literally, “arising”] at the ends of the earth — though the streams and rivers in the ocean have done their work more slowly and gradually, yet for hundreds of millions of years they have not ceased and will not cease to improve the earth like the lands of the north which never were suitable at all for working the soil.

Even this day the inhabitants of Iceland give their testimony to these travellers and passers-by ferried on the waves of the sea. Many fir roots (*Fichtenstaemme*), elm, cypress and remains of conifers (*Nadelhoelzer*) have been brought on the backs of sea-waves to these desolate places.

In the “New Land” (*Novaya Zemlya*) and Iceland the land has been covered with a multitude of trees, which the flowing of the currents [*lit.*, “rivers”] have brought there [for] thousands of years, and now the land has been improved to a medium degree [literally, “state”], and in the fullness of days when the necessary warmth increases even fruit trees will be [capable of being] sown there.

Even the places lying in the Arctic Ocean, and the distant islands [near] the poles (*Pole*) [*sic*, in German] even they tell us of

[or “inform us of”] signs and portents backwards from driftwood [literally, “eternal-travellers”] (*Treibholz*) [*sic*, in German] for since thousands of years ago they were laid [there] and travelled [there], and have been transformed like the substance which makes up [literally, “seals up”] this land, and the voyage of these trees and plants will not cease until the days when winter and summer, spring and autumn [*lit.*, “cold and heat, sowing and harvest”] will come [there even] as in our inhabited lands.

Experience and examination [conducted with the help] of our senses have taught us sufficiently to recognise the handiwork of nature which proceeds slowly, and a thousand years are as one day in her eyes. We can easily grasp this from the number of years which passed by the thousands, before creation prepared fertilised land from which to bring forth bread.

About the period during which the vegetable kingdom was covered with a fog our *Torah* hints in the passage on creation, and speaks of the time when the vegetable kingdom did not yet exist upon the earth, and the land was not yet accustomed to bring forth seed, for [fierce] cold yet dominated [or “tyrannised”] with all its strength and the vapours of warmth which rise and combine into clouds bringing precipitation and bringing forth plants did not yet exist. This limitless time is called by the *Torah* by the word *terem* [literally, “before”] for in a vague term like this lies an enormous number [of years] of which there is no counting.

“And every plant of the field before [*terem*, in original] it was in the earth, and every herb of the field before [*terem*, again] it grew: for the LORD God had not caused it to rain upon the earth, and [there was] not a man to till the ground.” [*Genesis*, Chapter 2, verse 5]

If we look carefully into [*lit.*, “observe well”] the passage on creation we shall recognise in the signs [which] it establishes for us in the order of improvement [or “evolution”] of man [in degrees] ever higher, and signals to us in writing, the earlier [stages] of the order of improvement, its degree [or “level”], in which we are at present in the state of improvement and perfection and in this passage (*Genesis* 2, 5) is completed the first suggestion at the time of the preparation and that is: Man [is] not. Indeed the negative rule implies the affirmative: after the “plant of the field was in the earth”, and the “herb of the field grew” and the LORD “caused it to rain upon the earth”, and “there went up a mist from the earth, and

watered the whole face of the ground”, and the ground was prepared, as in continuation is explained [or “clarified”] in the planting of the garden [of Eden], that nature by itself finished its handiwork of planting the trees and covering the soil [as it were] with a carpet, then began the period of the existence of living man upon the earth.

And so that it may strike root in the heart of the reader, the idea which stands at the opening of this passage, which in truth and innocence emerges from my heart, I said I shall copy here a small chapter, which I read after my having written this, in a new book which throws light upon the world of knowledge, and after its utterances throw light in your eyes regarding what I have previously said and you shall see marvels in the [Biblical] passage on creation. Are not thus its utterances which it presents at the head of the contents of the chapter: (*Die Periode der Jetztwelt*)

A great distance has nature travelled upon its long way until it reached the present world. On the steps which nature climbed one by one, its perfection acquired greater improvement. Therefore the earlier steps should not be thought of in our eyes as lacking perfection; they fulfilled and helped [attain] the ends of the forces of creation and the forces of nature which added life at all times while nature was being perfected. And on the day the creation of plants in the boundaries of the earth (*Polargegende*) was completed it was in relation to the ice-climate (*Eisiges-klima*) thus we can justifiably call the initial steps complete and perfect. One [thing] we said, [about] which we cannot lie, that this period in the order of creation during which the foot of man did not tread upon the ground, this period is awesome and marvellous to us owing to the magnitude of its stages. The most marvellous conditions must have emerged into action [or “must have prevailed”] before a place for the inhabitation of man had been prepared.

The plants are the hosts [of] a worthy place for [providing for] man a home (*Heimat*) and they prepare his food and his daily bread, [as they] since eternity have been food and sustenance for the beasts and the brutes of the earth; they cleansed the air of the early world of excess carbolic acid gas (*Kohlensaeure*) which filled the atmosphere as a result of excess chemical activity; they inhale and consume carbolic acid [gas] — which asphyxiates animal life — which wanders from place to place as a benefactor; they [the

“Kohlensaeure ”: [the reference appears to be to carbon dioxide]

[Here a footnote, as follows: *Buch der Pflanzenwelt von Dr. Karl Mueller v. Halle II Buch zehntes Kapitel, Seite 149. Leipzig 1869.*]

plants] convey as a result of their activity nitrogen (*Stickstoff*) into the atmosphere, which is contained in large quantities in ammonia, and they exerted the fullness of the strength of their arm in their battle, till they brought forth that which is valuable from that which is valueless to introduce on the equator and in the poles the different airs [or “gases”] until by their actions they succeeded in [bringing about a state in which] higher organisms [literally, “living things possessing improved organs”] (*hoechstorganisiert*) like the beast, and man could live in them. Before these conditions were fulfilled, red- and warm-blooded animals could not breathe the air and live, and accordingly man could not have been born on the land. And therefore the plant is unto man his natural mother as it were. As to how natural conditions became connected together one by one, and became composed into [something that would be] organically suited to this sublime end, we already proved, in our discussion of the creation, the period step by step from the vegetable kingdom up to the present time, we found that the handiwork of creation, which goes ahead slowly-slowly in the multiplicity of [those who are] born and in their changes, behaves according to the degree of perfection of the face of the land, and that the species (*die Typen*) in ancient days existed in reduced number, and in the latter days they multiplied in overflowing measure; and we also found that in the earliest days they were spread widely over the entire earth, and in the later [*lit.* “younger”] generation only in some regions found [a] home, and this is one of the marvels of nature, — although we may interpret this to ourselves [by saying] that this was due to the changes [that took place] in the atmosphere — withal it is a marvellous [thing] in our eyes.

In the place in which is found today, as in the land [of] Greenland, grass or plant which is no thicker than a finger, and its length no longer than two or three feet, in this place sprouted and grew primeval forests (*Urwaelder*) which in the size of their trunks did not equal the forests in places where milder [literally: “clearer” or “purer”] air blows (*mildere Zonen*) and whose remains to this day are found in collieries (*Kohlenlager*) and which by and large, [measure] two or three feet [in thickness] such primeval [tree] trunks.

The world of plants reached its abundance of richness of form and diversity [literally: “image and form”] at the time man emerged into being as he is at present. And only by this that known families (of plants) found an inhabitation and living place in a secure loca-

tion, brought forth of their glory, and established the seal of their master-plan, in mountainous surroundings, in the showering of an abundance of light, and by means of clouds of the sky, and the other hosts of nature — upon the [coming into] being of man. There is no need to prove this activity of nature, and yet withal we should remember the saying [literally: “the decision”] of one of our great [men] Karl Ritter who says: The great impression which nature impresses with [a] stylus of sapphire on man alone, this impression shall also be engraved with a steel pen on the bodies of the lands in every place of their inhabitation, and jointly [*lit.*, “as one”] the writing of nature is engraved on the soul and spirit of [that which] resides in the depths of the innermost heart, and also on that [which is] within and without in the surroundings, and that in all corners of the earth and in all the centuries, for ever and ever. The Arab who grazes [his] sheep and is for ever a nomad, in a desert land empty in most of its landscapes, who creates [images] at times in his imagination, which flies on the wings of freedom — the nature of the land of his birth sets his spirit on fire and prepare his body to run after and acquire and distribute booty, [even] he recognises the [goodness, favour and] benefit of the land [and thanks it] for these traits which it has bestowed upon him.

Even among the Hindus is believed the saying: “As [is] nature so [is] man”. He who sits on the banks of the Ganges will rejoice in the portion given unto him, will vaunt of his attainments in religion, will see the angels [*lit.*, “sons of G-d”] rising towards him, giving voice from between the leaves, speaking to him from the summits of the flourishing trees, and chirping to his ears from the leaves, blossoms and flowers, even he will understand that from nature are given unto him all his capacities, nature makes the earth soft like a carpet before him, on the wide upholstery of which flourish families of plants and fruits, his animals and his beasts of the field in large number — and along the gentle wellsprings and rivers he grows with them together. A people which marvels at and is impressed by scenes of happiness or images of enjoyment, shall collapse and be subjugated under the yoke of their burden, and shall not be able to dominate them by its free spirit, such a people is an eternal slave to the voice of nature when it speaks. The nature of the earth [or, “of the land”] works in large [measure] to change everything according to its spirit and it changes man very much not only [with respect to] his food and drink and appearance but also [with respect to] the traits of his soul and his emotions, which are seen and discovered in his natural speech and the songs which

emerge from his innermost heart, and as the changes [caused by] nature are seen in the lands, so they are seen in peoples. If we pass along from the Arab lands towards the west to the land of Lybia (*Libien*) which is a land empty of all sprout and plant all the way to the Great Atlas [mountains], and eastwards to the mighty waters of the Indus all the way to the Ganges, a land streaming with water and blessed with all manner of plants and fruits and refreshing trees from the inner land of India (*hinter Indien*) up to the large islands named the Sunda Islands (*Sundainseln*), in all these lands where the dominion of the land in the valleys, in the plains, on the mountains and on the hills is seen, so also is seen the change and the contrast in the peoples of these lands. And we shall recognise the traits of their souls from their different songs: the Songs of Ossian (*die Ossianische Dichtung*) whose foundations lie in the hills of *Schotten* [Scotland] testify to the natural conditions of the land of their birth, and they are different from the Canadian forest-songs (*der Waldgesang d. Kanadiers* [*sic*]); Ethiopian melodies from the rice fields, the *Kamtschadli* songs, the chants of fishermen from the sea islands, the melodies of the Laplanders, *etc., etc.* All these are voices which emerge from the deepest and innermost heart, utter the soul and spirit which lies in the heart of these peoples, and they show us that nature has distributed its gifts to them in [proper] order and they have returned to its bosom their thanks and their deeds.

From proofs such as these is seen clearly, that every element of creation and its higher and higher evolution, emerged from the world of plants and even the [great] advantage [possessed by human beings] of spirituality lies [in its foundation] in the bosom of plants and on the face of the land and its nature and in its atmosphere [literally, "in its air"], and according to its active force yet many more peoples shall rise up, and shall go from strength to strength: the foundations [or "principles"] of nature will themselves be the cause of their proceeding [*lit.*, "going"].

And thus we may say that the world of plants is the mother of man twice over: first when it built for him a home to dwell in, and afterwards [when] it taught and trained him to evolve in general. Nature in the beginning prepared a place to dwell in, in the beginning it built cells (*Zellen*), the greatest and most important work of creation, for as a result of its exchange of matter [or "metabolism"] (*Stoffwechsel*) could take place. And the second work was to fill the cells necessary for animal life according to [the animals'] portion

and individual [needs], and after it was all ready nature could give forth the command: Let there be light! The law was brought to light [thus]: the elements of the entire universe separated into the bodies of the world, the solid [inert] matter, the plant and the animal; and after the great law in nature fulfilled its aim and its perfection, appeared the most glorious creation in all of creation ... man!

The faithful reader who loves to keep an eye on [or “look into”] the roots of the holy scriptures, will look into individual [or “some”] texts and find that everything written in this chapter has been hinted at in the [Biblical] passage on creation: “the plant of the field”, “the herb of the field”, these are, in the language of the *Torah*, our world of plants, which ate and drank their fill from the wells of carbolic acid, washed [off] the nitrogen [*lit.* “the evil dews”] — the *Stickstoff*— and the earth used to drink [therefrom] except from above them (language of the *Midrash*), to the time of this preparation: before there was in the earth, before [plants] flourished, all for the world’s welfare (language of the *Midrash*) so that a dwelling place may be prepared for living creatures — as it were, anointed all for the enjoyment of the creation (*Geschoepfe*) (language of the *Midrash*) and the air was blended, and the pool of *Stickstoff* poured out in moderate measure, to saturate the different airs [or “atmospheres”] on the wide face of the land, and this in the language of the *Torah* is the “mist [that] went up from the earth and watered the whole face of the ground”.

THE ORIGINS OF MAN

FIFTH CHAPTER

Rabbi Huna said, [the word for] dust [in Hebrew] is masculine, [that for] ground [or “land”] is feminine, the potter [or, “the Transformer”, *i.e.*, the Creator — see explanation given *ff.*] brings the masculine [or “male”] dust and the feminine [or “female”] ground together so that his vessels may be sound. (*Midrash Rabbah* chapter 14)

Rabbi Shmuel bar Nachman said, in the hour in which the Holy One Blessed be He, created man, He created him two-faced (*Ibid.*, ch. 8)

Everything that was created in the six days of creation needs to have [something] done [to it], even man needs improvement. (*Rabbah* chapter 11)

A.

The intelligent reader, who has read the four [preceding] chapters, will understand and grasp from the origin of the present chapter, that we wish to show that there is no contradiction between the sayings of our forefathers and those of the science of our generation, not when the believers in vain things shall wish to demand the sayings of our forefathers of blessed memory as their desire for the sake of atonement for [the sin of] knowledge, therefore it is required here to publish the views of the wise men of our generation on the subject we are discussing, and to show that even our *Torah* which precedes [them] in degree and in time, opened in the beginning to clarify [the subject of] creation, as at this time the wise men of the generation have interpreted, and even the first rabbis became wise intelligent and understanding [as to] its sayings and at what its words hinted, and they too in the ways of science threw precious light on its texts.

B. THE CREATION OF MAN AND HIS PERFECTING.

In our generation natural scientists have sought to give an answer to the question “Whence have you come?”, that is to say, when has man emerged and the origins of his emergence, from which trunk did the branch of the human species sprout, (*Abstammung des Menschen*); and from what time he emerged on the face of the land; and how did the human species become differentiated

into different forms and colours. As regards the three first-mentioned of these concepts, the wise men of Israel of generations gone by have given their opinion: “The concepts that the intellect conceives, all [of them] are found in the lower world area; the “where” (his place) the “when” (his time) the “how” (his quality).” And these are among the ten decrees [literally, “sayings”] which created the world which the Talmudic text *Dabut* chapter 5 (see *Ba'al 'Akidah* third chapter and the explanation given there) on these [matters] those who have carried out research have written many books, and we have come to speak only of that which touches our subject under discussion, and therefore let us begin with the question “when” (time) for to it we have found answers [literally, “solutions”] in act and in sense. In the Book of Invention we find eye-witnesses who testify to finding man in the earliest times: on the shores of the islands of the land of Denmark (*an den Kuesten der Daenischen Inseln*) are seen places filled with tens of thousands of human skulls (*Menschenschalen*) and such mounds of bones are called in their language *Kjoeken-moeddings* that is to say, rubbish [or “sweepings”] from cooking-houses (*Kuechen Kehricht*) for in such places men used to set up camp, and tribes of fishermen used to eat there in days gone by. According to the clearest research [carried out] by the researchers A. Steenstrup and Forchbammen, ten thousand years have passed from the time at which the above-mentioned tribes lived, up to our days, for the human skulls are found at a period when the pine (*Fichte*) was still green [or “fresh”] (*gruente*) in the land of Denmark; in bogs [literally, “glues”] of torf (*Torfmooren*) pine trees are laid in the lower row, and upon them is laid a layer of torf; in that period when the earth gave birth to the holm oak [*lit.*, in Hebrew, “stone pine”] (*Steineiche*), and when upon them were laid a layer of summer oak [*lit.*, in Hebrew, “summer pine”] (*Sommereiche*), at that period traces of our mixture of trees were not known. And it has been proven by researchers of nature that in the Pine Period (*Fichtenperiode*) man already lived in the land of Denmark, [and] from this it may be proved that even in times previous to that, there lived a shoot from the trunk of the lineage of man [figuratively speaking] in the lands of the living — . Regarding times even more ancient, the Book of Invention hints to us in its proofs: In the Mississippi Delta (*In den Mississippi-Delta*) there lie many forests like flat carpets on the surface (*Taxodienwaelder*) [and] between the layers of pine, were found rings of [a] vertebra which testified to the age of

[“torf” *[sic]*, in Hebrew characters; *Torf* means “peat” in German]

[Here a footnote: *das Buch der Erfindung 1 Band S. 12. Leipzig Otto Spamer.*]

the pine for it was six thousand years old. And after the determined calculation of the emergence of the Mississippi Delta which is sixty thousand years, and since in the fourth of these carpeted [layers of] forests, were found a skeleton (*Skelet*) and skull of [a] man, whose build is similar to that of the race which is in America, therefore [it can be concluded that] these bones are thirty thousand years old! Thirty thousand years ago man walked and roamed these flourishing woods, and in this Delta was the cradle of his infancy and the home of his dwelling and he was its inhabitant —

Many reckoners of the end of days — end of all ends — will limit the existence of animals on earth to a depressing number [of years] in their calculations of the raising of the crust of the earth from the time it hardened and was made ready, so that animals could inhabit it, it is at the [very] least ninety million years, and at the most two hundred million years; but it is proper to repeat here the words of the researcher of our generation Charles Darwin “I myself, consider ancient geological information simply as [a] chronicle of the world, which is incomplete, and written in different languages and changing idioms, and from the last [or “latest”] chronicles only one part comes to us which includes two or three countries, and a few lands. And even from the separated part, only the tiniest portion remains in the science of the earth, and from every sheet and page, only a few paragraphs have reached us” *etc.* [See margin note.]

And even if thirty thousand is the number of years man has lived on the face of the earth, though it be strange in the eyes of many and even of the [most] perfect of the perfect in faith of the children of Israel, withal a thousand years in the time scale of creation are as a single day; and the man who has made [profitable] use of the universities of science of our generation, or has read and studied the books which are published by the hundreds and the thousands [written by] the most respected scientists in the enlightened lands, will understand and grasp with his intellect that not a shred of doubt remains in the [minds of] the researchers of nature as regards the enormous length of time that man has existed on the earth; and natural scientists speak of the establishment of such a

[Translator's note: this, as also several other quotations from Darwin in this article, is not the original passage written by Darwin, but a translation into English of the Hebrew of Naphtali Lewy, which is itself a translation, made by him (probably imperfectly, since he was not a professional translator) of the German text which served him for an original, and which was in turn a translation of Darwin's own (English) words. The above is therefore a translation three times removed, and thus very likely contains many imperfections. The original words of Darwin may be found in Darwin's own writings. This fact should be kept in mind for the purposes of criticism.]

[Here a footnote, in German: *Siehe: ueber die Entstehung der Arten von Charles Darwin Kap. 10 Seite 389 Stuttgart 1872.*]

time period as something accepted and agreed upon by all scientists who study the chronology of the world.

The knowledge of the precedence of all living flesh on the earth since thousands of years of antiquity, is a result of the study [*lit.*, “method”] [known as] “theory of the origin of the species” which in our generation has caused a sensation in all the corners of the seats of learning, and on the basis of this theory natural scientists of our generation are building their ascent [into higher realms of science]. Therefore to this it is necessary to listen to the principal enunciator of this theory, the researcher of the generation Darwin, whose honour fills the scientific world, and look into his words how they may help us in attaining the aim of our inquiry which we have undertaken in this article — . And if sometimes our tongue and the speech of our lips grows heavy upon the reader in coming to the root of the inquiry in the matter of the theory in all honesty and sincerity, then he should understand that we are not one of those theorists who explain to their readers their practices and their experiments in longwinded explanations, but the adornment of words of truth we are compelled to [do] from the spirit which is upon them and therefore our words shall be few.

In the article entitled “*Historische Skizze der Forschritte in den Ansichten ueber den Ursprung der Arten*” the researcher says: I shall desire to give here in brief before the reader the results of the knowledge on the matter of the early source of the species (*ueber den Ursprung der Arten*).

Until not many years ago most natural scientist believed, that the species (*Arten*) are created unchanging, and that each individual species was created independently in its existence and character: this idea has been verified according to [the writings of] many authors. However, a small number of researchers into nature held the idea that the species falling under the changes and life forms which we possess (*die jetzigen Lebensformen*) emerged from other and different earlier forms, from those which were born which [in turn] gave birth to others in their special and different image and pattern.

[Here a footnote, as follows: And we can also recommend (regarding the antiquity of man) the sayings of our forefathers of blessed memory. For they hinted at this period in the number of 974 generations which were created before the creation of the world — that is to say, before our first man who we hold in our number [to be] six thousand years, there were already thousands of generations in the world.]

Lamarck was the first whose ideas on this true point awakened and jolted the hearts of contemporary scientists, he is a man, who can justifiably be termed a natural scientist, he published his ideas in the year 1801 and later expanded them to a greater extent [*lit.*, “with greater vigour”] in the year 1809 in the book *Philosophie Zoologique* as well as in the foreword to *Natural History (zu seiner Naturgeschichte der wirbellosen Thiere)* in these writings of his he established his theory which in brief is that all the species and man as well emerged and were generated from other species and other genera. He began teaching and proving by means of reasonable assumptions that all change in the organic world (*in der organischen welt*) and in the inorganic world (*inorganischen welt*) are results of natural laws, not of miraculous occurrences. Lamarck lay down as the basis of his research the differentiation between species and varieties (*Arten und Varietaeten von einander zu unterscheiden*), by means of continual ascents, which [caused to] rise, degree by degree, the forms in some groups of organisms (*Organismen, Gruppen*) without cease, and by means of comparison with the breeding of offspring (*Zuechtungserzeugnissen*) came to hold to the theory of continual change in the species taking place all the time. And as regards the causes, by means of which the changes and transformations in the species are caused and take place, he relates them to the external actions of living conditions, according to the needs of organisms and inorganic [matter], and therefore relates them in large measure to behaviour [*lit.*, “habit”]. To this last-mentioned force, he relates the beautiful proportions which exist only in nature. And nevertheless he has seen and understood that the determining law is in the continual improvement and perfection which keeps on adding [to life], and according to [this law] all life forms proceed. In the year 1813 Dr. W.C. Wells read the article *Nachricht ueber eine Frau der Weissen Race [sic], deren Haut zum Theil der eines Negers gleicht*. In this article the aim of growth in [*lit.*, “of”] nature is recognized, and this is the first [such] recognition that took place in our generation. However he proved it only for human races (*Rassen*) and in known and marked details. Since the Negro races resemble the mulatto, he commented that every specific kind of animal will make vigorous efforts towards change, and the owners of domestic animals will cause such changes to take place by means of their breeding and [controlled] growth, but what the hand of the

[Here a footnote: *S. Darwin's Entstehung der Arten 6 2 Anmerkung 'ich habe die oblige Angabe der ersten Veroeffentlichung Lamarck's aus Isid. Geoffroy St-Hilarres [sic] vortrefflicher Geschichte der Meinungen ueber diesen Gegenstand (Histoire naturelle generale T. 11. p. 405, 1859) entnommen. —*].

trainer does, the marvellous hand of nature completes step by step [*lit.*, “one by one”], and slowly, slowly emanates among the creation, the perfection in the change of the varieties (*Varietaeten*) of the human species, in the place prepared for their inhabitation. Among the varieties found [*lit.*, “distributed”] in the middle of the land of Africa, there will be some which are better than others, as a result of which they will be [better] able to resist the illnesses of that land. And with the force of this resistance they will increase and multiply in the land [compared with] the rest who do not possess the strength to compete with them. And according to this established hypothesis, I determine that the colour of this stronger variety will be dark (*dunkel*). And since the tendency to increase and multiply is eternal, with the passage of time the colour of this variety [of humans] will grow darker and darker, and since the burnt [colour] is the most desirable in that climate, with increasing time this variety will become the dominant one in that land.

The researcher Patrick Matthew published in the year 1831 his book which determines also that the source of the species is the strong chain one after another of completion of changes, and in the year 1860 in the *Gardener's Chronicle* 7. April clarified his theories, and apparently he holds: that all the inhabitants of the universe, after long and boundless times and periods all died, and after that the universe was filled anew with inhabitants, and signs appeared that new forms and images could again come to light, without any mould or seed of the previous bodies. Upon this Darwin remarks: I do not know if I have understood every place in his book; however it appears that he has taken as his cornerstone the external conditions, and recognises the breeding and training of nature as motive power [*lit.*, “the desired end”] of continual changes. Rafinesque determines [or “remarks”] in his book: All the species, were in the beginning hybrids. And Leopold von Buch also holds that one by one the offspring of mixtures became species. And in the book “Die Vestiges of Creation” [*sic!*] 1853 p. 155 the author wrote words to this effect: “Since examination and experiment testify, that all possessors of soul and spirit, from the simplest and oldest to the most perfected and youngest, which have been born under the Providence of God are possessed of (a) an impulse (*Impuls*) which at regular periods, in the course of their creation into their [different] families, will lift and raise [them] one step in the scale of organisation, to the limit of the last step few be they

[Here a footnote: *Das. Seite 4.* Naval and Arboriculture]

in number, and in most gaps (*Luecken*) will fill between organic rows for it is hard to thicken and join the glues of the families — [and] (b) an impulse which will be its possessor, and [which] in the course of creatures into their families will change, alter and transform the material pattern, according to the degree of external conditions, such as the place of habitation, nutrition, [and] the force of circumstances [*lit.*, “force of the fates”] which is in the surroundings. By this criterion do we measure the natural knowledge of God — “This author expresses his idea, that the organism evolved [or “became perfect”] by means of a sudden leap [or “all of a sudden”], and the action of external living conditions, was fulfilled gradually [*lit.*, “one by one”]. He builds his theory on strong foundations for the species cannot be unchanging products (*Producte*). But this I do not understand how the establishment of two impulses (*zwei Impulse* [*sic*]) can [*lit.* “will”] be a foundation in the study of natural science, and withal his above-mentioned book found grace and honour [in the eyes of the public], and spread greatly in the world; and for this I shall give the book credit, that it arouses the spirit of the reader to this great subject now published all over the world, and put an end to [literally, “annihilated”] the strange [ideas] and deceptions which have pursued men from generation to generation.

The author of the above-mentioned article is not a son of the covenant [*i.e.*, is not Jewish]. Nevertheless it would appear that he built [on] the theory of our forefathers and forebears, who previously proclaimed: And he created: two creatures (*zwei Impulse*) upon which the folklorists [*lit.*, “the lords of legend”] expanded their judgement according to their opinion one says creation from the lower ones and creation from the higher ones; in the image and likeness from the higher ones increased and multiplied from the lower ones, their creations the good impulse and the evil impulse *etc.* (and this is in the *Midrash Rabbah* Chapter 14), and all these we can bring under the wings of the impulses, ((a) *den Lebensformen ertheilten Impulses* [*sic*], (b) *im Leufe der Generationen die organischen gebilde, abzuendern steht.*). Obviously, if we take only the start of the decision as the cornerstone of our inquiry — and thus it is in all the books of our forebears, we find the first hypothesis of the ideas of the latest researchers, and this is the first *Mishnaic* doctrine which the wise men taught and did not budge [or “deviate”] from it [*lit.*, “from its place”] — .

Professor R. Owen remarked in his speeches to a gathering of British scientists in the year 1858 on the expansion of the crea-

[“glues of the families” is a literal translation; however, it is hard to understand what the author is trying to say here]

[*Translator’s note:* the German in this passage is written in the original in Hebrew characters, and I am not sure that this is how it is spelt in roman characters]

[“*Mishnaic*”, *i.e.*, from the period of the Rabbis Hillel and Shammai, contemporaries of Jesus]

tures, saying: The examination of different layers brings us to the surmise that the Apteryx in New Zealand, and the ruddy wood-fowl in England, are special [or “separate”] creatures, particular only to these islands. He will say so, because he cannot understand why only there these creatures are found, and by these species, will come to the conclusion that certainly emergence and existence preceded them, which first gave birth to the great and mighty force of creation growth and shaping [or “moulding”]. And since we have become accustomed to employ our saying: “The continual action in the act [*ma’aseh*] of the Creator” which Prof. Owen also employs, there is easily place for error, for we shall hold the theory “there is no change in species”, and I too (says Darwin) made a great error when I read the Professor’s article, until I found in his document that he is talking about [*lit.*, “determines”] a quantitative process, as regards the theory of natural breeding and training.

From this we learn, that even the best and greatest of natural scientists, who have occupied themselves and are busy all their days with the research into the roots of breeding and training, the emergence and the step-by-step progress of the species did not leave off using in their language regarding the continual force of being and existence “Action of the Creator” or in their words: *Die bestaendige Wirksamkeit schoepferischer Thaetigkeit* — “therefore let it not any more be heavy in the eyes of the reader to bear our idea in this that we are proceeding according to the method established in our generation, and [we] see the passage on creation in our *Torah* on the one hand, and believe in truth and honesty, that the writer of our *Torah* in the hour in which the LORD wrote [His] actions [*ma’aseh*] every day (in the language of the *Midrash*) he aimed at the transformation the change and the variation and the progress and the emergence of the species, according to the laws of nature and also displayed before us in bright light His idea in this — as shall be seen yet more in this chapter — and more with regard to man and his perfection — and withal correctly employed the general saying, well known in the mouths of the wise men of the generation: *Bara Elohim la’asot*.

[Translator’s note: “*Bara Elohim la’asot*” — these are the last words of *Genesis* 2,3, which the *King James* version has as “God created and made”. However, a more precise translation would be “God created to make”, and the author is obviously using the exact Hebrew words to make his point, for the word *la’asot* and the word *ma’aseh* used earlier by him are both from the same linguistic root. This point is however difficult to make in English].

Dr. Freke in the year 1851 set forth his teaching: that all things organic emerged from one [single] form (*von einer Urform*).

[Here a footnote: Vergl. Anatomy of Vertebrates Vol. III p. 798. u. in London Review.]

[Here a footnote: Dublin Medical Presse p. 322.]

And in the year 1852 the scientist Naudin expressed his idea in these words: “[the] hidden and unknown force in Divine Providence to some, and the contrary will in others, according to the unlimited influence upon animals in all [their] generations for eternity, the form the area and the existence of each and every one of them, according to its order and according to that which is necessary, this force is that which links every organ to the whole, and it equals and resembles in its general proportion [or “scale”, or “format”] the organism in all of nature, and this is the primary cause of all existence and reality. — ”.

[Translator's note: the passage on the left is a literal translation of the Hebrew original; however, it is not clear to me what the passage means]

The great author Dr. Schaafhausen in the year 1853 also determined the continuing perfection [or “evolution”] of organisms on the face of the earth, and says, that some species remained for many generations without any change, and only a few changed during this long time. The cause of the separation of, and differences between, the species is explained by the loss of intermediary steps and rungs, which were lost between them. “The flowering plants and the animals, they are among those which were destroyed and rose up to oblivion — not new creatures. Only those of their offspring which established themselves and thrived, emerged as they are at this time”. And Adam Powell in his book *die Philosophie der Schoepfung* proves [that] eternal creation for the behaviour of new species is a law of the behaviour of nature, and not by happenchance so.

All these scientists, who envisioned in their imaginations this great vision in the study of the forms of the roots the branches of creation, moved and stood at a distance, did not approach the mist wherein G-d completed His handiwork, until the coming of these great researchers, of whom the first and foremost in degree is thought to be Charles Darwin, and after him Haeckel.

The theory of transmutation (*Transmutationstheorie oder Umbildungslehre*) which scientists in our generation, researchers and philosophers of nature designate by name and glorify [as]: “the great triumph and victory of the spirit of man, and his overpowering of the dominion of blind belief” — the understanding reader will see that it is found also in our *Torah* which sets forth, that the most adorned creation in perfected organisms emerged from foun-

[Here a footnote: *das heisst: dass die Einfuehrung neuer Arten 'eine regelmaessige und nicht eine zufallige Erscheinung' oder 'eine Natur — im Gegensatz zu einer Wundererscheinung' ist.*]

dations inorganic without previous parents or offspring and one by one the metamorphosis (*Umbildung*) went on during limitless times.

What science calls *Umformung*, *Umbildungslehre*, the *Torah* calls *yatsor* and that is the giving of continually changing form to known matter, and this activity is found the scriptures, [as in] *leyotser, cheresh* (*Jeremiah* 19, 1) We are the clay [literally, “matter”] and Thou art our potter say unto him that made it [*lit.*, *yotser*] (29, 15) and it all points to *formen, bilden* and every form this teaching includes, and from this also “makers of idols” [in Hebrew, *tsiyur charshei tsirim* (*Isaiah* 45, 15) *bildhauer*, and in *Daniel* (10, 16) “my sorrows are turned upon me” [in Hebrew, *nahafchu tsirai ’alai*], *meine form, gestalt*, and in *Samuel* (1, 2, 2) “neither is there any rock [in Hebrew, *tsur*] like our God” which our ancestors interpreted [or “explained”] as “neither is there any artist [Heb. *tsaiyar*] like our God who draws a picture within a picture” and it hinted at the method of *Umbildungslehre*, as we have proved sufficiently, [in] that the intention [or “meaning”] is the ascent of the forms, from the lifeless to the living.

That which we call: *Unorganische Stoffe, aum [??] Welchen die Organismen entstanden sind und sich auf natuerlichem Wege allmaehliher Umbildung innerhalb ungeheierer geologischer Zeitreime entwickelt haben*, — the passage on creation [in *Genesis*] calls that by two words: Dust from the ground, and upon this comes the broad explanation to discover its meaning Rabbi Huna says “[In Hebrew] dust is masculine [and] land [or “ground”] is feminine, the Potter brings the masculine [*lit.*, “male”] dust together with the feminine [*lit.*, “female”] land [or “ground”] so that his vessels may be sound — “This Rabbi Huna has greatly clarified to us [the matter of] parents without organs [or, “inorganic parents”], and we shall hear a clear and decided judgement from him regarding the laws of nature, for [creatures possessing] organisms [literally, “the offspring of organisms”] emerged from previous forms — *Urformen* (simpler, in [that] they were self-manifesting (*selbst zeigung*) from inorganic sources which had no father and mother, yet these primary [creatures] are themselves called male and female, and gave birth — he too saw and discerned that our *Torah* teaches by this the transformation, *die allmaehlige Umbildung*, and thus it does not employ the word *bri’ah*, [which literally means “creation from nothing”], but the exchange of forms and the repeating change in the nature of the world and he too sets forth clearly this *yotser*!

[“*yatsor*” — literally, “forming”, as in the passage “The LORD God formed man ...” etc. — *Genesis* 2,7]

[“*potter*” — literally, “former”, or in Hebrew, *yotser* (*Isaiah* 6,4) Shall the work [*lit.*, *yatsar*] say unto him that made it ...(*etc.*)]

[“draws a picture within a picture” or, “who draws a picture within that which is formed” — all the above make sense only in Hebrew, for the Hebrew words for “form”, “picture”, “sorrows”, “rock”, etc are all derived from the same linguistic root]

[*Translator’s note*: the passage on the left is written in German with Hebrew characters, and it is not clear to me whether the spelling of each and every word given here is correct]

[*Translator’s note*: in Hebrew the phrase “Dust from the ground” consists of only two words, hence the author’s remark on the left.

[*Translator’s note*: this argument sounds convincing only in Hebrew, not in English, which employs, besides the masculine and the feminine, also the neuter gender]

[*Translator’s note*: in the Bible there are several different Hebrew words used for the term we call in English “creation”, each possessing slightly different overtones; and here the author is distinguishing between two of them:

The passage on creation [in *Genesis*] does not inquire into the steps and ascents, upon which ladder the order of existence rose step by step, as these wise men have caused to pass before our eyes, yet it hints at the lowest rung of the ladder of creation, and points [*lit.*, “sends forth”] its finger at the highest rung, upon which man stands; it also does not limit the time whence the exchange of forms in creation [literally, “in transformation”] began to be counted, yet it hints at a past time which is now completed and finished. The Creator [in this case, literally, “the Transformer”] formed one form into another until He reached the form of man; and in its general outlook, it looks upon the first steps of man and teaches us to understand that at this time he is known only as the possessor of the breath of life, and except for that, stands [several] steps removed in the ladder of improvement and perfection. And thus I shall interpret this passage: “And the LORD God formed man of the dust of the ground”. *Innerhalb geologischer Zeiträume umbildete die ewige schöpferische Gottheit eum [??] unorganischen Stoffen — den organischen Menschen.*

bri'ah and *yetsirah*. The former, used for the creation of the world *ex nihilo*, refers to the creation of such things as the heaven and the earth; while the latter, used especially in the case of the creation of man, distinguishes itself from the former in that it presupposes the existence of matter out of which man is formed]

And since we began inquiring after the root of the new theory, to discover its traces in the act of creation in our *Torah*, we shall lay our eyes further in Darwin's articles in that which touches our subject, and that is the contents of his article “Unit-Pillars [or “Unit-Supports”] of Creation Visible to the Eyes” in which he says: Now we have reached, the question of natural scientists, whether the species, were created in one place, or in separated places on the earth. No doubt there is place for error, and it is very hard to understand and grasp, how one species emerged from one known location and passed over to the corners and limits of other locations, yet nevertheless our imagination establishes before us the image, that every species must have emerged from one single place of birth, and everyone who rejects this conclusion, rejects the true cause in simple begetting with its migration (*Wanderung*), and accepts miracles. It is accepted by all, that the places inhabited by a species, are in the majority [of cases] joined and close to and united [literally, “glued”] together and if one species inhabits different places which are separated by mountains and rivers, in such a manner that they cannot easily move and travel there from their place of birth, then that is [a] marvellous and extraordinary [occurrence]. There was once a time when these separated [locations] were joined together, and in places of seas [or “lakes”] and rivers there

[Here a footnote: *Charles Darwin daselbst Cap. 12. Seite 428-432. —*]

was dry land on the earth and also vice versa. Hence it seems to me clear, and it is in the eyes of many natural scientists a firm saying: that every species was born in one [single] place [and] only afterwards did the species travel and move, according to its power and ability, to distant [places] and settled down there according to the living conditions prepared for it. One dwelling place for one birthplace of a species, is a firm [literally, “determined”] law which applies to all. As answer to the above question, we shall require [or “demand”] another explanation, whether different species of the same genus (*Arten einer Gattung*) which according to my theory emerged from a [single] original [literally, “primeval”] birthplace, whether in their travels from place to place, they change, if we can prove, that the inhabitants of a particular area, which resemble their neighbours the inhabitants of another area would be proximal by reason of the movement of the latter to the former, then faithful establishment will emerge for our general idea; for then the aim [or “purpose”] of the *Deszendenz* which goes hand in hand with the renewal of form will be seen by the eye and the sense.

[*Deszendenz* — *sic*, in the original: in German it means “evolutionary principle”]

To the question, whether there is a single central point to creation, or several separate points is related also the related question: whether all the individuals (*Individuen*) [*sic!*] were born from one pair, or their roots emerged from a creature [which stood] by itself which was androgynous or according to the opinion of some authors, from many individuals of a [single] species, which were all born at one time and emerged into existence? Whether among those organisms which were never assembled by means of opposition [but] only evolved in a straight line, then all renewal of forms in individuals, comes from the same form (*von einerlei Form*) and all the offspring emerged from one primitive father (*Stamvater*). And among the vast majority of these organisms, which in all their ways were put together [literally, “assembled”] by means of resistance, all the individuals which changed in their time, did [indeed] relate to a single father-trunk, from whose loins they emerged.

The researcher chooses between the three different possibilities [mentioned above] according to the theory of “one central point in creation and its proofs multiply to determine the law that from one pair did the hosts of the species multiply. And that there is only one place of birth to every species, and by means of distribution — *verbreitungsmittel* — we can expand the assured investigation over the wide earth and its inhabitants, in days gone by.

And in order that this theory may not be strange and hard [or “difficult”] in your eyes, we shall recollect here what the researcher has determined in another place in his words regarding the relationship of the criteria of multiplication and reproduction, and these are the contents of his passage: The war of existence, [which] is the war of life (*Kampf um's Dasein*) shall raise its hand in the awesome relationship [according to which] which every organic thing makes a vigorous effort to reproduce. Every creature which in the course of its natural life sows seed or lays eggs, must at some time in its life die [literally, “in one of the periods of its life come to loss”], for if there were no loss and destruction, the land of its inhabitation could not support all of them together with their ancestors.

If there were no destruction then from one pair the entire earth would be filled, [with their] offspring. In the case of man, in whom multiplication and reproduction is not great his seed will multiply in twenty five years' time, and according to this mathematical progression, in a thousand years the entire universe would not be able to clear enough space for the family of one household. From one elephant and its mate after seven hundred and fifty years their offspring would number approximately nineteen million. —

And after having known all this, there will not be in you the slightest doubt, that our *Torah* has from times gone by laid two stones in the foundation of the passage on creation, of which here is the cornerstone: (a) One [single] place of inhabitation and origin of man whence the human race emerged: (b) and from one [single] pair the entire human race descended and spread over the earth.

Here we stand on the last rung [of the ladder] which is the rung we can also call: the first [rung] on the ladder of perfection, for it is the first in renewal of improvement. After the *Torah* makes known the last limit of the creation [literally, “formation”] of forms (*formationen*) it begins with the first state of the formed man, who possessed only the breath of life, [and] except for that, generations passed [with] only with the breath of life in his nostrils, he lived in a wild state among the other animals, our *Torah* does not count the number of days which passed over the wild [or “savage”] man who lived on the land, [and] also does not count the time and the generations which separate the wild [man] from the perfected, while research loves to keep track of the roots of his plantation, but identi-

[Here a footnote: *Daselbst Seite 76 Kap. 3.*]

fies for us the observed rising steps, and therefore jumps from period to period, which the faultless reader will believe for the *Torah* spoke in the tongue of men in a story [whose events are] arranged one after the other, and a thousand years are as a single day in its sight, and therefore let us not reduce the honour of the *Torah* nor desecrate its splendour.

In my opinion greater honour and glory would be given to the *Torah* of Moses our Great Teacher, if we hold to the new theory and reject the measure of formation and broaden the limits of knowledge in [the matter of] the origins of man, and go according to the theory, that the Creator so guided this His world many generations in the laws of nature until He transformed and brought the deed to a completion — rather than that we should attribute to Him, and to the scriptures [in what they write] about Creation that in one [single] day the curtain of darkness was destroyed and from this the universe and all those that inhabit it were laid bare to the eye of this sun! —

[“transformed” — in Hebrew: *tsarah* (see earlier note regarding this linguistic root)]

And as the passage preceded to speak of the preparation of the vegetable kingdom, the time that its aim was finished, so that nourishment may be prepared for man who was ready for coming, it noted [literally, “established its mark”] “And there was not a man” so it established the first step in the ladder, after the creation [literally, “formation”] of man, and was breathed into his nostrils the breath of life, and for several thousands of generations lived in the wild state with only the breath of life in his nostrils, it indicated his status, before he arose in degree by saying: “And the man became a living soul”, a wild living soul untaught to speak like every other living soul in the passage on creation, and [this is] no [Biblical] text twisted out of its real meaning. All researchers of our generation who hold to Darwin’s theory will agree that early generations were wild and uncivilised [literally, “uncorrected”]; up to the point that they trace the lineage [of man] down to the apes, the forefathers of the perfected man. The author [*lit.*, “LORD”] of the Book of Invention has decided: If it were in our hands to come unto [*lit.*, “after”] the root of the order of the generations in the ascent of man to perfection, until we reach the rungs of the ladder upon which the apes (*Affen*) also climbed, and we saw the changes and upturnings which took place in them at the hands of time, and we do not miss any period in the history of their [ascent to] perfection, then without doubt we will have seen a single form (*eine Form*) in which even today, their descendants live in their image,

and they would be as one flesh. And all the scientists of the generation have hypothesised that if we do not determine, that the apes are the forefathers of man nevertheless they have a [single] primeval source, the only thing being that they separated during the course of their evolution. The perfection and evolution which groups of mankind created for themselves in [different] lands progressed gradually on the path of life, according to the gifts of nature which are given unto them; to this there are particular details in particular places in particular varieties [or “adaptations”], [for instance] the North American Indian possesses keen eyes for all his life he stares hard from great distances to bring prey to his teeth, and according to the nature of his land so will his talents develop. If there is a generation in the desolate desert, which does not need to use its sense of hearing, then [its] capacity for hearing will be totally lost, and from generation to generation the inheritance of this trait will [pass like a] stream until in the course of time a generation will be born devoid of the sense of hearing, and will be differentiated from the preceding generation. Thus natural science has made a great statement [or “enunciated a great theory”] “that man is a product of [his] surroundings or of necessity” (*Der Mensch is ein Ergebniss [sic] der Umgebung oder der Nothwendigkeit [sic]*).

And I shall proclaim loudly giving honour to man as a living soul, a living thing [literally, “an animal” or “a beast”] from the field; and there will be those who will be shocked at the fact that I correctly interpret Darwinism in the *Torah*, and I believe more in his theory than the text which says “Let us make man in our image, after our likeness”!

However, my friends, do not rush to condemn me, hear me out and speak afterwards! I know that habit is second nature, and you have become habituated to hearing the texts according to the ancient interpretations which have spread and [have been] accepted by the people, before having known and listened to natural science and its rule on earth, though this is not the way of scientific investigation, this does not [conduce to] the glory of the *Torah*, and this is not the teaching of our forefathers. Our ancestors the lords of the Talmud according to [the words of] whose mouths and according to whose writings we live — see your remarks in my chapters concerning [a] decided saying of our forebears, how the theory of science is appropriate at all times, and now come and I shall show you that between their lines they declare their opinions concerning the ascents of man on the steps of perfection, and they also believed

that man resembled the ape [literally, “man was as the ape”] in the build of his body, and in the sin of excess according to his improvement, and that [is] in our *Midrash Rabbah* chapter fourteen: [The text saying] “And man became a living soul [in Hebrew, *nefesh chaiyyah*”], Rabbi Yehuda says, teaches that he made him a tail like an animal [in Hebrew, *chaiyyah*] and returned and took it from him on account of his honour! And the *Midrash* there repeats in these words: “Point tail and to be precise it is written animal [in Hebrew, *chaiyyah*] and [this] signifies like an animal really and this is [a] tail regarding which, [in] its form and size, [was] already written “in our image, after our likeness” — I showed you that if our [our ancestors] of blessed memory understood the living soul [*nefesh chaiyyah*] in the created [literally, “formed”] man to be really [that of an] animal [*chaiyyah*], and moreover presented man among the apes as the superfluous tail attests to his origins — and without any covered up disguise on the face of the [Biblical] text, told [us] what they saw as right and proper in possibility, and which the meaning of the passage on creation supports. —

So every intelligent researcher of the books of natural science, will wholeheartedly acknowledge that the great ancient periods in the stretches [or “expanses”] of creation, which are counted in many thousands of years, are divided in the first section [of the Bible] into days; these days are mentioned by our forefathers by a special name: The Six Days of Creation, and they said that man who was already created on the sixth day — and this is a period which lasted thousands [upon] thousands of years — when his family pulled along from generation to generation, then it was necessary for him to evolve so that he may enter into the parlour of perfection, and that is what we established as the cornerstone of our article: all that was created in the six days of creation needed work [carried out upon it] — even man needed improvement — !

It is known now to natural scientists that the [capacity to] migrate and to change [one’s] place [or “position”] makes all creatures more perfect and brings them to [a] higher and more respected status [literally, “step”], and movement and change of place show us that these creatures fought the war of movement in their lands for their souls and their lives [or, “for their living souls”] and were compelled for their existence to leave the place and evolved in the new place and gave birth to offspring more perfected than themselves.

[Translator’s note: here the author seems to playing upon words: in Hebrew the words for “living soul” are *nefesh chaiyyah*, while the word for “animal” is *chaiyyah*, which literally means “that which lives”; and so finding that these two terms share a word, he draws the conclusion that they share a meaning as well]

[Translator’s note: this time the author actually uses the term “created” and not “formed”]

[“evolve” — literally, “to improve himself and become more and more perfect”]

And after having uttered these [words] we have clarified and interpreted the passage “and man became a living soul” in this way. If however I do not attempt to show that the passage of the *Torah* refrains from easily saying, that we have emerged out of the loins of apes, nevertheless it is clearly seen from its words that it describes man in his ascent step by step in the ladder of knowledge. Here Darwin and other scientists have said in decided manner that the natural tendency (*Instinkt*) which is found in animals, is not the result [literally, “the daughter”] of habit as some [people] thought, for in the actions of many animals it is clearly seen that it is not the hand of habit which taught them their skill, like the bee and the ant, and the cuckoo bird that it may lay its eggs in a strange bird’s nest, for this instinct [literally, “tendency”] is stamped upon it, and after all a little understanding or judgement (*eine kleine dosis Urteil oder Verstand*, as Pierre Huber says) is mixed in it, and the natural instinct will perform its actions on every living condition and they will change and be transformed by it for arm in arm will progress the training and education [or “learning”] and the passage points also to this natural tendency [or “instinct”] in its description of the wild state of man who has not yet reached will, intellect, knowledge and judgement only natural tendency [or “instinct”] gave birth to his will, but not free will, only obligatory [or “necessary”] will. That which we call “*instinkt*” [*sic*, in German], or natural impulse (*Naturtrieb*), required of the savage [or “wild”] man at the initial time of his ascent on the ladder of evolution, our *Torah* calls by a name which is the more required to clarify [or “explain”] all this which is being said: “living soul” [in Hebrew: *nefesh chaiyyah*]. In the scriptures we found that they employ the term *nefesh* [most often translated as “soul”] [as a synonym] for will and natural tendency [or “instinct”]: “If it be in your mind” [in Hebrew, *im yesh et nafsheichem*] (*Genesis*, 23, 8) “And hast a desire unto her” [in Hebrew: *ve-shalachta la-nafshah*] (*Deuteronomy* 21, 11) in these [passages] the meaning is “will”; “Hell hath enlarged herself” [in Hebrew: *herchiva She’ol nafshah*] (*Isaiah* 5, 14) “I am sad in my soul” (*Psalms* 27, 12) “That the soul be without knowledge” (*Proverbs* 19, 2) its meaning is natural tendency [or “instinct”]. And if [the term] “soul” [*nefesh*] is linked to [the term] “living” [*chaiyyah*], then the meaning [of the two words together] is, “the natural tendency belonging to living [things]”. And after the scripture says “And man became a living soul [*nefesh chaiyyah*]” the scripture testifies that the human species which lived in that period was like the animals feeling everything, which they did and performed [and] was without choice, will and consciousness. “Eats

[Translator’s note: there must be a misprint in the original, for these words are not to be found in this Psalm]

and drinks like [the] beast, is fruitful and multiplies like [the] beast, drops [his] droppings like [the] beast and dies like [the] beast” (words of the *Midrash Rabbah* chapter 14), this natural tendency, was the cause of bringing the wild [or “savage”] human species to the step which ascends to perfection, and that is movement and [the capacity] to migrate [*i.e.*, move from place to place].

Therefore in that regard Darwin has suggested a true theory in his saying: Everyone sees that all the species of one genus, even if their place of habitation is as distant as east from west, nevertheless emerged from one location and were born in one birthplace. And those species, which during the entire period changed only a little, it is not hard to believe that they emerged only from one place and migrated here. And these species only migrated from one place, whence their ancestors at first emerged to existence, and these species were not created in different primary forms (*Stammformen*).

The great law of migration and dispersal (*Wanderung und Verbreitung*) to exchange living conditions, this law emerges on account of the primeval man; our *Torah* takes precedence in hinting at the marvellous law on the steps of the ladder. After having proceeded to prepare nutrition according to the system of the vegetable kingdom which proceeds slowly, “And the LORD God planted a garden eastward in Eden before the coming of man” (see the third chapter [of *Genesis*]) the Eden in the west of the world, and in the opinion of many of the great wise men of our [time] by one of the great [men] of our generation the treasure of books and the Rabbi of authors the respected [literally, “sublime”] compiler and worthy researcher the wise Rabbi our teacher Shlomo Rabin (may his light shine!) Wien 1871 in *Hasshachar* page 12 quotes [that] the Garden of Eden with its four rivers was in India, one of [the four rivers] was called [in the Bible] “*Pishon*”, this is the river *Pego* which surrounds the land of *Havillah* which is *Ara* where there is much gold, the name of the second river [in the Bible] is “*Gihon*” [and] that is the Ganges which surrounds the land of *Cush* which was in India (*Isaiah* 18) the name of the third “*Hiddekel*” (when the [Hebrew] letter *daleth* is emphasised [even when] lacking the letter *nun* [it] is called [or “pronounced”] *Hindekel* [and] this is the *Hindus* [*sic*]), and the fourth the *Tigris* (and the name of the river is “*Prath*”

["coming" — or "creation"?
there may a typo in the
original at this point]

[Here a footnote: Darwin Cap. II. Seite 428.]

[Here a footnote: see in the book [entitled] "*Ma'aseh Bereshit*" [*lit.*, "The Act of Creation" or "The First Act"]]

[which] according to the opinions of these wise men was added later after the Babylonian Exile [of the Jewish people] and the Canaanite was then in the Land [of Israel] according to the opinion of from the two [names] of which the name *had-dekel* [literally, “one palm [tree]”] which is to say, “Hind” (the original name of this river) [and] “*Dikla*” which is the Tigris. From the land of India all the works [of creation] were divided. And this excellent Doctor is one of the great [men] among our people, and I found him very well versed in all of Hebrew literature and he knows how to proceed in all his researches in the spirit [of that literature]. And therefore fortunate is the generation which chooses his books and articles which enlighten the earth.” [Thus the Garden of Eden] is in the land of India (*Indien*) a blessed land, the air and the climate [of which] was temperate, our *Torah* explains that the LORD God took man from his place of birth and that was in the eastern [part] of the world that is to say the journey [or “migration”] began to beat inside the breast [*lit.*, “living soul”] of man. And man walked on his journey [or “migration”] till he reached the western boundaries where the Garden of Eden was made ready the day before and he “put the man” in the Garden of Eden [*Genesis 2,8*].

[here a word which is unclear due to poor reproduction of the small print of the original]

The analysis of the scriptures is therefore [as follows]: “And God planted a garden eastward in Eden” Rabbi Shmuel bar Nachman said, the interpretation of [the term] “before the creation of the world” is naught but “before man” (*Midrash Rabbah* chapter 16) and therefore justifiably translated “Their hooks from before”, “And there he put the man whom he had formed”. At first the passage says in a general way that the created [literally, “formed”] man was brought and set down at the extremity of the earth far from his place of birth, in the Garden of Eden and in the midst of things began to itemise the merits and characteristics of the garden with [literally, “in”] its many plants and its trees and its refreshing arbours planted by waterfalls [and] streams, and the flows of rivers which are ever the ferries and rafts for the plants from the earth harvest and every tree bringing forth fruit as explained in the third chapter, they helped perfect the garden to be a delight marvellous pleasure and all prepared for [a] feast, the passage on creation completes its object to reveal that man travelled [or “migrated”] from the eastern extremity of the earth till he came and settled himself down in the west of the world and that is in its [the *Torah*’s] words “And the LORD God took the man” [*Genesis 2, 15*] and our forefathers came and explained the meaning according to our theory and took aid of the explicit Biblical text which throws precious light on the subject

[Translator’s note: Hebrew possesses the same word for the terms “east” and “before”, and here the author seems to be taking advantage of this ambiguity to put forward a theory that where the Bible says “east” it means in actual fact “before”]

of the law of migration: and that is in *Rabbah* (Chapter 17) Rabbi Yehuda said “he raised him” (in this [he] rose on the steps of the ladder and this *Midrashic* exposition is also upon [or “applicable to”] the term *veyasem* “he put”) and thus the verse which says (*Isaiah* 14, 2) “And the people shall take them, and bring them to their place”, it is seen quite clearly that the term “took” is [or “signifies”] uprooting [from] a place to carry and bring to another place, and in this regard in our holy scriptures [we find the terms] “I took thee to curse mine enemies” (*Numbers* 33, 11) the meaning of which is, “I took thee from thy place and brought thee here”, or “and he brought him to the field of *Zophim*” (*ibid*, 14) [which means] they took from his place and guided him to the field of *Zophim*, and so [also] this verb is expanded upon further in [the passage] “taking them by their arms” (*Hosea* 11, 3) *tranen fuehren* “Placed it by great waters” (*Ezekiel* 17, 5) by means of a sprinkler as explained in the dictionary of Hebrew roots.

[Translator's note: the word translated as “take” or “took” in English, is in Hebrew in both the cases on the left *lekichah* “taking”, which is the word seized upon by the author in his argument]

“And he put him into the garden of Eden to dress it and to keep it” in this blessed land the wandering man found rest; [a] garden full of delights in the breadth of the pleasantness of nature which was around him, the clear skies stretched over the width of that that land, the stars in their courses full of splendour and producing light, the moon with its charms proceeding [in the heavens], the sun with its strength making manifest its rays, and with great pleasure and charm beaming down upon those who walk beneath; silent breezes blowing from the east, birds flying and chirping in the shade of the cypresses and from their summits giving forth their voices, the high mountains for the ibex, the broad meadows for thousands of sheep, the river coming out of Eden watering [the land] as it descends, *Pishon* and *Hiddekel*, *Gihon* and *Prath* the rivers together. — All this land rejoices and is glad, nature celebrates its festival by the month and by the season — all these are prepared and they have the power to change living conditions for the better [literally, “for the good”], for the sake of man who comes for afar to find rest there.

The growth of the land of Eden [was] in [a] natural upbringing during the course of generations specific to man, the savage, [brought up] to be a faithful son at her knees; in the land of Eden his living soul was refined [*lit.*, “made delicate”] and engraved [as a jewel] its name upon him, [he was] assimilated [within it] to love its portions [of sustenance] guarded [or “preserved”] for his sake. During [the course of] known time, when man found rest in Eden,

he lived without disturbance, off the fruit of the Garden's yielding, having the sense to stop the beasts and animals of the field from robbing him of the food and sustenance which nature had prepared. He became wise in this [matter] with the help of the knowledge that emerged from the rule of instinct in [a] restricted measure, to be a worker for [the sake of] the food, sustenance and economy which [was] in the garden and to guard every fruit [so that it may] not become prey to the teeth of robber-animals (*Raub-thiere*) which lurked around him. This ascent on the ladder of perfection, is conspicuously seen in the above scripture in two words, after the announcement in the passage that the LORD God put man in the garden of Eden, which [took place] over several generations, until they [*i.e.*, human beings] lodged there and found a dwelling in the Lodgings of Paradise [literally, "of Delight"], [the *Torah*] hints yet again at the ascent in the perfection of [man's] abilities [literally, "assets"] and I see the two words: "to dress it and to keep it"!!

Again I see hidden in this Biblical passage the progress of man on the ladder of evolution in the initial stages, observable in all creatures, and in particular in creatures possessing organs; and the end of this passage is an introduction to the next passage: that is to say the demonstration of the state of man in time and as he is prepared [for it] to ascend on the steps of perfection as is fitting [for it] to happen. And thus is the way of the passage on creation which always gives signs of the limits of his imperfection, before he had begun his ascent up to the summits of his talents [or "capabilities"]. As I brought this to your attention at the beginning of the passage: "And there was not a man" and as you shall see yet again in the passages [to be] explained by us.

The next stages observed in the ladder of nature, is called by the researcher of the generation the struggle for existence (*Der Kampf um's Dasein [sic]*). From the struggle for existence, emerged all manner of changes, if only they benefited the aim of particular individuals, to hold on [to life] and to [continue] living, and in the majority [of cases] they [are such as] tend to be bequeathed to their offspring which come into existence after their parents, and according to the degree of change the existence of life comes to be more in favour of the offspring (*Nachkoemmlinge*); for from [any] particular species which from time to time reproduces, only a few can keep a grasp upon the tree of life. The well-known researchers De Candolle and Lyell have proved, that all organisms stand at all times each against the others in the struggle for energy [*sic*]. And

the researcher Darwin has put forth the statement “it is very easy to recognise and acknowledge in speech and language the truth of the struggle for existence, but it is very hard — in my opinion — to remember it at all times, so that it may not be forgotten. As long as this knowledge is not engraved upon the tablets of our hearts, then every natural treasure-house, in the abundance of its variety, richness and preciousness, the means of livelihood and the change in this house, will appear [to us] as from within a cloud or even enveloping fog. We observe that the face of nature is [like] a ray of light, we observe [an] abundance of economy; but we do not observe, that the sparrow which rejoices and is glad in heart sustaining its life with the entrails of the corpses of the insects it preys upon, is [also] destroyed and annihilated; or it falls [and is] killed in the struggle against its enemies; we shall not remember that the greater part of the abundance of economy is not found at all times and [that] periods of scarcity also exist.

If we are speaking about the struggle for existence in a general way, then we must speak of the relationship of the creatures which are dependent on each other, and not only in the life of particular individuals standing by themselves, but the higher relationship, and that is in the influence on the offspring which will come to take the place of their parents. And in truth and with justification we may state that two hundred species of animals of prey (*Raebthiere*) struggle for life and for food and sustenance.

“The struggle for existence” will therefore [have to] come about, if the organism has to reproduce and multiply. And everything that reproduces must at some time in its life come to death, for if it were to live [*lit.*, “stand”] for ever without destruction, the earth would not be able to support them and give food and sustenance to every creature. And therefore at the time of reproduction of many individuals, a vigorous struggle will arise between them for existence, the struggle will take place between [members of] the species itself or against other species, or even between them against the living conditions around them. This law will set up a block to absolute destruction, in order that organisms may not increase in the earth and [a] man swallow his neighbour’s life.

Food sustenance and economy, these will limit mostly to a fixed number the reproduction and multiplication of a species of animals, which lives therein; but not these alone, but also enemies and preying [animals] will reduce their numbers, but these reducing

factors may be termed “loss in its time” and the greatest destruction will occur when a species comes to sudden death, or a [similar] hard thing, for experience has taught us that if species of many animals reproduce in one place, room for them will grow more strait and utter destruction will come upon them. And if we observe well this struggle we see clearly, that nature acts in wondrous ways [as] between one [organism] and its neighbour and blesses one species or genus with all the good things [of life] and thus prolongs its days and takes away its good things from a second [species or genus] as a result of which it falls killed by those stronger than it and disappears [literally, “ends”] from the earth. And yes, in all the groups of animals and of man, the strong will drive away the weak or subjugate it and take its place.

Even the primeval man, of whom our passage shall speak, we observe that he is seized in the struggle for his existence; our *Torah* shows us that he migrated from the west of the world, and came as a wanderer and settled down in Eden, there he found rest for the sole of his foot, and there Highest Providence brought him to rest. After his settling down and quartering in this new land, man emerged into the air of the new land to perform his deeds [and] to struggle in the fight, began to teach himself to live the Edenic [or “delightful”] life, changed in accordance with its many influences upon him, enjoyed himself [in] his days — and the struggle for existence aroused him to emerge to battle against the inhabitants of the Eden area from previous years. Now [there arose] before him [a] fierce and vigorous struggle, its beginning [manifesting in] the rising up against his enemies, the haters of wandering and migrating [species], so that they may not rob nourishment and sustenance from his mouth [and] that his soul may live, and to demonstrate his power and the strength of his hand, for his hand [was] in everything and every tree and garden producing fruit in its kind of every variety [*lit.*, “from variety to variety”] [were] prepared only for him and his family. [The] fruit tree, off which he lived and [which] sustained his life [and] the life of his species, was for him the Tree of Life [for] many days and years and generations, until the necessity of the struggle for existence aroused him (and that undoubtedly during many generations during with much seed from him reproduced, and as a result of the pressure of necessity and of the hour) then in the flowering of his enemies like grass blossomed all manner of evil deeds unto him, then [was] the struggle for existence aroused [*lit.*, “hoisted”] within him in order that he may not fall killed by

his enemies, and death lurk [in wait] for him at every step of his feet.

The struggle for existence was the wet nurse, the foster mother, the educatrix of man to [teach him] to differentiate what is good before him, if he were to succeed in being victorious in the land then what would be his good portion in Eden to be LORD and to bequeath to his descendants after him, and if he were to be upturned under various and evil changes, and the hand of the previous inhabitants upon him then why should he live? The struggle for existence [was] the natural educatrix, necessity and opposition brought him to the highest rung of the ladder of improvement and perfection, they established him upon the highest stages [of perfection or evolution] and these are knowledge and understanding.

The aim [or “object”] of the struggle for existence which [was] to guard [for] man his livelihood and his nourishment; (and if there is guarding then certainly there would be found those who would desire to steal or rob it from him) and to be a worthy servant for his house his seed and his species that they may be sated and live in abundance, is that which our pure *Torah* calls by [these] few words: “And put him in the garden of Eden — to dress [*lit.*, “to work”] it and to keep [*lit.*, “to guard”] it” and when our *Torah* expresses its saying, man’s being in [a] state of struggle for his existence should awaken our ear to discern the second Biblical passage, for his food and nourishment [was] from every tree of the Garden which the struggle for existence aroused him to “keep” and to “dress” [it] and eat of its fruit, which in the language of the *Torah* [is as follows] “And the LORD God commanded [*lit.*, “came out upon”] the man saying, Of every tree of the garden thou mayst freely eat” [*lit.*, “thou shalt eat thy food”], they were unto him livelihood and Tree of Life, before he came to this realisation, before he felt the pressure and the necessity that his life is [full of] hardship, and now the struggle for existence commands him with its hard spirit to guard his life from death which lurks and hunts him down, he [being] the enemy [newly] inhabiting Eden, [that] there would be food for him to eat only upon his being rescued from [potential] death, and bring to his life his bread, therefore the tree of nourishment raised him to the heights [or “altar”] of knowledge, to discern that which is good for his children, and to distance himself from the evil which lies like a net [or “a snare”] at his feet. Hence the passage on creation looks upon this as the first gift given to primitive man, that is the knowledge which came to

]“living soul” — *nefesh chaiyya*” (see explanation of this phrase given earlier)]

him from the eating of the tree, what I mean to say is from his knowledge that food [comes] from the tree which at the beginning he did not know and was not aware but [only] as a “living soul”, lived on the face of the earth, and as the death of [a] “living soul” so he died, passed [from] and ceased [in] the world — this first gift was given to him as an indispensable condition and as the giver of a gift to his comrade must make aware so [it] made him aware — (and that in metaphorical language (*bildlicher-Auesdruck*) which science loves to dress in temporal garb, its sayings, heard by the ear of men — as is well known) that the good gift which you shall receive is under condition that you shall become conscious of your defects, and you have come to the knowledge that you are destined to die and this is the advantage of knowledge over instinct, from the side [or “aspect”] of your self-consciousness that on the day that you shall taste [with] your life [that] food is pleasant, and with knowledge discern [that which is] good, and differentiate [it] from evil, then at the heels of this knowledge follows [or, “is bound”] death, and you shall become aware that death is the LORD of your destruction, and you are predestined [literally, “foreseen”] for its sword, which until now by your being only a “living soul”, your lack of knowledge [of this fact] supported the success of your life and hid from you the shadow of death.

If we interpret [literally, “translate”] the [term] “voice of God” walking in Eden, which commands man not to eat of the tree of knowledge, and the man did not listen to [or “obey”; the word *sham’a* is ambiguous in Hebrew] this commanding voice, as the voice of [*lit.*, “the word of”] instinct for man upon his emergence to free life according to the spirit of his understanding turned his back to the voice of instinct, we shall understand from this that from this time [was] the start, or the beginning of his moral [or “ethical”] existence, and in this step to his freedom, is founded the cornerstone of his moral [or “ethical”] life. The lawgiver terms this step: “*einen Fall des Menschen*”, and the philosopher calls it “*einen Riesenschritt der Menschheit*”.

And our passage which deals with the order of the steps in man’s perfection [or “evolution”], does not withhold from telling [us] its opinion that this ascent in the acquiring of knowledge — is [in fact] a descent and it were better for man not to emerge to the freedom of knowledge, and he does not need to come to the differentiation of good and evil, but that of every tree of the garden could he eat freely, and his life was not hanging in the balance [*lit.*,

[“varieties” or “species”:
the word *min* in Hebrew is
ambiguous]

“hanging from opposite”), for food and sustenance were prepared in sufficient measure to satisfy all the creatures henceforward that the creatures in all their varieties may multiply and spread in the garden of Eden — and perhaps between [the members of] the human species itself, due to the great extent of their being fruitful and multiplying, there arose a vigorous struggle for existence in the land of life, [and] therefore the tree of food, which he had been instructed to know to “keep” [*lit.*, “to guard”] the good [that was] before him so that his soul might live, this tree of knowledge taught him that death hunts and ambushes his soul to take it — and this knowledge — according to the opinion of our passage, diminishes the success of this creature which has been living thousands of years on the face of the land.

SIXTH CHAPTER

Rabbi Aha said, in the hour in which the Holy One, Blessed be He, came to create man, he took counsel of the angels, saying unto them, Shall we create man? They said unto him, This man, what good is he? He said unto them, His wisdom is greater than yours. He took the beast, and the brute, and the bird, and so on and so forth, and brought them before the man, saying unto him, What is its name? And he said, This is an ox, this an ass, this a horse and this a camel, and so on and so forth. And He brought pairs of animals unto the man; and he said, each has a mate, but I have no mate. “And there was not found an help meet for Adam” (*Bereshit Rabbah* chapter 17)

In the history of the origins of man, which stretched from time immemorial, we found according to the progress of our inquiry two things which give man a great advantage in being called “improved” [or “evolved”].

After periods of many days and years [during] which the struggle for existence compelled man to understand and know [how] to differentiate good from evil, to choose the fruit which is sweet and pleasant to his palate, to prepare for himself food in a secure place, to conceal his hiding-place from the rest of those possessing “living souls”, to worry over his life that it may not be hanging in the balance, then the above-noted compulsions and thousands and [even] countless more raised him to the stage of the thinker of thoughts, and the composer of changing notions; to feel in inner emotions what is pain, human suffering, boredom, fear terror *etc.* thought and emotion brought man gradually to the stage of understanding and knowledge, and thus man climbed up to the great stage of being able to speak — .

[“living souls”— see note given earlier regarding this term]

[“able to speak” — literally, “being the possessor of language”]

The language in which the human species spoke [and] of which we are speaking here, was not inferior to the language which we still hear among the more evolved animals or forest-dwelling man the sound [literally, “voice”] of syllables which the new man uttered, was to call by [their] names pain, amazement, adversity and happiness, the sound [or “voice”] of expression [was] noisy like the sound of nature in its speech. And a German philologist has set forth his judgement in this matter as follows: *Ho! Ha! Aa! Haw! Ey! Ach! Wai!* which in almost every language on the face of the

[Here a footnote: Siehe Gartenlaube 1874 Heft 1. Seite 61.]

earth, gives expression [literally, “sign”] to emotions, these syllable were without doubt — the beginnings of language. To man is given the capacity, to denote his imagination that which he sees with his eyes which he hears with his ears which he feels and upon which he thinks, by [means of] names and words; or to express with greater clarity — not through the medium of sounds [which arise as a result of] breath (*nicht durch bloss gehauchte Toene*), but by [means of] such sounds, as the palate, the tongue, the teeth the lips and the nose help perfect the expression, sounds such as can be distinguished one from the other. The beast puts forth sounds only by breathing; man forms sound and speaks with it. (*Dem Tier heucht seine Toene bloss; der Mensch bildet und spricht sie*).

[“imagination” or “likeness”:
the word *dimyon* in Hebrew is
ambiguous]

This capability improved and perfected man gradually according to the tendency to imitate [a] species apart, [this tendency] which is planted in man; which the German calls “*Trieb der Nachahmung*” and thus the initial words approximated the sounds expressing feelings, words which sound in expression piercing to both ears.

We can still judge from the mouths of babes and sucklings how they call things according to the sounds they hear [literally, “listen to”] from every beast and animal around them; for instance they call an ewe “*baa*”, a bull “*bo*”, a chicken “*kirku*”, and so forth, and these are the sounds of the species of animals mentioned above. The language we speak, changes its form entirely and there is no recognised record “from the lips of children” in which the primitive man spoke, nevertheless after investigation it is found in the Hebrew language, and so also in the German language from expressions [which were] built and laid in their beginnings after the natural sounds of expression heard by the attentive ear, as for instance “*’ar’ar tit’ar’er*” [literally, “to undermine”, “to upset”], “*karkar kir*” [*lit.*, “to demolish a wall”], *por hitporer* [*lit.*, “to break”, “disintegration”], and in German “*rollen*”, “*rasseln*”, “*krachen*”, “*braeusen*”, “*saeusen*”. Such sound found abundantly, point to nature’s expressions heard in ringing sound by the ear, and upon them [literally, “according to them”] are founded the sounds of language spoken by the inhabitants of the world.

Man felt the need and necessity — not only from the things he hears — also these things *Gegenstaende* — which he sees, by [means] of [a] special sense of feeling to denote and portray by means of words and expressions, therefore with this necessity also

rests the tendency to imitate (*der Trieb der Nachahmung*) of man towards his perfection [or “evolution”]. From our childhood custom [or “habit”] is engraved [in us], all the imprints (*Eindruecke*) imprinted upon one or the other of the five senses as may be, we cannot feel them by [means of] the rest of the senses only by [means of] the sense of hearing, (what I mean to say is if one sense is lost or is lacking, then we cannot compare the imprint except by means of the sense of hearing —). Scientists have tried to give a person born blind an idea [or “concept”] of [the colour] scarlet (*Scharlach-rote*), and after a lot of talking of different things [*lit.*, “different pictures”] suddenly the blind man cried out that his spirit understood it “Is it not the sight which resembles the blowing of the *shofar*— !” Even the sight most active upon our eyes’ vision, attempts in the main to indicate and describe itself by means of strong sounds (*nachdrueckliche Toene*) [in order] to make [itself] understood to others; if a thing makes a good and pleasant impression in our souls, we require [it] to be expressed with smooth lips, in a pleasant sound [so as] to make our speech pleasing; a mournful feeling likes to make itself known in mute and humming syllables and happy feelings in pure and clear syllables. We can easily discern that letters [or “signs”] such as “a”, “o”, “k”, “kr”, “p”, “pr”, “shr” point to strength and hardness; “u”, “oi” to mourning and jealousy and so on. Every man who desires [even] a little to observe his language with which he speaks all day will easily find that what he hears, sees, feels and thinks, has a resemblance to something in audition [*lit.*, “to the sense of hearing”], emerges according to different sounds, and the bases of languages are founded but in the sounds of nature.

And the researcher Bradow in the opening portion of his article on the history of the world (page 59) adds more [material] to this subject in stating thus: To the many causes that we [should] consider, we [should] consider also the influence of the air [or “atmosphere”] and the history of the creation of the footstool of the earth [or “land”] upon the tribes of mankind who settled there. Mountainous lands give [rise to] accents [or “expressions”] speaking in repetitions (the meaning is, echoes), and thus the inhabiter of mountainous lands will accustom himself to speak in short [sentences], and his language [will be] unsophisticated. And those who inhabit the plains where clear breezes blow, will pronounce and [as it were] inflate [their speech] with drawn-out or hollow sounds: and since hard and thick sounds do not produce echoes, therefore their means of expression will not bring forth the kinds of sounds

[*Re.* the name. Bradow — this name is written in this document in Hebrew letters and it is thus not clear how it is spelt in roman letters]

as the former's, their language and speech being soft and pleasant. And thus we have found that the language of the inhabitants of northern Germany, a land in which no stones are to be found, is softer than that of the inhabitants of southern Germany, a land of mountains and heavy rocks.

And after men became divided according to their languages, nevertheless in a few words all will agree with one voice that these are the sources which remain from the earliest days, which have determined the language of the speakers. In every land whereunto men dispersed from their original place of settlement, they saw and observed those who were found [there] who were always present before their faces in every place of their settlement: and for those who were found [there] (*Gegenstaende*), the permanent [ones], there was no need nor necessity to invent for them a new and special word and name. He who travelled to its east or to its west, saw above him the heavens, below him the earth and around him the trees. Names for these remained always in all the languages, as they emerged from the primary source, and to this day in our languages their roots and trunks [figuratively speaking] remain. If it were in our power to come to the origins [*lit.*, "the roots"] of change in the expression [literally, "syllables"] of roots, and inquire after the causes of the formation of the name and the word put now into our mouths, we should see this clearly. Thus also the relationships in the family: the relationships of father, mother and children are the same and [or] similar in every corner of the earth under the heavens.

And also let us pay attention to the sounds uttered by babes, or those which children express and [one of them] is the sound "aa", and to this sound [may be] linked other sounds such as "ha", "ba", "av", "ab", and in the speech of children there exist mostly such [sounds] as we have noted here. And since such sounds were not put into the mouth of the babe, and he does not speak thus [as a result of] learning, since according to the years of his life he has not had time for this, it is not yet in his power and his understanding to attain and hear the sound of [other] speakers, [and] thus it is clear, that the speech of children, [consists of] natural sounds, and this sound of nature is heard in the mouths of children everywhere on the face of the earth. So also the babe of about a year [of age] is bound [emotionally] to his father and mother, and the parents observe every emotion and movement of the child, [and] thus as a result of their great love for the offspring of their

loins they call these primary natural sounds by [certain] names. That is to say: the child will know how to call his parents: and in almost every language (so Bradow has judged) will utter clearly the sounds “aa”, “o”, “av”, “ba”, “wa” in the title [literally, “name”] of the parent. In Hebrew [the term “Father”] is called “Av”, in Arabic “Ab”, in Greek “Bater” Latin “Pater” Italian “Padre” English and German “Father” and “Vater” and even “Baba” and “Papa” — [and as for the title “Mother”] even in the speech of children [we find] the sounds “ey”, “em”, “aym”, “meym”, “maam”, and in Hebrew the female parent is called “Em”, in Greek “Mather”, Latin “Mater”, Italian “Madre”, French “Mère” and also “Maman”, English “Mother”, and in the speech of children “Mama”, and in similar sounds in different languages, which in their format resemble the primary natural sound!

From all which is mentioned above we can learn that the natural language in which man spoke as he was emerging towards perfection, was the sounds uttered by the beasts of the field who were his neighbours and [lived] around him, and against whom he struggled for existence every day, and doubtless according to the bleating of the bull, the braying of the ass, the galloping of the horse, the neighing of the camel the roaring of the lion and the growling of the bear, *etc.*, and also according to the cooing of the dove, the chirping of the bird, the *dagor* of the partridge the screech of the vulture *etc.*, *etc.*, [which] man repeated in his speech to call and name [these] animals by name. This ancient testimony will reveal to us our affair, upon the beginnings of the speech of children of the human species with which the passage on creation deals, according to our understanding and of which our forefathers the folklorists told us the roots, the beginnings of the wisdom of man in his arriving at the stage of speech, and this is truly proved in verity as a result of the favour of knowledge and wisdom, that which began to move the throat the jaw the teeth the mouth and the tongue to utter sounds of compound syllables, our *Torah* tells us in its [own] words: “And out of the ground the LORD God formed every beast of the field, and every fowl of the air; and brought them unto Adam to see what he would call them; and whatsoever Adam called every living thing, that was the name thereof”. The traces of the beginning of accents [or, “of pronunciation”] are seen more conspicuously in the

[“*dagor*” — *lit.*, “hatching”; however, it is not clear whether the word is used in this sense here — *Tr.*]

[Here a footnote: There is under my hand a valuable commentary proximal to the way of criticism in our generation, by his honour my LORD my father my teacher and my rabbi, the excellent and famous preacher and Rabbi, well-known scientist the venerable and experienced [two indecipherable words here] Pinchas Ze'ev Halewy (may his light shine!) regarding the [Hebrew linguistic] root *dagor*.”]

passage after it which says and testifies that the principles of the language of man consisted only in the calling of names, and that this is the foundation of the beginning of language, and this points the finger to the stages of improvement and perfection in understanding and knowledge in the recognition of things and in the separation of the species, according to which test man became worthy of the gift of speech.

This matter is great and precious to those who inquire after such things, but we do not have the skill to carry it to completion, and [in any case] we have touched upon it merely to arouse [the reader] a little regarding natural accents so that we may attain some knowledge of how primeval man must have pronounced his first words.

And moreover this scripture testifies unto another great thing in the subject of the improvement [or “evolution”] of man; and that is the way in which the passage in its entirety from [its] beginning speaks of the acquisition of perfection in the beginning which man already acquired, and then limits his deficiency — yes, in the sublime subjects we are discussing, it tells of his perfection: “Adam [*lit.*, “man”] called by name every animal and every fowl of the air and every beast of the field” — nevertheless man had not yet attained knowledge of the sexual [*lit.*, “matrimonial”] instinct, did not yet know mating, to choose [a mate] consciously, and to find his desire [in this matter] — but at this time he yet stood at the bottom of [the ladder] of instinct, he mated with the female sex as his instinct told him [to do so], hence man was still lacking self knowledge [and] the recognition of his self [in] action, the feeling of lust in his body and the appetite of his heart which was given unto him; and this deficiency is the great separator between long periods [of time] and great distances, between the generations of the human species who came to the stage of improvement of speech, and the generations coming after them who acquired in addition self-knowledge in the instinct of mating. Our passage thinks of the period of the generations of calling and expressing names [for] the beasts of the field and the fowls of the air as a period by itself, hence it sets a limit to this period [as if to say] only to this point did man come in the order of his evolution, and was still away from the [stage of] perfection of recognising his mate, and this the scripture clarifies by saying “But for Adam there was not found an help meet for him” — !

One of the great [things] in the society of men, is the association of man and his wife [coming together] to set up a single household, as the German writer says “*Die Ehe ist eine der aeltesten Institutionen, welche die Menschen seit ihrer ersten Erhebung ueber den tierischen Standpunkt sich angeeignet haben*” —

[Translator's note: these German words are given in Hebrew letters in the original article, and thus there may be some mistakes in transliteration].

Of course, there passed many generations of the species of man, who lived in a wild state without recognising the [necessity of] attachment to one woman out of all the women around him. There was a long struggle between the un-evolved generations in the matter of mating and joining and attachment and matrimony, and it has ever been observed that the number of females was greater than the number of males. The females who became attached to a single male, demanded of him shelter, and desired to take shelter under his arms. Hence the male was compelled to fight the struggle for a mate (*den Kampf um die Ehe*). Most of the females who became attached to and joined with a [particular] male, gave him softness and feebleness of nerves, drew him [nigh unto them] to sit in their laps, caused him to lie down upon their knees to lose himself with them in love-making and [they] became those who would guard him from his troubles; lust was the first cause of the loss of his force and the inebriation [as it were] of his strength. In the course of many days the possessor of many women who stood by his side, came to the stage of realisation [or “recognition”] of matrimony; as being willing and desirous according to his lust and appetite to take one of the women by his side to wife. Up until now women had surrounded him from every side and now he chose a single woman and this was a great step towards perfection and justifiably may we call the recognition of the sexual instinct (*Geschlechts-trieb*) “the perfection of evolution” for in this man began to ascend upon the highest ladder of perfection, and from this stage we begin the order of the relationships in the species of man the [most] esteemed and honourable [creature] among [all] the creatures on the face of the earth.

Our passage ascribes every act of nature to the LORD alone, as our *Torah* relates everything, law of nature and judgement upon nations, to the LORD who acts for the ends of men whether for mercy or for judgement all according to the deed — therefore it prefaces [its remarks] by saying: “And the LORD God caused a deep sleep to fall upon Adam [*lit.*, “the man”], and he slept”. The great lust which brought man to the [state of] softness and laziness,

[Here a footnote: *Otto Sparmers Illustriertes Konversations Lexikon Seite 1277*].

to slumber and sleep, the force which drops the chains of slumber upon the eyelids of the hero, our passage hides [this force] behind the wings of the Divine Presence of God; he causes slumber to fall upon him, to lie tired and stunned [as it were] after satisfying and satiating his lust, he caused sleep to fall upon him [so that] his strength may be weakened and his force dissipated — the advantage our passage sees for man in this slumber and sleep is: the choice, the will, the desire for his mate. Therefore [our ancestors] of blessed memory have commented: Accordingly [God] did not create [woman] as demanded [by man] by mouth, for he demanded with his hands and “He caused to fall” *etc.* and “He took” *etc.* (*Midrash Rabbah* chapter 17). The females which were around him at every side and step, our passage calls these females in their wild [or “savage”] state, before they did not recognise their mating and their attachment, by the name of “help meet” (“help meets”) against him, by the term “rib” [or] “ribs” these terms and names do not point at all to the subject of [sexual] union and mating according to will and choice; and afterwards in choice arising in [literally, “coming to”] his heart: [as the passage says] “And he took one of his ribs [or, considering the play upon words here, ‘one of his women’] and closed up the flesh instead thereof” by which I wish to say: that man attained the stage of choice and chose one woman out of those who mated with him.

[Translator’s note: the Hebrew term translated in the *King James Bible* as “Help meet for him” is *ezer ke-negd’o*, which literally translates as “Helper against him”; this does not resound in English, however, with the same connotations as it does in Hebrew, and so it is almost impossible to translate the term exactly into English]

However, if we were to translate the entire passage according to its format we should be going beyond the boundaries of this inquiry, [and] hence we shall conceal some thing, and only arouse the reader that he may look into the *Midrash Rabbah* chapter 17 and the interpretations [given] therein upon this passage.

We already remarked in the fifth chapter that the passage on creation takes only one pair [of humans] as the order of the origin of man, and here we come to complement [this matter]: the opinion of our *Torah* can also lean towards the result which opens its doors to us, and entering within we shall observe the savage human species multiplying in the primitive world, and from among the tens of thousands of savage families one man arose who attached himself to one woman, and from these evolved and defined parents spread the order of relationships of perfected [or “evolved”] man.

This chosen man is, according to our understanding of our passage, he who chose and took one of the many women who stood by his side or as “help meets unto him”, and recognised her as his

mate. And in this the passage has recognised the advantage [in this] and the step forwards in self-knowledge and self-consciousness, yet it still counts and numbers the [steps of] ascent on the ladder of evolution [or “perfection”] for although he recognises his mate, yet he now lacks knowledge of his [own] origins, he has not yet reached the perfection of attaining [knowledge of] the fruit of his belly, to discern that the one born is from him, from him is built [the body of] the son or the daughter, and such offspring will be considered as of his house and not of others’ — therefore our passage also counts the recognition and attainment [of the knowledge of] sons, as one of the steps of evolution [and thus it] tells. After the one woman which was taken by the man to be his mate became pregnant and gave birth to children, a new emotion came unto his heart, and like a small whisper, whispered in his language this time words and names to the ones born to him, saying, bone of his bone, flesh of his flesh!

The meaning of the verb “and he built” is the attainment of sons as the word *ibaneh* from it (*Genesis* 15, 2) and from the [Hebrew language] root bet-nun-hey are derived the words *ben* and *bat* [literally, “son” and “daughter”], and *i.e.*, *der Gott ewige befruchtete dem Weib*. The *tsel’a* [literally, “rib”] is the *’ezer* [literally, “helper”, translated in the *King James Bible* as “help meet”] which the man chose and took [unto himself]; the maturity [literally, “ripening”] of the understanding [literally, “the attainment”] of man (*die Reifheit der Begriffe*) in the stage of evolution is denoted in the passage [as] “And he brought her unto the man” as the backbone [*lit.*, “back”] of his ascent on the steps of speech and language [and] so to say “and he brought her unto the man” to see what he would call her that is to say he already reached this step upon which consciousness and understanding could come to him.

And now that he saw the son or sons built from him and from his wife [literally, “his rib”], he expressed [himself] from deep within himself, announced his paucity of understanding in the most material and concrete manner and these are the words he uttered: “Bone of my bones! and flesh of my flesh!” He is the father and he the one who gives birth, and from his flesh he beholds his seed after him! — . And therefore we see that the writings of the *Torah* tell its tale to Jacob and its judgements which he found by himself — in the course of the ascending order of man on the ladder of evolution in two principal matters, in order that he may not ascribe these things to the mouth of the primitive man for they are only clear in-

tonations, the roots of the calling by words and names. The one is what we have already noted [above], for after [the words] “And Adam said” the *Torah* arouses us [with its] writing “this is now” [lit., “this time”] and the utterance of man is “bone of my bone, and flesh of my flesh” and after this it notes: from now on the adjectives “help meet” and “rib” [in Hebrew, *tsel’a*] are removed from his mate after having been chosen and taken by man in marriage and he recognizes marital status in her and his mate, who resembles him in every [aspect of her] existence matrimony and attachment, and therefore from now on the one taken by man to be his wife is called by the name “woman”, and this is the comment of the writing of our *Torah* [which says] “She [lit., “this one”] shall be called Woman, because she was taken out of Man”! You the reader can also find additional explanation of these words in *Rabbah* chapter 18 which says: “Rabbi Chisda said (regarding the word *ve-yiben* “and he made”) [Genesis 2, 22] [lit., “and he built”] “he built in her [i.e., in woman] chambers so that she could receive embryos (children) and taught her understanding (regarding [the word] *ve-yiben* [masculine] from the text and [the word *ve-yibnah* [feminine] from the text) and then brought her unto him [i.e., unto the man]. He decked her out with four-and-twenty pieces of finery and then brought her unto him. And the verse says, ‘[Therefore shall a man] leave [his father and his mother], and cleave unto his wife: and they shall be as one flesh’ [which] means that he shall cleave to the place where both form one flesh” (*ibid*).

[in Hebrew, “understanding” is *binah*, also from the same linguistic root as *yiben*]

And now at the end of the passage which has finished contemplating the ascent of man, up to the perfected man, from whom one may begin to draw the order of the relationships between man and one woman, our passage reveals to us a new period in man’s evolution, and throws light upon its subject to see [or, “to show”] the limits of the world of the savages which since the above-mentioned evolved man came to be in it, in the world of fact since then the world of savages ceased [to exist].

And regarding the period which separates the world of savages from the world of evolved [men] the writing of our *Torah* notes: “Therefore shall a man leave his father and his mother, and shall cleave unto his wife: and they shall be one flesh”! However in all these improvements [or, “stages of evolution”] arranged one after the other until one arrives at the general order of relationship of the [married] pair is in the language of our *Torah*: “They were both” [Genesis 2, 25]. Our passage closes with the great deficiency which

man still lacks in his world, which is the lack of a soul, the deficiency of his spirituality, which is the great goal and the true step upon which man climbs up on the ladder of the perfection of the soul (and regarding these steps upon the ladder we shall not speak now —) and the ugliest deficiency of soul is the lack of shame, or the lack of knowledge of shame, and therefore it seals its utterances as it has sealed [them] in every area of its passages regarding improvement [or “evolution”] and in deficiency in the thing that still separates and differentiates between one stage and another, [and] thus it makes the echo of its voice heard: do not believe that man has already reached perfection, behold his imperfection: “And they were both naked ... and were not ashamed”!

THE END OF THE MATTER ALL IS [NOW] HEARD

Wahre Naturwissenschaft ist Philosophie und wahre Philosophie ist Naturwissenschaft; wahre Wissenschaft ist Naturphilosophie

(Haeckel)

We have up to this point come to the explanation [or “commentary”] of the passage on creation and that is the world of evolution of the species of man from the day he emerged from the dust of the earth and the Creator gave him organs (*Organe*), breathed into his nostrils breath and spirit and placed a tongue in his mouth and of his [free] choice he chose and took for himself a wife to build a household and to give birth to children in his image and likeness —

However, much investigation is still required of us in the evolution of the soul in the matter of the spirit in the stages and degrees of the heart which according to our understanding is included in the passage of “the serpent”, in which the diligent reader will also succeed in recognising the conspicuous stages in the ladder of evolution — but we shall leave this notable and honoured undertaking to another place, and a separate article will speak of this sublime subject, and now according to the course of our article on the formation of the bodies of animals, we shall set seal and put an end to our utterances, only jumping to the other limit of the sublimest goal, which is carried above every advantage and capability of man and which according to our review of our holy *Torah*, it dedicates this high goal to the generation of humanity that will come, which will reach the last limit in the aim of perfection of wisdom which is in the [very] foundation of nature.

And before we express ourselves to reveal what the end of our knowledge was, [which was] hidden and covered in our *Torah* we shall repeat here a scientific theory of our generation regarding this honoured subject, to which we shall lift up our eyes. And this is regarding the solution to a problem, the problem of death. And the things said here in the name of science are authored by the scientist Bernstein, and they speak loudly and clearly to every attentive ear.

The scripture which testifies unto the end of man “For dust thou art, and unto dust shalt thou return” (*Genesis* 3, 19) has been taken by many generations during the course of three thousand years as the simple and accepted explanation from the mouth of man, until it came to our generation and was interpreted in another manner according to natural science. In the course of [*lit.*, “way of”] natural science, many researchers desired to find, that death must arise [*lit.*, “come”] only from the elements (*Stoffe*) which formed the body of man [and which are] destined to return to the world of movement and motion in nature. Man during his life borrowed or appropriated his body from the elements of the earth, and the earth comes back to man to collect on the debt, and to put an end and a limit to his life upon it.

However if we delve more deeply into this theory to verify it, we shall grasp a fundamental error [*lit.*, “lie”] in it. If a man is obliged to die only so that dust may return to dust, so that the matter (*der Stoff*) which according to the law determined by science cannot be destroyed, may return to the lifeless matter (*leblosen Stoffe*) by necessity, then the thread of life would never be interrupted, since we pay this debt and this obligation with every breath of our nostrils, and from the first hour of our existence to our last breath we shall not refuse to pay our debt, since we desire life and have to live.

Man does not have to die, so that he may return the elements to the lap of lifeless nature, for with our every breath and every drop of sweat, we are returning the elements and restoring them [to nature]. Matter is continually being exchanged in [nature], and God does not [have to] have a hand in returning the contents of nature which he borrowed from it. Death is founded upon [quite] another law; it lies in the very nature of life.

From the first instant, when the fruit of life became attached in the belly of the mother, from that time was born death which will raise its head up some day. Life and death do not display self-contradictory and differing concepts; the action of both of them is necessary for life.

The delicate [*lit.*, “soft”] embryo [*lit.* “seed”] in the womb of the mother, which is nourished by the belly of the mother, obtains matter thereby, in order that it may grow [*lit.*, “in order that it may perfect itself”]; however the embryo (*der Keim*) immediately returns and restores a portion of the matter to the mother’s blood.

Immediately, [even] in the period before the dawn of life a part of the blood which was hardly alive, dies; it returns to death. Its days of dwelling [in this world as a living thing] are very few, and when it gave matter a form to become a body and a living universe [or “existence”], it fulfilled its goal and [now] goes back, so that it may now separate from the body. That which we call “being alive” lasts for no great time and period; it is estimated [as] between the formation and the loss [of life]. That which are eating at this moment, will change with our swallowing and our saliva into some other combination [of the same elements]. From the stomach (the food) will send the liquid portion [that is within it] to the blood. In the intestines (*Darm*) it will change into juices which will change [in turn] into blood which courses to the heart, from there it will circulate to the lung, so that it may get rid of the dead portion [that is within it] and absorb the element oxygen, which is capable [*lit.*, “prepared to”] change [itself] and to course [in the arteries], from the stomach the blood which has acquired life-giving properties returns to the heart, so that it may disperse therefrom to the arteries within the entire body. One part forms the nerves, the bones, the tendons and the sinews and all the rest of the things [within the body] and another forms the sweat, the breath and the rest of the effluents of the body, dead [and] separating themselves from the body. Even that portion which was life-giving does not remain so [for long], for soon blood approaches it, displacing life from its place, pushing it towards death, and establish itself in its place as the generator of life.

Accordingly, there is continual coming into existence and continual dying, continual creation and continual annihilation, continual movement and flux, unceasing exchange of elements, an exchange taking place every moment while life lasts.

From such very sublime inquiries, natural scientists in our generation have determined that life is itself but an exchange of materials (*Stoffwechsel*) and in this exchange they found the secret of life.

However, although the study we have mentioned above is greatly loved in our generation, nevertheless we cannot rely upon it, if we direct our observations to the processes of life — were life only an exchange of materials, then the intake and the outflow would be the same, that which we call by the name of “growth” (*Wachsthum* [*sic*, in roman letters]) would not be possible; neither would there ever be that which we have known as regeneration

[Translator's note: the German word *Stoffwechsel* means “metabolism”, and perhaps the author intends his term “exchange of materials” to mean “metabolism”, there being no Hebrew equivalent for this term in his time]

(*Rueckbildung*) in the entire body, nor would there be death for the body; since no reason [or “principle”] has been found why the exchange of elements according to the course of nature should at some time cease, which we see and think of as life, and dissolution [of the body] take place, which [dissolution] we might also call “exchange of materials”.

The exchange of matter is not a solution to the riddle of life, but it teaches us about the riddle of death of which we shall speak in what follows.

The exchange of matter (*Stoffwechsel*) is not all of life; however it has been found that the body is continually engaged in barter (*Tauschgeschaefte*), it introduces within itself new matter in its nourishment and its respiration, and ejects outwards in its exhalation, perspiration, excrement that matter which ceased to be alive. However this barter changes from time to time in life according to a law of nature. In the days of youth intake is greater than dissolution, in adulthood intake and dissolution are approximately equal, and in the days of decline [*i.e.*, in old age] the barter is greatly in favour of dissolution, it ejects matter from its place and the alteration of matter (*Stoff-veraenderung*) takes place at an accelerated rate.

If we compare the life of man to the life of the beast, whose existence is only for itself and for its offspring, and for the next generation, then easily may we return to the question of the goal of the human species, for then we may not ask: What will be the state of man after thousands and tens of thousands of generations, when we do not ask, How then will appear the beast of the field?

After having determined that the life of man is the life of the spirit, [that] he gathers into the palms of his hands understanding intelligence and knowledge, and broadens the boundaries of his wisdom in every expanse of nature, up to the point that were the great ones of the summits of natural science to rise up from their graves, they might be accounted as [but] pupils of the giant researchers of our generation, [that] the discoveries and inventions in natural science multiply day by day, and fill the earth with knowledge, then with justification can we set up [the following] questions at the gates of the marvellous:

Where and in which direction will the spirit of inquiry in man proceed? Can we describe the path of the spirit? Can we now gaze upon the goal of the intelligent soul? Is man capable of climbing yet

further upon the steps of perfection? Or will there arise yet [other] creatures and a universe at their feet, who will be wondrous in their every capacity to [do] good in sublime enlightenment and will be destined to climb to [greater] heights on the steps of the ladder of spirituality than the generation of men who at this time stand at the bottom of the ladder, and who at this time are recognized as the chosen [of all] creatures upon the earth below? To questions such as these natural science does not yet give firm and trustworthy answers, and the scientist [and] author (*um den Reiche der Naturwissenschaft 9 Band*) believes that the Prophet, the son of Amoz [*i.e.*, Isaiah] envisioned the highest and most honourable goal of the man who arrives at the ultimate limits of perfection, of civilization (in *der einstiegen Versittlichung der Menschheit*), and in the spirit of wisdom [or “science”] which is expressed in chapter 11 [of the book of *Isaiah*] and [which] declares that “the earth shall be full of the knowledge of the LORD, as the waters cover the sea”.

And we who at the start came out to gain wisdom [in the study of] our *Torah* from the point of view of natural science (*vom [sic] naturwissenschaftlichen Standpunkte*) and without deviating to the path of theological inquiry — (which our holy path is called when it stands by itself) we demonstrated to [the world of] knowledge how much goodness is hidden upon this path, therefore let us also demonstrate the sublime goal which our *Torah* destines for man of which the foundation lies only in natural science, and to which questions our *Torah* has found answers which natural science by itself could not give — and in this it [*i.e.*, the *Torah*] is wondrous in our eyes for it was from the LORD —

If we demonstrated that the existence of man was known upon the earth thirty thousand years ago and from that time he proceeded to grow on the ladder of improvement up to his being what he is [now], then it is easy for us to believe in the theory of Darwin that one by one various species arose and were regenerated, and the offspring which arose after their forefathers rose more and more in their capabilities and in merit [or “advantage”] until they changed into completely new creatures — and in this sense the average attainment of each creature is higher, and how pleasant to the ear are the words which end [*lit.*, “seal”] his book “*Die Entstehung*”: *Es ist wahrlich eine grossartige Ansicht, dass der Schoepfer den Keim alles Lebens das uns umgibt, nur Wenigen oder nur einer einzigen Form eingeheucht hat, und dass Wehrend unser Planet den strengsten gesetzen der Schwerkraft folgend sich im Kreise schwingt, um*

so einfachem Anfange sich eine endlose Reihe der schoensten und wundervollsten Formen entwickelt hat und nach immer entwickelt.

And if we see the development of evolution as the pillar of the world, then there remains no doubt [whatsoever] that man yet stands, after thousands, and thousands of thousands, of years, to ascend step by step to discover the Book of Nature and to read in it in clear and simple letters [or “signs”] that which we call “miracle”, “concealed” and “secret”; and what mystery shall he discover? and what is the matter most undisclosed to man that he shall decipher? — The answer is set before us by our *Torah*: He shall discover yet the secret of life, he shall solve yet the riddle of death — in his knowledge he shall attain to these mysteries in the book of creation — and in his science he shall decipher the hidden [codes] of nature, shall prepare for himself a house eternal for his body which is girded round with living organs and members, shall soon [“quickly”] find a treatment [*lit.*, “bandage”] and a medicine for his deficiency and his great expenditure [of material] in the exchange of elements [or “metabolism”], guard his body from the sword of death that he may not fall in his choice years into its snare, man shall rise up as the enemy and ambusher of death to take away from it its sword, as Franklin took away the arrows from lightning —

THIS IS THE DESTINY OF THE FUTURE MAN IN THE ABUNDANCE OF NATURAL SCIENCE!

This extreme limit of perfection [or “reconciliation”] our *Torah* recognises from the beginning for man in his lack of success, when it observes the beginning of his perfection in knowledge, which in its language is the tree of knowledge, of his deficiency and it says to him that it were better for man who did not come and did not know, not to eat [thereof], and not to recognise [the fact] that he is dead [*i.e.*, destined to die]; he never felt death’s net which was cast at his feet all the days of his life (which we explained above in the fifth chapter) it looks upon man who already reaches a great [level of] improvement and his heart was as one of the gods to know what is good before him to live the life of perfection without the hand of death touching him unto evil, and his life would be long and continuous — and this is the highest goal of living man — the *Torah* looks upon this man as well with an eye of pity to gaze upon this high goal — a great deficiency, and to have concern for him that he may not attain this perfection. The secret of life in the discovery of which our *Torah* establishes us in the eating of the tree of life when it clothes recognition and knowledge in [the garb of] the tree of knowledge, and [sets] the one against the other, and when it recognises the knowledge of man in his development as recognising life as good, and death as evil as explained in the scripture “But of the tree of knowledge of good and evil, thou shalt not eat of it: for in the day that thou eatest thereof thou shalt surely die” — it now establishes man indeed at [a] higher [level] for he comes to the secret of life and death [as] it says “to know good and evil” — . And now shall be revealed unto you this occult secret in the passage explained before you: which says: “Behold, the man is become as one of us, to know good and evil: and now, lest he put forth his hand, and take also of the tree of life, and live for ever”. Man has not yet reached this sublime goal, and shall not reach it until the time of the end which only the Creator can reveal to us, man yet inquires into and demands [answers to the questions of] the elements of the earth, and his work in them is to see and to find his origins. In it [*i.e.*, the *Torah*] is moreover written “Therefore the LORD God sent him forth from the garden of Eden, to till the ground from whence he was taken”, man yet sees death [and] its sword which turns every way in its hand, and cannot yet say to the angel: “stop thy hand”! Man is yet pursued unceasingly before and after by the flame of disease [and] exiled by the threat of

[“flame of disease” or, “by the sword-blade of disease”: the word *lahat* in Hebrew, used here, can mean either “flame” or “sword-blade”]

death, he shall be diligent only in the garden of saplings [and] plants to extract from them a medicine for his life, he shall only guard the path which leads and brings to the tree of life, but shall not yet come to the tree of life itself, of which he might “eat, and live forever” — . Once more we have to rise up before our generation, saying, “And man was sent forth from the garden, and he [*i.e.*, God] placed at the east of the garden of Eden cherubims, and a flaming sword which turned every way, to keep the way of the tree of life”.

And you, O intelligent reader, go over the six chapters and go over them and go over them [again and again] for they were all framed around [*lit.*, “prepared”] and also inquire [into] a single pattern [of ideas]. And if you find [in them] new [ideas] which your teachers did not imagine while you were faithfully [studying] in their halls of learning, do not thereupon disparage my work herein for the reason that in your eyes the things said in these chapters can sound well [*lit.*, “be heard”] in the ears of every human being regardless of religion or belief, but on the contrary even those who are not children of our covenant [with God, *i.e.*, those who are not Jewish] will learn from this [article] the teaching [*lit.* “knowledge”] of our *Torah* which honours in general the origin of man, and according to our understanding, it was the Father of the Prophets, Moses the man of G-d, who was the first teacher who taught from the observation of nature the development of creation, [and] in particular among the general body of animals [that] of man, and every thinking and religious person will grant honour and glory to our lawgiver, if he observes that we can find in our *Torah*, that unto which researchers into nature in our generation have set their letters [*i.e.*, have written] to reveal [or “discover”] that which was hidden regarding the origin for countless generations.

Even our understanding in this matter, even the theory of Darwinism does not touch [by] a hair’s breadth the honour of the law known by the name of “religion”, if it does not uphold the honour of the faith. He who knows [or “recognises”] the expanses of the world of reality, and stretches [or “expands”] the limits of the power of creation from [the limits] set by the first ones [to speak of them], even this person, who is precise in his intellect, creates, directs and renews every day the Work of Creation.

Among the youth of our generation, who hold to the theory of Darwinism, I have seen those who [do not] praise the faith of the

Creator, and believe only in matter [or “in materialism”], and do not know that the theory of Darwinism only broadens the limits of knowledge of the creation, and it ascribes high attainment to the sublime Creator regarding every [thing that is] infinite and inconceivable.

See the words of Darwin *Schlussbemerkung* [i.e., closing remarks] *Seite 559: Eich sehe keinen triftigen Grund, warum die in diesem Bande aufgestellten Ansichten gegen irgend jemandens religioese Gefuehle verstaessen Salten. Es dirfte wohl beruhigen, (da es zeigt, wie vorueber gehend der artige Eindruecke sind), wend wir daran erinnern, dass die groesste Entdeckung, welche der Mench jemals gemacht, naemlich das Gesetz der Affraction oder Gravitation von Leibniz euch angegriffen worden ist ... ein beruehmter Schriftsteller und Geistlicher hat mir geschrieben, er habe allmaehlig einsehen gelernt, dass eine ebenso erhabene Vorstellung von der Gottheit seie, zu glauben dass sie nur einige wenige der Selbstentwicklung in andere und nothwedige Formen faehige urtypen geschaffen als dass sie immer wieder neie Schoepfungsakte noetig gehabt habe um die luecken aus zuvielen, welche durch die Wirkung euhrer eigenen Gesetze endstanden sein —*

And in our article we too made such necessary remarks, if our chapters were to be weighed together in the same scales along with the chapters of our teachers, then it will be seen that we too saw the perplexity of the youth of our generation, and with all [our] power we tried [*lit.*, “we were competitors” or “we were rivals”] to extract them from their perplexity and all according to the state of research and study in such matters, therefore permit me to request of you with the first teacher and attainer in his time, that you do not do harm to me for that [with the help of] which I have desired to benefit you.

This letter which one of the great scientists in natural science wrote regarding the book “The Origins of Man” I found pertinent to lay before the assembly of those readers who love the lessons of Zion — *the Publisher*

Mon ami Monsieur Levy Naphtali m’a presente son travail assidu, ou il cherche d’exposer les indices dans l’ancien testament des idees philosophiques sur la creation que Geoffroy St. Hilaire, Darwin et Haeckel ont developpee. Je trouve que le travail de Monsieur Naphtali Levy est digne d’une attention particuliere de savants et philosophes modernes. C’est un attribut precieux aux etudes philosophiques et historiques. Je crois que tous les savants chretiens et de la confession mosaïque trouveront un plaisir noble et sublime d’etudier le travail de Monsieur Naphtali Levy, le travail qui porte le titre: “Toldot Adam”.

*Dr. de philosophie et des sciences physiques.
J. B. Rogojski, Membre de l’academie “National Academy of Great Brettanya [sic]”*

[Translator’s note: There appears to be a handwritten Hebrew note at the bottom of page 60 of the original article signed “Naphtali”, but which cannot be deciphered due to poor photocopying].

TRANSLATOR'S NOTE

Hebrew is a very concise language, and very often what can be said in a few words in Hebrew needs to be translated by many more words into English. In this translation, in order to preserve accuracy, I have tried to translate the Hebrew words with their closest English equivalents, rather than attempting a more liberal interpretation; but with such a method, much of what is implied but not actually said in Hebrew gets lost. For this reason, the translators of the *King James* Bible have put in supplementary English words, not actually found in the original Hebrew, but implied therein. In most versions of the *King James* Bible such words are found in italic script, to distinguish them from words actually found in the original and translated as such, which are not in italics.

In the interests of accuracy, in my translation I have adopted a similar system; but since my original word processor and printer (in 1994) did not print italics, whereas my present word processor and printer (April 2000) can do much more than just print italics, I have decided to put such words in grey within square brackets, thus: [..... ..] (that way when reading the text the eye can gloss over them more easily.) I have also put in the margin several notes, these too in blue, some of which I felt might be informative to persons unacquainted with Jewish customs and traditions. Words found within parentheses (..... ..) are, however, translations of Hebrew words actually found in the text within parentheses.

Again in the interests of accuracy, I have tried to retain as far as possible the punctuation of the original text, only altering it when I felt there was dire need. However, I must mention that the original punctuation is — in my humble opinion — atrocious, and is the source of much obscurity in the original. Moreover, the author often writes extremely long sentences, of which the beginning is only remotely connected with the end; and at times mixes up singular and plural, past and present in the same sentence. However, I must constantly remind myself, and my readers, that a translator is not an editor, and if the original is obscure so, too, should the translation be.

At times the author omits a period, a comma, or a mark of interrogation or of quotation where it should have been found; I have felt it best, in the interests of accuracy, to omit them from these places in the translation as well. The errors of punctuation in the translation, then, accurately reflect the errors found in the original. (In the matter of the translation of punctuation, I differ from the translators of the Bible, who have given their own punctuation to their translation; but that is because the Bible in the original has no punctuation at all except for the period at the end of a sentence, while this article contains all the modern signs of punctuation.)

At times, too, the author spells German words, whether in Hebrew or roman letters, in ways my German-English dictionary does not spell them. For instance he spells the word “*Tiere*” (animals) as “*Thiere*”. Instead of correcting him, I have let the words stand as they have been spelt by the author.

At times the author writes German words in Hebrew letters, and there may some mistakes in transliteration, which I feel a person knowing German will be able to correct rather easily.