

A synoptical history of the intellectual powers of man and what he has accomplished by them : demonstrating by comparison, his superiority over all other animals : a lecture, introductory to a course on physiology / by R. R. McIlwaine ... ; reported by J. A. Thacker.

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A SYNOPTICAL HISTORY

OF THE

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Demonstrating by Comparison, his Superiority over all other Animals.

A LECTURE,

INTRODUCTORY TO A COURSE ON PHYSIOLOGY.

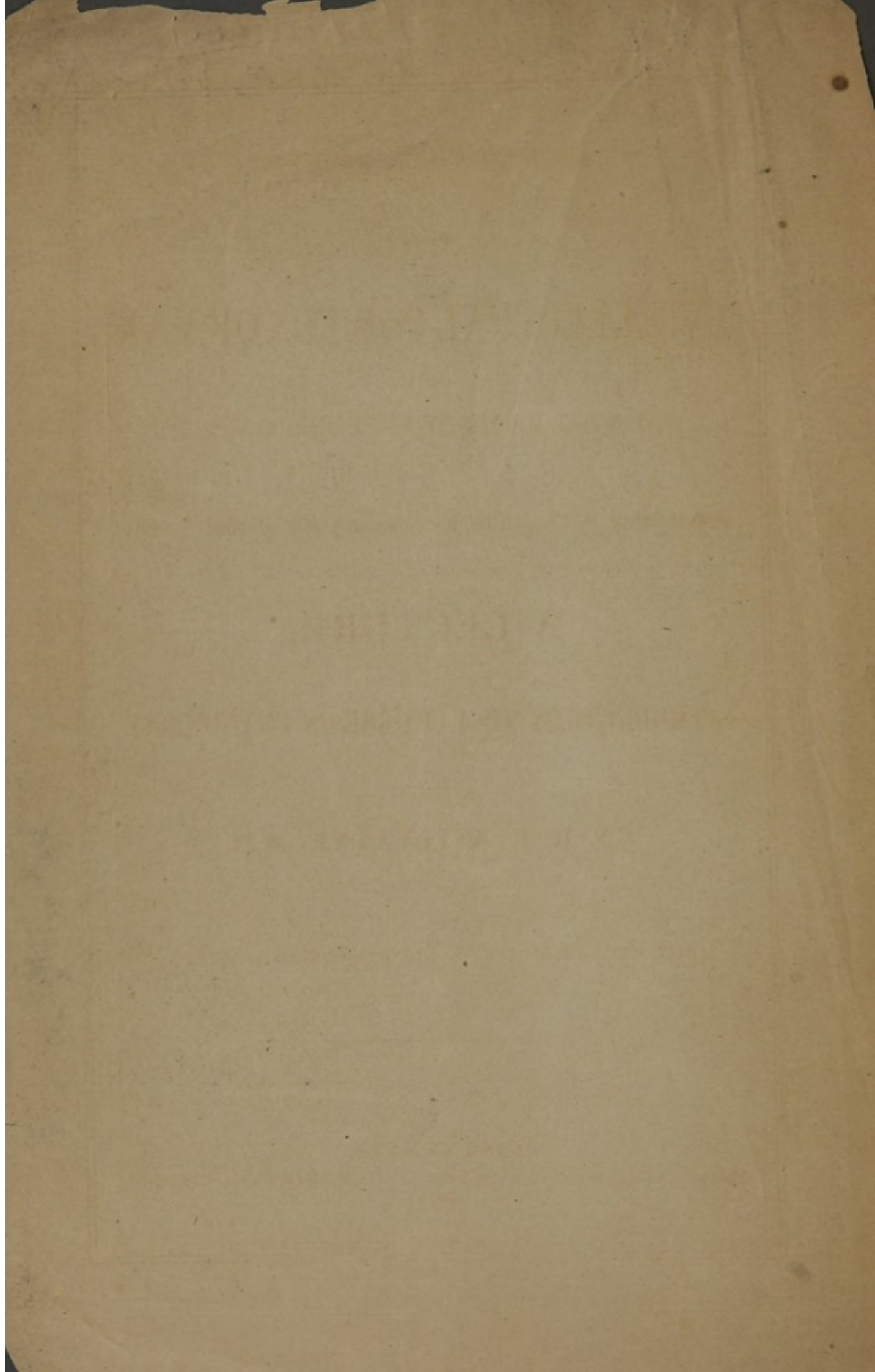
BY R. R. M^cILVAINE, M.D.

REPORTED BY J. A. THACKER, M. D.

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LECTURE.

[This introductory Lecture of Dr. MC ILVAINE, was delivered in the hall of the Dental College on the 9th of January, 1861. The hall on that occasion was crowded, not only with medical students, but with members of the profession, and with a contribution of scientific men from all the other professions. The Lecturer used no notes—the numerous data and quotations being from memory.]

The Dr. introduced his lecture by a quotation from COMPTE, that “no conception can be known otherwise than through its history,” and then proceeded to state, that from this source we reproduce the past, and learn therefrom the different epochs in which certain sciences had their origin.

Thus, it would appear, at an early period in the history of our race, natural history began to be cultivated, though imperfectly. We must date its foundation from ADAM; and, though the sacred historian does not inform us by whom ADAM was instructed in his zoological knowledge, yet, it is apparent, that in this branch his knowledge was not inconsiderable; for we learn, that God brought the animals that he had formed, out of the ground, that he might name them, and by whatever ADAM designated them, became absolute. And mark, his knowledge of this science was limited to two departments—mammalogy, and ornithology—as it is said, “he gave names to all cattle, and to

the fowl of the air, and to every beast of the field." But of that department of zoology which treats of ichthyology, he was, as far as we are informed, entirely ignorant. His knowledge of classification, too, seems to have been limited to his own species. Hence, when EVE was brought to him, struck with her similiarity of exterior, viz., smoothness of skin, and erectness of attitude, and possessing, as we must presume, those feminine attractions peculiar to one in the morning of life, emerging from adolescence into womanhood, it is evident, from the sequel, that her presence impressed him differently from what other animals had done, for we hear him exclaiming in the overflowing of his admiration: "This is bone of my bone, and flesh of my flesh." Here rests his knowledge.

What progress was made in this department of science from his day, to those of ARISTOTLE, 384 years before the Christian era, we are not as well informed as we would like to be—history being comparatively silent as to that department during this interim. With this great man, a new genesis is marked in the history of our race; he it was who examined all the departments of natural science with such comparative minuteness, that his successors have found but little to do but to reproduce him. Even CUVIER differs but little from this great classifier and expounder, not only of species, but genera.

Thus, then, we are brought step by step in the history of progress, from the natural sciences to those of the intellectual, in which the learned sought diligently for a formula by which to designate humanity. Hence, after protracted discussions and careful analyses, philosophers, with one accord, decided that the enjoyment of reason was the chief and important prerogative which distinguishes the human species. If, however, we inquire more particularly into the meaning of this word, and analyze it, we are struck with the different senses various individuals attach to the same expression. By some, reason is a fundamental power of the mind, the peculiar and exclusive property of man; others consider it the development of a power in a more enlarged and general sense, though in a less degree, in a large number of animals; some consider it a combination

of all the higher faculties of the mind; while some, with equal zeal, consider it only a particular direction of them. We shall not stop here to inquire into all the theories which have been proposed on this head, not only by the learned, but the unlearned—the savan, as well as the itinerant charlatan—the hypothetical guesser who believes that authority is truth, and rests in the past tense of obsolete tradition; nor those whose habit it is to trace all effects to their legitimate cause, who, by observation and experiment, interrogate nature herself, watching at her door, and inquiring in her temple, and waiting her oracular response for a confirmation of their faith. I shall not here endeavor to reconcile all these apparent opposing opinions, nor determine which preponderates; but sum up in the language of one who wrote in GALEN's mother tongue: "*Non nostrum inter hos tantas componere lites.*"

This subject may be more briefly, safely, and instructively, discussed by examining it a posteriori. To acquire a more clear and satisfactory knowledge of the mental nature of men and animals, it will be necessary for us to have as complete a knowledge of the internal movements of the latter, as we have of our own. But as it is impossible for us to know what is passing within them, or how to estimate their sensations and emotions, their hopes and fears, their anticipations and disappointments, in relation to those of men, we can only judge from the effects which result from the natural operations of both.

In examining by comparison, then, the progress of men and animals, their intellect and instinct, faculties of the mind, speech, etc., we shall begin by studying the effects, and while we shall acknowledge all the particular resemblance, we shall examine and note only the more prominent and general distinctions. In the first place, the most stupid, and uncultivated man is capable of controlling and managing the most alert and sagacious animal. Thus, "every kind of beasts, and of birds, and of serpents, and things in the sea, is tamed, and hath been tamed of mankind." For this we have history for near 2000 years. He governs it, and makes it subservient to his purposes; and this he accomplishes, not so much by his muscular strength,

erect attitude, or address, as by the superiority of his intellectual nature. By his power of projecting and acting in a systematic manner, he compels the animal to obey him. Animals, the most strong and sagacious, have not the power of commanding the inferior tribes, either appropriating their labor, or reducing them to servitude. True it is, the strong devour the weak; but, this implies an urgent necessity, an appetite the most voracious—qualities which differ from those that produce actions all tending to contribute to a common design. If they do possess this power as some allege, why do not some assume the reins of government—and if their cotemporaries are not sufficiently intelligent for a democracy, let them assume the imperial form—constrain the subjugated to watch for them, to provide them with food, to nurse the sick, and to have charge to provide for the aged and unfortunate? But animals give no evidence of subordination, nor the most remote trace of a feeling of superiority in their nature over that of other species. Their habits, therefore, their dependent and subordinate state, leads us to infer that their natures are not only far inferior to, but of a very different sort from, that of man—“ejected on the surface of the globe, weak, naked, ignorant, and defenceless”—his state evidently indicating that he was formed for immediate ruin; circumstances the most adverse surrounding him on every side; a knowledge of the means of defense from him being hidden.

He, however, having received from his Creator that gift of inventive genius, whereby he was enabled to discover them, his energies were aroused by the promptings of his natural wants of food, raiment, and a dwelling place. These necessities, however, were mitigated by the Divine Wisdom locating him in a hospitable clime; for, mark, his lot was not cast to the extreme north of the tropic of Cancer, with its acute colds, and abrupt changes; where circumstances, the most disastrous, must have followed. Nor was he assigned to the south of the tropic of Capricorn; neither to the west coast of Africa; nor to the east of Australia, where similar misfortunes awaited him; nor to the Torrid Zone, with its burning sun and arid sands; but on the romantic slopes of Northern Mesopotamia, with its green

lawns, and heaven-representing landscapes, in a garden filled with choice and delicious fruit for his sustenance—man not yet having degraded himself by devouring dead animals, like a savage. From their immediate abode went forth a splendid river, which became a quartette, from the western branch of which, the Euphrates, they doubtless drew their daily supply. This attractive spot, history and tradition teach us, was Eden; encircled in an atmosphere of romance, reminding one of those regions of central Italy, where the ivy and the lichen are entwined with the rose, and the eglantine and corn fields, and olive groves, are overshadowed by the cypress and the vine.

This power of discovery, so important in the early ages of our race, has been honored by divine worship, as the "Thoth of the Egyptians, and the Hermes of the Greeks." The early herdsmen guarding their flocks by night in the Orient, finding no blaze trees as directing land-marks, necessity pointed to the stars. They studied carefully the regularity of their movements, and made use of them as torchlights, to guide their journeyings on the plains of the desert—hence the origin of mathematical and physical sciences. Having thus demonstrated that it could control nature by her own appointed means, intellect reposed no more—it doffed its infantile swaddling clothes, and assumed the costume of warfare; flushed with its recent victory, it went forth conquering and to conquer. It watched her without relaxation, and constantly gained new conquests over her—each one distinguished by some amelioration, elevation, or improvement, in the condition of our race.

From this time, a number of representative minds, faithful depositors of what had thus far been obtained, and anxious to perpetuate the same, by comparison, and constant additions added thereunto; so that, in less than fifty ages, we have been conducted from the rude essays of the first observers, to the profound calculation, and analyses of COPERNICUS, TYCHO BRAHE, GALLILEO, KEPLER, NEWTON, BAILLY, and the *Mechanic Celeste* of LA PLACE.

[Here the Lecturer diverged for a moment to pass a brief eulogy on the hero-philosopher, the great astronomer of

France, adding: "BAILLY, may his name be immortal, and the autumnal roses on his grave be eternally in bloom!"]

Not only so, but we have those choice classifications of JUSSIEN and LINNÆUS—a precious inheritance, constantly increasing—first brought from Chaldea into Egypt, from Egypt into Greece; lost during the period of darkness and Vandalism, but recovered in more fortunate times. Unequally distributed in the nations of Europe, as well as on this continent, its study has everywhere been followed by wealth and power.

The nations that have reaped it, have become the controllers of exchange and commerce, and their men of learning, the chosen high priests to minister at the altar of science for the instruction of the race; while those who have neglected it, have deteriorated into obscurity and decay.

Man has made tools to assist him in his labor, not only agricultural, but mechanical; hence, FRANKLIN defines him a tool-making animal. He has constructed arms and weapons, both offensive and defensive, and has contrived various means to develop fire. Lastly, and the most important under this head, and the most useful, and may be considered the culminating point of all, is that of speech, "by which men declare their thoughts one to another, for conversation and mental improvement, without which, there could be among men neither commonwealth nor society, more than there is among lions, tigers, bears, and wolves. This is a most important and distinguishing characteristic of man, seeing that it was not born with him like the voices of the lower animals, but is framed, developed, and brought into use by himself, as the arbitrary variety of different languages incontestably proves." Man exhibits by signs what passes within him; he communicates his sentiments by words, and this sign is universal. The savage and civilized man have the same powers of utterance; both speak naturally, and are equally understood.

It is not true, as some have imagined, that the inability of animals to speak is owing to a defect in their organization—the tongue of the monkey being as perfect as the

tongue of the man. CAMPAR says, that the laryngeal pouch of the orang outang is the obstructing cause why it can not speak. Other philosophers, however, have not subscribed to this doctrine. Be that as it may, there are other monkeys that have not this impediment, and yet can not speak. That several animals have been taught to pronounce words, and repeat sentences, shows that the want of speech is not owing to any deficiency in their organization; but to make them conceive ideas, which these words express, is beyond the power of art.

Language implies a train of thinking, and for this reason, animals are incapable of speech. Though their external senses are not inferior to our own, their hearing, seeing, tasting, feeling, smelling, being more exalted in some than in ourselves; and, notwithstanding, some of them possess locality and comparison, and even to some of them, modern German philosophers have accorded the power of numbers to a certain extent; yet, they are incapable of associating ideas, in which alone the essence of thought consists.

The possession of speech, then, corresponds to the more numerous, diversified, and exalted intellectual, moral, and social qualities of man, and is absolutely necessary for his development.

The ruder nature and simple faculties of animals, do not require this auxiliary. The natural language of inarticulate sounds, gestures, and actions, fully suffice for the requirements of their position. But in man, his alphabetical writing, that wonderful discovery by himself, and the invention of printing, another of his acts, are the consummation of all that was to be enjoyed from that great prerogative of speech.

With the simple operations of animals, who always perform the same work in the same manner—the performance of any individual being neither better nor worse than that of any other—in whom the individual will be at the end of a few months, what it will remain through life, and the species, after ten thousand years, what it was the first year, contrast the progressive industry which distinguishes man in his restless agonizing after perfection, not only in the individual, but the species. “By the intelligence of man,

animals have been subdued; they have been tamed, and reduced to slavery; by his labor, rivers have been bounded, their cataracts effaced, marshes have been drained, forests have been cleared, the earth cultivated—in a word, the wilderness and solitary places have been made glad by him; by his reflection, time has been computed, space measured, the celestial orbs recognized and represented, heaven and earth compared. He has not only executed, but executed with exactness and perfection, that apparently impossible and impracticable task assigned him by the poet:

‘Go, wondrous creature, soar where science guides;
Weigh air, measure earth, and calculate the tides.’”

By art, which is an emanation of science, mountains have been overcome. Even the proud Alps, which find themselves at times in the embrace and communion with the clouds, have had their summits scaled and converted into a theater, on which have been enacted tragedies unparalleled in the history of our race. By the aid of science, seas have been traversed, the pilot pursuing his course on the ocean with as much safety as though it had been traced before him by the chain of the engineer, and finding his point on the globe at every moment, by means of astronomical tables. Thus, nations were united, and islands, and a new world, discovered. But ere this could be effected, an almost superhuman effort of the intellect was necessary, which was crowned by a splendid triumph over nature.

It is well known to readers of history, that, in whatever else the ancients excelled, they stood at a marked distance from the moderns in navigation and commerce. This is attributable to two causes, the imperfection of their apparatus, and their lack of nautical science—their status being well defined by the poet:

“Rude as their ships was navigation then,
No useful compass, or meridian known.”

The compass, the essential attribute to any considerable success on the dominions of Neptune, was discovered, corrected, and brought into use by FLAVIO GIOIA, a citizen of Italy. This secret, reserved by nature to herself from all preceding ages, he, by his science, constrained her to divulge in 1305. The importance of this discovery can be best

judged of by its results. In 1345, the Genevese discovered the Canary Islands. This being the first fruits, excited a laudable emulation in others. In 1484, BARTHOLOMEW DIAZ, under the auspices of JOHN of Portugal, went forth and returned, bringing unmistakable evidence that he had discovered the Cape of Good Hope, which was the *ultima thule* of navigation at this date. In 1492, we all know what took place. COLUMBUS, fortified by strong faith in God, and armed with this new power,

"That trembling vassal of the pole,
The feeling compass, navigation's soul,"

went forth on his immortal voyage, and this continent is the fruit of his labor; opening up such a field for the unlimited and unrestricted genius of our race, that, with this panoramic view, the senses are embarrassed, the intellect dazzled, calculation and judgment almost suspended, with visions of the interminable future.

Thus, in 369 years, the Caucassian man has overran a race that numbered millions. They have melted before him like snow before a vertical sun, and his progress is onward. His destiny is apparently Cape Horn, from whence we hope to suspend the stars and stripes, as a beacon light to the nations of the earth, that go down to the sea in ships; thence extending north, on the west coast, to the Arctic circle, so that, "upon all our glory the sea shall be our defense."

But, to return. What has positive science accomplished on this continent, and what has been the progress of the Caucassian here? Adopting the arithmetic of heaven as most applicable to nations, one day being with God as a thousand years, he wants yet 131 years of making one of God's half days. Let us see then what he has accomplished in that space of time. We think it can be demonstrated, that, on this continent, the triumphs of intellect have been unparalleled in the history of the race. Fifteen hundred and twenty years before the Christian era, God himself proposed a scientific challenge to JOB. The latitude and longitude of this distinguished personage, I am unable to inform you. We learn that his residence was in the land of Uz; the challenge as follows: "Canst thou send lightning, that

it may go and say unto thee, 'here we are?' " After due consideration, this representative of patience, admitting his inability, exclaims: "I am vile, what can I answer?" Nor was it answered on the continent of Asia, nor Africa, nor Europe, notwithstanding it was familiar throughout the world, to all that were recipients of Jewish scripture, not only on continents, but on the islands of the sea, for 3272 years.

Thus, after the elder continents and islands, tacitly admitting their ignorance, in this new world, in 1752, he, who had been the tallow chandler-boy, then the printer-boy, afterwards the diplomat, statesman, and man of science of all time, sent up his kite, arrested the lightning in its course, domesticated it, and sent it as an errand-boy, from house to house, to do your bidding—thus, complying with the original challenge to the letter: "Canst thou send lightning, that it may go and say unto thee, 'here we are?'"

When we consider this splendid triumph of human genius, under circumstances the most adverse, it is like the marine coral emerging into the defiant rock, or Atlantic islands bearing precious fruit, amidst the tossing waves of the roaring ocean. In all of which we have been discussing, man stands alone. His intellect, and what he has accomplished by it, places him at a wide interval from all animals, at an interval which no animal, hitherto known in history, can approximate. Even the man-like monkey, the almost reasonable elephant, the docile dog, the sagacious beaver, the industrious bee, none of them can be compared to him; as there is with them, neither progress in the individual or species. The monkey shows no progress over those of periods the most remote; the elephant is still the subjugated creature of his less powerful, but more intellectual neighbor, man; the dog pursues the sheep now, as he did when Moses was a herdsman in Midian; the beaver has not found out any way to ameliorate his manner of life; the fox destroys vines now as it did in the garden of Engedi, or in the vineyards of Baalhamon; the bee constructs its comb as it did when Solomon was a student of botany, one thousand and fourteen years anterior to the Christian era—

the only branch of natural science in which the Jewish nation was distinguished in history.

Nor are animals not only inferior in intellect, but they are also inferior in feeling, and in moral sentiments, with the exception of those that may come under the head of instinct. The attachment of the mother to the offspring, so long as its feebleness requires her aid and defense, seems as strong and marked in the animal as in the human being. Its duration, however, is limited, even in domestic animals, to the period of helplessness, and is not succeeded as in man, by those endearing relations, and continued affection, which constitute the pleasures of human life.

Of the courage of the animal kingdom, many examples are given, and philosophers have dilated much on the attachment of the dog to the master; but we have no evidence, except in cases of sexual unions, of any feeling between animals themselves. Indeed, on the contrary, they appear insensible to any joy or suffering; they are unmoved by any pangs, or worst usage of their fellows. Nor are they capable of co-operation, as far as we know, if we except some tribes of the insect class; and that is only for the purpose of the continuation of the species, and securing a supply of food, and some joint labors of the higher class of the male and female. They appear incapable of co-operation, so as to produce a common result.

Laughing and weeping are signs, probably, peculiar to man. They may be considered indicative of certain affections, and it is doubtful if they are capable of those states of mind indicated by those external signs. It is well known, that many animals besides man, secrete tears, but whether they weep from grief, is doubtful; though STELLER, high authority, represents that they do, and gives us as illustration, the *pocha-ursina*; PALLAS, the camel; and HUMBOLDT, a small American monkey. Whether they laugh, or express their mirthfulness by laughing, is still more doubtful; though LE CAT affirms of the chimpansi, that he has seen it both laugh and weep. The orang outang brought from Batavia by Mr. ABEL, never laughed, but his keeper informed Mr. LAWRENCE, that he had seen him weep a few times.

In considering the differences between men and animals,

in propensities, feelings, and intellectual faculties, they may be all traced to the same original source as the cause of the differences in other functions, viz., difference in organization; since the superiority of man in rational endowments is not greater than is his more complicated, exquisite, and perfectly developed brain, and particularly his ample cerebral hemisphere, to which the rest of the animal kingdom offers no parallel, nor any near approximation. The senses of man and other animals, will not explain their mental phenomena; nor is his superiority deducible from this part of his organization, as we have already shown. Some modern inquirers have turned our attention from the old beaten path, and have particularized certain portions of the brain of men and animals, as the residence of the propensities and intellectual powers. Great experience on our part, is required to render a verdict in the affirmative. They have contributed much to the elucidation of intellectual science, by their patient investigation and careful reflection. They have performed the useful service of rescuing us from the teachings of metaphysicians, by referring us to nature whose teachings, like those of God himself, can not mislead. They may be compared to the old man in the fable, who, when he was dying, informed his sons that a treasure was hidden in the vineyard. After the ceremonies of his interment, they began, with one accord, to dig over the ground in search of it. They found, however, no treasure; but the loosening of the ground, and the destruction of the weeds, the admission of light and air to the soil, was so beneficial to the vines, that the quantity and excellency of the subsequent crop was unprecedented.

Gentlemen, in conclusion, attracted as you are here, to this great metropolis of medical science, from all parts of the country, your time is of vast importance, and all that stands between you and the way of your progress, you are called upon to vanquish. One of those things, with its kindred vices, inimical to study, is tobacco. That very considerable moral courage is required, we all admit, for us to say to our vices, as ABRAHAM said to his young men: "Tarry ye here, while I and the lad go yonder and worship."

This power to resist and subjugate, you carry with yourselves. Gentlemen, the strongest power, and subordinate only in the universe, to that of God, is the human will. We have before us glorious motives, and are called upon only to deny ourselves those things which are inimical to our progress, with the veracity of Him pledged, who can not lie, that "in due time we shall reap, if we faint not."

Gentlemen, until I have the pleasure of meeting you again, adieu.—*Cin. Med. and Surg. News.*

[The Dr. acknowledges his indebtedness, in this Lecture, to the following authors: LAWRENCE, HUMBOLDT, STELLER, LE CAT, FRANKLIN, POPE, DRYDEN, and BYRON.]

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 our passions, with the remedy of their plague, who can
 not but that "in due time we shall reap if we first sow."
 Great men, will I dare the pleasure of meeting you
 again, which—(C. H. and Mary) I hope.

[The following is a list of names, in the order in which they
 were received, standing before, in the year 1840, and 1841
 and 1842.]