cussion. Let every subject be ventilated to the greatest possible extent. I feel assured, as Mr. Lloyd has remarked, that there is a decided lack of courage, not only among scientific men, but also among the public at large; and it is due to this fact that there is much less discussion on these questions than there ought to be. (Hear, hear.) If societies like this were to take up and discuss subjects of this kind more frequently, they would do great good, and their discussions would excite great interest. All that honest people, who are working at these questions can desire, is, that they should be thoroughly ventilated and examined from every point of view. I am extremely grateful for the way in which the few remarks I have made this evening have been received, and, as I have already stated, I am doubly thankful for the merciful manner in which my paper has been treated. (Applause.)

The meeting was then adjourned.

ON THE NEW MATERIALISM.*

By LIONEL S. BEALE, F.R.S.

I propose in as few words as possible to ask those present to consider certain views bearing on the first principles of religion and philosophy which have exercised during recent years and continue to exercise an extraordinary influence upon the opinions held by many persons of intelligence. Acquiescence in the views in question, I think it will be found, involves the acceptance of ideas which are not consistent with one another, of doctrines which are contradictory, and principles which are incompatible or even mutually destructive. To give this fashionable confusion of doubt, denial, assertion, assumption, conjecture, prophecy, any name which has been already adopted by any philosophic or religious sect that has existed in the past, would be unjust, for the conflicting opinions now entertained cannot be formulated, and it is doubtful whether, among those who have consented to adopt them generally and vaguely, any two persons could be found who would agree concerning the elementary propositions on which anything like a philosophy could be established. Neither of the terms Rationalism, Materialism, Agnosticism, is strictly applicable to this most recent and most fanciful of all the creeds ever offered for adoption. To call it Rational-

* Being an Address delivered in July by the Author, and specially revised by him for the Victoria Institute. It is inserted here by reason of its importance.—Ed.
ism would not be correct, for it does not rest on reason; indeed it is neither reasonable nor rational. Materialism would be equally inappropriate, and no disciple of Epicurus would admit that it at all resembled the doctrine to which he had given his adherence. Neither the hypotheses, nor the assertions, nor the prophecies of the materialist of the new, would be recognised or approved by one of the old school. Agnosticism, again, would be a complete misnomer, for the advocates of this new philosophy profess to know all things and to account for all the phenomena of nature. They tell us not only the origin but the end of all. Commencing with cosmic vapour, they trace the evolution of all non-living and living, and discern the further changes which are to progress through a distant future until all again eventuates in cosmic mist. Those who know all this can hardly be denominated Agnostics.

One grand central principle of this new philosophy seems to be the assumption that what is not now capable of proof, but is affirmed to be true by its exponents, will be proved to be true by new discoveries which we are assured will certainly be made at some future time by the scientific investigations of that period,—among which discoveries is to be the proof of the confident assertion now so often repeated, and considered to be a cardinal point, that the difference between a living thing and the same thing when it is dead, which difference seems to ordinary comprehension so very remarkable as to deserve to be called absolute and insurmountable, is but a difference in degree. The evidence in support of various conjectures concerning changes in the properties of material particles and alterations in the character and properties of living forms is also supposed to be forthcom ing at some future time. Upon the fanciful basis thus constructed out of what may be discovered in the time to come is raised a strange and grotesque superstructure of philosophical speculation, contradiction, and inconsistency, perhaps the most curious ever presented for the acceptance and admiration of mankind. Amid all the vagaries of the intellect are to be noticed the most ardent belief in and superstitious reverence for future hypothetical revelations.

Propositions which from their very nature must depend upon faith are rejected by the disciples of the new philosophy as unworthy of belief because they cannot be proved by observation, or put to the test of experiment, or the facts on which they rest be rendered evident to the sense of touch, sight, or hearing. On the other hand, things that have not been proved by observation, but which are within the limits of observation, which have not been demonstrated, but which would have been susceptible of demonstration had they really existed, are to be believed and at once accepted as literally true, because it has been affirmed by scientific teachers, who cannot possibly err, that all things and all phenomena are unquestionably due to the operation of laws of matter about to be discovered, and because certain views concerning things in general, and living things in particular, have been accepted by the established intellectual authority of the time, from whose decision there is no appeal.
The vague and most unsatisfactory hypotheses which are often accepted and believed in as if they were well-ascertained truths of science would have but little chance of acceptance but for the doubt and confusion of thought concerning fundamental principles of religion and philosophy which now prevail, and which, indeed, may be said to characterise the time in which we live. An incomprehensible yearning after breadth of view and an inexplicable terror of being accused of being bigoted and narrow-minded seem to paralyse the judgment and render some of the most intelligent amongst us infatuated victims of materialistic inspiration. The longing for ever-increasing breadth of view has led to the acceptance and teaching of doctrines which are contradictory and in some instances mutually exclusive. Conclusions which involve the denial of the existence of God are not unfrequently accepted at this time by persons who profess to believe the Christian faith. Incompatible and contradictory principles have been made to appear to harmonise by completely altering the meaning of the words employed, and it is doubtful whether any of the original meaning attached to certain most important words is now left. The word "God" is often used as if its whole meaning was comprised in creative power or first cause; and, as to the word "Christianity," its meaning has been modified in so many ways of late that it would be most difficult to determine what is included and what excluded. In the time gone by Christian atheism would have been regarded as an absolutely impossible form of belief, but would it be quite impossible now to find persons ready, perhaps unconsciously, to justify the phrase Atheistic Christianity?

Some would have us believe that all things living have resulted from the working and interaction of the forces belonging to non-living matter only, and expect us to be convinced further that the above view of the conversion of the non-living into the living, in obedience to laws which govern matter only, is not inconsistent with the acceptance of the belief in one creating, designing, omnipresent, omniscient, omnipotent will. It has also been held that a God who only creates the Universe, which he then practically abandons, is equivalent to a living God that governs the world and ordains everything according as He wills,—not only the Maker, but the Preserver of all things. But is there no interval between the idea of a first cause originally creating matter and enacting laws for its subsequent guidance and arrangement, and the idea of an existing, living God who governs the world, to whom men may with reason appeal for counsel and guidance, whom they may obey, and to whom they are indebted for life, and health, and everything? Does first cause comprise all that men imply when they speak of the everlasting living God? Does creative power and law-enaction include all the attributes of the God of man? If so, it is indeed, as has been suggested, a very small matter if by modern discovery the scene of the operation of the first cause is put back in a past somewhat more remote from our era than has been hitherto supposed to be the time of its activity. For in this case we should undoubtedly have, as has been suggested, a first cause to fall back upon, still a creator to
acknowledge, a law-maker to reverence. But I would ask in all seriousness whether any form of the evolution hypothesis, which disposes God from all that follows upon the primal act of creation, is consistent with serious belief in His existence,—in fact, belief in a living God? What man could worship, pray to, love, or adore such hypothetical first cause? I beg of you to consider whether this conception of the operation of a once-creating, once law-enacting first cause in a past inconceivably remote is an adequate substitute for the theistic idea which has been held for more than two thousand years. However positively some may affirm that the view objected to is not atheistic, it must be held to be of this nature unless the word is used in a sense which no one who believes in a God could allow. I have myself often begged for information concerning the powers and attributes of the God sanctioned by the evolution hypothesis, but so far in vain. The suggestion that the idea of discontinuance, or the exercise of power transmitted through matter from the first beginning, or the continuous extension of working and action of such supposed first cause is equivalent to the idea of omnipotence, omnipresence, omniscience, is surely almost an insult to the understanding. Ought not those who care to acknowledge such newly-invented first cause, and those who foolishly try to force on themselves and others the acceptance of the proposition that the views impugned are not atheistic, or only in a very slight degree atheistic, to accurately define the powers and attributes of the God they would substitute for the God in whom men have hitherto believed? If this were done, we should be able to judge whether it was possible for men in their senses to acknowledge such a power, to submit themselves to its guidance, to love, honour, and obey it, to worship it, for the God of man demands all this and more. Judging from much that has been said and written upon this subject during the last few years, it is difficult to come to any other conclusion than that the real aim of many who speak and write in favour of the new views is to destroy, and within a measurable period of time, belief in the existence of the Supreme Being, in Providence, and in a living God, and to force those who think at all to endeavour, by the mightiest mental effort of which they are capable, to train and exercise their minds by the contemplation of an everlasting infinite nothing. Instead of the new doctrines being explained in detail, we are assured by patronisers and promoters of this retrograde nonsense that the reasonings of So-and-so, who has, in fact, done what he could to prove there is no God, "are inspired by a reverence which is truly religious," and so on, until every one capable of thinking must feel weary of such mawkish adulation and misrepresentation of fact. Of course, the real question is whether, in such a system as has been proposed, any power deserving the name of God is required or could possibly find a place, and then what powers the Deity permitted to exist possesses. A God without will, without power to arrange, order, design according as he wills, can hardly be worshipped by man. For, can omnipotence restricted in its operation by inexorable laws be omnipotent? Is not the idea of omnipotence and omniscience, testing by experi-
ment the results of infinite constructive power, worthy of a philosophy hereafter to be distinguished, for physical revelations supposed to be about to be made, and its rejection of the theistic idea?

Much confusion has resulted from the acceptance of fallacies concerning the nature of the changes in living matter, and the dictum, not proved nor at this time provable, that the living and the non-living are one, governed by the same laws and due to the same cause. The chasm between the living and the non-living has not been bridged, and it cannot be bridged by idle assertions to the contrary and speculations about cosmic vapour, however desirous the public may be that the operation of bridging should be accomplished. The form of Materialistic doctrine now popular neither accounts for any single operation peculiar to living matter, nor helps us to understand the nature of any one. Nothing whatever, I fear, has been added by physical science to our knowledge of the real nature of the marvellous change which occurs when a material atom passes from the non-living to the living state, and becomes an integral part of the very simplest or lowest living matter in existence. The nature of this change, which is unquestionably different in its essential nature from any known physical change, has not yet been elucidated, though it has been over and over again declared that it is physical. In spite of all the confident utterances, no one has been able to explain, in terms known to physical science, any one of the phenomena occurring during any moment of the existence of the simplest living form in nature. The pretended physical explanations of growth, of the taking up of non-living matter and its conversion into living matter, the formation of structures, of organs, of parts made for a purpose, are utterly inadequate, while some are puerile, and would be dissipated by five minutes’ careful consideration on the part of any one who has the requisite knowledge of the facts, as far as they are now known. Many of the statements about life and living matter will not stand the criticism of an intelligent critic, who, though knowing little or nothing of science, will take the trouble to find out the meaning of the words and the sense in which they are used, in order that he may detect cases in which words are inappropriate, and instances in which the same word is used in very different senses perhaps in the same page, as, for example, occurs in the use of the word “Protoplasm,” which does duty for living matter, as well as for matter in the opposite or non-living state. If we could trace the atoms of matter through all their changes, until at last they lived, we should understand the nature of life, we should be able to lay down the laws by which vital phenomena are governed, we should understand the changes in our own bodies, we should know ourselves as well as the matter of which our bodies are composed. But in this case we should have spanned the infinite, solved all problems, explained all the mysteries, overcome the theistic idea, and man would have become a different being, and would find himself in a new position in nature.

But the changes which take place in the atoms as they flit from non-living to living are still unknown, and the probability of our ever knowing their
real nature becomes less as knowledge advances. Man, notwithstanding all scientific discovery and material progress, at least, as far as regards his relation to and knowledge of the Infinite, stands much as he did in the early days of intellectual evolution. Here, then, is the immeasurable difference between the view entertained by us and that held by those who accept or incline towards the fashionable philosophy of the period. We who believe in the irreconcilable differences between living and non-living have been led to conclude that a knowledge of the real nature of the change, as well as a knowledge of the power by which the change is wrought whenever a lifeless atom becomes an integral part of living matter, is not to be obtained. On the other hand, the supporters of the new philosophy declare that all this and much more has been gained, and that much of what yet remains imperfectly understood will be brought to light by the advancing science of the future. We hold that such knowledge is not even conceivable in thought—not cognisable by the human intellect. They declare that the discovery of the nature of the vital change is nigh—nay, that in some respects it may be said that already it has been achieved. We do not admit that the road to such a goal has been found out or the method of proceeding which will be successful suggested. They assure the world that wonderful things, not to be seen by ordinary mortals, have been discerned by privileged spirits. We believe neither in the powers of discernment claimed, nor in the being privileged, nor in the spirits. The whole position assumed by those who attempt to explain vital actions by physics and chemistry is untenable, and the pretentious assumption of knowledge as to what is to be revealed by the science of the future degrading to the thought of our time. The non-living state of matter is separated from the living state by a chasm which is unfathomable and which has not been, and which never can be, bridged, even in thought. The attempts which have been made to persuade ignorant people to believe that this has been done, or that it is within the bounds of that which is possible, are unjustifiable and antagonistic to the scientific method, and must certainly retard real progress.

The advocates of Atheism, or of that very nebulous form of Theism which logically leads to it, and is, indeed, practically Atheism, have utterly misled themselves and others by assuming the truth of the conjecture that the non-living and living are one, that matter in the non-living state differs in degree only from matter in the living state. They affirm in the most positive and reckless manner that this conjecture is a fact. Unlearned, unscientific people, believing that men of scientific authority would not have spoken thus positively unless they had distinct and irrefragable proof of the statements they made, proceed straightway to modify all the views which they had been taught in their childhood, abandon as fiction what they believed to be truth, and accept as realities the extravagant and fanciful doctrines of that scientific imagination which change from year to year, and concerning which there is but one thing certain,—that they proceed from and will return to the nebulous state. People hungering for a reputation for comprehensiveness, large-mindedness, and intellectual grasp, abandon their belief in the unseen.
without even being at the trouble of inquiring whether any evidence or argument can be adduced in favour of the new dicta. The sort of argument which seems to convince people, of course longing to be convinced, is to be found in assertions of the vaguest character about the nebulous originals of suns and planets being connected by a chain of causation with the physical basis of existing life and organisation. Can it be supposed that it is in any sense a valid excuse on the part of any thinking person to urge that the responsibility rests with those who teach these doctrines? The desire for being taught encourages the teachers, and if there was no longing for the doctrines of a silly form of science the supply would soon cease. It is surely as much the duty of intelligent persons to find out and expose erroneous teaching in science as in other departments of human knowledge. If but a very little trouble had been taken by some of those well qualified for the task, a good deal of nonsense which has excited curiosity, pleased the fancy, and deceived the intellect during the last twenty years, would have done no more harm than contribute a little intellectual amusement and help to sharpen the wits of the rising generation. Every person of intelligence ought to be competent to estimate the importance and reliability of reasons given for changing or subverting his belief in the fundamental facts of his religion, and most would certainly, with far less trouble than they take to enable them to decide concerning questions of far less consequence, succeed in doing so. If, for instance, it is said that a living thing grows like a crystal, surely before the dictum is accepted by any one he would naturally inquire whether the new matter taken up by the living thing was deposited particle by particle upon the surface as in the crystal. Doubt would at once be excited in his mind, for no instance would occur to him in which during growth new matter was superposed upon that which was already there, in the case of a living thing. The nourishment always goes into the inside of a living thing, and is never deposited on its outside, as is the case in the crystal when it increases in size. Would it not also occur to him that the matter of the crystal can be dissolved and crystals formed again and again from the solution, while no living thing can be dissolved at all, much less re-crystallised? Such simple considerations would cause doubt to rise in his mind whether a living thing does grow like a crystal, and the doubt would suggest the expediency of further inquiry. He would require, before he accepted the new doctrines, that the particular points in which the so-called crystal-growth resembled and differed from living-growth should be clearly stated. So far from assenting to the proposition that the growth of a crystal was like the growth of a living thing, he would find that the increase in size of a crystal was not growth at all. So, too, with regard to the likeness said to exist between the living and non-living, the particular living and non-living between which this likeness is supposed to exist, should be pointed out. It is probable that the acceptance of many of the most absurd and unreasonable dogmas is due not so much to a want of power to think as to an indisposition to think, and no doubt acquiescence is promoted by a fear of the con-
sequences likely to follow the rejection of, or any opposition to, the said doctrines. He who doubts or opposes is to be numbered with the fools. Nevertheless, I beg of you to consider what you would think of a person who assured you that a watch differed from the iron and brass of which it is made only in degree, and I leave it to you to determine what you ought to think of a philosopher who tries to make you believe that a living thing differs from the non-living matter of which its body consists in degree only. If at this time you press for reasons in favour of the conjectural unity of the living and non-living, all you will get will be some dictum about primitive nebulosity and chains of causation. Anything like criticism is so disliked by the new Materialist, that he condemns those who differ from him by anticipation, and thus for a time criticism is deferred, and his conjectures and fancies may find favour; but that people should be led away so far as to renounce their belief in any form of religion, to deny God, and to abandon their hope of a future state, is marvellous indeed.

In conclusion, let me commend to you the words of Kant. "Criticism," said he, "alone can strike a blow at the root of Materialism, Fatalism, Atheism, Freethinking, Fanaticism, and Superstition, which are universally injurious."

THE LIVING AND THE NON-LIVING.

The following remarks upon this subject were made by Professor Lionel S. Beale, F.R.S., during the discussion on Dr. Wallich's paper* "On the Fallacy of the Materialistic Origin of Life," read before the Institute, April 17th, 1882.

I propose to offer a few remarks on the view taken by Professor Huxley and other scientific men, both here and on the Continent, in reference to the very important question of the transition from the non-living to the living. I am quite sure we shall agree that this is really the kernel of this most interesting subject. We are constantly told of the gradual passage from the non-living to the living, and the formation of a living thing is often spoken of as if the process were something like the change which takes place in the formation of crystals. Most authorities who support the materialistic hypothesis draw a parallel between the formation of the lowest forms of living matter and crystals. Now, it must occur to every one who has at

* As yet, ill-health has prevented this author completing his paper for publication; but it is hoped that it may form part of No. 64 of the Journal.
—Ed.