Chapter-II

Locke's Concept of
Substance and Causality

In the preceding chapter, attempt has been made to trace the concepts of substance and causality historically. The present chapter endeavours to expound and examine these concepts within the general philosophical framework of Locke. As it has been mentioned before, substance and causality are the two fundamental concepts which constitute the core of any philosophical thought. Locke's philosophy is no exception to this trend and these two form the major corner stone of his thought that makes knowledge possible.

In order to understand Locke's philosophical standpoint, it is necessary first to unveil the social-cultural milieu and then proceed into the division of the chapters.

Philosophy is not a discipline which treats of matters isolated from the many diverse realms of human experience, and philosophical thought do not arise in a vacuum, but in a wide cultural context. A prudent philosopher therefore, must take into account all the various historical, social, economic, and religious factors comprising the human situation, since Social Man, Economic Man, and Philosophical Man are ultimately
and after all, one and the same fellow. Because, philosophical thought, is specifically concerned with the way of life that an individual leads, the philosopher must be specifically sensitive to the problematic issue of the nature, origin and growth of human society. Well-conceived historical, anthropological and scientific foundation are often one work of a philosophical theory, and the great political philosopher have not failed to include general remarks on human society as elements in their treatments of human nature in particular.

A prime example of this principle is John Locke, whose *An Essay Concerning Human Understanding* is also in large-measure treatise of the nature and development of human nature in general. The sources of the historical, scientific and anthropological underpinnings in Lockean theory furthermore, are not hidden or obscured, for it is known that the Seventeenth Century Philosopher is well-read, (himself being a medical-physician) in scientific and medical accounts of that period. Locke undoubtedly weave into the fabric of his thought a number of notions gleaned from this body of background reading and his association, acquainted with the scientific development of this period.

This chapter will bring out the above association, viz, the medical and the scientific background, besides emphasizing upon the main theme—that is substance and causality. It is divided into four sections. The first
section deals with the medical and the scientific background, second, the
epistemological set-up, followed by substance, the third, and causality, the
fourth.

Section-I

This section is divided into two sub-sections. The first, attempts to
trace Locke’s association of medical friends who influence him to form his
theory of substance. Here attention has been given to Dr. Sydenham’s
relation with Locke and how Dr. Sydenham assists him in forming his
empirical method.

The second explores Boyle’s relation with Locke. Here, attention
will be given to Boyle’s experimental method and how Boyle in turn,
guides Locke in framing his idea of substance in relation with primary and
secondary qualities.

The Medical Milieu

The objective of this section is to give an account of Locke’s
association with his medical friends, which later helps him to develop his
empirical methods, that in turn influences his conception of substance. The
tendency that are prevalent among most scholars is to ignore his long
experience of medicine and science and viewing his theory in isolation. In
fact, Locke’s medical writings have received little attention, though he
knew and work with most of the famous physicians and scientists in England, France and Holland.

In the ‘Epistle to the Reader’ of the Essay, Locke gives an account of how the Essay originated.

Were it fit to trouble thee with the history of the Essay, I should tell thee that five or six friends, meeting at my chamber and discoursing on a subject very remote than this, found themselves quickly at a stand, by the difficulties that rose on every side.¹

Now who are these friends? Dr. Dewhurst one commentator remarks:

“Sydenham, Mapletoft, and James Tyrell were probably amongst those “five or six friends”, who, whilst “discussing on a subject very remote from this”, gave him the idea of inquiring into the limitations of human understanding. These discussions led him to write the first draft of his Essay in 1671; and, as at least half of these present were doctors, medicine was probably the “remote” subject which provoked these studies”.²

So from the above comment it is clear that this work of Locke is not any sudden outcome of his thought; the ideas that he tries to express are not selected at random. On the contrary, it is the outcome and reflection of his

scientific temperament which provides a constant focus for the growth of his thoughts.

When Locke studied medicine at Oxford, Scholasticism was in its full form. The stagnant thoughts of Scholasticism received a jerk by two seventeenth century streams of thought; the rational theorizing of Descartes on the one hand and mechanical materialism of Boyle and Sydenham on the other.

While focusing on Locke's relation with his medical friends attention will be paid only on Dr. Sydenham who has a profound influence for the development of Locke's later philosophical development. The influence of Boyle will be treated in the next sub-section.

Locke's association with Sydenham starts in the year 1667. Locke assists Sydenham in his study of small-pox and also writes a book in collaboration with him, viz, De Arte Medica: That he has great esteem for Sydenham is clearly stated in the 'Epistle to the Reader', where he puts Sydenham in the company of Boyle, Huygens and Newton, "the master builders" of his age and places himself as an underlabourer who tries to throw out the rubbish in this great venture. As Isaiah Berlin comments:

The opening Epistle is of a characteristic intellectual modesty and charm and predisposes the contemporary reader in its favour by telling him that he need not, to obtain true knowledge soar in the clouds with theologians, descends dark wells with metaphysicians, but only study his own nature, which, if done conscientiously, will sweep away the "Sanctuary of vanity and ignorance" the clouds of
meaningless words—and so clear a path for a solid, empirical science of man.³

Even Sydenham recognises Locke’s genius and in the dedication of the third edition of his Medical Observations Concerning the History and Cure of Acute Diseases, he remarks “how thoroughly my method is approved by an intimate... friend..., and one who has closely and exhaustively examined the subject— I mean Mr. John Locke, ...”⁴

In his Essay, Locke advocates ‘empirical descriptive method’ which he names as ‘Historical Plain Method’, and this he derives from the field of medicine.

Romanell, an expert observes in this connection, “that the secret of Locke the philosopher lies in Locke, the physician”. He also maintains that it was the clinical method of Thomas Sydenham in particular that helped to suggest Locke his empirical method. Sydenham, according to Romanell, taught Locke “to appreciate the empirical method in the concrete”.⁵

Sydenham compares the physicians art with a Cook’s, in that they both primarily learn their works by experience rather than from “speculative theorems”.

⁵ Ibid.
True knowledge grew first in the world by experience and rational observation [he wrote], but proud man, not content with the knowledge he was capable of, and which was useful to him, would needs penetrate into the hidden causes things, lay down principles, and establish maxims to himself about the operations of nature, and thus vainly expect that nature, or in truth God should proceed accordingly to those laws which his maxims has prescribed to him.\textsuperscript{6}

It is this empirical insight, which Locke incorporates in his Essay later. Although the above essay of Sydenham is never completed, he in his another published work reveals his strong empiricism which may have influenced Locke to form his views:

I must limit the function of a physician to industrious investigation of the history of diseases [he wrote], and of the effect of remedies, as shown by the only true teacher, experience... True practice consists in the observation of nature; these are finer than any speculations. Hence the medicine of nature is more refined than the medicine of philosophy.\textsuperscript{7}

Sydenham has great insight to see that experience is the necessary ingredient in studying human nature, specially in the field of medicine. He practices the plain direct method to medicine that Locke describes in De Arte Medica and Fragment on Small Pox which later get incorporated in the Essay in a more general form. Locke says:

But tis but ostentation & loose of time to lay down hypothesis (hypotheses) wch are many times false always uncertain and make a shew to enquire into the essence of things & pretend to shew the way and manner of their observation things that we cannot know being beyond the information of our senses on the reach of our

\textsuperscript{6} Dewhurst, op.cit.
\textsuperscript{7} Ibid.
understanding & therefore with very little advantage pretend to them.  

Here Locke is very hesitant to accept hypothesis and this may be the reason that in the Essay later, he shows that sensitive knowledge is only probable. Romanell also sees in this observation the seed of Locke's later philosophy and is therefore convinced of the importance of Locke's medical background as an explanation of his general philosophy. 

In fact, what Locke observes during his long association with medical profession, get reflected later in the Essay. In his medical writings Locke affirms that we cannot penetrate into the essence of things, we can only describe what we see and classify the data accordingly.

The above view get reasserted in the Essay. While investigating the nature of physical substance. Locke says:

The want of idea of their real essences sends us from our own thoughts to the things themselves as they exist. Experience here must teach me what reason cannot.

So the distinction that he draws between real and nominal essences of substance in his Essay some twenty years after, emerges from the above association. This point will be discussed in detail later in this chapter.

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8 Givner, op. cit, p.433.
9 Ibid., p.434.
The Scientific Surroundings

In the first chapter while discussing Locke’s relation with his contemporaries, it has been already shown how Locke and Newton mutually influences each other in forming their thought. Here, concentration is mainly on Boyle’s corpuscular theory that later moulds Locke’s theory of substance.

In order to understand Locke’s concept of matter and the distinction that he draws between primary and secondary qualities (which will be discussed in the next section) it is necessary to mention Epicurus who influences Galileo, Gassendi and Boyle in their turn.

The conception of minute particles or atoms goes back to Greek atomism in the fifth and fourth centuries B.C., with the philosophers Leucippus, Democritus and Epicurus, which revives again in the seventeenth century in the writings of Oxford natural philosophers. Locke is well aware of this revival and read the works of Bacon, Val Helmont and Cardan, all of whom have discussed the concept of atom into their works. But the revival of the Epicurean philosophy in the seventeenth century owe most to Pierre Gassendi (1592-1655) whose writings are popularized in France by Francois Bernier (1620-99) and in England, Walter Charleton (1619-1707). Galileo Galili, Italian mathematician and physicist (1564-1642) also discussed this atomism in his works. Gassendi shows that all
matter consist of minute particles or atoms, which can be transformed into larger combination called "moleculae" or "corpuscula" and those particles which are too small to be observed by the naked eye can be demonstrated under the newly-discovered microscope.\textsuperscript{11}

Boyle has modified Gassendi's atomic theory into his own corpuscular philosophy in his works on the air (1660) and The Sceptical Chemist (1661).

The relation between Locke and Boyle reach at its zenith when Boyle further develops his corpuscular theory in The Origins of Forms and Qualities (1666) which has been said to present a theory of perception similar to the one adopted by Locke in his Essay later.

Boyle starts with the idea that there is "one Chatholic and universal matter common to all bodies by which I mean a substance extended, divisible and impenetrable".\textsuperscript{12} This is divided into parts because it has within it varying degree and direction of local motion. The division of methods is frequently made into insensible corpuscles or particles each of which has 'its own magnitude or rather size, and its own figure on shape'. When considered in relation to each other these corpuscles have a posture and an order. These corpuscles can be joined together to form more

\textsuperscript{11} Dewhurst, op.cit., p.21.
complex wholes, whose only difference lies in size, shape, configuration and motion. But though Boyle accepts this theory from the Epicurean yet there are differences between them. Whereas the Epicureans attribute the existence of corpuscles to mere chance, Boyle and later Locke believes them to be created by God to serve his purpose. Boyle mixes this power of Almighty with his crude mechanism. He then, conducts several laboratory tests which support the theory that matter is made up of minute particle in motion and he is particularly interested in colour dilution tests which he demonstrates to Locke. He shows that, several elements give a specific colour when put to the flame, and that this test Locke later repeats is also a useful analytical tool sufficiently accurate to detect minute traces of an element.

So, this experimental evidence in support of Corpuscular theory influences Locke later in conceiving the doctrine of substance. Following Boyle, Locke distinguishes afterwards between primary and secondary qualities of matter which will be dealt in detail in the next section. Here some points of comparison are made between Locke and Boyle in order to clarify their position.

The secondary qualities, viz. colour, taste, smell are central to both of their theories of perception. But though there are similarities, yet there are...
differences between them too. Boyle shows that objects produce their "sensible qualities" on the sense organs of the observer. They are subjective manifestations and not true copies of the original subject. Locke differs from him in postulating that we always perceive an idea, and not a thing, as represented by the bundle of sense-data. So there are three elements in Locke's theory of perception; the observer, the idea, and the object, the idea represents. Accordingly, it is not possible to perceive any thing directly.\(^1^4\) Locke states all the idea come from experience. "... all our knowledge is founded, and from that it ultimately derives itself".\(^1^5\)

Hence, what one derives primarily from experience are ideas, not knowledge itself. These ideas are merely the materials out of which all knowledge is constructed, which again comes only from two sources, sensation and reflection. These are the two ways from which all knowledge come and there is no other way to get any thing outside these sources. So here comes the question how knowledge is indirectly derived from experience?

Before answering the above question, it is necessary to deal with Locke's theory of knowledge which is the issue of the next section. This

\(^{1^4}\) Ibid., p.23.

\(^{1^5}\) Locke, Yolten, abridged, op.cit., p.33.
question of knowledge is very vital as it is closely associated with his theory of substance.

Section-II

Theory of Knowledge

This section tries to highlight Locke’s theory of knowledge which is related to his ontology. The aim of the Essay is to investigate the origin, certainty and extent of knowledge. In this context Locke remarks “This therefore, being my purpose, to inquire into the original, certainty, and extent of human knowledge, together with the grounds and degrees of belief, opinion and assent”\(^{16}\) He starts his inquiry with the above end and from the very first criticizes and rejects an account of the origination of knowledge which holds knowledge to be innate. As a man of deep scientific temperament he neither allows any knowledge to be innate, nor does he think that any of it is not derived form experience. But though he claims that knowledge is derived from sense-experience, yet within his epistemological framework he accommodates both intuitive and demonstrative knowledge.

\(^{16}\) Ibid., p.1.
This is due to Cartesian influence. But the most striking influence of Descartes that can be traced in Locke's theory of knowledge is, ideas are the immediate data of knowledge. In Book IV he defines knowledge in the following way:

Knowledge is the "perception of the connexion and agreement or disagreement and repugnancy, of any of our idea".17

For example, we know that 'the three angles of a triangle are equal to two light ones'. Now what does it means? It means that there is a 'connexion' between the idea of being a triangle and having angles equal to two right ones means, that being a triangle entails or implies having angles equal to two right ones. This definition of knowledge clearly reflects his acceptance of cartesian dualism. For Locke, our ideas of the physical world represent it as possessing primary and secondary qualities, ideas of the first resemble features in the substance, ideas of the second sort are just caused by power of the object. Locke relies on the authority of science of his time and to accommodate both Cartesian and scientific views, he puts forward his theory of the representative theory of perception. We have discussed all this, later in the chapter.

Having defined knowledge in terms of perception of agreement and disagreement of ideas, Locke proceeds to distinguish four sorts of

17 Ibid., p.267.
agreement and disagreement. These are identity or diversity, relation, coexistence or necessary connection and real existence. The first and the third are nothing but the various forms of relation, yet Locke thinks them justified to be classed separately.

He spells out:

Though identity and co-existence are truly nothing but relations, yet they are so peculiar ways of agreement or disagreement of our ideas that they deserve well to be considered as distinct heads and not under relation in general...\(^\text{18}\)

The relation of identity reveals in the following example as ‘white is white’, whereas, of diversity ‘blue is not yellow’. Coexistence is shown where one experiences ideas together and can therefore enquire whether these grouped ideas have any necessary connection each other. This applies particularly to our ideas of substances which are ‘nothing but collection of simple ideas united in one subject and so co-existing together.’ And real existence is exemplified in the proposition that ‘God is’.

While illustrating these four forms of agreement of disagreement Locke holds that we have knowledge of our own existence by intuition; of the existence of God by demonstration; and of other things by sensation.

Here, three degrees or grades of knowledge are to be distinguished intuitive, demonstrative and sensitive. Intuitive knowledge follows when

\(^{18}\) Ibid., p.269.
"the mind perceives the agreement or disagreement of two ideas immediately by themselves without the intervention of any other;"\textsuperscript{19} It is when the mind perceives at the first sight of the ideas together without the intervention of any other idea that "a circle is not a triangle".\textsuperscript{20}

Demonstrative knowledge is of the second 'degree' or grade of knowledge. Here one perceives the agreement of ideas not immediately, but through a chain of intermediate ideas. At each step of this chain, there is an intuitive perception of immediate agreement. One cannot by an immediate view and comparing them 'know' that the three angles of a triangle are equal to right angles. In this case the mind needs "to find out some other angles to which the three angles of a triangle have an equality, and finding these equal to two right ones, comes to know their equality to right ones".\textsuperscript{21}

Sensitive knowledge comes under the third degree. This is knowledge of "the existence of particular external objects, by that perception and consciousness we have of the actual entrance of ideas from them".\textsuperscript{22}

One observation may be made here. Locke's division of knowledge into intuitive and demonstrative bears close affinities with Descarte's intuitive and deductive knowledge.

\textsuperscript{19} Ibid., p.272.
\textsuperscript{20} Ibid.
\textsuperscript{21} Ibid., p.273.
\textsuperscript{22} Ibid., p.277.
In case of sensitive knowledge what one directly knows through sense-experience are the simple ideas. And this view of Locke follows, from his acceptance of Cartesian dualism.

Suman Gupta observes in this connection that there are three basic assumptions of Cartesian dualism. They are as follows:

i. Mind and matter are two basic realities which can exist completely independent of one another.

ii. And further more, being separate they cannot have even causal interconnections.

iii. Mind is logically prior to Matter.23

It is under the influence of the above three assumptions that the mind cannot know matter directly and can know only its ideas.

So the question that is left in the end of the first section again resurrects. How knowledge is indirectly derived from experience through the intervention of ideas. This theory is known as the representative theory of perception.

R.I. Aaron illustrates the theory in the following way:

Knowledge of the real, the theory asserts, need[s] an intermediary object between the knowing mind and the ultimate object. This intermediary object is the one immediately given or thought and represents the ultimate object. The immediate object when I look

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at this table is no physical entity but an idea which represents the table.  

What Aaron finds in this theory includes a rejection of the notion that all ideas copy object and the treatment of some ideas as 'logical meanings'. But despite these modifications Aaron observes, "Locke thought... that some sort of representationalism and dualism was inevitable". Two important features of the representative theory emerge from Aaron's formulation. (1) there are ideas (at least some ideas) as special objects and (2) the 'double' existence of idea-objects and physical objects.

Jonathan Bennett adds a third feature to this theory.

"Locke puts the objective world, the world of 'real things', beyond our reach on the other side of the veil of perception."

Richard Rorty, while accepting Bennett's tracing of the veil of ideas to the seventeenth century, finds in Descartes and Locke the inward turning to the ideas of the mind, away from outward objects.

On this account, the problem of knowledge becomes one of discovery some features among our ideas which might inform us about the

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25 Ibid., p.105.
world of non-ideas. According to Rorty, skepticism inevitably follows from this view of knowledge.

The seventeenth century gave skepticism a new lease of life because of its epistemology, not its philosophy of mind. Any theory which view knowledge as accuracy of representation, and which holds that certainty can only be relatively had about representation, will make skepticism inevitable.28

So the idea play a central part in Locke’s philosophy. In the Essay Locke apologizes for his frequent use of the word ‘idea’. He defines it as “whatsoever is the object of the understanding when a man thinks” and “whatever is meant by phantasm, notion, species, ....”29

He furthers adds but whatever the case may be, the ideas are all, without exception come from experience. Prior to experience the mind is “white paper, void of all characters, without any ideas”.30

Though Locke uses extensively the word ‘idea’, yet the main classification that he draws in the Essay is between simple and complex ideas. The mind first get acquainted with simple ideas and then afterwards forms complex ideas out of it. The mind is generally passive in the reception of all its simple ideas, but when the complex ideas are formed, the mind becomes active.

28 Ibid., p.113.
29 Locke, op.cit., p.5.
30 Ibid., p.33.
The acts of the mind, wherein it excerts its power over its simple ideas are chiefly these three:

(i) Combining several simple ideas into one compound one; and thus all complex ideas are made. (ii) The second is bringing two ideas whether simple or complex, together, and setting them by one another, so as to take a view of them of once, without uniting them into one; by which way it gets all its ideas of relations. (ii) The third is separating them from all other ideas that accompany them in their real existence, this is called abstraction; and thus all its general ideas are made.31 With the help of these acts of mind all the general ideas are made.

The complex ideas are formed, by joining the simple ideas. Locke shows that though infinite numbers of complex ideas can be formed by compounding and decompounding yet, they may all be reduced under three principal heads. They are: Modes, Substance and Relations, of which the concept of substance now will be discussed.

31 Ibid., p.77.
Section-III

The Concept of Substance

This section deals with Locke's concept of material substance which plays a very important role in Locke's thought. In his discussion of substance Locke distinguishes principally two sorts of substances.

(1) Idea of substance in general

(2) Idea of a given particular substance.

This section first analyzes the ideas of substance in general and then turn on to the idea of particular substance. In dealing with these issues, it will bring out the following related issues, associated with substance. It will discuss:

(i) the distinction between primary and secondary quality, (ii) the theory of abstraction, (iii) the distinction between real and nominal essence and also the debated point whether Locke is nominalist or realist, besides the others, followed by criticisms that different interpreters ascribed to Locke.
Idea of Substance-in-General

We have seen earlier that there are three drafts of Locke's Essay. And in these drafts Locke examines this particular substance only. In the Draft A, Locke states:

The senses by frequent conversation with certain objects find that a certain number of these simple Ideas goes constantly together... Soe are all Ideas of substances as man, horse, sun, water, Iron,...

But later, Locke realizes the importance of substance-in-general. And that is why he discusses it in the very beginning of the chapter entitled "of our complex idea of substance". Before concentrating on what Locke says about substance-in-general, let us brush up what was stated in first chapter in connection with Aristotle's conception, because this reminder will help us to understand Lockean position more correctly.

According to Aristotle there are two main characteristics of substance: (i) Substance is real existence. (ii) It is that which supports existence.

The above conception of substance has been taken for granted from Aristotle's days onward. There are no point of dispute, except the

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nominalist, who raises certain questions. Can we divide a thing into substance and qualities? What will be left if all qualities are taken away?

But, in his account of substance Locke differs from Aristotelian ontology. For Locke, it is not individuals that are fundamental but rather things of a natural kind. Individuals made from a natural kind of stuff, if not themselves of natural kinds depend upon the staff, for example, lead pipes depend upon lead, whereas the stuff lead (or atoms of it) does not depend upon artificial things made of it. An individual of a natural kind is a substance, but it is not the fact that it is an individual which is important, but rather the fact that there are laws of nature about that kind of thing. In short, what is basic in Locke’s ontology, is all things of kinds which are proper objects of investigation for natural science.

From the very start, Locke examines all the ideas in the mind particularly those, which appear at first right to originate in a source other than sensation and reflection. Locke himself admits in the Essay that we neither have nor can have this idea directly by sensation or reflection and this is also his first important reference to substance-in-general. Locke states:

…there is another idea which would be of general use for mankind to have, as it is of general talk as if they had it; and that is the idea

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11 Nominalism: The doctrine is usually associated with the thought that everything that exists is a particular individual and therefore there are no such things as universals. Ref. Oxford Dictionary of Philosophy, Blackburn, Oxford University Press, 1996, p.264.
of substance, which we neither have nor can have by sensation or reflection.\textsuperscript{34}

According to Locke, this concept of substance cannot be experienced directly. Nor can one gain this idea by enlarging or combining the ideas experienced. We experience size, colour, shape and so on, but however much we enlarge these ideas we never can get the positive idea of substance as-such. By combining our ideas also we do not arrive at this concept of substance. So how we come to possess this idea of substance? This is the problem which Locke tries to answer. Locke holds that though it is not immediately experienced, it can none the less be derived from what is experienced. This is only possible because we do not have a positive idea of substance but we have no such clear idea at all; and therefore signify nothing by the word substance but only an uncertain supposition of we know not what, (i.e. of something whereof we have no particular distinct positive) idea, which we take to be the substratum, or support of these ideas we do not know.\textsuperscript{35}

Therefore the idea of substance is derived from our experience of qualities. In the very beginning of the chapter on “Complex Idea of Substance” he asserts that our idea of substance-in-general is the idea of the support of qualities.

\textsuperscript{35} Ibid.
Locke states:

...if any one will examine himself concerning his notion of pure substance-in-general, he will find he has no other idea at all, but only a supposition of he knows not what support of such qualities which are capable of producing simple ideas in us, which qualities are commonly called accidents.36

For this reason, Locke attempts to induct in his epistemology the idea of substance in general as the "collection of those several simple ideas of sensible qualities,"37

We may point out an important issue in Locke's philosophy that there is debate regarding existence or being of a substance and the idea of a substance. And it must be mentioned that Locke is concerned with the idea of substance and not the being of substance. Regarding this issue Locke has a long correspondence with Stillingfleet, Bishop of Worcester. Stillingfleet accuses Locke of having 'almost discarded substance out of the reasonable part of the world'.38 But Locke denies this and in his first letter to Stillingfleet, Locke replies-"as long as there is any such thing as body or spirit in the world, I have done nothing towards the discarding substance out of the reasonable part of the world".39

36 Ibid., p.245.
37 Ibid., p.246.
39 Ibid.
Here Locke is talking about ‘the confused idea of something’ in which the simple ideas making up the complex ideas of substance, something that ‘support accidents’. In the Essay he speaks, of some substratum, which the Bishop of Worcester takes to mean that we have a mere supposition, unsupported by evidence of reason, of substance-in-general. Locke replies, “I ground not the being, but the idea of substance, on our accustoming ourselves to suppose some substratum”.

Berkeley too, criticizes Locke by saying that, he ‘bantered the idea of substance’. But Aaron comments, though he ‘bantered the idea of substance’, yet Locke did not deny the being of substance and he did not deny the need of a support of qualities. What he denies is “We have knowledge of this substance”.

Locke is accepting the independent nature of the substance, as experience itself offers proofs for its existence. But due to our lack of proper faculties, the real nature of the substance remains hidden from us, and that is why our idea of substance in general is an idea of a something-we-know-not-what supporting accidents. So to say that, we have no clear idea of substance, is not to deny substance itself.

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40 Ibid
41 Ibid., p.191.
42 Aaron, op.cit., pp.178-79
Locke has two fold objectives which he inherits from Descartes, (1) to prove certainty of knowledge and (2) the priority of ideas. The scientific temperament helps him to accept the reality of substance and the necessary causal connection. Though he accepts Descartes mind-body dualism, but as an empiricist (though there are rationalist strains too) he cannot accept the innate ideas of Descartes and he has to accommodate the concept of substance within his empiricist framework.

To trace Locke's claim that, 'of substance, we have no idea of what it is, but only a confused, obscure one of what it does', it is helpful to unveil the preceding empirical arguments. Gassendi here plays a crucial role as a precedent of Locke. In the Second Meditation, Descartes had argued that it is by means of the intellect, not the sense or imagination, that we conceive of wax as 'something extended, flexible and mutable, underlying the variety of changing appearances which we perceive as it melts. Elsewhere he had claimed that further intellectual reflection allows us to identify extension as the principal attribute or essence of matter. Gassendi's point is to agree that 'what every one commonly assert, viz. that the concept of wax or of its substance can be abstracted from the concepts of its accidents' but to deny that, this means that the substance or nature of the wax is itself distinctly conceived'. Gassendi remarks,

you perceive that the wax or its substance must be something over and above such (sensible) forms, but what this something is you
do not perceive. The alleged naked or rather hidden, substance is something that we can neither ourselves conceive nor explain to others.43

According to Gassendi's argument here, the positive content of our ideas of material substance as wholly provided by the senses and 'the mind is not ..... distinct from the imaginative faculty. Here essence always escapes us.44

Hence these ideas of Gassendi assist: Locke in forming his idea of substance as a 'confused something. As it is said in the beginning that this idea of substance-in-general is not formed through either directly from sensation and reflection, rather it is 'the abstraction of the mind,'

Locke affirms:

... The mind makes the particular ideas received from particular objects to become general; which is done by considering them as they are in the mind such appearances, separate from all other existences and the circumstances of real existence, as time, place, or any other concomitant ideas. This is called ABSTRACTION whereby ideas taken from particular beings become general representatives of all of the same kind; and their names, general names, applicable to whatever exists conformable to such abstract ideas.45

Locke continues that these 'precise, naked appearances' are thus fitted for generality. They are named and laid up in the mind 'as the

44 Ibid.
45 Locke, op.cit., p.126.
standards to rank real existences into sorts.' Thus universal terms or ideas are made.

**Idea of Particular Substance**

Now the above conception is about substance-in-general and therefore abstract. As it has been seen that it is through abstraction from ideas of particular substance that we form this general idea of substance. So we may say that the idea of substance in general is already present in the idea of a particular substance or of a thing. But the question is how does Locke derives the idea of particular substance? It cannot be said that it is something known rationally, so that the substance-attribute relation is apprehended logically. Because, according to Locke, substance is something, 'I know not what', hence, there is no way out to discern rationally the relation between the qualities observed and the substance which is unknowable. Though no clear argument is given by Locke yet one can formulate his answer through the way he proceeds in the Essay. For example, the idea of a particular table. How is it formed? In Locke's view the idea of the table is a complex idea, consisting of the simple ideas of brownness, hardness, smoothness and so on. But besides all these there is an extra-element. These ideas are experienced by a person, in this case as
one group belonging together. As Locke says, they are observed ‘to go together’.

The mind being, as I have declared furnished with a great number of simple ideas conveyed in by the senses, as they are found in exterior things, or by reflection on its own operations, takes notice also, that a certain number of these simple ideas go constantly together...

Locke holds that this ‘togetherness’ of these simple ideas is the empirical basis of the idea of substance, which is applicable to both for the particular as well as general idea of substance. Therefore logically, the conception of substratum, which supports qualities of objects, are always there. And this conception of substance in general contains our idea of a particular sort of substance as a “confused idea of something”, which supports the qualities and these produces certain combinations of ideas in us. It is these simple ideas which constitutes the idea of substance. There is a conceptual necessity in our idea of quality which requires a subject for qualities to in here. This may be called the epistemic side to the analysis of body. And on the ontological side qualities and properties do not exist by themselves, they flow from and belong to matter.

The idea of substance both particular and general consist of ideas of the primary and secondary qualities perceived by the senses. According to Locke there are distinction between ideas and qualities. Ideas are the

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46 Locke, op.cit, p.244.
perceptions of the mind and qualities are the modifications of matter in the bodies that cause such perception in us. In the Essay, Locke introduces the distinction by explaining what he means by “quality”:

Whatsoever the mind perceives in itself, or is the immediate object of perception, thought or understanding, that I call idea; and the power to produce any idea in our mind, I call quality of the subject wherein that power is.47

Locke’s distinction between ideas and qualities implies that there is reality, independent of the mind, in which qualities inhere. He goes on to say that qualities of bodies can be distinguished into primary, secondary and a third sort, usually called “tertiary” although Locke does not suggest this name. Locke narrates:

.... When we speak of any sort of substance, we say it is a thing having such or such qualities; as body is a thing that is extended, figured, and capable of motion; a spirit, a thing capable of thinking; and so hardness, friability, and power to draw iron, we say, are qualities to be found in a loadstone. These and the like fashions of speaking intimate that the substance is supposed always something besides the extension, figure, solidity, motion, thinking or other observable ideas, though we know not what it is.”48

Locke argues that material objects or substance possess certain qualities which are utterly inseparable from the body in what state so ever it be. These qualities which Locke terms primary qualities are

47 Ibid., p.104.
48 Ibid., p.246.
impenetrability, extension, figure, mobility and number. They are primary because a material object is known through these qualities and it must always retain them, however much it is changed in other ways. There are also secondary qualities, such as colour, taste and sound, which depend for their existence on the mind of the observer. In fact, these secondary qualities are 'only powers' of producing various ideas in the minds of people equipped with the appropriate sense. Besides these two qualities Locke recognizes another one, which is only power, and this helps to bring changes in the objects. For example, fire has the power to melt wax. These qualities reside in the substance.

As it has been seen in the first section that Locke inherits this distinction of primary and secondary qualities immediately from Boyle, his scientist friend and ultimately form Epicurus and the Cartesians. But its origin can be traceable to Galileo too and in Newton's *Principia Mathematica*, this distinction get highlighted. Boyle's distinction between the primary and secondary qualities, is part of his corpuscular hypothesis. Now what is this hypothesis? The idea that matter is composed of imperceptible particles was used to explain how a body undergoes physical and chemical changes. His distinction is the same as Locke. Boyle talks of size and shape as 'primary affection of bodies' and distinguishes them from 'those less simple qualities (as colours, tastes and odours) that belong to
bodies on their account. This distinction is crucial to Boyle as part of his mechanical explanations of natural phenomena and mechanical explanations are in terms of shape, size, motion and rest.\textsuperscript{49}

In Descartes’ writings this distinction is present too. Descartes in the \textbf{Meditations}, discusses this aspect in the following way:

But colours, smells, tastes and so on, are, I observed, merely certain sensations which exist in my thought and are as different from bodies as pain is different from the shape and motion of the weapon which produces it. And lastly, I observed that heaviness and hardness and the power to heat or to attract, or to purge, and all other qualities which we experience in bodies, consists solely in the motion of bodies, or its absence, and that the configuration and situation of their parts.\textsuperscript{50}

Here Descartes and Locke agree that secondary qualities are imaginative embroidery by the observing mind, carried out on the complexes of primary qualities presented the senses. Locke explains our experience of secondary qualities as the causal outcome of the operation on our senses of the primary qualities of the minute parts of the surfaces of materials things. Descartes’ reason for holding that, primary qualities alone constitute the real character of thing is that, they alone are objects of clear and distinct knowledge, clarity and distinctness of conception being the mark established by the \textit{cogito} of all that could be known to exist:. Locke’s


reason for giving primary qualities more importance are due to two considerations. As it has been stated in the first chapter both Locke and Newton share certain thoughts which may have impact on Locke's theory of primary qualities. In the first place the primary qualities formed the subject matter of classical Newtonian mechanics and probably Locke, impressed by the precision and system of the then existing scientific theory, accepted the primary qualities as the higher degree of truth than the findings and objects of common observation. The second point is that the primary qualities are measurable. As against colour and texture, they are extensive magnitudes, measurements of size, distance and speed, followed by the laws of arithmetic. One thing can be twice as large but it cannot be twice as red, except in the most figurative and subjective fashion. But regarding the second point, it may be said, even the secondary qualities are not accurately measurable but they are still measurable and to a comparable degree of accuracy. Moreover, measurement is not a guarantee against error and it is also a fact that we cannot measure primary qualities at all, unless we can perceive secondary qualities. For example, to use a foot rule we have to be able to determine the visible marks that are identified by their colour. \(^{51}\)

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Later, Berkeley criticises Locke on the same line by saying that both primary and secondary qualities are mind dependent. And the way Locke demarcates the two qualities are not justifiable. Not only Berkeley, Leibniz too points out that qualities are "abstract" while substance is "concrete" in Locke's system. The qualities, from the very fact that they have no self-subsistence, are only relations, as that of which they are qualities is concrete. According to Leibniz, it is to invert the true order to take qualities or abstract terms as the best known and most easily comprehended, and "concretes" as unknown and as having the most difficulty about them. "It is abstractions which gives birth to almost all our difficulties", and Locke's error here is that he begins with abstractions. Moreover Locke separates completely substance and attribute. Leibniz says; "After having distinguished two things in substance, the attribution or predicates, and the common subject of these predicates, it is not to be wondered at that we cannot conceive anything in particular in the subject. This result is necessary, since we have separated all the attributes in which there is anything definite to be conceived. Hence, to demand anything more than a mere unknown somewhat in the subject, is to contradict the supposition which was made in making the abstraction and in conceiving separately the subject and its qualities or accidents".52 So we are indeed ignorant of a

52 Dewey, John, Leibniz's New Essays Concerning The Human Understanding, S.C. Griggs and
subject from which abstraction has been made of all defining and characteristic qualities, "but this ignorance results from our demanding a sort of knowledge of which the object does not permit."

Therefore, Locke’s theory of abstract ideas has a far-reaching consequences. Even in his own time, it is a debatable issue. Besides, Leibniz, there was a controversy between Stillingfleet and Locke regarding this. According to Stillingfleet the abstract idea is the work of the mind, but not the creature of the mind, and that though there be only one in the sort e.g. the sun, yet there is a real essence, which if there were more suns would still continue them. Locke replies that abstract general essence have no being outside the understanding, that we know not the real essence (This point viz real and nominal essence’ has been discussed in detail. in the later half of this section) of the sun and we can know only the nominal essence. Stillingfleet holds that the nature of knowing is involved, as well as its objects, and maintains that ‘the general idea is not made from the simple ideas by the mere act of the mind, but from reason and consideration of the nature of things’. In reply Locke states that reason and considerations are acts of mind. Conceding that, there is an ‘internal constitution of things on which their properties depend; he argues that if we wait till we know it, we

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company, Chicago, 1888, p.375.
51 Ibid., p.376.
shall have to wait a long time without species and sorts. Our thinking
cannot alter the nature of things, but it can and does alter the meaning of
their names, i.e. make or remake the boundaries of the species. So,
according to Locke, the true method of advancing knowledge is to consider
our abstract ideas, and 'by what steps we are to proceed in these is to
learned in the schools of the mathematicians'... He continues that all
general knowledge 'consists barely in the contemplation of our own
abstract ideas'. For instance, our working knowledge of man is based upon
an idea of a shaped body with powers of sense, voluntary movement, and
reason. This is the abstract idea of man and the essence of our species. All
universal knowledge of man is the perception of the agreement or
disagreement of another abstract idea with this.

Against this theory of abstract ideas Berkeley, one of the most
vehement critic of Locke, also offers an extended arguments. Berkeley
finds that this idea of substance as 'something I know not what' is not
acceptable. A thing or object, such as a table or a cherry, is composed of a
substance in which a number of attributes inhere. To Locke, our experience
of an object is limited to its attributes that is the primary qualities such as

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54 Luce, A.A., Berkeley and Malebranche A Study in the Origins of Berkeley's Thought, Garland
55 Locke, op.cit, P.239.
solidity, extension and motion and we do not have any experience of the substance itself. Berkeley holds in opposition to Locke the following view:

I see this cherry, I feel it, I taste it; and I am sure nothing cannot be seen, or felt, or lasted, it is therefore real. Take away the sensations of softness, moisture, readiness, tartness, and you take away the cherry. A cherry I say, is nothing but a congeries of sensible impressions or ideas perceived by the senses.\footnote{George, Berkeley: Three Dialogues between Hylas and Philonous, cited in Verificationism: Its History and Prospects, by C.J. Misak, Routledge, London and New York, 1995, p.5.}

Berkeley holds that if we take away all of the sensations associated with an object—all of the attributes of a thing, we would be left with nothing at all. We cannot conceive of existence abstracted from perception. We cannot conceive of matter abstracted from extension. He maintains.

It is said, extension is a mode or accident of Matter, and that Matter is the substratum that supports it. Now I desire that you would explain to me what is meant by Matter's extension. Say you, I have no idea of Matter; and therefore cannot explain it. I answer, though you have no positive, yet if you have any meaning at all, you must have at least have a relative idea of Matter; though you know not what it is, yet you must be supposed to know what relation it bears to accidents, and what is meant by its supporting them. It is evident, support cannot here be taken in its usual or literal sense, as when we say that pillars support a building. In, what sense therefore must it be taken?\footnote{Ibid.}

Accordingly, Berkeley continues that there is no abstract triangle, which is 'neither oblique rectangle, equilateral, equicrural nor scale non, but all and none of these at once'. According to Berkeley if one introspects one's own thoughts, one will not find or imagine such a creature.
Not only Berkeley, even recent commentators like R.I. Aaron, finds three ‘strands’ in Locke’s theories of abstraction and generality. The abstract ideas identify a universal with (i) a particular idea that is made to stand for all other particular ideas of the same sort, (ii) what remains when many qualities have been eliminated from a particular appearance, for example, when we have eliminate from the idea of Peter every quality that he has but some other men do not, (iii) a character or group of characters shared by particulars of the same sort.58

Against Aaron, J.L. Mackie argues that the second and third strands are not really distinguishable. Regarding the first ‘strand’ Aaron even admits, that in the Essay this point is not stated explicitly.59

Similarly Mabbott also finds two theories viz, a ‘sign theory and a ‘resemblance theory. In the sign theory a general idea is an abstracted particular idea. Mabbott states:

This theory explains the wide application of the word ‘white’ by saying that the mind makes the whiteness of the sheet stand as a representative of other whiteness, of snow, chalk etc.60 And in the resemblance theory, abstract general ideas ‘are the meanings of general terms’ and each of them is ‘the quality or group of qualities common to a class of particulars.61

58 Aaron, op.cit., pp.197-203.
61 Ibid., p.45.
According to Mabbott, Locke is unaware of the difference between these two theories and tends to run them together.

In defence of Locke, Mackie argues that these are not rival theories but are complementary aspects of a single account.⁶² Similarly Gibson remarks that Locke recognizes the inseparable relation between the general and particular theories of ideas and that is why his theory of abstraction comes out.⁶³

From the above analysis, it emerges that there is no doubt that Locke’s account of abstract ideas is not absolutely unitary, but this happens because there are different sorts of general ideas which call for somewhat different treatment, for example simple ideas like that of whitness and simple modes like the idea of a triangle. In fact his theory of abstraction stems from Aristotle’s influence who accepts both universals and particulars. Though Locke criticizes the traditional theory of substance yet somehow or other he cannot disentangle from the legacy of it. Though he claims but he fails to do it completely. As it has been seen that for Aristotle substance is something independent, where qualities inhere and which can be subject but not predicate of a proposition in logical form.

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⁶² Mackie, op.cit. p.117.
⁶³ Gibson, James, Locke’s Theory of Knowledge and its Historical Relations, Cambridge, Cambridge University Press, 1917, p.70.
Locke’s subscription to the above view can be seen from the following. Locke says:

The idea then we have, to which we give the general name substance, being not being but the supposed, but unknown, support of these qualities we find existing, which we imagine cannot subsist sine re substance without something to support them, we call that support substantia; which according to the true import of the word, is, in plain English, Standing under or upholding.\(^{64}\)

In this passage Locke admits that even though we do not know substance, but only suppose it, the supposition would be a substratum of “substrata” in which all the qualities “which we imagine cannot subsist sine re substrata”, inhere. Now, it is not possible for qualities to exist by themselves, it need a support and so in this sense substance is something which can exist independently, otherwise it would be again quality of something. And this substance is not only independent, in it, qualities also inhere. And in this sense it is subject. Thus from the above analysis it is clear though Locke claims to disassociate himself from the traditional conception, yet in reality it is not possible for him to follow in every step.

Coming back to primary qualities, Locke differs from Descartes. According to Descartes, extension is the essence of matter. He holds that there can be no such thing as empty space. But Locke affirms that empty space is possible and that matter and space are distinct. Locke states:

\(^{64}\) Locke, op.cit, p.245.
...he that with Descartes shall frame in his mind an idea of what he calls body to be nothing but extension, many easily demonstrate that there is no vacuum, i.e. no space void of body, by this maxim, what is, is. For the idea to which he annexes the name body being bare extension, his knowledge that space cannot be without body is certain. 65

But, as he goes on to point out, the futility of such procedure becomes apparent when one consider that the contradictory proposition can easily and well be demonstrated' by this method:

...if another shall come and make to himself another idea, different from Descartes, of the thing which yet with Descartes he calls by the same name body, and make his idea which he expressed by the word body, to be of a thing that both extension and solidity together; he will as easily demonstrate that there may be a vacuum or space without a body, as Descartes demonstrated the contrary. 66

Locke not only points out the fallacious nature of the Cartesian procedure but proceeds to give argument in favour of a different view of the relation of extension to body. He maintains that body involves solidity in addition to extension. And this solidity occupies space, and absolutely resists the entrance of any other body into the portion of space which it occupies. Locke thinks that however bodies are modified, solidity is inseparably inherent in body and that only in matter is solidity found. He states:

65 Locke, op.cit, p.204.
66 Ibid., pp.204-205.
yet the mind, having once got this idea from such grosser sensible bodies, traces it further and considers it, as well as figure, in the minutest particles of matter that can exist and finds it inseparably inherent in body, whatever or however modified.\textsuperscript{67}

Locke is including in his list of primary qualities, the notion of solidity, because this notion of solidity is the most important property of corpuscularianism. And as Locke is a supporter of the corpuscular hypothesis, so he wants to accommodate this notion of solidity within his epistemological framework. His view reflects the opinion of then existing physical theories. Physics deal with primary qualities. Primary qualities are those that are constant in sense perception and inseparable from the concept of body. And Physics deals with those properties, which meet these two conditions. Through his induction of the notion of solidity, Locke tries to justify the priority of science in natural philosophy.

Peter Alexander is of opinion that Locke is not attempting to make the primary secondary quality distinction, on the contrary he is accepting it as ready made from Boyle as an essential part of the corpuscular hypothesis. The distinction is made on theoretical grounds in relation to possibilities of explanation. The arguments of sections 16.21 of Book II, Chapter VIII of the Essay about manna, porphyry, the pounding of almonds, heat from a fire and the felt temperature of water are not intended

\textsuperscript{67} Ibid., p.94.
to establish the distinction, as they are usually thought to be. What underlies them is the belief that all the phenomena can be explained simply in terms of the corpuscular hypothesis. 68

It is part of the hypothesis that our ideas of sensations are ultimately caused by complex arrangements of minute particles having only primary qualities but at the same time showing an immense possibility in an infinite variety of ways. We cannot see the causes themselves and this is the reason why Locke is doubtful of our knowing but we can postulate causal relations between corpuscles and groups of corpuscle on the pattern of observed causal transactions between observed bodies. In terms of Boyle’s two principles we can explain the effects of bodies upon one another, and upon us to produce idea.

Maurice Mandelbaum also supports the above position. He says:

...the basis on which Locke established his theory of the primary qualities was his atomism .. Thus, instead of viewing Locke’s doctrine of primary and secondary qualities as a doctrine which rests on an analysis of differences among our ideas, his doctrine is to be understood as a theory of physical entities, and of the manner in which our ideas our caused. 69

In line with Mandelbaum, C.M. Curley another commentator agreeing with Locke’s positions, comments that for Locke, our ideas of primary qualities of bodies are resemblance’s of them and our ideas of

secondary qualities are not, in the sense that our causal accounts will make essential reference to primary qualities, whereas they will not make essential reference to secondary qualities.  

From the above analysis it becomes clear that Locke is guided by the then existing scientific theories, and while forming his notion of substance he accepts them without challenge.

Regarding Locke’s secondary qualities Jonathan Bennett, another expert on Locke finds certain important issues. The distinction that Locke often says about the primary-secondary qualities involves one thing more that is secondary qualities “are nothing in the objects themselves but power to produce various sensations in us” (Essay II, VIII.10) or again “When truly considered [they] are only powers however we are apt to take them for positive qualities” (Essay 11 xxiii.37).

J. Bennett finds that the above claim of Locke involves two components—the analytic thesis and the causal thesis. But these two are interrelated in Locke’s writings and in fact they form one single ‘central claim’ viz, secondary qualities are powers to cause ideas according to Bennett. Now what is this analytic thesis? Bennett remarks:

To say that X has a power to produces S in me is to say, among other things, that if X were related to me in a certain way S would occur in me. If that were all it meant, then Locke would be saying just that any statement at tributing a secondary quality to a thing is

equivalent to a counter factual of the form If X stood in relation to R to a normal human, the human would have a sensory idea of such and such a kind. For example, the claim would be the ‘X is green’ means roughly the same as “If X were sunlit and were in the line of vision of a normal open-eyed human, he would have a visual field of such and such a kind.\(^7\)

In his arguments for the analytic thesis, Locke repeatedly emphasizes the fact that perception of secondary qualities may vary greatly according to the state of one’s body and environment. It is on this point that Berkeley criticizes Locke that this is equally true of primary qualities, Bennett gives the following reasoning for Locke’s distinction between qualities.

We are all familiar with the way in which something, which tastes sweet to most people may taste bitter to a sick person. Now, if we reflect on this phenomena, and on similar ones involving other secondary quality perceptions, we shall see how thoroughly contingent it is that we are in a position to say of anything that is bitter or green or noisy and the like. The occasional failures of agreement bring home to us how dependent our public secondary-quality terminology is upon the fact that we usually do agree in our secondary-quality discrimination—the failures help us to realize that our notion of two things having the same colour, say, is only as

\(^7\) Bennett, J., *Locke, Berkeley, Hume*, p.94.
secure as our ability to master an overwhelming majority who see them as having the same colour.\textsuperscript{72}

Bennett argues that Locke’s distinction is quite defensible. According to Bennett there are three features of the analytic theories about secondary qualities. They are (i) dispositional (ii) relational and (ii) mind-involving.

(i) “Yellowness is not actually in gold but is a power in gold to produce that \textit{idea} in us by our eyes, when placed in a due light;...”.\textsuperscript{73}

Here Locke wants to say that yellowness is only a disposition or ‘power’ of the gold and not a non-dispositional or ‘actual property of it. The second feature that is relational comes out in the following passage:

...all which ideas are nothing else but a many relations to other substances; and are not really in the gold, considered barely in itself, though they depend on those real and primary qualities of its internal constitution, whereby it has a fitness differently to operate, and be operated on by several other substances.\textsuperscript{74}

Locke’s main point is gold’s being yellow depends not just upon it but also upon other things, so that yellowness, rather than being ‘in’ the gold, is between the gold and the class of humans.

The third feature of secondary quality is, it involves something mental, ‘not in the object’.

\textsuperscript{72} Ibid., pp.95-96. 
\textsuperscript{73} Locke, Yolten, abridged, op.cit, 136 
\textsuperscript{74} Ibid., p.150.
...the same water, at the same time, may produce the idea of cold by one hand, and of heat by the other, whereas it is impossible that the same water, if those ideas were really in it, should at the same time be both hot and cold.75

Here, what Locke says is not that secondary qualities are ‘not in’ the objects, but rather secondary quality ideas are not in the objects. So Locke’s distinction between primary and secondary qualities are quite defensible.

The causal thesis that Locke advocates is this: all our secondary quality perception would be causally explained in terms of the primary qualities of the things we perceive. As it has been already pointed out this causal thesis is interoven with his analytic thesis and the two form a central claim that secondary qualities are powers to cause ideas.

Besides the qualities that inhere in substances there is also essence. And for Locke, our ideas of essences are formed through a process of abstraction whereby particular substances are made to represent on entire kind or species. There are two kinds of essences—nominal and real. Nominal essences are the collections of properties by which we sort things into kinds for our own theoretical and practical convenience and which we denote by general term. Real essence is “the real internal but generally (in

71 Ibid., p.62.
Substances), unknown constitution of things, where on their discoverable qualities depend...”

Here one may question why is it so important for Locke to insist upon essences. In fact, he is reacting against the scholastic view of essences which he thought is not merely erroneous but seriously misleading and this led thinkers to pursue fruitless methods of investigation and had made them ‘pretenders to a knowledge they had not (III.viii.2).

According to Locke, it is only because we fail to distinguish between real and nominal essences that this kind of investigation follows on. It is a belief on the part of Locke’s opponents that there is ‘a certain’—that is fixed determinate—‘number of.. essences according to which all natural things are made and wherein they do exactly every one of them pertake, and so become of this or that species (III. iii.17). They thought of these essences as ‘form or moulds wherein all natural things that exist are cast’. 77

In Locke’s opinion, two main errors emerge: from the scholastic procedures for not recognizing the distinction between real and nominal essences i) a belief that genuine, non-trifling knowledge of the nature and necessary characteristics of things can be reached by scholastic procedures,

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76 Ibid., p.217.
77 Ibid., p.218.
and ii) a belief that things naturally sort themselves out into separate species or natural kinds.

According to Locke, there are two meanings of the term essence, i) Aristotelian sense ii) the sense that arises out of scholastic debates. Locke states: “First, essence may be taken for the very being of anything, whereby it is what it is” (III. iii. 15). This is almost similar to Aristotle’s *Metaphysics*. It is stated that one may describe cause in four ways and included among these we say that one is essence and what this had to become. The why leads back finally to the reason, and the first why is the cause, the principle (*Metaphysics*, A.3 983 a 27). Here, it may be remarked Locke’s concept of essence is originally a concept deriving from notions of causality rather than those of description. Like Aristotle, it is a ‘Principal cause’. It is nature in the ancient sense of the term that which produces the particular from inside.

Thus according to Locke, essence is still the cause, the internal principle, henceforth understood as the figure, and matter of solid parts, which are the principle of the thing that appears. It is the internal constitution that makes the essence of a thing. And this internal constitution has both an Aristotelian source that is, of its boundlessness and it is also modern that is, because of its microscopic character. The internal

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78 Ibid., p.217.
constitution of an individual being is what corresponds to the original 
meaning of the term essence.

His distinction between the real and nominal essence of substances 
is brought out appropriately by his analogy of the strasburg cathedral clock. 
The clock has its unique design. For example, it incorporates a globe of the 
heaven with a revolving sun and moon, an astrolabe showing the position 
of the planet, statue with sounded bells and a mechanical cock. According 
to Locke 'the gazing countryman' would know only the clock's outershow 
and not its internal mechanism. The nominal essence of the clock is the 
idea we have, which may very from person to person. But for the 
mathematician at Strasburg Academy who designed and planned the clock, 
the nominal essence would be radically different. He would understand the 
internal mechanism of the clock which enables it to function as it does. So 
his general idea would be an idea of what is in effect, its real essence (iii. 
vi/3.9).79

But Locke differentiates between the clock which is an artificial 
substance and gold. One can know the real essence of the clock by the 
clock's design but none of us can know the real essence of gold. Our 
sensory capacities are too limited. Beyond conceiving it in corpuscular 
terms, we have no idea of it. For the horologist, the nominal essence of the

79 Ibid., 234.
clock is an idea of its real essence, in this he differs from the gazing countryman, to whom the nominal essence is simply some combination of various observable features. But so far natural substances go, we are all 'gazing countryman'. So to Locke, the nominal essence of gold our idea of it, is not an idea of its real essence. Properties of the kind, which go to make up our nominal essence of golds, are divided by Locke into primary, secondary and tertiary qualities.

Primary qualities belong not only to observable substances such as gold, but also to the minute corpuscles which made them up. A piece of gold has solidity, extension, shape, mobility and according to the corpuscular theory the gold's corpuscles have these qualities too. Secondary and tertiary qualities such as colour and solubility in certain acids, belong to a piece of gold but not its corpuscles. Here an important distinction arises between substances along with essence on the one hand, and simple ideas and modes on the other. Locke introduces the complex ideas of modes in order to explain actions and events. Both the concepts of substance and modes are formed out of the simple ideas received through sensation and reflection. Locke defines modes in the following way:

... Modes I call such complex ideas which, however compounded, contain not in them the supposition of subsisting by themselves, but are considered as dependencies on, ... such are the ideas signified by the words triangle, gratitude, murder etc.  

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80 Ibid., p.78.
Now, in case of substances, real and nominal essences always differ, but in case of simple ideas and modes they are identical. For example, one knows or can come to know what men calls a gold ring; but one can never know the real nature of this gold ring. On the other hand according to Locke the definition of a triangle is the essential being from which all its properties flow. It is both nominal and real essence. It is the abstract idea of the triangle.

But here a question crops up? Did Locke believe that a real essence of natural kind was permanently not possible to know? Are real essence permanently unknowable or future progress of science could make it possible to know the internal corpuscular structure for a thing?

In the Essay, this question has no direct answer. And there are many places where we find contradictory statement. In part IV.III.25, Locke says that in regard to our knowledge of the real essence of the material substance it is an "incurable ignorance", and that the minute and intricate inner nature and workings of material substances are beyond the mind of man to know. As Mackie observes, so it is not possible to know the true and certain ideas of the real essence.81

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81 Mackie, op.cit., p.100.
Regarding the above issue that Locke regards both substance and real essence as unknowable, there are controversies among philosophers as to whether these two are identical or different for Locke.

M.R. Ayers is of opinion that substance and real essence are identical. But at the same time Ayers says that Locke does not seem to have thought of the unknown substance and the unknown real essence of anything as identical. That is because, he was understandably drawn towards saying that the unknown substance of, for example, gold and water, or a tree and a pebble, is the same, namely matter. Whatever exactly that might in essence be, in other words, he regarded the unknown substance as an unknown general staff. Yolton has assigned that Locke’s account of substance is an attempt to reconcile two incompatible views, a ‘phenomenalistic’ one which identifies substance with a collection of qualities, and a ‘non-phenomenalistic’ one which introduces a real essence hidden away in an ‘unknowable but necessary substratum’.83

Mackie observes that four possible interpretations can be extracted from the above (i) A strictly phenomenalistic or Berkeleian position which would equate a substance with a collection of ideas. But this view can be rejected out right as Locke’s position is not like this. (ii) A second view

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83 Mackie, op.cit., p.70.
would equate substance with a collection of observable qualities, both primary and secondary (ii) the third view would equate substance with real essence, an unknown micro-structure of instantiated primary qualities (iv) The fourth view would equate substance with a substratum underlying all the properties even those that constitute this microstructure.  

Locke, it seems, does not strictly adhere to any of these views coherently and it is probably due to the linguistic facts that his views on substance seem to be confusing (This point has been discussed in detail at the end of the section).

From the above discussions, it follows that the concept of substance and real essence cannot be identical, for Locke says things about substances which he outrightly denies in the case of real essences. Thus Locke claims that the 'general idea of substance is the same everywhere', whereas the real essence is different of each species and because of this, the observable diversity of natural kinds arise. So whereas the concept of substance in general is the principle of unification, real essence is the principle of differentiation between material substances.

Locke's position regarding substances in general and real essence comes out clearly in his correspondence with Stillingfleet. Stillingfleet

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84 Ibid.
identifies substance with both essence and nature. In his reply Locke writes,

Your lordship, in this paragraph gives us two signification of the word nature: 1. That it is sometimes taken for essential properties, which I easily admit. 2. That sometimes it is taken for the thing itself in which these properties are, and consequently for substance itself. And this your lordship proves out of Aristotle.\textsuperscript{85}

He then adds:

I must confess to you lordship… that I do not clearly understand whether you lordship, in these two paragraphs, speaks of nature, as standing for essential properties; or of nature, as standing for substance.\textsuperscript{86}

This suggests that Locke has no intention to equate substance in general and essential properties or real essence. In fact, it is not possible that real essences must be the same. There are so many different real essences which has also different modifications. So different real essences could not be caused by the same substance.

In the Essay, Book III Locke attempts to solve the intricacies of the problem of substance through his theory of language. We may say that Locke’s theory of language contributes to a greater understanding of the unity of Locke’s thought. Here Locke identifies the unknown substratum problem as being principally linguistic in nature. In discussing the theory of language he shows, how mistaken ideas about substance as an unknowable

\textsuperscript{86} Ibid.
undifferentiated but independently existing thing have arisen and at the same time indicates what sense there is in the idea of substance in general.

The passage in question occurs where Locke is giving an instance in which names taken for things are apt to mislead the understanding. Locke holds:

How many intricate disputes have there been about matter, as if there were some such thing really in nature distinct from body, as it is evident the word matter stands for an idea distinct from the idea of body? For if the ideas these two terms stood for were precisely the same, they might indifferently in all places be put one for another. But we see that, though it be proper to say, there is one matter of all bodies, one cannot say, There is one body of all matters; .. though matter and body be not really distinct, but wherever there is one, there is the other, yet matter and body stand for two different conceptions, whereof the one incomplete and but a part of the other. For body stands for a solid extended figured substance, whereof matter is but a partial and more confused conception...

So it is for our dealings, we separate matter from body. We give two different names “matter” and “Body” for two different ideas. And our daily dealings show that matter is different from body, but this do not allow us to say that matter is in reality distinct form body, having a separate existence as “thing” Matter and body are not really distinct because the idea of matter is just part of the idea of body, though they are different ideas, the most we can say is that ‘matter’ refers to just part of what ‘body’ refers to. Something in reality corresponds to the idea of matter but it is not a separately existing thing; it exists whereover and whenever body exists.

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87 Locke, op.cit., vol.2, pp.96-97.
'Body' stands for a 'solid extended figured substance' but 'matter' is a partial and more confused conception used for 'the substance and solidity of body, without taking in its extension and figure'. So we speak of matter 'always as one' because the idea of it is just the idea of a solid substance which is everywhere the same, everywhere uniform.

And the above line of thought leads the commentators to embroil themselves in controversy. On the one hand, we find commentators like Jonathan Bennett, who believes that Locke's interest is in a problem of predication. When we predicate qualities of an object such as in 'the tulip is yellow', we have the idea of something which is over and above any specification of qualities, however exhaustive; one may lengthen the list but there remains, as an essential ingredient, the concept of a thing which is yellow, etc., and this is not yet captured. But of this thing nothing can be said except that its function is to support qualities. Thus according to this line of explanation, Locke is led to characterize substance in general as an obscure and general idea. 88

On the other side are those like Michael Ayers and John Yolton who believe that the clue to Locke's problem is his own self-described role as under labourer to the science of his time. 89 According to this view, Locke's

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way of explaining the idea of substance as obscure is not that, so divested of properties, substance can have no nature, rather it is the result of his association with the then scientific theories. Thus, the idea of substance is invoked to stand for whatever it is that explains the observable macroscopic properties of gold or lead. As Ayers describes it as ‘dummy concept’ Here the concept of substance is epistemological rather than ontological according to Ayers.

From the above analysis it emerges that substance is a concept which is understandable by the qualities it inhere. And according to Locke as real essence is unknowable, it is only by nominal essences we classify them into various kinds. And it is through this classification that one substance is different from another. In this context another question arises whether Locke advocates nominalism or not.

Regarding this question also, there are contradictory statements in the Essay. In chapter III, Section 1 of Book III Locke writes:

All things that exist being particulars it may perhaps be though reasonable that words, which ought to be conformed to things, should be so too, I mean in their signification. But yet we find the quite contrary.

Here we notice Locke’s nominalistic attitude. Only signs are general and they are general only by their signification. But though he professes that all things that exist are particulars, but at the same time he holds that all
knowledge of universal truths is founded in intuition. If we venture to find out the word intuition in the sense in which it was understood by Descartes it would be quite proper to describe Locke as an intuitionist since he believes that all knowledge of universal truths are either intuitive or derived from intuition. So he is not nominalist in the strict sense of the term.

Another issue is also there, whether Locke is a realist or not. Maurice Mandelbaum has argued “that Locke, like Boyle and Newton was an atomist”\textsuperscript{90} It is a fact that, there are world of physical objects according to Locke. \textsuperscript{91} The experience that we gather are the results of the action of physical objects upon us. Though in the fourth book of the Essay Locke do raises the question of how we can justify our belief in a world of objects lying outside or our experience however, neither here nor elsewhere he challenge the truth of that belief. As he remarks: “... I think nobody can in earnest be so sceptical as to be uncertain of the existence of these things which he sees and feels”.\textsuperscript{91}

It is in this context, Maurice Mandelbaum remarks “.. his realism was, I suggest an assumption which provided a framework within which his whole account of our knowledge was set”.\textsuperscript{92} This position can be substantiated by the opening paragraph of Draft A of the Essay:

\textsuperscript{90} Mandelbaum, op.cit, p.1.  
\textsuperscript{91} Locke, op.cit., p.229. vol.II.  
\textsuperscript{92} Mandelbaum, op.cti, pp.1-2.
I imagine that all knowledge is founded on and ultimately derives itself from sense, something analogous to it and may be called sensation which is done by our sense conversant about particular objects which give us the simple Ideas or Images of things and thus we come to have Ideas of heat and light, hard and soft which are no thing but the reviving again in our minds those imagination which these objects when they affected our senses caused in us whether by motion or otherwise it matters not here to consider, and thus we do when we conceive heat or light yellow or blue, sweet or bitter. 93

In even the last edition of the Essay where Locke raises the question of how we may justify our belief in the independent existence of physical objects, he uses the same framework to explain the origins of human knowledge. He says: ... No particular man can know the existence of any other being, but only when, by actual operating upon him, it makes itself perceived by him". He continues:

It is therefore the actual receiving of ideas from without that gives us notice of the existence of other things and makes us know that something exist at that time without us which causes that idea in us, ... 94

In support of the above Yolton comments: "As a body we rub shoulders with physical objects we touch objects immediately, that is, non-cognitively. As cogniser, we experience our world in the terms of appropriate awareness. The doctrine of ideas as epistemic signs of things is Locke's way of characterising our awareness of objects". 95 Yolton shows that for

93 Cited in Mandelbaum, p.2.
95 Yolton, op.cit, p.137.
Locke to know or to perceive an object means to be directly aware of object and one having the ideas simply points towards the mental process while we perceive or know.

But as we know Locke in his theory of perception clearly states that it is through the ‘ideas’ that we perceive, think or understand any thing. Mind knows things not immediately but through the intervention of the ideas it has of them.

Accordingly, Locke’s position is neither a strict nominalism nor direct realism. This section maybe concluded by saying that Locke’s use of the term of ‘idea’ involves ambiguity. And this is one of the reason that commentators varied in their position. The linguistic confusion played a crucial role here.

Section-IV

The Concept of Causality

Nature consists of changes. To explain this change both substance and causality are necessary, as the changes that take place in substance can only be understood by causality. In the preceding section, the concept of
substance has been dealt with, here attention is given to analyze the concept of causality.

The present section discusses the following issues:

i) It discusses the existing theories of causation prevailing at that time and Locke’s relation to them

ii) The concept of causation as developed in the Essay.

iii) The role of power in relation to causation.

iv) The polemic, whether Locke recognizes necessary causal connection or not.

The physical world that we see around is composed of particulars, both animate and inanimate objects. These particulars stand in spatial and temporal relations one to another, which relations are for the most part constantly changing. These particulars work in an interactive way, in that they causally affect one another. A basic problem for any enterprise which engages in categorical description is to understand this relation.

Now causality is a kind of relation. It is one of the complex idea that Locke discusses under the head of relation. It has been mentioned earlier that Locke divides complex ideas under three heads, viz, (i) modes, (ii) substances and (iii) relation. He defines relation as “the last sort of complex idea is that we call relation which consists in the consideration and
comparing one idea with another."\textsuperscript{96} And causality is "the most comprehensive relation, where in all things that do or can exist are concerned."\textsuperscript{97} Causality, which is one of the prime concept, can be understood only against the background of change which we experience as taking place in substance. It has been noticed in the previous section, that Locke's aim is to give philosophical foundation to science. With that end in view, Locke analyses causation which is one of the basic presupposition of scientific knowledge. Everything is causally interrelated in nature. Nothing happens without a cause. Law prevails everywhere.

Before giving detail of the theory of causation that Locke offers in the Essay, let us try to trace what are the existing theories of causation prevailing at that time and how they influence Locke in forming his idea of causation.

It is a common trend among philosophers to associate the problem of causation with Hume. But, philosophers are often troubled regarding the question of causal relations long back.

In the Seventeenth Century, the same kind of position as that of Hume is advocated by Cordemoy. In his book \textit{Discernment du corps et dela'me} which is divided in six discourses, Cordemoy (1666) deals with

\textsuperscript{96} Locke, \textit{Essay}, Yolton, Abridged, p.79.
\textsuperscript{97} Ibid., p.154.
mind-body problem. In the fourth discourse he gives a pivotal place to causation. He states,

'It is true we usually think that bodies cause each other to move. But here we go beyond the evidence given us in experience. When we say, for example that the body B has caused the body C to move from its place if we examine carefully what we know with certainty here, all we see is that B moves, that it melts C which was at rest, and after this meeting the first ceases to move and the second commences to move. But to say we know that B gives movement to C is in truth mere assumption.'

So, to Cordemoy, we see only certain movements of patches of colour but never B’s causal activity, that is we never observe any necessary causal connection.

Locke is quite familiar with Cordemoy’s Writings whom he mentions twice in his journals (once in 1678, he refers directly to this very book of Cordemoy).

Not only Cordemoy in the Writings of Galileo also, the idea of cause has acquired a new dimension. According to the scholastic conception causes are substances or things, while effects are either their activities or are other substances and things which are held to come about only by such activities. Galileo, on the contrary, traces the idea to the old Greek thinkers who applied the causal relation only to the states - that meant, now to the motions of substance not to the Being of the substance themselves. Causes

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98 Quoted from Aaron, op.cit., p.184.
99 Ibid.
and effects, both are motions. The relation of impact and counter impact of
the passing over of motion from one corpuscle to another, is the original
fundamental form of the causal relation; the form which is clear to
perception or imagination, is intelligible in itself, and explains all others.\(^\text{100}\)

Besides Galileo, Newton too deals with this notion of cause
extensively. Causes are defined as the powers, forces and properties of
bodies, deduced from phenomena. He recognizes two kinds of cause or
force in nature; the force of inertia, a real power inherent in matter, and
deduced from phenomena and the force of gravitation. Experimental
philosophy has proved the "cause" of motion to be the force of inertia, but
as yet has found only the law, not the "cause" of gravitation.

Locke, while forming his theory of causation get influenced by the
above scientific approaches which regards cause as a relationship between
phenomena.

In the early drafts, Locke explains the idea of cause and effect with
reference to the senses. The examples he offers of how we first come to
have this idea - by seeing fire melt wax or heat warms water or melt gold,
by seeing the loadstone move iron, and so on- are always of events
perceived by the senses; only the most casual mention is made of reflection
as a source of our idea of causality. In this stage, it seems that Locke has no

doubt in forming the idea of causal power from the senses, though he already held that they show us causal transactions only very imperfectly, since they do not usually give us knowledge of the modus operandi of causation.

Locke states:

I can have noe other certain undoubted knowledge of the constant connection of assigned causes and effects than what I have by my senses which too is but a grosse kinde of knowledge is noe more than this, that I see when I apply fire to gold it melts it; a loadstone neare iron it moves it,... of these I have noe knowledge of the modus operandi, the way how these effects are produced .i.e., how these simple Ideas viz, motion- in the iron, fluidity in the gold and consistence in the water are in these several objects produced, because these alteration being made by particles soe small and minute that they come not within the observation of my senses, I cannot get any knowledge how they operate, but only an informed by my senses that the alterations are indeed made from whence by the by we may take little-light how much in the information of our understanding we are beholding to our senses.101

Here Locke's position is similar to that of Glanville's view which he had taken in The Vanity of Dogmatizing. Our senses are not powerful enough to perceive how a cause works its effects, for such events take place at a microscopic level. Locke is familiar with Glanville’s Writings and later he develops this line of thought in the Essay.102

Coming back to Locke’s view in regard to causation which he develops in the Essay, it can be seen that he first mentions this concepts of causality in connection with power. He states:

*Power* being the source from whence all action proceeds, the substances wherein these powers, when they exert this power into act, are called *causes*; and the substances which there upon are produced, or the simple *ideas* which are introduced into any subject by the exerting of that power, are called *effects*.103

Here power is introduced as a simple idea. And the simple idea can be experienced according to Locke. Though the idea of power obtains priority of treatment to that of causality yet it is implied that of the idea causation is logically prior to that of power, since we can conceive the idea of power when we consider ‘in one thing the possibility of having any of its simple ideas changed, and in another the possibility of making that change’.

For this we only do when we have been led to conclude as the result of reflection on the constancy of our experience that ‘the like changes will for the future be made in the same things by like agents, and in like ways’.104 Power and cause are two notions which are very closely associated in Locke’s theory of causality.

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103 Locke, op.cit., p.130.
104 Ibid., p.105.
In the Essay Locke writes about the origination of cause and effect in this way:

In the notice that one senses take of the constant vicissitude of things, we cannot but observe that several particular, both qualities and substances, begin to exist, and that they receive this their existence from the due application and operation of some other being. From this observation we get our ideas of *cause* and *effect*.105

Here Locke defines causation in terms of production. In this context Locke defines cause “That which produces any simple or complex idea we denote by the general name cause, and that which is produced effect”.106 He states that we repeatedly observe that the action of heat on wax changes it from a solid to a liquid state, and that fire turns wood into ashes. We call the first a cause and the second as effect.

So in every material substance, there is some power through which one substance acts on another substance and thus brings changes about them. That is to say, we observe sequence, but mere sequence does not satisfy us, especially when the sequence is repeated. We proceed to convert sequence into consequence by means of the idea of power or cause or necessary connection.

Following this line, Hume later on criticizes Locke when he says:-

“Should anyone pretend to define a cause, by saying it is something

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105 Ibid., pp.154-155.
106 Ibid., p.155.
productive of another, 'tis evident he would say nothing. For what does he mean by production. Can he give any definition of it; that will not be same with that of causation?" 107

Hume's attempt to resolve the idea of necessary connection or consequences into that of repeated sequence is in effect, to deny that we can frame the idea of consequence at all. Here we just point out the fact that when Locke says whenever we see change 'we must collect a power somewhere' he acknowledges the necessity of the idea of causality to interpret the phenomena of change. Power brings the phenomena of change.

In this connection he relates all powers to action and distinguishes between two sorts of action, thinking and motion. He says:

let us consider whence we have the clearest ideas of powers which produce these actions. (1) of thinking body affords us no idea at all; it is only from reflection that we have that. (2) Neither have we from body any idea of the beginning of motion. 108

Here he makes a distinction between power and motion. "... motion is rather a passion than an action in it." 109 He continues,

...when a billiard ball follows the stroke of a billiard stick, it is not any action of the ball, but bare passion; also when by impulse it sets another ball in motion, that lay in its way, it only communicate the motion it had received from another, and loses in itself so much as the other received; which gives us but a very

107 Hume David. Treatise, p.77.
109 Ibid.
obscure idea of an active power of moving in body, whilst we observe it only to transfer, but not produce any motion.\textsuperscript{110}

Locke, in his analysis of causation reinforces Cartesian view that mind is active power and body as passive. Thus motion is not something inherent in the material bodies, instead it is produced whenever we will to do it. As he says:

...barely by willing it, barely by a thought of the mind, we can move the parts of our bodies which were before at rest. So that it seems to me, we have from the observation of the operation of bodies by our senses, but a very imperfect obscure idea of active power, since they afford us not any idea in themselves of the power to begin any action, either motion or thought.\textsuperscript{111}

From the above, Locke's position as an empiricist reveals very clearly, that is he even traces the origin of cause and effect from experience. i.e. from sensation and reflection. He remarks: "In which and all other cases, we may observe that the notion of cause and effect has its rise from ideas received by sensation and reflection and this relation, how comprehensive soever, terminates at last in them."\textsuperscript{112} According to him a relational idea is derived from experience, and in holding this he implies that a relational idea may be of something which one has not experienced previously, either in whole or in parts.

\textsuperscript{110} Ibid.
\textsuperscript{111} Ibid.
\textsuperscript{112} Ibid., p.156.
So far as causality is a relation between ideas, it is mental construction. But it depends upon a real foundation and that is power. Locke traces the origin of the ideas of power in the same way as he does with cause and effect. He spells out:

The mind...concluding from what it has so constantly observed to have been, that the like changes, will for the future be made in the same things, by like agents and the like ways considers in one thing the possibility of having any of its simple ideas changed and in another the possibility of making that change; and so comes by that idea which we call power. Thus we say fire has a power to melt gold... and gold has a power to be melted... In which, and the like cases, the power we consider is in reference to the change of perceivable ideas.\(^{113}\)

He distinguishes between active and passive power and ascribes the origination of power as its author god.

Here he shares his ideas with Newton, who in turn is influenced by Descartes. In Descartes' writing, god has a special role to play. He is the Prime Substance. Newton in his Prinicipia Mathematica, ascribes the concept of active power to god. According to him, the focus of attraction and repulsion are not natural powers of matter, but this power is given by God. But to Locke, we can acquire a clear and distinct idea of active power from the "reflection on the operations of our Minds." It is one of the active power of fire to change wood into charcoal, i.e., "to change the colour and consistency of woods". The power of wood to be burnt is a passive power.

\(^{113}\) Ibid., p.105.
Accordingly Locke identifies the idea of cause with a “power” in bodies capable of producing certain effects. These powers of Locke are equivalent of Newton’s “forces”. Just as Locke identifies “cause” with a power inherent in bodies to produce effects on other bodies or on minds, so Newton defines “cause” as the force in a mass to alter its velocity, or that of another mass. Locke takes “cause” as an inherent “power” or "force" to produce certain effects which are observable.

Here he is concerned to show that the idea of power extends no further than we can observe. And yet the idea has reference to what we don’t observe, a postulated something in agent and patient, lying behind the observed relationship between them. The idea of power, which is a simple idea, includes in it some kind of relation. He states:

I confess power includes in it some kind of relation (a relation to action or change) as indeed, which of our ideas, of whatever kind so ever, when attentively considered does not? For our ideas of extension, duration and number, do they not all contain in them a secret relation of the parts? Figure and motion have something relative in them much more visibly, and sensible qualities as colours and smells etc; what are they but the powers of different bodies in relation to our perception etc? All of which includes some kind of relation in them.\(^{114}\)

The idea of power is formed not through the observation of mere change but of repeated and regular change. According to Locke, the change is acquired to the mind by contact with things that almost behave in a

\(^{114}\) Ibid., p.106.
regular fashion in a given circumstances. It is because we regularly observe
the melting of gold whenever it comes into contact with fire that we
reasonably infer, fire is the cause of melting gold. This idea has universal
application. “Power become abstractly definable as “the source from
whence all action proceeds”. But the genesis of the idea arises purely
from experience, yet it presupposes not only the concept of causality but
there is a causal order—that events do not just happen, that experience is
experience of, and within a law-governed universe. He states:

Thus finding, that in that substance which we call wax, fluidity
which is a simple idea, that was not in it before, is constantly
produced by the application of a certain degree of heat, we call the
simple idea of heat, in relation to fluidity in wax, the cause of it,
and fluidity the effect.

One important point is to be noted in this connection -- behind the
ideas of both causality and power runs the ideas of active efficiency. Here
Locke, like Descartes acknowledges the active initiation of change behind
the ideas of causality. And Locke gives more importance to active power
and describe that it is ‘the proper signification’ of the word.

So causation is treated as real power or efficacy. His treatment of
causality makes it evident that it is the correlativity of cause and effect
which he has in mind. Power is the real thing behind both terms of this

115 Ibid., p.130.
116 Ibid., p.155.
relation Locke narrates: "We cannot but observe that several particulars both qualities and substance begin to exist; and that they receive their existence from the due application and operation of some other being."117

Again, "...a cause is that which makes any other thing begin to be; and an effect is that which has its beginning from some other thing"118 In other words, while the mind gets the ideas by comparison, what it compares is the action and reception of power. So here he makes the power dependent upon substance. Unless there is substance, there cannot be causal relations and it depends on power.

Locke maintains that a clear idea of the nature of activity can only be derived from our experience in willing. For if we examine closely the qualitative change which take place in physical things we find, they convey no idea of the nature of any activity by which they are affected. As Locke confesses, we know nothing of the "modus operandi". All that we can observe is the effect produced but not the action by which it is brought out. He states in the connection:

when a countryman says the cold freezes water, though the word freezing seems to import some action, yet truly it signifies nothing but the effect; viz, that water, that was before fluid, is become hard and consistent, without containing any idea of the action whereby it is done.119

117 Ibid., pp.154-155.
118 Ibid.
119 Ibid., p.131.
Locke describes the above event as qualitative change which is the result of movement among the minute particles of which bodies are composed. Here Locke's theory is influenced by the corpuscular theory of his time. It is by observing change and alteration, coming into existence and ceasing to be as well as our reflection on the change and flow of ideas and thoughts in our mind, that we come to the dual motion of the possibility of being changed and of making change. This dual idea is the idea of power. Active and passive powers are involved in all types of cause.

Locke distinguishes four different types of cause in the physical world creation, generation, making and alteration. Locke defines creation in this way: "when the thing is wholly made new so that no part there of did ever exist before; as when a new particle of matter doth began to exist, in rerum natura, which had before no being, and this we call creation."\footnote{Ibid., p.155.}

His account of the process of generation refers to an internal principles when a man, an egg, a rose is 'produced in the ordinary course of nature by an internal principle, but set on work by, and received from some external agent or cause, and working by insensible ways which we perceive not, we call generation. When the cause is extrinsical, and the effect produced by a sensible separation or juxtaposition of discernible parts, we call it making, and such are all artificial things. When any simple idea is
produced which was not in that subject before we call it alteration. Thus a man is generated, a picture made; and either of them altered, when any sensible quality, or simple idea is produced in either of them, which was not there before”.121 We may note here, what we know these changes comes through ideas.

Here also Locke says that to acquire the idea of cause we do not need to know "the manner of that operation, which creates, generates or alters. Too much effort spent in trying to “penetrate in to the causes of things”122 can lead us to accept hypothesis too hastily without solid foundation. We see all sorts of changes and productions ..."animals are generated, nourished and (we see them) move.”123 We see “the parts of a candle successively melting and we witness the loadstone attracting iron. But “the cause that operate, and the manner they are produced in, we can only guess and probably conjecture.”124 That there are “regular proceedings of cause and effect in the ordinary coarse of Nature” he firmly accepts. Here Locke’s concept of causation is analogous to Aristotle’s theory of causation where he also accepts four types of cause viz, material, formal, final and efficient. The efficient cause of Aristotle plays the role of active power in Locke.

121 Ibid., pp.155-156.
122 Ibid., p.354.
123 Ibid., p.364.
124 Ibid., pp.364-365
The question that confronts now is, whether the facts of movement in bodies, as observable by our senses contain any element which can be regarded as the source of our idea of activity. Locke comments, ‘the only way we can conceive bodies operate’ is by impulse or impact and though it is easy to comprehend this fact but the way in which motion is communicated by impulse is incomprehensible.

According to Locke, there must be causal connection between bodies but we can never know them, because we cannot discover the real essence of substances. Since we cannot penetrate to the inner constitution or atomic structure of bodies, we cannot perceive the necessary connection of any of these powers with each other or with the effects they provide. All we can perceive is the effect but we can perceive no necessary connection between bodies and their effects. In this context, he says that though causes work steadily and effects constantly flow from them, yet it is not possible to discover their connections and dependencies. We can have only but an experimental knowledge of them.

Later, Hume follows this trend of Locke and contends that since experience reveals to us only the constant conjunction between cause and effect, we cannot claim any necessary connection between them.
But Locke, like Hume does not deny that there are necessary connection in nature; what he denies is that we cannot penetrate into the internal constitution of things.

Regarding the view whether Locke recognizes necessary causal connections, there is a debate among commentators which gives two opposing views. According to Robert J. Roth, a contemporary philosopher, Locke, while discussing the concept of power shows that there is no necessary causal connection between cause and effect. In support of his view, R. J. Roth gives the following arguments of the Essay. The basic reason is that we do not know real essences, that is, the minute particles of body. Moreover, we cannot discern any necessary connection between the particles and their powers. We cannot be certain that a body on one occasion produced a given effect through one of its powers will produce the same effect on another occasion. As Locke states that we do not know for certain that rhubarb will purge, hemlock will kill or opium will induce sleep. A few instances may show that such bodies produce the indicated results, but we cannot be certain that they will do so at another time.  

Against this view Brian Carr, another contemporary philosopher argues that Locke's position involves a necessary connection between a

cause and its consequence; that is the belief that consequences must follow from their causes. For example, fire has a power to melt gold, so that placing a piece of gold in a fire results in its melting; but this consequence does not just happen to follow, it cannot but follow. Gold must melt when fire is applied to it.

Moreover, Brian Carr states that, according to Locke, the effect of any cause is necessitated by it in a very strong sense. For example, if we knew the real constitution of fire, we would see that gold placed in it must melt, like the properties of a triangle which are deducible from the complex idea of three lines including a space. If we knew the real essence of any substance, we could deduce its effects; we would see what consequences it must have on other things.\footnote{Carr, Brian, \textit{Metaphysics}, Macmillan, 1987, pp.76-77.}

In reply to the above polemic, we may say that it is true that in the Essay Locke does not give any analysis of the necessary causal connection. For him, there exist the notion of intuitive certainty and the mind apprehends the necessary connections between ideas. He deals with the question of the possibility of knowledge of the necessary co-existence of qualities in the same substance, but regarding necessary causal connection he does not state anything explicitly. As Gibson remarks:

\begin{quote}
The problem however, in this form, is not one, which greatly occupied Locke's thought. The justifiability of assertion of
\end{quote}
necessary connections among matters of fact, which for Hume, the central crux of the question of causation, presented itself to Locke, as the question of the possibility of a knowledge of the necessary co-existence of attributes in the same substance.\textsuperscript{127}

But from all this, it does not follow that he denies necessary causal connections. In fact, Locke's concept of causality is related with his concept of substance. Just as we cannot know the real essences of substance, similarly Locke argues though there exist necessary connection in the ideas of cause and effect we cannot observe it. We can only see the constant conjunction of one event following the other. That Locke recognizes necessary causal connection between cause and effect is most explicitly stated in the course of his controversy with Stillingfleet. Locke holds: 'Everything that has a beginning must have a cause' is a true principle of reason or a proposition certainly true; which we come to know by contemplating our idea and perceiving that the idea of beginning to be is necessary connected with the idea of some operation, and the idea of operation with the idea of something operating, which we call a cause; and so; the beginning to be is perceived to agree with the idea of a cause, as is expressed in the proposition.\textsuperscript{128}

\textsuperscript{127} Gibson, pp.110-111.
\textsuperscript{128} Ibid., p.148.
It is a similar necessity, which compels us to refer the data of experience to a substratum, since we find ourselves unable to conceive them as self-subsisting or as merely dependent upon one another. Therefore, like substance, necessary causal connection cannot be given directly in experience what can be given directly are the simple ideas. The change that we find in the physical world are real and the ideas of causality and power can be seen to be necessary for the comprehension of that change.

In fact, as an empiricist, Locke derives the idea of cause and effect from experience, but at the same time he is not satisfied with a mere sequence theory. The difficulty arises because he thinks that there is a reality beyond the idea manifest to us, but it is a reality about which it is not possible for him to say anything clearly in terms of his representationalism.

In conclusion, we may say, that though Locke recognizes the necessary causal connections, yet like the real essences of substances, it is not possible to observe this necessary causal connection. Though Locke has shown that our ideas of both substance and causality originate in experience, he holds at the same time that experience cannot constitute the logical justification of these concepts viz. substance and causality. And this position makes him neither a consistent empiricist nor a consistent
rationalist, as he steps down from the arena of experience and tries to accommodate things, which are beyond our observation.