

Propositioning Investigative Historiography as a Niche Subfield within Twenty-First Century Historiography: Making a Case for Investigative Historiography in Twenty-First Century Social Sciences

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Abstract:- This is our fifth paper on twenty-first century historiography. In the first paper, which was published by us in the year 2015, we had defined and set forth the core objectives of what we called twenty-first century historiography. In the second paper published by us in 2016, we had postulated the core principles of twenty-first century historiography. In the third paper published by us in 2018, we had had introduced the concept of Anthropological Historiography wherein we had sought to integrate history with pre-history and proto-history much better. In the fourth paper on qualified historiography published by us in 2022, we had tried to explain how historiography could be dealt with in the case of the unreliability and uncertainty of narratives. In the present paper, we put forward a case for investigative historiography which can be developed as a niche area well within mainstream twenty-first century historiography. The objective of this niche sub-field would be to lay bare the tools, techniques and the scientific methods that could be employed and put to use in carrying out historical investigations. Some of these tools and techniques may already exist and may already be in use, but we put forward new approaches keeping in mind the overall philosophy of twenty-first century historiography. Of course, the outputs of investigative historiography would provide crucial inputs into mainstream twenty-first century historiography, and investigative historiography would be an essential cog in the wheel of historical and scientific research.

I. INTRODUCTION

This is essentially our fifth paper on twenty-first century historiography, and is an integral part of a completely new approach we have proposed for the field of historiography in all its myriad dimensions and manifestations. In the first paper in this series, which was published by us very early in the year 2015 and dealt with Historiography by Objectives, we had set forth the core objectives of twenty-first century historiography, which numbered thirty-nine in total. The name of this paper was “Historiography by Objectives: A new approach for the study of history within the framework of the proposed

Twenty-First Century School of Historiography”, and in this paper, we had allowed for other scholars to define their own additional objectives in addition to the core objectives that we had defined. In the second paper published by us the following year in 2016, we had postulated the core principles of twenty-first century historiography. The name of the second paper was “Enunciating the Core principles of Twenty-first Century Historiography: Some additional extrapolations and inferences from our studies and observations on Historiography.” In the third paper published by us two years later in 2018, we had proposed Anthropological Historiography wherein we had sought to integrate history with pre-history in its entire scope, and proto-history much better, and had proposed and formulated an additional forty-nine objectives. The name of this third paper was “Introducing Anthropological Historiography as an integral component of Twenty-first Century Historiography: The role played by Anthropological Historiography in the attainment of long-term Anthropological goals and objectives.”

In the fourth paper on qualified historiography published by us several years later in mid 2022, we had tried to explain how historiography could be dealt with in the case of the uncertainty and unreliability of narratives. The name of this aforesaid fourth paper was “Presenting the art and the science of Qualified Historiography: Anchoring history-writing in the event of uncertainty and unreliability of narratives.” In the present paper which is the fifth in our entire series, we put forward a case for investigative historiography which can be developed as a niche area within twenty-first century historiography. The objective of this niche sub-field within twenty-first century historiography would be to lay bare the tools, techniques and the scientific methods that could be employed and put to use in carrying out historical investigations. Some of these tools and techniques may already exist and may already be in either limited or widespread use, but we put forward new approaches keeping in mind the overall philosophy and direction of twenty-first century historiography. Thus, this work is essentially liminal in nature, and spans both the old and the new. Of course, research is already a vital component and aspect of already existing schools of

Historiography, and this has already been elaborated and elucidated upon by B. Sheikh Ali and others. However, we take these already pre-existing proposals to their logical conclusion, and integrate it better with the principles and tenets of twenty-first century historiography.

Of course, the outputs of investigative historiography would provide crucial inputs into mainstream twenty-first century historiography, and investigative historiography would be an essential cog in the wheel of historical and scientific research. As such, it is expected that investigative historiography would be widely and commonly used in twenty-first century historiography (much more than it ever has been in the past) given that much of contemporary and future historical endeavour would have an investigative component and a research element too. Of course, this is by no means a rigid rule, but since research techniques may be often be used in the field of historiography as well, we believe that the science and art of historiography must be better integrated with the principles and postulates of general and social science specific scientific method and research principles pertaining to historiography as well. The content of this paper is by no means expected to be rigid, and other scholars and researchers must contribute in a big way to this nascent and emerging field too. As a part of this paper, we have also pre-identified some areas where these approaches and techniques can be fruitfully and gainfully employed, though other scholars would be expected to add new topics and areas of study to the list. We also hope and expect that the term “Investigative historiography” would become as much of a catch-phrase as “Investigative journalism” currently is, and become just as widely used.^{1 2 3 4}

➤ *What is Research?*

Let us begin this paper with a very important definition of research as it applies to this field of study. According to the eminent Indian historian B Sheikh Ali who passed away

¹ Historiography by Objectives: A new approach for the study of history within the framework of the proposed Twenty-First Century School of Historiography Sujay Rao Mandavilli ELK Asia Pacific Journal of Social Sciences Vol 1, Issue 2 (2015)

² Enunciating the Core principles of Twenty-first Century Historiography: Some additional extrapolations and inferences from our studies and observations on Historiography Sujay Rao Mandavilli ELK Asia Pacific Journal of Social Science (ISSN: 2394-9392) in Volume 2, Issue 4 July to September 2016

³ Presenting the art and the science of Qualified Historiography: Anchoring history-writing in the event of uncertainty and unreliability of narratives Sujay Rao Mandavilli IJISRT Volume 7, Issue 7, July 2022

⁴ Introducing Anthropological Historiography as an integral component of Twenty-first Century Historiography: The role played by Anthropological Historiography in the attainment of long-term Anthropological goals and objectives International Journal of Innovative Science and Research Technology, February 2018, Volume 3, Issue 2 Sujay Rao Mandavilli

recently, “Research is an activity undertaken to bring out something new, to extend or broaden the horizons and diversity of human knowledge and to contribute some new or an original idea. Research is an attempt to carry out a diligent and systematic inquiry or investigation into a subject, in order to discover facts or revise the known facts, or put the facts into theories.” There can be very little doubt that all the astonishing progress mankind has made in the past several centuries has been born of systematic and structured inquiry. Inquiry is also born of healthy scepticism, and a thirst and appetite for knowledge, innovation and creativity is the foundation and the cornerstone for success in almost any field of inquiry. (Wilkinson and Bhandarkar, 1979) The very commonly and widely used English word “research” is said to be derived from the Middle French verb infinitive “rechercher”, which essentially means “to research” (it’s antecedents can therefore be traced all the way back to the year 1577) and is also said to be composed of two syllables, namely “re” (or again) and “search”. (Thyer, 2001) A broad but very basic and simple definition of the term research has also been given by Martyn Shuttleworth “In the broadest sense of the word, the definition of research includes any gathering of data, information and facts for human progress and the advancement of knowledge”. We have presented several other definitions of research in our previous papers, and it is pointless and futile to repeat them here.

Thus, the term research popularly refers to a very careful, systematic, meticulous, methodological, structured and often very detailed study or investigation, or a structured inquiry in a specialized field of knowledge or a branch of scientific endeavour or activity, usually and typically undertaken in order to establish facts or principles, to ratify new data against established facts or principles, or to derive and formulate new theories. A standard or a researcher-defined scientific methodology is used as a part of research, and this includes processes, procedures, methods, frameworks, methodologies tools, instruments, techniques and philosophies, and is usually employed to solve often complex or intractable real-world problems, understand a phenomena thoroughly, and explore new avenues for knowledge creation or knowledge extension. These frameworks and processes may also vary based on the field of study, though they are more often variations of the same theme. Research also almost always creates new knowledge, or extends existing knowledge in newer and more meaningful ways, and in new vistas and directions. Research may also replace old and outdated knowledge with new knowledge whenever the need arises, and whenever new knowledge is available.

A good research must have universal applicability, and a researcher must be objective, unbiased, ideology-free, meticulous, and must be open to new ideas. He must also possess wide-ranging knowledge in all relevant streams of knowledge, and must possess knowledge in scientific and research methodology as well. A researcher must also possess a long-term vision and a plan for action. Research makes use of data, and data is also collected from many sources such as fieldwork and literature. Thus, research

almost always involves a critical scrutiny and analysis of large masses of data, but from the perspective of historiography, may also include a deep-rooted and systematic analysis of events too. It must also be carried out under controlled conditions, must be replicable, and must have universal validity. It must be reliable, and assumptions must be kept to the barest minimum using the principles of Occam's razor. Thus, the outcomes of research activity must also always be dependable, reliable, credible, repeatable, testable, verifiable, reproducible, transferable to other contexts and situations, and inherently and innately self-correcting.

Research must also follow some method or process, and research must not be random or ad-hoc. (Dawson, Catherine) Therefore, all conclusions reached must have an empirical basis, and hunches and guesswork must be avoided at all costs.. It must also encompass an investigative element, and this is a core requirement of this paper. Historians must also collaborate with other researchers, scientists and specialists such as archaeologists, anthropologists and geneticists, and this kind of collaboration has thus far been sorely lacking. We had also proposed the term "Horizontal collaboration" in another paper. For a more detailed discussion of the term research, refer our papers on the 'Sociological Ninety ten rule", and the "Certainty Uncertainty principles". In these two papers, we had also provided definitions of the term research by other researchers, and had also discussed social science research in brief, of which historical research unquestionably and undeniably forms a part.^{5 6 7}

Let us however, attempt to recapitulate our understanding of social sciences research. Many researchers have attempted to accomplish a definition of social sciences research. For example, according to the eminent researchers LV Redman & AVH Mory: "Social sciences research must be defined as a scientific undertaking which through the use of logical and systematic techniques aims to either discover entirely new facts or verify and test old facts, analyze their sequences, interrelationships, interdependencies, and casual explanation which were derived within an appropriate theoretical frame of reference, and also to develop new scientific tools, concepts and generalizations and methods which could be used to facilitate reliable and valid study of human behavior." (Mory 1934) Herbert Blumer states with regard to Social Science research: "Nevertheless, it must be stated that sociological research is primarily committed to

establishing systematic, reliable and valid knowledge with regard to the social world." (Blumer 2010) The eminent author John W Best even goes as far as to say that social sciences research is the cornerstone of all meaningful progress in the social and cultural worlds, and can help push back and eliminate the "veils of ignorance", "discover much newer and better ways of doing things", and "help man progress in cultural development". (Best 1995) According to social science researchers Eric Hylla, Stephen M. Corey, Lundberg and others, social science research must be based on experiential or lived knowledge, and may rarely lend itself to predominantly statistical and mathematical processes and methods.

The Sociologist Robert Morrison MacIver has also gone on record stating that Social science research has suffered greatly from the attempt to make it conform to methods used in other forms of Research, and that scholars must attempt to put an end to this unhealthy practice. This is a view that we also endorse, but we have also additionally observed that social science research activity must also become more global in nature. Gail J. Mitchell also emphasizes the importance of qualitative research in the social sciences, and states that even in the work of the most statistically minded, qualitative analysis must have a prominent pride of place, and must be used commonly in all theorizations and generalizations. (Mitchell 1993) Another social scientist by name Symonds strongly asserts that research can never be reduced to a mechanistic process, and the usage of any mechanistic approach can be highly self-defeating. Karl Popper and others have also warned against the use of a rigid and an overly structured method, calling it also self-defeating. We have always emphasized that qualitative research must take precedence over quantitative techniques in social science research, though there has been an unfortunate tendency to use statistical and mathematical tools and analysis in social science research even where the usage of such tools and techniques are not necessary, or do not make sense. We also wholeheartedly endorse all these statements and observations made above; these comply with the basic philosophy of our work that has been carried out over the past two decades almost. Qualitative research techniques, and qualitative research techniques alone can be primarily used in historical research, and this would more or less be an universal observation made by virtually even scholar from across the world. (Rocco, 2011)^{8 9}

Research is commonly categorized into two very broad categories, namely pure research and applied research. Pure research, which is also known as basic research or fundamental research (or sometimes theoretical or

⁵ Eliyahu M. Goldratt, Jeff Cox. *The Goal: A Process of Ongoing Improvement*. (1984). North River Press; 2nd Rev edition (1992). ISBN 0-88427-061-0; 20th Anniversary edition (2004) 0-88427-178-1

⁶ Unleashing the potential of the 'Sociology of Science': Capitalizing on the power of science to usher in social, cultural and intellectual revolutions across the world, and lay the foundations of twenty-first century pedagogy Sujay Rao Mandavilli *Elk Asia Pacific Journal of Social Science*, October – December 2020

⁷ *History-Its Theory and Method (2/e) Paperback – Illustrated*, 1 December 2022, by B. Sheikh Ali (Author)

⁸ Unveiling the Sociological Ninety-ten rules for Social Sciences research: Towards better hypothesis formulation in the Social Sciences in the interests of higher quality research and intellectual multi-polarity Sujay Rao Mandavilli Published in *IJISRT*, February 2023

⁹ Elucidating the Certainty uncertainty principle for the Social Sciences: Guidelines for hypothesis formulation in the Social Sciences for enhanced objectivity and intellectual multi-polarity Sujay Rao Mandavilli

foundational research), often involves proposing, further investigating and testing new theories and hypotheses in order to build on to a body of knowledge, but whose practical application are usually not completely clear at the present time. Thus, pure or foundations research only tries to understand phenomena, but does not seek to understand how these phenomena can be used in daily life. This is unlike applied research which is used to solve practical, societal or real-world concerns and issues, but uses basic or theoretical research as its foundation and basis. (Rajasekar 2006) (Creswell, 2008)^{10 11}

Descriptive research: Descriptive research seeks to describe a population, phenomenon or event, systematically and accurately. It can answer questions such as “what, where, when and how” questions, but seldom why questions. A descriptive research design may use different kinds of research methods in order to investigate one or more variables, without modifying or manipulating them in any form. It also usually involves collection of data on a systematic basis.

Co-relational research: In the case of co-relational Research, which is characterized as a type of non-experimental research method, the researcher takes the measurement of two variables, and then proceeds to examine the statistical relationship between the two, to identify any possible patterns in their relationship, and to understand the cause and effect mechanism, if it exists. It also seeks to predict changes in the dependant variable, based on changes in the independent variable, with positive, negative, non-existent or curvilinear co-relation. This type of research is sometimes also referred to as causal research or cause and effect research.

Explanatory research: Explanatory research, however, is a type of research whose objective is to seek to explain why events occur, and also to build, elaborate, extend or to test a theory or a hypothesis. This type of research seeks to identify explanations for issues.

Exploratory research: Exploratory Research is a type of research which involves a search or a quest for new things, objects, places, or cultures. It leads to a better understanding of a problem which is not clearly defined. In case of exploratory research, a researcher often begins with a general idea and uses this research as a platform or basis to identify other issues that can be used for future research.

Quantitative research: Quantitative research is based on extensive measurements and uses statistical and mathematical processes extensively. It also includes in its scope quantification of unquantifiable data. Quantitative

methods are extremely popular not only in the physical sciences, but also sometimes in the social sciences.

Qualitative research: Qualitative research is mostly pre-occupied with qualitative phenomenon involving qualities that are abstract, intangible, and difficult to measure. It is non-numerical, descriptive, but may also include logic and reasoning to make its case, and to further investigate phenomena such as causality. Some amount of subjectivity may also be involved in this kind of research. Qualitative research includes methods such as questionnaires, interviews, focus group discussions, and ethnography (also known as field research as opposed to laboratory research), and such techniques mainly gather non-quantifiable data. Qualitative data may subsequently be quantified using quantification techniques, or through objectivization.

Longitudinal research: Longitudinal studies are a type of co-relational research in which researchers observe and collect data pertaining to a large number of variables over a extended period in time. In a longitudinal study, researchers may repeatedly examine the same set of individuals a very large number of times in order to detect any possible changes that might have occurred over this period in time. Examples of this category are historical, Case study and Genetic research. Trend analysis, panel study and cohort study may also be included under this category.

Descriptive research: Descriptive research includes carrying out surveys and other types of fact-finding exercises. The most common and obvious objective of descriptive research is to describe an existing state of affairs of a subject or entity at a given point in time.

Analytical research: In analytical research, on the other hand, the researcher uses facts or available information, and analyzes these facts in order to make decisions or judgments, and to arrive at specific conclusions.

Cross-sectional research: A cross-sectional study is another type of research design in which data is collected from many different individuals at a single point in time. Types of research falling under this category of research are Experimental and Survey Research.

Conceptual research: Conceptual research is associated with theoretical ideas, pre-suppositions and conceptualization, and is widely used by philosophers and critical thinkers while developing new concepts and refining and developing an existing concept to a greater degree of perfection. Philosophical Research is purely qualitative in nature and seeks answers to philosophical questions.

Empirical research: Empirical research which is also known as experimental research, is another data-based approach which gathers data based on experience or observation, and relegates theories and concepts to the background. Such research can be subsequently be accepted, refined further or even rejected, based on further observations and experiments.

¹⁰ Presenting the ‘Structured and Annotated Participant-driven Appraisal’ technique in *Ethnography: Towards the universal realization of Multivocality in Ethnographic studies* Sujay Rao Mandavilli ELK's International Journal of Social Science Vol 4, Number 4, 2018

¹¹ *Research Methodology: Tools and techniques* Dr. Prabhat Pandey Dr. Meenu Mishra Pandey © Bridge Center, 2015

Structured research: Research is also often classified into two streams, namely structured research and unstructured research. In case of the former which is less commonly referred to as fixed research, all aspects of the research process including objectives, design, samples, and research methodology are rigidly predefined and predetermined, and there is often very little flexibility in subsequent, downstream change or modification.

Unstructured research: The unstructured approach, on the other hand, allows for a great flexibility in various aspects of the research, as there is very little formal upfront definition. Changes to the approach are easily made as the research progresses.

Research is also broadly classified into inductive research and deductive research. In the case of the former, a phenomena is observed, and sought to be tested further using additional data. In the case of inductive research, a large number of phenomena are studied in different contexts and situations, and generalizations are sought to be made. Thus, deductive research moves from the general to the specific, while inductive research moves from the specific to the general. We have always championed the cause of inductive research, and we believe this must be widely used in historical research and analysis too. Thus, covering laws may rarely exist in history.

Historical Research is therefore both qualitative as well as quantitative in nature (though primarily qualitative) and deals with the analysis and study of past events. It also makes use of all the different types of research techniques and philosophies described above, but to varying degrees. It involves aspects such as Identification of origin date, evidence of localization, recognition of authorship, analysis of data, Identification of integrity, and attribution of credibility. Of course, many other types of research specified here and elsewhere can also be meaningfully and productively be used in historical research. The tools and techniques to be used can vary widely from researcher to researcher.

Other types of research include action research which can be used to make people's lives better, comparative research which can be used to compare objects, documentary research which refers to the analysis of documents (hermeneutical study), cross-cultural research design which seeks out multi-cultural perspectives actively, and classification research which seek to classify objects into classes. Some other types of research are Conclusive research (used to draw conclusions regarding specific phenomena), modelling research (Research that is used in modelling, and Algorithmic research (uses algorithms to solve problems). These can be of limited use in carrying out historical research. These types of research have a very small and negligible bearing on historical research, but can be used nonetheless in specific contexts.¹²

¹² Scott, J. 2006, "Documentary Research" London, Sage Publications Ltd. ISBN 978-1-4129-0817-7

➤ *Scientific Method*

The scientific method is a very widely and commonly used method for acquiring and building on knowledge, and that is characterized by what is known as empiricism. Empiricism is a doctrine which states that all experience is derived from the senses and from sensory experience. Epistemology which is the science of knowledge or justified true belief also greatly guides scientific method. Scientific method is also related to the philosophy of science which decides what constitutes genuine science, and what does not constitute genuine science.

Scientific method has greatly moulded and guided progress in science directly for some four hundred years now, ever since the dawn of the seventeenth century, and indirectly, for much longer. (It must be noted that the Ancient Greeks, particularly Aristotle, and to a lesser extent, Socrates and Plato, contributed significantly to scientific method and logical reasoning, further development in scientific method is widely attributed to much later philosophers such as Rene Descartes, Francis Bacon, Sir Isaac Newton, and others (including some Islamic golden age thinkers) who developed and expounded upon concepts such as rationalism, inductivism and empiricism. Scientific method involves careful, systematic and meticulous observation, gathering of evidence, data modelling and sampling, exhaustive and extensive primary and secondary literature review in order to understand the current body of knowledge and expand upon it. A large number of other tools and techniques such as biography studies, portrait studies and ethnography are also sometimes employed. Scientific method also includes the application of rigorous skepticism and the elimination of personal biases and prejudices of various kinds through the openness to consider all kinds of evidence, either for or against a point of view, and the meaningful usage of dialogue and open debate with all stakeholders.

Scientific method also almost always involves the formulation of hypotheses (which is a proposed explanation for a phenomenon, and is also testable, verifiable or falsifiable. It also employs the principles of parsimony and conservatism), though the use inductive approaches, or the use of the hypothetico-deductive method. Another approach that is used is the deductive-nomological model. According to this approach which was proposed by Hempel, a given phenomenon is explained by deducing its description from a law and then adding a more detailed description of the specific circumstances in which the phenomenon occurs. Nomological approaches are used to discover and formulate laws that can be used in a wide variety of circumstances. We had also proposed the principle of exceptionism in our paper on the Sociological ninety ten rule.

Hypotheses are based on observations and some evidence or proof and not just hunches or conjectures. Initial hypotheses are refined into working hypotheses (a hypothesis that is provisionally accepted, and used as a basis for further research) and then into much more detailed hypotheses. These then are developed into much more robust theories, wider conceptual frameworks, and then into

universal principles or laws. Scientific method consists of a series of steps, which can be somewhat similar to each other, though processes may vary more widely either within or across disciplines. Different researchers may also prefer different tools and techniques, and use their own custom methodologies. More recently, many philosophers of science, examples being Thomas Kuhn and Paul Feyerabend, have argued against a fixed, rigid, pre-defined and an unmodifiable scientific method in favour of a more free-form or a context-specific approach, and other philosophers of science such as Karl Popper have also called for empirical falsification as the basis for most scientific activity. This is stark contrast to Karl Pearson's doctrine of scientific method as being rigid, pre-defined and essentially the same for all fields of research.

The common and more widely practised or employed steps in scientific method for most fields of scientific activity are the definition or formulation of a research problem or question, development of a preliminary or working hypothesis or a set of hypotheses including the definition of both independent and dependant variables, (In statistical research, the concepts of null and alternative hypotheses, and the concepts of acceptance or rejection of null hypothesis are sometimes used) further observation and refinement (or extension or reduction in scope) of a hypotheses based on additional data, making more and more observations, further detailed testing and analysis, and the eventual acceptance or rejection (or enhancement or modification of) of the hypothesis. Variations in the process of scientific inquiry are however common, and not all researchers would adhere to these steps in toto. A rigid interpretation of scientific method is not desirable either, and most certainly not for the social sciences.^{13 14}

➤ *Historical Method*

The historical method encompasses the tools, techniques and guidelines by means of which historians use historical sources and other collected and gathered evidence in order to research and then to compose historical narratives. These tools and techniques are collectively referred to as historiography. Historians primarily depend on primary sources or original sources, secondary sources, and material evidence. Material evidence is gathered from archaeological evidences, and archaeologists are naturally specialists in their field. Thus, a historian must also collaborate with archaeologists wherever necessary, and archaeologists are involved in a deeper study of archaeological data (brick, or bones or data obtained from a study of other branches of study such as anthropometry, numismatics, paleography, sedimentology and palynology). They however provide historians with crucial and critical data. Historians may also collaborate directly with anthropologists, forensic experts, and geneticists, though this is still relatively rare. A historian may also collaborate with other subject matter experts such as scientists,

automotive experts and criminologists as the case may be if the nature of his (i.e. the historian's) work is highly specialized. The historical method is itself a valid field of epistemological inquiry, and must be robust and sound. The historical method, even when and where it varies, must not be above and immune to criticism.

Historical research method is commonly and widely practiced by all historians from across the world regardless of their philosophy, orientation and affiliation. It is followed in some form or degree by Positivists, Empiricists, scholars owing allegiance to the Rankean tradition, the Postivist-Empiricists, and Classical Marxists among others.. However, methods followed by Marxist historians in India are highly suspect as there is wide-ranging criticism on this score, while Hindutva demagogues probably do not follow any method at all, basing their works on the desire to boost nationalistic or sectarian pride. This is a reflection of the scientific immaturity in India. People either follow set ideas and patterns of thought, or take recourse to ancient tradition. There is very little by way of critical thought or analysis not only in India, but also probably in other developing countries as well. This is why we are authoring a paper titled "Investigative historiography" as a part of our globalization series. However, there could be exceptions. For example, Ramachandra Guha, the biographer of Mahatma Gandhi, and the chronicler of the freedom struggle has used the tents of investigative historiography to a fair degree, as has also Vikram Sampath more recently. The Indian civil servant the late FE Pargiter's 1922 work "Ancient Indian historical tradition" was noteworthy (though it was based on a rather limited archaeological evidence and based primarily on textual evidence) but was not taken up as the basis for further downstream investigative research. He was also not an Indian.

A study and interpretation of texts is referred to as hermeneutical study or document study, and this is a diverse and vibrant well-established field of study. There are many different guidelines that are often used by historians for study of texts, and these include external criticism (authenticity of the document), internal criticism (determining of the document and the content of the document is accurate), and synthesis. Historical criticism, (which is also often known as the historical-critical method or higher criticism), is a branch of criticism that investigates the origins of ancient texts in order to understand "the world behind the text", and the circumstances under which the text was born.

The provenance of the documents is also critically investigated along with the possibility of tampering with the source data. Lower criticism on the other hand is known as textual criticism, and a criticism of the text. All these criticisms are a part of textual criticism and textual scholarship. The basic underlying concepts of textual criticism were already known and used a few thousand years ago in some form, but its principles were formalized as a scholarly set of rules only in the nineteenth and twentieth centuries, chiefly by the eminent German scholars Friedrich Wolf, Immanuel Bekker, Karl Lachmann, and Paul

¹³ Achinstein, Peter, 1983, *The Nature of Explanation*, New York: Oxford University Press.

¹⁴ Friedman, Michael, 1974, "Explanation and Scientific Understanding", *The Journal of Philosophy*, 71(1): 5-19

Maas. Paul Maas published some of these principles in his influential and seminal book *Textkritik* which was published in 1927. However, other scholars such as Joseph Bédier, A. E. Housman and Henri Quentin have criticized these efforts.¹⁵

According to Paul Maas, the process of textual criticism contains three stages namely, recensio, examinatio, and emendatio. Thus, all the available textual material is thoroughly and critically examined, and changes if any, to the original material is examined. Sometimes. The term palimpsest is used to refer to overwriting on the original in hermeneutical studies. Tests such as a radiocarbon dating are used in order to provide a range of dates for the text. Radiocarbon dates can however be used only on some materials, and this approach has its own limitations. The entire process of research allows a scholar or historian to reconstruct as original a state of the text as possible, by annulling later modifications. The science of epigraphy is sometimes used to study inscriptions which may be logosyllabic or ideographic in nature, and has been in use for several centuries. There are many techniques available in epigraphy such as a study of the uses of prefixes, suffixes and ascertaining the direction or writing. The ordering, pairing and the frequency of symbols are also studied along with the relationships with any possible sister scripts. Rosetta stones are also often naively searched for, but may prove to be elusive in most contexts. Literature may also be used as a source of historical data, but appropriate checks and balances must be put in place. Poetry and mythology are far less reliable. Sometimes, newspaper articles. Journal articles, encyclopedias, gazettes, textbooks, and magazine articles are also analyzed. More recently, mathematical, algorithmic and computational models have been used for textual analysis including garbled data. The evolving science of stemmatology is used for textual genealogy, and the study and classification of codices. The use of Large language models (LLM's) is also picking up steam, and we would like to see how it impacts research activity in future. Hermeneutical study must also be objective; if post-modernist schools emphasize subjective interpretations over objectivity, we denounce them completely.

Historical research is now gaining traction among historians, even though some form of research has been used by historians for decades. Gone are the days of dry as bone narratives. Many historians in the recent past have employed scientific method and research strategy as an integral and a systemic process of historical analysis. However, the use of scientific method varies widely among historians, and is less common among Indian historians. In India scientific historical research appears to be less common among both left-wingers and right-wingers, and this may need significant course-correction. Historical research typically includes an active search for data or sources, establishing criteria for reliability, linking sources of data to research questions, filtering the sources of data to include only meaningful ones, and a synthesis of data in order to establish results. The

following concepts as proposed by Gilbert J. Garraghan, Jean Delanglez, R J Shafer and others, are now a part of most formal historical research, even though there are wide variations from context to context.¹⁶

- Identification of origin date which is done as reliably as possible using radiocarbon dating techniques and other techniques through the use of subject-matter experts and non subject matter experts. At times, the study of historical events as mentioned in the texts, and referenced secondary details are used for the purpose of this analysis. If the text or document was produced from an even earlier text, the same must also be stated upfront, and the other original text analyzed.
- Evidence of localization: There may be many versions and variations of the text, and local influences, if any, must be actively searched for. Thus, a tree of the versions and variations of the text along with a summary of commonalities and differences can be prepared. Evidence for the geographical origin of texts must also be sought and analyzed. If the texts were originally composed in one location and subsequently transported to another location, this must also be understood.
- Recognition of authorship: The author of the article can be traced if possible, though this is often by no means very easy or even necessary.
- Analysis of data: The text and its contents must be analyzed thoroughly for its integrity, errors as well as subsequent tampering with.
- Identification of integrity: The integrity of the text must be ascertained, and possible red flags must be raised wherever this integrity is in question. The earlier source material used as the basis for the text must also be identified, and the external consistency established.
- Attribution of credibility: The credibility of the texts is ascertained by means of scientifically designed tests. Forgery, if any must also be detected.

In addition to all these, procedures for the analysis and reconciliation of contradictory sources have also been established by historians such as Bernheim, Langlois and Seignobos. Historians also talk about corroborative evidence which may be both internal or external to a region, and if such corroborative evidence is not found, the text may be less reliable. If two or more texts do not agree on an event, the text is much less reliable. Sources may also be ranked on the basis of their reliability and authority. At times, the objective and intent behind the author of the texts may be ascertained, as well as his perceived or established ideology. Archeological evidence is more reliable than textual evidence, and data based on eyewitnesses and first hand evidence is more reliable than second hand evidence. Oral traditions are much less reliable than written traditions, and must often be verified through inter-disciplinary techniques.

¹⁵ Greetham, David C. 1999. *Theories of the Text*. Oxford: Oxford University Press

¹⁶ Boucher, D. 1993. 'Human Conduct, History, and Social Science in the Works of R.G. Collingwood and Michael Oakeshott',

Reliability of a source may also be established based on the elapsed time between the happening of an event and its consignment to writing. Primary sources, as a crude rule of thumb, are much more reliable than secondary sources, though there could be exceptions. Needless to say, synthesis of both primary and secondary data must be carried out by a capable historian, and this synthesizing ability would set apart a capable researcher from a mediocre one. As such, research method would be common with the other sciences, and a historian could formulate hypothesis and verify them too, through a process of data collection and historical reasoning. Wherever there are many possible explanations for an event, the best explanation must be identified. Wherever historical narratives are not entirely reliable, but still must be included for a specific purpose, the principles of qualified historiography must be followed. We have devoted and dedicated an entire paper to this. (Bernheim 1989), Langlois & Seignobos 1989)

Investigations include descriptive investigations, comparative investigations, and experimental investigations, and a historian may use all three, though the use of experimental investigation is rare. Descriptive Investigations involve collecting qualitative or quantitative data in order to draw some conclusions about a natural or man-made scheme of things. Comparative investigations involve collecting data on different objects, systems, or collecting data under different conditions to achieve a meaningful comparison. Experimental investigations involve a process in which variables are, controlled, measured and changed in order to establish a causal relationship. Experimental investigations usually have a both control group and an experimental group. Some schools of historiography have been developed that are more research focused than others. For example, the Annales school which was primarily developed in France by French historians focuses more on social and cultural change in the long-term and encompasses some social science research techniques. The emerging field of Cliometrics also analyses economic and econometric data in historical analysis and in the formulation of historical principles. Historians may also attempt to establish common and general principles (or subordinate data to new or pre-existing principles) and derive laws wherever applicable. Thus, we also have the principle of a covering law in history for better or for worse.^{17 18}

Other types of research techniques that can be used in investigative historiography are cause and effect analysis, causal analysis, root cause analysis, DPPF analysis or Dialogue between past, present and future analysis, DHA or Deep Historical analysis, GOWEST techniques, and RERS or Reflective equilibrium through role swapping. We have proposed some of these concepts in our previous papers on twenty-first century historiography, and had also discussed them threadbare. Some of our objectives of core twenty-first

technology and some of the objectives of anthropological objectives (as well as some of the core principles of twenty-first century historiography) interface with the principles and tenets of investigative historiography. For further clarity, readers can read the aforesaid papers.¹⁹

II. COVERING LAW IN HISTORY

The covering-law model of explanation is a law drawn from the natural sciences, and was first proposed by the German-born American thinker Carl Gustav Hempel. It postulates that laws for the occurrence of an event can be defined, and the occurrence of an event can be predicted with a fair degree of certainty. Hempel believed that if historical knowledge was a form of cognitive knowledge, it had to conform to the paradigms of explanation used in other sciences. All scientific observation is tied to Carl Hempel's covering law model of explanation, which says that a phenomena's occurrence follows deductively from a general law, and is demonstrated repeatedly in many trials. Thus, universalistic and probabilistic laws can be determined for such occurrences, with either a strong or a weak connection. In the last case(s) the occurrence of the event may have a strong inductive possibility, though it may be by no means certain. Hempel's work appears to have been endorsed by Ernest Nagel and others, and those who believe in this idea and concept are referred to as covering law theorists. We denounce this idea more or less completely and believe it to be not only idealistic, but also a gross over-simplification and an over-generalization. If patterns are to be identified, they must follow an inductive process. This idea has also been questioned by F A Hayek, Maurice Mandelbaum and several others who associate themselves in this respect with the anti-covering law school.

➤ *Problem Driven Solutions: A Highly useful Application of Investigative Historiography*

Various forms of academic and non-academic pseudo-intellectualism and anti-intellectualism have been practiced too both by the far-left and the far-right in India and elsewhere to an extreme degree, more common examples being anti-intellectualism prevalent in Argentina during the rule of Juan Carlos Onganía several decades ago who supposedly persecuted many intellectuals. Anti-intellectualism has thrived and flourished in the former USSR and communist China, and more infamously during the Khmer Rouge regime in Cambodia. Intellectuals were banished to camps in these places, were tortured, or were made to work in the countryside. Anti-intellectualism or extremely poor quality self-destructive pseudo-intellectualism has unfortunately thrived and flourished in India too. For example, Ram Manohar Lohia called for the abolition of the English language in India without comprehending language dynamics in India and beyond. He looked at India from the myopic lens of the Hindi heartland. Sometime later, the patriarch from Uttar Pradesh Mulayam Singh Yadav called for the abolition of "job-stealing" and

¹⁷ Gauch, Hugh G. Jr. (2003), *Scientific Method in Practice*, Cambridge University Press.

¹⁸ Godfrey-Smith, Peter (2003), *Theory and Reality: An introduction to the philosophy of science*, University of Chicago Press,

¹⁹ Research Methodology, Second Edition, R. Panneerselvam, Prentice Hall India, Eastern economy edition, 2014

“livelihood-snatching” computers and some types of agricultural machinery not too long ago. He also was rabidly Anti-English, calling it the language of destruction. His view was shared by anti-English lobbyists in his own state and beyond, many of whom sent their wards to elite English medium schools. While it is indeed hard to predict the future, it is hard to imagine a life without computers today, and the usage of English in India has multiplied manifold since economic liberalization was unleashed in 1991.

There are many other hilarious statements worth mentioning too. The former Indian Minister of State Satyapal Singh went on record stating that Darwin’s theory was simply wrong because no person had ever seen an ape turn into man. The Rajasthan education and Panchayati Raj minister Vasudev Devnani even stated that the cow was the only animal that ‘could both inhale and exhale oxygen’ and that this observation had a deep-rooted ‘scientific significance’ as well. According to the current (as of 2023) ISRO (or Indian space research organization) chairman S Somanath, all meaningful science across the world originated in the Vedas which are only unfortunately dated by mainstream historians to be around 3500 years old. According to the former Chief Minister of Tripura state Biplab Kumar Deb, internet existed in Ancient India during the “Mahabharatha period” which is dated to some 2500 or more years ago.²⁰

In the 1990’s, an individual by name Raman from Tamil Nadu had claimed to have turned water miraculously into petrol, and even many educated people believed him. At around the same time, there was a talk of some Ganesha statues supposedly drinking milk in different Indian cities. The statements made by some Indian religious figures are ludicrous to say the least, and these include many statements made by Swami Nityananda of Kailasaa. Public heroes (often role models) are typically religious figures (sometimes sportsmen and cinema stars) but almost never intellectuals and scientists, not even among a sizable minority. Meaningful and productive public intellectualism is still almost non-existent in India even today, and there appears to be little hope of things changing in the short-term. The eminent Indian scientist Yellapragada Subbarow is barely even known in his own state of Andhra Pradesh while cinema stars are, and his contributions to medicine barely even acknowledged or understood.²¹

All this data demonstrates that we have a long, long way to go. Other developing countries are not probably much better either; many people believe in Quranic literalism to this day, (though there is a small but growing anti-religious movement growing in the Middle East) and evil occult practices such as voodoo, black magic and witch craft are common in parts of Africa to this day. Some Indians support the out of India theory, and still attempt to steamroll the long-abandoned Aryan Invasion theory. We

²⁰ India’s struggle for independence Bipin Chandra, Penguin Books, 1989

²¹ Ancient Indian historical tradition, FE Pargiter, Motilal Banarsidas Publishers, New Delhi, 1922

can also seek to understand why Marxists and Hindutva proponents cannot change with the times, or bring themselves to see reason. We can employ techniques such as Chain of thought analysis, cause and effect analysis and root cause analysis to understand the root cause of this malaise and initiate recommendations even. A history of India’s education systems, and caste and class system must also be quantitatively and qualitatively studied, and a strong correlation established. This would be a useful application of investigative historiography, though past data must indeed be meaningfully or critically analysed. If we set up a committee to investigate the low causes of scientific output in India, the team must necessarily be inter-disciplinary. However, it must include investigative historians too.

While carrying out investigative historiography, cross-cultural research design and the reconciliation of multiple perspectives is necessary, and these must be gainfully used and employed in all streams of investigative historiography under the sun. Ideology must be a strict no too, and an ideology-free approach must always be employed in the analysis of all issues pertaining to investigative historiography.

III. COMBINATION WITH ETHNOGRAPHY OF ENCULTURATION

This approach can also be combined with the ethnography of enculturation to a fair degree. We had proposed this approach in a paper published on the ‘Ethnography of enculturation’ in 2023. In this paper, we sought to understand how an individual’s past experiences, his enculturation and upbringing could affect his present and future too, and had sought to derive generalized laws and principles in this regard. We had included several case studies in this aforementioned paper on ‘Ethnography of enculturation’, (in an annexure) and these included eminent personalities such as Mahatma Gandhi, Martin Luther King, Nelson Mandela, Mohammed Ali Jinnah, Pandit Jawaharlal Nehru, BR Ambedkar, Allama Iqbal, Osama Bin Laden, Shamima Begum, and several others. We can also include other leaders like Narendra Modi, Donald trump, Joe Biden, Chandrashekar Azad, Bhagat Singh, Deng Xiaoping, Chandrababu Naidu, MK Stalin and Jyothi Basu. We can also use this approach for a much more critical analysis. For example, we can use this to understand American legal scholar Amy Wax’s ideas on Indians and her perception of blacks as well. We can also use this to understand how both Ayn Rand’s (famed author of the best-selling books ‘The fountainhead’ and ‘Atlas Shrugged’) and Marija Gimbutas’ (progenitor of the Kurgan hypothesis) view (they both had complex multi-cultural upbringing) came to be, and were highly successful in their own fields.

It could also investigate the underlying deep-rooted reasons for Hindutvavaadins’ views, Dravidian nationalist views, and Marxist views on a wide range of issues by employing some additional techniques we have proposed all along. Racism has also been variously attributed to stalwarts such as Winston Churchill, Mahatma Gandhi, Karl Marx, Woodrow Wilson, Abraham Lincoln, Rudyard

Kipling, Theodor Seuss Geisel, Enid Blyton, Mark Twain, and many others, and during at least some points in time in their lives, though they were not specialists in race study or did not indulge or dabble in scientific racism at any point in times in their lives; they were merely products of their times. Gregory Possehl and Richard Sproat were dismissive of Indian scholars' abilities just two decades ago, and Sam Altman was sceptical of the abilities of Indian researchers to compete with Americans in Artificial Intelligence. Investigative historiography can probe this issue further by carrying out an investigative analysis and a deep historical analysis using a multi-dimensional, multi-method, and a structured, comprehensive approach.²²

If wishes were horses, we could soon live in a post-ideology world. Yet many meaningful individuals are trying to make this happen. The famous Indian youtuber Dhruv Rathee has been valiantly and heroically trying to promote science, education and knowledge in Hindi with English subtitles. The youtuber Ranveer Allahabadia has interviewed many researchers and thinkers like Vikram Sampath, Anand Ranganathan, J Sai Deepak and others, and has soon promised to interview left-wingers too. Yet, the transition to a post-ideology world still remains elusive, and must happen sooner than later. Even in the USA, which is the bastion of democracy, free thought and free speech, Communists were hounded and witch-hunted during the Senator Joseph McCarthy era. This approach was naturally far from democratic, or keeping with the ideas of free speech. Even an eminent scientist like Julius Robert Oppenheimer was not spared.²³

➤ *Examples of Domains where Investigative Historiography can be used*

Here are some examples of domains where investigative historiography can be widely and very productively and beneficially be used. In our third paper on twenty-first century historiography, namely the paper on Anthropological historiography, we had proposed that a better integration be achieved and accomplished between pre-history, proto-history, and history. This, we believed, and had stated, would be a vital cornerstone in historical and scientific progress. A historian, we also stated, must be aware of the vital and the core concepts of various sub branches and sub fields of social sciences. This is not to say that a historian must possess a thorough knowledge of all the postulates of different branches of anthropology, sociology, and the concepts of archaeology. He must however, know enough to get the job done smoothly and painlessly enough. A historian may also lend his expertise in the synthesis of inter-disciplinary data, and synthesize historical data wherever applicable (wherever and whenever the issue in question or at hand is less than five thousand years old). He

²² The Aryan Debate, edited by Thomas R. Trautmann, Oxford University Press, New Delhi

²³ Adams, John G. (1983). Without Precedent: The Story of the Death of McCarthyism. W.W. Norton & Company. ISBN 0-393-30230-X.

may also use pre-history and proto-history in the construction of grander historical narratives. He may also synthesize pre-historical, proto-historical, and historical data from different civilizations, and pre-civilizational cultures in order to accomplish the very same objective.

If we trace the history of the invention of fire, and probe the causes for invention of fire at a sufficient level of depth, we will find that the initial discovery of fire was probably fortuitous and accidental, though the idea may have subsequently literally spread like wildfire. The Anthropologist Richard Wrangham and others have studied the early history of fire. Fire may have been discovered close to two million years ago by the genus Homo Erectus, though this is disputed. Fire helped keep away the dark, helped cook food and helped chase away wild animals. The evidence for fire comes from the dating of burnt charcoal, and other living material.

Similarly tools evolved from the earliest stone tools like cleavers of the Lower Palaeolithic age to the more sophisticated tools of the upper Palaeolithic age such as axes and adzes. Different types of stones were used a material, and techniques such as the percussion techniques, pressure flaking, knapping, flint knapping, grinding and polishing were used to make these tools. Tool making traditions included the Olduwan, Clactonian, Acheulean, Levalloisian and Mousterian tradition, but historians, rather unfortunately possess a minimal understanding of either Anthropology or Archaeology, and there is very little by way of an inter-disciplinary synthesis even when this is needed.

The Neolithic Revolution marked a major technological and cultural transition that resulted in the birth of agriculture, taking Homo sapiens from the hunter-gathering stage and to a lesser extent and degree from pastoralism and nomadism to permanent farming settlements and villages and then to bigger settlements and cities. It began in the Levant and elsewhere some 11,000 years ago. It also led to a better nutrition and diet. It also provided the foundation for human civilization by generating a food surplus and leading to an arts and crafts specialization. The earliest irrigation systems and canals were built by the Egyptians in the Nile delta. In the Indus valley civilization, evidence has been found that oxen were used to till the land. The Harappans of course, built dams too.

Domestication of animals took place beginning some 15,000 years ago. Dogs may have first been domesticated in Central Asia at around that time. Goats, sheep and cows were domesticated during the time of the Neolithic revolution, and these animals were an important source of milk, hides and meat. Larger animals like oxen and wild horses were soon domesticated. Horses may have been first domesticated in the Eurasian steppes of Kazakhstan and Ukraine 5000 years ago, and indicated from evidence in the Botai culture. However, wild horses may have been hunted for meat even before they were domesticated. Most modern theorists believe that horses were ridden before they were used to draw carts, and the wheel itself was probably

invented between six to seven thousand years ago. Rotating axles came even later.

Chariots came after carts, and chariots could not have been invented in Central Asia, being as they were, symbols of monarchic power, and to a lesser extent political warfare. Witzel who is a scholar with archaic and antiquated ideas, however has a convoluted worldview, and believes the “Aryans” came from Central Asia to India on chariots. The earliest non-controversial evidence of horse bones from India comes from the Swat valley in 1600 BC, though some earlier dates have often (either controversially or non-controversially) been presented. This evidence has been used to postulate dates for the arrival of “Aryans” into India, though there is a mountain of evidence that Aryan culture existed in India before this. We have discussed these details in several papers pertaining to Ancient India. Do historians even possess a minimal level of expertise to refute such flimsy and antiquated theories? Do they participate in newer and more novel areas such as the history or science and technology, and investigate the causes for the origin of new technologies? The answer is of course an unfortunate and an unequivocal no. All this lends credence to our point of view that historians must also be imbued with a research mindset and a research temperament no matter which sub-field of history they specialize in. This will lead to a better quality of historical and research output across domains.²⁴

Historians must also be well-versed with origins of other technologies such as writing which evolved in mainly proto-historical contexts. For example, we had pictograms and early symbol systems like the Vinca symbol systems that long predated full-fledged writing. These eventually became highly standardized over a large region, and then highly abstract. Attempts were then made to capture the spoken word through the principle of acrophony or the Rebus principle. The Egyptians developed hieroglyphs which looked like pictures, but were true writing, and was deciphered after the discovery of the Rosetta stone. Historians can also contribute to the study of hieroglyphs as the history of ancient Egypt is divided into several main periods which include the pre-historical period, the pre-dynastic period, the Old Kingdom, the Middle Kingdom, and the New Kingdom. The New Kingdom was also followed by another period called the Late New Kingdom. We also have the first intermediate period, the second intermediate period and the third intermediate periods. Historians can and must provide a historical backdrop and a historical framework against which technologies can be studied.

Cuneiform was a much more complex system that was developed by the Sumerians and the Mesopotamians. This also represented true writing, and was used by scribes. The Rosetta stone approach is needless to say unworkable in the Harappan context. Historians should have objected a long

²⁴ The Demise of the Dravidian, Vedic and Paramunda Indus Hypotheses: A brief explanation as to why these three Hypotheses are no longer tenable, Sujay Rao Mandavilli, 2013

time ago, but they did not. Why? Is it due to their lack of an inter-disciplinary approach and their lack of a research mindset? Many scholars still erroneously think that Phoenician was the first alphabet, but it was not. The first alphabet was Proto-Sinaitic which predated it by several centuries. Why does this erroneous belief persist even in scholarly circles? Why do historians stand by helplessly while this so much confusion persists?^{25 26}

Likewise, historians can also contribute to the pre-historical and proto-historical Harappan writing system which evolved during the Ravi aspect of the Hakra phase, and then into the Kot Diji phase and Mature Harappan phase, but stagnated and ossified later on, as the IVC went into terminal decline after 1900 BC. The can also throw light on the causes for attributes of Harappan writing system, and the fact that it is based on a large number of word signs. Attempts to decipher the Harappan script were crude and amateurish at best but so were Indian historical models. Must Indian historians be blamed for this or their western collaborators? Why is a scientific temperament lacking here? Historians themselves do not venture into decipherments or epigraphic studies or contribute their critical and meaningful inputs. They do not even collaborate with other specialists, or play a partial role. Even Dravidian and Paramunda related decipherments were not objected to by mainstream historians even though they were not historically tenable. Mainstream historians, owing to their lack of a research-driven and multi-disciplinary approach, did not develop viable historical models for India. They even watched helplessly as Hindutvavaadins attempted to take over the field in the early 2000’s. All this implies that the whole field of historiography needs a radical makeover. We had also reemphasized the nature of the Harappan script as representing true writing in two earlier papers on this topic. Even Iravatham Mahadevan was a Dravidian nationalist who read the Indus inscriptions as Tamil. Only Michael Korvink attempted a much more structured and systematic approach to the Harappan script, basing it on positional analysis. Thus, Indus studies and Indus script studies demonstrate a low level of scientific expertise and scientific aptitude too.

Historians can also participate in other kinds of research activity where their contribution is presently minimal, and where other specialists dominate. For example, the Egyptian pyramid was a marvel of engineering, and the entire history of its construction along with the materials and the manpower used, and the construction techniques employed, can be researched. The history of plunders of the Great pyramid can also be reconstructed, and the damages inflicted upon it in pre-modern times. The philosophies behind the construction of the pyramids and well as their stoppage can also be probed, as well as a range of modern day Islamic attitudes both positive and negative towards the pyramids. A comparison of early construction techniques in Old World civilizations can also be probed along with

²⁵ Harris, Roy (2000). *Rethinking Writing*. Bloomington IN: Indiana University Press.

²⁶ Harris, Roy (2000). *Rethinking Writing*. Bloomington IN: Indiana University Press.

descriptions of measurement systems used. This is however, a very small list, and is only indicative. We have only scratched the surface, and the true potential is of course much, much larger. The historian will broaden his horizons greatly and open up new vistas and avenues for study if he possesses an aptitude for research and employs inter-disciplinary approaches.

Even the history of modern languages, a study of the spatial variation in languages, and a study of emergence of new dialects can be taken up, and he can collaborate better with linguists and other specialists in the field. They can also provide their valuable insights and inputs into emerging areas such as the science of language dynamics. They can also contribute to other allied fields of historical linguistics such as etymology by providing robust and rock-solid historical models. They can also contribute to the study of complex and intractable fields such as the Indo-Europeanization of the world from a Central Asian homeland which must be studied from an inter-disciplinary and a cross-cultural perspective by providing their own allied inputs. Investigative historians could also take up research on allied topics such as the history of the Aryan problem, and the history of the use and misuse of the term "Aryan" by developing new constructs and new paradigms. This would be of particular interest to people from Iran and India. Historians can play a vital role in understanding socio-cultural change. We had authored two papers on the symbiotic approach to socio-cultural change a couple of years ago, and these concepts could be given diachronic extensions to bring them into the realm of historiography. Thus, we could have not only synchronic approaches, but also diachronic synchronic approaches to socio-cultural as well, with an important time dimension. Historians must naturally take the lead in inter-disciplinary approaches and integrating diverse fields of study because they are much better poised to do so than Archaeologists, anthropologists or sociologists.²⁷

➤ *Distinction between Science and Pseudo-Science*

Investigative historians can also help provide a clear distinction and a boundary between various streams of science and pseudo-science, as the latter is still unfortunately widely prevalent. Pseudo-historical methods or methods of dubious reliability such as attempting to date events based on astronomical data are widely prevalent even today in India and elsewhere, and historians can do their bit to expose such methods, and lay the foundations for more scientific approaches to historical research which can impact and benefit society positively and meaningfully. Their contributions to exposing such pseudo-scientific constructs however, remain unfortunately minimal and peripheral.

For example, we have the claim of an unmanned heavier than air flight by Shivkar Bapuji Talpade in the year 1895. Talpade worked as an art instructor in Mumbai and had a keen interest in aviation. Contemporary accounts that

a successful flight took place do not exist all, and neither do reliable historical records document this supposed occurrence. Such claims and counter-claims must be thoroughly investigated by historians, and either conclusively proven or disproven. In theory a small unmanned aircraft may have theoretically flown, but what fuel did he use, and where did he get it from? Many researchers today are highly sceptical of the entire exercise, and rightfully so. Some other individuals claim that a flight did indeed take place, but most researchers and scientists dub such claims as pseudo-science. What role do historians play in such efforts? To make matters worse, many popular films are based entirely in pseudo-science and these are targeted at popular audiences who cannot distinguish between science and pseudo-science even in this day of smart phones and the internet.

As a matter of fact, distinguished members of the Indian Science Congress and other leading Indian scientific institutions cannot distinguish between science and pseudo-science, and this is reflective of the sad state of affairs in Indian science. The controversial movie *Hawaizaada* based on Talpade's life was directed by Vibhu Puri. Likewise, the controversial movie *Mohenjodaro* on the Indus Valley Civilization was directed Ashutosh Gowariker. There is almost no historical accuracy here, but historians can indeed play a crucial and critical role in fostering a scientific temper. Most individuals do not possess a scientific temperament, and only want entertainment. People's mind-orientations can be changed through various scientific techniques, but this potential unfortunately remains hopelessly unrealized. It has not even been properly and correctly understood. Even educated people (some Ph.D holders even) believe in Pushpak Vimanas and claims of other ancient flying aircraft or chariots which are indeed only mythological. Those who oppose them are routinely labelled and castigated as being anti-national. An extreme version even claims that the west copied early and ancient Indian ideas and made them their own. This is of course only a digression (probably to cover up our poor performance?); meaningful and bonafide scientific activity in India has a long way to go, as even an understanding of the scientific and the investigative method.

Some Indians still believe in the Ten Avatars or incarnations of Vishnu theory, the divine origin of theory of languages theory (The Goddess Saraswathi much like the mythical Tower of Babel that explained the diversity of languages), and the literalism of the Ramayana and the Mahabharata. People in other pre-modern societies believed in myths such as the story of Noah's Ark and the Great flood, but now have mostly outgrown them. The situation in India is however still so bad, that even well-meaning initiatives are routinely and regularly mocked and ideology triumphs and prevails. Critical thinking skills and critical analysis are almost never taught. Many Indians cannot distinguish and differentiate between history and mythology and cannot cull historical information reliably from non-historical texts. On the other hand, the left blindly rubbishes everything as mythology, hampering historical and scientific progress in the process. The left also leaves a big vacuum

²⁷ *The Indus Script: A Positional-Statistical Approach Paperback, Michael Korvink, 2008*

and void in historiography which the right is only eager to fill in. Neither the Indian right nor the Indian left apparently care for science, and this may be either conscious or subconscious. How will we stem the rot and clean up the mess? An entirely new generation of scholars has to take over. Investigative historiography and research-based and research-driven approaches emphasizing objectivity must of course occupy the centre stage in the new scheme of things. Anything else would not simply be acceptable.^{28 29 30}

Scholars have also attempted to study and analyse the earliest extant versions of various documents such as the Qu'ran and the Bible. Research on these two texts is generally followed by the laity and the public at large very eagerly and enthusiastically given the fact they have a major religious implication, and can impact faith too. For example, the earliest versions of the Qu'ran include the Birmingham manuscript which was discovered in Birmingham in 2015, and is dated to between 568 and 645 AD. The San'aa manuscript is also very old and was found in Yemen in 1972. It is believed to have been written before 671 AD. Other early Qu'ranic manuscripts include the Hijazi manuscripts, the Codex Parisino-petropolitanus commonly dated to the seventh century, and the Tübingen fragment. Likewise, the oldest extant versions of the Bible include the Codex Sinaiticus and the Codex Vaticanus.

Historians should have played a major role in all facets of the analysis of these documents, but have fared rather poorly indeed. Historians must also pursue a factually objective account and an investigative account of religion and its purported or claimed origins, and we have discussed this at length and in depth in our paper on 'Historiography by objectives'. This approach would naturally expose superstition, blind faith and dogma too. While students should not be made scapegoats of an overly blunt narrative when it does not suit their need or purpose, the research layer must remain the research layer under every circumstance, and there can be absolutely no kind of compromise here. The biography of Muhammed, the founder of Islam must be also attempted objectively and all facts of the matter laid down bare without any bias or prejudice of any kind. No hagiographies and whitewashing should be permitted in the research layer. The sad and tragic state of affairs today however, is that no distinct research layer at all; everything is made subservient to an ideology or a point of view from the cradle to the grave. This represents the entire cycle of historiography and history-writing.

²⁸ Simpson, Jacqueline, and Steve Roud, eds. 2003. "Myths." In *A Dictionary of English Folklore*. Oxford: Oxford University Press.

²⁹ Metzger, Bruce Manning; Coogan, Michael D (2004). *The Oxford Guide To People And Places of the Bible*. Oxford University Press. p. 28. ISBN 978-0-19-517610-0.

³⁰ Halliday, Michael A.K.; Jonathan Webster (2006). *On Language and Linguistics*. Continuum International Publishing Group. p

Investigative historiography can also be used to investigate hypotheses on the identity of the Harappans. We have argued all along that the Dravidian, Vedic and Paramunda Indus theories were based on highly obsolete and questionable premises, and had even attempted to show why Dravidian languages, Sanskrit or the postulated Paramunda group of languages could not have probably been the languages spoken in the Indus Valley Civilization which is widely believed to have flourished from 2600 BC to 1900 BC in the North-Western part of the Indian sub-continent. We had also presented an alternative hypothesis for the identity of the Harappans. Our approach was deep rigorous, and multifaceted, and used data from diverse fields of study. We also expect other scholars to adhere to highly rigorous and exacting standards. Contradictory evidence must be reconciled, and dialectical approaches must be followed. This issue, complex and intriguing as it is, can become the test bed of modern investigative historiography, and historians can propose and test historical models collaboratively with different specialists.

Research on Post-Harappan India would also be an investigative historian's paradise as there is scant archaeological evidence available, and existing historical evidence would be put to the test, and new ones possibly developed and formulated since objectivity cannot be greatly compromised at any cost. It would also help test the principles of qualified historiography. The transformation of Harappan India to Post-Harappan India can also be likewise be understood through Investigative Historiography, and the latest historical models must be made use of.³¹

The Dead Sea Scrolls are a collection of ancient Jewish and Hebrew manuscripts in the Hebrew and the Aramaic languages which were first discovered between the years 1946 and 1957 at the Qumran Caves on the banks of the Dead Sea. These are often dated to between the third century BC and the first century AD, and are considered to be amongst the most important finds in archaeology in the twentieth century, with a high degree of historical significance given the fact that they include some of the oldest surviving manuscripts which form a part of the biblical canons, and therefore throw great light on early Christianity. Investigative historiography can play a great role here, and historical and religious information can be synthesized with archaeological evidence and archaeological techniques. Historians though have failed to play a major role here. Another interesting find is that of the shroud of Turin. The Shroud of Turin also sometimes called the Holy Shroud, is a linen cloth with the image of a man whose identity is unknown. Some scholars think that it is the image of Jesus of Nazareth also known as Jesus Christ, and believe the fabric is a part of the shroud in which he may have been wrapped after his supposed crucifixion. His image may have been imprinted due to the medications and the preservatives used. This shroud has been traced to the year 1354, but was denounced by the bishop of Troyes who proclaimed it to be a fake. The Catholic Church currently neither formally

³¹ Concepts and methods of historiography, KL Khurana, Lakshmi Narain Agarwal, Agra

endorses the shroud nor rejects it entirely. Radiocarbon dating has returned dates between the years 1260 and 1390. Investigative research here may be much more tricky and may require co-ordination and liaison with a wide variety of experts.³²

Jack the Ripper is the common and widely used name given to an unidentified serial killer who operated in Eastern part of Victorian London in the autumn months of 1888. Jack the Ripper infamously attacked female prostitutes who worked in East London. The victims were killed in a most horrible way. The name "Jack the Ripper" is traced to a probably fraudulent letter written by an individual who claimed to be the murderer. The five canonical victims were Mary Ann Nichols, Annie Chapman, Elizabeth Stride, Catherine Eddowes, and Mary Jane Kelly. However, other victims are also attributed to Jack the Ripper. The suspects included Aaron Kosminski, Lewis Carroll, H H Holmes, Lord Randolph Churchill, Prince Albert Victor, James Maybrick, Walter Sickert, and Francis Tumblety. Amateurs have contributed more to the study of Jack the Ripper than professional historians, and most of them cannot be taken seriously. Investigative historiography here would include a study and knowledge of forensics, collaboration with the police department and review of police records if need be, and collaboration with criminologists if required. As such, it would be a much more complex exercise.

Another topic worth considering is that of King Arthur. The historicity of King Arthur has been debated by both academics and popular historical writers for a long time now. Some have claimed that Arthur was a historical person, while some others have denied it. The first proper mention of King Arthur occurs way back in the year 828 in the book "Historia Brittonum", where he is presented as a military leader fighting against the Saxons. He subsequently morphed into a legendary figure probably from the twelfth century onwards.

Atlantis is a fictional island which was mentioned in Plato's works as a naval power that laid siege to Ancient Athens. According to this narrative, Athens successfully held back the Atlantean attack. Atlantis subsequently submerges into the Atlantic Ocean. This idea is entirely pseudo-historical, though attempts have indeed been made to discover this fictional island. Since this is pseudo-historical, this must be exposed by bona fide historians as such, who must also educate the common man, and remove the cobwebs of ignorance. Lemuria is a imaginary continent whose existence was first controversially proposed in the year 1864 by Philip Sclater who claimed it had sunk beneath the Indian Ocean. The hypothesis was proposed after the discovery of similar lemur fossils in both Madagascar and India. Theories about Lemuria became untenable after Alfred Wegener's theory of continental drift was widely accepted within the scientific community, and were gradually abandoned. This idea still has currency among

ardent and hardcore Dravidian nationalists who believe Lemuria to be a Dravidian homeland, associated with an imagined hoary Dravidian golden age. Investigative historians can contribute greatly here too, by exposing pseudo-scientific concepts and investigating the history of such concepts and the underlying reasons behind such concepts.

Another popular but highly doubtful theory is the theory that Jesus lived in India. This theory was proposed by Holger Kersten, but was largely rejected by mainstream scholarship. This was built on the claim made by Nicolas Notovitch that Jesus lost years between the ages of twelve and twenty nine, were spent in northern India, probably in the Kashmir region. The evidence provided for this hypothesis is indeed flimsy, and investigative historians must expose this too. Thus, investigative historians must actively seek to debunk or investigate non-mainstream theories as well as it will lead to a better scientific temper.

The book "Chariots of the Gods" is a book written in 1968 by the popular author Erich von Daniken. According to him several advanced technologies that were used by different ancient civilizations were provided by ancient visiting astronauts who were worshipped by earthlings as Gods. The Orion correlation theory is a now completely debunked fringe theory in Egyptology proposed in 1989, attempting to explain the arrangement of the Giza pyramid complex. According to this theory, there is a clear correlation between the location of the three largest pyramids in Giza and Orion's Belt forming a part of the constellation Orion, and that this correlation was considered and taken into account and consideration by the builders of the pyramid. All these theories have now been completely debunked and falsified, but alas still have a significant cult following. It would be productive and fruitful if investigative historians could identify the root cause of pseudo-scientific beliefs and propose course-corrections if possible. Thus, solution formulation can be a core duty of an investigative historian, and by no means an unimportant one.³³

Investigative historians can also investigate the historicity of Moses. The Bible seems to suggest that Moses lived in Ancient Egypt and the timeframe of this existence is variously postulated to be between 1700 BC and 1200 BC depending on the source. However, the existence of Moses is not clearly corroborated by Ancient Egyptian texts, and the first extant Egyptian references to Moses date to the fourth century BC. There is no archaeological evidence to attest his existence, and there is no reliable chronology for the occurrences of the Exodus. It is of course indeed possible that he lived, and was a historical figure. The historicity of Zarathustra can also be probed and investigated; Zarathustra was most certainly a historical figure, but the chronology and timeframe is less reliable.

³² An introduction to historiography, Bikash Bhattacharya, Dominant publishers and distributors pvt ltd, New Delhi, 2012

³³ A cultural history of India AL Basham, Oxford University Press, 1975

Investigative historians can also probe the affiliations and ulterior motives if any, of Intelligent design proponents. They can trace the history and the history of claims made by Intelligent design proponents such as Phillip Johnson, John Lennox, Stephen Meyer and Michael Behe along with a research of their affiliations, which in most cases are traced to the Discovery institute, a Christian think tank. Claims made by Intelligent design proponents sometimes violate the principles of methodological naturalism and are not widely accepted by experts. However, the claims made by the theistic evolution school are a lot more plausible, and cannot be proven to be pseudo-science.

Research can be carried on more mundane topics such as the biographies of Mahatma Gandhi and Babasaheb Ambedkar. For example, Hindutva proponents most of whom show sympathy to the RSS or other organizations, and even left-leaning authors and writers like Arundhati Roy (In “Doctor and The Saint, The: The Ambedkar–Gandhi Debate: Caste, Race, and Annihilation of Caste” published in 2019) have less than flattering views on Mahatma Gandhi. Likewise, Arun Shourie (In the book “Worshipping false Gods: Ambedkar and the facts which have been erased” published in 2012) has criticized Ambedkar and has shown him in a poor light. The way to pursue objectivity is through rigorous investigative scholarship and the castigation of all non-objective approaches, and the promotion of more complex and unbiased ones. This approach can be extended to viewpoints and ideologies espoused by individuals too. For example, Netaji Subhash Chandra Bose was left-wing, while both Sardar Vallabhai Patel and C Rajagopalachari were right-wing. Were all their viewpoints on economic and non-economic issues necessarily objective?^{34 35 36}

➤ *Collaborate, Collaborate, Collaborate*

There are some aspects of Investigative historiography which must be carried out in close collaboration with, or the assistance of domain experts. One such topic of discussion could be the Great Depression which began towards the end of 1929 in the USA, and then spread all over the world. This depression eased within a few years, but did not end completely till the onset of the Second World War. If aspects such as the economic causes of the Great Depression, a study of the Roaring Twenties, the study of patterns of consumption and investment during the Roaring Twenties in relation to the Great Depression, the economic consequences of the Great Depression, the Dust bowl and drought in the Mid-west, the consequences of measures proposed by Herbert Hoover in response to the Great Depression, the direct and indirect effects of Keynesian economics on the Great Depression, and the effect of the

³⁴ Doctor and The Saint, The: The Ambedkar–Gandhi Debate: Caste, Race, and Annihilation of Caste Paperback Arundhati Roy, 2019

³⁵ Worshipping false Gods: Ambedkar and the facts which have been erased, Arun Shourie, 2012

³⁶ Of Saffron flags and skullcaps: Hindutva, Muslim identity and the idea of India, Ziya Us Salam, Sage publications, 2008

Great Deal on the Great Depression, and to be studied, methodologically analysed and understood, collaboration with economists of different orientations and affiliations are a must along with a thorough understanding of economic theory, and the adoption of the necessary social sciences research techniques that we have mentioned in this paper, and in our earlier papers. This kind of a collaborative effort would broaden the horizons of an investigative researcher greatly, and make him more competent in the field. This kind of approach would help him to take up more challenging assignments such as the history of economic thought.³⁷

We would love to use the principles, tools and techniques of Investigative historiography to a study on the history and the coming of the automobile of the automobile too. Not only would this apply to the biographies of great men such as Henry Ford, Alfred P. Sloan, and Walter P. Chrysler, but also to technical aspects of the automobile. It could also extend to business aspects of automotive history, and deeper analytical issues such as the impact of competition on technology. Other aspects such as labour relations in the automobile industry, the history of environmentalism in relation to the automotive industry, and the history of the vintage car movement can also be analyzed. For example, the Ford Model T launched in 1908 had a 3000 cc engine producing only 20 bhp. While Henry Ford brought down the cost of the Model T from \$850 in 1908 to \$260 in 1927, there was very little innovation due to his monopoly on the low-end markets. On the other hand the Chrysler motor company revolutionized the American market by bringing out the high-performance and mass-produced 70 mph (114 km/h) Chrysler 70 in 1924. The history of technology in the automobile could be highly specialized, and could include the history of suspensions, transmissions, braking technology, engine lubrications, safety glass, speedometers, etc.

Wherever other aspects of history such as “The battle of the currents” are probed, in depth or working domain knowledge is required. This would also hold good while attempting biographies of specialists like Nikola Tesla, Stephen Hawking, Carl Sagan, Arthur C Clarke, Albert Einstein, Carl Jung, or Sigmund Freud. This would be necessary for the analysis of primary and secondary literature and collaboration with domain experts and specialists. Sometimes the Investigative historian must be specialized in more than one area. This might be required while analyzing the history of the Incas, Aztecs or Mayas or studying the history of Machu Pichu along with the details of its past exploration and occupation. Similarly, a historian may wish to explore not only the history of Jericho, the history of occupation of Jericho, its occupational patterns, its spatial spread, and history of exploration of Jericho but also a study of Jericho in relation to the Old Testament in the Bible i.e the Battle of Jericho in the Book of Joshua.

³⁷ John A. Garraty, *The Great Depression* (1986)

➤ *Heterodox Extensions Galore*

There could be many heterodox extensions to Investigative Historiography in relation to the areas being probed or investigated. For example, the history of UFO's can be studied, along with the history of claimed clairvoyance, history of claimed paranormal events, the history of telepathy, the history of claimed sixth sense or extrasensory perception, the history of astrology, palmistry and fortune telling, the history of psychics, the history of claims of reincarnation, the biographies of psychics. We have presented these because these are highly dubious and controversial topics, and the Investigative Historian must shed further light and clarity on such involved. He must also don another hat, and educate the public with regard to the perils and pitfalls associated with such phenomena. There can be no closed list. Literally, the sky is the limit. Researchers may also carry out a prioritization either individually or between the members of a group. For example, the history of the environmental movement right from the passage of the Alkali acts of 1863, right upto contemporary times (The rise of the Greenpeace movement, the Stockholm summit of 1972, the Earth Summit at Rio de Janeiro in 1992 etc) may be studied in detail, along with its successes, failures and digressions. This is something that would greatly interest and affect the common man as well. Historians currently focus their attention only on a narrow range of issues. All this much change in the Twenty-first Century, and historians must greatly expand their repertoire and their portfolio. We even see this as one of the defining features of Twenty-first century historiography, and there could even be an explosion in human knowledge as a result.

merge naturally into a much greater and a much more meaningful whole.

IV. CONCLUSION

This is our fifth paper on twenty-first century historiography. In the first paper, which was published by us way back in the year 2015, we had defined and set forth the core objectives of what we called twenty-first century historiography. In the second paper published by us in 2016, we had postulated the core principles of twenty-first century historiography. In the third paper published by us in 2018, we had published a paper on Anthropological Historiography wherein we had sought to integrate history with pre-history and proto-history much better. In the fourth paper on qualified historiography published by us in 2022, we had tried to explain how historiography could be dealt with in the case of the unreliability and uncertainty of narratives. In the present paper, we have put forward a clear and a strong case for investigative historiography which we believed could be developed as a niche area well within mainstream twenty-first century historiography. The objective of this niche sub-field was of course be to lay bare the tools, techniques and the scientific methods that could be employed and put to use in carrying out historical investigations. Some of these tools and techniques may already exist and may already be in use, but we have put forward new approaches bearing in mind the overall philosophy of twenty-first century historiography assessed in its entirety. The outputs of investigative historiography would also naturally provide crucial inputs into mainstream twenty-first century historiography, and all our five papers