

Concept of Agro-Geology Durig Colonial Period

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Curiously enough the first time the word “geology” appears is in the last will of an Italian naturalist in 1603. In the 17th century noblemen began collecting natural objects in their cabinets and private museums. The displayed natural oddities and specimens were mostly acquired by chance from lucky discoverers. It was only later that naturalists started to go in the field, even if such an activity was considered more a necessity to gather more specimens than a means to explore the natural world. In the 18th century Swiss professor of philosophy **Horace-Bénédict de Saussure** was one of the first to propose that naturalists should not only collect specimens, but also take observations and exact measurements in the field. Naturalists or natural philosophers were names given to well educated people interested and dedicated to the slowly emerging fields of “natural history” and “natural philosophy”¹.

The first stage in the case of geology is characterized by duplication of metropolitan scientific culture. This involved both the metropolitan mentality of a European scientist and the success of metropolitan scientific theories. In fact, India became a testing ground for different scientific theories of the metropolis. In one issue of *Gleanings in Science*, there were detailed directions of over thirty pages about the means of testing out different European geological theories in India. There were examples where geological theories developed in European landscapes were directly applied to Indian conditions.² Captain Newbold attempted to apply the Glaciation and Diluvial Theory in South India. Resources on coal gypsum in the Indo-Gangetic tract of mountains diamonds in Panna (in Bundelkhand) were all attempts to examine specific theories of the center.³ Now two results of any test are possible – one is affirmative and another is negative. An instance of the first may be given. Earthquake studies became a major concern of GSI and many articles of theoretical nature were written on the subject. One of the earthquakes that drew considerable theoretical attention was the Kangra earthquake. A mathematical formula by Prof. Omri was applied to the case of a pillar overturned in the forward direction, this formula gave a measure of the intensity of the earthquake at the surface. Middlemiss commented “we get a value which is sufficiently near the one previously obtained by the other method to be corroborative of it.”⁴

As to the metropolitan mentality of the European scientists, a comment regarding the geology of India is worth considering here:- From the above desultory observations, it would appear that the Geology of India is far less complex. It is said that instead of twenty different formations, as in England, there are in India only four, viz. the granite, the sand stone clay, slate the trap and the diluvia.⁵ This comment clearly brings out the pride of the European scientists about the geological richness of their homeland. Another comment by R D. Oldham is in order here. I had no conception of

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how impossible it is to make satisfactory detailed geological map until I had made the attempt under these circumstances it is impossible to satisfactorily determine the true relation of the rocks. This reveals his attitude or presupposition towards the feasibility of carrying out geological studies in India – India was regarded as unsuitable for any contribution of a theoretical nature toward geology.⁶ As yet another example of the concept of backwardness of India, a remark by Ellicott (Geologist, GSI) may be considered the occasional muster of a special collection for foreign exhibition will be altogether a gain - as an incentive to keep up to data, as a means of effecting valuable exchanges of specimens, and, not least as an opportunity for selected officers to renew their acquaintance with men and things in more civilized regions, and to improve their knowledge in the highly progressive sciences with which we have to deal.⁷

The above remark shows that India was considered to be a retrograded country where the cultivation of ‘progressive sciences’ was rather difficult to pursue. However, these attitudes reflect the train of thought that was prevalent in the initial stage of geological exploration by the Europeans. With the passage of time, however, they became more and more acquainted with the geology of India, fascination with Indian geology grew and accepting the challenges posed by it was considered rewarding, ultimately the Indian potential for contribution to the science of geology was recognized. This marked the beginning of the second stage. We quote a remark in this regard “we must still look for evidence where on the synchronism of the elevation of those mountains may rest to our Indian geologists.⁸The theory here referred to is the de Beaumont’s theory. During this stage, the freedom of thought in the colony, which was far away from the metropolitan scientific culture began to be appreciated. There were cases where testing gave negative results. Following is the observation of Medlicott Those who may remember the theory of the synchronism of parallel mountain chains, proposed by M. E. de Beaumont cannot fail to have remarked, that many of the conditions necessary for the investigation and application of that theory are here exceptionally well developed and for this reason the theory was applied. But after the application Medlicott observes we have been attempting to fix an age for the Vindhyan fault by referring it to the direction of some fault line in Europe taken as a standard of reference and whose parallelism is supposed to prove synchronous origin while we have before us the line of Mahadeva fault parallel to it and demonstrably separated from it by geological eras, it is palpable that our confidence in the result of the reference to M.de Beaumont’s European range system is destroyed by these considerations.⁹

The author at this point invoked ‘some possible errors in approximation’ but it is clear that these ‘errors’ are more fictitious than real, nothing more than a desperate psychological attempt to keep away the present anomalies. This points to the mental crisis of a colonial scientist. Thus, it can be seen that rupture with the metropolitan scientific tradition entailed a psychological crisis. Such cases are particularly important for the present purpose and therefore we shall discuss them in some detail. First of all, it should be noted that in India the colonial scientists were a stage of exploration. To explore such a vast country like India, a certain degree of haste became inevitable and this hurry could lead to errors in observation. First of all, it should be noted that in India the colonial scientists were a stage of exploration. To explore such a vast country like India, a certain degree of haste became inevitable and this hurry could lead to errors in observation. First of all, it should be noted that in India the colonial scientists were a stage of exploration. To explore such a vast country like India, a certain degree of haste became inevitable and this hurry could lead to errors in observation. This is a positive aspect because in the third stage the European geologists realized the true scientific potential of India. They began to take recourse to European scientific ideas but now with scientific prudence and not dogmatically. This marks the beginning of objective scientific pursuit.

As a manifestation of such syncretic tendency in geology, we consider the case of the mica industry. T. H. Holland (Director, GSI) noticed that there had been considerable uses of mica in India,

especially in native festivals. A surprisingly large quantity of Mica was used in India for a variety of purposes, for example, the native physician made enormous use of mica for the preparation of a number of medicines. The industry was not at all new for some of the mines had been worked for hundreds of years. Another remark by E. J. Brandshow may be quoted here. The excerpt is from his review of mineral production of India in the year 1930. India is still the greatest mica producing country in the world...the United States and Canada being next in importance of the total value of the mica produced by these three countries India accounts for some 87 percent.....The production of fine splitting by hand is an art which is performed to perfection in India. In fact, when the demand for mica splitting is brisk, a certain amount of mica is actually imported into India for conversion into fine splitting and subsequent export. India also holds a monopoly in the production of shellac, and has it in her power to hold a predominant position in the manufacture of micanite, an artificial commodity made out of the smallest and thinnest sheets of mica 41.

This remark points out the importance of the mica industry. It can be understood from the above remark that indigenous industries of India were considered to be important by the European scientists and for this reason a ground of interaction was prepared. Thus, the field of mica industry serves as a brilliant example of syncretic processes that involved scientific cultures of India and Europe.

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