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MAN IN INDIA

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THE RETURN OF THE INDIVIDUAL

By NIRMAL KUMAR BOSE

Calcutta University

MANY years ago, I was once travelling by railway train in the desert of Rajputana. The Aravalli Hills were in the distance and did not rise high above the horizon. As the train sped along, we saw from afar something which looked like a cloud of dust rising vertically over the head of the distant hills. Fellow-passengers who belonged to Rajputana said that it was a swarm of locusts; and as we proceeded on our journey, within several minutes' time, we found ourselves completely surrounded by millions and millions of these insects. I remember, when we first saw the cloud, it appeared to have a more or less spiral appearance. Whether this spiral formation was due to any wind which had caught the cloud of locusts, or whether the flight of the insects itself was such as to give rise to the observed phenomenon, we do not know. When some birds fly, they fly in a formation which is peculiar to themselves. In the case of others, there is no formation even when many fly together. Personally, we do not know what is true of locusts; but as we watched the spiral cloud as it rose that afternoon in Rajputana, it occurred to us that not one of those insects could have been aware of the appearance which their entire body presented to an observer from a distance.

It is even so with human history. Every individual lives his brief span of life upon the earth. He is subject to needs and desires which are satisfied in co-operation with groups of greater or less extent; while his motivations are moulded in conformity with values and patterns which are current in his time. And when we review the totality produced by the lives of individual men and women, observe the crystallized behaviour patterns, along with their tangible and intangible components, as they result from the space- and time-relation of various groups of mankind, we can observe certain broad characteristics which are comparable to the spiral flight of the locusts. And, as in the former case, so it can be presumed here that this is independent of the awareness or conscious direction of the human elements who participate in the total phenomenon of human history.

Ever since the beginning of the study of history, philosophers have tried to define the nature of this pattern, and, at the same time, discover any law to which man and his civilization might be subject. This enquiry has become a more urgent one ever since the days of Darwin, Spencer and Tylor. It has indeed been one of the major intellectual concerns of the Industrial Age. In industry, the individual very nearly lost his identity within the larger organization of the factory system, and in history too, thinkers proceeded to find evidence by means of which the prevailing view could be borne out. It might even be suggested that the Marxian generalization of history was, from this point of view, a logical manifestation of the Industrial Age. In it, the individual played as little a conscious part as did the locust in respect of the spiral formation. Man had already been stripped of his divinity by the progress of the sciences, and it remained for Marx to show that human history was subject to the same general laws to which the rest of physical nature was.

It is not our intention to suggest that the Marxian view becomes invalidated because it conforms to a current intellectual convention. Our purpose is to suggest that particular phases of civilization are attended by a specific range of inter-related ideas and values, and that the latter generally

spring from current or successful experiences of life. Sometimes the success is not actual, but potential. When one set of ruling ideas fails to furnish a satisfactory solution for the pressing problems of life, a second set gradually springs into favour, because of the belief that it has the capacity to lead the social group out of their present difficulties. In any case, when any such idea or value becomes dominant on account of its actual or potential utility, the tangible or intangible components of culture, including intellectual interests and concerns, are progressively recast in conformity with their nature.

In an essay published in 1929, the present author metaphorically designated such a group of ideas and values by the term *soul* in respect of the abstraction designated as human culture. It was said, "Beneath the outer framework of culture there lies a body of beliefs and sentiments which are responsible for the particular manifestation of a culture. They do not form part of any specific trait, but working beneath many traits, they give to each culture a character of its own.....Such a body of ideas and sentiments grows out of life's philosophy and is consequently conditioned by the needs and aspirations of each particular age..... in no case does the central core of ideas remain unchanged for any considerable length of time" (Bose, 1929, 32-3, or 1953, 15).

As a result of the current philosophical trend of the age, there came into being natural re-orientations in the field of anthropology too. Various endeavours were made to define the character of the movements observable in the history of social, religious or economic institutions. Some claimed that an evolutionary urge was clearly discernible, and this was independent of the immediate space- and time-relation of human groups. There also seemed to be satisfactory evidence of progress, which was obviously the result of some law to which culture, as an entity, was subject. Others were however not satisfied with the proofs furnished, and protested that although there was evidence of progress, yet this was due, not to any inner urge, but to the piling up of experiences and of culture. Moreover, evolution did not proceed along a uniform line all the world over, but was multilinear. Consequently, culture could

not be treated as an entity subject to its own independent law of growth or decay.

It is interesting to observe that those who tried to account for the developments of human history in terms of an evolutionary urge, or, in the alternative, as the result of the accidental invention and diffusion of culture traits, quite often tacitly assumed that the total phenomenon of human history was independent of the choice of the human minds which were involved in the process. As a logical corollary, the method of statistics came to be applied in order to raise the status of cultural anthropology to that of a fully objective kind of science.

Such enquiries undoubtedly yielded a new store of knowledge in respect of human culture, but it should be borne in mind that, as these intellectual preoccupations were subject to prevailing conventions, their character was also subject to consequent re-orientation from time to time. Perhaps the beginnings of an opposite movement are laid even when a contrary range of ideas holds supreme sway ; and on account of the exhaustion of one set of ruling ideas, that which was previously unnoticed or insignificant gradually comes up to the surface and begins to influence culture, including intellectual pursuits and concerns, in a new direction altogether.

While the view that human culture could be treated as an abstraction or independent entity held sway in anthropology, a protest was raised in the middle and late twenties of the present century in the view that although for methodological purposes culture could very usefully be treated as an abstraction, yet the final categories of explanation need not be independent of the human factor on that account. As an example, reference may be made to the present author's statement made in 1929 that "the historical, geographical, economic or morphological aspects of culture are, in fact, the settings of a drama which is essentially human in import and direction" (Bose, 1929, iv, reprinted in Bose, 1953,2).

This point of view was further elaborated in course of an essay entitled "The Contact of Cultures" in 1935. In it, a more ambitious endeavour was made to reduce a phenomenon

generally dealt with as an abstraction into terms of individual or collective human behaviour. After analysing several cases of culture contact, the following observation was made, "In our study of the Mundas of Chotanagpur, we observed that Hindu cultural traits ceased to be absorbed after the advent of Christian influence in the land. Christianity was attended by economic advantages, while Hinduism rather exercised a disintegrating economic influence. Thus when there was a choice between Munda, Christian and Hindu cultures, Christian culture was preferred as it was attended by higher economic value. It was the same in the case of the Juangs who gave up *jhum* cultivation and adopted the Hindu system of agriculture when faced by famine due to Hindu expansion and subsequent reservation of forests. Thus men select such traits readily as hold the promise of economic advantage. The same truth is borne out by our study of the modern history of Bengal. When men thought that advantage lay in a surrender to British power, they allowed themselves to be biassed in favour of European culture. When they felt the other way, they resisted Western influence firstly by orthodoxy, and then by nationalism of the communalistic, as well as of the territorial type.

"Men are thus guided by economic considerations in their cultural preferences. And in so far as it is so, it means that cultural operations are guided by the basic instinct of self-preservation which man shares in common with the rest of the animal kingdom" (Bose, 1935).

Although there was an element of naivete in the above explanation, yet its theoretical significance lay in the fact that this was part of an attempt to restore value to biological determinants, and eventually to the individual, in respect of cultural phenomena. This was in consonance with a growing opposition to the facile assumption that the individual organism, as such, was not significant in regard to historical processes. The new trend found its most powerful expression in the writings of Malinowski and his contemporaries of the Functional School.

It is interesting to observe that this trend was in keeping with similar movements in contemporary religion, psychology and history. The growth of science as an abstraction, unrelated

to moral considerations, which had almost made it a more powerful instrument of destruction than of life, had significantly reduced the respect which it had so long enjoyed. There was a feeling that however successful science may have proved in the field of technology, it had failed to give us a deeper understanding of the things which really mattered in human life. Much had undoubtedly been learnt though the processes of science, yet what remained unknown was more than what had become known.

In recent years, the influence of Freud has become increasingly felt in the field of psychology. Freud succeeded in proving that much of what had been regarded as the product of conscious motivation was, in fact, the result of drives which lay beyond the reach of direct perception. He moreover tried to explain in his book entitled *Totem and Taboo*, how what had so long been treated as an institutional abstraction could be better explained in terms of the inner workings of the human mind.

The present reaction against the treatment of culture as an independent entity need not however be taken at its full face value. It would perhaps be better to regard it as a natural and necessary protest against the complacency of men of science in respect of the particular methods of enquiry and interpretation which hold temporary sway in their private intellectual world.

In any case, the swing from a reliance upon large-scale observations of culture reduced into the form of abstractions to an enquiry regarding the part played by individual organisms in respect of cultural phenomena is becoming more and more urgent in contemporary anthropology. There are important schools of thought which, instead of reducing a subject like social organization into morphological institutional elements, try to reduce it to factors like "co-ordination, responsibility, foresight, basic assumption" (Firth, 1951, 78) and so on. Others again endeavour to compare and understand varying patterns of culture in terms of the personality structures which they produce.

It is interesting to observe that there is an attempt to reduce

the new categories of explanation into quantitative terms. Thus, Professor Raymond Firth has suggested that, "Degree of co-ordination can be expressed to some extent in scale and time span of the relations of the persons involved. Responsibility can be expressed as a function of the number of persons, range of statuses, and the type of social groups represented..... At the present stage of social anthropology such type of measurement is only beginning" (Firth, 1951, 79).

We are afraid however that an element like *responsibility*, for instance, may cover such a wide range of attitudes and meanings that it would perhaps lead us to a partial view of reality if the latter are reduced to one single term on account of their formal identity, and for the sake of facility of quantitative comparison. To take a parallel example, it might be stated that in India, the loyalty of men in respect of the caste organization may extend over wide ranges of feeling and significance. Some may continue to retain outward loyalty to formal requirements associated with caste because they do not want to be marked off from their neighbours by giving vent to their actual feelings. Others again may owe true loyalty to the system which continues to exercise its protective function over the lives of the men concerned. A third group, on the other hand, may show loyalty because its display symbolically serves to register their protest against the evil influence exercised by the worship of money in modern Indian society, even if the old system may have lost much of its protective ability. If such divergent attitudes are covered by a single term because the persons or groups in question continue to go through certain common outward observances, then the picture which will finally emerge may obscure some of the significant differences which lie within, and which may eventually give rise to divergent movements in the cultural history of the land.

Although quantity does succeed in giving us an understanding of things to a certain extent, and may prove to be the only help in specific cases, yet it need not be presumed on that account that something does not become understandable unless it is capable of reduction into quantitative terms. The present trend of drawing a comparison between varieties of cultures by reduc-

ing the new categories of explanation into numbers is perhaps part of the homage which continues to be paid to the school which claimed that culture can be significantly understood only in terms of abstractions amenable to statistical manipulation.

In our consideration of the two schools of thought, the question naturally arises, Does one or the other point of view lead us nearer to truth?, or, Does a pluralistic acceptance of both the points of view yield better results than any of them in isolation can? And here we are confronted by the problem as to what is truth after all.

In the communist view, the truth with reference to a particular phenomenon is that which gives us a control over the situation, so that we can change it according to the more general view of truth which we have already derived from our broad study of human history. That which leads us in the opposite direction, or blocks the way to progress, is born of wrong motives; it is an aberration of history, a carry-over from the past, and fit only to be destroyed in order to facilitate the advent of the condition which is otherwise also sure to come in course of time. Unfortunately, this is a view with which the present writer finds himself in serious disagreement. What reason is there to suppose that the human species is destined by history to reach a life free from exploitation, and that according to a means derived from a philosophy in which the individual is completely submerged in the collective being? Even if large numbers of men subscribe to the above point of view, and consider violence to be justified for attaining the good of the collective being, because it has hitherto proved to be the most significant instrument of change, should it be held, on that account, that it is the only possible, or even the most economical way of establishing an exploitation-free condition for mankind? Cannot another efficient way of change be also devised in which adequate value is retained with reference to the individual as such?

Moreover, why should we try to find a support for mankind's private hopes and desires by an appeal to history? Why should the needs of Life be *truer* to us, on that account, than

Death? Is it not enough that the upward trends of human evolution have been so because men have so desired?

These are indeed large questions. Let us, however, set them aside for the moment, and let us admit that that alone need not be true which conforms to the cherished dreams of mankind, even when the latter spring from a deep sense of human unity and justice. Truth ought to be independent of subjective considerations. And from this point of view, the school of anthropology which subordinates the individual completely to an abstraction, and the one in which the abstraction is regarded as the outward expression of the inner workings of a biological organism, perhaps both stand justified. Perhaps no one view can claim that it explains all the facts relating to man and his culture without leaving any residue. The very fact that such widely divergent views are possible should make us humble and stimulate us in perfecting our techniques so that we can attain the truth which, we believe, exists independent of the hopes and fears which sway our little human souls.

The study of culture contact referred to above (Bose, 1935) was made from this particular point of view, while the same theoretical position was re-affirmed incidentally in the act of drawing a comparison between Gandhism and Marxism in 1946. It was stated on the latter occasion, "Personally I find it hard to accept the superorganic theory, even in its modified form, as the last word in describing the relation between man and his culture. Nor do I accept the practical deductions which a Communist usually draws from it. There is no doubt that most men generally function in a passive manner; this saves them from the expenditure of a large store of nervous energy. But they can behave in a different way also. There have been moments in history when the active element has asserted itself in individuals as well as in large masses of mankind and given culture, including economic events, an unexpected turn. That such occasions have been rare is due to the fact that men like to avoid the sufferings consequent upon change and thus conserve their nervous energy. And it is this inner acquiescence, born out of conservatism, which gives culture its apparent power to rule over the lives of men" (Bose, 1947).

The theoretical significance of the above explanation lies in the fact that here both the views of anthropology are more or less co-ordinated. They are held to be true in respect of separate *phases* of culture, and these phases may or may not be necessarily distinct in point of time. As a matter of fact, it is held according to this phase view that, in the same social group, the orientation of smaller sub-groups may be such as to give rise to divergent incorporations, and even creations, in respect of culture elements, which eventually bring about a modification of the existing character of culture traits. The logic can be pursued further when we reach the view that the same individual or group may display varying valencies with regard to separate culture wholes or parts; and that these attitudes or orientations are highly significant in respect of the subsequent developments of culture history.

An effort to analyse the present social and cultural changes in Bengal was made by the author in 1952 (Bose, 1953), when an illustration of cultural analysis was presented incorporating the view that man and his culture are perhaps better understood when regarded as operating in organic interrelationship with one another. The two points of view in anthropology are held capable of throwing complementary light upon interdependent facets of the integration formed by man and his culture; although both start by being one-sided on account of their developmental necessity, eventually reaching a point of exhaustion if pursued in isolation from one another.

Indeed the fact that an organic synthesis of this kind has already been attained is apparent in the field of contemporary anthropological theory. One of the clearest expressions has been recently given by Professor A. L. Kroeber and Professor Clyde Kluckhohn in their critical study of concepts and definitions regarding culture (Kroeber and Kluckhohn, 1952, 184-90).

REFERENCES

- N. K. BOSE : 1929. *Cultural Anthropology*, Calcutta.
- N. K. Bose : 1935. "The Contact of Cultures." *The Calcutta Review*, January, February, March, pp. 69-74, 168-77, 305-19, particularly 306 ff.
- N. K. Bose : 1947. "An Introduction to Gandhism", *Saturday Mail*, June 15, 1946, reprinted in N. K. Bose, *Studies in Gandhism*, 2nd. ed., pp. 8-9.
- N. K. Bose : 1953. "Culture Change in Modern Bengal", *Man in India*, Vol. 33, No. 4 and "Democracy and Social Change in India," *The Modern Review*, April, 1952, both reprinted in N. K. Bose, *Cultural Anthropology and Other Essays*, Calcutta, pp. 192-213.
- Raymond Firth : 1951. *Elements of Social Organization*, London, pp. 78-9. A. L. Kroeber & Clyde Kluckhohn : 1952. *Culture, A Critical Review of Concepts and Definitions*, Cambridge, Mass, pp. 184-90.

SCIENCE AND MYTHOLOGICAL THINKING*

By D. M. BOSE

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ON looking back to the days I spent as a student in Cambridge from 1908-1911 I find that there are certain points of similarity and also some divergence with the experiences in Cambridge of Prof. K. P. Chattopadhyay, the Head of the Department of Anthropology of the Calcutta University. Like him I went to Cambridge to study physics but unlike him I stuck to physics and did not change over to anthropology. I had however a non-specialist roving mind which made me divert a part of the attention which I ought to have devoted to physics only, to indulge in desultory readings in other subjects, stimulated by the milieu in which I was placed in Cambridge, two of them being evolution and social anthropology.

I was a member of Christ's College to which Charles Darwin had also belonged. In 1909 a celebration was organized by the University and the College to celebrate the 50th anniversary of the publication of Darwin's *Origin of Species*. The reading of a collection of essays then published in a memorial volume, left in me the impression that most of them contained criticisms of the inadequacy in some respects of Darwin's theory to account for many observations which had accumulated since Darwin's publication; the largest volume of criticism naturally coming from the new school of Mendelians, of whom William Bateson was the leader in England. I suppose that is the fate of all theories, even of epoch-making ones like that of Darwin. The role of a theory is to correlate a large number of unconnected observations and to stimulate further observations and direct new experiments. As new data accumulate the old theory is found inadequate in many respects. A period of interregnum follows, when data accumulate without any unifying principle to inter-

*Based on address given at the Reunion of the past and present students of Anthropology, Calcutta University, on April 10, 1954.

pret them. Since Darwin the science of genetics has been largely placed on a quantitative experimental basis. There are still several unresolved controversies, on the mechanism of evolution, regarding the nature and origin of the variations on which natural selection acts. The other subject I was interested in was social anthropology, in which lively discussions were going on between classical scholars and anthropologists who had pointed out the primitive origins in Greek religion preceding the Olympian age of Greek culture.

Jane Harrison's book, *Prolegomena to Greek Religion*, aroused the ire of many classical scholars. Her conclusions are now generally accepted; a good account of which is found in Gilbert Murray's interesting book on *Five Stages in Greek Religion*. Cambridge was then under the influence of Sir James Frazer, the author of the monumental work on social anthropology, *Golden Bough*. He was then I believe a resident Fellow of Trinity College, Cambridge. It appeared at that time that the results of Jane Harrison's investigations generally supported Frazer's hypothesis, that all religions pass through similar primitive stages. This year is the centenary of the birth of James Frazer. Several articles have already appeared assessing the contributions which Frazer had made in introducing the comparative method in social anthropology. Everybody, while acknowledging the pioneering work of Frazer, feels the inadequacy of the way in which Frazer had arranged his data and of the hypothesis which he had introduced to explain them. It seems to me that a similar fate is overtaking Frazer's contribution to social anthropology, as had happened to Darwin's theory fifty years ago. Darwin's work however is based on a more solid foundation than Frazer's.

I have had no occasion during these intervening years to study either evolution or social anthropology. Recently, during the last three years, in course of preparing certain addresses, I have been interesting myself in the study of problems which belong to the domain of social anthropology. My approach to such problems have been that of an interested amateur, which may invite justifiable scorn and derision from professional

anthropologists. But the importance of these questions appears to justify their study by even non-specialists.

The first question which has interested me is, what is the peculiar combination of physical and social environments and mental aptitudes prevailing in Europe from the time of the Greek civilization up to the Renaissance, which made possible the growth of science in Europe and not in China or India ?

The second question is, how have the civilizations of China and India reacted to the impact of Western cultures during the last two or three centuries ? According to Toynbee, European culture has a spectrum, of which the important constituents are technology, political institutions and religious practices. It appears as if out of these, technology has penetrated most deeply into the body of the oriental civilizations. The answer to the question, what the effect of this impact has been, will depend on what conception we have of the nature of a civilization. According to Spengler, each civilization is like an individual with a definite life cycle of growth, maturity and decay, and further each civilization has a soul like a monad which is impervious to all external influences. Toynbee on the other hand holds the view that each civilization passes through a number of stages of growth, with periods of stagnation intervening. It is not clear whether the different stages of growth in a civilization are due to release at different periods of some internal factors inherent in it, or to the presence of latent capacities which are released by impact with foreign cultures.

I believe it was Sir James Frazer who first formulated the recapitulation theory of the development of culture. Frazer was interested in discovering in every group of people the existence of certain definite stages in the development of religion from magic and rituals. He assumed that not only is the human mind essentially similar in all men, and that ancestors of civilized people pass through stages at which contemporary savages now are, but also that there is an essential similarity between customs, traditions and institutions, in which the human mind finds expression among different peoples who are at the same level of cultural development. Spengler also believes that every civilization passes through analogous stages

of development and decay. Frazer had on the other hand accepted the mid-Victorian optimistic view of the inevitability of progress through evolution.

The interesting question then arises, whether the present impact of Western technology will set free some latent capacities and unfold an epoch of scientific and technological development in our civilization similar to that in the West or whether we have to accept Spengler's view that each civilization has its particular soul which goes through its own law of development and is impervious to external influences.

Here we come against the important question of the influence of mythological thinking on religion and science. We can trace back the growth of the human race to the period of time when man began to differentiate himself from his anthropoid ancestors, by the development of certain manual skills, mental aptitudes, power of communication by speech, etc. Man became a food-gathering and tool-using animal, and two of his greatest inventions were agriculture and the controlled use of fire. This was the beginning of science and technology. Man employed his reasoning faculty to deduce from his observation of the external world, as received through his sense impressions, certain generalizations on the nature of this external world, and the laws which govern them. At the same time, primitive man differentiated himself from the animals by the fact that the terror which was inspired in him by outward manifestations of the forces of nature, did not constitute the limit of his psychological reactions. He alone had a brain which enabled him to go beyond. By his creative imagination and an aptitude to give birth to abstract ideas, he was able to pass from simple terrors which maddened or paralyzed him, to the invention of an imaginary being, the originator of these terrors; he passed from effect to cause and also personified the cause. For the propitiation of this terror-inspiring spirit, man developed rituals and magic from which religion arose. It is now generally accepted, that much of our religious experience is expressed in terms of myths, which are symbolizations of certain universal kinds of processes which take place in the unconscious regions of the human mind. In all historical

religions such myths are to be found present in greater or lesser degree. It appears also that there is some inverse relation between man's rational thinking power and his myth-making propensities. For example, from the time of the Thales, the Greek school of natural philosophers excluded every attempt to interpret the world of nature in terms of mythological concepts.

In his lectures on the origins of modern science, Whitehead has discussed the factors which contributed to its flowering in Europe. Amongst them are the contributions of the Greek to the growth of a belief in an order of nature, whose secrets can be unlocked by the human intellect. To this theoretical outlook was added the contribution of the practical genius of Rome, by which thought is kept close in contact with the world of facts. The monasteries founded by men like St. Benedict were the homes of practical agriculturists as well as of saints, artists, and men of learning. This fostered an alliance of science and technology by which learning was kept in contact with irreducible and stubborn facts.

To this was added the growth of an empirical method as exemplified in Galileo's experiments, according to which, questions in the form of experiments were put to nature to find out how things happen. This was a complete breakaway from the scholastic attitude, which claimed to deduce from reasoning only why things do happen.

I shall deal here only with the Greek contribution to the growth of a belief in the existence of an order in nature, and the capacity of the human reason to discover it.

The great contribution of the Greeks to the growth of science in the West is that they, for the first time, conceived the possibility of establishing a limited number of principles and deduce from these a number of truths which are their rigorous consequences. From the time of the Ionian natural philosophers to that of Pythagoras and Plato, there was a gradual change from a materialistic to an idealistic interpretation of nature, viz., in the former, mind was taken to be a by-product of four inanimate elements, Fire, Water, Earth and Air which constitute nature, while in the idealistic interpretation,

mind or design or Providence came first and after it nature and the products of nature. Pythagoras interpreted qualitative differences in nature as based on differences in geometrical shape. Further, he found experimentally the relation between the frequencies of vibrations of strings and simple numbers. This was the beginning of the intimate relation which grew between physics and mathematics. From such beginnings grew up a belief in the existence of an order of nature which gradually permeated Greek thought. According to Whitehead, the conception of moral order in Greek plays is not an invention of the dramatists, but must have passed into the literary tradition from the general serious opinion of the time. The Greek tragedies contain a vision of Fate, remorseless and indifferent, urging a tragic incident to its inevitable issue ; this becomes later the vision of science.

During the period of decay of the Hellenic civilization the concept of moral order enshrined itself in the Stoic philosophy, in which it was maintained that "Divinity had determined all things by an irrevocable law of destiny which He Himself has decreed and which He Himself obeys." This Stoic conception of moral order had also put its stamp on Roman jurisprudence. Scholastic philosophy which had grown up under the dual tradition of Aristotle's metaphysics and the Roman conception of law, conceived the mediaeval God to be a just ruler who had ordained that everything should occur according to a rational scheme. This conception of a rational God was gradually transformed during the Renaissance into the conception of an order of nature understandable by human reason, which formed the intuitive background on which experimental science grew from the time of Galileo.

My knowledge of the backgrounds of our own civilization is I regret to confess very scanty. It seems to me that at no stage in our cultural development have we been able to shake off completely mythological thinking, and belief in the arbitrary interference by gods in the affairs of men. The activities of these gods are not controlled by any inevitable working of a Fate, but are influenced both by their own desires as well as by the prayers, penances, and sacrifices by their human

devotees. Even to-day we see the same tendency working, of ascribing extraordinary divine powers to religious leaders by their followers. This I believe is a survival of mythological thinking in our present time, and is inimical to rational thinking, in the belief of the existence of an order in nature, whose working cannot be influenced by human desires. Without such a belief, a scientific attitude towards nature will not grow in our country. It will be worthwhile making a comparative study of the evolution in the Graeco-Christian culture of Europe, as exemplified in their myths, epics, drama, philosophy and theology, as against the corresponding development in our Indian culture. This will enable us to understand why we have failed so far in developing a scientific theory of nature, and its utilization in the building up of science and technology.

Some of you may take the view that the development of science in the West with its potential threat of destruction of the present civilization by means of atom and hydrogen bombs, has not been an unmixed blessing. I will not dispute that view. We have however to take in consideration that all gifts of nature are double-edged weapons, with potentialities for good and evil. Control over such unleashed powers of nature and application to the purpose of human welfare only, will depend on us, how far we can incorporate in our daily life all the ethical ideas to which we pay conventional lip service. Probably the social anthropologists and analytical psychologists will explain to us why we formulate such high ethical ideas which are very seldom put into practice by ordinary men

A MAGICO-RELIGIOUS CEREMONY IN CONNECTION WITH THE DISEASE OF A HO BOY*

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Introduction

THE actual procedure of divination for finding out the cause of a disease and its connected treatment and worship which were performed with reference to the disease of a Ho boy of village Makundpur, Saraikela Police Station, District Singhbhum, has been described in this paper in detail.

For the purpose of description the facts have been divided into two parts. The first part deals with the methods of divination and treatment of the disease, while the second part deals with the worship of Marang Bonga (मरंग बोंगा), a supernatural being who was held responsible for the cause of the disease. Actually, the term Marang Bonga signifies two individuals, a male with its female counterpart. As all that was done with regard to the first part took place before we went to Saraikela, its account is based on the data collected from the persons who were connected with the ceremony. The data for the second part were collected by direct observation in the field and by interviewing the participants.

Method of Divination and Treatment

One day, in the month of January 1954, Motae of clan Kerai, aged seven years, son of Gora of village Makundpur, after taking his bath in a nearby tank came back to his hut. Soon after, he was laid up with high fever. As the temperature

*The Hos are a tribe of Singhbhum in the State of Bihar who speak a language belonging to the Mundari group.

rose and his eyes turned red, his parents recognized it as a case of fever.

Next morning, Gora went to a *denoan* (दैनीयाँ) or village magician and medicine man who lives in the adjacent village named Dolandi. His name is also Motae and he belongs to the same Kerai clan. Genealogically, he is Gora's father's father's brother's son. In order to distinguish the magician from the sick boy hereafter the magician will be referred to as Motae, while the sick boy will be designated as *the son of Gora* or *the sick boy* or simply *the boy*. When Motae came to know about the disease, he requested Gora to consult Soma, his younger brother, who is also a magician and medicine man. But as Soma was busy with his household work, he referred the case to another magician of the village whose name is also Soma but who belongs to the clan Soy. This man will be designated as Soma Soy, while Motae's brother will be referred to as Soma Kerai.

As directed by Soma Kerai the case was reported to Soma Soy who accompanied by Motae went to Makundpur in the afternoon to find out the cause of the disease by means of divination. While he was going to Makundpur, Soma Soy took a small quantity of *adoa* (अदीया) or sun-dried rice with him. The method of divination is known as *chaulijang* (चरलि जङ्ग).

The divination took place on a piece of ground outside Gora's hut. There Soma Soy selected a piece of stone just big enough for a man to take his seat. Then, according to his direction, Gora sat upon that piece of stone on his haunches with a handful of sun-dried rice in his right hand taken from the amount which had been brought by Soma Soy. After this Soma Soy taking a handful of rice in his right hand and sitting in front of Gora, facing him, began to utter the names of different bongas (बीजा) or supernatural beings one by one. Each time he uttered the name of a supernatural being he struck the stone with a grain of rice from his hand. But when he did so in the name of Marang Bonga after two other supernatural beings, Dharam (धरम्) and Geram (गैरम्), the stone on which Gora was sitting started tilting very slowly. According to them, this sign indicated that Marang Bonga was responsible

for the disease. Through enquiry it was learnt that no other incantation was made during the *chauli-jang* ceremony. For performing this ceremony, Soma Soy received three measures of rice. One measure or a *paila* (पैला) is equal to about three pounds.

Thus the divination ended and all of them returned home. Soma Soy on his way back reported the result of divination to Soma Kerai. Next day Soma Kerai prepared a medicine by powdering roots and leaves of some plants, of which the names were kept secret by him. The roots and leaves had been dried in the sun after collection from nearby fields. He then gave that medicine to Gora and asked him to administer it to the sick boy early on the following day. Gora followed his advice, and after three days, the boy was reported to be cured completely.

Another three or four days passed, when Gora accompanied by his elder brother Ramsingh went to Motae's house at Dolandi. There they discussed with Motae whether they should do anything more for the welfare of the boy. According to them if Marang Bonga once become angry, he could do harm. So Motae suggested that they should appease Marang Bonga by worship and sacrifice. But as Ramsingh who works at Tatanagar was not in a position to come before the 16th of February, it was decided that the worship of Marang Bonga should be performed on the 16th of February 1954, by Motae when a ram would be sacrificed to appease him.

Worship of Marang Bonga

On the day of worship, Motae kept fast from early morning. Before sun-rise, he had however taken a small quantity of *diang* (दिङ्ग) or home-made rice beer. Up to 9.30 a.m. he did all his household duties as usual. After that he went to Gora's house at Makundpur, where Gora was waiting for Ramsingh to come back from Tatanagar. Within half an hour Ramsingh arrived; then everybody become busy in the preparation for worship.

Motae and Mongol, Gora's younger brother, went to a nearby tank for bathing. Motae took one *dhoti* (दोती), a piece

of cloth from Gora's house, while Mongol took another cloth for him as well as one *kapi* (कपि) or iron axe used for sacrificing animals, one *punki* (पुन्कि) or iron knife used for dressing vegetables, fishes etc. and one pot made of brass. All these were old ones belonging to the family and used every day. Before bathing, Motae rubbed a small quantity of *chita-mati* (चिता माटि) or soft clay which is available by the side of the tank on his head; after which he took his bath. This was looked upon as a purificatory bath. Motae said that such purification is essential on the part of the worshipper, otherwise the Bonga would not accept any offering from him. After bathing, he changed his cloth and wore another piece which had been brought from Gora's house. Then he washed the piece of cloth he had been wearing in water and put on the wet cloth. Then he filled up the brass pot with water from the tank. By this time Mongol had polished the axe and the knife by scrubbing them with straw and earth. He now took his bath and wore the cloth which had been brought by him. Both of them then returned to Gora's house with all the articles carried by them, the brass pot was carried full of water.

All the while, the boy had been lying on a *parhom* (परहोम), a home-made cot, in the courtyard of the house. On enquiry it was learnt that this had no particular significance and that he could have stayed anywhere he liked. After Motae and Mongol came back from the tank, Gora's wife removed the clothing of her son and bathed him with the help of a piece of cloth soaked in hot water, which had been made ready in the meanwhile. When the bath was over, the boy was dressed in a fresh half-pant and shirt. Then Gora's wife lifted the boy and carried him in her lap to within the hut. The boy became nervous and began to cry.

While Gora's wife was busy in bathing her son, Sumi, Gora's mother, powdered about a pound of sun-dried rice on a flat stone slab called a *diri* (दिरि), used as a metate, with a muller of stone called *gudugudiri* (गुदुगुदिरि). During grinding, the rice was wetted with a little amount of water. When this was over, Ramsingh changed his cloth for a clean hand-woven towel and took the powdered rice in a leaf-cup which was

placed on a winnowing fan called *hata* (हटः). The leaf-cups required for the occasion had been made previously by the womenfolk of the household from *sal* leaves (*Shorea robusta*). The following articles were also kept on the winnowing fan, a new *chatu* (चट्टु) or earthen pot, one ladle made of aluminium, a few dried balls of cow-dung, the bell-metal pot containing water, the axe and the knife mentioned previously. Beside these some quantity of sun-dried rice was kept there in a leaf-cup.

Then Motae with the winnowing fan containing those articles went inside the hut. Gora also went in and took his son up in his arms and sat in front of the *ading pindigi* or seat of the dead ancestors represented by a small roughly rectangular mud platform. After that Motae stood in front of Gora and his son, with knees slightly bent and holding the winnowing fan near the head of the boy. In the meantime, Ramsingh brought a ram of whitish colour, which had been purchased for this occasion, from behind the house where it had been grazing and then tied one end of a rope around its waist and stood on the left side of Motae while the other end of the rope was held by him. Then Motae uttered the following incantation :

ओषा मरंग् वीङ्गा सजुल् लःम् दख्ख। केः लियम् तुया तुका मिच्छि दीयेः ते ।
 ओषा नादया लाग् मासुदी देकि बलेःहोन् बलेःगंडा, ओषा तिसिङ्गाएते बुगियोःकए ; ओषा
 इति चेतन्-सदीम् चेतन्तेम् हुजुः लेना । घासौकी डीम्की वाज-वाजीङ्गियाते, तेरेपेटेते अउलियः
 की ; ओषा तिसिङ्गाएते दीएते-दकाते एमम् तनःते, ओषा वाज्-वजीङ्गियाते ओइलते
 रूषामि-बुगियोः कए ने होन् । दायेते-दकाते मर ओमः मियाले सिरिव-तुंएम्सेनीः रूषाम् ।

“Oh ! Marang Bonga ! let him (the boy) be well and all right from this day. Whether you had come riding on an elephant or on horse-back we cannot say, and with the accompaniment of drums and flutes, Oh Lord ! we are giving you all these things, ram, rice etc. for which you visited us. Please accept these and go back just as you had come riding on an elephant or on a horse, that we cannot say and with the accompaniment of drums and flutes. Please do no more evil to us.”

When the incantation was over, Ramsingh came forward and made the ram's mouth touch the boy's head. Motae said

that this was done to indicate to Marang Bonga the fact that the ram would be sacrificed for the welfare of the boy. After that Ramsingh went back a few steps, when Motae again recited the following formula :

मिरिम् गम् केनाते पनम् तनाले ने मयोमते—खिरोमते जुखयाम् । जोरीषम्
तनाले सेनोः खयाम् खू; बुद बुगियोः कनोः कए ।

“You have brought fever to this boy for this particular thing (i.e., the ram), so we are bidding you farewell with the blood of this ram.”

Then they came out of the hut and Gora handed his son back to his wife. The boy was no more required for the occasion. While coming out of the room, Motae took the winnowing fan and Ramsingh led the ram. Both of them then went under a jujube tree situated about fifty yards to the north of the hut. This tree is situated within the land belonging to Ramsingh and Gora. On reaching there, Motae laid down the winnowing fan and Ramsingh tied the ram to the trunk of the tree. In the meanwhile, Mongol brought some chopped wood (fuel) and a *goreya* (गोरैया) or a large bell-metal pitcher filled with rice-beer from inside the hut and kept it by the side of the winnowing fan. The rice-beer had been prepared earlier by Sumi.

Next, Ramsingh went to the nearby field to collect *bunnum hasa* (बुनुम् हासा), earth from an ant-hill, for making an improvised oven which would be used for cooking the food to be offered to Marang Bonga. According to them, it is essential that the earth should be gathered from an ant-hill for making the oven, otherwise Marang Bonga would not accept the cooked offerings. In the meantime Mongol brought another new earthen pot which had been purchased earlier. It was used later for cooking meat.

After that, Motae sat down under the jujube tree and facing west cleared a patch of land, about 1 foot 6 inches in length and 6 inches in breadth, by uprooting the grass and plastering the place with cow-dung, which was on the winnowing fan, mixed with water. Then he drew an inner border along the edge of that patch of land with some powdered rice taken

from the leaf-cup kept on the winnowing fan. Motae said that this patch of land represented the room with the ancestors' seat, and the inner border of powdered rice represented the walls of that room. He also said that the worship of Marang Bonga is performed in the open and the worshipper sits facing west. Then Motae took the leaf-cup full of sun-dried rice from the winnowing fan in his left hand and taking a handful of the rice on his right hand with clenched fist, while the thumb was directed upwards, recited for the second time the same incantation which had been uttered first inside the hut. They said that this was done only to remind Marang Bonga that the worship was being done for the welfare of the boy.

When the incantation was over, Motae made twelve small heaps with the rice which are called *chauli mundi* (चउलि मुण्डि) in two rows of six within the cleared piece of ground. Motae said that the first row represented the rice to be offered, while the second row represented the side-dishes. These were offered one by one to Marang Bonga and the dead ancestors of the family and the worshipper. No incantation was made for their offerings, but the names of the persons concerned were uttered while making the heaps.

The first two pairs of heaps of rice were offered to Marang Bonga as Marang Bonga signifies two individuals, one male supernatural being called Pauri (पउरी), while the other is his consort Kera Ma (केरा मा). The third pair was offered to Kande, father's father's father of Motae. The fourth and the fifth pairs were offered to Selai and Kande, father's father and father of Motae respectively. The last pair was offered to Selai, father's father of the boy and the dead members of his patrilineal lineage called *haga*. In naming the dead persons the suffix *haram* (हउम्) was added to each name. This word means *old man*; it is only used to signify a dead ancestor.

In the meanwhile, Ramsingh had returned with a few lumps of earth from an ant-hill. He next dug a hole at a little distance to the south of the cleared patch of ground with the help of a sharpened piece of wood. After that he placed three lumps of the earth of ant-hill and a piece of stone around the hole. Then after washing the new earthen pot which was

kept on the winnowing fan, with water from the brass pot, put it on the improvised oven and lighted a few pieces of wood inside the hole. When the pot was dry he put two measures of rice in the pot with some quantity of water. According to them, it is essential that the pot must be dry before cooking any food for Marang Bonga, otherwise he would not accept the offering.

Motae then took the ram in his lap and tried to make it eat the rice from the heaps. But the animal did not do so. Next, some jujube leaves were placed on the rice, but the ram took only the leaves and not the rice. So Motae caught hold of the animal and forced open its mouth and began to push down rice from the heaps into its mouth, while he began to utter incantations at the same time. First he recited the incantation which he had uttered inside the hut before the ancestors' seat, then he recited another incantation which ran as follows :

अपे मुनुम् हडम्—दमकी—काण्डे हडम्, सेलए हडम्—काण्डे हडम् नि गेपे सेवा लियः,
तो ने चले होन्की सेवाइ तनालि ; ने अपे मुनु चिलकापे सेवा लियः—एन्कागे चलेचोले
सेवाइतना—मरेः रुया करः ।

“We are worshipping you (Marang Bonga) as Kande, Selai and others (the dead ancestors) used to do. We are children of the present day and we are trying to imitate you (the dead ancestors), so please make him (Marang Bonga) understand us and let him leave us alone.”

When Motae finished the incantations, he got up and untying the rope from the ram's waist fastened it round its neck keeping a long loop. Then Ramsingh inserted a piece of wood about a yard long through that loop and pulled it upwards by holding one end of that wooden stick so that the ram could not sit. Motae then stood up with the axe to sacrifice the ram. First he struck the ram's neck with the edge of the axe, which was not very sharp, three times ; as a result, the ram fell down with the head slightly detached from the body. Next he sat down and removed the head from the body by sawing the neck on the edge of the axe. In the meanwhile, Mongol brought an aluminium pot from the house. And Ramsingh collected the blood in

that pot from the convulsing body of the ram by holding the body by its hind legs so that the neck was just above the pot. When practically all the blood had been drained and only a few drops still trickled down, Motae took the body of the ram and held the body in the same posture over all the heaps of rice one by one for some time so that a few drops of blood fell one each heap. Then he kept the body of the ram a little away on the ground and placed the head in the centre of that cleared patch of land facing west and recited :

मयीम् जीरीया ने नेया चतङ्गमे ।

“We are giving you blood, please accept it.”

Then Motae picked up the head of the ram and taking it behind the cleared patch of land asked Mongol to bring some dry leaves and straw. Within a minute or two Mongol brought some quantity of dry leaves and straw collected from here and there and placed them before Motae, who then placed the head between two layers of straw and leaves and set fire to it, while Ramsingh and Mongol did the same thing with the body of the ram separately. As a result, all the hairs of the face and body were burnt away, the skin was also partially burnt. Then Ramsingh took out the heart of the ram with the help of the axe and cut it into twelve pieces by means of the knife. Next he took out a portion of a leg and similarly cut it into twelve pieces. After that Motae placed those twelve pieces of heart and the twelve pieces of meat from the leg of the ram on the twelve heaps of rice. While placing the meat on the rice, he said :

ने कखिजा एमम् तनदङ्ग—इसिम् कैयाते जीनेम् ।

“We are giving you the heart, cook it and eat it.”

After that they waited till the rice, which had been put earlier within the earthen pot by Ramsingh over the oven, was properly cooked. When it was ready Ramsingh put the other new earthen pot over the lighted oven after washing it with water. When this pot become dry, the meat of the body, not of the head, was cut into pieces and placed inside the vessel with some amount of water and turmeric to which a little

salt was added. The aluminium ladle which was on the winnowing fan was used for cooking the meat. When the meat was ready Ramsingh took out twelve pieces of cooked meat and kept those pieces in a leaf-cup, the rest of the meat was poured into the pot containing boiled rice and mixed thoroughly by shaking the pot. Next, Motae took the pot in which the meat was cooked and after washing it with water put it on the lighted oven. When the pot became dry he cut the head of the ram into pieces and placed them inside the pot, including the brain, and boiled it for some time. Then the fire was extinguished. After that Motae took those twelve pieces of cooked meat kept separately in a leaf-cup by Ramsingh, twelve pieces from the head and some quantity of boiled rice, which in turn were placed one after another on those twelve heaps of rice. Thus, on each heap was kept a piece from the head, one piece of meat from the body and a few grains of rice. All those things were cooked. As the things were being placed he uttered the following words :

ने माण्डिकी, चतुकी, ने एमम् तनइइ, जीमिम्।

“We are giving you cooked rice and side-dishes, please eat.”

Thus the ceremony was over and the men concerned sat down to eat the remaining food which had been made ready. Ramsingh, Gora and Mongol ate some quantity of rice and meat from the body of the ram, while Motae ate the whole of the brain and the meat from the head, together with some boiled rice and meat from the body. Later they took some quantity of rice-beer which had been kept there. Motae said that only the worshipper should take everything from the cooked head of the sacrificed animal, otherwise Marang Bonga would reject the offerings. Ramsingh said that the remaining portion of cooked meat from the body, mixed with rice together with the remaining quantity of rice-beer would be distributed among the male villagers belonging to their clan only. On enquiry it was learnt that women are not allowed to see the worship, nor are they allowed to touch the

earthen pots used in connection with the worship. The earthen pots are broken and thrown away by the menfolk associated with the ceremony. The women are not allowed to use the metal implements and utensils connected with the worship until the male persons wash them. If these taboos are broken the family concerned will die of the anger of the Bonga. So everything was done accordingly.

An amount of rupees 18 and annas 8 was spent by Gora to perform the divination and the worship, details of which are given below :

1. Cost of three measures of rice paid to Soma Soy for performing the divination ...	Rs	as	p
	2	0	0
2. Cost of fuel ...	0	3	0
3. Price of two earthen pots purchased for the occasion	1	0	0
4. Cost of rice for preparing rice-beer ...	2	0	0
5. Cost of rice used for making rice powder, the twelve heaps of rice and the amount which was cooked ...	1	5	0
6. Price of the ram	12	0	0
	<hr/>		
Total:	18	8	0

THE RELATION BETWEEN TERMINAL DIGIT AND DIGITAL FORMULA IN MAN

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Introduction and Problem

THE three digital formulae ($3 > 4 > 2 > 5 > 1$, $3 > 4 = 2 > 5 > 1$ and $3 > 4 < 2 > 5 > 1$) of the human hand do not "express the relative lengths of the digits but the relative projection of the tips of digits from the extremity of the limb" (Wood Jones, 1946). The variation in the above formulae is, therefore, caused by the relative lengths of the fingers II and IV. The role of the individual digit or phalanx in the expression of the above formulae is unknown and in the present study, it is proposed to enquire whether the above three formulae are also expressed in the individual digits or phalanges. Phelps (1952) in discussing the anatomical basis for variability in formulae has left the question open. He says, "The question arises as to whether the observed formulas are the results of difference in the relative length of the index and ring digits (sum of the three phalanges), differences in the relative length of the index and ring metacarpals, or differences in relative ray lengths (sum of metacarpal and digit lengths)." The terminal digit and its inner phalanx, therefore, form the subject of the present study.

It should be mentioned at the outset that the digital formula is not applicable in the case of the digits singly. In the case of the terminal digits the conspicuous place of the III terminal in the above formulae is taken up by the thumb. The III terminal digit is not always longer than the other members, rather it is sometimes equal to one another ($2 = 3 = 4$) and sometimes it is superseded in length by the II or IV. Thus from this point of view, the uniformity of the digital formulae attains a large number of combinations.

The main purpose of this study is to find out the variabilities of the II and IV digits and phalanges. Whether the digital formulae is a sum total of the three digits or phalanges taken together or an expression of the individual digits or phalanges, is the main point of enquiry. For this purpose the three digits or phalanges require individual study and besides the present one, which comprises only the terminal digit and phalanx, there has been one on the middle digit by Haetinger (1939). For obvious reasons the middle digit will not be discussed here ; we will confine ourselves to the terminal one.

Earlier studies have also found a sex difference in the manifestation of the relative lengths of digits II and IV. In a recent study Phelps (1952) has shown the relative length of the index finger to behave as sex-influenced in inheritance, while George (1930) found a sex difference in the digital formulae in a group of Canadians.

The Data

The materials for the present study were collected at the Kaiser Wilhelm Institut fur Anthropologie, Berlin, during 1938-39 in the course of a study on the heredity of the finger nails (Sarkar, 1944). For this purpose 25 pairs each of monozygotic and dizygotic twins of each sex were investigated, 19 pairs of monozygotic female, 14 pairs of monozygotic male and 18 pairs each of dizygotic male and female twins were also studied with the help of X-rays. Terminal digits of 3 pairs of male and 7 pairs of female twin embryos and terminal phalanges of 3 pairs of female twin embryos were also examined.

The average age of the male twins is 9 yr. 8.5 mths., while that of the females is 10 yr. 3.5 mths. The average age of the male and female twins whose fingers were X-rayed is 9 yr. 1 mth. and 10 yr. 1 mth. respectively. The whole work was carried out under the guidance of Prof. Eugen Fischer, to whom the author is greatly indebted.

Relative Lengths of Digits II and IV

A difference of less than 0.5 mm. was considered to be the criterion of the relative length between the two digits. George

used the 0.5 mm. criterion while Phelps grouped his data into two categories of <1.0 mm. and 2.0 mm. In the present data the range of variation in lengths was found to be between 0.5 mm. and 4.0 mm. in the case of males and between 0.5 mm. and 5.5 mm. in the case of females. The present data have been examined in the light of all the above three criteria. Table I shows the relative lengths as found in each group of twins, and their combined frequencies on sex basis.

TABLE I

Relative Lengths of Terminal Digits II & IV

<0.5 mm.

	Male				Female				Embryo	
	EZ	ZZ	Total	%	EZ	ZZ	Total	%	Male (no.)	Fem. (no.)
2<4	67	64	131	65.5	51	62	113	56.5	6	12
2=4	19	15	34	17.0	26	15	41	20.5	4	14
2>4	14	21	35	17.5	23	23	46	23.0	—	1
	100	100	200		100	100	200		10	27.

<1 mm.

2<4	57	61	118	59.0	42	54	96	48.0
2=4	31	23	54	27.0	42	27	69	34.5
2>4	12	16	28	14.0	16	19	35	17.5
	100	100	200		100	100	200	

2 mm.

2<4	27	26	53	26.5	20	16	36	18.0
2=4	70	68	138	69.0	74	79	153	76.5
2>4	3	6	9	4.5	6	5	11	5.5
	100	100	200		100	100	200	

EZ=Monozygotic

ZZ=Dizygotic

It will be apparent from the above table that the terminal digit shows in the <0.5 mm. group the highest frequency of $2 < 4$ among both the sexes while the other two formulae, $2 = 4$ and $2 > 4$, show almost equal frequencies among the two sexes, though there is a tendency of the females showing a higher frequency of $2 > 4$. This order is not materially changed in the >1 mm. group. The increase of 0.5 mm. in the former classification has caused some gain in the percentages of the formula $2 = 4$. A further increase of 1.5 mm. in the classification level, 2 mm., has also caused the formula $2 = 4$ in having the highest frequency of all among both the sexes. There has been correspondingly a remarkable reduction in the frequency of $2 > 4$.

The results of the embryo studies are however interesting. The males show the highest frequency of $2 < 4$ while the females show the same in respect of $2 = 4$, with a single instance of $2 > 4$. It may therefore be said that the male embryo order is $2 < 4$ while that of the female is $2 = 4$ and that sex difference in this character is manifest in the early embryonic life. The high frequency of the formula $2 > 4$ among the adult females, as found by George and Phelps, is thus explicable on the above observation. The males start with the embryonic order of $2 < 4$ while the females with $2 = 4$ and the variabilities in growth are more likely to disturb the female order than the male one. The male order appears to be a fixed one while the slightest variation of less than 0.5 mm. is likely to change the female order. The embryo data are however scanty and further research on this point is necessary to form a conclusive opinion.

Thus the variations between the II and IV finger in the three digital formulae are well represented in the terminal digits and the sex difference, however weak it be, is also indicated. The present data are wholly drawn from children and while they are not fully comparable with the adults it is quite likely that the sex difference is strongly manifested with the growth of the secondary sexual characters.

TABLE II
Relative Lengths of Terminal digits (II & IV)
and Fingers as a whole compared (in %)

	German Twins (Term. dig.) <0.5 mm		Canadians (Finger) (George) <0.5 mm		U.S.A. (Finger) (Phelps)			
	male	female	male	female	<1 mm		2 mm	
	male	female	male	female	male	female	male	female
2<4	65.5	56.5	65	28	59.2	30.5	43.4	25.3
2=4	17.0	20.5	15	25	13.8	12.6	40.7	37.9
2>4	17.5	23.0	20	47	27.0	56.3	15.9	36.8

It will be seen from Table II that the males of the present series, although they are drawn from children, agree very well with the male Canadian sample of George and also partly with Phelps' U. S. A. males (<1 mm.). The difference is apparent only in the case of the females and much of it is probably due to the difference in age between the three samples. The present series clearly indicates the higher frequency of 2>4 among the females and it appears that with age the females are more affected than the males, as a slight variation is likely to change the embryonic equality of 2=4.

In the earlier study (Sarkar, 1944) sex difference in the terminal digit length and the changes of the embryo order in the two sexes in respect of other characters, have been discussed already.

Relative Lengths of Phalanges II and IV

Let us now turn to the inner bone of the terminal digit which has been studied from the X-ray photographs of the living. In the case of the embryos they were dissected out and measured.

TABLE III
Phalanx Length (X-rays)

	Male				Female				Female Embryo (No.) (dissected)
	EZ	ZZ	Total	%	EZ	ZZ	Total	%	
2<4	56	72	128	100	74	66	140	94.50	10
2=4	0	0	0	—	1	.5	6	4.05	2
2>4	0	0	0	—	1	1	2	1.45	—
	56	72	128		76	72	148		12

It will be seen from Table III that in both the sexes the formula $2 < 4$ forms the predominating element. The males show 100 per cent of the above formula and this agrees very well with our previous remarks on the digits of the males. The females on the other hand show a low frequency of the other two formulae and thus the presence of all the three digital formulae. This is also borne out by the embryo data. We have unfortunately no male embryo data to compare.

Summary

1. The three digital formulae of the human hand vary from one another due to the relative lengths of the fingers II and IV, which may be written as, $2 < 4$, $2 = 4$ and $2 > 4$.

2. The above three variants have been found to occur in the terminal digit of both the sexes and in the terminal phalanx of the females but not in the case of males.

3. It appears that the embryo order among the males is $2 < 4$ while among the females it is $2 = 4$. The high frequency of $2 > 4$ among the females is probably due to the variabilities in growth.

4. The above sex difference is manifest in the early embryonic life.

5. The data are collected from the twin children of Germany in 1938-39.

BIBLIOGRAPHY

1. George, R., 1939. Human Finger Types, *Anat. Rec.*, 46, 199
2. Haetinger, Martin, 1939. *Zts. Morph. Anth.*, 38
3. Phelps, V. R., 1952. "Relative Index Finger Length as Sex-influenced Trait in Man," *Am. Jr. Hum. Gen.*, 4, 72.
4. Sarkar, S. S. 1944. "On the Finger Nails and Nail Phalanges of Twins," *Trans. Nat. Inst. Sci. India*, II
5. Wood Jones, F., 1946. *The Principles of Anatomy as seen in the Hand*, London.

THE TRADITIONAL STORY OF ARLÉNG (MIKIR) MIGRATION

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WHILE conducting field-work at Sariahjan village¹, the author had the opportunity of making some gleanings from the rich store of Arleng folk-lore. A good deal has already been published by Stack & Lyall and Grierson.² In the present paper an attempt has been made to bring together the sagas of the Mikirs, especially those bearing upon national heroes who saved the Mikirs from Khasi and Kachari oppression.

Some time in the distant past, the ancestors³ of the modern Arlengs had settled on the eastern slopes of the Khasi and Jaintia Hills, bordering on the Kopili river (*Nihang*). When the descendants of Valmiki (?) were living peacefully in Nihang—as the legend runs—they were troubled by occasional raids by Khasi invaders. Gradually, they had to withdraw from their original settlements and moved into the kingdom of some Kachari king (of ancient Hirimbapur ?). Here (on the site of what is Dimapur to-day) they settled down as revenue-payers (*ryots*) of the Kachari king. The common Kacharis were naturally suspicious of the intent of these new settlers. The king too feared that they might not prove to be loyal and reliable subjects, he therefore made a special effort to win them over. The just administration of the king made them good *ryots* and the great measure of safety made them happy and prosperous. By their industry, amiable behaviour, and unflinching

¹ This field-work was conducted in December 1953, and the story was recorded from Shri Bepar Terrang (70) of Sariahjan village, 7 miles off Bokajan railway station, United North Cachar & Mikir Hills District, Assam.

² Stack, Edward & Lyall, Charles: *The Mikirs*, Sec. V, 1908, pp. 44-72 and Grierson, G. A.: *Linguistic Survey of India*, Vol. III, part iii, 1902, p. 223,

³ Arlengs are not sure of their line of descent, though they have a vague idea that they are the progeny of Valmiki of Mahabharat (?).

allegiance to the king, the Mikirs won the friendship of the Kacharis, and gradually became the most favourite subjects of the Kachari king.

There were some court ministers, however, who could not tolerate the popularity and prosperity of the new settlers. They tried to convince the king that the Arlengs believed they possessed more intelligence than his 'divine' intelligence, and that it would not be difficult for them to dethrone him. The intrigues proved successful, for the king began to doubt not only the loyalty but also the industriousness of the Mikirs. The loyalty and industriousness of these settlers appeared to the king to be some subtle move to throw over Kachari rule. Now that the king had played into their hands, the ministers tried to play a bigger game; if it could be proved that the Arlengs only pretended intelligence, they could finally get the king to drive them away. Therefore, on the pretext of "testing" their intelligence, they decided to set some difficult tasks which would baffle the wits of the Arlengs. The ministers approached the king and said, "Oh Lord, here you will find a buffalo horn. You will order those so-called intelligent ryots (Arlengs) to make the horn straight without damaging it. If they fail, we pray that you will give them adequate punishment." The king approved of the plan and proclaimed that next morning all the Arlengs of his kingdom should assemble before him. When they came to the court, they were asked to straighten a buffalo horn without causing any damage to it. They were also told that if they failed, the king would seize their movable and immovable properties and that they would lose their "status" of ryots.

Apparently, the task was impossible. But fortunately a group of friendly cowboys came to their aid. Wax was liberally spread on the horn, and then the horn was straightened by heating over fire. The king was surprised to witness their skill when the Arlengs presented the straightened horn. The Arlengs now prayed, "Oh King, we have straightened the horn you gave us. We pray that your Kachari subjects may help us in flattening a curved gourd." The king himself accepted the gourd, but in his attempt to straighten it, he broke the neck

of the gourd. Others tried but failed. The incident convinced the king and the common Kacharis that the Arlengs were really intelligent. The king even remarked to his ministers and subjects that it was useless to envy or antagonize these clever ryots. This attitude of the king was not shared by a section of the Kacharis, and especially by the ministers. They began to foment hostility and ill-feeling against the Mikirs by poisoning the ears of the king with malicious allegations. They now planned a repetition of their previous strategy some fresh occasion had to be made out for proving that the Arlengs were not what they claimed to be. The ministers once more appealed to the king, and said, "Oh Lord, we request you to command your new ryots (Mikirs) to make a garland of sand and paddy flower. If they fail, you should take severe action against them, so that they may not live in this kingdom." The king gave his assent, whereupon an Arleng *gaonbura* or headman was called for and set the task.

The headman went back to his settlement and shortly everyone saw through the move behind this task. Failure would bring reprisal, but apparently there was no means for avert failure. Help was sought again of the cowboys. With amazing ingenuity the cowboys did what was impossible for the Mikirs. With wax, they fixed a grain of sand to a paddy flower which, again, was fixed to another grain of sand, much in the same way as a garland is woven. The king was so delighted with the garland that he at once proposed to hold a royal hunt to test the skill of the Arleng ryots. The party was not successful because no game was found. On his way back, the king, however, found a tiger cub which he took home.

The crafty ministers advised the king to feed the cub with cow's milk. This gave them another occasion to try a fresh device on the Arlengs. Secret instructions were given by them to spread the false rumour that the king wanted the Mikirs to feed his tiger cub upon human milk. Men were, accordingly, sent to collect milk from Arleng women. The spell of torture and molestation that followed compelled the Arlengs to flee from the Kachari kingdom. They struck the trail for a new homeland where they could live in peace.

While the men moved forward through twisted paths of the jungle, a solitary and brave girl Rongphar-pi stayed behind in the village to look after the safety of the other Arlengs and to watch over the movements of the king's men. After a day or two, the king's men again visited the Arleng settlement for a fresh supply of milk. But they were puzzled to find the settlement abandoned. As they were wondering, they heard the sound of an axe. In trying to trace that sound they came upon a cottage where the brave Rongphar-pi was hiding. They shouted: "Who is there? Where are your Arlengs? We have come to collect milk for the king's tiger cub. Come out and speak up." A firm voice replied, "Yes, we have been eagerly waiting for you; you are late and meanwhile our men have gone for firewood. We are here to give our share of milk. But, see you need not hurry. Send one at a time, and you will get what you came for." The king's men did not suspect any foul play, and therefore one of them entered the dark cottage. Unerringly came the axe from Rongphar-pi, the man was severed in two. The party were worrying how one could take so much time to collect milk, and they sent in another. He also went the way of his friend. Many Kacharis thus lost their lives in the hands of the gallant girl Rongpharpi; the rest fled in panic to report to the king.

The king then marched on the Mikir settlements with a band of troops, but could not find a single soul. He now followed the trail of the fleeing Arlengs. The trails soon thinned out in deep jungles and undergrowths. Pursuit appeared to be fruitless, and the king planned to set some spies.

The Kachari spies entered deep into the forest and came across the fugitive Arlengs. They told the Arlengs that they too had fled from the tyranny of the king. The simple-minded Arlengs had no reason to suspect these Kacharis and, therefore, gave them all the hospitality they could spare. But in due time the Arlengs suspected espionage when one night they discovered that their Kachari "friends" had disappeared. So at once they pressed forward towards remoter forests. And thus they came to Barpani (near Chaparmukh railway junction?), where a mighty river barred their path. They crossed the river on

rafts made of the stems of banana plants. Reaching the other bank, they destroyed those rafts and safely settled in a clearing. Meanwhile the spies were not idle. On the informations they brought, the king moved to Barpani with his troops to punish the Arlengs. The mighty river baffled the soldiers who were compelled to encamp on the bank.

While the king and his men were helplessly watching the Mikirs on the other bank, a wooden bridge (*dolong*) appeared strangely from under the water. The Arlengs thought that God (*Arnam Kethe*) had done this miracle; they told the Kacharis that they might now cross over the bridge. When the king's men reached the middle, the bridge collapsed drowning a good many of them. The Arlengs thanked God for this rout of their enemies. The rest of the Kacharis refused to cross the river because they feared that they might have offended some ghost. The king was utterly discouraged, and gave up the pursuit because he came to believe that God was protecting the Arlengs.

... ..

One night Rongphar-pi dreamt that God was asking her to come and visit His kingdom for He was very much pleased at her brave deeds. In her dream Rongphar-pi prayed that God might reveal to her the path to His kingdom. God granted her prayer and disappeared. Next morning, as she was looking out, Rongphar-pi found that white elephant, hitherto unknown to the Arlengs, were clearing a path through the jungle. Rongphar-pi was beside herself with joy, for God had sent His elephants to show the path to His kingdom. Other Arlengs came and saw this miracle. They also found a big tiger roaming about in the clearing made by the white elephants. Rongphar-pi now spoke of her dream and told the Arlengs that God had ordained that she should lead the Arlengs to His abode. Rongphar-pi trailed the footprints of the tiger, and the Arlengs followed her down the clearing in the jungle. After a while Rongphar-pi chanced upon a full granary with a few beautiful huts nestling nearby. Here, at last, was the kingdom of God, and the

Arlengs hastened to settle down on the site. Years passed by and the Arlengs lived in peace and prosperity.

Meanwhile, Chintong, who lived in God's company fell in love with Rongphar-pi, and she too could not resist him. This made Arnam Kethe angry with Chintong and Rongphar-pi. She dreamt that God now ordered her folk to leave His kingdom, for He was very much displeased with the conduct of Rongphar-pi. Her own people too did not like her love, when they came to learn that they would have to leave the kingdom of God. In their eyes, Rongphar-pi now became an accursed being. God also had cursed her, for she ceased to enjoy His blessings. The Arlengs had then to leave the kingdom of God.

On the other hand, Chintong appreciated the plight of Rongphar-pi, and so he proposed marriage to her. Rongphar-pi accepted him, and they lived as man and wife. The Arlengs too accepted this union in their society, for was it not fortunate that one of God's company had married an Arleng girl?

Rongphar-pi was expecting a baby, and one day Chintong told her that if a boy was born he should be named Thong, and if it was a girl she should be named Katu. In time, a boy was born to Chintong and was named Thong. Through many joys and sorrows, through rain and storm, and through many summers and autumns, Chintong and Rongphar-pi's son grew up into a handsome strong young man. Chintong and his wife decided to offer sacrifices to the gods who were angry with them. Elaborate preparations were made and Thong propitiated each god by sacrificial offerings. Arnam Kethe blessed Chintong and his wife and Thong, and thus they regained happiness.

But the Arlengs could not enjoy their prosperity for long. The Khasi and Jaintia peoples came down upon them in waves and savagely destroyed their houses and fields. This time the peaceful Arlengs rose in indignation and began to resist the invaders, upon which the Khasi king changed his strategy. While formally the hostilities ceased, the Khasi king proposed that the Arlengs should co-operate with the Khasis in

clearing jungles and making roads. This was a clever scheme for exploiting the Arlengs, for while they were working tirelessly the Khasis wilfully went slow in their work.

Not satisfied with this cunning device, the Khasi people committed an act of gross vandalism. One evening when the two working parties had assembled in a rest house, the gang leader of the Khasis wished to count the Arlengs who were in the work-team. The counting was done by marking every tenth man on the forehead with a *dāo*-blade. The Arlengs, though not prepared for this humiliating torture, kept calm. When they came back to their settlement, Thong came to learn about the incident. His folk had to be avenged and Thong took the blessings of his mother, Rongphar-pi. Thong then appealed to the Arlengs and exhorted them to muster courage and fight back. A plan was thrashed out in the Council (*Mē*), and the Arlengs went back to the rest house. The Khasis pretended as if nothing unusual had happened. But the Arlengs were not to be deceived this time by the guile of the Khasis ; with fortitude and caution they set out in their task of clearing jungles.

As the work-day was over, the Khasis and Arlengs again assembled in the rest house, when the Khasis proposed that heads should be counted as before. But up came Thong with his suggestion that the Arlengs should now take their turn in counting the Khasis. The Khasis agreed, but who knew that Thong would excel the Khasis in cruelty? For he began to chop off the head of every tenth man, and in a short time many Khasi heads were severed. When the Khasis tried to fly in panic the Arlengs pounced upon them and took many lives ; those who escaped from the Arlengs lost no time in rushing into the forest.

In a short while the enraged king sent two of his best warriors to teach Thong and the Arlengs a lesson they would never forget. Thong guessed as much, for he was thoroughly prepared when the warriors faced him. Thong fought gallantly and killed one, gouged out the eyes of the other ; and sent the heads of the warriors back to the Khasi king. The Arlengs and Rongphar-pi were justly proud of their hero, Thong, who thus saved them.

Thong's strange gift to the king spread consternation and despair among the Khasis. To make peace was all they could do, for who would dare to oppose Thong in battle? A chariot was sent to fetch Thong to the court of the Khasi king. But Thong preferred to go on foot, so bold was he in spirit. Thong visited the court when the king praised his strength and courage, at which Thong felt proud and boasted that even wild elephants would be less than his match, not to speak of men. Here, at last, was an opportunity for the wily king. For now was the time he could test the valour of Thong.....What if Thong could be overpowered by his elephants and tigers? So these pets of the king were brought out and goaded into fury. But Thong overpowered them all, and the king at once lavishly praised Thong, but made ready to brew another plot which the vaunting of Thong suggested to him.

The Khasi king now proposed that Thong should demonstrate his might in a tug-of-war with a thousand elephants. Thong was too eager to go in for this trial of strength. The elephants were brought out and though the king's men urged them to trample Thong under foot, the elephants raised their trunks and saluted the hero in respect. The Khasis were amazed, and they all immediately acclaimed him as a superhuman hero and warrior. But the Khasi king was almost hysterical because all his designs miserably failed. This time he ordered his courtiers to take Thong by surprise by letting loose venomous cobras upon him. The snakes hissed and coiled and struck, but Thong fearlessly jumped into battle. The ground was soon abandoned even by the king himself whose knees shook at the sight of so many cobras.

Thong was about to be encircled when to his relief he saw a pit. He slipped into the pit and clamped his battle-shield tight over the mouth of the pit, when the snakes struck and struck but failed. Thong came out stealthily and chopped off their fangs. Thong shouted in triumph and the Khasis heard him. They could hardly believe that a man on earth could escape so many cobras, until they saw the severed fangs.

The Khasi king was finally convinced that this Thong

was no ordinary mortal, for no mortal could perform these miraculous feats of courage and valour. So he declared before his people that he would adopt Thong as his eldest son in order to succeed him. He also ordered his subjects to accord Thong all respect as the eldest son of their king. Thong was greeted with cheers by the Khasis. A grand feast was ordered by the king to celebrate the occasion and to mark the beginning of an era of peaceful collaboration with the Arlengs. There was great rejoicing and Rongphar-pi felt exalted. Thong won great popularity, for he assisted the king in the very difficult task of administration. But not all Khasis could feel happy. A small section would not suffer an Arleng to become their ruler in future. Tirelessly they sought an opportunity and some of them entered the army.

Meanwhile the Khasi king came to learn how the Arlengs had suffered at the hands of the Kacharis. In his sympathy for the Arlengs, the king asked Thong to take out an expedition against the Kacharis. Thong and his soldiers successfully subdued the Kacharis in due course. On their way back from the expedition the Khasi soldiers encamped in a banana grove. Here the plotters found their opportunity. They came to Thong and requested him to pluck a few mangoes, because they could not climb these tall trees.

While Thong was innocently plucking mangoes, the plotters sent swarms of arrows and Thong who was unarmed, thus met his tragic end. His head was chopped off. The rebels told the king a fabricated story of a bandit falling upon them on their way home. He suspected that something might be wrong with the story of the bandit. The king immediately ordered them to fetch the severed head which, on careful inspection, proved to be that of Thong, for Thong had a tooth set with gold.

The discovery was a shock to the king, the common Khasis and the Arlengs. Thong's mother, Rongphar-pi was driven mad with grief. In revenge, the king ordered live crucifixion for those who had murdered Thong. And so lost the Khasis and Arlengs their great friend, warrior, and administrator whose memory lives for ever in their hearts. From that day the Arlengs and Khasis lived together in peace until the Arlengs migrated, many many years later, to their present home.

ECONOMIC CO-OPERATION IN TRIBAL BIHAR

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ONE of the most striking aspects of primitive labour is the co-operation which characterizes it. Co-operative work is done by groups of all sizes and comprehends all kinds of tasks. It is obvious that the family, the primary social unit in every society, must be a co-operative institution. The community as a whole can equally be regarded as a co-operative unit, for were it not so, it would not survive. In this paper we would refer only to that sort of co-operation which acts as a factor in furthering the productive processes, i.e., the voluntary association of a group of men and women whose objective is the completion of a specific, definitely limited task with which they are simultaneously concerned.

Despite the disintegrating influences of the modern machine age which threaten village economy, the tribal village in Bihar still maintains its traditional way of life, and co-operation in economic undertakings regulates economic relations in the village to a considerable extent. Co-operative work may be classified according to its range into three classes, namely, family group co-operation, local group or village co-operation, and the wider co-operative group consisting of an entire neighbourhood. The kind of economic endeavour differs in each class. The following table illustrates this.

<i>Family unit</i>	<i>Local group unit</i>	<i>Neighbourhood group</i>
Ploughing	Weeding	
Sowing	Transplanting	
Harvesting		
Watching the crops	Watching the crops ¹	
	Hunting	Hunting
	Fishing	Fishing
House building		
Basket making	Minor irrigation	
Collection of lac	works, building	
Rearing of tusser- silk worms	embankments etc.	
Cattle herding		

¹ Reported only from among the Ho.

Agricultural work is shared by the entire family, though the different operations are assigned to different members. Ploughing is taboo for women among the Oraon and the Kharia, while watching of crops is done by men of the family among the Oraon, Munda, Kharia and the Santal; but among the Ho, villagers take turns in watching the standing crops of the village fields at night. Weeding and transplanting is done by women of the entire village as a co-operative unit among all the tribes. The spirit of team work relieves the monotony of such undertakings and the rhythm of work is maintained by songs. Any outsider visiting the tribal area during these operations cannot but be impressed by the organized and disciplined co-operative work.

In Oraon areas, where the youth dormitories still play an important role, the boys of the Dhumkuria (boys' dormitory) act as a corporate body and help in the preparation of a wedding or any other feast in the village. They act as cooks and look after the comforts of visitors, who are generally housed in their dormitory. If a villager is in need of the services of workmen in the fields or for thatching a house, he applies to the dormitory headman who strikes a bargain with him. The wages received are generally spent in the purchase of musical instruments for the dormitory. Members of the girls' dormitory may also be requisitioned for work likewise. In both these cases, it may be noted that co-operation is not voluntary but incumbent on the youths and girls by reason of their membership of the dormitories. This type of labour is known as *Pacha* labour.

House building, basket making, collection of lac, rearing of tusser-silk worms and cattle herding is the work of the family unit.

Among the Oraon, Santal and Ho fishing is a co-operative undertaking in which all the families of an entire village or neighbourhood participate. The Oraons go on fishing expeditions annually two or three days before the Sarhul festival in the month of April-May. All the young bachelors of the village go to fish together in a tank or a stream. The fish caught on this occasion is collected in baskets and finally

distributed among all the Oraon families of the village. One member from every family takes home the share, and even those families which are formed only of women and children and have sent no male member to the fishing expedition, get a share.

Among the Ho fishing is well organized on co-operative lines. Though people from a village and even beyond assemble at one pond or stream, they form separate fishing groups, each of which undertakes its own operations and divides the catch within the group. There is a spirit of healthy rivalry between village groups in a fishing expedition. The owner of the pond, whether he joins in the fishing or not, gets a half-share in the entire catch. He may, if he likes, distribute his share among those of his co-villagers who have helped him in the organization of the expedition, but the rest of the fish is distributed among members of the various groups. If there are four members of one family in a group they receive four shares. Disputes about the distribution of the catch are settled by the owner of the pond, whose verdict is seldom challenged. Women who go with their husbands or brothers extend their help to the group as a whole (though assistance is generally confined to the village or the clan) and are entitled to a share in the group's catch. When a woman only assists her husband or relative and does not identify herself with the group as a whole she does not receive any share when the distribution takes place. This is evidently a triumph of group loyalty over family loyalty.

Co-operative effort is clearly evident in hunting among the various tribes. Even among the Uthlu Birhors who are hunters and collectors, monkey catching which is their major occupation is conducted jointly by the adult members of the entire settlement called the Tanda, the game being shared by all the families participating. Before starting on the hunt, the Naya or the village headman invokes all the spirits by name in front of the hunting nets and prays for success in the hunt. The hunting expedition is organized by the village elders and the population of the entire village acts as a corporate unit. People of several villages in the

neighbourhood co-operate in the annual hunt called the Disum Sendra (regional hunt). This is a striking instance of inter-village co-operation in a tribe which stands on a low level of economic development.

The Oraon hold three great hunting expeditions every year called the Bisu Sendra, the Phagu Sendra and the Jeth Shikar. All these hunts are important occasions and are not only the concern of the individual hunter working with his family but necessitate the co-operation of the entire village and at times of several villages in the neighbourhood. Such hunting expeditions have a recognized leader chosen for the occasion from among the senior people in the village. Each hunter gets an equal share of the game brought down ; dogs participating get a share equal to that of a man, but young boys who join in the hunt get only half a share. The man who shoots an animal is entitled to two shares, one for having killed the animal and the other as a villager and member of the hunt.

The chief hunt of the year is the summer hunt, information about which is circulated by the Parha Raja (head of a group of villages called a Parha) on the preceding market day in the surrounding villages. All the animals and fowl killed by the hunters are divided equally between the villages of the Parha irrespective of their respective effort. Before the returning hunters enter the village, they divide the village's share between members of the families resident therein. Families who have been unable to take part in the hunt are also given a share. In this case therefore effective contribution in the economic effort is not the only qualification for getting a share in the returns.

Among the Santal the annual summer hunt is an occasion for a vast concourse of hunters from different villages not necessarily of the same Pargana or group of villages. The leader of the hunt is called the Dihri. As each animal falls, the name of the village to which the hunter belonged is called out and at the end of the day the bag is divided according to well-recognized custom. This practice emphasizes and applauds the contribution of each constituent unit in

the joint co-operative effort. This occasion is also used for the meeting of the hunt council which is the highest traditional judicial body of the Santals.

Co-operative work must be distinguished from joint work. In some other activities there is the idea of cohesion and of common interest between units forming a group as well as between two or more groups following that occupation, or participating in the same kind of undertaking. When people go fishing or collecting firewood, cutting bamboos or felling trees they work with a common interest. But actually each family unit works with its own tools and claims the fruits of its own labour. Here lies the difference between co-operative work and joint work.

BOOK REVIEWS

Elements of Social Organization : Josuah Mason Lectures delivered at the University of Birmingham. By *Raymond Firth, F. B. A., Professor of Anthropology in the University of London.* Watts and Co., Johnson's Court, Fleet Street, London E. C. 4, 1951. Price 18 shillings net. Pp. xii + 257 + plates xi.

In the present series of lectures, Professor Raymond Firth has dealt with some of the fundamental questions of social anthropology. Anthropology focusses its attention upon small groups of men ; and by means direct observation applied to what might be termed a microscopic study, it succeeds in gaining results which are of great value even in the understanding of more complex cultures.

The book has been divided into the following chapters: The Meaning of Social Anthropology, Structure and Organization in a Small Community, Social Change in Peasant Communities, The Social Framework of Economic Organization, The Social Framework of Primitive Art, Moral Standards and Social Organization, Religion in Social Reality.

There is much in all the chapters which provokes thought ; but we shall choose only a few topics by way of illustration. Professor Firth has shown very ably, for instance, how moral codes and religious beliefs can be rightly understood only in relation to the social and cultural setting in which they are found. His definition of religion and his ultimate rejection of sources of knowledge other than sensory perceptions, and inferences based on them, may not perhaps be found acceptable by some. Professor Firth bases his beliefs and judgements upon rationalism and a deep sense of humanism. But, in regard to the fundamentals of religious thought, would it be out of place to raise the question as to why humanism itself should be granted the supreme value ; and if there cannot be other values equally justified, but of a different nature ? These questions apart, we are sure,

nobody will dispute the author's observations with regard to the role played by religious beliefs and sentiments or ceremonies in connection with the consolidation of social groups.

Professor Firth is however at his best when he deals with the relation between the economic and social aspects of human culture. He has taken some pains to show that money values are not always the chief determinants of the economic activities of men; these are often profoundly modified by values which cannot be considered economic in any sense. From certain stray references it might be inferred that the above view of Professor Firth is partly intended to serve as a corrective against a facile acceptance of orthodox Marxist doctrines in certain circles. No one will deny the general truth of his contention; but the question naturally arises as to how far and how long non-economic forces can hold their own against changes brought about by a productive re-arrangement in a social group. In other words, the question is, what is the relative weight of the different forces which determine the course of the historical relations of men? This question has been left more or less unanswered.

Incidentally, in one place, a reference has been made to the Marxist objective in the following terms, "Even should the Marxist millenium, the entropy of the classless society, ultimately arrive, this dialectical basis of human activity will remain for constant personal decision and redecision" (p. 121). Although the reviewer is not in sympathy with Marxism on more scores than one, he feels that some kind of injustice has been done in the above passage to the social ideals of communism. No one who believes in economic equality as a desirable goal, or wishes for the liquidation of class differences, denies that there is difference between man and man. Such differences are there and will remain till the end of time. But what Marxists hold to be wrong is to allow such differences to operate in the economic sphere in such a manner that they eventually lead to a stratification of society into a privileged and an unprivileged class, not on the basis of differences in talents, but often through the

wrongful use of force as in colonial countries, and then to consolidate such acquirements through the operation of a law of inheritance ; so that even gifted individuals are denied the privilege of full growth just because they are poor. What believers in social equality hold is not that heaven will descend upon earth as soon as class differences are done away with, but that it is only then that the natural differences between man and man will be able to operate in a healthy and proper manner.

The above remarks should not however be taken in any sense to suggest that Professor Firth has taken up the question of Marxism for any kind of full treatment. He has only incidentally referred to it here and there. His chief concern has been to present to the general reader an introduction to the most modern questions in social anthropology ; and we are indeed thankful to him because he has been able to do so in an eminently successful manner.

N. K. Bose

Economic Anthropology : A Study in Comparative Economics. (Originally published in 1940 as *The Economic Life of Primitive Peoples*). By Melville J. Herskovits.

The book which is a thorough revision of *The Economic Life of Primitive Peoples*, is an introduction to comparative economics in the broadest sense of the term. In the preface the author has given an explanation for the change in the title. According to him, there has been a reorientation in point of view since then and because the term *primitive* is incapable of precise definition.

The thorough revision was necessitated by the recent developments in the study of the economics of non-literate, non-industrial and non-pecuniary societies that have taken place since 1940. But the purpose of the book remains the same, namely, to provide information concerning the economic life of non-literate peoples so that these data may be utilized for solving problems arising out of the spread of Euro-American

technology and industrialization throughout the non-industrial world.

According to the author, anthropology and economics have not had more contact for several reasons—historical, psychological, practical and methodological, of which the last two have been the more important. Economics is concerned more with deduction and anthropology with induction. Economics bases its principles upon materials drawn from the system of literate industrialized society of Europe and America. No cross-cultural data are taken into account, and non-literate folks or primitive peoples are left severely alone. When reference is made to hypothetical tribes it amounts almost to a caricature. These factors repelled anthropologists from recognizing and treating fundamental economic facts in their studies of non-literate societies. There has however been a gradual reaction against this attitude, and anthropologists have now begun to study economic phenomena also. The result has been a rapid development of an economic anthropology wherein the economic aspects of non-literate societies are studied in economic terms. It is true that certain aspects of current economic theory are inapplicable to non-literate, non-machine and non-pecuniary societies. Yet there are ample suggestions in the literature of economics to which anthropologists should give due consideration.

The author has dealt with his subject in this book keeping in view this relationship between the two disciplines. The economic problems dealt with are, Production, Exchange & Distribution, Property, The Economic Surplus. The field of study has been furnished by the non-literate societies of Melanesia, South Africa, Australia, Queensland, Philippines, India, Andamans, New Guinea, New Zealand, America etc. We have discussions in detail about division of labour, exchange, trade and barter, business enterprise, credit and value, money, capital, land tenure, population problem, public finance as prevailing in these societies, and how far these conform to and differ from the patterns prevailing in more advanced societies.

H. D. Ghosh

Social Anthropology in Polynesia : A Review of Research. By *Felix M. Keesing*, Professor of Anthropology, Stanford University. Pp. 126.

Social Anthropology in Melanesia : A Review of Research. By *A. P. Elkin*, M. A., Sydney, Ph D., London. Professor of Anthropology in the University of Sydney. Pp 166.

Published under the auspices of the South Pacific Commission. Oxford University Press, 1953. Price 27/6d. each.

The South Pacific Commission has been set up by the Governments of Australia, France, the Netherlands, New Zealand, the United Kingdom and the United States of America. The main purpose is to help in the economic, social and physical uplift of the inhabitants who live in the islands of the South Pacific. It has been felt that, for the purpose of helping the islanders in improving their own condition, it is necessary to know all that is relevant within their culture.

As a preliminary to this task, the services of eminent anthropologists have been called for in order to find out how much is known and how much not known in respect of the cultures in question, before an effective programme for improvement can be drawn up. The books under review contain a survey of the results produced by former researches in the field. They then proceed to indicate lines of research which can be undertaken in the future. The items have been arranged in accordance with their priority in relation to the task lying before the Commission. Some of the research can be undertaken by private individuals, some by government departments working either alone or in co-operation with one another. Each group has been separately listed, and the names of persons who might take up the task have been suggested in places. Both the volumes also furnish a useful bibliography.

How much one wishes that something of a like nature could be made available in India for the guidance of individuals as well as of universities or the government departments concerned with the welfare of the 25 million tribal inhabitants of India.

N. K. Bose

Child Training and Personality : A Cross-cultural Study. By John W.M. Whiting and Irvin L. Child. New Haven : Yale University Press, 1953. Pp. vi + 353.

There are various books dealing with the relation between culture and personality, but the present one differs from the rest in regard to the specific character of the topics as well as the method used. Instead of dealing with specific cases, the authors have proceeded to test the generalized hypotheses usually applied in this connection.

Data have been drawn from such tribes as the Navaho, Maori, Baiga etc. The factors of custom, habit, motive, drive etc., have been elaborately dealt with ; while the practices in connection with nursing, weaning, anal training, sex training, play, modesty, etc. have also been compared and contrasted.

It is the advice of the authors that more researches along cross-cultural lines should be undertaken, and the knowledge so gained utilized for the proper rearing of children in order to help them in the growth of an integrated personality.

The printing and get up are excellent, while the manner of presentation renders the book easy reading.

Anu Sinha

Mare Hapram Ko Reak Katha. Edited by Asoke Mitra. Translator, Baidyanath Hansda. Published by the Government of West Bengal. Pp. 95.

The traditions and institutions of the Santals were originally recorded by Rev. L.O. Skrefsrud in 1870-71 "from the dictation of an old *guru* named Kolean. The book," wrote P. O. Bodding, "is in classical language and gives an excellent and absolutely correct statement of Santal law and custom, as they were fifty and more years ago, and still are."

The first edition in Santali (Roman script) appeared in 1887, while the second, which was a literal reprint, was published by the Santal Mission of the Northern Churches from Bena-garia in 1916. A close and correct literal translation in Bengali by Surendramohan Bhowmik, M. A., B. L., B. C. S., was published by the Asutosh Library, Calcutta, in 1928. But

that translation as well as the original have been out of print for a long while. It is good therefore that a new translation has been made available through the courtesy of the West Bengal Government. Its special merit lies in the fact that the translation is by a Santali officer who is as proficient in Bengali as in his mother tongue.

N. K. Bose

History and Culture of the Indian People, Vol. III : The Classical Age. *General Editor, R. C. Majumdar. Bharatiya Vidya Bhavan, Bombay, 1954.*

The Bharatiya Vidya Bhavan, Bombay, is doing signal service to the cause of Indian history by publishing a comprehensive history of India in several volumes. This series has removed a long-felt need. Barring the Cambridge History of India published decades ago, there is no comprehensive history of India. The volumes in this series deal with the subject matter in much more detail and enshrine the fruits of the latest researches in the subject. The organizers of this scheme been able to secure the co-operation of eminent authorities in their own fields.

The present volume covers the period from the foundation of the Gupta Empire to the death of Yasovarman of Kanauj in 740 A. D. When the book opens, we find India emerging from the so-called "dark age". Once again, after four centuries of turmoil, petty states, social disorders and foreign invasions, forces of integration appear on the scene. A large part of Northern India came under the powerful control of the Guptas and the might of the North was amply demonstrated in the South. Political unity and security of life and property produced a creative urge which contributed both character and richness to the evolution of the national mind. The period saw a spring-time efflorescence in all spheres of life. In religion there was that synthesis which absorbed the best in Brahmanism and Buddhism. In art and architecture the period was characterized by a new spirit and saw the flowering of forms whose beginnings can be traced earlier. In literature

the age was adorned by such geniuses as Kalidas, Banabhatta and Bhavabhuti.

Towards the middle of the period there appeared on the north-western scene the Pushyabhutis and the Huns who disturbed the political equilibrium for quite a long time. Later on, for half a century under Harsha, Northern India enjoyed peace and progress. But the strength and vigour of India between 550 and 750 A. D. was found in the South where the Chalukyas and the Pallavas carved out considerable powers for themselves, promoted art and literature and kept the torch of culture alight.

Besides the history of Northern India, adequate attention has been paid to the history of the South which made substantial contributions to Indian civilization during the period covered by the volume. It is good that historians have been paying comparatively more attention to polity as well as to social and economic history. One third of the volume has been devoted to a discussion of these subjects.

India's cultural and commercial relations with Central Asia, China, Tibet and the countries of the West have also been dealt with. Her colonial and cultural expansion in South-Eastern Asia has been touched upon. This last chapter has unnecessarily been made very brief, though the subject matter is not so insignificant as to be cramped within fourteen pages.

If the volumes could be translated in Hindi, they could serve a larger circle of readers as well as enrich our national language.

Sachchidananda

A Socio-economic Survey of Jute Labour. By K.P. Chattopadhyay, M. Sc. (Cantab), F. N. I., University Professor and Head of the Department of Anthropology. Calcutta University: Department of Social Work, 1952. pp. 67.

Enquiries regarding the economic condition of labourers in the industrial belt round Calcutta have been carried out from time to time by government departments, or by non-official

bodies like the University of Calcutta or the Indian Statistical Institute. The present booklet is the result of work carried out by the author with the help of some "surveyors", while part of the computation was entrusted to the Statistical Institute.

The economic picture as presented herein is one of appalling poverty and social irresponsibility. The congestion in housing, the abominable lack of sanitary arrangements, the shortage of food, the utter lack of comforts, leave the workers in a condition which should make any man hang down his head in shame. For no one who lives in a society can escape the responsibility of what is happening in another part of it.

Professor K. P. Chattopadhyay's enquiry has revealed some interesting sociological trends which happen to be of some theoretical significance. Economic changes have been seriously responsible in the matter of affecting the size of the family and of the connected institution of marriage. It has been found however that social traditions have also entered into operation in determining the actual course of these changes. Thus, widow marriages have been more in vogue among some sectors of the population than among others. In a similar manner, the desire to rise in social status by imitating (not "aping", as the author has referred to it in p. 4) upper caste practices has been another factor in modifying end results to a slight extent.

Incidentally, it might be remarked that while describing social changes, it would perhaps be more proper for social scientists not to use coloured expressions ; for then, one would have to write harshly about Indians who try to rise in the social scale and even in their self-estimation by imitating national groups whom they happen to admire. Such an act of imitation (not "aping") is more in evidence in India to-day than when she struggled for national emancipation. It is fortunate that social anthropologists usually do not write about their own societies.

N. K. Bose

Journal of the University of Gauhati, Vol. IV, 1953. (Dr. B. Kakati Commemoration Volume). Assam, *The University of Gauhati, 1953. Price not mentioned. Pp. 386.*

The present volume published in memory of the well-known educationist, Dr. Banikanta Kakati, does credit to the University of Gauhati. Although there are some essays written by authors from other Universities, yet much of the journal is the result of work undertaken by the University of Gauhati itself.

Assam is considered to be a paradise for anthropologists; and it has therefore been in the fitness of things that four out of twenty-one essays have been contributed on one or another aspect of Anthropology. The rest deal with Literature, History, Philosophy, Education, Economics, Botany and Geology.

The articles in Anthropology comprise one on matrilineal civilizations in India by Dr. U. R. Ehrenfels of Madras, another on the physical characters of the Arlengs (Mikirs) by K. B. Pakrasi of Gauhati, a note on the polyandrous Jaunsaries by J. D. Mehra, and one on 'Instinct in Anthropology' by B. C. Kar.

There is an unhappy observation which the reviewer feels called upon to make with reference to the third article by J. D. Mehra.

The Bharatiya Adimjati Sevak Sangh, with its headquarters in Delhi, has been publishing a bi-lingual quarterly entitled *Vanyajati* since January 1953. In the first number of that journal, an illustrated article entitled "Polyandry among the Hill Tribes of Jaunsar Bawar" was published over the signature of Dr. P. C. Biswas, Head of the Anthropology Department, University of Delhi. We refrain from giving quotations; but, it is very unfortunate that more than thirty lines of that article are identical with passages appearing in the Gauhati journal over the signature of J. D. Mehra.

The issue of the *Vanyajati* in question bears the date, January 1953, although the actual date of its publication is not known. It is the same with the journal from Gauhati.

Only, the second article appears to be fuller, and has tables and genealogies, while that from Delhi seems to be a summarized account intended specially for the general reader.

Whatever may be the origin of the striking literary similarity between the two, we can only say this much that a clear indication of sources, with adequate quotation marks and proper references, was urgently called for from the author who wrote afterwards.

N. K. Bose

Taking Stock : Aspects of Mid-Century Life in Australia. Edited by W. V. Aughterson. Melbourne : F. W. Cheshire, 1953. Price 12/6 shillings. Pp. 191.

The following list of chapters is self-explanatory : The Australian Way of Life, Australian Towns and Cities, Australia and the World, The Australian Universities, The Schools of Australia, Australian Literature, Australian Art, Sport in Australia, Australian Government, Australian Economy, New and Old Australians.

N. K. Bose

The Race Question in Modern Science.

(1) The Race Concept : Views on Race Problem of 69 Scientists from 23 countries. Pp. 103. Price 50. 2/6 ; 125 fr.

(2) Race and Biology by L. C. Dunn. Pp. 48. Price 25 : 1/6 ; 75 fr.

(3) Race Mixture by Harry L. Shapiro. Pp. 56. Price 50/- ; 2/6 ; 125 fr.

(4) Racial Myths by Juan Comas. Pp. 51. Price 25 ; 1/6 ; 75 fr.

(5) Race and Culture by Michel Leiris. Pp. 46. Price 25 ; 1/6 ; 75 fr.

(6) Race and Society by Kenneth L. Little. Pp. 56. Price 25 ; 1/6 ; 75 fr.

(7) Race and History by Claude Levi-strauss. Pp. 50. Price 25 ; 1/6 ; 75 fr.

(8) *The Catholic Church and the Race Question* by the Reverend Father Yves M. J. Congar, O. P. Pp. 62. Price 40 ; 2/- ; 100 fr.

(9) *What is Race ? : Evidence from Scientists.* Pp. 87 ; Price 1.00 ; 5/-, 250 fr.

We recommend these authoritative and very well-written pamphlets to those who are interested in the question of race and of racial relations.

N. K. Bose

The Indus Civilization : Cambridge History of India. A Supplementary Volume. By Mortimer Wheeler. Cambridge University Press. Price 18s. Pp. 98 with 13 text figures, 2 folding plans and XXIV plates.

Recent excavation and exploration have revealed a duality in the nature of the proto-historic cultures of Sind and Baluchistan. One consists mainly of villages and towns in the plains containing elements of Harappa and Mohenjodaro cultures (Harappa Culture or Civilization) and the other is formed by the allied cultures of the hill villages in the west, which are either earlier, contemporary, or later than Harappa.

In this particular volume, Wheeler has discussed the structural evidence of Harappa Civilization together with "the evidence of burials, of soldiering, commerce and farming, of arts and crafts, of writing and of religion". As a preliminary to these he has dealt with the distribution of Harappa Civilization, the climatic condition under which it flourished, with the salient features of the cognate cultures of the hills. Finally, he has reviewed the chronology of this civilization and has added a general conclusion.

Up to the writing of the book, the elements of Harappa Civilization have been reported from over sixty sites "between Rupar, at the foot of the Simla hills, and Sutkagen-dor, near the coast of the Arabian Sea, 300 miles west of Karachimost of them line present or former courses of the Indus and its tributaries, or of those other rivers which

flow south-westwards from the sub-montane region about Ambala and, as the Sarasvati or Ghaggar, Hakra or Wahindat, formerly watered the deserts of Bikaner and Bahawalpur and may even have struggled through as a rival Indus to the Arabian Sea."

It is clear from the climatic evidence that during the third millennium B. C. the Indus area had more rain than it has now. According to Wheeler, the "basic climate change is unlikely to have been the sole or even the main cause in the deterioration of the agricultural conditions of the Indus Valley and its environs. Some reduction in the volume of rainfall within the last 4000 years may indeed be postulated, but there can be little doubt that human neglect or interference was an important contributory factor." If excessive deforestation can be proved to have been the principal reason, then this is an important contribution towards the understanding of the factors which led to the decay of Harappa Civilization.

When dealing with the cultures of the hills, Wheeler has mentioned the classification put forward by Piggot which suggests the extension of the buff-ware and red-ware groups of Iran, as classified by McCown, over this area. The picture resulting from the geographical distribution of pottery types however is so confused that it is yet premature to suggest definite directions in which cultural borrowings might or might not have taken place. Wheeler's analysis has however shown that these hill cultures do not serve as a preliminary to the great Harappa Civilization, which at present "appears to spring into being fully grown". For which he has rightly suggested further "Exploration in northern Baluchistan, in the North-west Frontier Province, in Afghanistan and, not least, in the profoundest depths of Mohenjo-daro itself."

By analysing the structural evidence, the author has rightly pointed out that the citadels of Mohenjo-daro and Harappa were well fortified with well laid-out plans and central granaries, which the original excavators had identified as hammams. These and other facts suggest, in the language

of the author, that the citadel of Mohenjo-daro "presents an aspect of combined or undiscriminated religious and secular administration which fits well enough into the general picture of third-millennium civilization as we know it in Mesopotamia and Egypt."

The burial customs of Harappa Civilization can only be reconstructed from one cemetery (R 37) at Harappa as "no orderly burials definitely of Harappan date have yet been found" at Mohenjo-daro. In Cemetery R 37 "the bodies were extended from north to south, the head towards the north, and lay in graves, each large enough to contain also an average of fifteen to twenty pots, occasionally as many as forty", beside personal ornaments. One grave was lined with mud-bricks and in the other the dead body was buried in a wooden coffin.

Regarding the racial composition of the people of Harappan cities we have still to depend upon the report based on the scanty skeletal remains of Mohenjo-daro, which suggests four main racial types, namely Proto-Australoid, Mediterranean, Alpine and the Mongoloid branch of the Alpine stock. In the absence of any proper report about the large number of skeletal remains from Harappa (Cemetery R 37, Area G and Cemetery H of a later date), which have been lying for a long time with the Department of Anthropology of the Government of India, it will not be wise to give much importance to the above classification. According to Wheeler it can only be said that the Indus cities had a mixed population.

Though the implements of war were not very specialized, yet the presence of spears, knives, short swords, arrow-heads and axes of copper or of bronze, mace-heads of different kinds of rock and baked clay missiles together with the structural evidence discussed above, it can be said that the Indus Civilization was not based upon the principle of non-violence as conjectured by some earlier authors.

Commerce, during the Harappan period, was well established, which is proved by the fact that they had to bring copper, tin, gold, semi-precious stones and other

objects from places such as Rajputana, Gujarat, Baluchistan, Central Asia, north-eastern Afghanistan, north-eastern Persia and South India.

Regarding agriculture it can be said that barley and wheat were raised in the fields. "Undisputed traces of cloth" (earliest known record) suggest cotton growing. "As stock-farmers, the Harappans had domestic dog, humped cattle, buffalo and, more doubtfully, pigs."

Though the arts and crafts of Harappa Civilization were well developed and represented by stone statuary, bronze and terracotta figurines, pottery, steatite seals with intaglio designs, beads of gold, silver, copper, pottery, faience, steatite, semi-precious stones and shell, metal implements and many other objects, but "unfortunately the technical methods employed by their finders were not such as to provide satisfactory stratigraphical evidence." While discussing the nature of Indus ceramic, Wheeler has clearly pointed out that "the so-called uniformity of the Harappan culture in depth has been exaggerated, and is due as much to archaic methods of research as to any inherent conservatism in the ancient craftsmen." This has been shown by the excavation on the citadel of Mohenjo-daro in 1950, where Wheeler has recognized a clear "change and evolution" in Indus pottery and "there was a lowering of technical standards in the later phases."

The Indus script found inscribed on the seals and tablets still remains undeciphered. They can be read if "a bilingual inscription including a known language, or a long inscription with significant recurrent features" can be found.

Though there is "notorious incapacity of material symbols to represent the true content and affinity of a religion or belief" and "the indivisibility of religious and secular concepts in ancient times", it can be said that "the Indus religion was a melange of much that we already know of third-millennium Asiatic religious observance, augmented by specific anticipations of the later Hinduism." The Mother Goddess cult, thought to be one of the major religious cults by earlier authors, as analyzed by Wheeler, seems to be "related to a household cult than a state religion".

A provisional dating of 2500-1500. B. C. for the Indus Civilization has been made primarily on the basis of its contact with the proto-historic cities of Mesopotamia. Proofs are supplied by seals, beads and pots etc. and this has recently been augmented by "the potential chronological value of certain 'segmented' beads from Harappan sites." If further evidence in support of the continuation of the Indus Civilization well into the first half of the second millennium B. C. can be brought to light then we can say definitely that Wheeler is correct in his assumption that it was the Aryan invasion which was mainly responsible for the destruction of the great civilization.

We cannot however share Wheeler's view when he writes in conclusion that "the idea of civilization came to the Indus from the Euphrates and the Tigris." Facts are not convincing enough to support this view, especially when the depth of Mohenjo-daro and Chanhu-daro still remain unsounded. It is difficult to conceive how borrowing of ideas could have taken place without any borrowing in the material level. It might as well be supposed that the two civilizations had a common source at some remote period in history. In fact we rather feel inclined to agree wholly with Wheeler when he says that "much that is essential to an understanding of this ancient Indian civilization, both in detail and in general context, still eludes us. We do not know the process of its early growth." Only "certain possibilities as to the circumstances of its end have begun to crystallize."

There is one minor mistake regarding the geographical location of the Hazaribagh district of Bihar, which has been referred to as lying in Bengal (p. 58).

G. S. Ray

The Foundations of Social Anthropology. By S. F. Nadel, Professor of Anthropology, Australian National University. London : Cohen and West Ltd. 1953. Pp. xi + 426.

Anthropology is a young science, and in course of its comparatively brief history it has shown various divergent trends of development. The diversification of aims has been

more pronounced in course of the last twenty years ; and it is therefore in the fitness of things that the fundamentals of social anthropology should be subjected to a rigid, critical examination. We are glad that Professor Nadel has undertaken this task, and we congratulate him because he has been able to do so with great ability.

The present book was originally published in 1951 and then reprinted in 1953. It is divided into thirteen chapters, namely, Prolegomena : Why Anthropology ?, The Aims of Social Anthropology, Observation and Description, Psychology in Observation, The Material of Observation, Institutions, Groupings, Explanation, Experimental Anthropology (Chaps. IX and X), Psychological Explanations: Mental Energy, Psychological Explanations: Action Potentials, Function and Pattern.

The reader will observe that a wide variety of topics has been covered, and it might be said in regard to the treatment that Professor Nadel has nowhere hesitated to subject the ultimate concepts or the unwritten premises of social anthropologists to a thorough examination in terms of logical validity. The chapters give us not the abridged results of his thinking, but often the whole course of his arguments as well. This is helpful, but occasionally makes it heavy going for the reader. In justification, it can of course be said that this is the only way in which one can examine the roots of any science.

But that apart, we must express our particular appreciation for the subtleness and depth to which the author oftentimes carries the reader. Professor Nadel has rightly pointed out that the social anthropologist frequently reflects in his examination and description of social facts an underlying sense of values or a philosophy of life to which he either consciously or unconsciously subscribes.

This brings us to near the last chapters of the book. Professor Nadel has rightly hesitated to accept any monistic explanation of culture. He has reasons for finding the Marxian over-valuation of economic forces as unsatisfactory as that of Freud in another direction. He personally favours

a pluralistic explanation, and recognizes the practical impossibility of framing a generalization which will suit every specific case. If such explanations have been advanced in the past, and suitable evidence also discovered, Professor Nadel believes that they have been the result of a kind of selectiveness exercised in respect of the evidence by the authors in question. The reviewer however feels happy that Professor Nadel has not gone to the point of rejection of the potential value of the current monistic explanations. He holds, by implication, that there may lie some germs of truth even within those over-done explanations. He ends by emphasizing the empirical, open-minded approach, which does not shy at explanations and takes them as they come along in course of one's specific enquiries. That is a true intellectual approach.

With regard to the Functional School, Professor Nadel has pointed out that the close inter-relation and integration of parts into one logical whole may itself be the result of an intellectual reconstruction, guided by a particular kind of value-judgement. Otherwise, how can one presume to describe one kind of culture as 'normal' and another as an unstable 'aberration'? On his own part, he is inclined to describe the integration of various parts of culture as an act of 'becoming' instead of one of 'being'.

An observation might be made in this connection with reference to the urges which lie at the root of the observed act of integration of parts of culture. It has been observed, for instance, in India that there has been considerable change in modern times in the economic framework of our culture. But the social structure, and many of the values which go with it, have been handed down from a time when the economic framework was of a different kind. Under such circumstances, the individual does suffer from the discord between the set of behaviour-patterns which he is expected to follow in respect of the various facets of cultural life. For instance the values within the family may be different from those prevalent in one's working place. If such a discord becomes too much for the individual, he sometimes tries to bring about a concordance between the patterns of action, or of values,

belonging to separate parts by means of conscious, or even unconscious, endeavour. This is done either by the absorption of elements derived from an alien culture with which his own happens to be in contact, or by resetting existing things in accordance with some hypothetical reconstruction of either the past or the future to which he pays emotional homage. And thus a constant re-ordering takes place in the outer framework of culture in conformity with the changing historical experiences of particular social groups. This concordance however does not ever seem to be complete ; for new experiences catch up the social group even before the task of integration is fully achieved. We therefore find ourselves in agreement with Professor Nadel when he says that the integration of parts is always an act of 'becoming' rather than one of 'being' at any point of time.

The relevance of this observation lies in the fact that Professor Nadel has dealt in the last part of his book with the personality counterpart of cultures. He has also dealt in greater detail with psychological explanations of culture in Chapters XI and XII. But in respect of these chapters, one wishes that a fuller treatment could have been accorded to the relation between culture in its objective manifestation and the mind of man, as well as to how they influence one another.

N. K. Bose

Ages in Chaos, Vol. I. From the Exodus to King Akhnaton. By Immanuel Velikovsky. London : Sidgwick & Jackson, 1953. Pp. XXIV + 350 + IX plates.

The author's earlier book *Worlds in Collision* produced a storm in the academic world of astronomers in America when it was published, and in 1951, *Harper's Magazine* (June issue) arranged a debate between the author and Prof. Stewart of the Princeton University. His first publisher, it is curious to note, refused to publish the book on account of the threat of some academicians to boycott all the company's text-books.

He has now come forward with the first volume of *Ages in Chaos* which will raise another storm equally terrific. The

thesis that the author tries to establish is that there is a very well-marked synchronism between the story of Exodus and Egyptian history, not as held by the majority of scholars, after the period of oppression in the days of Rameses II of the Nineteenth Dynasty in the days of his successor Merneptah, but during the invasion of the Amu-Hyksos, only a few days or weeks before the invasion of the Hyksos.

This obviously raises many complicated points of chronology—whose period is to be shortened or lengthened by some 600 years; how to fit in the subsequent history of Egypt and Israel so that the facts of history do not contradict.

The prodigious labour that the author has spent appears to be successful on the first reading of the first half of his opus magnum, as he calls it, carrying the work to Akhnaton. The second volume, if it can establish the identifications safely to the conquest of Egypt in 332 B. C., which it intends to do, will be a land-mark in historical literature. In the present volume the author has brought ample evidence to show that the biblical story of the Exodus which contains repeated references to some natural catastrophes is repeated in the Leiden Papyrus Ipuwer and in the inscription on the shrine from el-Arish, all referring to the period of Hyksos invasion. He has shown that the Israelities leaving Egypt met the invading Hyksos (Amalekites) and finds some Arabian tradition which speaks of Amalekites as invaders of Egypt and ruler of it for four or five hundred years. He identifies Hyksos domination of Egypt with the time of the Judges in scriptural history. King Saul was the first Jewish king to defeat the Amalekites at el-Arish, the ancient Auaris. The celebrated journey of Queen Hatshepsut to God's Land and Punt is identified as the voyage to Palestine and Phoenicia, described in the scriptures as the visit of the Queen of Sheba.

The sack of the Temple of Jerusalem five years after King Solomon's death by Thutmose III is identified from the pictures of the booty collected by the King from a very close correspondence of the two accounts, Jewish and Egyptian. There is unflinching correspondence between Hatshepsut,

Thutmose III, and Amenhotep II in Egypt and Solomon, ~~and~~ Boam and Asa in Palestine. Then again the fourth generation Amenhotep III and Akhnaton in Egypt and Jehoshaphat in Judea and Ahab in Israel offers a complete parallel and letters are cited to strengthen the synchronism. In the next volume the histories of Egypt and Israel will be carried to the point (Alexander's conquest of Egypt and Palestine) where the histories of the peoples of the ancient East no longer present a problem of synchronization and the thesis is thus established fully.

It may be that this bold conjecture to revise the chronology of the ancient world will be thrown aside on further study and research, but nobody can deny that the author has executed a very fine work worthy of a pioneer.

Benoy Datta

A History of the Roman World from 146 to 30 B. C. By Frank Burr Marsh Ph. D., F. R. Hist. S. Revised with Additional Notes by H. H. Scullard, M. A. Ph. D. London: Methuen and Co. Ltd. 1953. Pp. XII + 467 + 5 maps.

The late Prof. Marsh's book (first published in 1935) forms the fifth book of the series, Methuen's History of the Greek and Roman world, under the general editorship of Prof. M. Carry. It has now been reprinted with additional notes incorporating the latest researches, by Prof. Scullard, the author of the fourth volume in this series.

Prof. Marsh's style is very suitable for general readers, and students will find here a fresh point of view to the problem of Roman imperialism. His pragmatic outlook makes his reading of the period appear like one in the present, from which the reader may draw inferences for the understanding of current events.

The stream of history as the bearer of the toils of mankind from savagery to civilization is the concern of all who are interested in the study of mankind, and it can be confidently asserted that this small volume will help in the understanding of the period better than many text-books.

The period begins with Tiberius Gracchus and his agrarian

problems. The rise and fall of Marius, Sulla, Pompey fill the pages till Caesar appears to lighten up the drama of history. With the disappearance of the colossus the death knell of the Republic is sounded. The book finally ends with the battle of Actium which made Octavian the master of the Roman world. There are two very interesting and instructive chapters at the end describing contemporary Roman society and literature.

There is a useful select bibliography for the serious reader and the 19 pages of double column index enhances its usefulness.

It can be safely recommended as one of the best introductions to this very important period of Roman history.

Benoy Datta

Method in Prehistory. By A. J. H. Goodwin. Cape Town: South Africa Archaeological Society. Second Edition, 1953. Price 17/6 (*paper*). Pp. 1-184.

This is a useful handbook introducing the reader to the discipline and methods of prehistoric archaeology, with special reference to South Africa. The author says in the preface that the book is directed to the needs of students in the field of South Africa. The reviewer feels that the book would also help students working in the field in India where similar and comparable data, especially in respect of artefacts and techniques, are available. Africa perhaps more than any other country offers a great variety of evidence relating to early man. As such, the author's long experience in the African field would be of value to all students of prehistory.

The scope of prehistory is large, covering as it does all the material aspects of man in the long periods before historic documentation, taking us back to the quaternary epoch in geology. Prehistory is now studied in relation to environment, namely, soil, climate, fauna and flora, in one word, ecologically; thus touching upon other scientific disciplines such as geology, palaeontology, palaeobotany, climatology, geography, anthropology and so on. In the interpretation of its data and in reconstruction, it also needs the help of ethnology and historical archaeology.

The two methods employed in the study of man's past, the prehistoric and the geological (environmental), have been briefly described with appropriate illustrations from Africa (Chap. III). Under the first method, the author has rightly given emphasis to ethnological comparisons from aboriginal culture and upon the application of the ethnological method to the material collected. Popular illustrations from the material cultures of the Eskimos, the Australian aboriginies, the Tasmanians, the Bushmen and the Hottentots have been cited to explain the technique and use of prehistoric artefacts. Indeed a knowledge of the simple material culture of the aboriginal is immensely helpful in reconstructing the material culture of the prehistoric hunters and farmers.

The author has also carefully described with apt illustrations the elements of stone technology and evolution of technique (Chaps. IV and V), and this would help the student greatly when he handles actual specimens in the museum and laboratory or in the field. The reviewer cannot however agree with the author's observations regarding pebble-tools and tools of pebble origin from the earliest phases (or later phases) that since such tools are dependent upon the raw material at hand, it is hardly reasonable to think in terms of either a culture or a technique in any definable sense (p. 55). Assemblage of pebble tools in definite geological horizons does indicate an industry, e. g., the Kafuan or the Oldowan (Bed I) in Oldoway in Tanganyika or the pebble tools found in the lower palaeolithic culture complex of India. Further, they do reveal distinct techniques, as shown by Leakey, and which also have been observed in India and elsewhere among the so-called pebble tools.

The author has dealt with field research and excavation in some detail (Chaps. VI and VII). His treatment is simple and lucid and as such is excellent as a guide to the student in the field working for the first time. Worthy of an experienced teacher, he has cautioned students from committing certain common mistakes during field-work.

The chapter on geological records includes useful discussion on river-development, pluviation and glaciation and other

related phenomena.²² The problem of chronology however has been just touched. The C14 method has of course been described in detail (p. 40-41) as the most exact method. The reader is referred to Zeuner's *Dating the Past* for the various methods of dating. In the chapter on survey and cultural terms, the author has emphasized upon the need of studying cultural determinants governing the origin, survival, distribution of elements and whole cultures, such as mode of life, tradition, culture-contact, environment and so on, and has given popular examples to illustrate how they function.

Useful hints on publication have been given in Chap. XII and the necessary outfit for field-work and excavation has been briefly described and illustrated (Chap. XIII). The last chapter contains a useful bibliography.

A rather serious printing mistake has unfortunately been made in pp. 155-156 (Chap. XI). The paragraph starting with "The typescript is best submitted etc." and the following paragraph have been introduced here by mistake. They should be inserted in page 161 (Chap. XII).

The book is sure to be popular with students. It is one of the best, the reviewer has read, dealing with methods and techniques in prehistory.

D. Sen