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## CURRENT SCIENCE—50 YEARS AGO

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### The Himalayan Uplift since the Advent of Man: Its Culthistorical Significance\*

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IN this age of specialisation, which inevitably tends to confine thought in compartments, one is apt to overlook or to underrate the bearings of one branch of science upon another. A palaeobotanist or a geologist, accustomed to think of Time in millions of years, stumbles upon an archaeological discovery which at once brings him down to the human epoch. It forces his attention to the wanderings of man since the time he began to leave signs of his handiwork in the form of stone or metal implements, inscriptions, coins, seals or other monuments of his ever-increasing intelligence and power. The object of the present article is to draw attention to the significance of recent geological changes in northern India to the wanderings of prehistoric man.

Among the most interesting scientific results of the Yale University North India Expedition, led by the German geologist Dr. Hellmut de Terra, is the discovery, recently published, of Palaeolithic stone-flake industries in three widely separated parts of northern India. The location of these sites of early human activity is of special interest from our present point of view. One was found by chance at Chitta, southwest of Rawalpindi, in the Potwar plateau; another, also accidentally discovered, was at Pampur, a few miles east of Srinagar, in the Kashmir valley; the third was at Kargil, just beyond the main Himalayan range, on the ancient trade route over the Zoji Pass connecting India with Central Asia, Tibet and China. A few years previously stone implements belonging to two distinct cultures, one Lower to Middle Palaeolithic, the other Middle to Upper Palaeolithic, had been discovered near Pindigheb, in the Attock district, only about 40 miles from the Chitta locality.

These relics of the Old Stone Age, discovered at short intervals within the last few years, focus attention upon northern India as an area of unusual promise for our knowledge of early man. The special

value of these discoveries lies in the fact that at least some of the finds are stratigraphically datable, and therefore constitute a valuable link between the time-scales of the geologist on the one side and of the prehistoric archaeologist on the other.

For details the reader must refer to the illustrated memoir by Hawkes, Hawkes and de Terra, published under the joint auspices of the Connecticut Academy of Arts and Science and of Yale University, and to the literature therein cited. Here a few extracts must suffice as a basis for discussion.

At Chitta, numerous flakes of indurated limestone, some of them of a material which must have been brought from a locality half-a-mile off, were found in a terrace overlying a lake deposit regarded as of early Pleistocene age. The geological evidence points to the implementiferous layer being of Middle Pleistocene age. At least four of the specimens are considered to be definitely due to human agency and have been assigned to the Lower Palaeolithic. The conclusion is that this race of man flourished here during an interglacial phase or phases preceding the last major Pleistocene glaciation of northern India.

At Pampur, in a Mid-Pleistocene lake deposit of the Upper Karewa formation, Dr. de Terra found, among other relics, a broken flake of trap (volcanic) rock. This is also regarded as being undoubtedly an artifact, and as showing affinity with the Levallois stone-flake industry of Europe, which there stretched from Lower to Middle Palaeolithic times. This specimen is said to belong to the same great family of flake industries as those found at Chitta; but being of more refined workmanship it may be of Middle rather than Lower Palaeolithic age. Incidentally we may add that in an ancient soil cap covering this lake deposit, about nine feet below the surface, the remains of a very much younger culture were found, including ash and charcoal, with pottery and the clay figure of an ox. So far as I know, these have not yet been described, but their dating would obviously be of the greatest interest in view of recent speculations concerning the distribution

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of that archaic but highly developed Indian civilisation to which the probably unduly restricted name of the Indus civilisation has been applied.

The Kargil find was a solitary flake of trap, picked up on the surface of an old terrace. It must have originally belonged to the same family of industries as those recognised at Chitta and at Pampur, but was subsequently re-worked (probably in post-glacial times) into a square-ended scraper which might be of Upper Palaeolithic or even of Neolithic date. Although not stratigraphically datable, this surface find "helps to confirm the presence of Palaeolithic (and probably Lower Palaeolithic) flake-industries in the N. W. Himalayan region".

Of the two industries recognised at Pindigheb we are here concerned mainly with the older, which is regarded as Lower to Middle Palaeolithic and clearly related to that of Chitta, although a good deal more refined. In the opinion of the experts "neither the Pampur nor the Kargil flakes would be out of place in the Pindigheb find". Incidentally, some of the Pindigheb specimens indicate contact with the South Indian stone-core culture which thus seems to have extended its influence into northern India, although its original affinities are clearly with Africa.

Further observations of great interest in the present connection are made by Hawkes and Hawkes and de Terra on p. 10 of their memoir. They tend to the important conclusion that the flake implements from Chitta resemble those of Peking man (*Sinanthropus pekingensis*), who is regarded as an early member of the same group of human races as Neandertal or Mousterian man in Europe. We may sum up the entire evidence by saying that round about Middle Pleistocene time, when the main valley of Kashmir was still occupied by the great "Karewa Lake," interglacial man of about the same stage of cultural development as Neandertal or Mousterian man in Europe and as Peking man in the Far East, flourished (a) in the plains of the northern Punjab, (b) on the shores of the Karewa Lake in the heart of Kashmir and (c) just across the Great Himalayan range.

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All these changes in the physical background cannot but have exercised a profound influence upon the development of human cultures in northern India. Without more precise data (which a close study of the finely layered clays or "varves" in the Karewas of Kashmir seems to promise) it would be rash to express an opinion about Godwin-Austen's view of the extent of the recent elevation of the Himalayas. But unless his figures are a gross overestimate (which to the present writer seems highly improbable) we have no reason to assume that the Himalayas or the Pir Panjal range were a barrier to the migration of Palaeolithic or even Neolithic man.

On the view here adopted *northern India and China must have had direct contacts across the Himalayas since the dawn of human existence*, and the passes over these mountains probably mark some of the most ancient routes trodden by man. If, therefore, signs of Stone Age man were even to be found, say, on the Zoji-La itself, such a discovery would only be in accordance with expectation.

It is for the future to show how far these routes were used by the descendants of Neolithic man in India, that highly enterprising and intelligent race of people who flourished nearly 5,000 years ago in the Punjab, Sind and beyond, and who were among the first to learn the use of metals. Their distant connections to the west are now well established. They also employed materials of which the nearest known sources are far away in peninsular India. Their knowledge of *śilajit* (a drug of obscure nature used in India since time immemorial) may well indicate that they had explored the Himalayas. And who knows but that the script of Harappa and Mohenjodaro, which still baffles the palaeographer, will after all prove to have had early affinities with the ancient Chinese writings?

The main point of this article is that between India and China cultural contacts have probably existed since the very dawn of human existence. Long before man conquered the ocean intercourse between these two ancient countries was possible by the *direct route across the Himalayas* which, during Palaeolithic and Neolithic times, were probably not so high as to form an effective barrier.