In this issue

Himalayan uplift and the Indus River

The mighty Himalayan rivers cut through bed rocks along their course as fast as the terrain is uplifted by tectonic forces to sculpt spectacularly deep gorges. If one could therefore measure the time since rocks at different levels above the river were exposed directly to the atmosphere by the cutting or slicing action of the river, the uplift history of the region can be worked out. Such a surface exposure dating is feasible, as interaction of cosmic rays with freshly-exposed rock surfaces leads to the gradual accumulation of radioactive isotopes like ^{10}Be, ^{26}Al and ^{36}Cl in the top few centimeters. For example, a rock exposed to cosmic rays for about 10,000 years will accumulate about 500,000 atoms of ^{10}Be (half-life, 1.6 million years) in 10 g of quartz in the rock. Such a small quantity of ^{10}Be and other cosmogenic isotopes cannot be measured by conventional radioactive decay counting techniques but is measurable by Accelerator Mass Spectrometry (*Curr. Sci.*, 1998, **75**, 18–25).

In an interesting report on **page 366** of this issue, Sharma and his coworkers present AMS measurements of ^{10}Be and ^{26}Al in five quartz-rich rocks (sandstones) collected from different levels above the Indus river on its right bank near Leh. The cosmic-ray exposure ages of three rocks 21, 6 and 1 m above the river are 22, 15 and 3 thousand years, respectively. These preliminary results, according to authors, imply that the uplift of the Himalayan terrain near Leh (or incision by the river) was very fast – about 2 mm per year on the average between 22 and 15 thousand years ago but reduced to about 0.4 mm per year since then. A similar work by other workers about 100 km to the west of the present study area indicates that the uplift rate was as high as 12 mm per year for a short duration around 32,000 years ago.

K. Gopalan

Identification of antibody function

Autoimmune diseases, characterized by the presence of circulatory antibodies to 'self' antigens, have intrigued immunologists from a conceptual point of view about the mechanism(s) underlying discrimination of 'self' from 'foreign' antigens by our body. Analysis of such autoantibodies, on the other hand, has revealed interesting molecular details of physiological consequences of the presence of such antibodies in the serum of patients. Pernicious anemia is one such autoimmune disease where circulatory antibodies to intrinsic factor (IF) are found in serum. IF is a gastric protein which aids in vitamin B_{12} absorption by binding to it and in a receptor-mediated mechanism transporting vitamin B_{12} from the luminal side to the serosal side of the intestine. Vitamin B_{12} is an essential nutrient and acts, in a structurally modified form, as a cofactor in some very interesting metabolic reactions. Circulatory autoantibodies to IF create artificial deficiency of vitamin B_{12} in our body by preventing its binding, either to B_{12} (Type I) or to its receptor in the intestine (Type II). This leads indirectly to anemia.

Srikumar from Pondicherry University reports in this issue (**page 387**) that of the two types of anti-IF antibodies, type II antibodies can also be observed in the sera of rabbits immunized against human IF. He has employed a novel technique wherein zirconyl phosphate at pH 6.25 was shown to actually bind antibody–IF–B_{12} complex, while otherwise at this pH IF–B_{12} complex would not bind. Direct evidence in the form of immunoprecipitation of IF–B_{12} complex also has been provided.

Is it possible that precomplexation of IF with B_{12} brings about conformational changes in IF exposing the epitope on IF which elicits type II antibodies?

K. Muralidhar

The early man of India

The find of an early hominid in 1983 from the Mid-Pleistocene sediments of Narmada Valley at Hathnora, Hoshangabad was a landmark event in the quest of tracing human ancestry in India. The find of Arun Sonakia and co-workers of Geological Survey of India, Nagpur is significant in that it demonstrated the presence of early hominids in South Asia, filling the lacuna between the more westerly finds in Africa and the more easterly ones in East and Southeast Asia. However, every important discovery has had its share of controversy attached to it and the find by Arun Sonakia and co-workers is no exception. Basically, there are two outstanding issues: The first pertains to systematics and is more subjective in nature while the other is the rigour in providing temporal constraints for the find. The latter is largely dependent on the accuracy of the dating techniques applied. With regard to the first issue, only additional specimens will resolve the question whether the Hathnora specimen is an ancient *Homo sapiens* or one of the younger representatives of the more ancient lineage of *H. erectus*. However, the second issue is more easily resolvable and the present paper (**page 391**) presents additional information on temporal constraint regarding the find. Irrespective of the many questions attached to the specimen, there is no doubt that this find has given added impetus to the search for early remains of man in India.

Ashok Sahni