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Research Projects and Reports

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**IV. RESEARCH PROJECTS AND REPORTS**

(Reports from Germany courtesy of Dr. Andras Hoefer)

*Temple Monuments in Himachal Pradesh*

**Researcher:** Ronald Bernier (Fine Arts, University of Colorado)

**Project:**
Ronald Bernier has received a research grant from the University of Colorado to study temple monuments of wood and stone in Himachal Pradesh. This project is part of a long-term plan to document sacred structures, primarily in wood, throughout South Asia. His publications on the subject include Temples of Nepal, The Nepalese Pagoda: Origins of Style (both S. Chand and Co., Delhi), Splendours of Kerala (co-authored for Marg Publications, Bombay), and Temple Arts of Kerala (in press, S. Chand). In December and January he will lead a study tour on the subject of the arts of Rajasthan and South India with special emphasis on palaces of the Maharajas.

*Wood Fuel Utilization by Small-Scale Industry in Nepal*

**Researcher:** Deanna G. Donovan, Institute of Current World Affairs, Kathmandu, Nepal

**Project:**
The major goals of this research effort are to identify those industries dependent on wood fuel and to define their energy requirements. Secondarily, the project seeks to investigate the economic and environmental impacts of industrial wood fuel use on household consumption patterns in various areas. Finally, a brief survey of the energy supply options available to small-scale industry and the feasibility of introducing alternative energy technologies is planned.

**Background.** Recent reports of government and other agencies have described vividly the worsening condition of Nepal's hill forests due to demands for fuel, fodder, building materials and cropland. The demand for fuelwood overshadows all other forms of wood use in terms of volume and forest area affected. Although for the most part fuelwood demands derive from domestic needs for cooking and heating, it is recognized that the processing of various agricultural and forest products in rural areas can give rise to heavy demands often concentrated in a single locality. HMG National Planning Commission as well as several foreign assistance groups point to the need to develop rural industry in order to provide the rural population with an alternative to further encroachments of the already limited and degraded forest areas. It is vitally important that the introduction and expansion of rural industry does not exacerbate the problem of fuel scarcity in the hill regions. The investigation of the energy requirements and technological options for small-scale rural industry is thus appropriate and necessary to ensure that the net economic and environmental effect of industrial development in rural Nepal will be positive.

**Organization.** The basic data needed to define the energy requirements of various industries are being collected through observations and interviews at the production sites. The principal questions to be asked are: Which industries
are using wood fuel? How much wood fuel are they using in total annual production and per unit of output? In what type of process are they using wood fuel and what type of facilities, such as kilns, ovens, etc., are employed? What alternative energy sources are available in the community? The initial list of industries to be investigated include alcohol, fruit processing, ginger, cardamom, butter, cheese, bricks and metal crafts, among others. Four separate questionnaires have been prepared to aid in the collection of data from factory owners, tea shop and hotel proprietors, forest officials and managers of new energy supply sources, such as biogas and hydel facilities. The investigation of the technical feasibility of converting to alternative energy sources will draw heavily on the engineering experiments and field studies of other research groups in Nepal. An analysis of the survey data will culminate in a series of reports, both descriptive and prescriptive with regard to industry development and the integration of industrial production in rural communities for a more efficient and ecologically sound exploitation of the natural resource base.

*Newar Research*

**Researcher:** Robert Levy (Anthropology, University of California, San Diego)

**Project:**

Levy is completing a manuscript on the socio-cultural, religious, and symbolic organization of Bhaktapur based on field research conducted from 1973 to 1976.

*Fused rock and a landslide in the Langtang Valley*

**Researchers:** L. Masch, E. Preuss, A. Schroecker and H. Heuberger (Munich).

**Project:**

Big landslides occurring in mountain areas are among the most hazardous of geological events. They block rivers, creating new lakes, but also destroy settlements. Therefore, the geological and geomorphological research of landslides and landslide formation has not only scientific, but also practical importance.

In the Langtang Valley, north of Kathmandu, a pumice-like glassy rock was found on a large failure in gneisses by J. S. Scott, a student of geology and member of Tilman's expedition in 1949. This type of glass is attributed to frictional rock-fusion that may occur on fault planes during earthquakes. The Langtang rock glass was considered to be the best known example for such an origin.

Later investigations by Masch and Preuss in 1973 confirmed the formation of this glass by frictional fusion, but cast doubt on the deduced origin. For a similar occurrence near Koefels in the Oetz Valley (Tyrol), Preuss had shown, that the glass was probably generated at the base of a landslide in crystalline rock. The similarity of the glassy rock types, and of the geomorphological situations, lead to the assumption of a similar origin in both areas.

Three of the authors, Masch and Schroecker, petrographers, sponsored by the Deutsche Forschungsgemeinschaft, and Heuberger, geomorphologist, investigated, in November 1978, the total area of rock failure and rock glass
formation between 3,900 m and 5,800 m a.s.l. on the north slope of the Langtang Valley. It could be proved that the rock glass covers the 25 sq. km base of a huge fossil landslide (more than 10 cu. km). The rocks at the base of the landslide were fused by the frictional heat of the landslide movement. The event happened before the last glaciation, i.e. more than 20,000 years ago. Fluvial dissection has created magnificent exposures of the gliding plane and its rock glass cover. Some parts of the landslide masses are hidden by quaternary glacial accumulation, whereas others have been eroded away by glaciers. So far the occurrences at Langtang and Koefels are the only known instances of fused rock in a landslide, but both demonstrate the mechanics of very large landslides, especially their high velocity.

*Great and Little Tradition in Nepal (Sanskritisation) -- Investigations into origin, development and structure of shrines and their cults in Nepal.

Researchers: Dr. Ing. Niels Gutschow, Architect, University of Kiel (West Germany) Dr. Phil. Gunter Unbescheid, Indologist, University of Kiel/Heidelberg

Project:
Framework. The project is based on the well-known fact that local cults and godlings as well as temples and shrines are connected and identified by a process of gradual assimilation with the heroes and gods of the "great" Indian Hindu tradition. On the side of the so-called "great" tradition there seem to be mainly two figures, which prove to be most "suitable" for this kind of assimilation, namely Bhairava and Devi with all their possible manifestations. Accordingly the social basis for this is a steadily growing influence of religious elites linked by tradition with the orthodox aspects of Hindu culture. This elite gradually gets hold of the ritual performance, or at least tries to penetrate it. The intention of this research is to study the process of this "shifting of ideas" in Nepal in terms of historical developments, architectural manifestations, as well as mythological structures, whereby certain village gods and goddesses are brought into contact with such famous figures as Bhairava or Durga.

Research Program. The project is designed for a period of five years. Initially it focused on a thorough survey of three different areas in Central and West Nepal: in the Gorkha District, the Jumla area (Karnali Basin), and Banepa (east of Bhaktapur), successively. There is evidence for the formulation of common ideas underlying the process of "sanskritisation" in Nepal. In accordance with both of the aspects of "sanskritisation"—that is, the socio-historical and the mythological—the activities of the group concentrate on two main strains of investigation respectively.

On the one hand (the religious), temples and shrines are described and scaled, and their social functions and rituals given. The most important ones are drawn including an interpretation of their stylistic elements. Inscriptions and documents (guthi-papers) are collected and translated, to restore the historical background of the sites. On the other hand, all the festivals and rituals connected with these places are described and analysed. In addition, manuscripts (puja paddhati etc.) are photographed and translated. The vast hither-to-almost-completely-ignored amount of oral literature, such as legends of deities and temples as well as folk stories and folk songs, is collected systematically and translated. Thus the particular "mythical atmosphere" of certain deities is understood and the structures of change, which penetrate
from socio-historical sources into the legends, thereby "shifting" the ideas, are isolated.

By comparing the various places by means of different styles of construction, different ritual patterns and their mythological explanations, and in terms of more or less successful penetration by ritually highly specialized groups, it is possible to trace various levels of cult settings and to explain these very levels in terms of more or less "sanskritised" structures of shrines and temples.

Fieldwork Done. The project started in September 1980, with four months of field research in Gorkha, which, thanks to supportive collaboration with the Department of Archeology of His Majesty's Government and with the local authorities, proved to be very successful. Extensive research could be done in Gorkha town itself with the Kalika-temple inside the Gorkha Darbar as the ritual center of the whole district. A total of 26 ground plans, site plans, and sections could be drawn. Forty-six legends, folk tales, and folk songs were recorded in and around Gorkha town. During the stay the spectacular celebration of Durgapuja at the Kalika-temple of the Gorkha Darbar was studied and documented with motion picture photography. The ritual connections between the various temples of the district were studied, following the traditional "sister relationships" of the deities amongst themselves. Thus the shrines of the dominating "7 sisters," including Kalika, and a couple of smaller ones in connection with them, were surveyed.

With the permission of the Department of Archeology and the Guthi Samsthan, all together 85 documents could be photographed in the Mal Adda in Gorkha as well as in the Guthi Lagat Phat in Kathmandu. Wherever possible, unpublished inscriptions were copied and published ones checked with the printed version. At the moment this material is in the process of translation.

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*Kashmir Politics Project*

Researchers: Leo Rose (Political Science, University of California, Berkeley)
Robert Huttenback (Chancellor, University of California, Santa Barbara)

Project:
Leo Rose and Robert Huttenback are collaborating on research on the evolution of political and governmental institutions in Kashmir from the mid-nineteenth century to the present. Huttenback has been conducting the historical research on the evolution of those institutions; Rose will be working in Kashmir and India for six months, beginning in September 1981, on the more contemporary developments.
High Altitude Programs of the Documentation Center for High Altitude Medicine in Nepal (DCHAM)

Researchers: Documentation Center for High Altitude Medicine: Section of the Association for Comparative Alpine Research (Brunhildenstrasse 3, 8000 Muenchen 19, West Germany)

Projects:
The aim of DCHAM is to promote research programs in high-altitude (HA)-physiology and -medicine, the documentation and analysis of HA-complications and -accidents, as well as the improvement of the international cooperation and communication of physiologists and medical doctors working on HA-problems.

With the support of the Deutsche Forschungsgemeinschaft, several groups of medical scientists, have been conducting research in Nepal since 1975.

The main fields of interest of these investigations have been changes of circadian rhythm, HA-retinal-hemorrhages, HA-cerebral- and -pulmonary-edema, the protein metabolism, and alterations of the cardio-pulmonary system, of the blood and its components and of the body hydration, all due to the influence of HA.

A particular focus of the research is on microcirculatory disorders due to HA-hemoconcentration and the application of hemodilution in order to cope with this. Hemodilution involves infusion of human serum preparations (for example), with or without phlebotomy, in order to reduce the blood viscosity. Lowered blood viscosity improves the oxygen transport capacity of the blood, decreases the cardiac pump work, and increases the tissue perfusion which results in a better heat supply, as to the fingers or toes. In several HA-expeditions this method proved safe and feasible in reducing HA-climbing risks such as frostbite.

One of the main hazards of HA is rapid dehydration and, consequently, severe hemoconcentration. This is one of the factors which most limits human adaptability to HA. This research stresses the importance of large amounts of oral (or intravenous) fluid intake, not only for expedition climbers but also for trekking tourists.

A Sino-German joint program in which hemodilution will be applied to caucasians of the Tibetan plateau who suffer severely from HA-polycythemia-disease may be seen as one of the outcomes of our activities in Nepal.