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TO

Dr. SVEN HEDIN

THE GREAT EXPLORER OF CENTRAL ASIA

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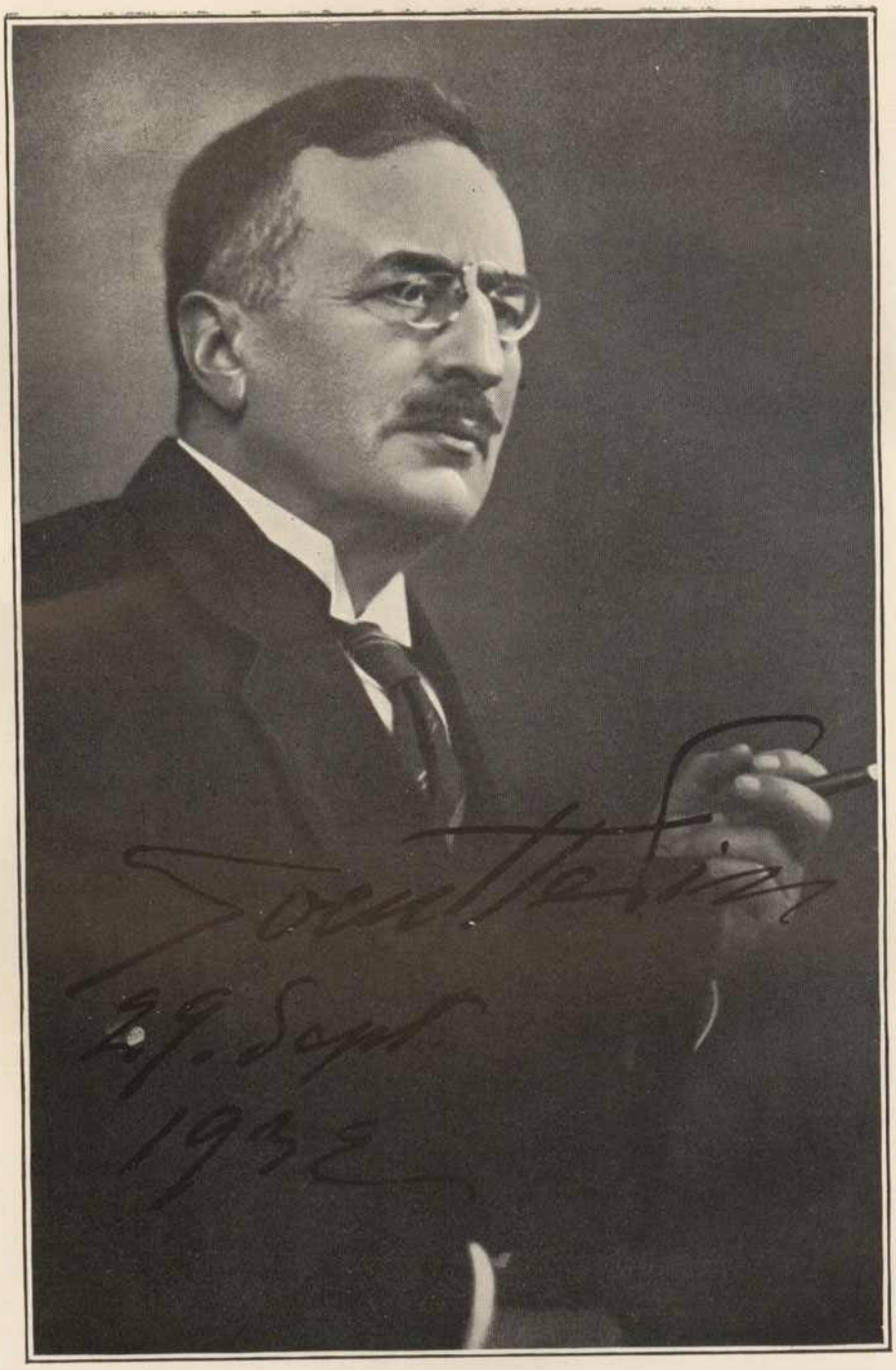


Dr. Sven Hedin

SVEN HEDIN

By GEORGES DE ROERICH

IN the brilliant galaxy of Central Asiatic explorers two names stand foremost: Nicholas Prjevalsky and Sven Hedin. These names have become household words among all those interested in the advancement of geographical knowledge. Both of them in the course of their travels covered tremendous distances, and by force of their personalities, sound scientific method and literary gifts unfolded vast panoramas of scientific explorations. Thanks to their researches we possess now invaluable data on the heart of the Asiatic continent, and to them belongs the honour of discovering most of the outstanding orographical and hydrographical features of Inner Asia.

It is difficult to write about Sven Hedin, for vast are his explorations and innumerable his written works. For over thirty years he has laboured incessantly, and has created for himself an undying name in the Annals of Geography. His name is for ever connected with the solving of some of the most important problems of Central Asiatic geography: the exploration of the Tārīm, the Lop-nōr problem, the hydrography of the Tibetan highlands, and many of the great problems in the orography of Tibet and Eastern Turkistān.

Sven Hedin was formed as an explorer in the school of Ferdinand von Richthofen, that indisputable master of geographical research. It was during his studies under von Richthofen that Sven Hedin first conceived the plan of carrying out extensive explorations in the remote and unknown regions of Central Asia. Dr. Hedin's first contact with Central Asia took place after a journey to Persia in 1890-91 where Hedin went as a member of the Embassy sent by King Oscar II to the Shāh of Persia. During this journey, he travelled through Askhābād, Merv, Bukhāra, Samarkand, Tāshkent, and Kāshgar, thus preparing himself for his future journeys. On his return journey he made a pilgrimage to Prjevalsky's tomb on the shores of the Issïk-köl, and paid homage to the memory of his great predecessor. From this first contact with Central Asiatic soil begins his indefatigable activity as explorer, which brought fame to himself, and to his country—Sweden, which never failed to support the scientific projects of her illustrious son. On October 16th, 1893, Sven Hedin began his first great journey across Inner Asia during which he conducted explorations in the Pāmīr, the Tārīm basin, the Lop desert, the northern Tibetan upland, southern Tsaidam, and the southern Gobi.

On the 25th of January, 1894, the explorer reached Tāshkent, where a stay was made to prepare the journey to the Pāmīr. On March 18th, Sven Hedin arrived at the Russian Pāmīr Post on the Murghāb. All through this journey the explorer carried out his physiographical observations, collected geological and botanical collections, took anthropological measurements, and carried out a route survey. From the Pāmīr he started for Kāshgar, and on the way made an attempt to climb the Muztāgh-atā (24,388 ft.), and mapped the lower part of the Prjevalsky Glacier. On February 17th, Sven Hedin left Kāshgar for Maral-bāshi, and on the 10th of April left the oasis of Meket-bāzār, south of Lailik on the Yārkand-daryā, with the intention to cross the desert towards the Khotan-daryā. It was during this strenuous desert march that he lost his camel caravan, and reached the dry bed of the Khotan-daryā on foot. His own life was saved by a water pool situated not far from the dry river bed. The loss of the caravan forced the explorer to return to Kāshgar, to equip another for his further work in the Tārīm basin. During the summer another trip was made to the eastern Pāmīr. On December 14th, Sven Hedin again left Kāshgar for Khotan following the southern caravan route. Khotan was reached on the 5th of January, 1895. After a stay in the oasis, the explorer again left on a journey along the Keriya-daryā towards the Tārīm, whose course he followed eastwards up to the Lop basin. This first trip to the Lop-nōr inaugurated a series of investigations of this important problem, that were continued during the second great journey to Central Asia, and were finally solved during the recent Sino-Swedish Expedition. Dr. Hedin's observations during this first visit of the Lop basin substantiated the theory advanced by von Richthofen about the shifting of the lake. At the end of June, Sven Hedin left again Khotan on a journey to the North Tibetan upland, an exploration that resulted in a series of valuable observations on the eastern extension of the Kun-lun. He started his journey to the Tibetan highlands from Kapa, situated S.-W. of Charchan. The Arka-tāgh was crossed over a Pass some 17,000 feet high, situated some miles to the east of the Pass crossed by Littledale. From there, the explorer followed the western continuation of the Kokoshili range, and on his way discovered numerous self-contained water basins.

Because of the great altitude—some 16,000 feet in average, the flora was scant and the region presented the appearance of an upland desert intersected by low rugged ridges. After crossing a second time the Arka-tāgh, Hedin penetrated the region of the riverhead of the Yang-tze, and especially that of the Nabchitu-müren, a northern tributary of the Yang-tze. Then the Swedish explorer crossed the Tsagan-ūla range into the valley of the Tsagan-gol in the Tsaidam. Following the southern rim of the great salt marsh, Hedin visited the region of the lakes Kurlïk-nōr and Toson-nōr. From there through Dulān-khit and the northern shore of the Koko-nōr, the explorer reached Kumbum and Hsining-fu. Sven

Hedin then journeyed across the Alashan and the Ordos to Pao-t'ou, and Peking, where he arrived on the 2nd of March, 1897. The rich results of this great journey were described in two volumes entitled 'Through Asia' (London, Methuen, 1898) which represent a masterpiece of scientific geography, and were acclaimed by such authorities as Sir Thomas Holdich (Geographical Journal, 1899, p. 159), and Professor I. V. Mushketov (Journal of the Imperial Russian Geographical Society, 1897, pp. 18–23).

The results of Dr. Hedin's investigations in the orography and hydrography of the region were published as a special issue of the Petermanns Mitteilungen under the title 'Die geographisch-wissenschaftlichen Ergebnisse meiner Reisen in Zentralasien, 1894–1897' (Gotha: Justus Perthes, 1900).

In 1899, Sven Hedin was again in the field preparing for another extensive journey in the Tārīm basin and Tibet. On July 30th, the explorer left Osh for Kāshgar. On September 5th, he started from Kāshgar for Lailik on the Yārkand-daryā, from where he planned to start his journey along the Yārkand-daryā and the Tārīm, and for which purpose a boat had to be built. During the boat journey up to Yangi-köl, where the explorer arrived on December 7th, a map was prepared of the river course. At Yangi-köl, the camel caravan which was marching from Lailik joined the explorer, and a base camp was established, where meteorological observations were conducted throughout the stay. From his base camp at Yangi-köl, Sven Hedin undertook a series of trips into the desert around the Lop basin. It was during one of these trips that he had the good fortune to discover the important ruined site of Lou-lan which flourished between 260–330 A.D. It was during a second visit to this site in March, 1901, that Hedin discovered numerous manuscript remains which have been now edited by the late Professor A. Conrady in his 'Die chinesischen Handschriften und sonstigen Kleinfunde Sven Hedins in Lou-lan', Stockholm, 1920. On May 7th, Sven Hedin returned to his base camp at Yangi-köl, and resumed his boat journey down the Tārīm, which continued as far as Abdal. The result of this boat journey was a complete mapping of the river course.

On July 13th, the whole caravan was assembled at the riverhead of Mandarlik on the Tibetan upland. A base camp for the Expedition was established at Tumurlik, situated west of the lake Ghāz-köl. From here Sven Hedin with a small caravan undertook a journey into the Central Kun-lun and crossed the Chamen-tāgh, the Arka-tāgh over a Pass 16,996 feet high, and the western continuation of the Kokoshili range. This journey included much of previously unmapped territory, and Dr. Hedin explored numerous lake basins situated in Latitude 34 N. and Longitude 90 E. This trip took three months to complete and cost the life of one of the caravan followers and of

several pack animals. This journey into the Central Kun-lun was followed by a trip to the lake Kum-köl, and an exploration of the Serthang uplands. Then the explorer crossed again into the Tārīm basin and returned to the Lop desert. He mapped the old river channel of the lower Tārīm, and came to the conclusion that the entire Tārīm had formerly occupied this old river bed. Careful levelling discovered the existence of a broad shallow depression with an old shore line not far from the ancient site of Lou-lan. On April 8th, Sven Hedin returned to Charkhlik, and on May 17th, the explorer left this oasis on another expedition to the Tibetan upland following the route along the Charkhlik-su. The large caravan of the expedition assembled again at the Kum-köl, and from here started southward across the upland of Northern Tibet. On July 27th, the explorer decided to attempt to reach Lhasa, the capital of Tibet, in the disguise of a pilgrim. Leaving his large caravan, he started with two followers. On August 1st, he reached the Sa-jyu tsang-po, but four marches south of the river he was stopped by a strong detachment of local Tibetan militia. The explorer was forced to return to his caravan. The southern point reached during this attempt was Bum-tsho (Latitude 31° 40′ N. and Long. 90° 45′ E.). Far from being discouraged, the explorer made another attempt, and on August 25th reached the lake Ziling-tsho, but was again stopped by the watchful frontier guards, and decided to turn towards Ladak. During the long march to Leh across the desert uplands of Western Tibet, where frequent absence of water, and continuous storms make the journey extremely difficult, Sven Hedin's route crossed several times the routes followed by Nain Singh and Littledale. His explorations of the lakes on this journey across the northern sections of Nam-ru, Nag-tshang, and Ngari threw new light on the physiography of this important region of Central Tibet. On December 13th, 1901, the explorer reached Leh in Ladak. After a brief stay in India, Hedin returned to Leh and on April 5th, 1902 started for Kāshgar by the Karakorum route. Kāshgar was reached on May 14th. From there the explorer journeyed to Andijan on his homeward journey across Russia. The scientific results of this expedition were described in six large volumes, and two volumes of maps, entitled 'Scientific Results from a Journey in Central Asia, 1899–1902' which form a fitting conclusion of this great undertaking in the heart of Asia.

Perhaps the most important of Sven Hedin's journeys, was his third great journey to Tibet which resulted in a series of brilliant discoveries. In the second half of 1905, the great explorer started on another journey to Tibet, to explore the upper Indus region, the Tsang-po basin and the Region of the Great Lakes in Central Tibet, the northern section of which the explorer visited during his Expedition of 1899–1902. Starting from Ladak, Sven Hedin reached the upland plains of Lingtse thang and Aksaichin,

crossing a Pass some 19,500 feet high. In October, the explorer conducted explorations with the help of a collapsible boat on the highland lakes of Yishil-kŏl, Ligden, and Bul-tsho. December was spent on the lake Dumbuk-tsho, and in January, the explorer made a fruitful stay on the shores of the important lake Ngantse-tsho, discovered by Nain Singh. After crossing several important mountain passes, with an average altitude of 18,000 feet, the explorer reached the Brahmaputra at Yeshung. From there he reached Shigatse on the 9th of February after a four days journey down the Tsang-po. This journey along the great river of Tibet resulted in many interesting observations as to the rôle of the Tsang-po valley in the physiography of Tibet: 'The air, the water, and the solid material, everything is wandering from West to East through this great furrow between the Himālayas and Trans-Himālayas. The Tsang-po is the great recipient for wind, water, and detritus' (Hedin: Southern Tibet, vol. II, ch. XLIV–L, p. 300). At Shigatse, Sven Hedin was met by officials from Lhasa who carried strict orders to stop the explorer at Ngantse-tsho. During this remarkable journey across the uplands of Western Tibet, the explorer determined hypsometrically 200 points, mapped on 230 sheets of maps an almost unexplored stretch of territory, and made important observations on the physiography of the traversed region. On March 27th, Sven Hedin left Shigatse on another journey across the uplands of Western Tibet. In August he carried out explorations in the region of the Manasarovar lake, and on September 10th, 1907, had the fortune to discover the source of the Indus. On the 28th September, the explorer reached Gartok, and on November 26th the expedition arrived at Thangtse on the Ladak border. Here another caravan was equipped for another trip across the Tibetan upland. During this second journey, the eminent explorer crossed the Tibetan upland by another route in a S.E. direction, and succeeded in reaching Raga-tasam on the Tsang-po, where he was stopped by the authorities of Sagā-dzong. This second crossing of the Tibetan upland, Sven Hedin carried out in the disguise of a Ladakī trader. On his return journey, the indefatigable explorer carried out explorations in the previously unexplored region of Bong-ra. Sven Hedin gives us a striking picture of the uplands of Western Tibet: 'The landscape is typical, showing the levelling action of a denudation that has been going on for long periods. Here, as in many other places of interior Tibet, we have indeed a very good example of what Penck calls the "upper denudation limit" above which the destructive action does not allow any mountains to rise. The panorama also very clearly shows how the different ridges . . . . are cropping out from the debris which form very flat conical screes sloping extremely slowly from the base of the mountains down to the midst of the plains or latitudinal valleys. The depressions and cavities between the mountains which have been filled up with enormous quantities of loose material, occupy a much greater area than those parts

which, still, in the form of mountains, rise above the beds of deposits....The relative heights....in the course of time decrease. The procedure is irresistible and uninterrupted, though, of course, extremely slow.... The final result at which the destructive powers are aiming, is to bring the mountains and the valley plains at one and the same level. This would be the ideal plateau-land, a status which, however, never will be reached, for the peripheric erosion is with the same energy working its way towards the heart of the still self-contained plateau-land without outlet to the Ocean' (Hedin, Southern Tibet, vol. II, ch. XIX, p. 262). The return journey was effected through the Sutlej valley, and Simla was reached early in September, 1908.

This tremendous journey brought significant results, the most outstanding of which are the discovery of the sources of the Indus and of the Brahmaputra (Tsang-po), and the discovery and survey of the great mountain range north of the Tsang-po, to which the explorer himself gave the name of Trans-Himālayas, but which is called by many the Hedin Range (Cf. Leuchs, Zentralasien, Handbuch der Regionalen Geologie, Heidelberg, 1916, p. 118). Dr. Sven Hedin was the first to survey the range and cross it by at least eight tremendous mountain passes with an average height of 18,000 ft. During the journey twenty high snow peaks were determined trigonometrically, and the highly intersected region mapped. The range forms the watershed between the Indian Ocean and the enclosed self-contained drainage region of Inner Asia. In the West the Trans-Himālayas stretch towards the great Karakorum range, which has a similar structure. To the East it merges with the Nyen-chen Thang-la, and thus forms the most outstanding feature in the orography of Tibet.

Hedin's exploration of the lakes of the Tibetan upland furnished new and important data towards the solving of the problem of the dessication of Inner Asia. His survey filled in a large gap in the map of Tibet, and traced the main outlines of this elevated region.

The scientific results of this Expedition were embodied in nine large volumes entitled 'Southern Tibet. Discoveries in Former Times compared with my own researches of 1906–1908', Stockholm, 1917–1922. The publishing of this sumptuous edition is by itself an event of the first magnitude in the history of the geographical exploration of Asia, and will remain for ever a monument of scholarly acumen, and an example of exploratory method.[1]

[1] The eminent French geologist M. Emmanuel de Margerie has recently published a brilliant account of 'Southern Tibet', entitled 'L'Oeuvre de Sven Hedin et l'orographie du Tibet', Paris, 1929.

For many years the eminent explorer had in mind a thorough exploration of Central Asia by a group of scholars belonging to different branches of science. Such a new type of expedition answering the requirements of modern research and the growing demand for specialization has long been a necessity. This new type of expedition tends to enlist a group of specialists, each in charge of his own field of research; moreover, it tends to develop into a moving research station whose research workers spend a considerable time in one region, and establish research bases at various points within the region of exploration. This new type of expedition facilitates the accumulation of exact data on the country and provides the scientists with a unique opportunity to test and verify their results.

In May, 1927 such an expedition, officially known as the Sino-Swedish Expedition,[1] took to the field under the leadership of Dr. Sven Hedin. The Expedition consisted of twenty-eight members, and included several well-known Swedish, German and Chinese scholars. A significant characteristic of this great scientific enterprise was its close co-operation with Chinese scholars, who contributed greatly to its success. At the outset the Society for the Preservation of Cultural Objects, a learned body in Peking ostensibly in charge of scientific activities throughout China, attempted to hinder the progress of the Expedition. After protracted negotiations Dr. Sven Hedin succeeded in signing an agreement which enabled the Expedition to start into the field. It was a considerable victory in the face of a stubborn opposition, and a general anti-foreign attitude, from which many recent expeditions had to suffer. The scientific staff of the Expedition consisted, besides the Leader, of Dr. Erik Norin, geologist, well-known for his explorations in China and N.W. Himālayas; Dr. Folke Bergmann, archæologist, and Dr. Waldemar Haude, meteorologist. Besides the above the Expedition had eight German members, all of whom actively participated in the exploratory work and assisted the scientific staff in the carrying out of their manifold duties. The Chinese section of the staff consisted of Professor Siu Ping-Ch'ang, co-leader of the Expedition, Professor F. L. Yüan, palæontologist, Mr. W. Huang, archæologist, Mr. T. H. Ting, palæontologist, and several collectors and assistants. Mr. J. A. Larson, well known throughout the Sino-Mongolian borderland, and once adviser to President Yüan Shih-k'ai, was in charge of the large expeditionary caravan. The Expedition had an extensive scientific programme before itself. Besides topographical work, in which most of the Expedition members participated, one of the chief problems of the Expedition was to be carefully conducted meteorological observations. It was Dr. Hedin's plan to establish permanent meteorological stations, equipped with up-to-date equipment, at different points along the route, and thus obtain a full record of atmospheric

[1] A general account of the Expedition is given in Dr. Hedin's 'Across the Gobi desert', London, Routledge, 1931.

changes in the desert regions of Inner Asia. These careful meteorological observations, supplemented by geological investigations, and search for Quaternary deposits, had as one of their chief objects the solving of the problem of dessication of Inner Asia, and the sequence of climatic changes, not to speak of the great practical importance of meteorological work in a region where all previous observations had only a sporadic character. It was proposed to establish four meteorological stations of a more or less permanent character, and manned by Chinese assistants specially trained for this kind of work. At such stations observations could be conducted for considerable periods of time and thus furnish invaluable information. Ordinary meteorological observations were to be conducted throughout the journey. The first station was to be established at the Etsin-gol; the second at Hāmi on the Hsin-chiang—Kansu border; the third at Urumchi, capital of Hsin-chiang lying north of the T'ien Shan; the fourth at either Charkhlik or Charchan on the southern rim of the desert. A fifth station was planned on the Khotan-daryā, not far from the place where Sven Hedin lost his caravan during his memorable expedition of 1894–97. Dr. Erik Norin, the geologist of the Expedition, intended to survey the route across the Gobi, and then make a special study of the Quaternary geology of the Kuruk-tāgh range and of the Lop basin. Dr. Folke Bergmann had a vast field before him, with special instructions to search for prehistoric sites in the Gobi and Hsin-chiang, and the study of tribal movements during the prehistoric periods within Central Asia. Anthropological investigations and measurements were to be conducted throughout the journey. The botanical and entomological collections were in charge of Dr. Hummel, medical adviser to the Expedition. On the 20th of May, 1927, Dr. Hedin accompanied by Dr. Hummel left Pao-t'ou for Pei-ling miao in Inner Mongolia, where the camel transport of the Expedition had orders to assemble. The other members of the Expedition in charge of the different columns were instructed to reach there from Khalgan and Kuei-hua ch'eng. The Expedition camp was established on the Khujirtē-gol, a river flowing West of the monastery of Pei-ling miao. Here the Expedition stayed until July 22nd, organizing itself and awaiting the camel transport. On the 29th July, the whole caravan left the camp at the Khujirtē-gol, and proceeded westward by the desert route to Hāmi. Their immediate objective was the Etsin-gol. The Expedition proceeded in three columns: Dr. Norin's column chose a slightly northern course; Dr. Hedin with the main column followed a middle course, keeping communication with both the northern and southern columns of the Expedition, the latter under Prof. Yüan. Near Tsagan-obo sūma, Dr. Bergmann discovered an important prehistoric site, and collected some 1,480 stone artifacts, and fragments of ceramic. On the 16th August, the Expedition reached the monastery of Shande-miao, situated in the Khara-narin-ūla. After a stay of several days, the Expedition started again on the 29th August, and after a strenuous march reached on September 28th the Etsin-gol. Here a prologued stay was imperative to

carry out the extensive scientific programme, to establish the first meteorological station and prepare for the next desert crossing to Hāmi. During the stay at the Etsin-gol the following programme was carried out:—

(1) Survey of the Gashun-nōr and Sokho-nōr basins.
(2) Archæological investigations along the river course and the lake basin.
(3) Search for a ruined city situated in the desert West of Gashun-nōr.
(4) Survey of the Etsin-gol.
(5) Visit to the ruined city of Khara-khoto.

The first meteorological station was duly established and placed in charge of Major Zimmerman, and a Chinese assistant. Both of them lived through a remarkable experience. While working at the Etsin-gol station, Dr. Hedin and the meteorologist of the Expedition decided to establish a station at Pao-t'ou, to be the first link in the chain of projected meteorological stations. For this purpose one of the Chinese assistants was deputed to Pao-t'ou with adequate equipment to start the station.

On the 28th October, the Expedition was rejoined by Dr. Norin and Dr. Bergmann. Dr. Norin during his trip across the Gobi carried out a careful survey based on triangulation through country previously unmapped. Dr. Bergmann succeeded in discovering about 120 neolithic sites between Pei-ling miao and the Etsin-gol. Most of these sites were found to be situated along old water courses.

Dr. Haude left the camp at the Etsin-gol on the 31st October and proceeded westward towards Hāmi, to establish the station No. 2. The main column of the Expedition under Dr. Hedin started only on November 8th, and chose a northern course, lying W.N.-W. of the Gashun-nōr. The advance column of the Expedition were unable, however, to enter Hsin-chiang, and establish the second meteorological station at Hāmi. The provincial authorities at Urumchi ordered the frontier officials at Hāmi to arrest and disarm the Expedition which was taken for an advance guard of an army advancing from Kansu. After negotiations, the Expedition was permitted to journey to Urumchi on the condition of delivery of fire-arms and ammunition, servants and camels to remain at the frontier, and that members should abstain from taking photographs and route surveys. On the 4th February, the Expedition left Hāmi for Urumchi. While passing through Turfān, Dr. Hedin heard that the Tārīm had recently changed its course, and was flowing now in the old river channel of the Kuruk-daryā or Kum-daryā towards the old Lop-nōr. This return of the river to its northern bed was indeed indicated by Sven Hedin as far back as 1900-1901 (Cf. Hedin: Scientific Results of a Journey in Central Asia, 1899–1902, vol. II, p. 355). It was decided to do the utmost to

obtain permission from the provincial authorities to study the new important changes in the Lop basin.

On February 27th, the Expedition arrived at Urumchi. A tactful handling of the difficult situation, gained for Sven Hedin and his scientific collaborators the goodwill of Governor Yang, and made the continuation of their scientific work possible. A meteorological station was established at Urumchi, and another mountain station was equipped on the Bogdo-ūla at an altitude of some 8,600 feet. Dr. Norin was enabled to proceed with his researches in the Kuruk-tāgh mountains and the Lop-nōr.

On the 4th of May, Sven Hedin left Urumchi for Europe accompanied by four of his German collaborators. The vast enterprise required new negotiations in Europe and China, new equipment had to be procured and plans fixed to insure the continuation of the scientific work. Professor Siu Ping-Ch'ang and Major Hempel remained in Urumchi in charge of the Expedition headquarters.

On July 7th, the Expedition lost a well-wisher in the person of Governor Yang Tseng-hsin who was treacherously murdered by the escort of the Foreign Affairs Commissioner Fan Yao-han. The immediate successor of Governor Yang did not quite understand the scientific aims of the Expedition, and although the various units were permitted to carry on their work, the activities of the Expedition were constantly hindered by local authorities.

On August 8th, 1928, Dr. Sven Hedin accompanied by a new member Dr. Nils Ambolt, astronomer, left Stockholm, and on the 3rd of September reached the frontier town of Chuguchak. On his return to Hsin-chiang, the Leader of the Expedition at once discovered the changed attitude towards the Expedition, and the necessity of further negotiations with the Nanking authorities. Notwithstanding petty misunderstandings and attempts to stop the scientific work for good, the members of the Expedition bravely kept to their work. The vast field necessitated new members to be drafted into service, and for this, permission had to be obtained from the central authorities in Nanking.

On December 17th, Dr. Sven Hedin started on another trip to Peking accompanied by Dr. Hummel, Dr. Bergmann, and Professor Siu Ping-Ch'ang. Negotiations in Peking and Nanking ended with extremely satisfactory results, and the Expedition was permitted to continue its scientific work in Central Asia. It was Dr. Hedin's plan to rejoin his expedition in Hsin-chiang, and to follow on his return journey the motorable route from Khalgan, Urga, Uliassutai, Khobdo and Urumchi. However, disturbed political conditions in the region prevented him from following this route. In May, Dr. Hedin fell ill, and after an examination at the Peking Union Medical College, the doctors established the necessity of an opera-

tion, and of an immediate journey to Boston to consult the well-known specialist Dr. Harvey Cushing. Thus the headquarters of the Expedition were unexpectedly transferred to the United States. It was during this stay in the United States, that Sven Hedin met with Mr. Vincent Bendix, the Chicago industrialist. The result of this meeting was the significant decision made by Mr. Bendix to finance an ethnographical unit of the Sino-Swedish Expedition for the purpose of bringing back a complete Lamaist temple to Chicago, and one to Stockholm, together with collections of ethnographical objects. After a journey to Stockholm full support was obtained from Swedish authorities, and on the 31st September, Dr. Hedin was able to leave Stockholm accompanied by Dr. Hummel and Dr. Goesta Montell, ethnologist. During his passage through Moscow, the explorer met with the eminent Swedish archæologist Dr. T. Arne, and outlined with him a programme of archæological explorations in Russian Turkistān to begin in February, 1931. This archæological exploration was to supplement the researches of Dr. Bergmann in Eastern Turkistān and the Gobi. While Dr. Hedin was thus busy organizing, lecturing, enlisting new support, and attending to all the manifold needs of his 'travelling university', Dr. Norin, assisted by Dr. Ambolt, was conducting his researches south of the T'ien Shan; Dr. Haude was supervising the work of the several meteorological stations established in Hsin-chiang, and Professor Yüan was continuing his palæontological explorations in the eastern T'ien Shan.

On his arrival in Peking, Dr. Hedin learned the good news that the new members of his Expedition, headed by Dr. Bergmann were ready to start across the Gobi, and were encamped at Pei-ling miao. The new collaborators were Dr. Nils Hoerner, geologist, Dr. Bernhard Bexell, palæontologist, and Dr. Birger Bohlin, palæontologist, who distinguished himself in the service of the Geological Survey of China. The Expedition was fortunate in acquiring all necessary equipment from Dr. R. C. Andrews, who was prevented by the Chinese authorities from continuing his work in 1929.

On the 30th of October, Dr. Hedin left Peking for Pei-ling miao in Inner Mongolia, and on the 11th November the new members of the Expedition started on their long track across the Gobi. Dr. Hedin accompanied by Dr. Hummel and Dr. Montell made a motor journey across Inner Mongolia to survey the possibilities of acquiring a temple for Chicago and Stockholm. On completion of this trip, the Expedition headquarters were transferred for a couple of months to Khalgan. Dr. Montell accompanied by Mr. Larson proceeded to Jehol to continue his survey of Buddhist temples. In December the headquarters were visited by Dr. W. Haude, the meteorologist of the Expedition, who had attempted to journey from Hsin-chiang across Kansu, but was refused permission. Plans were worked out to resume this important work in 1931, and to establish meteorological stations in N.E. Tibet and the Nan Shan.

In October, 1930, the Expedition consisted of the following units :—

1. Geological and geodesic unit under Dr. Erik Norin and Dr. Nils Ambolt, working in the Tārīm basin.
2. Archæological unit under Dr. Bergmann assisted by Dr. Bernhard Bexell, palæobotanist. Region of exploration : Kansu and the Gobi.
3. Geological unit under Dr. Birger Bohlin and Dr. Nils Hoerner, assisted by the geodesist Chen. Region of exploration : Kansu and the Gobi.
4. Zoological and botanical unit under Dr. Hummel, assisted by Manfred Boekenkamp and Mr. Hao. Region of exploration : Ssu-ch'uan and the Sino-Tibetan borderland.
5. Ethnographical unit under Dr. Goesta Montell, assisted by Mr. George Soederbom. Region of exploration : Jehol and the adjacent districts of Inner Mongolia.

Besides the above, three other units were planned for 1931 :—

6. Meteorological unit under Dr. W. Haude. Region of exploration : N.E. Tibet and the Nan Shan.
7. Archæological unit under Dr. T. Arne. Region of exploration : Russian Turkistān.
8. Botanical unit under Dr. Harry Smitt. Region of exploration : the Himālayas.

In June, 1932, the papers announced the return of the Expedition to Peking, and it is hoped that some of the outstanding results will be soon made available. The scientific study of all the collected data will take many years to complete.

Dr. Norin's explorations will certainly throw new light on the geology and physiography of Inner Asia. His careful topographical surveys, with their wealth of geological data, will form an outstanding contribution. The route across the Gobi traversed much of previously unmapped territory, and Dr. Norin's route survey from Pei-ling miao to Shande miao (24 sheets of map, scale 1 : 50,000), and from the latter point to the relay station of Sebistei in the S.W. Gobi (scale 1 : 100,000) will be of special value. During the Expedition's stay in the basin of the Etsin-gol, Dr. Norin made a thorough survey of the Gashun-nōr and the Sokho-nōr lakes and the ancient shore lines. His exploration in the Kuruk-tāgh and the region of the Baghrash-köl, have yielded rich results. The Kuruk-tāgh which tectonically belongs to one system with the T'ien Shan was found to have served as a refuge for fauna and flora, and no evidence of Quaternary glaciation were discovered. The exploration of the ancient Lop basin has given a new picture of Quaternary conditions in the basin, and the

survey along the foothills of the Kuruk-tāgh, has shown that the Quaternary lake must have had a considerable depth in its N.W. section, whereas its eastern portion had been shallow and swampy. During his trip to the Lop basin in April, 1928, Dr. Norin found a rich vegetation and animal life along the new river bed. The Kuruk-daryā presented a big river about 300–400 feet in width and about three feet deep. It was carrying its waters towards the ancient historical Lop-nōr, bringing life into a dismal salt-crusted desert. We have already mentioned in the present article, that the recent change of the lower Tārīm course, had been predicted by Dr. Hedin some thirty years ago. During his first expedition to Central Asia, the explorer followed the eastern bank of the Tārīm, and had discovered that it turned in a south-east direction and emptied itself into a large lake with swampy shores in the southern part of the Lop desert. This he identified with the Lop-nōr lake described by General Prjevalsky who visited the lake during his memorable journey of 1876-77. Dr. Hedin discovered north of the lake an old river channel, which he carefully surveyed during his second great expedition of 1899–1902. His study of the locality convinced him that the entire Tārīm had once occupied this old river bed. The discovery of the ruined site of Lou-lan only confirmed his conclusion, and in his monumental 'Scientific Results of a Journey in Central Asia' (vol. II, p. 355) he made the following significant statement: 'In the light of knowledge we now possess as to the relations of level that obtain in the desert of Lop, it is not too bold a thing to say, that some time the river (Tārīm and its tributary the Konche-daryā) must go back to the Kuruk-daryā'. The mapping of the new lower course of the Tārīm and of the present Lop-nōr was continued by Dr. Nils G. Hoerner, and some of his results are vividly told in his article: Upptackten av nya Lop-nōr (Ymer, 1931, pp. 344–378). Dr. Norin's survey south of the T'ien Shan in the region of Baghrash-köl is of the greatest interest (survey of over 2,000 square kilometres, map scale 1 : 100,000). In this exploration Dr. Norin was accompanied by Dr. Nils Ambolt, who determined with the Inwar pendulum the gravity of many places in Eastern Turkistān, and whose geodetic researches in the region are of the greatest interest.

During the autumn and winter of 1930, Dr. Norin conducted explorations along the foothills of the Kun-lun. The object of this exploration was a search for Quaternary deposits and the determination of the rate of recension of the late Quaternary glaciers. The region between Khotan and the Sanju river was found particularly rich in typical morainic deposits. Dr. Norin's explorations in the Tārīm basin have given definite proofs of important orographical and climatic changes during and after the Ice Age, when the glaciers of the Kun-lun extended far into the Tārīm basin and formed large piedmont glaciers at the mouths of the valleys. These researches have thrown new

light on the problem of the Ice Age in Central Asia, and the subsequent dessication of the region.

Dr. Folke Bergmann's researches in the prehistory of the Gobi and of Eastern Turkistān have added considerable to our knowledge of the prehistory of Mongolia and Turkistān. About 103 stone-age sites were discovered along the route from Pei-ling miao to Shande miao ; 19 sites between Shande miao and the Etsin-gol, and seven along the desert route between Etsin-gol and Hāmi. Several important sites were discovered in the Kuruk-tāgh mountains with an interesting ceramic similar in character to that of Kansu and Honan. All this huge material will have to be studied in connection with the already known prehistoric finds in Mongolia (the paleolithic sites of the Ordos discovered by the French Jesuits, Rev. Teilhard de Chardin and F. Licent ; the recent researches of Prof. B. E. Petri in Transbaikalia and the Kosogol region of Northern Mongolia ; the finds of N. C. Nelson, of the R. C. Andrews Expedition, and the rich documentation gathered at the Museum of the Mongol Scientific Committee at Urga), and those of Eastern Mongolia, Jehol, and Southern Manchuria (the explorations of R. Torii).

In the Kuruk-tāgh were discovered many rock drawings of the familiar type found in Russian Turkistān, South Siberia, Mongolia, and Western Tibet.[1]

Stone graves were found in many localities along the route, and some of them opened, but yielded no finds (this is a characteristic case with graves of this type in Mongolia and Tibet. The inventory of such empty graves must have been destroyed by field rodents. Frequently metal objects belonging to the inventory of such graves have been found at considerable distances in rat holes. Cf. Roerich, The Animal Style among the nomad tribes of Northern Tibet, Prague, 1930, p. 12.)

In autumn of 1928, Dr. Bergmann accompanied by H. Haslund made a journey to the Tibetan upland and visited the upper course of the Charchan-daryā and the adjacent region. The region was found devoid of any archæological remains. During this trip an ethnographical collection was made, and anthropological measurements carried out.

During his second trip across the Gobi, Dr. Bergmann had the good fortune to discover over 10,000 inscribed wooden tablets of the early Han epoch at the Etsin-gol. This important discovery of Han documents is the largest of its kind, and the material will be studied by Professor Bernhard Karlgren of Goeteborg, and

[1] Cf. G. de Roerich, Problems of Tibetan Archæology, Journal of the Urusvati Himālayan Research Institute, vol. 1, p. 31.

Prof. Lui Fu of Peking. The whole collection will be preserved in Peking. Besides these Han documents, the Expedition discovered several hundreds of funeral inscriptions of the V–VIIth centuries A.D., and numerous inscriptions of the Mongol epoch.

The important work by Dr. Waldemar Haude was already referred to in the course of the present account. Dr. Haude started his systematic observations on March 30th, 1927 in Pao-t'ou, and continued them throughout the Expedition until autumn, 1929. The vicissitudes of the present unrest in China brought many changes in the programme of meteorological observations. The first station was established at the Etsin-gol on October 1st, 1927. The station at Hāmi did not materialize due to local conditions and war danger along the Hsin-chiang—Kansu border. The station at Urumchi was established on January 22nd, 1928, and a mountain station was established on the Bogdo-ūla at an altitude of about 8,600 feet. A third station was established at Charkhlik on June 22nd, 1928, with a mountain station. The fourth station was established at Kuchā on June 30th, 1928, with a branch station in the mountains. During the fieldwork, Dr. Haude sent up 353 pilot balloons to a maximum altitude of 21,000 meters. The various records kept by these stations will certainly give an entirely new picture of atmospheric conditions in the Central Asiatic desert region. Dr. F. L. Yüan, the archæologist and palæontologist of the Expedition, made some important discoveries of 58 stone age sites in the Gobi, while he was in charge of the southern column of the Expedition. His most important find was the discovery of Dinosauria remains in the eastern T'ien Shan. Besides his palæontological work, Prof. Yüan made a thorough survey of the region round Ku-ch'eng.

Mr. T. H. Ting, palæontologist, conducted explorations in the western part of Eastern Turkistān, especially in the central and western portions of the T'ien Shan, Kāshgar, and Sarīkol. The archæological collector Wang was working in the western part of Eastern Turkistān.

The ethnographical unit under Dr. Montell has been busy working in Inner Mongolia and Jehol. In the summer of 1930, Dr. Hedin accompanied by Dr. Montell, Mr. Soederbom, and a Chinese architect Mr. W. H. Liang made a trip to Jehol. After inspecting the temples, they decided on the famous Golden Pavilion built by Ch'ien-lung in 1761–1771 A.D., and Mr. Liang took the necessary measurements, drew the plan, and profiles of the temple, as well as prepared in colour sketches of all decorative patterns in the ornamentation of the temple. On return to Peking the various parts of the Golden Pavilion were duplicated by Chinese carpenters. More than 28,000 parts were shipped to Chicago where they arrived in the spring of 1931. Dr. Montell also sent his large collection of Buddhist images, cult objects, and monastic garments. Another large collection was sent to Stockholm where an exhibition was opened in January, 1932, and

occupied eleven exhibition halls. Mr. V. Bendix placed the Pavilion and the collections at the disposal of the Centenary of Progress Exhibition. The reproduction of the temple was erected under the supervision of Donald Boothly, architect, assisted by Mr. Yüan Hsi-kuo. After the Exhibition the temple will be removed to Lincoln Park.

Such is the story of this vast scientific undertaking which for almost five years conducted scientific explorations in various parts of Inner Asia. Central Asia was never an easy field of scientific research, and the difficulties did not become lighter in recent years. Political unrest in adjacent regions penetrated the deserts and mountain solitudes of the heart of Asia, and it is with deep admiration that one looks on this band of brave men who conquered dangers and obstacles under the inspiring guidance of their great Leader—Sven Hedin, whose name is for ever connected with the highest mountain ranges of Asia. During the Roerich Central Asiatic Expedition of 1925–28, the writer had on many occasions crossed the routes of Sven Hedin, and it is a pleasure to record here the general esteem in which the name of the great Swedish explorer is held in many a remote place of Inner Asia. The new generation of explorers, always eager and enthusiastic to follow the path of their great predecessors, will find a source of constant inspiration in this great epopee of Sven Hedin.

GEORGES DE ROERICH.

COSMIC RAY EXPEDITION TO SOUTH EASTERN LADAKH

By J. M. BENADE,
Professor of Physics, Forman Christian College, Lahore

IN the summer of 1931, Prof. A. H. Compton, of the University of Chicago, organized a world wide cosmic ray survey. The object of this work was to obtain measurements of intensities of this interesting radiation at various latitudes and longitudes as well as at various altitudes. These measurements were to be made by a dozen or more co-operating physicists in various parts of the world, during the summer of 1932. The necessary funds for the work were to be provided by the University of Chicago and the Carnegie Foundation. All observers were to use exactly similar apparatus, made and standardized in Ryerson Physical Laboratory of the University of Chicago, so that all results would be strictly comparable. Heretofore each worker in this field has designed and built his own apparatus so that it has not been possible satisfactorily to compare results.

The writer was asked to make measurements in Ceylon, Java, Singapore, Penang, Rangoon, Calcutta, Lahore and then at the highest attainable altitudes in the Himālaya. The first part of the work was completed early in July and by the 20th of the month final preparations were completed for the mountain expedition. Our party consisted of Messrs. R. L. Wilson, Mela Ram, Bagh Shah Puri and the writer from Forman College, and Mr. R. K. Sharma of Ewing College, Allahabad.

Following the advice of Col. C. H. Stockley, Major Kenneth Mason and others, we had selected the ridge immediately to the west of Tsho Moriri as our objective. Here we hoped to get to a high altitude without encountering serious difficulties due to snow. Our route took us via Pathankot and Kulu to the Rothang Pass (Plain of the Dead), where we stopped for a day to make our first measurements. Here we spent a cold night with a driving rain but the morning dawned clear giving us, for half an hour before the mists arose, a gorgeous view of many jagged peaks and several small glaciers of Lahoul and to the south a beautiful panorama of wooded hills and fruitful valleys. Two more days took us to Kyelang where we collected a few more supplies and information about our route. The Rev. and Mrs. Asboe of the Moravian Mission were most hospitable and helpful. I am glad to take this opportunity to express for my colleagues and myself our grateful appreciation of their unstinted assistance which was of great value to us.

On July 29th, we left behind us the last outpost of modern civilization with its post office and one Moravian home. Following the Kyelang-Leh road our next interesting stop was at Dozam, or as the survey maps have it, 'Patseo'. Here we found a fascinating collection of people from the north and south met to barter wool for grain as our forefathers did for ages before money was thought of. The primitive folk from beyond the passes are quite unperturbed by the threatened crash of the

industrial system of the remote outside world. Reluctantly we left this very interesting group of shepherd-tradesmen, and, with many unanswered questions about their manner of life and future prospects, moved on toward the home of some of them. Two days later we stopped for our second set of readings on a knoll above the Paralatsa La (Baralacha) and then continued our way past Niepung Ludhpung, over the Lingti Plain to Sarchu, forded the Tsarap Chu and climbed over the tiring Lachalung La amidst scenery of surpassing grandeur. It is not surprising that this should be called 'God's Pass'. After a few miles more on the beaten path we reached Pang and turned eastward using the broad flat, and for the most part, dry, bed of the Sumkil Lungpa, as a roadway. No one in our party had ever been in this part of Ladakh before and as shepherds were not to be found when most needed, we had to depend upon the survey map which gives few details. Following the map we crossed the Telekonka La (Little Peak Pass) about 16,500 ft. high and descended into the Phirtsi Pu. After a few miles we turned to the left and crossed a low spur into a wide valley and then crossed two ridges beyond to the foot of the Lanyar La (Sleeping Pass). In this region there are no clearly defined roads. One must follow sheep and yak paths or use his own judgment.

The approach to the Lanyar La from the south-west is long but not difficult. Our barometers indicated that the height of the pass must be about 19,000 ft. To the north of the pass is a small peak of coarse shale which proved to be very convenient for our purposes. On the top of this we pitched our observation tent and spent two full days getting readings with two types of cosmic ray apparatus. Our height was approximately 19,500 ft. So far as we know this is the highest mountain work thus far done on cosmic rays. It happened that on the 12th of August while we were taking readings on this peak, Prof. Regener in Germany obtained his record high altitude measurements by sending a self-recording electroscope up to about 17½ miles with a pilot balloon.

One could doubtless follow the water course east of the pass to the lake but by turning to the south-east about two miles below the pass we moved directly toward Korzok. There were several easy ridges to cross and two fairly large streams to ford. It was not until we reached the top of the pass at the head of the Korzok Pu (about 17,200 ft.) that we got our first view of the deep blue waters of Tsho Moriri. At first only a small area of the lake was visible but as we descended, more and more of that beautiful gem and its magnificent setting spread out before us. Descending to a wide *maidán* we camped for two days on the green grass by the stream. While our ponies grazed and recovered in part from the previous strenuous weeks, we visited the village of Korzok, the Gompa and the Lambardar, Thakur Nono Tshewan, who was very friendly and helpful. We were told that it is quite possible to climb nearly and perhaps quite to the top of the high peaks east of the lake, and that animals could be taken to well above 20,000, but no grass is available. A study by means of a telescope of both northern and southern slopes of these peaks indicates that it should be relatively

easy to get to the very top. There would be comparatively little snow and ice work. However, if animals are to be used grain must be taken for them and this is not available in Korzok so must be brought from Kyelang.

On the return journey two members of our party attempted to get to the top of the peak immediately to the south of the Lanyar La, with apparatus for observations there. After getting to within two or three hundred feet of the top we pitched a tent for the night. The boiling point was found to be 80·30 degrees centigrade, which corresponds to a pressure of 360 mm. of Mercury, or an altitude in the neighbourhood of 20,000 ft. After a fairly comfortable night, we decided that the measurements we might make at the top would hardly be worth the risk involved in the effort to get there so we regretfully turned back.

Our next set of readings were obtained on a round top just north of the Telekonka La and another set on the Lachalung La. Our last observations were made at Sarchu. The results are given in the following tables. In the first table the last column gives intensities of the radiation after passing through one inch of copper and two inches of lead in terms of the number of ionic pairs that would be produced per cubic centimeter of air, per second, per atmosphere of pressure.

	Latitude	Longitude	Altitude ft.	Atmospheric Pressure mm. Hg.	Ionic Pairs.
Rothang ..	32° 22′	77° 15′	13,150	477	4·60
Sarchu	32° 54′	77° 36′	14,000	461	5·00
Lachalung La (Demra)	33° 5′	77° 38′	16,000	428	5·40
Bara Lacha La ..	32° 44′	77° 28′	16,150	425	6·12
Telekonka ..	33° 5′	77° 55′	16,900	412	7·27
Lanyar La ..	30° 0′	78° 5′	19,500	377	8·30

Barometric pressures were obtained by means of a Paulin instrument which probably reads two or three per cent. too high.

In addition to the measurements made with the Compton apparatus we studied the effect of screens of various materials surrounding an ionization chamber while at the top of the small peak north of the Lanyar La, at an altitude of about 19,500 ft. The results of these measurements indicate clearly that the ionization of gas in an ionization chamber is due at least in part if not entirely to a secondary radiation produced in the walls of the chamber and other surrounding media, by cosmic radiation.

The apparatus used consisted of a Lindemann electrometer with a thin walled aluminium ionization chamber and six screens of different materials. The screens were made as nearly as possible of equal size and weight so that the mass per unit area was the same for all. The screens should therefore, according to the usual assumption, have had equal absorption effects. Readings taken with and without screens surrounding the ionization chamber show that the presence of a

thin screen of heavy metal actually increases the rate of ionization, while the effect of a paper screen is to decrease the rate of ionization.

The following table gives the results obtained for six screens used :—

Various Shields used.	Time for given Voltage drop.
With no Shield	100 seconds
Paper Shield	104·4 ,,
Aluminium Shield	100·6 ,,
Zinc Shield	92·3 ,,
Iron Shield	92·1 ,,
Copper Shield	92·8 ,,
Lead Shield	82·0 ,,
Iron over Lead (Double) Shield	79·0 ,,
Lead over Iron (Double) Shield	82·3 ,,

It will be noticed that the heavier metals produce the greater positive effects. Presumably increasing the thickness of the screens would increase the effect though of course in each case, except paper, within definite limits. The mass per unit area of the screens used is about 0·9 g/cm.

The above results may help to explain the discrepancies between the high altitude results obtained by Kolhorster, Regener, and Piccard, for it is obvious that the density and thickness of the ionization chamber walls must have a considerable effect on the shape of the curves obtained with different instruments. This is probably especially true at very great altitudes.

As a result of our experience it seems clear that it is quite possible to get to an altitude of 20,000 feet or more with loaded pack animals, provided of course adequate preparations have been made before starting. It should be quite possible to spend several days at such an altitude in comparative comfort while making observations.

The data obtained by means of the Compton apparatus have of course been forwarded to Doctor Compton to be studied along with data from other parts of the world. Work is being continued with our own apparatus in the physics laboratory of Forman College, Lahore.

In conclusion I wish to express my gratitude to Prof. Compton for the privilege of sharing in this cosmic ray survey and to my friends and colleagues in the expedition without whose help this work would have been impossible. I desire to thank Messrs. Beli Ram Brothers, Anarkali, Lahore, for the medical equipment with which they provided us, and The Bhalla Shoe Company, Lahore, for supplying us with boots which served us excellently, and also The Lahore Industries, Ltd. for supplying us with tinned peas and gram as well as very good ketchup and chutney. And finally I must mention our interpreter Gápal and ponymen Anno, Zigzin, Namgyal, Dhangrup, Kunga Dhangrup, Urgian, and especially Nawáng, a young lama of fine physique, intelligence, and good nature.

AN ACCOUNT OF A JOURNEY TO THE GANGOTRI GLACIER

By Prof. SHIV RAM KASHYAP,
University Professor of Botany, Punjab University, India

THE party started from Mussoorie on the 27th July, 1932. This was my second trip to Gangotri—the first having been undertaken in 1927. On both the occasions Jumnotri, the usually recognized source of the Jumna was also visited before going to the source of the Bhagirathi.

This year the party consisted of myself, my wife, my son Kedar Nath, Professor Mukand Lal of the Lahore Government College and his two sons.

From Mussoorie we followed the road to Tehri which is at a distance of 40 miles. The vegetation below the Kauria pass where the road descends towards Tehri is very luxuriant, Mosses, Liverworts and Ferns being particularly abundant. From Tehri we went up the Bhilang a feeder of the Bhagirathi and after spending a few days in that valley returned to Tehri and left for Gangotri on the 7th August. The rainy season was in full swing and we suffered some inconvenience from the rain but it was compensated for by the lowering of temperature which is very high earlier in the season when the weather is dry. Gangotri is 100 miles from Tehri. The road runs along the river bank at varying heights above the river all the way and is practically level throughout, there being very few slight ascents and descents. After two days we reached Dharasu—26 miles from Tehri—where the road bifurcates—the main road going to Gangotri and a branch to the left going up a side stream crosses the watershed between the Bhagirathi and the Jumna by the Ravi pass. This pass is about 16 miles from Dharam, and is quite low. The road for the last four miles to the pass ascends gently and passes through beautiful shady glades with many water courses at short intervals. Here we found on both sides of the pass the interesting telegraph plant, *Desmodium gyrans*, whose leaflets show such regular autonomous movements. This plant was particularly abundant on the Jumna side of the pass. About eight miles from the pass the Jumna is reached at Gangnani where there is a large spring bubbling up from the ground round which a beautiful small tank has been built. The local people believe that this water comes from the Ganges across the watershed. A few miles further is Jumna Chatti near Pujar village where the Jumna is crossed to the right bank and the valley becomes very narrow. The vegetation at the same time becomes gradually more luxuriant. There are numerous fine waterfalls on the way and the scenery increases in beauty and grandeur. A few miles beyond this bridge the Jumna is recrossed to the left bank by another wooden bridge. When we returned to this place a few days later this bridge had been washed away

by heavy rains and the only way to reach the lower bridge under such circumstances is to go by a long and circuitous footpath. Luckily, however, by one of those rare coincidences with which nature loves to amuse herself a tree had fallen across the river a few yards below the position of the extinct bridge, spanning almost the whole of the river. After fording a little water we could just crawl over the trunk of the tree to the other side. The water of the Jumna is usually very clear, contrasting strongly with the turbid water of the Bhagirathi and the Alaknanda but after heavy rains, as was the case at this time, it becomes almost black and muddy. It was just before this bridge was reached that I found some very interesting fronds of *Pleopeltis simplex*. These showed dichotomy of various degrees from a small notch at the top to definite bifurcation into lobes once or twice. Other fronds on the same plant were simple as is usual in the species. These curious specimens should throw some light on the affinities of the genera with the Dipterideae.

We had brought our luggage on mules so far, but at Jumna Chatti we were told that the road beyond had been badly damaged and was impassable for mules. We, therefore, left the mules here to await our return and took thirteen porters with us, leaving much of our luggage also behind. At Rana where we camped for the night I found such Liverworts as *Fegatella conica*, *Dumortiera hirsuta* and *Pellia calycina* in a stream which supplies the village with water. The road beyond Rana had been washed away by rain in several places and there was very great difficulty and risk in negotiating it as the almost vertical rock had alone been left with the river underneath. Kharsali, the last village on this side, is six miles from here though one need not pass through the village as the road runs along the river leaving the village high up which is as well as one is spared the sight and contact of an unimaginable amount of filth on the way.

Jumnotri is about four miles from Kharsali. The gorge of the river is very narrow and the road which runs at a high level above the river is rough. The forest, however, becomes more and more dense. *Hippophaë* forms small trees on the river bank below Kharsali, and some apricot trees have been cultivated at the neighbouring village of Bipa but the fruit was over at the time of our visit. Near Jumnotri itself the forest consists of *Quercus semecarpifolia* (kharsu), *Abies Webbiana* and *Taxus baccata* (yew). There was a species of *Salix* also. *Picea morinda* was not seen along the road. Many Compositæ, species of *Polygonum*, *Impatiens*, *Geranium Wallichianum*, a rose with red edible hips, etc. formed the undergrowth. Among interesting Liverworts the following were noticed:— *Madotheca macroloba*, *Lophocolea minor*, *Plagiochila* sp., *Stephensoniella brevipedunculata*, *Fimbriaria mussuriensis* and *Riccia pathankotensis*. There were many other Liverworts on the way throughout the journey but as they are common throughout Garhwal and Kumaon it is not necessary to mention their names. In the case of the last three species, however, the range has been greatly extended.

Jumnotri is famous for its hot springs and is ordinarily spoken of as the source of the Jumna though the snows which give rise to it are higher up which I

JUMNOTRI TEMPLE AND HOT SPRINGS. SMALL TENT IN THE FOREGROUND (1927).

THE GANGES AT HARSHIL (1927).

PLATE II.

PINUS EXCELSA AT HARSHIL SHOWING EFFECT OF UNILATERAL WIND (AUG., 1932).

had visited in 1927. The valley above Jumnotri, however, is exceedingly narrow and the only way to go up is to climb the cliff somehow. There is a small temple here, a dharmsala and two or three other small huts for the pilgrims. A new temple was being built at the time of our visit. There is no place for pitching a tent, the only small flat space available being under water. There are several hot springs. Their temperatures as taken on 30th June, 1927 are given below. The hottest, Suraj Kund, had a temperature of 92°C., at the mouth of the hole through which the water comes out, a few others had 90°C., one 80°C., one 72°C., and one 69°C. The water is collected in two reservoirs for bathing and the temperature here was 48°C. The temperatures of the springs were quite constant morning and evening. The same constancy was observed by the writer in 1926 in the hot springs at Tirthapuri in Western Tibet. The height of Jumnotri above the sea-level is 9,900 ft.

In 1927 we had crossed the watershed from Hanuman Chatti, four miles below Kharsali, by the Ancha pass, to Gangotri, two miles above Uttarkashi, the distance from river to river being about 20 miles. This year we crossed it lower down from Gangnani (with its beautiful spring as described above) by the Fuachu pass coming out at Nakuri, six miles below Uttarkashi, a distance of about 13 miles from river to river. The former pass is higher and Rhododendron shrubs are met with on its top but there are no Rhododendrons on the top of the Fuachu pass though the road is beautiful and shady, especially on the Jumna side. It ascends gently but the descent on the other side is rather steep and rough. The Rari pass mentioned before is the lowest of the three. On the way to the Fuachu pass in the very beginning where there was a timber godown I found a large quantity of *Athalamia* (*Gollaniella*) *pusilla*. This pretty little Liverwort was again met with near the top and also at the end of the descent near Nakuri where the road meets the main Gangotri road. The most important find of the journey, however, was made close to the top of the pass when I came across a large patch of that most interesting Liverwort *Aitchisoniella himalayensis*. This monotypic genus was described by the writer in 1914 from Mussoorie but it has not been met with there since then. The only other places where it has so far been found in small quantities—and that also by the writer alone—are the Dulchi pass in Kulu and Simla. This was a most fortunate discovery as the material of this species available anywhere in the world is exceedingly small—little bits having been sent by the writer to England and Germany.

In upper Tehri-Garhwal the Ganges and the Jumna flow side by side separated by a long ridge extending from the source of the Jumna right to the plains. This ridge is crossed in many places and the distance from river to river by road is about 20 miles or less in most places though the road is very rough and difficult in the higher parts.

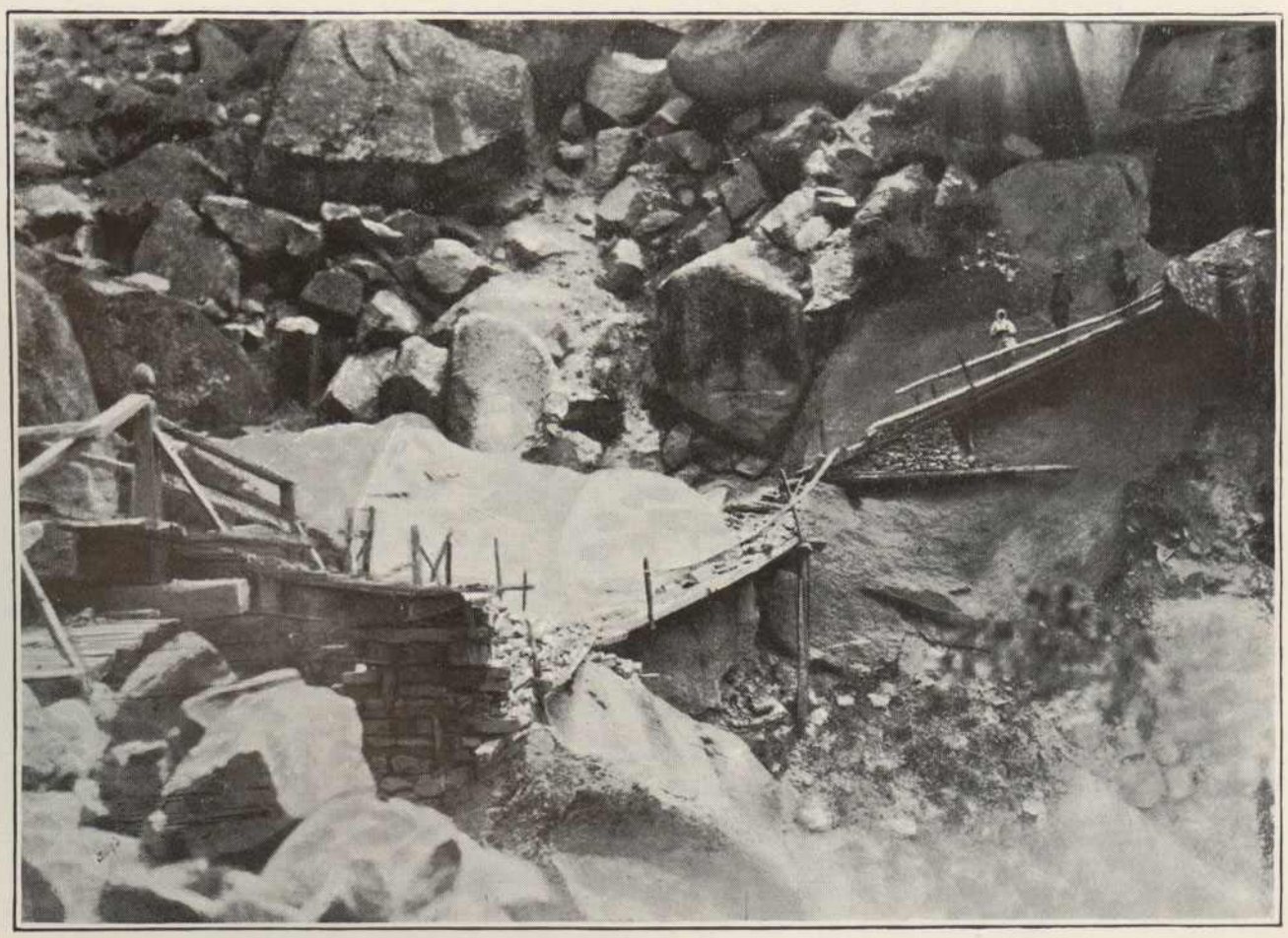
Uttarkashi is a large place and the only Telegraph office and the last Post office on the Gangotri road. It is six miles from Nakuri, the place where the road from Jumna meets the main Tehri-Gangotri road. The valley is quite open here

and there are big grassy lawns, a school with its play-grounds, several Government offices, etc. It is a favourite place for sadhus and there are many pretty little huts with little plots containing ornamental plants in front for their use. We exchanged our mules here for porters as the road beyond was said to have been rendered impassable for mules in many places by the heavy rains. We heard from several independent sources that at one place two or three pilgrims had actually been carried away by a swollen stream. Uttarkashi is 42 miles from Tehri and 58 miles from Gangotri. The next important place is Bhatwari, 18 miles from Uttarkashi, where there is an office for the registration of porters employed by pilgrims. The pilgrim route to Kedar Nath branches off a little before reaching Bhatwari, up the Pilangna stream. For the next 18 miles or so up to Suki the valley is very narrow and the road is very difficult to maintain. There are big landslides here and there and the road has to be carried now on one side and then on the other. At Bhuki, six miles from Bhatwari, where the river is crossed by a bridge to the left bank, the current rushes furiously headlong under the bridge. The rush and the roar, the descent and splash against huge boulders hidden and projecting, the consequent reaction and rise, the fury and turbulence of the boiling water, all these make the scene most fascinating and one stands spellbound and awestruck at the wild grandeur. From Bhuki onwards during the next six miles the river is crossed no less than four times (including the Bhuki bridge) by suspension bridges owing to the impossibility of carrying on the road along one bank. The lower (cryptogamic) vegetation along the river bank during these miles is the most luxuriant in the whole journey from Tehri to Gangotri. From Bhatwari to Gangnani among the many Liverworts met with were species of *Frullania*, *Lejeunea*, *Madotheca*, *Radula*, *Fossombronia*, *Metzgeria*, *Plagiochasma simlensis*, *Riccia pathakontensis* and a new *Fimbriaria*. There were many other species which are common throughout Garhwal.

At Gangnani, nine miles from Bhatwari there are some hot springs just above the road, but the temperature is not so high as at Jumnotri. On the 25th August, 1932 at 9 A.M. the temperature in the main spring which is inside a tiny temple and which is the hottest of the lot was 68°C. There are three small reservoirs for bathing in which the temperature varied from 41°C. to 47°C. Some blue-green algæ were forming beautiful corrugated layers on the rock and were most abundant in water having a temperature of 41°–45°C., though some were growing even at 51°C. The water of the springs is quite clear. There are large deposits of lime along the course of the water.

The road some distance beyond Gangnani is very rough for a short distance passing over big sharp boulders and Mrs. Kashyap had a narrow escape. Her foot slipped and she fell down on the rough sharp stones several yards below. Luckily she escaped with a mere shaking and a few bruises. Perhaps the worst feature of this road was that it was thoroughly under flowing water for long stretches at a time and even where there was no flowing water the vegetation was so dense that in some places it was difficult to walk without getting wet from the plants. In

The Bhagīrathi river bed with polished rocks below Gangotri at Gaurikund (Aug., 1932).



Bridge on the Jahnavi and the road along the vertical rock (Sept., 1932).

GANGOTRI FROM THE OPPOSITE BANK (1927).

GANGOTRI FROM THE OPPOSITE BANK (AUG., 1932).

INTERIOR OF THE TEMPLE AT GANGOTRI (1927).

THE END OF THE GANGOTRI GLACIER FROM ABOVE THE KEDAR NATH GLACIER STREAM, ABOUT THREE MILES FROM GAUMUKH (AUG., 1932).

PLATE VI.

GAUMUKH (AUG., 1932).

many places the road had subsided owing to the rain and in other places there were big fissures on the ground where the road would fall down in a big landslide with a little more absorption of water.

From Suki onwards we are out of the range of the monsoon. From the day we reached this place till the day we came back to it—12 days in all—we had not a single shower anywhere. We were told there had been no rain above Suki that year so far. It had been raining almost every day below this. From Suki onwards for about five miles the valley opens out till it culminates in the wide expanse of Harshil inhabited by domiciled Tibetans and others. It is a market place also and a fair is held every year a little before the Dusehra festival when Tibetan wool and other products are brought from Tibet and sold there. There is a large wooden Forest bungalow here. On our return we witnessed a fair at this place when people indulged in drink and dancing and a man was 'possessed' by the Devata. He pierced his cheeks with a long and thick iron pin without any signs of bleeding or pain. We camped here in a fine open place under the cedar trees. Other common trees were *Pinus excelsa*, *Populus ciliata*, and *Hippophæ salicifolia*. An *Artemisia* (*A. maritima*) was very common. Apples and apricots are cultivated here, the former were not quite ripe yet and the latter were over. The cedars are mostly truncated owing to the cold winds and some of the trees had branches developed only on one side owing to the effect of winds blowing from one side only.

A road from here leads to the Sangla Valley in Bashahr over the Nela pass. We had intended to return by that road but owing to the harvest time and other causes it was not possible to arrange for transport.

The river makes a sharp bend here to the east and the valley again becomes gradually narrowed, till at Jangla where the river is crossed by a small bridge this channel is very narrow indeed. From Jangla to about half a mile below Gangotri, the gorge is exceedingly narrow and just below Gangotri at the place called Gaurikund the rocks forming the narrow channel actually meet in the middle forming a natural bridge, though on account of the steep walls above the bridge the latter cannot be used for crossing the river. The water comes down in a leap into the gorge and can hardly be seen as it passes out in a snake-like manner. The rocks above this fall are broad and flat and are beautifully polished by the action of water. The river can be crossed here by a small wooden bridge to the left bank but the road to Gangotri goes along the right bank. The road from Harshil to Jangla along the left bank is very pleasant, shady and level.

About nine miles from Harshil the Jahnavi coming from Tibet meets the Bhagirathi on the left and the latter makes another bend to the south and then again to the east. The Jahnavi was formerly crossed by a wooden bridge very high above the river but the bridge was damaged sometime ago and is no longer being used. The stream is now crossed by a cantilever bridge and the road beyond the bridge is carried on planks placed on horizontal bars struck into the vertical rocks.

At Gangotri we again came to an open valley. The right bank is occupied by the large fine temple built about twelve years ago and a number of other small

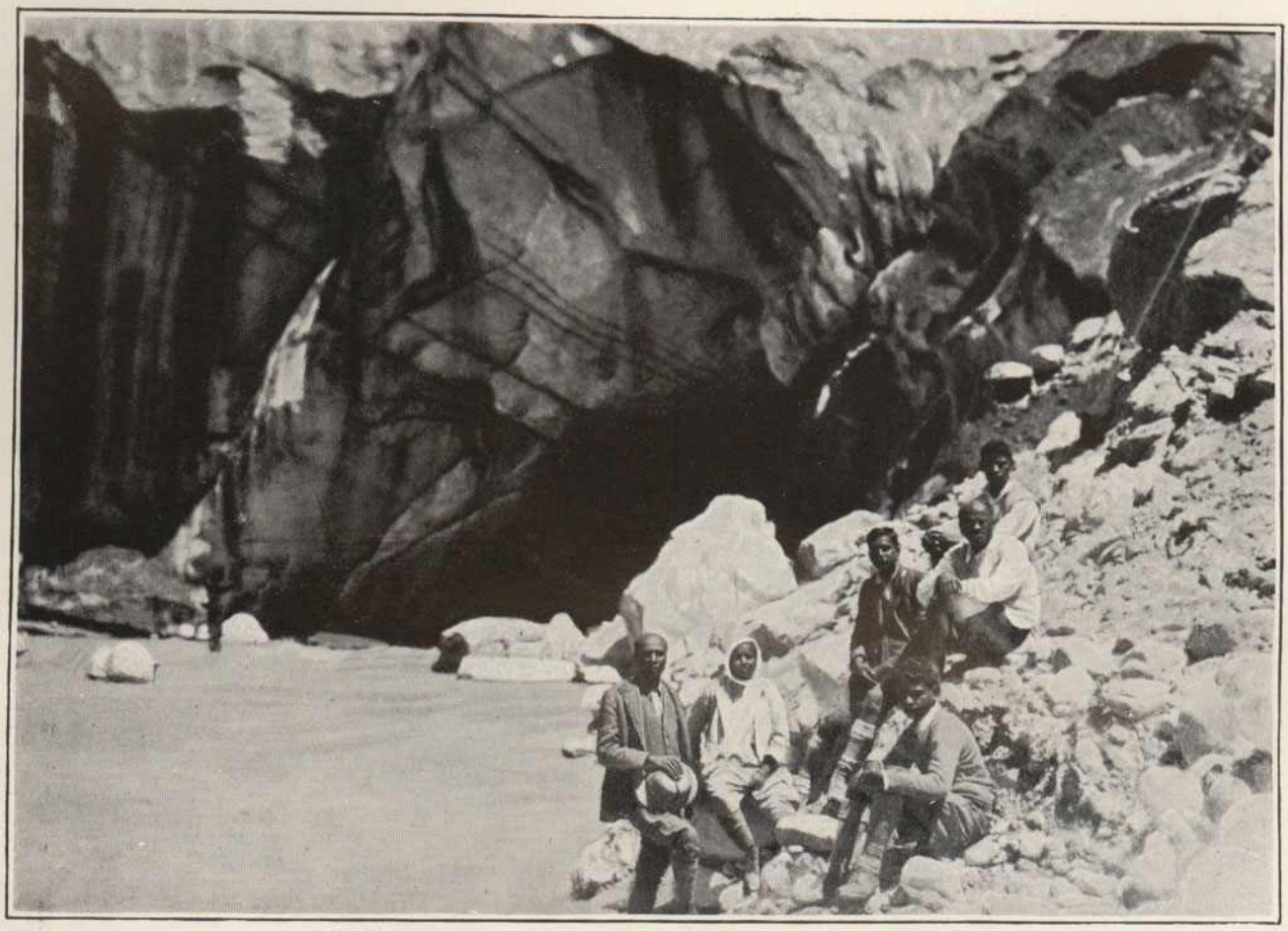
buildings—dharmsalas, etc. On the right bank is a wide open ground very suitable for camping. The river was crossed here by a large wooden cantilever bridge but owing to a flood caused about 3 weeks before our visit by a blockade in a feeder higher up due to a landslide the bridge was damaged and can no longer be used with safety. A large part of the camping ground has also been washed away and it is now much smaller than it was when I camped here in 1927. Several houses have also been carried away and the temple barely escaped destruction.

Our tents were pitched under the cedars, and firs (*Picea morinda*). There is no *Abies Webbiana* here. The ground was covered with tiny plants of *Chenopodium album, Polygonum plebium* and *P. cognatum.*

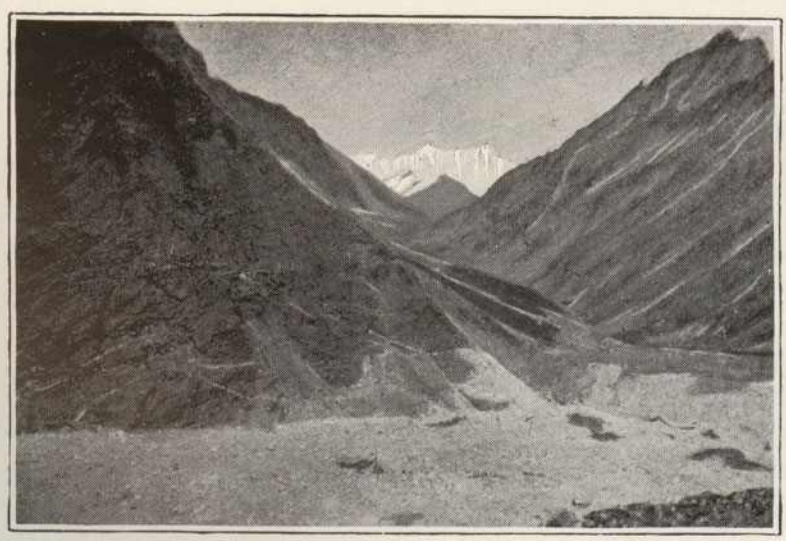
A road has recently been built along the right bank of the river also from Harshil to Jangla via Mukhba, the village of the Pandas, and we followed this road on the way back. The only redeeming feature of this road is that a fine view of Srikanta peak (20,120 ft. above the sea) can be obtained from the village and it is not visible from any part of the other road on the left bank, otherwise the latter is far superior.

Gangotri is 10,020 ft. above sea-level. It is a very sacred place of pilgrimage for the Hindus but owing to the lack of bridges, rough roads, inadequacy of accommodation, difficulty in getting proper provisions, and recurring epidemics of cholera owing to absence of all sanitary arrangements, it is visited by a far smaller number of people than Badrinath. Gaumukh, the actual source of Bhagirathi at the end of the Gangotri glacier, is visited by hardly a dozen people every year and they are generally sadhus. We left for Gaumukh—about 12 miles beyond—on the 29th August. There was no road, not even a footpath. Whatever there was in the form of a footpath had been carried away for the first few miles by the flood. Later on a semblance of a footpath was occasionally seen but it did not last for more than a few yards at a time. We had to go somehow, hopping over stones, crawling up or down some particularly steep rock, wading through water, jumping over the branches of the trees or bending under them, and occasionally clearing the wood by breaking or cutting the branches. In some places the whole rock consists of loose debris and it is positively dangerous to pass over it or under it especially if it is touched for support as the whole mass comes down crumbling. In other places the route runs across a stream of steep slippery gravel which is constantly falling down into the river. About two miles from Gangotri is the Deva Garh, meeting the Bhagirathi on its right bank, and it was this insignificant looking stream which brought about all the havoc at Gangotri. At its confluence with the Bhagirathi the debris brought by it forms a large wide platform which extends even above the confluence for a short distance owing to the temporary blockade of the Bhagirathi.

Earlier in the season the road runs along the right bank after some distance as there are snow bridges at various places, but at the time of our visit the snow bridges had disappeared and we had to go along the left bank

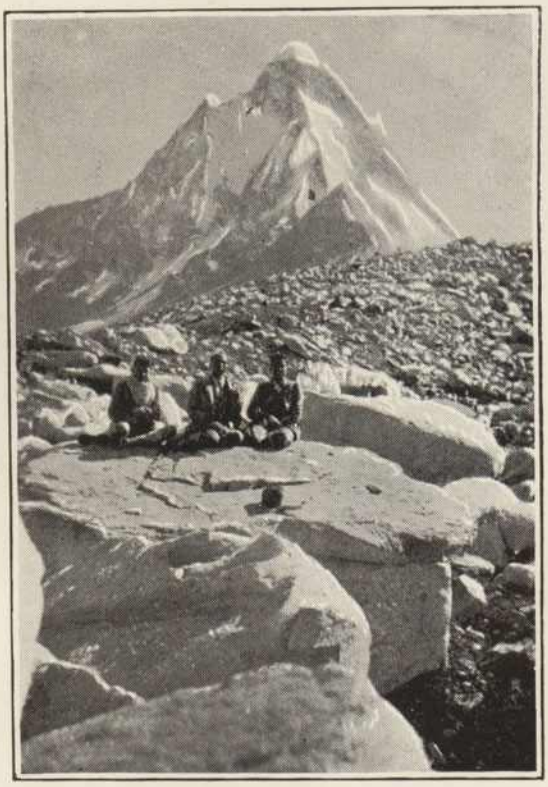


Party at Gaumukh (Aug., 1932).



Swargarohan from above Gaumukh (Aug., 1932).

PLATE VIII.



PARTY BELOW UDAIGIRI ABOVE GAUMUKH (AUG., 1932).

GANGOTRI GLACIER FROM ABOVE GAUMUKH (AUG., 1932).

all the time having crossed the Bhagirathi at the Gaurikund bridge below Gangotri.

We had started rather late and camped in a very rough and uncomfortable place after a few miles. The space available was very small and steep. Next day on the 30th August we had done only about 4 miles when we were held up by the stream coming on the right from the Kedar Nath glacier. Owing to the melting of the snow during the day the water had risen and the stream was unfordable. We tried to bridge it by rolling big boulders into it from the top of the ridge and by bringing some large logs from the neighbouring wood. It was, however, too late to continue our journey before the logs could be placed in position. We stopped for the night on the bank of the stream and forded it early in the morning, leaving the porters behind to complete the temporary bridge for the return. Gaumukh is only about three miles from here and the going is comparatively easy.

On the way from Gangotri the route passes through a wood consisting mainly of blue pine, the cedar, and some birch trees (*Betula utilis*). There are many shrubs, chief among them being three species of *Lonicera* and a rose. There were also trees of *Populus ciliata* and *Picea morinda*. Among other shrubs and herbs the following were met with :—*Ribes* sp., *Juniperus* sp., *Ephedra vulgaris*, *Salix* sp., a little *Myricaria* sp., *Impatiens* spp., *Polygonum affine* and two other species, *Oxyria digyna*, *Potentilla argyrophylla*, *P. eriocarpa*, three or four species of *Sedum*, an *Astragalus*, *Cassiope fastigiata*, some *Saxifraga*, two *Arenarias* (*A. musciformis* and *A. festucoides*) *Artemisia* sp., an *Umbellifer*, *Androsace* sp., *Rheum* sp., *Lactuca* sp., *Geranium Wallichianum*, etc. Tree limit is reached a few miles below Gaumukh, the last trees being the 'Bhuj' (*Betula utilis*, Bhoj patra) a little above 12,000 ft. above sea-level.

Blue-flowered plants were more numerous than the others but yellow and white were more conspicuous. A species of *Anaphalis* (*A. cuneifolia*) with its white heads was most prominent. It is curious that no *Leontopodium alpinum* (Edelweiss) was seen.

There were, however, nowhere any large beds of flowers like the ones we saw in the Alaknanda valley at the same altitude last year. It may be said in general that of the many valleys running side by side visited by me from the west to the east—Bhaga Valley, Chandra Valley, Sutlej Valley, Jumna Valley, Bhagirathi Valley, Mandakini Valley, Alaknanda Valley, and the Vishnu Ganga Valley—between the altitudes of 10,000 ft. and 17,000 ft., the Alaknanda Valley has the most conspicuous flower beds, sometimes extending over furlongs at a time consisting of one or a few species, and is in this respect the most beautiful. Jumna Valley is fairly rich in vegetation. The Bhagirathi Valley would come next and the other valleys are dry with much less vegetation and fewer flowers. This applies mainly to the state of things in the months of July, August, and September.

About a mile above Gangotri there is a large hut on the right bank of

the river, formerly occupied by a sadhu but now deserted owing to the damage done by the last flood and the consequent future risk. A mile and a half below Gaumukh there is another smaller hut which was said to have been occupied recently for some years throughout the year by another sadhu whom we met on our way back. He was absolutely naked and is under a vow of silence. A third small hut is again met with about half a mile below Gaumukh built under and partly into an overhanging stone.

Close to the mouth of the glacier there is a small pond of perfectly clear warm water. Probably it has a hot spring somewhere near it.

The mouth of the glacier is a huge dark cavern from which the water rushes out in a large quantity. The glacier is so long—it is said to be more than twenty miles long—and there are so many other lateral glaciers meeting it that the volume of water coming out of it is already large enough to deserve the appellation of a river. Huge rocks of ice are constantly falling down the walls and the roof of the cavern into the stream and the water is naturally ice cold. A very well-informed local Panda told us that the glacier had receded for about half a mile during the last forty years. It used to end formerly near the small hut mentioned above. The whole party, including even the porters, had a bath and after taking a little refreshment started on the return journey. Some members of the party, however, went up a steep cliff to the right (on the left bank) for a distance of about 3 miles to have a good look at the glacier from an eminence, and we were amply rewarded by the glorious sight that we saw. Gaumukh is 13,000 ft. above the sea and the party must have gone up to 15,000 ft. Even during the ascent we had a fine view of a most dazzling snow peak to the east (E.N.E.) locally known as Swargarohan where the Pandavas are said to have perished in ancient times. The glacier coming from this peak joined the Gangotri glacier on the right side a little above Gaumukh. Ascending still further we came to the foot of a conical snow peak called by our guide Udaigiri and from here we had a most magnificent view of the whole Gangotri glacier and the snows which give rise to it. To the right (W.S.W.) was the small conical peak, Udaigiri, at the foot of which we were sitting. To the south-east there was some snowy peak known locally as Baijanti. To the left we had a still more extended view of the Swargarohan peak. But the most magnificent view lay in front (south). The glacier lay in the valley like a huge python 'dragging its slow length along', and far in the distance rose the lofty snow peaks which gave rise to it towering to a height of more than 23,000 feet above the sea. Last year we had seen these very snows from the other side (north) about this very time of the year standing on the Shatopanth glacier but then we were not high enough to get a full view. As it was getting late we tore ourselves reluctantly from the view and reached the camp after dark. The next day we continued our return journey and ultimately reached Mussoorie on the 17th September. We had been away for one month and twenty-two days.

RECENT ARCHÆOLOGICAL DISCOVERIES IN INDIA

By Colonel A. E. MAHON, D.S.O.

THE Annual Report of the Archæological Survey of India for 1927-28 which is now available contains an account of the excavations that were carried out, during the period under review, at Mohenjodaro and Jhukar in Sind, Harappa and Taxila in the Punjab, Sarnāth in the United Provinces, Nālandā in Bihār, Paharpur in Bengal, Nāgārjunakonda in the Madras Presidency and at Pagan and Hmawza in Burma. The accounts show that the excavations have generally yielded results of great archæological interest.

It is pointed out that, with the exception of the researches of Major Mockler in Makrān over fifty years ago and those of Mr. Hargreaves in Sarawān and Jhalāwān in 1925, Central and Southern Baluchistān had remained, from the archæological point of view, an entirely unexplored region. Between November 1927 and April 1928, Sir Aurel Stein toured extensively in the Sarawān, Jhalāwān, Khārān and Makrān divisions of the Kalāt State. During this period he surveyed sixty-five sites and at fifteen of these carried out trial excavations. These explorations have resulted in the discovery of remains dating from early chalcolithic to historic times and reveal the former existence in these regions of a very widespread chalcolithic civilization.

Sir John Marshall reports the discovery of a stronghold at Giri, Taxila, dating from the 5th century A.D., and surmises that it was intended as a place of refuge in times of need, and that it was built especially for the protection of the large bodies of Buddhist monks living at the Dharmarājika and neighbouring monasteries. He states that the whole body of monks in the environs of Taxila must have run into many thousands and that towards the close of the fifth century they must have been hard put to it to escape the fury of the White Huns, and he regards this stronghold as affording most interesting evidence of the imminent dangers to which they were exposed.

Sir John Marshall also reports the discovery of two considerable groups of Buddhist stūpas and monasteries at Giri. A large number of plaster reliefs were found lying at the foot of one of these stūpas. Among them was a colossal head of a Buddha image.

One of the monasteries dates back to the Early Kushān times, when the monks were accustomed to beg and eat their food in the city, and when no kitchen accommodation was, therefore, provided.

Among the antiquities recovered from this monastery is a relief of grey Gandhāra stone which ranks among the best of the Gandhāra sculptures found at Taxila.

The coins recovered in this monastery bring out very clearly the fact that at the time of the destruction of the monastery, an extraordinary variety of coins issued several centuries before must have been still current in this part of India.

With reference to excavations at Sirkap, Sir John Marshall says he is inclined to think that six or seven layers of buildings will be found in the greater part of the lower city and that the period of its occupation will have to be pushed back to a date considerably earlier than that which he had previously inferred. Of the periods to which the three uppermost strata belong, the first appertains to the Early Kushāns before the reign of Kanishka, the second and third to the Scytho-Parthians who preceded them. It is surmised that the fourth and possibly the fifth date from the time of the Greek occupation, while the sixth and anything below it are pre-Greek.

Among other objects found in the structures uncovered near the foot of Hathial was another of the curious stone discs of which three examples had previously been found on the Bhir Mound and one at Kosam. It is of polished sandstone adorned on the upper surface with concentric bands of cross and cable patterns and with four nude female figures alternating with honey-suckle designs engraved in relief around the central hole. The nude figures appear to represent a goddess of Fertility.

Excavations were carried out in two areas at Mohenjodaro during the season 1927-28 by Mr. Mackay. Several important buildings were brought to light, in some of which there are staircases that once led to rooms above. In one block a most interesting group of chambers was found, comprising two rows of bathrooms separated by a narrow passage, along which runs a drain. Each room has a very narrow doorway, through which a small channel runs into the drain in the passage. Not a single bathroom lacks its stairway, but what this was for is not yet apparent. It is surmised that possibly priests were quartered in cells above, from which they descended to bathe.

An interesting point about this building is the precautions that have been taken in the construction to ensure absolute privacy, none of the doorways face each other, and owing to their narrowness and thickness of their door jambs it is practically impossible to see into the rooms.

In the period under review the first pottery kiln to be found at Mohenjodaro was discovered. It has been ascertained that the fuel used was wood and not charcoal.

During the same period some excavations were made at Jhukar, about 16 miles north of Mohenjodaro, by Mr. Majumdar. These excavations revealed traces of three different strata representing three periods of occupation. The latest settlement is estimated to have taken place during the Gupta period (not earlier than the 5th century A.D.). In the middle and third strata prehistoric antiquities were discovered which are mostly identical with those from the sites of Mohenjodaro and Harappa and represent the chalcolithic stage of culture.

Excavations were also carried out at Harappa by Mr. Madho Sarup Vats, and several interesting finds were made in the shape of seals, vases, etc., skeletal remains were also discovered between 10 and 11 feet below the surface. In one place a find of eleven burial jars was made and in another seven more were disclosed.

Many interesting objects were found. Among male figures, one carries a duck, another is nude and a third is in the attitude of adoration. Two women have flowery head-dresses and a third has tresses over the shoulders and then doubled and tied behind the head.

Many objects were also recovered that appear to be cult objects of phallic worship.

Excavations at Sarnāth, in the United Provinces, by Rai Bahadur Ramaprasad Chanda in February and March, 1928, disclosed some coins, one of these is assignable to the 1st century A.D., another is a copper coin of Huvishka, and some square cast coins probably belonging to the Śuṅga period. Among antiquities found were a terracotta female head, which must have been modelled at a time when Mauryan art was at its zenith, and figures with Mauryan polish.

Mr. Page made further excavations on the site of the Buddhist monastery-city at Nālandā in Bihār, and numerous antiquities were recovered principally from the Devapāla level.

Excavations were continued at Paharpur by Mr. Dikshit, a number of stucco heads were recovered which are the first specimens of this branch of plastic art to be discovered in Bengal. A considerable number of small antiquities was recovered, the richest hoard so far found at Paharpur.

It is estimated that there must have been at least two hundred cells occupying a quadrangle of about 900 yards square and providing accommodation for about a thousand monks. No single monastery of such dimensions has yet come to light in India and the appellation *mahāvihāra* 'Great Monastery' as designating the place appears to be entirely appropriate.

It is assumed that Paharpur must have been one of the principal among the 'hundred Deva temples in the country of Puṇḍravardhana' noticed by the Chinese traveller, Hsüan-Tsang, 'where secretaries of different schools congregate, the naked Nigranthas being the most numerous'.

Mr. Longhurst made some interesting excavations at Nāgārjunakonda, in Madras, the site of one of the largest and most important Buddhist settlements in Southern India. Inscriptions that were found here have thrown considerable light on the history of the site.

Chief among the relics recently found at Nāgārjunakonda is the fragment of a bone of Buddha's body. It was enshrined in a minute round box together with some gold flowers. The box also contained garnets, pearls, and crystal pieces. This relic was presented to the Mahabodhi Society by the Director-General of Archæology, on behalf of the Viceroy, before a distinguished gathering of

Buddhists from Japan, Tibet, Ceylon, India, and Burma, on the occasion of the first anniversary of the opening of Mulagandhakuti Vihāra at Sarnāth, Benares, in December last. The relic has been placed within the temple at the Vihāra.

With regard to the sculptures that have been discovered Mr. Longhurst says that some of them possess a unique value, being unlike anything of the kind found elsewhere in India. The main theme of the sculptures is taken from the life and previous births of Buddha.

It is estimated that Nāgārjunakonda flourished during the 2nd and 3rd centuries A.D.

In Burma excavations were continued at Pagan and Hmawza by Mons. Duroiselle. A temple belonging to the 12th century A.D., was explored at Pagan, and the lower portion of a Buddha and many fragments of terracotta votive tablets, bearing an image of Buddha seated on a lotus, were recovered.

Most of the mounds recently dug into showed traces of having been rifled, at some remote period, by treasure-hunters, and the finds were, therefore, on the whole disappointing.

Twenty-three mounds were opened at Hmawza but the excavations yielded very poor results.

It is to be hoped that Sir Aurel Stein's explorations in Central and Southern Baluchistān will be followed by prolonged systematic excavations, and that still more light may be obtained from this intensely interesting field.

Simultaneously with the above explorations interesting discoveries were made in Afghanistān by J. J. Barthoux of the Délégation Archéologique Française en Afghanistān. Barthoux unearthed 531 buildings of various kinds all dating from about the same time, viz. about the 3rd and 4th centuries A.D.

From the beginning of the Christian era, when an Indo-Scythian dynasty, the Kushān, ruled over Afghanistān, until after the time of the statues recently recovered, it was predominantly Scythian. Obviously, however, the classical Greek artistic traditions retained their vigour, and until the death of Diocletian the Mediterranean and the Orient were still in touch with each other. The development of sacred and ecclesiastical art as a direct derivative from the æsthetic of Hellas is more trenchantly illustrated in the statues found by Barthoux than perhaps in any other examples, for so Occidental is the entire atmosphere they exude that they seem violently opposed to the Orient where they are found.

As there are yet countless sites in India still awaiting excavation, more than the Archæological Department could possibly cope with, it is to be hoped that facilities will be afforded to non-official agencies to enable them to co-operate with Government in their exploration.

ARIADNE'S CLUE IN EXCAVATIONS

By Count du MESNIL du BUISSON,
Director of the Archæological Mission of Mishrife-Qatna.

MANY people imagine that trenches for excavations are opened at random. The enterprise appears to them like a sort of gamble where one often loses, but sometimes wins. Nothing is more erroneous when it is a question of scientific excavation. It is only after the most careful study that the director of excavations decides to make his trench for boring and to mark his shafts. Nothing should be left to chance.

We have grouped in this article the study of the means which influence an excavator and guide him to make excavations.

These methods of research can be divided thus :—

1. Bibliography, cartography, numismatics and museum collections should usually be studied before making a start. In Paris the Bibliothèque Nationale affords the most wonderful facilities for this research.

2. The best conditions for investigation will always be found near the site.

3. The examination of clues, of traces left behind, on the surface of the soil, as well as survivals. The examination of traces which will be made on the ground and from the air, require close attention, care and time. Sometimes, after months of sojourn on the site, further indications are found on the surface which had previously escaped notice.

I—Utilization of Previously Known Documents.

It is necessary to distinguish between the sources of antiquity and those of the modern period. In fact the manner in which the documents are given, their accuracy, their different meaning, and their utility.

A—*Ancient sources.*

Ancient documents available for excavators are :—

(*a*) Literary sources,
(*b*) Inscriptions on stone or coins,
(*c*) Images,
(*d*) Collections.

(*a*) *Literary sources.*—The ancient authors supply useful information to excavators. The most important subject to be kept in mind is that which directly concerns the topography of buildings and their furniture, that is to say the framework of facts.

The simplest and most favourable instance is the direct account by an historian, a geographer or a traveller. There are a number of classical examples. In the Commentaries of Cæsar the description of the seat of the battle of Alesia,

the mountain of Auxois with its two small watercourses, and the plain of Laumes besides the details on the fortifications have been of great use to excavators. Ever since the excavations of the period of Napoleon III, it has been easy to identify the line of contravallation or investment of 16 *kilometres*, with its earthen rampart, its moat 5 metres wide, and its ground of *stimuli* or *trous de loups*.

One has found the parallel line of circumvallation destined to protect the Roman army taken in the rear by the Gallic allies.

The very detailed descriptions of the temple of Jerusalem in Ezekiel and in the book of Kings are the most important documents by means of which the Haram esh-Sherif, the ancient esplanade of the temple, can be explored.

The guide books deserve all the attention of excavators as one can almost always glean useful information from them. The *Periegesis* by Pausanias furnishes many examples : to instance only one, in 1877, at Olympia, when the excavators of the temple of Hera discovered the magnificent marble statue of Hermes carrying the young child Dionysius, they only had to open the valuable guide book to see that it was apparently an original work of Praxiteles found in the same place where it had been seen by the Greek writer, some 17 centuries ago.

Sometimes useful information can also be found in a treatise, a poem, and even in a play. When Cicero accuses Verres of depredations in the temples of Sicily he gives many useful and accurate statements about the disposition of places, personal property, statues of gods, etc.

Sometimes a simple recital of facts allows an idea of the plan to be made by deduction. The number of people present at an event indicates the size of the place ; the time required to cover a distance may serve as an indication of distances ; the treasures depicted indicate the fortified character of the structure, etc. Deductions of this kind have enabled us to recognize the chamber of the black Stone in the palace of Qatna, as the room where the treasures of the goddess Nin-Egal were concealed.

It may happen that the outline of imaginary facts is accurate and precise and may guide us advantageously. The poet Nonnus, in his Dionysiaca, Canto 41 and 42, gives us, in poetical fables, important information concerning the topography of the ancient Berytus. It is in this way that the list of temples appears under the enumeration of the gods who dwelt or enjoyed themselves at Berytus, the trade of the town is shown by the gifts that Beroe, nymph of the town, received on her marriage with Poseidon. The place where Astarte appeared ' going out on the briny main ' is fairly well denoted and is doubtless the site of the temple of the goddess of Berytus, etc.

Can it be inferred from all these examples that after the study of literary sources one can easily undertake and conduct excavations to a successful conclusion ? Experience shows that it is not the case. Neither is the passage in Cæsar sufficient to make the discovery of the site of Alesia, nor has the passage in Pausanias discovered the masterpiece of Olympia. Whenever excavations

are being undertaken on literary evidence alone thay have been doomed to defeat. It would be depressing to recall examples. It is after the excavations have been made that one generally notices interesting confirmations! Texts and excavations throw light on each other. But sometimes also it is difficult to make the narratives of the ancients agree with the actual result of the excavations. A passage in Herodotus certainly appears to attempt to show that Byblos is situated at a certain distance from the sea. But the investigations of MM. Montet and Dunand prove that the ancient town immediately overhung the cliff. One has been obliged to put a different interpretation to the passage of Herodotus. It is rather far from maritime activities, that is to say, the harbour, must be understood.

Thus we recapitulate the position taken by the excavator with regard to literary sources.

1. Before making excavations: One should limit oneself to the study of ancient literary documents with regard to the relative importance of towns or monuments in the different periods, and obtain an idea of their approximate sites, that is to say, to obtain an idea of the localities. To attempt to infer any more would almost always be imprudent or rash.

2. During and after the excavations, the texts often give hints concerning the object and history of the building and sites. The names of localities, the names of objects, the meaning of figures, above all the religious sense of revealed objects often left unknown without any story, occasionally the remark of an author who has not attempted to give historical information. How many figures, for instance, would have remained for us almost incomprehensible without *De Iside et Osiride* and the *De dea Syria!*

When speaking of ancient literature in general and especially with reference to the East, one must put the Bible in the front rank—ancient literature on the whole gives nothing but very scanty assistance to the excavator in the preparation of his task. Afterwards it helps him to understand what he has discovered, but this enlightenment is of more use to the texts themselves than to the excavations. How much more intelligible is the description of the temple of Jerusalem in the book of Kings and Ezekiel, after one has found numerous earlier or contemporary temples, the Tower of Babel after one is acquainted with the Babylonian Ziggurats or the Cherubims, since the Assyrian discoveries! Open an illustrated Bible of the 17th or 18th centuries and you will see what could be reasonably understood with the text alone.

(*b*) *Epigraphic texts.*—The use of epigraphic texts from the point of view which we hold requires special examination. In this category we include, besides the stone inscriptions, tablets with cuneiform inscriptions and texts drawn on all kinds of objects, weights, shields, bronze documents, etc. These monuments are more frequently contemporaries of the facts which they record and are preserved in the original.

If the origin of the texts is unknown or known only approximately, they are not superior to the literary texts ; on the contrary, they are generally scanty and not so clear. But if, on the other hand, the site of an inscription, its position, and its depth are carefully noted at the time of its discovery, the information is of inestimable value and can lead to interesting investigations. There is, in fact, a strong presumption that an inscription which is not on the surface of the soil and which has not been used again in a construction, is in its original site. In the main, epigraphic discoveries play the part of a first successful boring.

Papyrus and parchments of which the sites of discovery are known, may be classed with epigraphic texts from the point of view of excavations. The tablets of Qatna furnish a recent example of useful texts. The heading ' Tablet of the treasure of Nin-Egal, princess of Qatna ' made known the name of the town on the site of Mishrife and made it possible to identify the temple of the Babylonian divinity because the place of discovery is accurately known and they have been burnt with the temple. The object of the building, the ascribing of its foundation to the 3rd dynasty of Ur, the date and Mesopotamian influence are thus established. The tablets and inscriptions of Ras Shamra discovered by MM. Schaeffer and Chenet enable us in the same way to recognize the name of Sapuna, the library of the scribes, and the temple of Baal Sapuna. The Celtic inscription of d'Alise-Sainte-Reine discovered in the early part of the 19th century and bearing the names of Alesia and of the divinity Ucuetin in Latin characters, has had an almost equal importance in the delicate question of Alesia.

The commemorative or dedicatory inscriptions on the lintels or the slabs fitted in the walls of buildings, the historical steles placed in the temples are naturally guides of exceptional importance, and good use should be made of them. A lintel of Byblos, actually in the Louvre has, by its text alone, enabled M. Dussaud to make an interesting reconstruction of part of the temple.

(*c*) *Images.*—A different source of information which completes those which consist of ancient representations of monuments or of sites. Antiquity has left us more images than one could imagine.

Coins often depict temples in the most useful way. We know thus the exteriors of most of the temples of Rome, of Baalbec and of the towns of the Syrian coast. Gods and great people who figure on coins are almost always, if not always, found to be reproductions of statues or bas-reliefs which are to be discovered. It is the same with the small bronzes of the late periods found in these places ; Berytus affords examples : among the bronzes we can recognize the local statue of Jupiter of Heliopolis and the Greek statue from the temple of Poseidon also represented on coins. A small marble reproduces a statue of Eros riding on a dauphin, formerly, according to coins, on the flight of steps of the temple of Astarte.

The scenes on bas-reliefs chiefly in Rome, at the beginning of the 1st century show sometimes a decorated background representing buildings. The celebrated

bas-reliefs of the Constantine period near the Coliseum, show us genuine views of the Forum ; one recognizes the rostrums, the arches of triumph, the capitol, the temple of Castor, etc.

The maps which we have inherited from ancient times can be compared with these representations ; they afford a valuable guide on the ground. One of the most celebrated is the map of Madeba in Moab, in Palestine. It consists of a mosaic of the 6th century. The buildings are shown in elevation and not in a plan. As regards the basilica of Saint-Sepulchre a half circle represents the dome, and not an apse as one would expect. It is nevertheless a custom which has been kept up in the cartography of the Middle Ages and in some cases down to the 18th century, for example, when showing villages.

It is not necessary, however, to believe that the ancients never understood maps as we understand them. The celebrated *Forma urbis*, or plan of Rome, engraved on the marble tablets of the Forum of Peace in Rome, was a genuine architectural plan. The fragments found have afforded invaluable enlightenment to excavators.

(*d*) *Museum collections.*—Ancient sites have nearly always furnished collections of objects found casually, or through secret excavating. Before excavating a site it is well to investigate these monuments.

Where objects of commerce are concerned the proof of origin cannot be accepted, unless the character of the object itself certifies the origin. Objects brought to museums by travellers or archæologists are the safest guides. Unfortunately accuracy concerning the place of discovery and the depth of the soil is almost always lacking.

Under these circumstances, objects in collections can only furnish a general indication regarding the antiquity of sites, and the different eras which they represent.

In determining the age of the site of Mishrife, before the actual digging, according to the essay by the Rev. Ronzevalle, objects discovered accidentally played a very important part.[1]

B—*Documents of a Modern Era.*

We have said that modern documents ought to be studied and used in a slightly different way to those which have descended to us through the ages. These consist of :—

(*a*) Writings ;
(*b*) Representations ;
(*c*) Maps ;
(*d*) Aerial Photographs.

(*a*) *Writings.*—The accounts of travellers since the Middle Ages are generally more easily made use of than the texts of antiquity. It is because in reality the

[1] *Mélanges de la faculté orientale*, t, VII, p. 109–135.

sites have changed less since the authors saw them. One can almost always check their descriptions at some point of indication still existing. Besides their interests are closely akin to ours. Topographical detail generally interests archæologists, pilgrims or ordinary spectators; they like to give information and they help us to find the monuments. The place about which the stories of travellers are most numerous is, I believe, Jerusalem. Often pilgrims will mention the number of steps which they have counted in order to give some point or other. One can imagine what valuable information is supplied by this.

For some years a considerable amount has been deduced from ancient reports concerning the construction and repairs of buildings. Information was found about the age of various works of art, the ancient condition of places, the names of architects and of artists, etc.

It is with this source of information that one must class statements concerning previous excavations. With this knowledge we have an idea what to look for on a site concerning its stratigraphy, about its antiquity, and we can recognize the origin of discovered objects more or less accurately. In practice their utilization in detail appears so difficult that generally the directors of operations avoid as much as possible the places already explored. This is unfortunate, because one should never leave an interesting zone before it has been exhausted. Items of knowledge throw light one on the other, and certain points of detail which when isolated are only of slight interest take on considerable value when united to others. One can say that, if the number of data increases in arithmetical progression, their interest increases in geometrical progression. Nevertheless *the majority of excavations have remained at the stage of boring.*

The difficulty is to recognize on the ground the borings and trenches described by predecessors. One generally notes the inadequacy of surveying. *Only very accurate maps and sections on a large scale can make possible the proper resumption of excavations begun by others.* Without these it is necessary to begin again and under the worst conditions.[1]

(*b*) *Representations.*—Engravings of all kinds, rough drafts, panoramas and miscellaneous old photographs since daguerreotype are of the greatest importance.

In the excavations of Baalbec, the use of rough drawings by travellers was considerable. M. Deschamps at the Krac du Chevalier, the Qal'a el-Hosn, has been able to recognize at first sight, thanks to the drawings and photographs of Rey, the parts added on by the inhabitants.

One must accustom oneself to be able to turn from a view to a map and *vice-versa*. Mechanical process actually makes it possible to turn from perspective survey to architectural levels and even to the corresponding plan. Churches

[1] The work of M. L. Speleers, *Les fouilles en Asie antérieure à partir de* 1843, facilitates research in many cases. It is desirable that essays of this kind should be published in all countries.

destroyed during the war have been able to be reconstructed with the help of simple post cards.[1]

(*c*) *Maps.*—Routes followed by merchants and conquerors often help us to discover human installations, to understand their origin and their meaning; rivers and springs are also guides.

Knowing the ancient customs, especially of local races, one can find out which are the most suitable situations for different buildings: to put oneself, if I may say so, 'in the place' of the architect charged with designing the town, the palace, the temple, and tombs.

The first consideration in making a town, a palace, and sometimes a temple, was its military protection. The excellent book by Colonel Ardent du Pic, '*Le Combat*,' allows one to judge of some of the necessary precautions which this imposed. Scaling the walls had to be rendered difficult by making the slopes steep on which the projectiles rolled.

For the temple, it was the traditional element which played the most important part. A mound, already sacred, was searched for, or, if necessary, a terrace was made.

For the tombs, the side of a slope lends itself perfectly to the hollowing of chambers. They also sought to avoid floods.

M. Schaeffer has used such a method with success at Ras Shamra. 'If I had been the King of this town, I would have built my palace in that place from which one could see the sea and the roads round about.' The palace was indeed there: the excavations proved it.

Toponymies will be the object of serious examination for discovering (1) comparison with ancient names; (2) interesting roots as in Baalbec, Ba'albi. The names of fields and of localities are instructive. For example, the field of the '*Chirous martyrs*' covered before the excavations, the merovingian hypogeum of Dunes near Poitiers. It is prudent, however, to accept these comparisons of names, in the absence of other proof, only as an indication, as a simple question mark.

A propos a criticism of the work of M. Victor Berard, *Les Pheniciens et l'Odyssée*, M. René Dussaud justly says: 'toponymy and topology remain useful auxiliary training, but are inadequate. It is necessary to call in archæology.' All documentary literature should be verified by an archæological study of the site.

(*d*) *Aerial photographs.*—Plans and maps are supplemented in a marvellous manner to-day by aerial photographs. The easiest to use are the vertical photographs which appear like a plan excepting general deformations which are negligible for ill-defined surfaces. The modern process permits all desirable corrections to be made.

[1] *La Science et la Vie*, No. 172 (Oct., 1931).

Aerial photography supplies to archæology plans of sites, of ruins and of excavations which, if done trigonometrically, would sometimes entail a very long time and considerable expense. In very complex ruins there is no substitute for plans from aerial photographs, and the same applies to inaccessible sites. In modern map-making, two or three photographs of the same zone enable the contours of the land to be established.

Information of another kind and not less precious is the observation and photographic fixation of indications of surface to which we shall again refer. In this case aerial photography makes it possible to discover ruins or vestiges of ruins entirely buried. Indications which are invisible on the ground and likewise in direct observation from the air can be revealed by aerial photography.

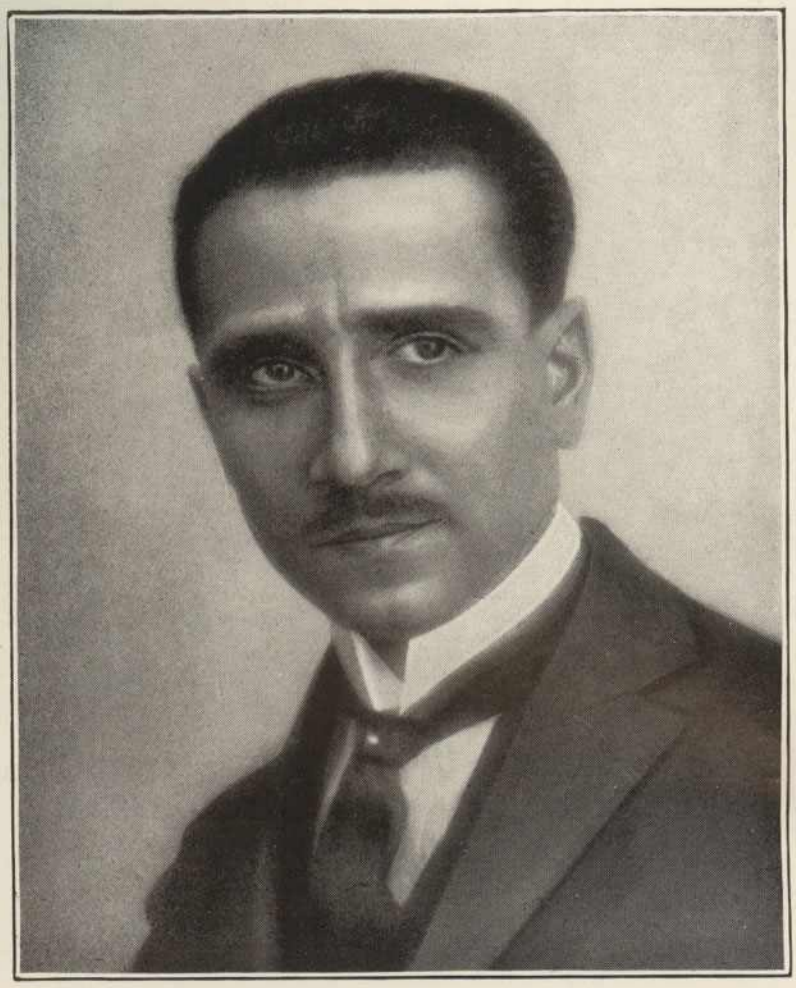
It is better still if several photographs can be prepared, taken in varying lights and at different seasons. Certain indications will be visible only on certain negatives.

Knowing the focal height and length, one can calculate the scale ; unfortunately, it is very difficult to determine the exact height of the aeroplane in relation to the site ; the altimeter requires several instants to regain its equilibrium and always gives the height in relation to sea-level or the place of departure. It would be better to calculate the scale in relation to the known geodesic points or by stereoscopic photographs. It is easier when one can place on the ground, at the moment of taking the photograph, an object whose length is known. The Rev. Poidebard often used two aeroplanes,—one used to land in the field of the photographs in order to give the scale for measurement, the other at the same time took the photograph.

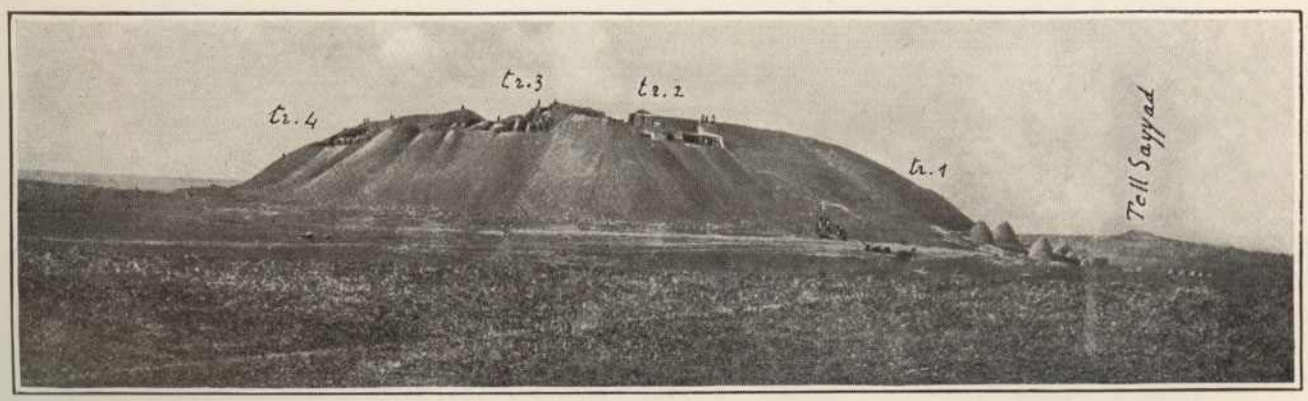
For archæological research, proofs giving details of the ground on a large scale and taken above 600 metres are preferable. To examine an aerial photograph one notes first from which direction the light came at the moment of taking the scene. It is this side which should be placed as the top of the photograph, for otherwise one is liable to take reliefs for depressions, and *vice-versa*. One should place oneself under a strong light and make the examination with a magnifying-glass. It requires some practice in order to recognize readily tracks, streams, quarries, etc. and also to distinguish the reliefs from the shadows according to the hour at which they were taken. The best documents are those which have been obtained under slanting sun rays ; that is to say, during the early and late hours of the day.

Aerial photography gives excellent information to excavators. It has made it possible for Father Poidebard, of the Beyrout University, to reconstruct a part of the system of roads of the Syrian *limes ;* the situation of the strongholds of the line of defence has been clearly recognized ; also several camps and circular towns of the greatest antiquity.

It is quite obvious that the data from maps and aerial photographs must be verified and completed by topographical study on the ground. These are two



Count du Mesnil du Buisson, Director of the Archæological Mission of Mishrife-Qatna, Syria.

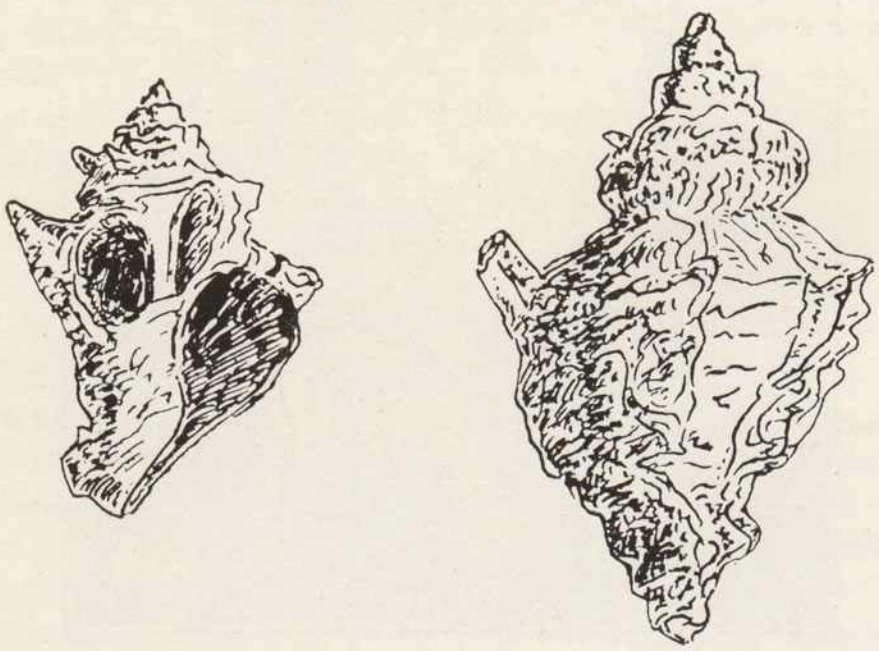


The tell Khan Sheikhun excavated in 1930 by the author, and the tell Sheikh Sayyad in the background. The trenches of excavations 1, 2, 3, and 4 have uncovered six strata of cities; four of the Iron Age at the top, and two of the Bronze Age underneath.

The character of vegetation makes it possible to recognize the nature of the sub-soil. During the excavations at Dnebi (Syria) a clump of thistles, which had grown over the opening of the tomb and retains the moisture, has served as a guide to the excavators.

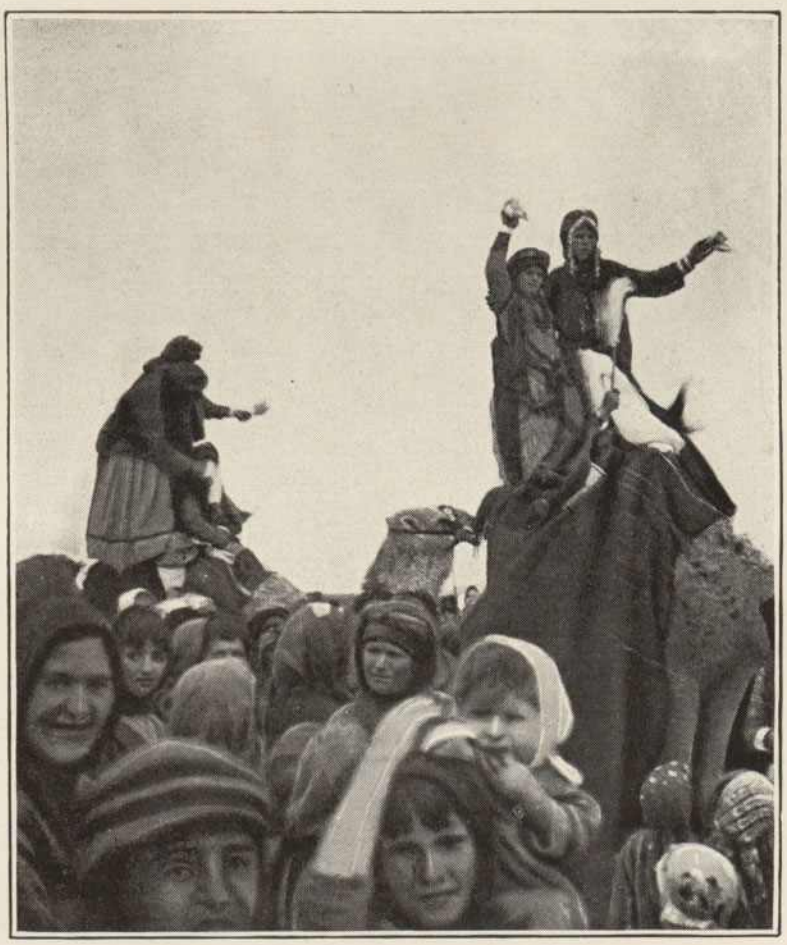
The same site after the excavations, showing the entrance of the shaft. In the background are seen several vases found in the grave.

RUINS COVERED BY DRIVEN SAND AT THE SITE OF UR IN BABYLONIA. SOME OF THE RUINS ARE ONLY PERCEPTIBLE BY SMALL INDICATIONS IN THE DECLIVITIES OF THE SOIL.



MUREX TRUNCULUS OF THE PHOENICIAN COAST. ACCUMULATIONS OF THESE INDICATE ANCIENT SETTLEMENTS OF DYERS. THE HOLE CAN BE SEEN THROUGH WHICH THE ANIMAL WAS EXTRICATED TO SERVE IN THE PREPARATION OF PURPLE.

The Tell Zaffarani, near Mishrife-Qatna in Syria. Some authors consider it to be the site of the ancient Ziffron in the Bible. Towards 'The Gates of Hama'.



A marriage festival at Mishrife. The bride is seen covered with a white veil on the first camel.

classes of research which lead to the same end. The same controlling idea directs them.

II—Archæological Investigations.

To whom should one apply ? What steps should one take to obtain accurate information about the present state of a site, legends concerning it, about casual discoveries, or secret excavations ?

It is obviously necessary in the first place to apply to those services that have been specially created for this in different countries : Offices of antiquities, Department of historical monuments, Archæological Survey, etc.

Intelligence officers can often give valuable indications ; their duties oblige them to frequent the smallest villages ; they often tour on horseback ; the mayors or *monktars* and peasants try to obtain their favour ; accordingly they are very pleasant to them and often present them with antiques. Amongst these officers one often meets enquiring and cultivated minds, happy to help a scientific mission, and some of them have collected notes and photographs worthy of publication. Even though officers of the Intelligence Services are unable to guide us in our researches, they will at least know how to put us on the right track. Monks, Officials, Survey Agents or Tax Collectors frequently give most useful information. The Hittite Stele of Ghur el-Assi actually in the Louvre, was found by an engineer of the D.H.P. railway, and was acquired by a Jesuit (Father Ronzevalle), the great mosaic of Karm el-Arabis near Homs was seen for the first time by a captain when exercising his company, etc. The accurate and indispensable data are : the name of the exact spot transcribed in French and in the language of the country, and its geographical position. For the rest, one must go and see the place.

The experience of Archæological Missions prove nevertheless that the information obtained from people living on the sites themselves is the most valuable. Primitive people and peasants are generally excellent observers. While hunting, ploughing, digging pits, they notice many details, they have made accidental discoveries or secret excavations. The secrets of the discoveries are handed down from father to son in certain families.

The questioning of mayors and peasants is a very delicate matter, requiring tact and experience. It is essential to go slowly and to use all one's ingenuity in order to obtain their confidence. When met by an evasive answer, do not be persistent, talk of something else, and then return to the question. Specialists in Folklore have for a long time used the best methods of making local enquiries ; in fact it is their principle source of information. ' The questions which one puts to peasants ', says one of them, ' ought to be of a kind not only not to induce psychical opposition, but also not to suggest an answer which would be false or indirect. Peasants often feel a kind of shyness with regard to people who belong to another social state and whom they feel are better educated. They

believe that when they are questioned on their manners and customs one wishes to ridicule them. Sometimes they show very little interest. I have had great difficulty in studying Kabyl potteries because the Sheikhs and potters took me for a financial inspector looking for objects and industries capable of being taxed. Nevertheless here is a means, which is valuable for enquiries concerning folklore. To relate at first how things are done elsewhere and to ask if it is the same in the village one is exploring. In Savoy, they put the dry skin of a toad in a barn to drive away insects. One tells them this, and asks what steps they take here for the same purpose. One begins to sing some popular songs, and soon the people of the village sing their own to you. One describes marriage ceremonies in various countries and the people describe to you their own customs.' [1]

The Archæologist likewise relates the results obtained elsewhere, cleverly glossing over the fact that rewards have been given, making it clear that the excavations provide work in the slack seasons, etc. One should exhibit the objects which are of interest. The explanations become particularly clear when the informer is taken to the places. It is frequently during a visit to the ruins that the natives give explicit and interesting information. It is necessary to spare no trouble to make them understand exactly what is wanted. One should never jeer, and above all not be sceptical. One should listen most seriously and reply in the same way.

One should ask the residents to point out large stones, engraved stones, carved stones, underground walls, caves.

The legends attached to sites should not be neglected. They should be collected with the greatest care, because they most often refer to ancient distorted facts. The topographical points denoted by these stories are generally of ancient places of culture or the scene of interesting events. Often also saints or *sages* have succeeded the gods.

Talking of clues by means of relics, we shall revert to some instances on this point.

It will be necessary to listen patiently to many useless tales to glean information which is often valuable. With time and patience, one should be able to induce the peasants to show the objects which they have accidently discovered, but it is necessary very often at first to gain their confidence, by living some time amongst them. Damaged ruins and cemeteries are most easily recognized. One must endeavour to weigh the answers of one against the other, being very careful to respect the self-esteem of each.

The allurement of a reward is generally very great ; a present of some francs is a good method of loosening their tongues, but it would be dangerous to make the peasants think that they can derive exorbitant prices from treasures that

[1] Van Gennep. *Le Folklore*, pp. 42-43.

they conjecture are hidden in their ground. Besides it must not be believed that these examinations, however skilfully they may be made, exhaust the subject. To learn from the inhabitants all that they know would entail a long residence generally of many years.

It is indispensable to have the confidence of the entire population, and this is a long-winded task. We must succeed in making it understood that we do a disinterested work. Seeing all that happens on a big day in the excavations, that the discoveries are made known, the objects exposed, that the fragments and old walls hold so much of interest, the native ends by understanding that they are not material treasures that are sought ; he does not understand very well but he feels proper respect for them. In order to create sympathy it is necessary to be interested in local affairs, to take part in festivals, to help the village in its disputes with authority, to be always ready to take the inhabitants under one's protection ; fellowship is very strong among primitive people and one must hob-nob with the people of the village or city. If one is not able or does not wish to take part in religion, one should at least have the greatest respect and maintain the best relations with the chief representatives of the creed who are always influential and well-informed. Finally in our learned missions, assistance ought to be largely practical ; the best form is the care of the sick. The peasants or natives ignore the elementary rules of hygiene ; only by preventing them from applying their dangerous methods and by substituting for these simple and sensible remedies, we often cure them and always give relief. At Mishrife, we have a regular little dispensary, where we do dressings, distribute quinine, etc. My collaborators sometimes supply some magical prescriptions, but this is not necessary.

III—Indications.

After the thorough examination of men, the investigation by means of things, here the excavator enters his own particular province.

It is important to define two items which we will constantly meet : clues and evidence. Clues are the signs announcing the presence of a monument in the widest sense. Evidence is a part of the monument itself ; for example : the colour of the soil above a buried wall is a clue, the stones which emerge are evidence of the construction. When a group of evidence of a building appears of some importance, we call it *ruins*.

If the ruins exist on the surface of the soil, before excavating, they ought to be minutely examined and studied. In order to form a correct opinion of a structure, it is absolutely necessary to have a plan. If this does not exist one must be drawn. The nature of a building, its decoration, in which style and what period, ought to be determined by comparative methods. The comparison can be very largely understood mainly by that which alludes to the *object* of the places and things. In reality if ruins exist the work presents itself as if the

excavations had already begun. It is the same case when one can come for the first time to the stage of clearing away. For instance, M. Deschamps, when he discovered that the large underground chamber of Qala'a el-Hosn had been filled up by the refuse of the village, he immediately ordered it to be cleared away. The filth accumulated since many centuries represented 50,000 tons. The excavation brought to light remarkable sculptures: 'I saw with the greatest astonishment' said the learned Curator of the Museum of Comparative Sculpture, at the Trocadero, that the chamber measured 120 metres long. The inhabitants of the Qala'a el-Hosn quite simply turned the big underground chamber of the fortress into a cesspool by opening a round hole in the ceiling and by bricking up the entrance.

In the majority of cases, the archæologist cannot act so quickly, he must move slowly and as if feeling his way. For the moment, we will apply ourselves to the indications, that is to say, that we will only consider the case where the site is destitute on the surface of either evidence or of ruins.

We will investigate successively :—

1. General topographical indications ;
2. Particular topographical indications ;
3. Geological indications ;
4. Indications of human activity ;
5. Indications from the colour of the soil ;
6. Indications furnished by vegetation ;
7. Magnetic indications or those of an analogous nature ;
8. Indications from survivals or moral indications.

We are speaking here only of the indications of the surface. Of the extent of boring and of investigations after rubbish has been cleared away, we will meet other indications that we will study elsewhere.

(1) General topographical indications.—These general indications are those that one can read on a good topographical map. We have given an idea in speaking of the use of a map. Meanwhile by seeing a district when travelling, complementary ideas are suggested that we must make use of in order to develop and to affirm the conclusions of cartographic study.

The works of men can often directly or indirectly modify the relief of a site. Often by a considerable effort, hillocks have been raised up to serve as earth-works for buildings (Khorsabad), or for ramparts (Qatna), or to conceal tombs (tumuli), or for many other, sometimes mysterious, reasons. At other times, spacious excavations have served as a reservoir, for canals, for moats in defence. By a different process, heaps of ruins and accumulated waste (ashes from fires and furnaces, etc.) have produced hillocks and sometimes hills which are recognizable on the map. In former times, in the whole of Asia and in Egypt, the ancient towns and villages left huge heaps of ruins, of earth and refuse. They are called *Kôms* in Egypt, *tells* in the Arabic countries of Asia, *tepehs* on the

Persian plateau, Afghanistan, the Taurus and Asia Minor, and *kurgans* in Russia. *Tepehs* and *kurgans* are often funeral tumuli. In Egypt, they are designated since great antiquity by the name of *iat*, a mound made of ruins as well as a tumulus, in the same way the village which generally crowns the hillocks in Egypt. In determining the word, one identifies a *kôm* in the shape of a dome, surrounded by a fence and surmounted by a pavilion  [1]. For the sake of simplicity we call all these eminences *tells*. Those which denote the towns and villages generally show a flat table-like surface, which is easily explainable. Their shape has often been made regular in ancient times, and they are to-day little regular plateaus, generally bare. The *tells* have sometimes been constructed of all sorts of material, to form the imposing platform of a town which perhaps has not been surpassed by its neighbours. In this case the upper part often forms a more or less deep basin (Tell Nebi Nuh, Syria). The *tells* show on one or two sides a gently sloping inclined plane for ascending, out of which erosion has generally made a ravine ; these points indicate the site of the gates. The *tells* in the steppes or plains of Russia can be recognized from a considerable distance.[2]

(2) Particular topographical indications.—The indications are denoted by slight declivities and secondary reliefs of the ground surface.

In order to see the reliefs clearly, one should, for preference, go round them in the morning or evening. The bright sunshine at noon disperses the shadows which are necessary for a good view. Failing a slanting light, one can make up for it to a certain extent in the view of a flat open country ; one makes his observations obliquely, that is to say in placing his eye near the ground, one perceives the slightest declivities in profile.

It is by these contrivances that particular topographical indications have their beginning.

An abandoned construction always tends to level itself, that is to say, if the remains form a relief above the ground, they tend to sink as far as the horizontal level, and if they form a hollow in the ground the cavity tends to fill up. This is an application of the law of gravity which controls equilibrium and horizontal stability. Nevertheless it would be easy to demonstrate mathematically by this law alone, that reliefs or hollows tend towards the horizontal plane without ever reaching it ; in fact the nearer they approach it, the less the action of gravity becomes. The graph will become a curve tending towards

1 V. Loret, Revue égypotologique, X, 1901, pp. 87–94. The hillocks cannot, as has been stated (Bulletin de l'Institut français du Caire, III, p. 145), be surmounted by a bush : the water of the Nile without which vegetation cannot grow never reaches the top of a *Kôm*, the shape of the little upper pavilion (perhaps fencing) has been confused by its resemblance to the lid of a sarcophagus.

2 The question of *tells* will be taken up in the conferences of the third year.

zero without ever reaching it. It is the first and principal structure of the formation of these reliefs which show actually the presence of a monument by an embossment or a hollow, sometimes a combination of both.

When it is a question of a ruin which sinks slowly, its relief itself can check the particles carried away by wind and rain, fixed to lichen and moss, these are then the causes which lessen the levelling action and can themselves make eminences like those seen in Egypt, close to the desert.

When, on the contrary, it concerns the remains forming a cavity, chamber, or deep cave, basin, tank, pit, etc. the debris are always more liable to accumulate than the surrounding soil, hence a slow action which retards the levelling.

The conclusion is that after a very considerable time a completely collapsed and buried ruin always presents the appearance of a flattened hillock, and that a filled-in cavity appears almost invariably like a shallow basin. This is naturally so if man, or some exceptional circumstance does not upset everything. If, for example, a town has been erected on a ruined site, there is obviously every chance that the topographical indication has disappeared.

I lay stress on the shape of a shallow basin which is taken by the cavities, it is characteristic, it is also an application of the laws of nature.

Common graves are shown on the surface by a small heap of elongated earth, or on the contrary by a slight hollow due to the subsidence of the earth following the decomposition of a body. Often a series of graves in rows produce a kind of undulation of the soil.

However good a map may be, it never gives an absolutely adequate outline of the ground, most of the time, particular topographical indications can only be seen on the ground, or by photographs from the air. Occasionally the depression or the relief indicates a building not exceeding some centimetres ; infinitely more so the traces of works which have never had a large relief such as an ancient track, for example the furrows of ancient fields reconquered by the desert. Often the top of walls round the edge sharpens somewhat, in such a case one notices the alignments of characteristic stony tops. The lines producing a geometrical plan should attract all our attention, and especially their symmetry. This applies equally to the other indications.

(3) *Geological Indications.*—Geology teaches about the formation of rocks, their natural arrangement, stratographic superposition, changes that can happen to them. These data enable us to recognize the modifications that man has been able to bring to bear on the natural state and which are indications of his works.

Here are some examples : an accumulation of fragments of stone on a level area indicates a workshop of the stone age ; if the chips are flint it may be prehistoric ; the defective pieces thrown away by the workmen at that time, date the period. The fragment of flint is recognized by the bulb of percussion or swelling that occurs about the place that is struck.

The construction of a stone building always allows for a stoneyard where

the cutting of stone and rough-hewing of sculptures is done, but it can be remote from the building itself. This was the case with the temple of Jerusalem according to the Bible.

The excavation of a gallery, a well, a tomb, a hypogeum produces accumulations of rubbish and fragments in proportion to the greatness of the work. Here is a statement of J. de Morgan: 'In regions like that of the cemetery of Memphis where the geological layers are palpably horizontal, the different strata show neither the same composition nor the same appearance. It is easy to recognize them from small specimens. If it is encountered above a layer of sandstone, for instance, on the surface of the soil, a certain number of fragments of natural limestone deposited below the sandstone, it means that these fragments have been artificially put together and that ancient pits are in the neighbourhood.' The tomb of dogs at Saqqarah has left large heaps of rubbish on the side of the hill.[1]

Ancient quarries are recognized by the level and rectilinear sections made in the rocks. The mines by the waste left behind by the excavations and by the cavities that are recognizable in the ground. The waste is composed of rubbish left from the extracting of ore; it discloses the nature of the metal. At Khalkal in Persia, huge heaps of waste exist near the mines, to-day hidden by fallen rocks. In Transylvania there are innumerable pits which disclose the auriferous veins worked in ancient times. At Sinai, one meets again ore wastes and galleries.

In the research of caves used by man it is important also to have a knowledge of geological formations. They are generally formed in massive limestone and those which have been lived in are more frequently opened to the South.

It will be a good thing in this study to have the assistance of a geological map.

(4) Indications furnished by refuse and waste left behind by local industries. —Although these indications are in the majority of cases underground, they can be met with on the surface.

Count Begouën has noted that while excavating they sometimes recovered paintings on the surface of bones, fragments of flint or other remains indicating prehistoric stations.

The refuse heaps which can be recognized are almost always mixed up with ashes showing fires and ovens for cooking; they consist of bone, bearing marks of incisions and fire and of shells. The shells of snails and oysters sometimes form important accumulations revealing prolonged existence. Generally ceramic remains are mixed up with rubbish.

Besides the indications of human work above noted, there are others that

[1] J. de Morgan, *Les recherches archéologiques*, 1906, p. 55.

leave traces on the surface. Remains of colourable matter, oxide of iron, powdered lapis lazuli, various clays can be preserved indefinitely. Purple was extracted from a small gastropoda which was pierced from the side. There exist in Tyre and Sidon huge accumulations of these shells which are mixed up with the earth ; I have observed them also at Beyrout. These are traces of workshops of interest for the commerce in ancient times, also useful for local topography (outskirts and certain quarters of towns).

(5) Indications from the colouration of the soil :—They are often made use of in the East. Large bare surfaces, without noticeable relief, lend themselves admirably to observation on the colouration of the soil. In order to be seen under the best conditions these variations of colour ought to be as far as possible observed from above, normally on the ground if it is possible. It is in the same way that these indications are more easily seen on horseback than on foot. In an aeroplane, at a low altitude, they show up, and very good photographs can be taken of them.

There are generally atmospheric agents which make these spots visible, most often by the following mechanism : the foundations of the buildings being more or less permeable than the surrounding soil, a portion of the ground dries more quickly and shows more clearly than the rest of the soil. Foundations of dry stone, form veritable drains, draining especially well the land that covers them. Sometimes it is the frost which turning the water to a thin coating of ice reveals what part of the ground has been drained by the substructions.

At other times, the water dissolves certain mineral particles. At Tello, Commandant Cros tells us, it is ' after heavy rain, which results in washing the soil, which is very full of salt, one can perceive, 11 metres from the redout, the foundations in rough bricks of a great building.'

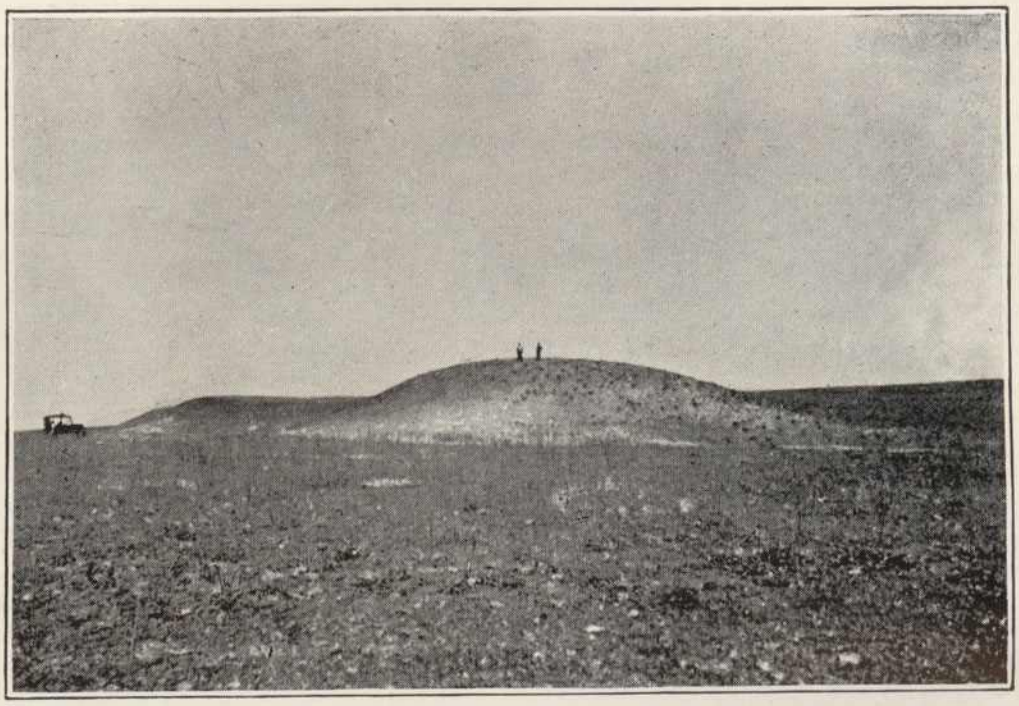
In 1927, Father Bovier-Lapierre gave a description at the Egyptian Institute of the wonderful discoveries of Fayyum. The neolithic tombs can be recognized in the sand of the desert by their lighter colouring, showing the very slight relief about which we have spoken. J. de Morgan had formerly made the same observation : ' Prehistoric and primitive cemeteries can be recognized in the desert where the ground shows a quantity of spots, of clear sand very near one another. The spots corresponding to the tombs of which the earth is heaped up are caused by a depression which the wind fills afterwards with fine sand. The tombs show the same external appearance as the vaults of an early historic period, it is necessary to make some investigations, then, once the cemetery is discovered, it is enough to attack all the points in which an iron bar will easily pierce the ground.[1]

(6) Indications supplied by vegetation.—They often show signs similar to those produced by spots on the ground.

1 *Les Recherches archéologiques,* p. 47.

Folk festivals on the archæological site of Mishrife are a centre of attraction of the district. These fetes probably date back to the prosperous times of Qatna.

Plate VI.

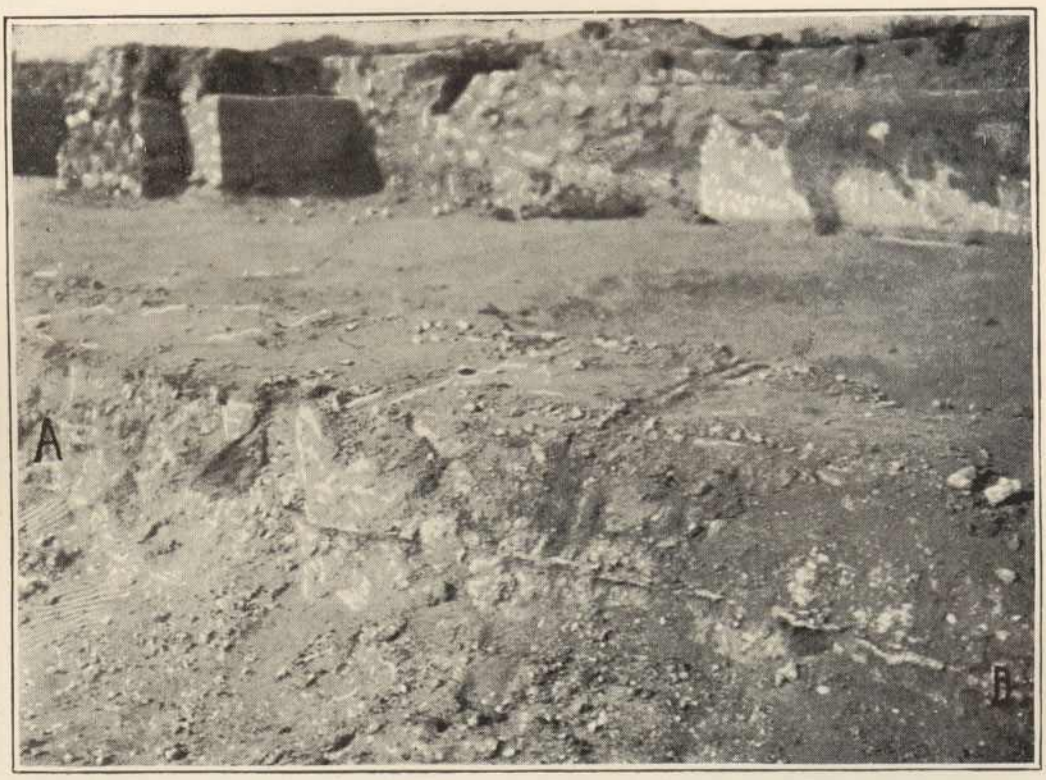


The Tell known as 'The Father of Horns', at the SE of Horns (Syria). A site of a town of the second millennium, whose ancient name is unknown (discovered by the Mission du Mesnil).

The Sheikh Abd-el-Kerim, of the mosque of Khan Sheikhun, showing to Count du Mesnil (on the right) promising places for excavating.

In the cemetery of Dnebi (Tunip) Syria. The search of graves belonging to 2000 B.C. and indicated by the clumps of vegetation.

On the Tell Khan-Sheikhun excavated by the Mission du Mesnil du Buisson in 1930, the workmen throw the earth into the air to be carried away by very strong wind.



Ancient strata A-B indicated by a narrow line in the traverse of the trench (excavation at Mishrife, Qatna palace. The Hall of the Great Vase.)

On a basalt base an almost invisible circle in lime indicates that there existed a pillar of small diameter probably of wood and white-washed (same palace, Northern section).

Commandant Cros tells us how the site of ancient Shirpurla (Tello) is indicated on the ground[1]: 'In the spring, when the desert is covered with a faint green tint the boundaries of the ancient town are determined by an oval surface running from North to South, being four kilometres long, about two wide, and appear like a yellow spot on which a blade of grass cannot grow.'

Each plant makes a little boring for its root, one must know how to recognize this when meeting it. The disturbance that the presence of subterranean ruins cause to vegetation is the result either of hydrometric irregularities already mentioned, or of the presence of materials unsuitable for vegetation such as stones or bricks, on the other hand particularly heavy moulds and soils are favourable. It is obvious that the presence of a slight depth of soil flagged or paved with concrete, or a stone causeway, hinders or constricts vegetation; if the materials are quite near the surface, they are generally the least gramineous; if they are more deeply buried they will be deep-rooted plants and bushes which are sustained by the condition of the sub-soil. If, on the other hand, a cavity is formed filled up by foliation or with vegetable refuse, these offer a very favourable medium for the growth of plants.

Trees show a certain symmetry between the roots as well as in the trunk and branches. A fir-tree which is well-grained and has a tap-root which is deeply buried, an oak which spreads out its branches over a considerable space possesses roots which extend far and to a moderate depth. This information enables us in certain cases to recognize the approximate depth of an obstacle to vegetation in the sub-soil, especially the presence of rock.

(7) Magnetic indications or those of an analogous nature.—As a piece of information and in order to be complete I must point out that in the examination of mines, engineers utilize the properties of the magnetic needle. In fact the metallic masses distract the needle and cause it to deviate.

It appears also that empty subterranean rooms affect the hazel-twig or pendulum; at any rate this seems to result in the case of many discoveries.

The process has been employed with great success in the excavations at Capera, near lake Leprigano, in Italy. By means of the hazel-twig four Etruscan tombs were discovered, with an interesting inventory.[2] In Palestine, near Abu-Ghosh, while looking for a spring 'a cave completely hidden under a layer of rock was found. The " water-diviner " had definitely marked it as being empty'. The tomb in question had a shaft with a bench, of the iron age.[3]

The attempts of investigating by sound that we had made several times, gave us no result. In striking the rock with a sledge-hammer, one sometimes obtained a loud resonance through a mere crack when the proximity of a room gives only a dull sound. At Alesia, however, M. J. Toutain, has obtained successful

[1] Nouvelles fouilles de Tello, campagnes de 1903, p. 5.

[2] *Le Miroir du Monde*, 1931, p. 170.

[3] *Revue Biblique*, 1921, p. 97.

results, in striking the ground of Gallic houses. The resonance revealed to him a curious silo that he only had to open.

(8) Indications from survivals are the result of this principle that that which exists has a tendency to continue to be. Societies hold inherited funds which compel them to preserve that which exists, above all in the religious domain. This is also the case with topographical survivals, they are extremely ordinary, if I may say so. Temple, church, mosque often succeed one another on the same site. At Mishrife although the site had remained uninhabited during centuries (perhaps more than 2,000 years), the site of the temples on the mound of the church seems to have been preserved for the sake of tradition among the shepherds of the desert. In consequence, when the inhabitants returned to settle upon the site of Qatna, about 60 years later, they put their church outside the village, on the ancient High-place. It is the same tradition that is of value to us in recognizing the same site even now badly expressed as ' Qubbet Luth ' (Qubbet=small building, probably here ' little temple '). In a general way, all the marabuts, the *qubbes* in the country merit attention. The places denoted by legends are also very deserving of examination. The St. George or Khodr of Beyrout provides an example. The place of the combat of St. George that they still show one near the town is the seat of very ancient legends which appear to go right back to antiquity, because as early as this time one of the principal divinities of Berytus, Esshmun, was represented escorted by two dragons and with almost the features of St. George. Some remains have since been noted in the same locality ; it would be interesting to make excavations of them, for the traditional indication appears precise and ancient.[1]

Very often the tracks and roads, although many times repaired, remain in the same place. The road going round the circumference of the town indicating the interior and exterior is generally preserved after the demolition of the rampart and suffices to indicate it. This phenomena can be observed at Pompeii and in many towns of the Middle Ages. At Beyrout, the roads show clearly not only the plan of the ruined ancient rampart but that of the Roman circus long since disappeared and hence the outline of *decumanus maximus*.[2] The burying-grounds are often kept up on the same site since ancient times.

The boundaries of the fields can reveal the former state of sites. At Alesia, the *cavea* of the theatre, entirely ruined, can be recognized by a curved line separating the cadastral portions.

It is quite evident that the different kinds of indications described here are merely examples and that the ingenuity of each one should tend to discover and use other signs. It is a matter of occasion and ability. In this domain, the excavator ought to emulate the most shrewd detectives.

1 *Bulletin de la Société française des fouilles archéologiques* 1925-26, p. 82 a 134; *Mélanges de l'Université Saint-Joseph*, 1927, p. 251. a 265.

2 Quartier Saint-Elie, below the Grand Serail, to the N-O.

THE RÔLE OF THE SKIN IN THE PRESERVATION OF HEALTH

By Professor S. METALNIKOFF,
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IT is commonly known that the skin serves to protect the inner organs from various harmful effects. Whereas in many animals it is covered by special hard structures, such as scales, which protect it from injuries, in man and the majority of mammals the skin forms a tough and elastic tissue which is easily damaged. Sometimes the slightest lesion of the skin will allow various microbes and parasites to penetrate through it and provoke grave disease both in the skin itself and in the organism. Infection with such diseases as small-pox, anthrax, staphylococci, and streptococci, syphilis, etc., takes place mainly through the skin.

Until quite recently the idea prevailed that the skin played only a passive rôle in the defence of the organism. According to METCHNIKOFF'S theory, the chief protective agents of the skin are the phagocytes which are conveyed to the skin with the blood. It has recently been shown, however, that the skin itself is capable of taking part in the defence reactions of the organism, independently of phagocytosis.

This function of the skin was convincingly demonstrated by the brilliant works of BEZREDKA on local immunity which provided new methods of immunization of the skin against various diseases.

As is known, the skin consists of the following two layers : the outer *epidermis* or cuticle and the inner *dermis* or corium. The epidermis consists of flat epithelial cells arranged in several layers. Those of the upper layer (*stratum corneum*) become dried and are cast off, carrying away with them the dirt and various microbes adhering to the surface of the skin. This layer rests upon hyaline cells composing the *stratum lucidum*, below which is the so-called Malpighian layer. This layer consists of several rows of cells interspersed between which are numerous lymphoid cells.

The remarkable complexity of the structure of the skin is in keeping with the variety of functions it performs.

In the first place, the skin acts as an extremely resistant and elastic barrier protecting the body from the penetration of various parasites. The skin is permeated by countless sensory nerve endings which serve to collect and conduct the various sensations, such as cold, heat, pain, touch. These sensations give warning of danger and cause the organism to react accordingly. Apart from this,

there are other important functions of the skin. One of these is respiratory: The skin absorbs oxygen and discharges carbon dioxide. It also serves to regulate the temperature of the body. This is effected by the activity of the sweat glands. At high temperatures the perspiration becomes more vigorous and causes increased evaporation which in its turn leads to a lowering of temperature of the body.

Lastly, there is the excretory function, many harmful products of metabolism being eliminated from the organism in the sweat. The skin shares this function with the kidneys and thus relieves the latter of some of its work. The magnitude of this work is illustrated by the following figures: an adult loses about $\frac{1}{67}$ of his weight, or 1 kilogram in fluid, through the skin per day.

The skin thus serves not only as a protective tegument, but also as an organ of definite physiological processes of vast importance in the life of the organism.

Its rôle is of special importance in the defence of the organism against various parasites and microbes, i.e. in immunity, both natural and acquired. If man is able to protect himself against the invasion of the numerous microbes this is due entirely to the defensive activity of the skin.

The skin contains an enormous army of phagocytes, some of which are motile and others stationary, which rapidly engulf and digest the microbes that have penetrated into the skin.

In cases, when the microbes prove to be very resistant and the local phagocytes are unable to overcome them, numerous minute phagocytic cells or microphages come to their assistance. These cells are always present in the blood and, when the necessity arises, they penetrate through the walls of the vessels and attack the affected site. A real battle then ensues which frequently ends in the destruction of the microbes. Sometimes, however, the microphages prove to be unequal to the struggle and perish themselves. Then large numbers of macrophages, or large phagocytes, appear on the scene. These cells, which are capable of stronger resistance, join the issue and often ingest and destroy the weakened microphages together with the microbes.

The process does not always end here, however. Very often the microbes produce poisonous substances or toxins which gradually poison both the microphages and the macrophages, while they themselves begin to multiply intensively. This state of affairs results in two remarkable phenomena.

In cases when the infected focus is in or under the skin, an abscess is formed at the site. The infected focus becomes surrounded by large numbers of microphages and macrophages, and a barrier is formed on its lower surface, preventing the microbes from penetrating beyond it into the inner tissues. This barrier surrounds the focus from three sides. On the fourth side, which is in direct contact with the surface of the skin, a process of gradual destruction of the skin takes place. At this period a feeling of pain is frequently experienced

by the patient. The destruction of the upper layers of the skin is due to the digestive ferments liberated by the dead phagocytes.

This process leads to a gradual attenuation of the skin until it finally ruptures and the entire contents of the abscess together with the millions of phagocytes and masses of microbes are discharged. The yellowish-green pus observed in such cases represents a mixture of myriads of phagocytes and microbes.

In cases when the infective focus is far from the surface of the skin the microbes are ingested by so-called giant-cells which are formed by the fusion of phagocytes. This is an example of co-operation among the cells : the task which cannot be performed by the separate cells, the phagocytes, is relegated by the organism to groups of united cells. These giant-cells become surrounded by other cells which form around it a connective-tissue capsule.

In this way, the microbes become immured and isolated from the healthy tissues. The phenomenon described is commonly observed in tuberculosis of man and animals. It assists the organism considerably in its struggle against the tubercle bacilli and frequently results in its complete recovery. These processes have also been studied by us in insects, in which phagocytes are present and the formation of capsules and abscesses are observed.

Recently there have appeared a series of remarkable investigations, by Prof. BEZREDKA, dealing with local immunity and the rôle of the skin in immunity.

BEZREDKA has demonstrated the importance of the skin and its protective properties not only in natural immunity, but in acquired immunity as well. Guinea-pigs on which his work was conducted are extremely susceptible to the microbes of anthrax. All attempts to immunize or vaccinate these animals by means of PASTEUR'S attenuated cultures failed. Taking into consideration the fact that the skin is especially sensitive to anthrax cultures BEZREDKA attempted to vaccinate guinea-pigs by rubbing the vaccine into the skin. From the very first experiments it became evident that such vaccination was quite practicable and resulted in the production of a lasting immunity, not only of the skin, but extending to the whole organism.

More striking results were obtained with staphylococci and streptococci which are responsible for furuncles or boils and various inflammatory processes in the skin and inner organs of man.

BEZREDKA'S experiments have shown that the injection of staphylococcus vaccine into the skin, and even rubbing or moistening the skin with the vaccine gave rise to immunity in an extraordinary short time. On the other hand, subcutaneous or intraperitoneal injection failed to produce any lasting immunity. In the course of these experiments no antibodies were observed. Similar experiments were carried out with streptococci. Cutaneous immunization against these dangerous microbes proved to be as easy as in the case of staphylococci.

Further experiments by BEZREDKA demonstrated that the immunization was quite successful not only with vaccines (i.e. cultures of microbes heated to 55°C.), but also when filtrates of these cultures, deprived of the microbes, were employed. These filtrates were named 'antiviruses'. At present the application of BEZREDKA'S antiviruses is widely employed for various diseases with remarkable results.

All these facts show that the skin plays a very essential rôle not only in the defence of the organism against various infectious diseases, but also in the establishment of a lasting acquired immunity.

It is thus seen that the skin is an organ of extraordinary complexity. It respires and excretes the noxious products of metabolism, i.e. it relieves the lungs and kidneys of part of their work. Then the skin regulates the temperature of the body. It is furthermore supplied with sensory nerve endings which evoke in it the sensation of cold, heat and pain and thus regulate the activity of the entire organism through the central nervous system.

The skin is one of the most necessary and active organs of protection against all kinds of parasites and microbes all of which are constantly trying to penetrate into the organism.

The extreme importance of the skin is also due to the fact that it is the site through which vaccination is effected, i.e. the protection of the organism against various dangerous diseases. It is thus obvious that it is necessary to maintain the skin in an active state, not allowing it to decline or degenerate.

The life of the cultured man, living in towns, is, however, usually associated with an atrophy of the skin.

It has been known, since the time of the great French biologist, LAMARCK, that use causes every organ to become stronger and more vigorous, while absence of exercise and activity render it inefficient and brings about its atrophy.

By living in warm dwellings and covering ourselves with clothing we condemn our skin to constant inactivity. In the course of time, especially in elderly people, the skin gradually falls into complete decay and ceases to react with the power and energy characteristic of the skin of a young organism.

Not only the skin itself, but the entire organism, and especially our vascular system, suffer from this. As is known, the skin contains an enormous network of large and small blood-vessels which bring nutrition to the skin. Under the influence of inactivity the walls of the vessels lose their elasticity and power to react against external stimuli. This condition leads to premature sclerosis of the vessels and causes the diseases of the heart which are so prevalent among members of the professional classes.

Since the skin is so closely connected with health special attention should be devoted to the maintenance of its activity. This can be attained by artificial means, i.e. by *special exercises for the skin.*

During the warm part of the year it is necessary to have air and sun baths,

to wear very light garments, and occasionally bathing-costumes. It is advisable to walk and perform some work in the open air, for every kind of physical exercise causes the excretion of sweat and stimulates the activity of all the cells of the skin. During the cold time of the year various artificial methods for promoting the function of the skin should be used. It is, first of all, recommended to massage the skin every morning with a rough glove, after which it is useful to rub it with cool water. Ordinary baths, shower baths or Russian baths are all efficacious in increasing the activity of the skin. They, moreover, cleanse the skin by removing from its surface the grease and dirt which plug up the openings of the sweat glands. Of equal importance are walks, games and physical exercises.

All these measures, by reinforcing the protective functions of the skin, assist in the preservation of health and in the prolongation of human life.

THE PRAJÑĀPĀRAMITĀHṚDAYASŪTRA AS AN INSCRIPTION

By Professor N. D. MIRONOV

MR. V. PANOV has discovered an inscribed eight-sided slab in the Jasaktu Wang Principality, Inner Mongolia, which has been brought to Harbin and is now preserved in the Manchuria Research Society Museum of that town.

One side of the slab is uninscribed, the characters on three other sides are too badly damaged to be deciphered; thus the Society has been able to prepare a rubbing of four sides only, that has been placed at the present writer's disposal.

Each column is about 2 feet high and 5½-6 ins. broad. The upper line seems to be effaced; there remain 15 lines of 5 characters each. The characters, measuring 1 × 1½ ins. and placed at intervals of about 1 in., are North-Indian, except the two first Chinese ones ('the 18th day of.....month'), the only remains of a badly damaged date. The preservation is indifferent, the first and last lines, as well as several characters in all lines being effaced. The analysis of the characters (i.e. a comparison with the plates of Bühler's[1] work, the present writer being unable to consult the reproductions of Indian inscriptions) can be summed up as follows:

7 characters, viz. *a*, *t*, *dh*, *p*, *y*, *v*, *h*, are very similar to those of the Pehoa Praśasti (about 900 A.D., Pl. V, col. III).

2 (*kṣ*, *l*)—to the Gwalior inscription of Bhoja (876 A.D., ib., col. II).

2 (*r*, *ś*)—to the inscription of Govinda III Rāṣṭrakūṭa (about 807 A.D., ib., col. IV).

3—to those of later inscriptions: *m*—Sīyaḍoṇī (968 A.D., ib., 34, VII).

b—Bhīmadeva (1029 A.D., ib., 32, XVI), *s*—Deopāra (11th century, 38, XVIII).

Some characters, on the other hand, show affinities to earlier documents: *k*, *s*—Aphsad (about 675 A.D., Pl. IV, 7, XIX, and 38, XVIII, v. supra), *t*, *l*—

[1] Indische Paläographie (Enc. Ind.-Ar. Research, v. I, II), Strasburg, 1896.

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MR. V. PANOV has discovered an inscribed eight-sided slab in the Jasaktu Wang Principality, Inner Mongolia, which has been brought to Harbin and is now preserved in the Manchuria Research Society Museum of that town.

One side of the slab is uninscribed, the characters on three other sides are too badly damaged to be deciphered; thus the Society has been able to prepare a rubbing of four sides only, that has been placed at the present writer's disposal.

Each column is about 2 feet high and 5½-6 ins. broad. The upper line seems to be effaced; there remain 15 lines of 5 characters each. The characters, measuring 1×1½ ins. and placed at intervals of about 1 in., are North-Indian, except the two first Chinese ones ('the 18th day of.....month'), the only remains of a badly damaged date. The preservation is indifferent, the first and last lines, as well as several characters in all lines being effaced. The analysis of the characters (i.e. a comparison with the plates of Bühler's[1] work, the present writer being unable to consult the reproductions of Indian inscriptions) can be summed up as follows:

7 characters, viz. *a*, *t*, *dh*, *p*, *y*, *v*, *h*, are very similar to those of the Pehoa Praśasti (about 900 A.D., Pl. V, col. III).

2 (*kṣ*, *l*)—to the Gwalior inscription of Bhoja (876 A.D., ib., col. II).

2 (*r*, *ś*)—to the inscription of Govinda III Rāṣṭrakūṭa (about 807 A.D., ib., col. IV).

3—to those of later inscriptions: *m*—Sīyaḍoṇī (968 A.D., ib., 34, VII).

b—Bhīmadeva (1029 A.D., ib., 32, XVI), *s*—Deopāra (11th century, 38, XVIII).

Some characters, on the other hand, show affinities to earlier documents: *k*, *s*—Aphsad (about 675 A.D., Pl. IV, 7, XIX, and 38, XVIII, v. supra), *t*, *l*—

[1] Indische Paläographie (Enc. Ind.-Ar. Research, v. I, II), Strasburg, 1896.

Dantidurga Rāṣṭrakūṭa (ib., 22 and 34, XXII, v. supra), *ṇ*—Bower MS. IV (Pl. VI, 29, IV).

Thus the half of all the characters point to the 10th and 11th centuries. Still, as most of them (7) are related to the beginning of the 10th century and some (4) can be traced to a more remote epoch, the inscription in question might be assigned to the 10th century (end of the 9th—beginning of the 10th, to speak more exactly).

Such a hypothesis would be quite plausible, if the inscription were found on Indian soil; the fact of its being written in Mongolia, probably, by non-Indians, who must be credited with some stronger conservatism, than natives of India, makes a still lower date highly probable.

The inscription contains the shorter text of the *Prajñāpāramitāhṛdayasūtra*, —that preserved in the Hōryuji MS.[1]

The text is incomplete: the end, about one fourth of it, is wanting. The spelling is very sloven, showing a great many clerical errors, as many as in the copies of the Hōryuji MS. written by Japanese scribes, printed in the work referred to. For the sake of comparison the restored text of the edition is printed in parallel columns.

Still, not all the discrepancies between those two texts can be explained by the illiteracy of the scribe of the original or of the engraver. I would mention the following various readings (those of the edition, i.e. of the uncorrected text of the Hōryuji MS. are marked H).

(1) Col. I, ll. 2–4—*Prajñā(pārami)tahṛdaiyasūtraṃ*=H. *namaḥ sarvajñāya;*
(2) I, ll. 7-8, *°pāramitācaryāṃ*=H. *°pāramitāyāṃ;*
(3) I, l. 11, *skandhāṃs*=H. *skandhās;*
(4) II, l. 11 *avaimala*=H. *na vimalā;*
(5) ib., l. 12-13, *na sampūrṇa*=H. *na paripūrṇā*[2];
(6) III, ll. 9-10, *mado/mano/vijñānaddhātu*=H. *manodhātu;*
(7) IV, ll. 7, *bodhisatva*/r. *°tvaḥ ?*/=H.*°tvasya;*
(8) IV, ll. 10-11, *cita/avarṇa cita/a....*=H. *cittāvaraṇaḥ cittāvaraṇa.*

Here vv. ll. Nos. 3, 6, 7, 8 point to better readings than those of the Hōryuji MS. All of them show that the original of our inscription goes back to some independent source.

[1] Ancient Palm-Leaves, etc. edit. by F. M. Müller and B. Nanjio, etc. (Anecd. Oxon., Aryan Ser., vol. I, pt. III), Oxford, 1884.

[2] Cf. the larger text, Anc. P.—Leaves, p. 52, l. 15.

That may be considered the only point of interest in so far History of Buddhist Literature is concerned.

Prof. M. Müller and B. Nanjio mention several inscriptions containing the *Prajñāpāramitāhṛdaya*[1] and the *Uṣṇīṣavijayadhāraṇī;* the facsimile of that of the Asakusa Temple (Tokyo) being reproduced in their work.

The present writer avails himself of this opportunity of mentioning several Sanskrit inscriptions found in Manchuria that have not yet been described.

Mr. A. J. Avdoshchenkov, Hon. Secr., Manch. Res. Soc., saw, during his journey to S. Manchuria in 1927, the following slabs inscribed with Skt. *dhāraṇīs*[2]*:*

(1) at Kin-chou, in Mr. T. Iwama's possession, found at a shrine of the Ming dynasty; the slab is inscribed with 5 columns in Skt. and 1 in Chinese (probably, a transliteration of Skt.);

(2) at Mukden, in front of the Eastern Palace gate,—an eight-sided slab, dated 713-714 A.D.;

(3) a slab in front of the Shrine of Huan-ti, at Pah-men-cheng, with slightly visible characters.

The present writer has recently examined a (bronze ?) bell, brought from some shrine in Peking, now in possession of Mr. T. Kosugi (Dalny=Dairen); the huge monument (about 5 ft. high) is covered with the Skt. *larger* text of the *Prajñāpāramitāhṛdayasūtra* in rather modern characters. (This text is reproduced, without modifications, in the Appendix).

P.S. The present lines are but an English summary of a Russian paper written for the Journal of The Manchuria Research Society, Harbin, in 1927. This paper was to be illustrated by the plates reproducing the two inscriptions. Chinese authorities having put an end to the activity of the above Society, the paper could not be published.

The writer highly appreciates the courtesy of Dr. G. de Roerich who has kindly offered him the columns of this Journal.

N.M., ARIANA (Tunisia), August, 1932.

[1] Anc. P.—Leaves, p. 27.—5, ib., pp. 35-36.

[2] This information is due to the courtesy of Mr. V. J. Tolmachev, Pres., Manch. Res. Soc.

1st column.	Text restored by. M. Müller.
(1) xxx.	
(2) Prajñā xx m.	|| namaḥ sarvajñāya ||
(3) ta/hṛdaiya/sū-	
(4) traṃ Aryavalo-	Ārya/âvalokiteśvaro
(5) kiteśvara bo-	bodhisattvo
(6) dhisatva ga.-	gambhīrāyāṃ
(7) raṃ prajñā/pāra-	prajñā/pārā
(8) mitā/caryāṃ ca-	mitāyāṃcaryāṃ ca-
(9) rmaṇaṃ bhyavalo-	ramāṇo vyavalo-
(10) kayati sma paṃ-	kayati sma /
(11) .[*ca*] skandhāṃs taś ca	pañca skandhāḥ tāṃś ca
(12) svaxx [*bhāva*]/śūnyāṃ (?)	svabhāva/śūnyān
(13) (*pa*) śati sma i-	paśyati sma |
(14) ha Śāriputra	iha Śāriputra
(15) rū(?) paṃ śūnyatā	rūpaṃ śūnyatā
2nd column.	
(1) x [*śū*] nyat//aiva pa-	śūnyat//aiva rūpaṃ
(2) x tha rūpa nye (?)	rūpān na pṛthak śūnyatā śūnyatāyā na
(3) vam eva vida-	pṛthag rūpaṃ yad rūpaṃ sā śūnyatā yā
(4) nā sī(?) ṇya sī (?)sx	śūnyatā tad rūpam/evam eva vedanā/
(5) ra na vijñāna-	saṃjnā/saṃskāra/vijñānāni |
(6) ni Śāriputra	iha Śāriputra
(7) sarvaṃ ddharma śū-	sarva/dharmāḥ śū-
(8) nyatā/rakṣaṇa	nyatā/lakṣaṇā
(9) adutpana a-	anutpannā
(10) durudha ama-	aniruddhā ama
(11) la avaima (*la*)	lāna vimalā
(12) dodā na saṃ (*pū*)-	n//onā na paripū |
(13) rṇa tasm//aiha (*śū*)-	rṇāḥ tasmāc Cchāriputraśūnya
(14) taya na (*rū*) pa	tāyāṃ na rūpaṃ
(15) x vai x saṃjñā	na vedanā na saṃjñā
3rd column.	
(1) x x x x x	na saṃskā-
(2) ra na xjñ. x	rā na vijñānā-
(3) ni cakṣu/śrotra/	ni | na cakṣuḥ/śrotra/
(4) ghrāṇa/jihva/kya/	ghrāḥa/jihvā/kāya/
(5) mana rūpa/śca/-	manāṃsi | na rūpa/śabda/
(6) .va/gandha/rasa/	gandha/rasa/

	Text restored by. M. Müller.
(7) spraṣṭavya/dharma	spraṣṭavya/dharmāḥ/
(8) na cākṣu/ddhātu	na cakṣur-dhātur
(9) yavana mado/	yāvan na mano/
(10) vijñānā/ddḥātu	dhātuḥ/
(11) na vidya na/a-	na vidyā
(12) vidya ṇākṣayo	n//âvidyānavidyā/kṣayon//âvidyā/kṣayo
(13) yavana cara/	yāvan na jarā/
(14) x maraṇaṃ na	maraṇaṃ na
(15) x x x x x	jarā/maraṇa/
4th column.	
(1) x kṣayo na x	kṣayo na duḥkha/
(2) x mudha na ye	samudaya/
(3) niruddha na ma-	nirodha/mā-
(4) rga na jñāna x	rgā/na jñānaṃ na
(5) prāpatitva na	prāptitvam |
(6) jñā(?) da/prāpa vi	
(7) kṣa mo(?)dhisatva	bodhisattvasya
(8) prajñā/pārami-	prajñā/pāramitāmāśritya vi-
(9) am āśratya vi-	harati citt/â-
(10) harya cita/a-	varaṇaḥ | citt/â-
(11) varṇa cita/a	varaṇa/nāstitvād atra
(12) x stitva ryatra-	sto|viparyās/âti-
(13) sta viparyāsti-	krānto niṣṭha/
(14) krānta dda(?)ṣṭa x	nirvāṇaḥ |
(15) x x x x x	tryadhva/vyavasthitāḥ sarva/ buddhāḥ prajnā/pāramitām āśrity// âñuttarāṃ samyak/saṃbodhim abhi- saṃbuddhāḥ|tasmāj jñātavyaḥ[1] prajñā/ pāramitā/mahā/mantro mahā/vidyā/ mantro 'nuttara/mantro 'sama/sama/ mantraḥ sarva/duḥkha/praśamanaḥ satyam amithyātvāt prajñā/pāramitāyām ukto mantraḥ | tad yathā | gate gate pāra/gate pāra/saṃgate bodhi svāhā |
	|| iti Prajñā/pāramitā/hṛdayaṃ samāptam ||

[1] MS. °vyaṃ, Ed. °vyo.-

APPENDIX

PRAJÑĀPĀRAMITĀHṚDAYASŪTRA

Larger Text

(1) namo bhagavatyai (e ?) śriā[r]ya-Prajñāpāramat/*yai*/ evaṃ mayā śrātam (!) ekasmin samaye Bhagavān Rājagṛtra vitrarati sma Gṛdhra-dhayamavate (!) mahātā [*bhikṣu*] saṃghena

(2) sărdhaṃ mahātā ca bodhisatvagaṇena tena[*kha*]lu (?) vu(!)naḥ samayena Bhagavān Gambhīrāvabhāsaṃ [*nāma*] dhamaparyāyaṃ bhaṣatvā sapadhiṃ(!) samāpannaḥ tena[*punaḥ*] samayenā

(3) Āryavalākiteśvero bodhisatvo mahāsatvo (?) Gambhīrāvabhāsaṃ nāma dharmaparyāyaṃ vyavalokayati sa (!) atha khalu āyuṣmāñ Chābibubha (!) budhānubhāvena [*ary*]Āvalo-

(4) kiteśvara bodhisatva mahāsatva etam avācat yat kaścit kulabudrā (!) vă kuladuhi vā asyăṃ gambhīrāyaṃ [*pra*]jñăparamitāyā catukāmas (!) tena kathaṃ śikṣitavyam evam u[*kta*] Avālā-

(5) kiteśvero bodhisatvo mahasātvā ayuṣamantaṃ Śāriputram etad avocat yat kaśca (?) Śāriputra kulaputra (?) vă kuladuhitā vă asyăṃ nambhīrāyāṃ (!) prajñăpāramitāyāṃ catukāmas (?) tenaivaṃ śi-

(6) kṣitavyaṃ yad uta pañcā skatā (!) svabhāvaśūnyāḥ marpam (!) eva śūnyaṃtā śūnyataiva rūpaṃ nā rūpaṃ pṛthak śūnyatāyāḥ nāpi śūnyatā pṛthag rūpăt evaṃ ve-

(7) danāsaṃjñāsaṃskeravijñānāni evaṃ Śāripubra (?) sarvadharmāḥ svabhāvaśūnyatālākṣaṇā ajatā anutpannă anirudhā amala vimala anūnā asaṃpūrṇāḥ tasmāt tāhi Śāriputra śūny-

(8) tāyā na rūpaṃ na vadava (!) na saṃjñā na saṃskārā na vijñāna na cakṣu na śrotra na kraṇaṃ (!) na jihvā na kāyo na mano na rūpaṃ na śabdo va (?) gandho na raso na spraṣṭavya na dhamāḥ na cakṣudhātuḥ na rū-

(9) padhātuḥ na cakṣuvijñānadhātuḥ na śrātradhātuḥ (!) na śabdadhātuḥ na śrotravijñānadhātuḥ na ghrāṇadhātuḥ na gandhadhātuḥ na ghrāṇavijñănadhātuḥ na jihvādhātuḥ na rasadhātuḥ na jihvāvijñānadhā-

(10) tuḥ na kāyadhātuḥ na spraṣṭavyadhātuḥ na kāyavijñānadhātuḥ na manodhātuḥna dharmādhātuḥ na manovijñānadhătuḥ (?) yăvan nāvidyā nāvidyākṣayo yāvan na jarāmaraṇaṃ na jarāmaraṇakṣayaḥ

(11) na dukha na sanudayaḥ na nirodhah na māgaḥ (!) na rūpa na jñānaṃ na prāptiḥ nā āprāptiḥ (!) tasmāt tahi (!) Śāriputra aprāpti (?) yāvat Prajñāpavamitātāśritya (!) viharaś citālambanaṃ nāstitvāt

THE POSSIBLE SIGNIFICANCE OF HEISENBERG'S PRINCIPLE OF INDETERMINACY TO THE CHEMISTRY OF LIVING MATTER

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HEISENBERG'S principle of indeterminacy might be described as the impossibility of 'peeking in' without disturbing Nature. When we come down to the smallest particles, in physics, the mere fact of observation disturbs the circumstances of the particle.

An analogy may help to visualize this difficulty. Let us suppose one wants to measure the distance between two cannon balls resting on a plane horizontal surface. There is sufficient gravitational pull to prevent the balls from moving when a yardstick is gently applied. In this case, measurement is possible. Now, suppose that the measurements have to be made in a space where there is no gravitational field. At a mere touch, the balls start moving, and in vacuum would keep on moving. Here measurement becomes impossible. The same situation will result when extremely small balls are used.

Another illustration, already used by others, may be drawn from an entirely different field. Suppose we want to determine the colour of a substance which bleaches the moment it is exposed to light. Here again we meet the same difficulty: the very application of our tool for measuring disturbs the subject of our experiment.

These difficulties, no doubt inherent to our spatio-temporal definitions, have been felt for some time in an analogous way, by the investigators of the chemistry of living matter. Indeed some of the substances which have fallen into the hands of biochemists are extraordinarily sensitive and very difficult to measure. The problem is even wider than that, since biochemistry is only one of the tools that is used to acquire an understanding of living matter.

Among the methods of approach to this subject, used at present, is physiology, which inherited its methods from medicine. It thrives upon the unusual stability of life and the capacity of the organism to compensate any loss, and its ability of re-establishing any disturbed equilibrium. It uses the knife, if not exclusively, at least with great sagacity.

Another method of approach is essentially composed of the first method with chemistry and physics, but only formally so. From the physical standpoint it is entirely unique. It consists of isolating and studying what has been already isolated by Nature. This statement may seem a bit paradoxical, but as in all important contributions, its simplicity is its virtue.

Blood, being isolated in veins and arteries is a unique field for such an approach. It may be obtained and studied by vigorous methods of physical chemistry with the certainty that it was a part of living matter. In a less vigorous way, this method has been extended to the study of individual muscles and nerves.

The last method is a familiar one. It is the method of destruction. I was almost ready to say that it is inherent in our spatio-temporal co-ordinates. Perhaps it may be. In any case it is inherent in our curiosity and is early manifested by the desire to take apart a watch or bicycle. It is childish in its simplicity and therefore extremely powerful. It has more adherents than any other method. From the standpoint of classical physics (I mean the late nineteenth century physics) it is extremely sound.

Its nature may be summarized in a few words : take apart all things which constitute living matter and after learning their nature put them together again. This method at first sight does not seem to have any limitations : *all* particles may be taken apart and *all* put together. The first part of this approach has contributed voluminous and interesting material, but the second half, the ' putting things together ', has progressed but little. No doubt the difficulty lies partly in an insufficient knowledge of the various particles composing living matter, but we suspect that a considerable source of uncertainty arises from the far too rigorous methods used in their disintegration. There are too many ' missing links ' about which we know little or nothing.

The power of estimating things depends on our sensitivity. We are fairly well endowed in that respect. An extremely small amount of light is sufficient to stimulate our optical centers. The presence of a few molecules is sufficient to stimulate the sense of smell. With proper training we could probably carry a considerable part of organic analysis, merely by smell. In this respect the achievements of the most famous wine-tasters is worth considering.

By suitable mechanical appliances we have enormously extended our powers of observation. There is no doubt we can see and measure the path of a single electron. In the past fifty years we have discovered many phenomena whose existence we never suspected.

The principle of indeterminacy applies to us, by the mere fact that we belong to the material system. This statement leaves a wide gap between what is known of biochemical substances and what may be deduced from atomic physics. However, it is of use in trying to visualize what can be done by the method of ' taking things apart and putting them together again '. It is apparent, in this case, that all things cannot be taken apart without modifying them, for we are dealing with particles to which Heisenberg's principle wholly applies.

Let us investigate the reverse process :—synthesis. For this biochemists are no doubt responsible.

SIGNIFICANCE OF HEISENBERG'S PRINCIPLE

In early youth many of us practised the delicate art of building high towers from blocks. As far as my personal experience is concerned these attempts ended in the following way. A desire to build a higher and higher tower resulted in the last block crumpling the whole structure. Conversely the removal of a single block from the top of a high tower often brought about the same disastrous result.

The final stages of the synthesis of living matter may bring about a situation very like the one just described. Will not the last atom we attempt to add, modify the whole structure in an uncontrollable way? Or, in more general terms, will not our attempt to affect or modify, produce a change in the system which cannot be measured? The fact that we have built does not necessarily mean that we know how we have done it.

Heisenberg's principle and certain physical uncertainties which now confront modern physics may be of direct significance to the student of living matter. A lack of determinism in any description of the phenomenon of life may be in reality inherent to our way of looking at the physical world.

THE TIBETAN DIALECT OF LAHUL

By GEORGES DE ROERICH

Introduction

FOR some reasons the Tibetan dialect of Lahul in the N.W. Himālayas never formed the subject of a separate monograph similar to that on the Ladak dialect by the late Dr. A. H. Francke, although both H. A. Jaeschke and Francke made a prolonged stay in Lahul. The literature on the dialect is very scant. Jaeschke in his article 'Ueber die Phonetik der Tibetischen Sprache' (Monatsberichte der Koeniglich Preussischen Akademie der Wissenschaften zu Berlin, 1867, pp. 148 ff.) gave a short specimen of the dialect. In his Notes on the Pronunciation of the Tibetan Language (Journal of the Asiatic Society of Bengal, 1865, pp. 91 ff.) he gave a short list of words as pronounced in the Bunān dialect and the Tibetan dialect of upper Lahul, that is the upper course of the Bhāga river. The Introduction to his Tibetan-English Dictionary (London, 1881) contains a list of words in the Lahul dialect on pp. xvi and fl. His Tibetan Grammar (reprinted by Walter de Gruyter, Berlin, in 1929 with Addenda by the late Dr. A. H. Francke and Dr. W. Simon) frequently refers to the dialect of Lahul, although in most cases the examples quoted in the text are called West Tibetan, and no differentiation is made between the different dialects of the Western Tibetan group. The great Linguistic Survey of India contains in vol. III devoted to the Tibeto-Burman family of Languages, a brief notice on the Lahul dialect (pp. 69–71) in which it is said, that: 'no new materials have been forwarded for the purposes of this Survey. The Lahul dialect has, however, been mentioned and partly described by the late Rev. H. A. Jaeschke, and it will therefore be possible to make some few remarks which it is hoped will be sufficient to show how the dialect should be classed', and on p. 70 it is added that 'our information about the inflexion of nouns and verbs is exceedingly scanty. We only know that the usual suffix of the verbal noun is che.'

The scanty nature of our information on the dialect, and the fact that the little country of Lahul is situated on one of the most ancient routes into Tibet, induced the writer of the present study to undertake an examination of the dialect, and to collect specimens of colloquial and literary forms of the dialect. The first is represented by numerous sentences taken from the everyday speech of the Lahulī hillmen, and the second by several New Year songs and prayers, that represent the literary form of the dialect and belong to an older strata of the language. As in the case of the other Tibetan dialects, the literary form of the

Lahul dialect is closely related to the literary Tibetan and is only slightly tinted with colloquialism peculiar to Lahul. It seemed expedient to let the native informants talk, and record both phonetically and in Tibetan writing whatever they had to say. Another method is to give a Tibetan text, and ask the men to read it according to local pronunciation, but in this case we have always the danger, that the informants will try to conform as much as they can with the standard Tibetan pronunciation, which is that of Central Tibet, and which is known to most of the literate. The dialects of Central Tibet still exercise a powerful influence on the dialects of Outer Tibet, and each Lahulī hillman, who has visited Central Tibet or made a stay there, represents a channel through which this influence penetrates the local language. Lahulī lamas belonging to the 'Brug-pa bKa'-brgyud sect make frequent trips to Bhutan and Tibet proper, and often spend many years in the study of the Buddhist doctrine in some of the great centres of learning in the country. The result is that their speech becomes strongly tinted by that of Central Tibet, and exercises a considerable influence on the everyday speech of their countrymen. The Lahul dialect is important for the study of Tibetan linguistics because it represents a transitory stage between the dialects of the Western Tibetan group (Ladak, Zangskar, Baltī, Pūrig) and those of Spiti and sTod mN̊a'-ri skor-gsum, which have a close affinity to the dialects of Central Tibet. The dialect of Lahul preserves many archaic forms of Tibetan speech. Its transitory character has been already noticed in the Linguistic Survey of India, where it is described (Survey, vol. III, p. 69) 'as a kind of link between Western and Central Tibetan'. This transitory nature of the dialect is clearly demonstrated by the existence of two distinct pronunciations of many words: one corresponding to the Western Tibetan pronunciation, and the other approaching that of the Central Tibetan:—

Ex. དུས་ dus, 'time', Lah.[1] duĭ~dū; C.T. tū.

གོས་ gos 'garment', Lah.: goĭ~gō; C.T. kō.

སྨྲོན་ mgron 'festival', Lah. ḍʳon~ḍʳön; C.T. ḍʳǒ.

There exist two distinct sub-dialects of Tibetan in Lahul: that of Kolong, spoken in the upper Bhāga Valley, and around Kyelang, and that of Koksar in the upper Chandrā Valley. The first is commonly designated by the name of Toḍ-kaḍ (sTod-skad) 'the language of the upland', and is related to the sub-dialect of the Ladakī spoken in the upper Indus Valley above Sheh (called by the Rev. A. H. Francke the Rong dialect) and to that of Zangskar spoken around sPadum. Unfortunately our information about the Zangskar dialect is still very

1 Throughout the text Lah. stands for Lahul Tibetan; C.T. for Central Tibetan; L.T. for Literary Tibetan, and Ld. for Ladakī.

scant. The highly intersected nature of the country presupposes the existence of several sub-dialects within the area. The Rev. A. H. Francke has attempted to give a linguistic map of Western Tibetan area, according to the various local pronunciations of initial compound consonants, but much of Zangskar remains up-to now unknown territory.

The Koksar sub-dialect in many details agrees with that of Spiti, but its phonetic structure is influenced by the neighbouring Himālayan dialects, such as Tināṇ and Manchāṭī. At first one is tempted to class it as a branch of the Spiti dialect, but a closer investigation of its phonology shows its close affinity with the sub-dialect of Kolong in the upper Bhāga.

The Kolong sub-dialect has as its immediate neighbour the Bunān dialect. It is a noteworthy fact that the latter has been strongly influenced by Tibetan in phonetic structure, noun inflexion, and vocabulary, but its influence on Tibetan is almost negligible, being limited to a few loan-words. The advancing Tibetans must have possessed a higher level of civilization to influence the spoken idiom of the conquered hillmen.[1] The Rev. Jaeschke had already noted two very definite strata of Tibetan loan-words in Bunān:—

(1) loan-words in which the present Bunān pronunciation agrees with the Tibetan orthography, which in most cases represents the ancient Tibetan pronunciation,
(2) words in which the Bunān pronunciation agrees with that of standard Tibetan.

The ancient strata of Tibetan loan-words must have penetrated into the local dialect at an early date about the 8th century A.D., when Tibetan armed parties raided the valleys of Lahul and neighbouring Kuḷū, or even earlier. In this connection it is interesting to mention the popular tradition that King Kesar's armies occupied Kuḷū as far as Bajaura, but then were forced by climate to withdraw behind the Rothang Pass. Popular traditions about sacred books having been buried in stūpas around Lahul and upper Kuḷū during King Langdarma's persecution of Buddhism, seem to indicate a close connection that once existed between the Western Himālayan hill states and the countries of Greater Tibet.

The bulk of these loan-words with modernized pronunciation must have penetrated the aboriginal language, between the 12th and 17th centuries A.D., when Lahul formed part of the Western Tibetan Kingdom. This influx of Tibetan words continues into the present time.

[1] The neighbouring Himālayan dialects are full of Tibetan loan-words. In many of them the words underwent a change of meaning, being used to designate objects related to their original meaning. Ex. Kanāshī č^{i}e-ma, 'daughter' < Tib. č^{i}e-men, 'women'.

(Ex. I). Ancient loan-words :—

Bunān.	Lahul Tibetan.
g^{i}ogs-pa, quick	g^{i}og-pa.
gram-pa, cheek	ḍ^{r}am-pa.
sñiŋ-rus, courage	ñiŋ-rü.
dus, time	duĭ∼dū.
stan, carpet	tan.
stoŋ, thousand	toŋ.
spu, hair	pu.
p^{hi}ug-po, rich	č′ug-po.
brag, cliff	ḍ^{r}ag∼ṭ^{r}ag.
braŋ-sa, stage	ḍ^{r}aŋ-sa.
bri-, to write	ḍ^{r}i—.
zugs, body	zug.
ras, cloth	raĭ∼rē.
rigs, kind	rig.
rus-pa, bone	ruĭ-pa∼rū-pa.
sman, medicine	man.

(II). Modern loan-words :—

Bunān.	Lahul Tibetan.
ṭ^{r}'im, law	ṭ^{r}'im.
ḍ^{r}oĭ, advice	ḍ^{r}oĭ∼ḍ^{r}ō.
ǰ'uŋ-wa, origin	ǰ'uŋ-wa.

The Tibetan loan-words in Manchāṭī show the same division into two classes :—

(I). Ancient loan-words :—

Manchāṭī	Lahul Tibetan.
p^{hi}ag, hand	č′ag∼č′ag.
k^{i}on, damage	č^{i}on∼č′ön.

(II). Recent loan-words :—

Manchāṭī.	
či-lab, blessing	č′in-lab.
č'ag-ʦ'al', greeting	č′ag-ʦ'al'.

A similar phenomenon is observed within the Tibetan dialect of Lahul. Many words which in the everyday speech have a modernized pronunciation, retain their ancient pronunciation in songs which have a distinct pre-buddhistic background :—

Ex. བྲག brag, cliff is pronounced ḍ^{r}ag in everyday speech, but prag in songs.

Ex. བྲག་དམར་འདབས་བཞུད་བས། prag-mar daḅsu žug-wē, dwelling on the fiery rock.

བཀྲ་ཤིས། bkra-śis, 'hail', is usually pronounced ṭ^{r}a-śi (for example, when used as a personal name), but kra-śi in songs.

Before describing in detail the sounds of the Lahul dialect, let us note briefly its chief peculiarities in relation to the dialects of North-Western Tibet, and those of neighbouring Spiti. The phonetic structure of the Tibetan dialect of Lahul represents a stage in the phonetic development of Tibetan dialects which once was much more widely spread throughout the country, and is, for example, preserved in the archaic pronunciation of Tibetan words in Mongolian.

(1) The voiced pronunciation of unvoiced plosives. Ex. sku-rim, 'religious service, order' pronounced in Lahul (Koksar) gurim (Mongol pronunciation: gurim).

(2) A final -s becomes i. Ex. ཆོས་ čhos, 'religion, doctrine' pronounced in Lahul č'oĭ (Mongol pronunciation: čoĭ).

ལུས་ lus, 'body', Lah. luĭ (the C.T. pronunciation lū is also met with).

But ནས་ nas, 'barley' is always pronounced nē.

If the final -s is preceded by the vowel 'i', the final is dropped and the preceding vowel sound lengthened. Ex. རིས་ ris, 'figure', Lah. rī.

(3) The final -g and -d become indistinct semi-voiced which are noted by us -g̱ and -ḍ. Words ending in -g̱ are invariably pronounced with the rising tone and the final is frequently dropped.

Ex. ལག་པ་ lag-pa, 'hand' Lah. lag̱′-pa∼la′-pa.

ལུག་ lug, sheep, Lah. lug̱′∼lu′.

ཐོག་ thog, roof Lah. t^{h}og̱′∼t^{h}o′.

Words ending in -d are invariably pronounced with the falling tone, the final is frequently dropped, and the preceding vowel shorten:

Ex. ནད་ nad, disease, Lah. năḍ̀∼nằ.

མེད་ med, 'not', Lah. mĕḍ̀∼mĕ̀.

(4) Initial and final compound consonants are simplified, in general following the evolution of Central Tibetan. Compound consonants of the type of spr- are pronounced š^{r}, the second element being short. Ex. སྤྲིན་པ་ sprin-pa, 'cloud', Lah. š^{r}in-pa (the modern Tibetan pronunciation ṭ^{r}im-pa is also sometimes heard).

Velars, dentals and labials followed by 'r' become consonantal diphthongs, in which the chief element is a domal dental (voiced and unvoiced).

Ex. གྲི gri, 'knife', Lah. ḍ^{r}i.

ཁྲག khrag, 'blood', Lah. ṭ^{r}'ag'∼ṭ^{r}'a'.

ཕྲུ་གུ phru-gu, 'child', Lah. ṭ^{r}'u-gu.

བྲག brag, 'cliff', Lah. ḍ^{r}ag'∼ḍ^{r}a' (this word is sometimes pronounced as an initial unvoiced ṭ^{r}ag').

The final -s of the combinations -gs, -bs, -ms is usually dropped: ནགས nags, 'forest', Lah. nag, but in Koksar it developed a velar fricative pronunciation: naχ; ཐབས thabs, 'way, method', Lah. t'aḇ.

(5) A subscribed ya becomes a gliding vowel sound, noted by me: ^{i}, and often disappears altogether, softening (palatalizing) the preceding consonant.

Ex. བྱེ་མ bye-ma, 'sand', Lah. b^{i}e-ma∼b'ema.
(C.T. č^{i}e-ma∼č'e-ma).

ཕྱག phyag, 'hand', Lah. č'^{i}ag'∼č''ag∼č''a'.

བྱ་མོ bya-mo, 'hen', Lah. ǰ^{i}a-mo∼ǰ'a-mo.

ཁྱོད khyod, 'thou, you', Lah. k'^{i}oḍ.

Initial ya is often pronounced as h.

Ex. ཡིན yin, 'to be', Lah. hin.

ཡོབ་ཆེན yob-čhen, 'stirrup', Lah. hoḇ-č'en.

(6) The combination sr- is pronounced š^{r}–. Ex. སྲིན་མོ sriṅ-mo, 'female demon', Lah. š^{r}iŋ-mo.

(7) zl becomes a domal voiced ḍ. Ex. ཟླ་བ zla-ba, 'moon', Lah. ḍa-wa (C.T. ḍa-wa).

(8) The initial db- becomes, as in Central Tibetan, a semi-vowel 'w'. Ex. དབང་ dbaṅ, 'power, might', Lah. waŋ (C.T. waŋ).

(9) A final dental nasal is changed to a dental.

Ex. སེན་མོ sen-mo, 'nail', Lah. seḍ-mo;

ཆེན་མོ čhen-mo, 'great, big', Lah. č'ed-mo.

Minor peculiarities of phonetic structure will be noted in the chapter on Phonology.

Tones

Tibetan spoken dialects possess a definite system of tonemes. The different dialects and sub-dialects spoken in Tibet seem to agree on the main points of the system, and the only difference noticed lies in the distribution of the high and low pitch among the four fundamental tonemes of the system. As in ancient Chinese, all syllables with an initial unvoiced are generally pronounced with a high-pitched tone, and all syllables with an initial voiced with a low-pitched tone.

The Lahul Tibetan possesses four tonemes:

Toneme 1 High rising tone ལག་པ lag-pa, 'hand', pron. la′-(pa).

Toneme 2 High even tone གླགས glags, 'opportunity', pron. la¯.

Toneme 3 Low even tone ལགས lags, 'to be', pron. la¯.

Toneme 4 falling abrupt tone ལ la, 'pass', pron. la̗.

As a rule words ending in -g have invariably the high rising tone, and the final velar is often dropped:

ལུག lug, 'sheep', Lah. lug̲~lú; C.T. lu′.

དམག dmag, 'war', Lah. mag̲~ma′; C.T. ma′.

སྟག stag, 'tiger', Lah. tag̲~ta′; C.T. ta′.

Words ending in a nasal (-ṅ,-n,-m), in -l, -s, in more than one consonant (-gs, -bs, -ms), and vowels have the even tone:

ཁང་ khaṅ, 'house', Lah. k'aŋ¯; C.T. k'aŋ¯.

དོན་ don, 'meaning', Lah. dön¯; C.T. tǒ¯.

ལམ lam, 'road', Lah. lam¯; C.T. lam¯.

གྲོགས་པོ grogs-po, 'friend', Lah. ḍʳog̲¯-po¯; C.T. ʈʳo¯-po¯.

ཕེབས་པ phebs-pa, 'to come', Lah. p'eb̲¯-(pa); C.T. p'ep¯-(pa).

བསྡོམས་ལ bsdoms-la, 'altogether', Lah. dom¯-la; C.T. dom¯-la.

ཆོས chos, 'religion', Lah. č'oĭ¯; C.T. č'ŏ¯.

གྲལ gral, 'line', Lah. ṭ^{r}al$^{¯}$; C.T. ṭ^{r}e$^{¯}$.

གླུ glu, 'song', Lah. lu$^{¯}$; C.T. lu$^{¯}$.

Words ending in -d have invariably the falling abrupt tone:

ནད nad, 'illness', Lah. năḍ$^{`}$; C.T. nĕ$^{`}$.

མེད med, 'not', Lah. mĕḍ$^{`}$; C.T. mĕ$^{`}$.

སྣོད snod, 'vase', Lah. nöḍ$^{`}$; C.T. nö$^{`}$.

It is generally admitted that the tone of a word largely depends on the initial consonant, and that tones are often due to the disappearance of the prefixes. Tones began to develop as a result of the phonetic disintegration of the language. Moreover, it was observed that words preceded by a prefix were pronounced with a higher pitch than those without prefixes (this is the established rule throughout the spoken dialects of Tibet). It is as yet difficult to establish the date of this phonetic disintegration of the ancient Tibetan language. Recent researches have shown that the prefixes were already mute in the first half of the 9th century A.D. The important grammatical treatise, edited and translated by Professor Jacques Bacot, seems to indicate that the prefixes remained silent already in the time of Thonmi Sambhoṭa, that is in the 7th century A.D. (Cf. Bacot: Çlokas Grammaticaux. Paris, 1928, p. 55, n. 2.) It seems, therefore, that already in the 7th century A.D., from which century dates the first recording of the Tibetan language, we find ourselves in the presence of a highly evolved dialect with silent prefixes, still retaining the sonant pronunciation of initial and final consonants.

For the sake of comparison we shall show the five tonemes of the tone system of Central Tibetan, the most evolved of all the dialects of Tibet;

Toneme 1 High rising སྣེ sne, 'extremity', pron. ne$^{'}$

Toneme 2 High even གནས gnas, 'place', pron. ne$^{¯}$

Toneme 3 Low even ནས nas, 'barley', pron. ne$^{¯}$

Toneme 4 High falling tone གནད gnad, 'essence', pron, ne$^{`}$

Toneme 5 Low abrupt ནད nad, 'illness', pron. nĕ$^{!}$

It will be observed that the present system of tonemes in the spoken dialects of Tibet must represent a contracted form of a system which consisted of two main divisions: the high-pitched and the low-pitched, and which is a common heritage of all the Indo-Chinese languages.

Its close affinity to the system of high and low pitch tonemes of the ancient Chinese is manifest (Karlgren, Etudes sur la Phonologie Chinoise, Archives d'Etudes Orientales, vol. XV, 3, pp. 581–597). Modern Burmese presents a slightly different picture which in its chief characteristics agrees well with the above table of Tibetan tonemes. In Burmese there are four tonemes, each containing subsidiary members, with high and low pitch. (Cf. L. E. Armstrong and Pe Maung Tin: Burmese Phonetic Reader, London, 1925, pp. 19–26.)

It remains to be seen whether with the change of voiced initials to unvoiced in modern Central Tibetan, there did not take place a shift of pitch, with the result that ancient low pitched syllables with voiced initials, became in the modern language high-pitched syllables.

Phonology.

The Tibetan dialect of Lahul has the following plosive consonants:—k, k^h, k', g, g̲, b, b̲, p, p^h, p', t, t', d, d̲.

ཀ k(a)—unvoiced velar. When preceding the front vowels i, e, ö, ü has the sound of the English 'k' in 'skate'. Preceding the back vowels a, o, u, has a harder pronunciation, somewhat similar to the Russian 'k'.

Ex. རྐན་ rkan, 'palate', Lah. ken.

སྐར་མ་ skar-ma, 'star', Lah. karma.

སྐུ་རིམ་ sku-rim, 'service', Lah. kurim∼gurim (Koksar).

In individual pronunciation 'k' is frequently pronounced as the corresponding voiced 'g'. Ex. gurim.

ཁ kh(a) unvoiced aspirate velar. The Lahul dialect has two varieties of this sound: strong aspiration, written here k^h, and soft aspiration—k'.

Ex. ཁ kha, 'snow', Lah. k^hā. / C.T. k^ha-wa /.

མཁན་པོ་ mkhan-po, 'elder', Lah. k'en-po / C.T. k'em-po∼k'ę̄-po /.

ག g(a) voiced velar, has the sound of the French 'g' in 'gamin'. When in an initial position has a soft and hard pronunciations, depending on the nature of the following vowel, and is treated similarly to its corresponding unvoiced velar. As in Central Tibetan dialects, the pronunciation of this sound is still fluctuating. When standing as an initial without a prefix, it is sometimes pronounced as the corresponding unvoiced velar k. Ex. གོ་བ go-ba, 'to understand', pronounced in

Lah. ko-wa; C.T. ko-wa, but གོ་སྐ go-sa, 'rank' preserves in Lahulī the voiced pronunciation of the initial velar-go-sa (C.T. g̱o-sa, the voiced initial having become an indistinct voiced).

གུས་པ gus-pa, 'respect', Lah. guĭ-pa; C.T. gū-pa.

As a rule the presence of a prefix before the initial preserves its voiced pronunciation.

Ex. སྒོ sgo, 'door', Lah. go; C.T. go.

མགོ mgo, 'head', Lah. go; C.T. go, Ñaroň-ŋgo; it will be observed that in the Ñaroň dialect the pronunciation of the prefix is preserved but the prefixed labial nasal (m-) becomes a corresponding nasal velar.

g̱ is an indistinct voiced, and is usually heard at the end of words. Ex. ལུག lug, 'sheep', Lah. lug̱~lu'. As observed before it is often dropped.

The aspirated voiced velar 'gh' is found only in Sanskrit and other Indian loan-words.

བ b(a) voiced bilabial. In Lahul as in other Tibetan dialects has become an unvoiced bilabial, which is sometimes pronounced with a slight aspiration.

Ex. བ ba, 'cow', Lahul pa¯; C.T. pa.

བུ bu, 'son', Lahul p'u`; C.T. p'u`.

When preceded by a prefix it preserves its voiced character, often becoming an indistinct voiced. Ex. འབག 'bag, 'mask', Lahul ba'~ḇa'. The indistinct voiced is most frequently found at the end of a word.

Ex. ཐབ thab, 'stove', Lahul t'aḇ-(ka).

The aspirated voiced bilabial 'bh' is found only in Sanskrit and other Indian loan-words.

པ p(a) unvoiced labial, corresponds to the French 'p'. At times a slight aspiration p' is discernible.

Ex. པགས་པ pags-pa, 'skin, hide', Lah. pag-pa~pa-pa.

ཕ ph(a) strong aspirated unvoiced labial. The aspiration is distinctly heard.

Ex. ཕག phag, 'swine', Lah. p^hag~p^ha', but p^hag-mo, 'sow' under the influence of the following -m.

ཕ་ལམ pha-lam, 'diamond', Lah. p^ha-lam.

ཕུག་པ phug-pa, 'cave', Lah. p^hug'.

ཕེབས་པ phebs-pa, 'to come', Lah. p'eḇ-pa.

(but pf. ཕེབས་སོང་ phebs-soṅ, 'has gone, come', Lahul $p^heḇ$-soŋ, in the past tense the aspiration is always heard more distinctly.)

ཏ t(a) unvoiced front dental, often pronounced with slight aspiration.

Ex. རྟ rta, 'horse', Lah. ta.

གཏོང་བ gtoṅ-ba, 'to send', Lah. t'oŋ-wa.

ཐ th (a) the corresponding aspirated front dental, pronounced with a strong aspiration. Ex. ཐག་པ thag-pa, 'rope', Lahul t^hag'-pa~t^ha'-pa. མཐའ mtha, 'end', Lahul t^ha^-.

ད d(a) voiced front dental. In Lahul has preserved its voiced character. In Central Tibet is pronounced as a corresponding unvoiced (not aspirated). In most Tibetan dialects preserves its voiced character when preceded by a prefix.

Ex. དོན don, 'meaning, sense', Lah. dön~ḏön; C.T. tön~tȫ.

མདོ mdo, 'sūtra', Lah. do.

མདའ mda', 'arrow', Lah. dā; C.T. dā.

མདུང་ mduṅ, 'spear', Lah. duŋ.

འདོད་པ 'dod-pa, 'to wish', Lah. döḏ-pa; Ld. dod-pa; C.T. dö̂-pa.

དུང་ duṅ, 'conch', Lah. ḏuŋ~tuŋ; Ld. duŋ; C.T. ḏuŋ~tuŋ.

It will be observed from the above that the ancient category of voiced unaspirates developed in modern dialects into voiceless unaspirates, which in many

cases can be considered as semi-voiced. The category of ancient voiceless unaspirates developed into voiceless aspirates, that is:

b>b̥~p.
p>p‘.
g>g̥~k.
k>k‘.
d>d̥~t.
t>t‘.

Ex. བུ bu, ‘son’, Lah. pu; Ld. pu; C.T. pu.

པགས་པ pags-pa, ‘skin’, Lah. p‘ag̥-pa; Ld. p‘ag-pa; C.T. p‘ak-pa.

གངས gaṅs, ‘snow’, Lah. g̥aŋ~kaŋ; Ld. gaŋ; C.T. kaŋ.

ཀ་བ ka-ba, ‘pillar’, Lah. k‘a-wa; Ld. k‘a-wa; C.T. k‘a-wa.

ཀུན kun, ‘all’, Lah. k‘un (dialectically gun~gün); Ld. k‘un; C.T. k‘ün~k‘ṳ̄.

དོན་ doṅ, ‘pit’, Lah. d̥oŋ~toŋ; Ld. doŋ; C.T. toŋ.

དིབ་རིལ tib-ril, ‘tea-pot’, Lah. t‘ib̥-ril; Ld. t‘ib-ril; C.T. t‘ip-ri.

Affricates:—

ཅ č(a) unvoiced front-palatal, corresponding to the English ‘ch’ in ‘church’.

Ex. ཅི či, ‘what’?

č′ is a palatalized form of the preceding sound, representing the pronunciation of ཀྱ pya.

ཆ čh(a) unvoiced palatal aspirate. Ex. ཆོས čhos, ‘religion’, Lah. č‘oĭ: Ld. č‘os; C.T. č‘ō.

ཆུ čhu, ‘water’, Lah. č‘u; Ld. č‘u; C.T. č‘u.

č‘′ is a palatalized form of the preceding sound, and represents the pronunciation of the combination ཕྱ phya.

ཇ ǰ(a) voiced palatal. In the Lahul dialect preserves its voiced character. In Central Tibetan dialects this sound has almost generally become an indistinct voiced which in individual speech often sounds like an unvoiced front-palatal—č.

Ex. ཇོ་བོ ǰo-bo, ‘Lord’, Lah. jo-wo; Ld. ǰo-wo; C.T. ǰo-wo~čōo.

The evolution of the sound being as follows:

ǰ>ǰ>č.

ཇ ǰa, 'tea', Lah. ča; C.T. ča, but གསོལ་ཇ gsol-ǰa, Lah. sō-ǰa; C.T. sō-ǰa, honorific expression for tea; here the voiced pronunciation of the palatal is preserved probably under the influence of the preceding lateral.

After prefixes the old voiced pronunciation is preserved throughout the Tibetan dialects; རྗེ rǰe, 'Lord, venerable', Lah. ǰe; C.T. ǰē; Khams: ǰe; Ñaroṅ: ʳǰe (in the last case the prefix is indistinctly heard).

ǰ′ is a palatalized form of the preceding sound, and represents the pronunciation of ཉ ǰ^{i}a∼ǰ′a.

ཙ ʦ(a) front-dental, corresponding to the Russian ʦ in Central Tibetan. In the Lahul dialect became a dental spirant—s.

Ex. ཙམ་པ ʦam-pa, 'parched barley flour', Lahul sam-pa; C.T. ʦam-pa.

But ཙམ ʦam 'how much' has preserved in Lahulī the affricate character of the initial—ʦam.

རྩ rʦa, 'grass', Lah. sa; C.T. ʦa.

ཚ ʦh(a) strong aspirate front-dental.

Ex. ཚིག ʦhig, 'word', Lah. ʦ^{h}ig∼ʦ^{h}i′; C.T. ʦ^{h}ik.

ཚབ ʦhab, 'representative', Lah. ʦ^{h}ab̲; C.T. ʦ^{h}ap.

ཚུལ ʦhul, 'manner', Lah. ʦ^{h}ul′; C.T. ʦ^{h}ul′.

ཚུར ʦhur 'hither', Lah. ʦ^{h}ur; C.T. ʦ^{h}ur∼ʦ^{h}u.

ཛ ʣ(a) voiced front-dental. Ex. མཛེ mʣe, 'leprosy', Lah. ʣe; C.T. ʣe. In Western Tibetan dialects and in Lahul is generally pronounced as a voiced dental fricative—z. Ex. རྫུན rʣun, 'lie', Lah. zun; C.T. ʣün∼ʣṵ̃.

Fricatives: The Lahul dialect has the following fricative sounds: f, w, z, s, ž, š, ś, γ, χ, h and ĥ. f—is the labio-dental fricative pronunciation of, ཕ ph(a)

sometimes heard in individual speech. Ex. བསོད་ནམས་དབང་འཕེལ n.pr. bSod-nams dbaṅ- 'phel, Lah. Soḍ-nam waŋ-fel′; C.T. Sö-nam waŋ-p'el′.

w—a bilabial fricative. There exist two varieties of this sound in Lahul Tibetan.

(*a*) w-sound corresponding to the English 'w' in 'well, wall'.

(*b*) u̯—a non-syllabic u.

Ex. (*a*) དབང་ dbaṅ, 'power', Lah. waŋ; C.T. waŋ; the usual pronunciation of the particle བ ba, རྒྱལ་བ rgyal-ba, 'jina', Lah. g^{i}al-wa; C.T. ǰ^{i}e-wa∼ǰ^{i}al-wa.

(*b*) ཝ་རྩེ wa-rtse, 'fox', Lah. u̯a-tse; C.T. u̯a-mo. དབུལ་པོ dbul-po, 'poor', Lah. (Koksar sub-dialect) u̯al′-po; C.T. ul′-po.

(In the orthography of the IXth century the letter ཝ was written ྭ with a superadded ha-čhuṅ (ཧ་ཆུང་). This seems to indicate that in the ancient language the ྭ was pronounced hv(a), or perhaps ^{h}w(a), that is hv>^{h}w> w(a).)

ཟ z(a) voiced dental fricative, in Lahul has preserved its voiced pronunciation, whereas in Central Tibetan it is pronounced as an unvoiced fricative.

Ex. ཟ་ཆས za-čhas, 'foodstuffs', Lah. za-č'e.

གཟིག gzig, 'leopard', Lah. zig (C.T. siḳ).

གཟུག gzug, 'pain', Lah. zug (C.T. suk∼su).

ས s(a) unvoiced dental fricative. Ex. ས sa, 'earth', Lah. sa, (C.T. sa).

ཞ ž(a) voiced palatal, has preserved its voiced pronunciation in Western Tibetan and nomad dialects, whereas in Central Tibetan developed a corresponding unvoiced pronunciation.

Ex. གཞན་པ gžan-pa, 'other', Lah. žen-pa; C.T. šem-pa∼šē-pa; བཞི bži, 'four', Lah. ži; C.T. ši.

ž′(a) is a corresponding palatalized form of the preceding sound.

ཤ ś(a) unvoiced palatal, formed by the tongue-back (dorsum). This sound is often heard as a palatalized (soft) š'.

Ex. ཤ śa, 'meat, flesh', Lah. śa; C.T. śa.

γ, voiced velar fricative, is characteristic for the phonetic structure of the Lahul Tibetan: č'a-γen, 'I shall go', mostly met with between two vowel sounds.

χ, unvoiced velar fricative, somewhat similar to German 'ch' in ach, but harder. It is the usual pronunciation of the final—gs in the Koksar sub-dialect. Ex. ནགས nags, 'forest, Lahul (Koksar) naχ; ལེགས་མོ legs-mo, 'good', Lahul (Koksar) leχ-mo~ laχ-mo. This velar fricative in the Koksar sub-dialect of Lahul Tibetan is probably a phonetic loan from the neighbouring Manchāṭī dialect, where the sound is very common. In the adjacent Spiti dialect the final -gs is pronounced as written, རིགས rigs, 'kind'; Spiti rigs.

The Lahul dialect in common with the other dialects of Tibet has two kinds of guttural spirants :

(*a*) འ a soft guttural spirant whose pronunciation varies according to dialects, in some it has developed a nasal pronunciation, while in others it was softened to a semi-vowel. In many dialects the pronunciation of the 'a-čhuṅ has disappeared, and the initial is treated either as a pure vowel, or very similarly to the French *homme* pronounced om, and the Italian *uomo* < *Lat. homo.*

The Tibetan grammarians call it འ་ཆུང་ 'a-čhuṅ, 'soft aspiration'.

In the modern dialect of Tibet the འ serves to denote a whole series of phonemes (vowel, fricative and nasal).

The Rev. Jaeschke, in his Tibetan Grammar, p. 4, described this sound as 'a mere vowel without that audible opening of the throat (as Arabic ا without ء)'. C. L. M. Clauson and S. Yoshitake in their recent study of the phonetic values of the characters ཨ and འ (Journal of the Royal Asiatic Society, 1929, pp. 843 ff.) describe the primary phonetic value of འ as the smooth vocalic ingress, as opposed to ཨ which represents the glottal stop or hamza. As a suffix it is a mere conventional scription with a reminiscence of its original function of lengthening the vowel. As a prefix it was originally probably a very short vowel which has since disappeared, and in some cases it has a slight nasal value. The authors did not

discover any consistence in the use of ཨ and ཧ in the 'Phags-pa alphabet, apart from the usage of ཧ to indicate long vowels.

A comparative study of different Tibetan dialects makes it possible to establish the nature of this elusive sound of Tibetan speech. Such a comparative study tends to show that the ཧ represented originally a soft guttural fricative which in some dialects was strengthened to a nasal, and in others became a semi-vowel. Foucaux was not far from truth when he wrote in his Grammar ' ཧ est l'aspiration douce de h, aspiration qui se resout quelquefois en une sorte de n ' (Foucaux, Gram. Tibét., p. 5).

In modern speech the ཧ has the following usages :—

(1) In some dialects has the sound of a soft guttural fricative :

འུག་པ ug-pa, ' owl ', Lahul (Koksar) hug-pa ; C.T. uk-pa~ᵘuk-pa ;

འོ་མ o-ma, ' milk ', Lahul (Kolong) o-ma, Lahul (Koksar) ho-ma ; C.T. o-ma~ᵘo-ma. In Khams it developed a velar fricative pronunciation : o-ma.[1]

(2) In some dialects the ཧ has the sound of a semi-vowel :

འོག་ལ og-la, ' under, beneath ', Lahul ⁱog-la ; C.T. hog-la~ᵘo-la ; Khams hog-la ; ཨུར ur, ' noise ', Lahul hur ; C.T. ur~ᵘur ; Khams hur.

(3) When met with as a prefix of the second word in a compound has frequently a nasal pronunciation, and in Central Tibetan dialects nasalizes and lengthens the preceding vowel :

དགེ་འདུན dge-'dun, ' Saṁgha ', Lah. gendun ; C.T. gen-dün-~gḛ-dṵ̄.

བཀའ་འགྱུར bka-'gyur, ' Kangyur ', Lah. Kangⁱur ; C.T. Kän-ǰⁱur~ Kä̱-ǰ'ür.

In Khams dialects the prefixed ཧ develops a nasal pronunciation, which corresponds to the class of the following initial :

[1] In the Pūrig dialect the prefixed ཟ has developed a dental fricative pronunciation, having become z. Ex. ᶻbri-čăs, to write, Lahul ḑʳi-čē, C.T. ṭ̣ʳi-wa (ṭ̣ʳi-wa is properly speaking the pronunciation of the past tense stem, which is regularly used in colloquial Tibetan instead of the present tense stem ḑʳi-wa, representing the pronunciation of 'bri-ba.

(*a*) becomes a velar nasal before ཁ kh(a), ག g(a);

(*b*) becomes a dental nasal before ཆ čha, ཇ ǰa, ཐ th(a), ད d(a), ཚ ʦha, and ཛ ʣ(a).

(*c*) becomes a labial nasal before ཕ ph(a), and བ b(a).

(4) It is observed in colloquial Tibetan that a consonant following a prefixed འ retains its voiced character [1]:

འདི་ 'di, 'this', Lah. di; C.T. ḍi`.

(5) The prefixed འ influences the tone of the word. Words preceded by it have invariably a high tone. Ex. 'di, 'this', pronounced in C.T. with the high falling tone.[2]

(6) At the end and inside words, the འ lengthens the preceding vowel sound, both in Tibetan and foreign loan-words:

ནམ་མཁའ་ nam-mkha', 'sky', Lah. nam-k^{h}ā; C.T. nam-k^{h}ā.

རྒྱལ་ rā-ʣa, Skrt. rāja, Lah. rā-ʣa; C.T. rā-ʣa.

དགའ་ dga', 'delight, joy', Lah. gā; C.T. gā.

དམའ་ dma', 'low', Lah. mā; C.T. mā.

Such words as སྒྲ sgra, 'sound', དགྲ dgra, 'enemy', འདྲ 'dra, 'similar', pronounced in modern colloquial ḍ^{r}ā, were written in ancient orthography སྒྲའ་ དགྲའ་ འདྲའ་.

According to native grammarians the འ at the end of words was originally pronounced as a soft and indistinct 'h', which afterwards disappeared, and the preceding vowel became long.

[1] According to native Tibetan grammarians a prefixed འ enhances the sonority of the following consonant.

[2] Cf. the Siamese mute 'h' which belong to the class of high letters ('akṣor sūŋ) and raises the tone of the word (Schrader, Asia Major, III, p. 32).

When the འ stands between two vowel sounds, neither 'élision' nor 'liaison' take place. Ex. འགྲོ་འོ 'gro'o, pron. ɖʳoo ; འགྲོ་འམ gro'am, pron. ɖʳoam. This absence of 'élision' and 'liaison' shows that we have to do here with an ancient h-sound.

The འ in declensional endings, such as འི has a vowel value.

Ex. ཁང་པའི khaṅ-pa'i, 'of the house', pronounced k'aŋ-pēĭ, ēĭ being a falling diphthong, with the first element long, and the second short ; རྟའི rta'i, 'of the horse', pron. tēĭ.

In the Koksar sub-dialect of Lahul-Tibetan the fricative pronunciation of the འ has survived : རྟའི tahi, 'of the horse' ; ངའི ŋa-hi, 'mine' ; C.T. ŋēĭ.

(*b*) ཧ fia, a guttural spirant (hard), corresponding to the Sanskrit ह fia.

Ex. ཧོར Hor, name of a tribe in North-East Tibet, pron. Lahul fior ; C.T. fior.

The Lahul dialect has the following nasals :—

ང་ ṅ(a) back-velar nasal, formed by the tongue-back and the soft palate or velum. When at the beginning of words pronounced always with a strong stress :

Ex. ངག ṅag, 'speech', Lah. ŋag ; C.T. ŋak~ŋa.

ང་ ŋa, 'I', Lah. ŋa ; C.T. ŋa, pronounced with the low falling tone.

ལྔ་ lṅa, 'five', Lah. ŋa ; C.T. ŋa, pronounced with the high falling tone.

At the word end has the sound of the English -ng.

Ex. དབང་ dbaṅ, 'power', Lah. waŋ ; C.T. waŋ.

ཉ ñ(a) mid-palatal nasal.

Ex. ཉ ña, 'fish', Lah. ña ; C.T. ña. Retains its pronunciation throughout the Tibetan dialects.

ན n(a) front-dental nasal, corresponds to the Russian 'n.' Ex. ན་བ na-ba 'illness', Lah. na-wa ; C.T. na-wa.

མ m(a) nasal bilabial, corresponds to the English ‘m’ in ‘man’.

Ex. སྨན་པ sman-pa, ‘doctor’, Lah. men-pa; C.T. mem-pa.

The Tibetan language moreover possess a series of voiced semi-nasal, such as འབ འད འག or m͜b, n͜d, ŋ͜g. These have been dealt with in the paragraph about the ’a-čhuṅ.

The Lahul dialect has two kinds of lateral sounds:

ལ l(a) which corresponds to the latin ‘l’, and the palatalized or soft l′, mostly found at the word end:

Ex. ལུང་པ luṅ-pa, ‘country’, Lah. luŋ-pa; C.T. luŋ-pa.

ཡུལ yul, ‘country’, Lah. jul′; C.T. jul′.

Rolled:—

ར r(a) has the sound of the English ‘r’ in ‘rat’. In Lahul Tibetan it is often preceded by a fricative sh-sound, or its corresponding voiced—ž:

Ex. རི ri, ‘mountain’, Lah. $^{\check{s}}$ria; C.T. ri.

ར ra, ‘goat’, Lah. ra; C.T. ra.

རེའུ re’u, ‘young goat, kid’, Lah. $^{\check{z}}$riu.

ཡ ya is a palatal sound formed by the tongue-front and the hard palate:

Ex. ཡུལ yul, ‘country’, Lah. jul′; C.T. jul′.

ཡག་པོ yag-po, ‘good’, Lah. jag-po; C.T. jak-po.

ཨ a represents the glottal stop. Ex. ཨེམ་ཆི emčhi, ‘doctor’, Lah. ʔemčʻi; C.T. ʔemčʻi∾ʔamčʻi.

In addition to the above sounds, the Tibetan language has a series of sounds which can be described as consonantal diphthongs with a very short second element. There exist both voiced and unvoiced in this class of sounds. It seems probable that these sounds have passed through an affricate stage before they reached the present domal stage found in Central Tibetan. Their evolution can be represented as follows:—

གྲ gr(a)>Kham. ǰ^{r}(a)>W.T. ḍ^{r}(a)>C.T. ḍ(a).

ཀྲ kr(a)>Kh. čʳ(a)>W.T. ʈʳ(a)>C.T. ʈ(a).

ཁྲ khr(a)>Kh. čʳʿ(a)>W.T. ʈʳʿ(a)>C.T. ʈʿ(a).

The combinations འྲ 'dra, འབྲ 'bra have become ɖʳa∼ɖa; ད্র dra, ব্র bra, প্র pra developed into ʈʳa∼ʈa, and ফ্র phra became ʈʳʿa∼ʈʿa. From the above table of the evolution of the sounds of this class in the most important dialect groups of Tibet, it will be observed that these consonantal diphthongs consist of a voiced or unvoiced domal as first element, followed by an indistinct rolled element which is in the process of wearing out. In some localities in Central Tibet / the province dbUs / the second element has almost disappeared and the diphthong became a domal ɖ or ʈ. In Lahul Tibetan the pronunciation of these consonantal diphthongs seems to fluctuate, and the first element of the diphthong often becomes an affricate, as in the Khams dialect: ཁྲ་བོ Khra-bo, 'piebald', Lahul čʳʿa-wo∼ʈʳʿa-wo.

Vowels

The Lahul dialect has the following vowel sounds:—

Back vowels: a, o, u.
Front vowels: ä, e, i, ö, ü.

A. The vowel 'a' is an open sound similar to the oneheard in Italian. ā is the corresponding long. ă is a very short reduced a-sound sometimes heard at the end of words.

Ex. ཨ་རུ aru, 'potato' / Hindi ālū / Lah. aru∼alu.

སྐར་མ skar-ma, 'star', Lah. kar-ma.

བཀའ bka', 'order', Lah. kā; C.T. kā.

ནམ་མཁའ nam-mkha', 'sky', Lah. nam-kʰā.

བཀའ་གསལ bkā'-gsal, 'yes', Lah. kās∼kāsă; Sikkim kāsĕ.

O. The vowel 'o' is an open sound similar to the Italian 'o', and often pronounced long.

Ex. ལོ lo, 'year', Lah. lo.

སྒོ sgo, 'Door', Lah. go.

རྨོག་མ rṁog-ma, 'mane', Lah. ŋo-ma.

ཐོག thog, 'roof', Lah. $t^{h}o'$.

Lahul pistōl', loan-word, represents the English pistol.

U. The vowel 'u' is similar to the Italian sound. ū is the corresponding long.

Ex. གླུ glu, 'song', Lah. lu.

ལུག lug, 'sheep', Lah. lu.

མདུན་ mduṅ, 'spear', Lah. duŋ.

ཀླུ klu, 'nāga', Lah. lu.

Ä. The vowel 'ä' represents a sound somewhat less open than the German 'ä' in Bär.

Ex. བསྡད་མཁན bsdad-mkhan, 'dweller, resident', Lah. däd-k'en; C.T. de-k'ę̄; སྨན sman, 'medicine', Lah. män∼men; C.T. men∼mę̄.

E. The vowel 'e' has the narrower Italian sound. ē is the corresponding long, ĕ a very short reduced sound, sometimes heard at the word end.

Ex. མེ me, 'fire', Lah. me; C.T. me.

རྩེ་ཆེས rtse-čes, 'to play', Lah. se-čē; C.T. ʦe-wa.

རས ras, 'cloth', Lah. rē.

I. The vowel 'i' corresponds to the Italian sound.

Ex. རི ri, 'mountain', Lah. ri.

རིན rin, 'price', Lah. rin.

གླིན་ gliṅ, 'country', Lah. liŋ.

ཞིན་ žiṅ, 'field', Lah. žiŋ.

Ö. The vowel 'ö' is somewhat similar to the English sound in 'lunch' and much less open than the German 'ö'.

Ex. ཁོ་ལ་ཡོད kho-la yod, 'he has', Lah. $k^{h}o$-la jöḍ.

མགྲོན mgron, 'festival occasion', Lah. ḍ^{r}ön; C.T. ḍ^{r} ō̤.

Ü. The vowel 'ü' corresponds to the sound of French 'u' in 'lune'. This sound was originally absent in the speech of the Lahul hillmen, and probably introduced under the influence of Central Tibetan dialects.

Ex. ཁྲུས་གསོལ khrus-gsol, 'baptism', Lah. ṭʳ'ü-sol'.

Besides the above vowel sounds the Lahul dialect has the following falling diphthongs aĭ, eĭ, and uĭ.

Ex. ཆོས čhos, 'religion', Lah. č'oĭ.

གུས gus, 'respect', Lah. guĭ.

དུས dus, 'time', Lah. duĭ.

Besides these vowels, the Lahul dialect in common with other Tibetan dialects has a very reduced gliding i-sound; which is met with in the following combinations: ^{i}a, ^{i}e, ^{i}u, and ^{i}i.

Ex. རྐྱང་ rkyaṅ, 'Equus hemionus', Lah. k^{i}aŋ; C.T. k^{i}aŋ∼ʦ^{i}aŋ.

རྒྱོང་ gyoṅ, 'obstinate', Lah. k^{i}oŋ; C.T. k^{i}oŋ∼č'oŋ.

བརྒྱད brgyad, 'eight', Lah. g^{i}eḍ; C.T. g^{i}e.

རྒྱུད rgyud, 'TANTRA', Lah. g^{i}uḍ; C.T. ǰ^{i}uḍ>ǰ'üḍ>ǰ'ŭ.

ཀྱི གྱི kyi, gyi, Genitive suffixes, Lah. k^{i}i, g^{i}i; C.T. k^{i}i, g^{i}i.

The Lahul dialect possesses no nasal vowels, the nasal consonants at the end of syllables being distinctly pronounced:

Ex. མཁན་པོ mkhan-po, 'abbot, elder', Lah. k'en-po; C.T. k'ẽ-po.

བདུན bdun, 'seven', Lah. dun; C.T. dün∼dṹ.

དོན don, 'meaning', Lah. don; C.T. tön∼tṍ.

Morphology

I. Noun

Our grammatical categories can hardly be applied to Tibetan in common with the other languages of the Tibeto-Burman family. There is no real distinction between different classes of words, and the same word can be used as a noun, an adjective, or a verb—all depends on its position in the sentence. These facts are well known, and need not be mentioned here at great length. In the Lahul

dialect of Tibetan in common with the other Tibetan dialects, the nouns have no grammatical gender. To designate masculine and feminine gender of animal beings, the language uses two different ways of expressing the notion of the gender:

(1) By using different words:

རྟ rta, 'horse'.

གསེབ gseb, 'stallion', Lah. seḇ.

རྒོད་མ rgod-ma, 'mare', Lah. göḏ-ma.

(2) or by adding words meaning 'male' and 'female' respectively:

ཁྱི khyi, 'dog', Lah. k'^{i}i; C.T. k'^{i}i∾č^{i}i.

ཁྱི་ཕོ khyi-pho/also pho-khyi/ 'male dog', Lah. k'^{i}i-p'o.

ཁྱི་མོ khyi-mo/also mo-khyi/ 'bitch', Lah. k'^{i}i-mo.

A number of suffixes are added to the noun-stem, and give it a distinct nominal aspect, forming derivative nouns (pa, ba, ma, po, bo, mo; ka, kha, ga).

Number does not affect the structure of the noun, and plurality is expressed by affixing words which originally were nouns themselves with a notion of plurality. In Lahul, in common with the other dialects of Western Tibet, the literary Tibetan plural signs: རྣམས rnams, དག dag, ཚོ and ʦho (the last is generally used in C.T.) are never used, the idea of plurality being expressed by such words as: ཐམས་ཅད thams-čad, 'all', ཚང་མ ʦhaṅ-ma, 'all', ཀུན kun (pronounced gün) 'all', མང་པོ maṅ-po, 'many', ཁ་ཅིག kha-čig, pronounced k'a-śig, 'several, some', or by adding numerals: two men, four men, etc.

Ex. མི་ཚང་མ mi-ʦhaṅ-ma, lit. 'all the men'—men.

རྟ་ཀུན rta-kun, 'horses', Lahul ta-gün.

ཡུལ་མི་ཐམས་ཅད yul-mi thams-čad, 'countrymen', Lah. jul'-mi t'am-čaḏ.

The declension in Lahul Tibetan is effected by means of postpositions, which are added to the noun-stem without changing it, except in the spoken

language, where the vowel sound of a noun ending in a vowel is changed under the influence of the following postposition. The euphonic rules governing the use of postpositions in Central Tibetan, are not strictly applied in Lahul Tibetan, and there exists a slight difference in the pronunciation of the post-positions between the Kolong and Koksar sub-dialects. This slight difference is made clear in the following examples of noun declension.

Declensional Postpositions
in
Lahul Tibetan

Nom. Acc. correspond to the stem.
Gen. (Kolong) aĭ, eĭ, uĭ, oĭ; kʲi, gʲi, gi.
(Koksar) hi (after vowel endings) and -i (after consonantal endings).
Instr. (Kolong) aĭ, eĭ, uĭ, oĭ; ē, ī, ō; kʲī, gʲī, gī.
(Koksar) hi, su, si.
Dat. la in both sub-dialects.
Abl. (Kolong) nē.
(Koksar) nā, ʦa-na, saŋ.
Loc. (Kolong) la, ru, su.
(Koksar) la, ru, su.
Voc. prefixes the exclamation kye, pron. kʲe.

Kolong

རྟ rta, 'horse'.

	Singular		Plural	
Nom.	རྟ rta, ta.	'horse'.	རྟ་མང་པོ་	rta-maṅ-po, ta maŋ-po.
Gen.	རྟའི་ rta'i, taĭ.	'of the horse'.	རྟ་མང་པོ་འི་	rta maṅ-po'i, ta maŋ-poĭ.
Instr.	རྟས་ rtas, taĭ~tē.	'by the horse'.	རྟ་མང་པོས་	rta-maṅ-pos, ta maŋ-poĭ.
Dat.	རྟ་ལ་ rta-la, ta-la.	'to the horse'.	རྟ་མང་པོ་ལ་	rta-maṅ-po-la, ta maŋ-po-la.
Abl.	རྟ་ནས་ rta-nas, ta-nē.	'from the horse'.	རྟ་མང་པོ་ནས་	rta-maṅ-po-nas, ta-maŋ-po-nē.
Loc.	རྟ་ལ་ rta-la, ta-la.	'on the horse'.	རྟ་མང་པོ་ལ་	rta-maṅ-po-la, ta-maŋ-po-la.
Acc.	རྟ rta, ta.	'horse'.	རྟ་མང་པོ་	rta-maṅ-po, ta-maŋ-po.

It will be observed from the above that the Genitive and the Instrumental, although having distinct forms in the written language, have developed a similar pronunciation in the colloquial, and are differentiated only by the more literate

ones. The Dative and Locative are similar in form, and are differentiated by the context. Instead of the plural form ta-maŋ-po 'horses' the form ta-gün is frequently used.

Koksar

	Singular	Plural
Nom.	རྟ rta, ta.	རྟ་ཀུན rta-kun, ta-gün.
Gen.	རྟའི rta'i, ta-hi.	རྟ་ཀུན་གྱི rta-kun-gyi, ta-gün-hi.
Instr.	རྟས rtas, ta-hi.	རྟ་ཀུན་གྱིས rta-kun gyis, ta-gün-hī.
Dat.	རྟ་ལ rta-la, ta-la.	རྟ་ཀུན་ལ rta-kun-la, ta-gün-la.
Abl.	རྟ་ནས rta-nas, ta-na.	རྟ་ཀུན་ནས rta-kun-nas, ta-gün-na.
Loc.	རྟ་ལ rta-la, ta-la.	རྟ་ཀུན་ལ rta-kun-la, ta-gün-la.
Acc.	རྟ rta, ta.	རྟ་ཀུན rta-kun, ta-gün.

Similarly to the Kolong sub-dialect, the Genitive and Instrumental exhibit a similar form: ta-hi, ta-gün-hi. Note ta-gün instead of ta-kun: the unvoiced velar is here changed to a voiced velar, as is usually the case when standing between two vowel sounds.

Kolong

	Singular	Plural
Nom.	མི mi, mi.	མི་ཚང་མ mi-tshaṅ-ma, mi-ts'aŋ-ma.
Gen.	མིའི mi'i, miĭ~mī.	མི་ཚང་མའི mi-tshaṅ-ma'i, mi-ts'aŋ-maĭ~meĭ.
Instr.	མིས mis, mī.	མི་ཚང་མས mi-tshaṅ-mas, mi-ts'aŋ-maĭ~meĭ.
Dat.	མི་ལ mi-la, mi-la.	མི་ཚང་མ་ལ mi-tshaṅ-ma-la, mi-ts'aŋ-ma-la.
Abl.	མི་ནས mi-nas, mi-nē.	མི་ཚང་མ་ནས mi-tshaṅ-ma-nas, mi-ts'aŋ-ma-nē.
Loc.	མི་ལ mi-la, mi-la.	མི་ཚང་མ་ལ mi-tshaṅ-ma-la, mi-ts'aŋ-ma-la.

Koksar

	Singular	Plural
Nom.	མི mi, mi.	མི་ཚང་མ mi-tshaṅ-ma, mi-ts'aŋ-ma.
Gen.	མིའི mi'i, mihi.	མི་ཚང་མའི mi-tshaṅ-ma'i, mi-ts'aŋ-mi.

	Singular		Plural	
Instr.	མིས་ mis, mi-hi.	མི་ཚོང་མས་	mi-ʦhaṅ-mas,	mi-ʦ'aŋ-ma-hi.
Dat.	མི་ལ་ mi-la, mi-la.	མི་ཚོང་མ་ལ	mi-ʦhaṅ-ma-la,	mi-ʦ'aŋ-ma-la.
Abl.	མི་རྩ་ནས་ mi-ʦa-nas, mi-ʦa-na.	མི་ཚོང་མ་ནས་	mi-ʦhaṅ-ma-nas,	mi-ʦ'aŋ-ma-na.
Loc.	མི་ལ་ mi-la, mi-la.	མི་ཚོང་མ་ལ	mi-ʦhaṅ-ma-la,	mi-ʦ'aŋ-ma-su.

The Adjective

Adjectives do not differ in form from the nouns. They usually follow the noun they qualify, and this is especially true of the stems that have primarily an adjectival meaning, such as adjectives denoting colour, moods, etc.

Ex. རྟ་དཀར་པོ་ rta-dkar-po, 'white horse', Lah. ta-kar-po.

Adjectives formed from nouns usually precede the noun they qualify, and are put in the Genitive case:

གྲོང་པའི་ལམ་ groṅ-pa'i lam, 'village road', Lah. ḍ^{r}oŋ-peĭ lam.

རྒྱལ་པོའི་ཕོ་བྲང་ rgyal-po'i pho-braṅ, 'the King's palace', Lah. g^{i}al-poĭ p'o-ḍ^{r}aŋ.

The comparison is effected by adding the particle saŋ, instead of བས་ bas, and ལས་ las, to the compared word: ʔi-saŋ ʔi g^{i}alla dug, 'this is better than that'. The superlative is formed with the particle mā which usually precedes the adjective (Jaeschke, p. 28, thinks that mā is a mutilated form of maṅs, 'much'. This particle is sometimes pronounced mar, mar g^{i}alla, 'excellent', and possibly represents དམར་པོ་ dmar-(po), in the sense of 'bright, good'), or by special construction, such as t'am-čaḍ-saŋ ʔi g^{i}alla dug, 'this is the best of all'. The word མང་པོ་ maṅ-po, 'much, many' is sometimes used to denote a degree of comparison.

Kolong: ŋēĭ pün ŋa-saŋ gaḍ-po jöḍ, 'my brother is older than I'.

Koksar: ŋaĭ ačo gaḍ-po maŋ-po gē-dug, 'my brother is much older'.

Koksar: ŋaĭ ačo ŋa-saŋ č'en-mo hin, 'my brother is older than I'.

Kolong: ʔi-ṭ^{r}u-gu-naŋ-nē śug-šen su dug, 'who is the strongest of these boys?'

Koksar: de-ʦam ṭ^{r}u-guĭ naŋ-na śe-č'en su do, 'who is the strongest of these boys?'

The superlative is sometimes formed by adding the word འཇིགས་པོ་ 'jigs-po, pronounced žiχ-po, 'fearful, tremendous' in the sense of 'very, exceedingly'.

Koksar: ta sumi naŋ-na p'o-k^{i}ao-de žiχ-po č'en-mo hin, 'out of the three horses that light-grey gelding is the biggest'.

Koksar: ŋaĭ ačo mi-ʦ'aŋ-ma-saŋ č'uk-po žiχ-po hin, 'my elder brother is the wealthiest of all men'.

Pronouns

The system of pronouns of the Lahul dialect in general follows that of the other Tibetan dialects with slight dialectical differences. It is intimately related to the pronominal system of the West Tibetan group of dialects. It will be observed that the pronominal system of the Kolong sub-dialect has preserved more of the literary forms, and is closely related to that of the neighbouring Zangskar dialect. The Koksar sub-dialect is more aberrant, although presenting essentially the same features. The grammatical gender is not distinguished in the pronouns. The personal pronouns are:

First person: ང་ ňa, 'I', pronounced ŋa; ངེད་ ňed, pronounced with an initial palatal nasal ñe∼ñe-raŋ (a form ŋa-taŋ is used according to Dr. Francke in an inclusive sense, and ŋa-ža in an exclusive sense. Cf. Jaeschke's Tibetan Grammar, p. 129 (Addenda by the Rev. Francke and Simon).

The form ཨ་བོ་ a-bo, pron. ʔa-wo, 'self, I', should be noted. Also, ʔa-wo-raŋ, 'myself, ourselves'.

Second person: ཁྱོད་ khyod, 'thou', pronounced k'^{i}oḏ, frequently the form k'^{i}oḏ-raŋ is used, which represents the emphatic form 'thyself'.

Third person: ཁོ་ kho, 'he, she', pronounced k^{h}o; the emphatic form k^{h}o-raŋ, 'himself' is frequently used in conversation. ཁོང་ khoň, pronounced k'oŋ, is used in polite conversation.

The plural is formed by adding the particles ཅག་ čag, pron. ča, and ža in the Kolong sub-dialect, and ža in the Koksar sub-dialect.

Ex. Kolong: ŋa-ča∼ŋa-ža, 'we'. Cf. Zangskar: ŋa-ča.
Koksar: ŋa-ža, 'we'.

The form o-χaḏ, 'we' is sometimes used in the Koksar sub-dialect.

Frequently the word ཐམས་ཅད་ thams-čad, 'all' is added to ང་ཅག་ ŋa-ča(g) to form the plural:

Kolong: ŋa-ča t'am-čaḏ lug ma saḏ – 'we did not kill the sheep'. For the second person plural k'^{i}oḏ and k'^{i}oḏ t'am-čaḏ are used in ordinary speech.

The Koksar sub-dialect has the form k'^{i}o-ž'a. A more polite expression for 'you' is k'^{i}in, which is probably a dialectical pronunciation of the literary form ཁྱེད་ khyed, 'you'. Cf. C.T. k'^{i}ę.

The third person plural is expressed by the form ཁོ་པ་ kho-pa, k^{h}o-pa. In Koksar the forms k^{h}o-ža and k^{h}o-wa are ordinarily met with.

The pronominal declension in Lahul Tibetan follows that of the nouns.

Kolong

	Singular		Plural	
N. Acc.	ང་	ňa, ŋa. 'I'	ང་ཅག	ňa-čag, ŋa-ča.
Gen.	ངའི	ňa'i, ŋēĭ.	ང་ཅག་གི	ňa-čag-gi, ŋa-čēĭ.
Instr.	ངས	ňas, ŋē.	ང་ཅག་གིས	ňa-čag-gis, ŋa-ča-gī.
Dat.	ང་ལ	ňa-la, ŋa-la.	ང་ཅག་ལ	ňa-čag-la, ŋa-ča-la.
Abl.	ང་ནས	ňa-nas, ŋa-nē.	ང་ཅག་ནས	ňa-čag-nas, ŋa-ča-nē.
Loc.	ང་ལ	ňa-la, ŋa-la.	ང་ཅག་ལ	ňa-čag-la, ŋa-ča-la.

It will be observed that the case endings are attached in the plural to the stem ŋa-ča (gen. plur. ŋa-čēĭ, instead of ŋa-čag-gi), and the only trace of the final -g is found in the instr. plur. ŋa-ča-gī, instead of the expected ŋa-čē.

Koksar

	Singular	Plural
N. Acc.	ŋa.	ŋa-ža.
Gen.	ŋaĭ.	ŋa-žeĭ~ŋa-ži.
Instr.	ŋa-hi.	ŋa-ža-hi.
Dat.	ŋa-la.	ŋa-ža-la.
Abl.	ŋa-saŋ.	ŋa-žeĭ ʦa-na.
Loc.	ŋa-la.	ŋa-ža-la.

Kolong

	Singular		Plural	
N. Acc.	ཁོ	kho, k^{h}o, 'he'.	ཁོ་པ	kho-pa, k^{h}o-pa, 'they'.
Gen.	ཁོའི	kho'i, k^{h}oĭ.	ཁོ་པའི	kho-pa'i, k^{h}o-pēĭ.
Instr.	ཁོས	khos, k^{h}oĭ.	ཁོ་པས	kho-pas, k^{h}o-pē~k^{h}o-pēĭ.

	Singular		Plural	
Dat.	ཁོ་ལ	kho-la, k^ho-la.	ཁོ་པ་ལ	kho-pa-la, k^ho-pa-la.
Abl.	ཁོ་ནས	kho-nas, k^ho-nē.	ཁོ་པ་ནས	kho-pa-nas, k^ho-pa-nē.
Loc.	ཁོ་ལ	kho-la, k^ho-la.	ཁོ་པ་ལ	kho-pa-la, k^ho-pa-la.

Koksar

	Singular	Plural
N. Acc.	k^ho, 'he'.	k^ho-pa.
Gen.	$k^hoĭ$.	k^ho-pi.
Instr.	k^ho-hi.	k^ho-pa-hi.
Dat.	k^ho-la.	k^ho-pa-la.
Abl.	k^ho-saŋ.	k^ho-pi ʦa-na.
Loc.	k^ho-la.	k^ho-pa-la.

The Possessive is simply formed by the personal pronouns put in the Genitive case:

ŋaĭ, mine, my.	ŋa-žēĭ, 'our'.
$k^{ʻi}$oḏ-ki,-hi, 'thy'.	$k^{ʻi}$in-ki, 'yours'.
$k^hoĭ$, 'his, her'.	k^ho-pēĭ, Koksar: k^ho-pi, 'their'.

The Reflective pronoun is expressed by the word raŋ, 'self, own', which is frequently added to the personal pronouns to form emphatic forms.

raŋ-gi ta, 'own horse'.

The Reciprocal pronouns, such as 'each other' or 'one another' are expressed by such expressions as čig-gi čig, lit. 'by one one', or čig-la čig (Koksar: ʼsig-la śig), lit. 'to one one'.

Demonstrative pronouns:

The literary Tibetan forms འདི་ 'di, 'this', and དེ་ de, 'that' are never used in Lahul Tibetan. Their place is taken by the West Tibetan forms, such as ཨི་ ʔi for 'this', and pi for 'that' (the last mentioned is commonly used in the Kolong sub-dialect, the Koksar sub-dialect uses the form heĭ). The Lahul demonstratives instead of following the noun, usually precede it:

ʔi-mi, this man, instead of mi-di of the Central Tibetan.

pi-mi, that man, instead of mi-te.

ʔi suĭ k'aŋ-pa jin, 'whose house is this?'

The plural of the demonstratives is formed by adding the word t'am-čaḏ in the Kolong sub-dialect, and ʦ'aŋ-ma 'all', in Koksar:

ʔi-t'am-čaḏ, 'these' (Kolong).

ʔi-ʦ'aŋ-ma, 'these' (Koksar).

The demonstrative is sometimes placed after the noun it qualifies. Ex. lug-ʔi či-don-la seḍ-dug, ' why did you kill this sheep ? ', but (Koksar) ʔi-kal'-pa či-la saḍ —' why did you kill this sheep ? '

The declension of the demonstrative ' this ' has one peculiarity which should be noted: the use of daŋ in the instr. sing. and plur.

	Singular	Plural
N. Acc.	ʔi ' this '.	ʔi-t'am-čaḍ.
Gen.	ʔi.	ʔi-t'am-čaḍ-ki, -hi.
Instr.	ʔi-daŋ.	ʔi-t'am-čaḍ-daŋ.
Dat.	ʔi-la.	ʔi-t'am-čaḍ-la.
Abl.	ʔi-saŋ.	ʔi-t'am-čaḍ-nē.
Loc.	ʔi-la.	ʔi-t'am-čaḍ-la.

Interrogative pronouns:

སུ su, who.

Ex. Koksar: k'ioḍ-la su-hi zer-ʦa—' who told you ? '

ཅི či, What.

Ex. ʔi-mi či zer—' What is this man saying ? '

Relative pronouns do not exist in Tibetan. The notion is expressed by a special turn of the sentence, and the use of participles, which are treated as adjectives, being put in the genitive before the substantive:

me-la šʳeg-peĭ k'aŋ-pa, ' the house which was burnt '.

Numerals

The Lahul Tibetan numeral system follows closely that of the other Tibetan dialects. Below we give a table of numerals in Lahul Tibetan, noting both the Kolong and Koksar pronunciations, and the literary forms:—

Cardinals:

	LT.	Kolong	Koksar
1.	གཅིག gčig	čig	čí
2.	གཉིས gñis	ñī	ñī
3.	གསུམ gsum	sum	sum
4.	བཞི bži	ži	ži
5.	ལྔ lṅa	ŋa	ŋa

	LT.	Kolong	Koksar
6.	དྲུག drug	ḍʳug	ṭʳuk
7.	བདུན bdun	dun∾dün	dun
8.	བརྒྱད brgyad	gⁱaḍ	gⁱaḍ
9.	དགུ dgu	gū	gū
10.	བཅུ bču,-tham-pa	ču, ču-tʻam-pa	ču
	བཅུ་ཕམ་པ		
11.	བཅུ་གཅིག bču-gčig	ču-čig∾čugčí	čugší
12.	བཅུ་གཉིས bču-gñis	čugñī∾čų-ñī	čugñī
13.	བཅུ་གསུམ bču-gsum	čugsum	čugsum
14.	བཅུ་བཞི bču-bži	čuḇži	čuḇži
15.	བཅོ་ལྔ bčo-lña	čö-ŋa	čölŋa
16.	བཅུ་དྲུག bču-drug	ču-ḍʳug∾ču-ḍʳú	čurú
17.	བཅུ་བདུན bču-bdun	čuḇdün	čuḇdun
18.	བཅོ་བརྒྱད bčo-brgyad	čoḇgⁱaḍ	čoḇgⁱaḍ
19.	བཅུ་དགུ bču dgu	čurgū	čurgū
20.	ཉི་ཤུ ñi-śu	ñi-śu	ñi-śu
21.	ཉི་ཤུ་རྩ་གཅིག ñi-śu rtsa-gčig	ñi-śu ñer-čig ~ ñi-śu sa-čig	ñer-čig
30.	སུམ་ཅུ sum-ču	sum-ču	sum-ču
31.	སུམ་ཅུ་སོ་གཅིག sum-ču so-gčig	sum-ču sogčig	sum-ču sogčí
40.	བཞི་བཅུ bži-bču	žiḇču	žiḇču

	LT.	Kolong	Koksar
41.	བཞི་བཅུ་ཞེ་གཅིག bži-bču že-gčig,	žiḭ-ču ža-čig ~ žiḭču žag̱čig	žiḭču ž'ag̱čí
50.	ལྔ་བཅུ lňa-bču	ŋaḭču~ŋa-ču	ŋaḭču
51.	ལྔ་བཅུ་ང་གཅིག lňa-bču ňa-gčig,	ŋaḭču ŋa-čig	ŋaḭču ŋag̱či
60.	དྲུག་བཅུ drug-bču	ḍʳug̱-ču	ṭʳuk-ču
61.	དྲུག་བཅུ་རེ་གཅིག drug-bčure-gčig	ḍʳug̱-ču re-čig ~ ḍʳug̱-ču rag̱čig	ṭʳuk-ču ra-čí
70.	བདུན་བཅུ bdun-bču	dün-ču	dun-ču
71.	བདུན་བཅུ་དོན་གཅིག bdun-bču don-gčig	dün-ču dön-čig	dun-ču don-čí
80.	བརྒྱད་བཅུ brgyad-bču	g^{i}a-ču	g^{i}a-ču
81.	བརྒྱད་བཅུ་གྱ་གཅིག brdyad-bču gya-gčig	g^{i}a-ču g^{i}a-čig ~ g^{i}a-ču g^{i}ag̱čig	g^{i}a-ču g^{i}ag̱śi
90.	དགུ་བཅུ dgu-bču	guḭču	guḭču
91.	དགུ་བཅུ་གོ་གཅིག dgu-bču go-gčig	guḭču go-čig ~ guḭču gog̱čig	guḭču gog̱śí
100.	བརྒྱ brgya	g^{i}a	g^{i}a t'am-pa
200.	ཉི་བརྒྱ ñi-brgya	ñi-g^{i}a (the form g^{i} a-ñi is also used).	ñi-g^{i}a
300.	སུམ་བརྒྱ sum-brgya	sum-g^{i}a	sum-g^{i}a
400.	བཞི་བརྒྱ bzi-brgya	žiḭg^{i}a	žiḭg^{i}a
500.	ལྔ་བརྒྱ lňa-brgya	ŋa-g^{i}a	ŋabg^{i}a

	LT.	Kolong	Koksar
1,000.	སྟོང་ stoṅ	toŋ	toŋ
10,000.	ཁྲི khri	ʈʳʻi	ʈʳʻi
100,000.	འབུམ 'bum	bum	bum
1,000,000.	བྱེ་བ bye-ba	čʲe-wa∼čʼe-wa	bʲe-wa∼čʼe-wa
10,000,000.	ས་ཡ saya	sa-ja	sa-ja
100,000,000.	དུང་འགྱུར duṅ-'gyur	duŋ-gʲur	duŋ-gʲur

Ordinals:

དང་པོ daṅ-po, 'the first'. The rest are simply formed by adding the particle པ pa to the cardinal numbers:

Ex. གཉིས་པ gñis-pa, 'the second', Lah. ñī-pa.

གསུམ་པ gsum-pa, 'the third', Lah. sum-pa.

The word ཐམ་པ tham-pa, pronounced t'am-pa, is frequently added to tens up to one hundred: བཞི་བཅུ་ཐམ་པ bži-bču tham-pa, Lah. žiḭču t'am-pa, '40'.

The particle ཀ ka is sometimes added to cardinal numbers to express the idea of a series: གཉིས་ཀ gñis-ka, Lah. ñī-ka, 'the two'; གསུམ་ཀ gsum-ka, Lah. sum-ka, 'the three', etc.

Approximate numbers are expressed by placing two successive numbers together:

Ex. གཉིས་གསུམ gñis-gsum, Lah. ñī-sum, 'two or three'. mi-ñī-sum č'a rug, 'two or three men are going'.

Distributive numerals are formed by repeating the number:

Ex. བདུན་བདུན bdun-bdun, Lah. dun-dun, 'seven each'; ʔi-mi-ʦ'aŋ-ma-la anna dun-dun t'oŋ, 'give these men seven annas each'.

Fractions are formed by adding ཆ ča, 'part' and ཕྱེད phyed, 'half,' to the number:

Ex. (1) གསུམ་ཆ gsum-ča, pronounced sum-č'a, 'one third'.

(2) ཕྱེད phyed, pronounced p'ied̠~p'ed̠, 'half'' p'ied̠-daŋ-ñī, 'one and half'.

The numerals are always placed after the word to which they relate. In a few expressions found in the literary language and names of localities, however, the numeral precedes the word to which it relates:

Ex. བདུན་ཞག bdun-žag, pronounced dun-ž'ag, seven days, week.

སུམ་མདོ sum-mdo, 'the three valleys', name of locality.

The Verb

The Tibetan verb is a kind of noun denoting a condition. The Lahul Tibetan verbal system follows in general that of the other Tibetan dialects, and is closely akin to that of the Ladak dialect, especially to that of the upper Ladak sub-dialect (the Roŋ dialect according to Dr. A. H. Francke's terminology). As a rule the persons are not distinguished, although there exists a certain tendency to distinguish the person of the subject by using different forms of the auxiliary verb 'to be', but this use is rather irregular, although it is observed in many spoken dialects including that of Lahul.

Ex. The form ʦ'a used in the third person singular and plural in the Koksar sub-dialect: k^{h}o č'a-ʦ'a, 'he is going'; k^{h}o-pa ño-ʦ'a, 'they are buying'.

Many of the verbs have different stems for the different tenses (present, past, future). This differentiation of stems is clearly observed in the literary language, whereas in the spoken dialects with the disappearance of the pronunciation of prefixes and affixes, the verbal stem developed one pronunciation common to all the three tenses. In Ladak and Pūrig the pronunciation of certain prefixes has been preserved into modern times, and serves to distinguish causative forms in the Ladak dialect. The Lahul Tibetan has lost the pronunciation of prefixes, and forms a transitory development between the dialects of Westernmost Tibet, and those of Central Tibet. A great many of the spoken dialects, and especially those of Central Tibet, use regularly the stem of the past tense for all tenses. The same tendency can be observed in Lahul Tibetan, although it is not so marked.

Ex. གཏོན་བ gtoň-ba, represents the present stem of the verb 'to give, to send', བཏང་ btaň, pronounced taŋ is the past stem, and is used in the colloquial

of Central Tibet for all the three tenses: taŋ-gi-jö, 'I am giving'; taŋ-ŋa-re, 'I gave'; taŋ-gi-jin, 'I shall give'. The corresponding forms in the Lahul dialect are: taŋ-jöḏ, 'I give'; taŋ-soŋ, 'I gave', and taŋ-jin, 'I shall give'.

In the spoken language there is no difference in the pronunciation of intransitive and transitive verbs, the notion being expressed by the construction of the sentence: the subject of intransitive verbs is not distinguished by any suffix, whereas the subject of transitive verbs is put in the instrumental.

The Infinitive is formed in common with the other dialects of Western Tibet by adding the particle ཅེས་ čes, pronounced in Lahul Tibetan čē, to the verbal stem. By affixing the particles pa, ba the verbal root acquires a substantival value.

Ex. ཡོན་ཅེས་ yoṅ-čes, pronounced joŋ-čē, 'to come'.

ཡོན་པ་ yoṅ-ba, pronounced joŋ-wa, 'the coming'.

The Present

The tense expresses an action or condition which is in the process of taking place. There are two forms of this tense: the simple present and the durative present. The verbal stem remains unchanged throughout, but an attempt is made to distinguish the second and third persons by using a different form of the auxiliary 'to be'. The index of the present tense is the form jöḏ for the first persons singular and plural, and rug in the second and third persons singular and plural.

Present Indicative

	Singular	Plural
1.	ŋa č'a-jöḏ, 'I go'.	ŋa-ča (ža) č'a-jöḏ, 'we go'.
2.	k'^{i}oḏ č'a-rug, 'thou goest'.	k'^{i}o-ža č'a-rug, 'you go'.
3.	k^{h}o č'a-rug, 'he goes'.	k^{h}o-pa (ža) č'a-rug, 'they go'.

The Koksar sub-dialect presents a somewhat aberrant form of Present Indicative, which probably developed from the old literary form ཆའིན་ ča'in (č'a^{h}in), where the inserted fricative developed a voiced velar pronunciation: LT. č'a^{h}in > Koks. č'aγän~č'agen.

Koksar

Present

	Singular	Plural
1.	ŋa č'aγän~č'agen.	o-χaḏ č'a-jin.
2.	k'^{i}oḏ č'aγän~č'agen.	k'^{i}o-ža č'a-dā.[1]
3.	k^{h}o č'a-ʦ'a~č'aγän.	k^{h}o-pa č'a-ʦ'a.

[1] dā is the literary form གདའ་བ, gda'-ba, 'to be'.

Present durative

Kolong

	Singular	Plural
1.	ŋa joŋ-te jöḏ, 'I am coming'.	ŋa-ža joŋ-te jöḏ.
2.	k'^{i}oḏ joŋ-te du.	k'^{i}o-ža joŋ-te du.
3.	k^{h}o joŋ-te du.	k^{h}o-ža joŋ-te du.

The literary form of the Present which consists in the reduplication of the final consonant and the affixing of the vowel 'o,' is sometimes found in Lahul Tibetan: k^{h}o dau lab-bo, 'he says'; soa ǰ^{i}ab-bo, 'he bites'.

There exists another form of the Present Indicative which is directly related to the Ladakī Present of the type of joŋ-ŋat, 'comes':

	Singular	Plural
1.	ŋa t'uŋ-ŋat, 'I drink'.	ŋa-ža t'uŋ-ŋaḏ.
2.	k'^{i}oḏ t'uŋ-ŋaḏ.	k'^{i}o-ža t'uŋ-ŋaḏ.
3.	k^{h}o t'uŋ-ʦ'a.	k^{h}o-pa t'uŋ-ʦ'a.

The above must be a contracted form related to the vulgar Central Tibetan form of the type of t'uŋ-ŋa-jöd, 'I drink'.

Examples of the Present:—

Kolong: di-riŋ ḍ^{r}oŋ-la č'a-jöḏ—'I am going to the village to-day'.

Koksar: di-riŋ k^{h}o ḍ^{r}oŋ-la č'a-ʦ'a—'he is going to the village to-day'.

k'^{i}oḏ gaŋ-ŋo-la č'a-jöḏ—'where are you going to?'

Kolong: ŋē k'aŋ-pa t'oŋ-du—'I see a house'.

Koksar: ŋa-hi k'aŋ-pa t'oŋ-do—'I see a house'.

namč'o ʦ'or-ru—'he listens'.

K^{h}o za-ru (ro)—'he eats'.

k^{h}oĭ len-te k'^{i}oŋ-du—'he brings'.

k^{h}o p'^{i}i-ta-la č'a -ru—'he goes out'.

k^{h}o g^{i}en-la ʣa-du—'he climbs'.

k^{h}o ño-ru—'he buys'.

ŋa ʦ'oŋ-jöḏ—'I sell'.

IMPERFECT

(*Preateritum Imperfecti*)

Denotes an action that has recently taken place.

Ex. k^{h}o dagsam soŋ—'he went just now'.

Both the Kolong and Koksar sub-dialects use in this tense various forms of the verb 'to go'.

Kolong

	Singular	Plural
1.	ŋa soŋ—'I went'.	ŋa-ča(ža) soŋ.
2.	k'^{i}oḏ soŋ	k'^{i}o-ža soŋ.
3.	k^{h}o soŋ	k^{h}o-pa(ža) soŋ.

Koksar

Singular	Plural
1. ŋa laŋ-soŋ	ŋa-ža laŋ-soŋ.
2. k'^{i}oḏ laŋ-soŋ	k'^{i}o-ža laŋ-soŋ.
3. k^{h}o laŋ-soŋ	k^{h}o-pa(ža) laŋ-soŋ.

PERFECT

(*Preateritum Perfecti*)

Denotes an accomplished action: daŋ k^{h}o Ñuŋ-ti-la soŋ-ben—'he has gone to Kuḷū yesterday'.

The tense is formed by adding to the past tense stem of the verb the affix ben∿bän∿bin (pin), which represents a contracted form of the literary—ba-yin:

སོན་བ་ཡིན soṅ-ba-yin (vulg. soŋ-ŋa-jin) > soŋ-ben∿bän∿bin.

Kolong

Singular	Plural
1. ŋa soŋ-ben—'I have gone'.	ŋa-ča(ža) soŋ-ben.
2. k'^{i}oḏ soŋ-ben	k'^{i}o-ža soŋ-ben.
3. k^{h}o soŋ-ben	k^{h}o-pa(ža) soŋ-ben.

Koksar

Singular	Plural
1. ŋa laŋ-soŋ-bän	ŋa-ža laŋ-soŋ-bän.
2. k'^{i}oḏ laŋ-soŋ-bän	k'^{i}oža laŋ-soŋ-bän.
3. k^{h}o laŋ-soŋ-bän	k^{h}o-pa laŋ-soŋ-bän.

Plusquamperfectum[1]

Denotes an action that has been accomplished in the past. The index of this form is ʦ'ar which is added to the past stem of the verb. There exists also another form ʦ'ar-bin∿pin which is a contracted form of the LT. soṅ-ʦhar-pa-yin (vulg. soŋ-ʦ'ar-ra-jin, he had gone).

Kolong

Singular	Plural
1. ŋa soŋ-ʦ'ar—'I had gone'.	ŋa-ča(ža) soŋ-ʦ'ar.
2. k'^{i}oḏ soŋ-ʦ'ar	k'^{i}o-ža soŋ-ʦ'ar.
3. k^{h}o soŋ-ʦ'ar	k^{h}o-ža soŋ-ʦ'ar.

[1] This form of the past tense is sometimes used in Tibetan in the sense of a perfectum imperfecti.

Koksar

Singular	Plural
1. ŋa soŋ-ʦ'ar-bin	ŋa-ža soŋ-ʦ'ar-bin.
2. k'^{i}oḍ soŋ-ʦ'ar-bin	k'^{i}o-ža soŋ-ʦ'ar-bin.
3. k^{h}o soŋ-ʦ'ar-bin	k^{h}o-pa soŋ-ʦ'ar-bin.

In the singular we also find the following forms: ŋa soŋ-ʦ'ar-jin; k'^{i}oḍ soŋ-ʦ'ar-do, and k^{h}o soŋ-ʦ'ar-do.

Future Tense

The Lahul Tibet has two forms of future. The index of the tense is the auxiliary ཡིན་ yin, pronounced jin∼hin∼in.

Simple Future

Kolong

Singular	Plural
1. ŋa č'a-hin∼jin	ŋa-ča(ža) č'a-hin.
2. k'^{i}oḍ č'a-hin∼jin	k'^{i}o-ža č'a-hin.
3. k^{h}o č'a-hin∼jin	k^{h}o-pa(ža) č'a-hin.

Second Future

Singular	Plural
1. ŋa č'a-čen∼č'a-čē-in—	ŋa-ža č'a-čen.
'I shall be going'.	
2. k'^{i}oḍ č'a-čen	k'^{i}o-ža č'a-čen.
3. k^{h}o č'a-čen	k^{h}o-pa č'a-čen.

The simple future in the Koksar sub-dialect has a similar form to that of the Present, this is no doubt due to a development from an old literary form of the type of ཆའི་ཡིན་ 'I shall go' which resulted in č'aɣän∼č'aɣin:[1]

Present: ཆའིན་ ča'in

Future: ཆའི་ཡིན་ ča'i yin > č'aɣän∼č'aɣin.

[1] Future forms with the reduplication of the final consonant are also found in the Koksar sub-dialect:—

ང་འཁྱོན་ན་ཡིན། ňa-'khyoň-ňa-yin, pron. ŋa k'^{i}oŋ-ŋa jin, 'I shall bring'. ང་བཏང་ན་ཡིན, na-btaň-ňa-yin, pron. ŋa t'aŋ-ŋa jin, 'I shall give' (in the last example note the use of the past stem in the future tense).

Simple Future

Koksar

	Singular	Plural
1.	ŋa č'aγän~č'aγin	ŋa-ža č'aγän~č'aγin.
2.	k'^{i}oḏ č'aγän~č'aγin	k'^{i}o-ža č'aγän~č'aγin.
3.	k^{h}o č'aγän~č'aγin	k^{h}o-pa č'aγän~č'aγin.

Second Future

	Singular	Plural
1.	ŋa č'a-čē-hin	ŋa-ža č'a-čen.
2.	k'^{i}oḏ č'a-čē-hin	k'^{i}o-ža č'a-čen.
3.	k^{h}o č'a-čen	k^{h}o-pa č'a-čen.

It will be observed that the forms of the type of ŋa č'a-čē-hin correspond to the literary ña'-gro-rgyu-yin, 'I shall be going'.

Sentences illustrating the use of the Future:

Kolong: t^{h}o-re su joŋ-jin —'Who will come to-morrow?'

Koksar: t^{h}o-re ŋa-mo su joŋ-čen
k'^{i}oḏ-raŋ k'aŋ-pa-la nam
č'aγän—'When are you going home?'

Koksar: na-hi rama čí ñoγän —'I shall buy a goat'.

Kolong: k^{h}o t^{h}o-re ma-č'a —'He will not go to-morrow'.

Koksar: k^{h}o t^{h}o-re naŋ-mo
č'a-čē-män—'He will not go to-morrow morning'.

Imperative

The Imperative is formed by changing the vowel of the root, Ex. an a-vowel being changed to -o, or by adding an -s to the roots ending in a vowel:

ལྟོས་ ltos, 'look'! Lah. toĭ; C.T. tō.

ཟོ་ zo, 'eat'! Lah. zo; C.T. sō.

The Imperative is sometimes formed by adding śig to the verbal root:

གཏོང་བ་ gtoṅ-ba, 'to give', the Imperative is toŋ, which in Lahul Tibetan is pronounced t'oŋ or t'oŋ-śig, 'give'!

The negative form is expressed by placing the negative particle མ་ ma before the verb:

Ex. སོང་ soŋ—'go'!

མ་ཆ་ ma-čha, pronounced ma-č'a—'don't go'!

Participles

The Present and Past Participles are formed, in common with the other dialects of Western Tibet, by adding མཁན་ mkhan, pron. gen~γän, to the verbal stem:

Present Participle: mul' taŋ-gen-g^{i}i mi —'the man giving money'.
Past Participle: daŋ mul' taŋ-gen-g^{i}i mi—'the man who gave money (yesterday)'.

The Future Participle is expressed by adding the Infinitive particle ཅེས་ čes to the verbal stem:

Ex. saḍ-čeĭ (čē) luḡ—'The sheep to be killed'.

Conjunctive Participles

It has been observed that the Tibetan gerund is more in the nature of a conjunctive participle. The affix of the conjunctive participle in Lahul Tibetan is -te, which represents the modern colloquial pronunciation of the literary affixes te, de, ste. Conjunctive participles are formed by adding the affix to the present and past stems of the verb:

After the finals n, r, l, s .. te
After final d .. .. .. de } Lahul -te.
After final g, ṅ, b, m, and vowels .. ste

There are two kinds of conjunctive participles: (a) corresponding to a converbum imperfecti, and expressing an action that accompanies the action of the finite verb:

ŋa ta-žon-te soŋ—'I went riding horseback' (lit. I riding horseback went),

(*b*) corresponding to a converbum perfecti, and expressing an action which preceded that of the finite verb:

Ex. ŋa joŋ-te k^{h}o-la mul' t'aŋ-soŋ—'I having come, gave him money'.

The conjunctive affix—nas, pron. nē—is only seldom met with in the spoken language of Lahul, and is mostly found in the written form of the dialect, probably under the influence of modern Central Tibetan.

Verbal nouns.

Verbal nouns are formed by adding the particle—tu and—na to the verbal stem:

Ex. len-tu soŋ (sometimes heard len-du soŋ), 'went to fetch', or len-na soŋ.

The Infinitive suffix čes is frequently used to form Verbal nouns: joŋ-čē, joŋ-čē-la—'in order to come'.

Conditional.

The Conditional is expressed by affixing the particle ན na, 'if' to the verbal stem, which remains unchanged:

Ex. ŋa joŋ-na—'if I come'.

Potential.

The Potential is regularly expressed by adding the verb འཕྱུད་པ 'khyud-pa, 'to be able', to the verbal stem ('khyud-pa is pronounced in Kolong k'^{i}uḍ-, and χ^{i}uḍ in Koksar, and around Sissu in Tinān):

Ex. ŋa joŋ-k'^{i}uḍ-jöḍ—'I am able to come'.
Koksar: na-hi ta-žon-χ^{i}uḍ-du—'I am able to ride horseback'.
Koksar: k^{h}o-hi k'^{i}i-ra saḍ ma-χ^{i}uḍ—'he was unable to kill any game'.

In Kolong, and among the literate lamas the verb ཐུབ་པ thub-pa, pronounced t'uḅ-pa, 'to be able', is commonly used:

Kolong: k^{h}o k'^{i}i-ra ǰ^{i}aḅ ma-t'uḅ—'he was unable to kill any game'.

Hortative.

The Hortative is formed by adding go-śe (L.T. དགོས་པ dgos-pa, to need) to the verbal stem:

Ex. ŋa joŋ-go-śe jin-dā—'there is need for me to come, or I should come'. Cf. C.T. ŋa joŋ-gō-gi-re.

The interrogative is formed by doubling the final consonant or adding the affix 'am after vowels:

མཐོང་ངམ mthoṅ-ṅam, Lahul t'oŋ-ŋa—'do you see?' In the spoken language the final -m of the interrogative particle is often dropped: k'^{i}oḍ t'oŋ-ŋa—'do you see?'

There is no Passive Voice, the notion being expressed by a special construction, characterized by the absence of any suffix in the subject:

Ex. ŋa duŋ-jöḍ—'I am being beaten'.

Sometimes ལ la, the index of the accusative and dative, is added to the subject to make the sentence clearer:

ŋa-la duŋ-jöḍ—'I am being beaten'.

The negative verb is formed by prefixing མི mi to the present and future stems, and མ ma to the past stem, the last particle is also used in the imperative. The negative particles are frequently prefixed to the auxiliary verb. The

negative form of the auxiliary 'to be': མེད་ med (pronounced mĕ), and men (L.T. མིན་ min) are often used with present and future stems:

Ex. ŋa č'a-män—'I shall not go'.
t^{h}o-re ŋa Ñuŋ-ti-la ma-č'a—'I shall not go to-morrow to Kuḷū'.
ŋa mi-t'oŋ—'I don't see'.
ma-č'a—'don't go!'

Table of Verb Inflexion

ཡོན་ཅེས་ yoṅ-čes, to come.

Present Indicative

	Singular	Plural
1.	ŋa joŋ-na jöḍ—'I come'.	ŋa-ža joŋ-du.
2.	k'^{i}oḍ joŋ-du	k'^{i}o-ža joŋ-du.
3.	k^{h}o joŋ-du	k^{h}o-pa joŋ-du.

Present Durative

1.	ŋa joŋ-te jöḍ—'I am coming'.	ŋa-ža joŋ-te jöḍ.
2.	k'^{i}oḍ joŋ-te du	k'^{i}o-ža joŋ-te du.
3.	k^{h}o joŋ-te du	k^{h}o-pa joŋ-te du.

Imperfect

1.	ŋa joŋ-soŋ—'I came'.	ŋa-ža joŋ-soŋ.
2.	k'^{i}oḍ joŋ-soŋ	k'^{i}o-ža joŋ-soŋ.
3.	k^{h}o joŋ-soŋ	k^{h}o-pa joŋ-soŋ.

Perfect

1.	ŋa joŋ-pin—'I have come'.	ŋa-ža joŋ-pin.
2.	k'^{i}oḍ joŋ-pin	k'^{i}o-ža joŋ-pin.
3.	k^{h}o joŋ-pin	k^{h}o-pa joŋ-pin.

Plusquamperfectum

1.	ŋa joŋ-ʦ'ar—'I had come'. ŋa joŋ-ʦ'ar-soŋ	ŋa-ža joŋ-ʦ'ar.
2.	k'^{i}oḍ joŋ-ʦ'ar	k'^{i}o-ža joŋ-ʦ'ar.
3.	k^{h}o joŋ-ʦ'ar	k^{h}o-pa joŋ-ʦ'ar.

Future

1.	ŋa joŋ-jin—'I shall come'.	ŋa-ža joŋ-jin.
2.	k'^{i}oḍ joŋ-jin	k'^{i}o-ža joŋ-jin.
3.	k^{h}o joŋ-jin.	k^{h}o-pa joŋ-jin.

Second Future

Singular	Plural
1. ŋa joŋ-čē hin or joŋ-čen	ŋa-ža joŋ-čen.
2. k'^{i}oḏ joŋ-čen	k'^{i}o-ža joŋ-čen.
3. k^{h}o joŋ-čen	k^{h}o-pa joŋ-čen.

Imperative

śo—'come!'

joŋ—'come!'

Negative: ma joŋ—'don't come!'

Adverbs

There is no need to dwell long on the Lahul Tibetan adverb. In common with the other dialects of the West Tibetan group, adverbs are formed from verbs by affixing the postposition -te of the conjunctive participle.

Ex. ḍ^{r}ul'-te, on foot, from the verb འགྲུལ་པ 'grul-pa, to go, walk.

Adverbs of place are formed from nouns and pronouns by affixing an affix denoting direction or origin (usually the declensional postpositions of the Dative, Locative, and Ablative):

Ex. གོང་ནས goṅ-nas, 'from above', Lah. goŋ-nē.

ཐུར་ལ t^{h}ur-la, 'downwards', Lah. t^{h}ur-la.

འདིར་རུ 'di-ru, 'here', Lah. di-ru.

དེར་རུ de-ru, 'there', Lah. de-ru.

ནང་ན naṅ-na, 'within, inside', naŋ-na.

གཏིན་ལ gtiṅ-la, 'after, later', Lah. tiŋ-la.

Conjunction

The common conjunction is daŋ, 'and'. Ex. མི་དང་རྟ mi daṅ rta, 'man and horse', Lah. mi daŋ ta.

Sometimes the word daŋ is used in the sense of 'with, together': mi-daŋ leḫ-soŋ, 'came with a man'.

ཡང yaṅ, 'again, also', Lah. jaŋ: k'oŋ jaŋ p'eḫ-soŋ, 'he came also'. jaŋ-na is used in the sense of 'or'.

Syntax

The Lahul Tibetan preserves the construction of the Tibetan sentence. The usual order of words in a sentence is: subject, object, and verb. The

Genitive precedes the qualified noun, adjectives and numerals as rule follow it. A few peculiarities of construction, such as the demonstrative pronouns ʔi, 'this', and pi, 'that' preceding the noun they qualify, instead of following it, have been noted previously.

The general rules noted down by the Rev. Francke in his Sketch of Ladakhi Grammar, p. 45, hold good for the Lahul Tibetan.

Texts

Kolong

ལོ་གསར་གྱི་སྐབས་སུ་བྱུང་བཀྲིས།

I

དང་པོ་བཀྲ་ཤིས་ཡོང་ཤིས། གྲང་ལ་ཞེབས་སོང་།
གྲང་བྱ་མ་བཀྲ་ཤིས་ཡོང་ཤིས། ཁྱི་རྟ་ཤར་ས་ཡོང་ཤིས།

II

དང་པོ་བཀྲ་ཤིས་ཡོང་ཤིས། གངས་ལ་ཞེབས་སོང་།
གངས་བྱ་མ་བཀྲ་ཤིས་ཡོང་ཤིས། སེང་ཆེན་གྱི་བཞུགས་ས་ཡོང་ཤིས།
སྐྱིད་ལེགས་བཞུགས་སར་བསྟེབ་ས་ཡོང་ཤིས། བཀྲིས་མཛོད།

III

དང་པོ་བཀྲ་ཤིས་ཡོང་ཤིས། ནགས་ལ་ཞེབས་སོང་།
ནགས་བྱ་མ་བཀྲིས་ཡོང་ཤིས། སྦྲག་ཆེན་གྱི་བཞུགས་ས་ཡོང་ཤིས།
སྐྱིད་ལེགས་བཞུགས་སར་བསྟེབ་ས་ཡོང་ཤིས། བཀྲིས་མཛོད།

IV

དང་པོ་བཀྲ་ཤིས་ཡོང་ཤིས། མཆོ་ལ་ཞེབས་སོང་།
མཆོ་བྱ་མ་བཀྲ་ཤིས་ཡོང་ཤིས། ཉ་ཆེན་གྱི་བཞུགས་ས་ཡོང་ཤིས།
སྐྱིད་ལེགས་བཞུགས་སར་ཡོང་ཤིས། བཀྲིས་མཛོད།

V

དང་པོ་བཀྲ་ཤིས་ཡོང་ཤིས། དཔལ་ལ་ཕེབས་སོང་།
དཔལ་བླ་མ་བཀྲིས་ཡོང་ཤིས། ཡབ་ཡུམ་གྱི་བཞུགས་ས་ཡོང་ཤིས།
སྐྱིད་ལེགས་བཞུགས་སར་བསྒྲུབ་ས་ཡོང་ཤིས། བཀྲིས་མཛོད།།

Transcription

Lo-gsar-gyi skabs-su glu-bkra-śis.

I

Daṅ-po-bkra-śis-yoṅ-śis | guṅ-la-phebs-soṅ |
guṅ-bla-ma-bkra-śis-yoṅ-śis | khri-ru-śar-sa-yoṅ-śis |

II

Daṅ-po-bkra-śis-yoṅ-śis | gaṅs-la-phebs-soṅ |
gaṅs-bla-ma-bkra-śis-yoṅ-śis | seṅ-čhen-gyi-bžugs-sa-yoṅ-śis |
skyid-legs-bžugs-sar-bsleb-sa-yoṅ-śis | bkra-śis-mdzod |

III

Daṅ-po-bkra-śis-yoṅ-śis | nags-la-phebs-soṅ |
nags-bla-ma-bkra-śis-yoṅ-śis | stag-čhen-gyi-bžugs-sa-yoṅ-śis |
skyid-legs-bžugs-sar-bsleb-sa-yoṅ-śis | bkra-śis-mdzod |

IV

Daṅ-po-bkra-śis-yoṅ-śis | mtsho-la-phebs-soṅ |
mtsho-bla-ma-bkra-śis-yoṅ-śis | ña-čhen-gyi-bžugs-sa-yoṅ-śis |
skyid-legs-bžugs-sar-bsleb-sa-yoṅ-śis | bkra-śis-mdzod |

V

Daṅ-po-bkra-śis-yoṅ-śis | dpal-la-phebs-soṅ |
dpal-bla-ma-bkra-śis-yoṅ-śis | yab-yum-gyi-bžugs-sa-yoṅ-śis |
skyid-legs-bžugs-sar-bsleb-sa-yoṅ-śis | bkra-śis-mdzod |

Phonetic Transcription

Lo-sar-g^{j}i kaḇ-su lū kra-śī.

I

Daŋ-po kra-śī joŋ-śī | guŋ-la p'eḇ-soŋ |
Guŋ-la-ma kra-śī joŋ-śī | ʈ^{r}i-ru śar-sa joŋ-śī |

II

Daŋ-po kra-śī joŋ-śī | gaŋ-la p'eḅ-soŋ |
gaŋ-la-ma kra-śī joŋ-śī | siŋ-č'en ž'ug-sa joŋ-śī |
k^{i}i-li ž'ug-sa leḅ-sa joŋ-śī | kra-śī ʤō |

III

Daŋ-po kra-śī joŋ-śī | nā-la p'eḅ-soŋ |
nā-la-ma kra-śī joŋ-śī | ta-č'en-g^{i}i ž'ug-sa joŋ-śī |
k^{i}i-li ž'ug-sa leḅ-sa joŋ-śī | kra-śī ʤō |

IV

Daŋ-po kra-śī joŋ-śī | ʦ'o-la p'eḅ-soŋ |
ʦ'o-la-ma kra-śī joŋ-śī | ña-č'en-g^{i}i ž'ug-sa joŋ-śī |
k^{i}i-li ž'ug-sa leḅ-sa joŋ-śī | kra-śī ʤō |

V

Daŋ-po kra-śī joŋ-śī | pal-la p'eḅ-soŋ |
pal-la-ma kra-śī joŋ-śī | yaḅ-yum-g^{i}i ž'ug-sa joŋ-śī |
k^{i}i-li ž'ug-sa leḅ-sa joŋ-śī | kra-śī ʤō |

Translation

The New Year's Song of Blessing.

I

At first let us pronounce a blessing!
To heaven went
The heavenly lord, blessing to him!
May he appear on the throne!

II

At first let us pronounce a blessing!
To the snow region went,
The snowy lord, blessing to him!
May he dwell in the abode of the mighty lion!
May he reach the abode of happiness!
Blessing!

III

At first let us pronounce a blessing!
To the forest went
The forest lord, blessing to him!
May he dwell in the abode of the mighty tiger!
May he reach the abode of happiness!
Blessing!

IV

At first let us pronounce a blessing!
To the lake went
The lord of the lake, blessing to him!
May he dwell in the abode of the great fish!
May he reach the abode of happiness!
Blessing!

V

At first let us pronounce a blessing!
To the abode of splendour went
The majestic lord, blessing to him!
May he dwell in the parental abode!
May he reach the abode of happiness!
Blessing!

Kolong

བྱི་བཞེངས་ཅེས།

༢། སྔོན་ཆོ་བསྐལ་པ་བཟང་པོར། གཤེར་བྱི་བཞེངས་སོ།།
དེ་ཏ་སུ་བཞུགས་སུ་མི་བཞུགས། དེ་ཏ་སྐྱེང་གི་ལྷ་ཡང་བཞུགས།།
ལྷ་དབུ་མཁར་མཐོ་བའི་བཀྲ་ཤིས་མཛོད།།

༣། སྔོན་ཆོ་བསྐལ་པ་བཟང་པོར། དུང་བྱི་བཞེངས་སོ།།
དེ་ཏ་སུ་བཞུགས་སུ་མི་བཞུགས། དེ་ཏ་བར་གྱི་བཙན་ཡང་བཞུགས།།
བཙན་ཆུབ་རི་བཟང་པོ་འི་བཀྲ་ཤིས་ཤོག།

༣། སྔོན་ཆོ་བསྐལ་པ་བཟང་པོར། གཤུ་བྱི་བཞེངས་སོ།།
དེ་ཏ་སུ་བཞུགས་སུ་མི་བཞུགས། དེ་ཏ་འོག་གི་གླུ་ཡང་བཞུགས།།
གླུ་བྱ་ཞོར་འཛོམས་པའི་བཀྲ་ཤིས་ཤོག།

༤། སྔོན་ཆོ་བསྐལ་པ་བཟང་པོར། ཤེལ་བྱི་བཞེངས་སོ།།
དེ་ཏ་སུ་བཞུགས་སུ་མི་བཞུགས། དེ་ཏ་སྐྱིད་སྐྱིད་གཞི་ཆུ་བཞུགས།།
སྐྱིད་གཞི་ཆུ་བཞུགས་པའི་བཀྲ་ཤིས་ཤོག།

Transcription

Khri-bžeṅs-čes

I

sṅon-ʦhe-bskal-pa-bzaṅ-por | gser-khri-bžeṅs-so |
de-ru-su-bžugs-su-mi-bžugs | de-ru-steṅ-gi-lha-yaṅ-bžugs |
lha-dbu-mkhar-mtho-ba'i-bkra-śis-mdzod |

II

sṅon-ʦhe-bskal-pa-bzaṅ-por | duṅ-khri-bžeṅs-so |
de-ru-su-bžugs-su-mi-bžugs | de-ru-bar-gyi-bʦan-yaṅ-bžugs |
bʦan-rgyab-ri-bzaṅ-po'i-bkra-śis-śog |

III

sṅon-ʦhe-bskal-pa-bzaṅ-por | gyu-khri-bžeṅs-so |
de-ru-su-bžugs-su-mi-bžugs | de-ru-'og-gi-klu-yaṅ-bžugs |
klu-bu-nor-'dzom-pa'i-bkra-śis-śog |

IV

sṅon-ʦhe-bskal-pa-bzaṅ-por | śel-khri-bžeṅgs-so |
de-ru-su-bžugs-su-mi-bžugs | de-ru-skyid-skyid-gži-rgya-bžugs |
skyid-gži-rgya-bžugs-pa'i-bkra-śis-śog |

Phonetic transcription

Ṭʳi-žaŋ-čē

I

ŋön-ʦʻe kal′-pa zaŋ-po | ser-ṭʳi žeŋ-sō |
de-ru su žug su mi-žug | de-ru teŋ-gi lā jaŋ žug |
lā ʔu-kʰar tʻo-wĕĭ kra-śī ʣō |

II

ŋön-ʦʻe kal′-pa zaŋ-po | duŋ-ṭʳi žeŋ-sō |
de-ru su žug su mi-žug | de-ru bar-gʲi ʦen jaŋ žug |
ʦen gʲaḇ-ri zaŋ-poĭ kra-śī śō |

III

ŋön-ʦʻe kal′-pa zaŋ-po | ju-ṭʳi žeŋ-sō |
de-ru su žug su mi-žug | de-ru ʻ og-gi lu jaŋ žug |
lu bu nor ʣom-peĭ kra-śī śō |

IV

ŋön-ʦʻe kal′-pa zaŋ-po | śel′-ṭʳi žeŋ-sō |
de-ru su žug su mi-žug | de-ru kʲi-kʲi ži-gʲa žug |
kʲi ži-gʲa žug-pēĭ kra-śī śō |

Translation

Erection of the Throne

I

In the blessed kalpa of former times,
a golden throne was erected.
On it who is able to sit ?
There the god of heaven sits.
Hail to the lofty castle of the gods !

II

In the blessed kalpa of former times,
a conch throne was erected.
There who is able to sit ?
There sit the denizens of the middle region.
Hail to the blessed mountain retreat of the denizens !

III

In the blessed kalpa of former times,
a turquoise throne was erected.
There who is able to sit ?
There sit the nāgas of the lower region.
Hail to the son and wealth bestowing nāgas !

IV

In the blessed kalpa of former times,
a crystal throne was erected.
There who is able to sit ?
There sits the happy family.
Hail to the abode of the happy family !

Kolong

བཀྲ་ཤིས་རྟེས་བློ།

༡། གྲང་སྙོད་ཀྱི་སྙོད་དུ་ལོ། བཀྲ་ཤིས་ཞུབས་སོ།།
བློ་ཡང་དམར་ལེགས་སོ། དེར་གཀྲ་ཤིས་ཞུབས་སོ།།
ཁོང་ཅི་དང་ཅི་ཡི་གཀྲ་ཤུབས། ཁོང་སེར་པོ་དང་གྱི་གཀྲ་ཤིས་ཞུབས།།

བཅོང་སྐུ་དང་སྐུ་ཡི་ཚུགས་ཤིང་ཚུགས།
བཅོང་ཁྲི་གདུགས་ཉེ་མའི་ཚུགས་ཤིང་ཚུགས།།
བཅོང་སྐུ་དང་སྐུ་ཡི་མཚམས་འཐག་གསལ།
བཅོང་དཀར་གསལ་བླ་བའི་མཚམས་འཐག་གསལ།།
ཡར་མཚམས་འཐག་གསལ་བའི་བཀྲ་ཤིས་མཛོད།།

༢། གང་ས་སྟོད་ཀྱི་སྟོད་དུ་ལོ། བུར་ཞིག་ཐུབས་སོ།།
བཅོང་ཅི་དང་ཅི་ཡི་གུར་ཐུབས། བཅོང་དཀར་པོ་དང་ཀྱི་གུར་ཐུབས།།
བཅོང་སྐུ་དང་སྐུ་ཡི་ཚུགས་ཤིང་ཚུགས།
བཅོང་སེང་ཆེན་དཀར་མོ་འི་ཚུགས་ཤིང་ཚུགས།།
བཅོང་སྐུ་དང་སྐུ་ཡི་ཚུགས་ཤིང་ཚུགས།
བཅོང་གཤུ་རལ་ལེགས་མོ་འི་ཚུགས་ཤིང་ཚུགས།།
བཅོང་སྐུ་དང་སྐུ་ཡི་མཚམས་འཐག་གསལ།
བཅོང་གཤུ་རལ་ལེགས་མོ་འི་མཚམས་འཐག་གསལ།།
ཡར་མཚམས་འཐག་གསལ་བའི་བཀྲ་ཤིས་མཛོད།།

༣། ཤག་སྟོད་ཀྱི་སྟོད་དུ་ལོ། བུར་ཞིག་ཐུབས་སོ།།
བཅོང་ཅི་དང་ཅི་ཡི་གུར་ཐུབས། བཅོང་ཁྲ་བོ་དང་ཀྱི་གུར་ཐུབས།།
བཅོང་སྐུ་དང་སྐུ་ཡི་ཚུགས་ཤིང་ཚུགས། བཅོང་སྐག་ཆེན་ཁྲ་བོ་འི་ཚུགས་ཤིང་ཚུགས།།
བཅོང་སྐུ་དང་སྐུ་ཡི་མཚམས་འཐག་གསལ།
བཅོང་རི་མོ་ལེགས་མོ་འི་མཚམས་འཐག་གསལ།།
ཡར་མཚམས་འཐག་གསལ་བའི་བཀྲ་ཤིས་མཛོད།།

༥། མཆོ་སྟོད་ཀྱི་སྟོད་དུ་ལོ། གུར་ཞིག་ཕྱུབས་སོ།།

ཁོང་ཅི་དང་ཅི་ཡི་གུར་ཕྱུབས། ཁོང་སྐྱེན་པོ་དར་གྱི་གུར་ཕྱུབས།།

ཁོང་སུ་དང་སུ་ཡི་ཚུགས་ཤིང་ཚུགས།

ཁོང་ཉ་ཆེན་གཤུ་མོ་འི་ཚུགས་ཤིང་ཚུགས།།

ཁོང་སུ་དང་སུ་ཡི་མཚམས་འཐག་གསལ།

ཁོང་གསེར་མིག་ལེགས་མོ་འི་མཚམས་འཐག་གསལ།།

ཡར་མཚམས་འཐག་གསལ་བའི་བཀྲ་ཤིས་མཛོད།།

༦། དཔལ་ཁང་གི་སྟོད་དུ་ལོ། གུར་ཞིག་ཕྱུབས་སོ།།

ཁོང་ཅི་དང་ཅི་ཡི་གུར་ཕྱུབས། ཁོང་སྐྱེག་པོ་དར་གྱི་གུར་ཕྱུབས།།

ཁོང་སུ་དང་སུ་ཡི་ཚུགས་ཤིང་ཚུགས།

ཁོང་ཡབ་ཡུམ་ཐ་མའི་ཚུགས་ཤིང་ཚུགས།།

ཁོང་སུ་དང་སུ་ཡི་མཚམས་འཐག་གསལ།

ཁོང་བྱ་རོན་འཇོམས་པའི་མཚམས་འཐག་གསལ།།

ཡར་མཚམས་འཐག་གསལ་བའི་བཀྲ་ཤིས་མཛོད།།

Transcription

Gur-phub-čes-glu.

I

Guṅ-stod-kyi-stod-du-lo | gur-žig-phubs-so ||
glu-yaṅ-dmar-legs-so | der-gur-žig-phubs-so ||
khoṅ-či-daṅ-či-yi-gur-phubs | koṅ-ser-po-dar-gyi-gur-žig-phubs |
khoṅ-su-daṅ-su-yi-tshugs-śiṅ-tshugs | khoṅ-khri-gdugs-ñi-ma'i tshugs-śiṅ-tshugs |
khoṅ-su-daṅ-su-yi-mtshams-'thag-gsal | khoṅ-dkar-gsal-zla-ba'i mtshams-'thag-gsal |
yar-mtshams-'thag-gsal-ba'i-bkra-śis-mdzod |

II

Gaṅs-stod-kyi-stod-du-lo ! gur-žig-phubs-so ||
khoṅ-či-daṅ-či-yi-gur-phubs | khoṅ-dkar-po-dar-gyi-gur-phubs |
khoṅ-su-daṅ-su-yi-ʦhugs-śiṅ-ʦhugs | khoṅ-seṅ-čhen-dkar-mo'i ʦhugs-śiṅ-ʦhugs |
khoṅ-su-daṅ-su-yi-ʦhugs-śiṅ-ʦhugs | khoṅ-gyu-ral-legs-mo'i ʦhugs-śiṅ-ʦhugs |
khoṅ-su-daṅ-su-yi-mʦhams-'thag-gsal | khoṅ-gyu-ral-legs-mo'i mʦhams-'thag-gsal
yar-mʦhams-'thag-gsal-ba'i-bkra-śis-mdzod |

III

nags-stod-kyi-stod-du-lo | gur-žig-phubs-so |
khoṅ-či-daṅ-či-yi-gur-phubs | khoṅ-khra-bo-dar-gyi-gur-phubs |
khoṅ-su-daṅ-su-yi-ʦhugs-śiṅ-ʦhugs | khoṅ-stag-čhen-khra-bo'i ʦhugs-śiṅ-ʦhugs ||
khoṅ su daṅ su-yi mʦhams-'thag gsal | khoṅ ri-mo legs-mo'i mʦhams-'thag-gsal ||
yar mʦhams-'thag-gsal-ba'i-bkra-śis mdzod |

IV

mʦho-stod-kyi-stod-du-lo | gur-žig-phubs-so |
khoṅ-či-daṅ-či-yi-gur-phubs | khoṅ-sṅon-po-dar-gyi-gur-phubs |
khoṅ-su-daṅ-su-yi-ʦhugs-śiṅ-ʦhugs | khoṅ-ña-čhen-gyu-mo'i-ʦhugs-śiṅ-ʦhugs |
khoṅ-su-daṅ-su-yi-mʦhams-'thag-gsal | khoṅ-gser-mig-legs-mo'i-mʦhams-'thag-gsal |
yar-mʦhams-'thag-gsal-ba'i-bkra-śis-mdzod |

V

dpal-khaṅ-gi-stod-du-lo | gur-žig-phubs-so |
khoṅ-či-daṅ-či-yi-gur-phubs | khoṅ-smug-po-dar-gyi-gur-phubs |
khoṅ-su-daṅ-su-yi-ʦhugs-śiṅ-ʦhugs | khoṅ-yab-yum-pha-ma'i-ʦhugs-śiṅ-ʦhugs |
khoṅ-su-daṅ-su-yi-mʦhams-'thag-gsal | khoṅ-bu-nor-'dzoms-pa'i-mtshams-'thag-gsal |
yar-mʦhams-'thag-gsal-ba'i-bkra-śis-mdzod |

Phonetic transcription

Gur-p'uḭ-čē lū.

I

Guŋ töḍ-kʲi tö-du lō | gur-žig p'uḭ-sō ||
lū jaŋ mā lē-sō | dē gur-žig p'uḭ-sō ||
k'oŋ či daŋ čiĭ gur p'uḭ | k'oŋ ser-po dar-gʲi gur-žig p'uḭ |
k'oŋ su daŋ suĭ ʦ'ug-śiŋ ʦ'ug | k'oŋ ʈʳi-dū ñi-meĭ ʦ'ug-śiŋ ʦ'ug |
k'oŋ su daŋ suĭ ʦ'am-t'aḡ sal' | k'oŋ kar-sal' ḍa-weĭ ʦ'am-t'aḡ sal' |
jar ʦ'am-t'a sal'-weĭ kra-śī ʤō.

II

Gaŋ töḏ-kʲi tö-du lō | gur-žig̱ pʻuḇ-sō ||
kʻoŋ či daŋ čiĭ gur pʻuḇ | kʻoŋ kar-po dar-gʲi gur-pʻuḇ |
kʻoŋ su daŋ suĭ ʦʻug̱-śiŋ ʦʻug̱ | kʻoŋ śiŋ-čʻen kar-möĭ ʦʻug̱-śiŋ ʦʻug̱ |
kʻoŋ su daŋ suĭ ʦʻug̱-śiŋ ʦʻug̱ | kʻoŋ ju-ra lā-möĭ ʦʻug̱-śiŋ ʦʻug̱ |
kʻoŋ su daŋ suĭ ʦʻam-tʻa sal′ || kʻoŋ ju-ra lā-möĭ ʦʻam-tʻa sal′ |
jar ʦʻam-tʻa sal′-weĭ kra-śī ʤō |

III

nā töḏ-kʲi tö-du lō | gur-žig̱ pʻuḇ-sō ||
kʻoŋ či daŋ čiĭ gur pʻuḇ | kʻoŋ čʳa-wo dar-gʲi gur pʻuḇ |
kʻoŋ su daŋ suĭ ʦʻug̱-śiŋ ʦʻug̱ | kʻoŋ ta-čʻen čʳa-woĭ ʦʻug̱-śiŋ ʦʻug̱ |
kʻoŋ su daŋ suĭ ʦʻam-tʻa sal′ | kʻoŋ ri-mo lā-möĭ ʦʻam-tʻa sal′ |
jar ʦʻam-tʻa sal′-weĭ kra-śī dzō |

IV

ʦʻo töḏ-kʲi tö-du lō | gur-žig̱ pʻuḇ-sō ||
kʻoŋ či daŋ čiĭ gur pʻuḇ | kʻoŋ ŋön-po dar-gʲi gur-pʻuḇ |
kʻoŋ su daŋ suĭ ʦʻug̱-śiŋ ʦʻug̱ | kʻoŋ ña-čʻen jur-möĭ ʦʻug̱-śiŋ ʦʻug̱ |
kʻoŋ su daŋ suĭ ʦʻam-tʻa sal′ | kʻoŋ ser-mig̱ lā-möĭ ʦʻam-tʻa sal′ |
jar ʦʻam-tʻa sal′-weĭ kra-śī ʤö ||

V

pal-kʻaŋ-gi tö-du lō | gur-žig̱ pʻuḇ-sō ||
kʻoŋ či daŋ čiĭ gur pʻuḇ | kʻoŋ mug̱-po dar-gʲi gur pʻuḇ |
kʻoŋ su daŋ suĭ ʦʻug̱-śiŋ ʦʻug̱ | kʻoŋ jaḇ-jum pʻa-meĭ ʦʻug̱-śiŋ ʦʻug̱ |
kʻoŋ su daŋ suĭ ʦʻam-tʻa sal′ | kʻoŋ bu nor ʤom-peĭ ʦʻam-tʻa sal′ |
jar ʦʻam-tʻa sal′-weĭ kra-śī ʤō |

Translation

The Song of Pitching the Tent

I

In the high and lofty heaven
a tent is being pitched!
It is a happy song!
There a tent is being pitched!
What kind of tent is he pitching?
He puts up a tent of yellow silk.
Whose tent-pole is he pitching?

He puts up the tent-pole like the sun-rays.
Whose tent trappings is he spreading ?
He spreads the tent trappings of the brilliant white moon.
Blessing to the bright embroidered trappings !

II

In the high and lofty snows
a tent is being pitched !
What kind of tent is he pitching ?
He puts up a tent of white silk.
Whose tent-pole is he pitching ?
He puts up the tent-pole of the white mighty lion.
Whose tent-pole is he pitching ?
He puts up the tent-pole of the beautiful turquoise mane.
Whose tent trappings is he spreading ?
He spreads the tent trappings of the beautiful turquoise mane.
Blessing to the bright embroidered trappings !

III

In the high and lofty forest
a tent is being pitched !
What kind of tent is he pitching ?
He puts up a tent of multi-coloured silk.
Whose tent-pole is he pitching ?
He puts up the tent-pole of the mighty striped tiger.
Whose tent trappings is he spreading ?
He spreads the tent trapping of beautiful design.
Blessing to the bright embroidered trapping !

IV

In the high and lofty lake,
a tent is being pitched !
What kind of tent is he pitching ?
He puts up a tent of blue silk.
Whose tent-pole is he pitching ?
He puts up the tent-pole of the great turquoise fish.
Whose tent trapping is he spreading ?
He spreads the tent trapping of the beautiful Yellow-eye.
Blessing to the bright embroidered trapping !

V

In the lofty abode of majesty,
a tent is being pitched!
What kind of tent is he pitching?
He puts up a tent of brown silk.
Whose tent-pole is he pitching?
He puts up the tent-pole of parents.
Whose tent trapping is he spreading?
He spreads the son- and wealth-giving embroidered trapping.
Blessing to the bright embroidered trapping!

Kolong

དབུ་ཐོད་འབུལ་ཅེས།

༢། སྤོ་ལེ་སེར་ཐོད་བསྣམས་པ་དེ། སུ་དང་སུ་ཡི་དྲིན།
སྤོ་ལེ་སེར་ཐོད་བསྣམས་པ་དེ། སྤང་དམར་མང་གི་དྲིན།
སྐྱེང་གི་ལྷ་ལ་བཀྲིས་མཛོད།།

༣། གཉའ་ལེ་དབུ་ཐོད་བསྣམས་པ་དེ། སུ་དང་སུ་ཡི་དྲིན།
གཉའ་ལེ་དབུ་ཐོད་བསྣམས་པ་དེ། ཀལ་མ་མང་གི་དྲིན།
སྐྱེང་གི་ལྷ་ལ་བཀྲིས་མཛོད།།

༤། སྤང་མ་བལ་ཐོད་བསྣམས་པ་དེ། སུ་དང་སུ་ཡི་དྲིན།
སྤང་མ་བལ་ཐོད་བསྣམས་པ་དེ། ཆུ་མིག་མང་གི་དྲིན།
སྐྱེང་གི་ལྷ་ལ་བཀྲིས་མཛོད།།

༥། འུམ་བུ་དར་ཐོད་བསྣམས་པ་དེ། སུ་དང་སུ་ཡི་དྲིན།
འུམ་བུ་དར་ཐོད་བསྣམས་པ་དེ། གཅང་ཚབ་སྟོན་མོ་འི་དྲིན།
སྐྱེང་གི་ལྷ་ལ་བཀྲིས་མཛོད།།

༧། ཤྲོལ་ལུ་དབུ་ཐོད་བསྣམས་པ་དེ། སུ་དང་སུ་ཡི་དྲིན།
ཤྲོལ་ལུ་དབུ་ཐོད་བསྣམས་པ་དེ། ཡབ་དང་ཡུམ་གྱི་དྲིན།
སྟེང་གི་ལྷ་ལ་བཀྲ་ཤིས་མཛོད།།

Transcription

dBu-thod-'bul-čes.

szo-lo-ser-thod-bsnams-pa-de ! su-daṅ-su-yi-drin !
szo-lo-ser-thod-bsnams-pa-de ! spaṅ-dmar-maṅ-gi-drin !
steṅ-gi-lha-la-bkra-śis-mʤod !

gña'-lo-dbu-thod-bsnams-pa-de ! su-daṅ-su-yi-drin !
gña'-lo-dbu-thod-bsnams-pa-de ! śal-ma-maṅ-gi-drin !
steṅ-gi-lha-la-bkra-śis-mʤod !

glaṅ-ma-bal-thod-bsnams-pa-de ! su-daṅ-su-yi-drin !
glaṅ-ma-bal-thod-bsnams-pa-de ! čhu-mig-maṅ-gi-drin !
steṅ-gi-lha-la-bkra-śis-mʤod !

'um-bu-dar-thod-bsnams-pa-de ! su-daṅ-su-yi-drin !
'um-bu-dar-thod-bsnams-pa-de ! gʦaṅ-čhab-sṅon-mo'i-drin !
steṅ-gi-lha-la-bkra-śis-mʤod !

rgyal-lu-dbu-thod-bsnams-pa-de ! su-daṅ-su-yi-drin !
rgyal-lu-rbu-thod-bsnams-pa-de ! yab-daṅ-yum-gyi-drin !
steṅ-gi-lha-la-bkra-śis-mʤod !

Phonetic Transcription

ʔust'öḍ bul'-čē

šo-lo ser-t'öḍ nam-pa de ! su daŋ suĭ ḍʳin !
šo-lo ser-t'öḍ nam-pa de ! paŋ-mar-maŋ-gi ḍʳin !
ta-li lā-la kra-śī ʤō !

ñā-lo ʔu-t'öḍ nam-pa de ! su daŋ suĭ ḍʳin !
ñā-lo ʔu-t'öḍ nam-pa de ! śal-ma-maŋ-gi ḍʳin !
ta-li lā-la kra-śī ʤō !

laŋ-ma bal'-t'öḍ nam-pa de ! su daŋ suĭ ḍʳin !
laŋ-ma bal'-t'öḍ nam-pa de ! č'u-mig-maŋ-gi ḍʳin !
ta-li lā-la kra-śī ʤō !

'um-bu dar-t'öḍ nam-pa de | su daŋ suĭ ḍʳin |
'um-bu dar-t'öḍ nam-pa de | saŋ-č'aḅ ŋon-möĭ ḍʳin |
ta-li lā-la kra-śī ʤō |

gⁱa-lu ʔu-t'öḍ nam-pa de | su daŋ suĭ ḍʳin |
gⁱal-lu ʔu-t'öḍ nam-pa de | jaḅ daŋ jum-gⁱi ḍʳin |
ta-li lā-la kra-śī ʤō |

Translation

The Offering of a Crown.

I

That crown of yellow 'šolo' flowers,
whose kindness is it ?
This crown of yellow 'šolo' flowers,
is the gift of the beautiful meadow.
Hail to the gods of the lofty heaven !

II

That crown of 'ña-lo' flowers,
whose kindness is it ?
This crown of 'ña-lo' flowers,
is the gift of the rocky slopes.
Hail to the gods of the lofty heaven !

III

That crown of feathery willows,
whose kindness is it ?
This crown of feathery willows,
is the gift of springs.
Hail to the gods of the lofty heaven !

IV

That crown of silky tamarisks,
whose kindness is it ?
This crown of silky tamarisks,
is the gift of the blue pure water.
Hail to the gods of the lofty heaven !

V

That princely crown,
whose kindness is it ?
This princely crown,
is the gift of Father and Mother.
Hail to the gods of the lofty heaven !

Kolong

ན་བཟང་འབྱུལ་ཅེས།

༢ ། མཐོ་བ་རི་གསུམ་རྩེ་ན། ཐོད་པོ་སྦུན་གསུམ་སྡོད།།
བསྔམས་མི་བསྔམས་ལ་ཅི་བསྔམས། བྱའི་སྒྲུ་སྐྱ་ཆོགས་བསྔམས།།
རྒྱོན་ཞི་རྒྱོན་ལ་ཅི་རྒྱོན། རྒྱོན་ཞི་རྒྱོན་ལ་ཕྱ་དཀར་དཀར་པོ་རྒྱོན།།
རྒྱེམས་མི་རྒྱེམས་ལ་ཅི་རྒྱེམས།
རྒྱེམས་མི་རྒྱེམས་ལ་གཙང་ཆང་ཁྲིམ་རྫ་རྒྱེམས།།
ཤྱེང་གི་ལྷ་ལ་བཀྲིས་མཛོད།།

༣ ། ཤལ་མ་འདབས་སྐུ་བཞུགས་པས། ཤ་བ་སྦུན་གསུམ་བདེ།།
བསྔམས་མི་བསྔམས་ལ་ཅི་བསྔམས།
བསྔམས་མི་བསྔམས་ལ་སྦུན་ཆུང་ཤུན་སྒྲིང་བསྔམས།།
རྒྱོན་ཞི་རྒྱོན་ལ་ཅི་རྒྱོན། རྒྱོན་ཞི་རྒྱོན་ལ་མེ་དོག་སྐྱ་ཆོགས་རྒྱོན།།
རྒྱེམས་མི་རྒྱེམས་ལ་ཅི་རྒྱེམས།
རྒྱེམས་མི་རྒྱེམས་ལ་གང་ས་ཁྲུས་ཁྲོལ་རྒྱེམས།།
ཤྱེང་གི་ལྷ་ལ་བཀྲིས་མཛོད།།

༤ ། བག་དམར་འདབས་སྐུ་བཞུགས་པས། བཚོན་པ་སྦུན་གསུམ་བདེ།
བསྔམས་མི་བསྔམས་ལ་ཅི་བསྔམས།
བསྔམས་མི་བསྔམས་ལ་རས་གཟན་ཀྱུང་གཅིག་བསྔམས།།

ཏྲོག་ནི་རྩེག་ལ་ཅི་བྱོག། རྒོད་ནི་སྤྲོན་ལ་འབྲས་དཀར་འོ་ལོ་སྡོད།།
སྐྱེམས་མི་སྐྱེམས་ལ་ཅི་སྐྱེམས།
སྐྱེམས་མི་སྐྱེམས་ལ་གསེར་མེག་གསུམ་ཀྱང་སྐྱེམས།།
སྟེང་གི་ལྷ་ལ་བཀྲས་མཛོད།།

༥ ། དཔལ་ཁང་དཀྱིལ་དུ་བཞུགས་པས། རྒྱལ་ལུ་སྤྲུན་གསུམ་བདེ།།
བསྒམས་མི་བསྒམས་ལ་ཅི་བསྒམས།
བསྒམས་མི་བསྒམས་ལ་དར་མིན་གོས་ཆེན་བསྒམས།།
ཏྲོག་ནི་རྩེག་ལ་ཅི་བྱོག། རྒོད་ནི་རྩེག་ལ་ཞིམ་ཚ་མངར་བཅུད་བྱོག།།
སྐྱེམས་མི་སྐྱེམས་ལ་ཅི་སྐྱེམས། སྐྱེམས་མི་སྐྱེམས་ལ་ཨ་རྒ་བདུད་རྩི་སྐྱེམས།།
སྟེང་གི་ལྷ་ལ་བཀྲས་མཛོད།།

Transcription

Na-bza' 'bul-čes ।

mtho-ba-ri-gsum-rtse-na । rgod-po-spun-gsum-sdod ।
bsnams-mi-bsnams-la-či-bsnams । bya'i-spu-sna-tshogs-bsnams ।
ldon-ni-ldon-la-či-ldon । ldon-ni-ldon-la-phya-dkar-dkar-po-ldon ।
skyems-mi-skyems-la-či-skyems । skyems-mi-skyems-la-gtsaṅ-čhaṅ-žim-ru-skyems ।
steṅ-gi-lha-la-bkra-śis-mdzod ।।

śal-ma-'dabs-su-bžugs-pas । śa-ba-spun-gsum-bde ।
bsnams-mi-bsnams-la-či-bsnams । bsnams-mi-bsnams-la-spun-čhuṅ-stan-ldiṅ bsnams ।
ldon-ni-ldon-la-či-ldon । ldon-ni-ldon-la-me-tog-sna-tshogs-ldon ।
skyems-mi-skyems-la-či-skyems । skyems-mi-skyems-la-gaṅs-čhu-khral-khrol-skyems ।
steṅ-gi-lha-la-bkra-śis-mdzod ।।

brag-dmar-'dabs-su-bžugs-pas । btsun-pa-spun-gsum-bde ।
bsnams-mi-bsnams-la-či-bsnams । bsnams-mi-bsnams-la-ras-gzan-rkyaṅ-gčig bsnams ।

ldon-ni-ldon-la-či-ldon | ldon-ni-ldon-la-'bras-dkar 'o-lo-ldon |
skyems-mi-skyems-la-či-skyems | skyems-mi-skyems-la-gser-mig-gsum-kyaṅ-skyems |
steṅ-gi-lha-la-bkra-śis-mdzod ||

dpal-khaṅ-dkyil-du-bžugs-pas | rgyal-lu-spun-gsum-bde |
bsnams-mi-bsnams-la-či-bsnams | bsnams-mi-bsnams-la-dar-min-gos-čhen bsnams |
ldon-ni-ldon-la-či-ldon | ldon-ni-ldon-la-žim-ʦhag-mṅar-bčud-ldon |
skyems-mi-skyems-la-či-skyems | skyems-mi-skyems-la-a-rag-bdud-rʦi skyems |
steṅ-gi-lha-la-bkra-śis-mdzod ||

Phonetic Transcription

Nam-zā bul'-čē.

I

T'o-wa ri-sum ʦe-na | göḏ-po pün-sum dö |
nam mi-nam-la či nam | ǰ^{i}a-pu na-ʦ'o nam |
dön ni dön-la či dön | dön ni dön-la ǰ^{i}a[1]-kar kar-po dön |
k^{i}em mi-k^{i}em-la či k^{i}em | k^{i}em mi-k^{i}em-la san-č'aŋ žim-ru k^{i}em |
ta-li lā-la kra-śī ʤō ||

II

śal'-ma daḇsu žuḡ-wē | śa-wa pün-sum de |
nam mi-nam-la či nam | nam mi-nam-la pün-č'uŋ ten-diŋ nam |
dön ni dön-la či dön | dön ni dön-la mento na-ʦ'o dön |
k^{i}em mi-k^{i}em-la či k^{i}em | k^{i}em mi-k^{i}em-la gaŋ-č'u ʈ^{r}'al'-ʈ^{r}'ol' k^{i}em |
ta-li lā-la kra-śī ʤō ||

III

pra-mar daḇ-su žuḡ-wē | ʦün-pa pün-sum de |
nam mi-nam-la či nam | nam mi-nam-la re-zan k^{i}aŋ-čiḡ nam |
dön ni dön-la či dön | dön ni dön-la ḍ^{r}eskar 'o-lo dön |
k^{i}em mi-k^{i}em-la či k^{i}em | k^{i}em mi-k^{i}em-la ser-miḡ sum k^{i}aŋ k^{i}em |
ta-li lā-la kra-śī ʤō ||

IV

pal-k'aŋ k^{i}il-du žuḡ-wē | g^{i}al-lu pün-sum de |
nam mi-nam-la či nam | nam mi-nam-la dar-men goĭ-č'en nam |
dön ni dön-la či dön | dön ni dön-la žim-za ŋar-ču dön |
k^{i}em mi-k^{i}em-la či k^{i}em | k^{i}em mi-k^{i}em-la^{ʔ}a-ra dur-si k^{i}em |
ta-li lā-la kra-śī ʤō ||

[1] č'^{i}a—

Translation

The Offering of a Garment to the Bride

I

On the summit of the three lofty mountains,
the three hero brothers dwell.
What are they holding ?
They are holding bird feathers of many kinds.
What are they accepting ?
They accept white porcelain cups.
Of what are they partaking ?
They partake of highly-scented pure wine.
Hail to the lofty gods !

II

On the rocky slope dwelling,
are three happy brother stags.
What are they holding ?
The younger brother is holding a carpet spread.
What are they accepting ?
They accept flowers of many kinds.
Of what are they partaking ?
They partake of pure snowy water.
Hail to the lofty gods !

III

On the fiery rock dwelling,
are three happy brother monks.
What are they holding ?
They are holding the monastic mantle.
What are they accepting ?
They accept white rice.
Of what are they partaking ?
Will they partake of the three Yellow-eyes ?
Hail to the lofty gods !

IV

Dwelling in the blessed home,
are three happy brother princes.
What are they holding ?
They are holding a garment of costly silk.

What are they accepting ?
They accept the highly-scented sweet water
Of what are they partaking ?
They partake of the amṛta like arag.
Hail to the lofty gods !

Kolong

མེ་དོག་འབུལ་ཅེས།

༡ ། རྒྱ་གར་གྱི་རྒྱལ་མོ། བདེ་བདེ་གསུམ་ལེགས་སོ།།
རྒྱལ་མོ་འི་ཆོ་གསུམ། མེ་དོག་ཙམ་ཙམ་འབྲུངས་སོ།།
ཤ་ལོ་ཙམ་ཙམ་འབྲུངས་སོ།།
རྒྱལ་མོ་འི་ཆོ་གསུམ། མེ་དོག་བརྒྱ་ཙམ་འབྲུངས་སོ།།
ཤ་ལོ་བརྒྱ་ཙམ་འབྲུངས་སོ།།

༢ ། གཅིག་ནི་མེ་དོག་སྤུ་ལ་འབུལ། གཅིག་ནི་མེ་དོག་སྟེང་ཐྱོགས་སྐྱ་ལ་འབུལ།།
སྐྱ་དབུ་མཁར་མཐོ་བའི་བཀྲིས་མཛོད།།

༣ ། གཉིས་ནི་མེ་དོག་སྤུ་ལ་འབུལ། གཉིས་ནི་མེ་དོག་བར་ཐྱོགས་བཙན་ལ་འབུལ།།
བཙན་རྒྱབ་རི་བཟང་པོ་འི་བཀྲིས་མཛོད།།

༤ ། གསུམ་ནི་མེ་དོག་སྤུ་ལ་འབུལ། གསུམ་ནི་མེ་དོག་འོག་ཐྱོགས་སྐུ་ལ་འབུལ།།
བྱུ་བུ་ཆོར་འཛོམས་པའི་བཀྲིས་ཤོག།

༥ ། བཞི་ནི་མེ་དོག་སྤུ་ལ་འབུལ། བཞི་ནི་མེ་དོག་ཨ་བ་ཡབ་ལ་འབུལ།།
སྐྱིད་ཡབ་ལ་འབུལ་བའི་བཀྲིས་ཤོག།

༦ ། ལྔ་ནི་མེ་དོག་སྤུ་ལ་འབུལ། ལྔ་ནི་མེ་དོག་ཨ་མ་ཡུམ་ལ་འབུལ།།
སྐྱིད་ཡུམ་ལ་འབུལ་བའི་བཀྲིས་ཤོག།

༧ ། དབུག་ནི་མེ་དོག་སྣ་ལ་འབུལ། དབུག་ནི་མེ་དོག་ཇ་རྩོ་ཆེ་ལ་འབུལ།།
རྒྱལ་གྲལ་ལ་འབུལ་བའི་བཀྲེས་ཤོག།

༨ ། བདུན་ནི་མེ་དོག་སྣ་ལ་འབུལ། བདུན་ནི་མེ་དོག་ཇ་ཆེ་ལྷམ་ལ་འབུལ།།
རྒྱལ་ལྷམ་ལ་འབུལ་བའི་བཀྲེས་ཤོག།

༩ ། བརྒྱད་ནི་མེ་དོག་སྣ་ལ་འབུལ། བརྒྱད་ནི་མེ་དོག་ཇ་བོ་རང་ལ་འབུལ།།
རྒྱལ་རང་ལ་འབུལ་བའི་བཀྲེས་ཤོག།

Transcription

Me-tog-'bul-čes

rgya-gar-gyi-rgyal-mo ། bde-bde-gsum-legs-so ॥
rgyal-mo'i-tsʰe-gsum ། me-tog-tsam-tsam-'khruṅs-so ॥
ha-lo-tsam-tsam-'khruṅs-so ॥
rgyal-mo'i-tsʰe-gsum ། me-tog-brgya-tsam-'khruṅs-so ॥
ha-lo-brgya-tsam-'khruṅs-so ॥

gčig-ni-me-tog-su-la-'bul ། gčig-ni-me-tog-steṅ-phyogs-lha-la-'bul ॥
lha-dbu-mkhar-mtho-ba'i-bkra-śis-mdzod ॥

gñis-ni-me-tog-su-la-'bul ། gñis-ni-me-tog-bar-phyogs-btsan-la'bul ॥
btsan-rgyab-ri-bzaṅ-po'i-bkra-śis-mdzod ॥

gsum-ni-me-tog-su-la-'bul ། gsum-ni-me-tog-'og-phyogs-klu-la-'bul ॥
klu-bu-nor-'dzoms-pa'i-bkra-śis-śog ।

bži-ni-me-tog-su-la-'bul ། bži-ni-me-tog-a-ba-yab-la-'bul ॥
skyid-yab-la-'bul-ba'i-bkra-śis-śog ।

lṅa-ni-me-tog-su-la-'bul ། lṅa-ni-me-tog-a-ma-yum-la-'bul ॥
skyid-yum-la-'bul-ba'i-bkra-śis-śog ।

drug-ni-me-tog-su-la-'bul ། drug-ni-me-tog-a-ǰo-če-la-'bul ॥
skyid-gral-la-'bul-ba'i-bkra-śis-śog ।

bdun-ni-me-tog-su-la-'bul ། bdun-ni-me-tog-a-če-lčam-la-'bul ॥
skyid-lčam-la-'bul-ba'i-bkra-śis-śog ।

brgyad-ni-me-tog-su-la-'bul ། brgyad-ni-me-tog-a-bo-raṅ-la-'bul ॥
skyid-raṅ-la-'bul-ba'i-bkra-śis-śog ।

Phonetic Transcription

Men-to bul′-čē

ǰʲa-gar-gʲi gʲal-mo | de-de sum lē-sō ||
gʲal-möï ʦʻe-sum | men-to ʦam-ʦam ʈʳuŋ-sō ||
ha-lo ʦam-ʦam ʈʳuŋ-sō ||
gʲal-möï ʦʻe-sum | men-to gʲa-ʦam ʈʳuŋ-sō ||
ha-lo gʲa-ʦam ʈʳuŋ-sō ||

čig-ni men-to su-la bul′ | čig-ni men-to teŋ-č′o-lā-la bul′ ||
lā ʔu-kʰar tʻo-weï kra-śī ʤō ||

ñī-ni men-to su-la bul′ | ñī-ni men-to bar-č′o-ʦen-la bul′ ||
ʦen gʲaḇ-ri zaŋ-pöï kra-śī ʤō ||

sum-ni men-to su-la bul′ | sum-ni men-to ʻo-č′o-lu-la bul′ ||
lu bu-nor-ʤom-peï kra-śī śō |

ži-ni men-to su-la bul′ | ži-ni men-to ʔa-ba jaḇ-la bul′ ||
kʲi jaḇ-la bul′-weï kra-śī śō |

ŋa-ni men-to su-la bul′ | ŋa-ni men-to ʔa-ma jum-la bul′ ||
kʲi jum-la bul′-weï kra-śī śo |

ʤʳuḡ-ni men-to su-la bul′ | ʤʳuḡ-ni men-to ʔa-ǰo- čʻe-la bul′ ||
kʲi ʈʳe-la bul′-wei kra-śī śō |

dün-ni men-to su-la bul′ | dün-ni men-to ʔa-ǰi čam-la bul′ ||
kʲi čam-la bul′-wei kra-śī śō |

gʲaḏ-ni men-to su-la bul′ | gʲaḏ-ni men-to ʔa-wo-raŋ-la bul′ ||
kʲi raŋ-la bul′-wei kra-śī śō |

Translation

Flower Offering

I

Those three beautiful happy queens of India !
In the three lives of the Queen, how many flowers were born ?
How many hollyhock flowers were born ?
In the three lives of the Queen, a hundred flowers were born !
About a hundred hollyhock flowers were born !

II

First, to whom shall we offer a flower ?
first, we shall offer a flower to the gods of the lofty heaven.
Hail to the lofty castle of the gods !

III

Secondly, to whom shall we offer a flower ?
secondly, we shall offer a flower to the denizens of the middle region.
Hail to the blessed mountain retreat of the denizens !

IV

Thirdly, to whom shall we offer a flower ?
thirdly, we shall offer a flower to the nāgas of the lower region.
Hail to son and wealth bestowing nāgas !

V

Fourthly, to whom shall we offer a flower ?
fourthly, we shall offer a flower to our father.
Hail to the happy father !

VI

Fifthly, to whom shall we offer a flower ?
fifthly, we shall offer a flower to our mother.
Hail to the happy mother !

VII

Sixthly, to whom shall we offer a flower ?
sixthly, we shall offer a flower to our eldest brother.
Hail to the happy ancestry !

VIII

Seventhly, to whom shall we offer a flower ?
seventhly, we shall offer a flower to our eldest sister.
Hail to the happy sister !

IX

Eighthly, to whom shall we offer a flower ?
eighthly, we shall offer a flower to ourselves.
Hail to our happy selves !

Kolong

སྨོན་ལམ་བྱགས།

བའི་ཕྱིའི་སྐུ་མཁར་འདྲ་བའི་སྐུ་མཁར་མཐོན་པོ་དེར།

བའི་དབྱ་དང་ཐག་པ་མེད་པའི་སྨོན་ལམ་འགྲུབས་ནས་གཟིགས།

ངའི་ལྷའི་ཐ་མ་འདྲ་བའི་ཐ་མ་ཡབ་ཡུམ་དེར།
སྐྱེས་གཞི་གོད་ཚག་མེད་པའི་སྟོན་ལམ་འགྲུབས་ནས་གཟིགས།
ངའི་ལྷའི་མ་ཞིང་འདྲ་བའི་མ་ཞིང་ཏུ་དང་དེར།
སད་དང་སེར་བ་མེད་པའི་སྟོན་ལམ་འགྲུབས་ནས་གཟིགས།
དེ་གསུམ་གསེར་དང་འདྲ་བའི་གུང་ལ་ཁྲི་གཅིག་འབུལ།
ངན་སོང་མཐིལ་ནས་འདྲེན་པའི་བཅོམ་ལྡན་འཁྲུ་དང་གཅིག།
མཐོ་རིས་ལམ་སྟ་འདྲེན་པའི་སློབ་དཔོན་བཟང་དང་གཉིས།
ཆོ་འདི་ཕྱི་མ་མཐའ་བའི་རྗེ་རྣམས་དང་གསུམ།
དེ་གསུམ་གསེར་དང་འདྲ་བའི་གུང་ལ་ཁྲི་གཅིག་འབུལ།
ལུས་ལ་ཨ་ལོང་བསྣམས་པའི་ཨ་བཟང་ཡབ་དང་གཅིག།
མ་ཞོ་མངར་མོ་འཐུང་བའི་ཨ་བཟང་ཡུམ་དང་གཉིས།
ཞིམ་ཆུ་མངར་མོ་སྟོལ་བའི་བུ་སྲིང་བཟང་དང་གསུམ།
དེ་གསུམ་གསེར་དང་འདྲ་བའི་གུང་ལ་ཁྲི་གཅིག་འབུལ།
རིན་ཆེན་སྲོག་ལ་ཕན་པའི་མ་ཁང་བཟང་དང་གཅིག།
ལུས་ལ་དར་ཟབ་བསྣམས་པའི་གཞི་སྣང་བཟང་དང་གཉིས།
ཉིན་གསུམ་མཚན་གསུམ་ཟུག་པའི་སྐོ་ཁྱེ་བཟང་དང་གསུམ།
དེ་གསུམ་གསེར་དང་འདྲ་བའི་གུང་ལ་ཁྲི་གཅིག་འབུལ།
དབུང་པ་ལག་ནས་འཕེན་པའི་ཞ་སྐྱེན་བཟང་དང་གཅིག།
བྱིན་མེད་ཐུར་མེད་ཆུགས་པའི་ཁྱི་ལིང་བཟང་དང་གཉིས།
དབུ་དང་མཁར་ཁྱི་ཐོག་དུ་ཕྱབ་ཆུང་བཟང་དང་གསུམ།
དེ་གསུམ་གསེར་དང་འདྲ་བའི་གུང་ལ་ཁྲི་གཅིག་འབུལ།།

Transcription

sMon-lam grags

ña'i-lha'i-sku-mkhar-'dra-ba'i-sku-mkhar-mthon-po-der |
ña'i-dgra-daṅ-ǰag-pa-med-pa'i-smon-lam-'gyaṅs-nas-gzigs |
ña'i-lha'i-pha-ma-dra-ba'i-pha-ma-yab-yum-der |
sñun-gži-god-čhag-med-pa'i-smon-lam'-gyaṅs-nas-gzigs |
ña'i-lha'i-ma-žiṅ-'dra-ba'i-ma-žiṅ-rgya-dar-der |
sad-daṅ-ser-ba-med-pa'i-smon-lam-'gyaṅs-nas-gzigs |
de-gsum-gser-daṅ-'dra-ba'i-guṅ-la-khri-gčig-'bul |

ñan-soṅ-mthil-nas-'dren-pa'i-bčom-ldan-Śākya-daṅ-gčig |
mtho-ris-lam-sna-'dren-pa'i-slob-dpon-bzaṅ-daṅ-gñis |
ʦhe-'di-phyi-ma-mǰal-ba'i-rdo-rǰe-spun-daṅ-gsum |
de-gsum-gser-daṅ-'dra-ba'i-guṅ-la-khri-gčig'bul |

lus-la-a-loṅ-bsnams-pa'i-a-bzaṅ-yab-daṅ-gčig |
ma-žo-mṅar-mo-thuṅ-ba'i-a-bzaṅ-yum-daṅ-gñis |
žim-čhu-mṅar-mo-stsal-ba'i-bu-sriṅ-bzaṅ-daṅ-gsum |
de-gsum-gser-daṅ-'dra-ba'i-guṅ-la-khri-gčig-'bul |

rin-čhen-srog-la-phan-pa'i-ma-khaṅ-bzaṅ-daṅ-gčig |
lus-la-dar-zab-bsnams-pa'i-gži-smad-bzaṅ-daṅ-gñis |
ñin-gsum-mtshan-gsum-zug-pa'i-sgo-khyi-bzaṅ-daṅ-gsum |
de-gsum-gser-daṅ-'dra-ba'i-guṅ-la-khri-gčig-'bul |

dpuṅ-pa-lag-nas-'then-pa'i-pha-spun-bzaṅ-daṅ-gčig |
gyen-med-thur-med-rgyugs-pa'i-gyi-liṅ-bzaṅ-daṅ-gñis |
dgra-daṅ-mkhar-gyi-thog-tu-phub-čhuṅ-bzaṅ-daṅ-gsum |
de-gsum-gser-daṅ-'dra-ba'i-guṅ-la-khri-gčig-'bul |

Phonetic Transcription

Mön-lam ʈʳag

ŋeĭ lāĭ ku-kʰar ɖʳa-weĭ ku-kʰar tʻön-po der
ŋeĭ ɖʳa daŋ ǰag-pa meˋ-peĭ mön-lam ǰʲaŋ-nē zig
ŋeĭ lāĭ pʻa-ma ɖʳa-weĭ pʻa-ma jab-jum der
ñun-ži göd-čʻa meˋ-peĭ mön-lam ǰʲaŋ-nē zig
ŋeĭ lāĭ ma-žiŋ ɖʳa-weĭ ma-žiŋ ǰʲa-dar der
saḍ daŋ ser-wa meˋ-peĭ mön-lam ǰʲaŋ-nē zig
de-sum ser daŋ ɖʳa-weĭ guŋ-la ʈʳi-či bulʼ

ŋen-soŋ tʻilʼ-nē ɖʳen-peĭ čom-den Śākya daŋ čig
tʻo-rī lam-na ɖʳen-peĭ lob-pön zaŋ daŋ ñī
ʦʻe di čʻʻi-ma ǰalʼ-weĭ dorǰe-pün daŋ sum
de-sum ser daŋ ɖʳa-weĭ guŋ-la ʈʳi-či bulʼ

luĭ-la ʔa-loŋ nam-peĭ ʔa-zaŋ jab̲ daŋ čig
ma-žo ŋar-mo t'uŋ-weĭ ʔa-zaŋ jum daŋ ñī
žim-č'u ŋar-mo ʦol'-weĭ bu-šʳiŋ zaŋ daŋ sum
de-sum ser daŋ ḍʳa-wei guŋ-la ʈʳi-či bul'

rin-č'en srog-la p'en-peĭ ma-k'aŋ zaŋ daŋ čig
luĭ-la dar-zab̲ nam-peĭ ži-mäḍ zaŋ daŋ ñī
ñin-sum ʦ'än-sum zug̲-peĭ go-kʰi zaŋ daŋ sum
de-sum ser daŋ ḍʳa-weĭ guŋ-la ʈʳi-či bul'

puŋ-pa lag-nē t'en-peĭ p'a-pün zaŋ daŋ čig
gʲen-meˋ tʰur-meˋ ǰʲug̲-peĭ gʲi-liŋ zaŋ daŋ ñī
ḍʳa daŋ kʰar-gʲi tʰog̲-tu p'ub̲-č'uŋ zaŋ daŋ sum
de-sum ser daŋ ḍʳa-weĭ guŋ-la ʈʳi-či bul'

Translation

Prayer

There in the lofty castle similar to the castle of my god,
Behold from afar my prayer for protection against enemies and brigands!
There my parents who are like the parents of my god,
Behold from afar my prayer for protection against illness and calamity!
There the vast fields which are like the fields of my god,
Behold from afar my prayer for protection from frost and hail!
To these three golden ones, I offer a throne in heaven!

From damnation the deliverer, the Blessed Śākya—first,
The Guide to the Paradise, the Blessed Guru—second,
The helper in this and future lives, the spiritual friend—third,
To these three golden ones, I offer a throne in heaven!

The laymen, blessed father—first,
Blessed mother bestowing sweet mother's milk—second,
The food bestowing blessed brother and sister—third,
To these three golden ones, I offer a throne in heaven!

Precious, life-sustaining, blessed home—first,
Attired in costly silk, blessed family—second,
The faithful watch-dog, alert through the three watches of day and night—third,
To these three golden ones, I offer a throne in heaven!

The helpful, blessed cousin—first,
The faithful, swift-moving steed—second,
The blessed shield, protecting against fort and enemies—third,
To these three golden ones, I offer a throne in heaven!

Kolong

ལོ་གཅིག་གི་སྟོན་ཏོག །

ལོ་རེའི་ཟླ་བ་བཞི་པའི་ཚེས་བ་བཅུ་བཞི་བཅོ་ལྔ་ཙམ་ལ་ནས་དང་གྲོ་དང་ཨ་རུ་དང་གྲོ་ལྗང་བཏབ་ཅེན། ཡང་བཞི་པའི་ཉེར་ལྔ་ཙམ་ལ་བྲ་བོ་དང་སྲད་མ་བཏབ་ཅེན། ཟླ་བ་བདུན་པ་རྫོགས་མཚམས་ལ་བྲ་བོ་བརྣ་ཅེན། བརྡུད་ཏེ་ནང་འདོགས་ཅེན། ཟླ་བ་བརྒྱད་པའི་རྫོགས་མཚམས་ལ་ནས་དང་གྲོ་དང་སྲད་མ་ཐམས་ཅད་བརྣ་ཅེན། བརྣས་ཏེ་ཞག་མ་བཅོ་ལྔ་ཙམ་ཞིན་གི་ཁ་ལ་སྟོན་ཐོག་ཐམས་ཅད་བསྐམས་ཏེ་བོར་ཅེན། དེ་ནས་ཐམས་ཅད་ཕྱོགས་གཅིག་ཏུ་ཧི་རི་བརྩིགས་ཏེ་ཁུལ་སྐོར་ཅེན། ཁུལ་སྐོར་ཅེས་ནི་བ་གླང་བརྒྱད་དགུ་ཙམ་གྱིས་རྐང་པས་སྐོར་ཅེན། དེ་ནས་ཐམས་ཅད་ནང་ལ་འདོགས་ཅེན། དེ་ནས་སྟོན་ཀ་བྲ་བ་བཅུ་པ་བཅུག་པའི་ནང་ལ་གལ་ཏེ་སྟོན་ཐོག་དམར་རྒྱལ་ལ་བྱུང་ནའང་མ་བྱུང་ནའང་དཀོན་མཆོག་ལ་ཚོགས་ཕུལ་ཅེན་ལུགས་སྲོལ་ཡིན། ||

Transcription

Lo-gčig-gi-ston-tog ।

Lo-re'i-zla-ba-bži-pa'i-tshes-pa-bču-bži-bčo-lña-tsam-la-nas-daṅ-gro-daṅ-a-ru-daṅ-gro-ljaṅ-btab-čen । yaṅ-bži-pa'i-ñer-lña-tsam-la bra-bo-daṅ-srad-ma-btab-čen । zla-ba-bdun-pa-rdzogs-mtshams-la-bra-bo-brña-čen । brduṅ-te-naṅ-'dogs-čen । zla-ba-brgyad-pa'i-rdzogs-mtshams-la-nas-daṅ-gro-daṅ-srad-ma-thams-čad-brña-čen। brñas-te-žag-ma-bčo-lña-tsam-žiṅ-gi-kha-la-ston-thog-thams-čad-bskams-te-bor-čen । de-nas-thams-čad-phyogs-gčig-tu-hi-ri-brtsigs-te-khul-skor-čen । khul-skor-čes-ni-ba-glaṅ-brgyad-dgu-tsam-gyis-rkaṅ-pas-skor-čen । de-nas-thams-čad-naṅ-la-'dogs-čen । de-nas-stoṅ-ka-zla-ba-bču-pa-bču-gčig-pa'i-naṅ-la-'gal-te-ston-thog-dmar-rgyal-la-byuṅ-na'aṅ-ma-byuṅ-na'aṅ-dkon-mčhog-la-tshogs-phul-čen-lugs-srol-yin ||

Phonetic Transcription

Lo-čig̱-gi t'ön-t'o ।

Lo-reĭ ḍa-wa ži-paĭ ʦ'e-pa čuḇži čölŋa-ʦam-la nē daŋ ʈ̣ʳo daŋ ʾa-ru daŋ ʈ̣ʳo-ǰaŋ taḇ-čen । jaŋ ži-peĭ ñer-ŋa-ʦam-la ʈ̣ʳa-wo daŋ šʳad̠-ma taḇ-čen । ḍa-wa dün-pa ʤog-ʦ'am-la ʈ̣ʳa-wo ŋa-čen । duŋ-te naŋ dog̱-čen । ḍa-wa gʲad̠-peĭ ʤog-ʦ'am-la nē daŋ ʈ̣ʳo daŋ šʳad̠-ma-t'am-čäd̠ ŋa-čen । ŋe-te žag̱-ma čölŋa-ʦam žiŋ-gi kʰa-la t'ön-t'og̱-t'am-čäd̠ kam-te bor-čen । de-nē t'am-čäd̠ č'og̱-čig̱-tu hi-ri sig̱-te k'ū-

kor-čen | k'ū-kor-čē ni ba-laŋ g^{i}aḍ-gu-ʦam-g^{i}i kaŋ-pē kor-čen | de-nē t'am-čäḍ naŋ-la dog-čen | de-nē-toŋ-ka ḍa-wa ču-pa čugčig-peĭ naŋ-la gal-te t'ön-t'o marg^{i}al-la č′uŋ-na'aŋ ma-č′uŋ-na'aŋ kon-č'o-la ʦ'og p'ul-čen lug-sō jin ||

Translation

The Year's harvest.

Every year about the 14th or 15th day of the fourth month barley, wheat, potatoes, and green wheat are sown. About the 25th day of the fourth month buck-wheat and beans are sown. About the end of the seventh month buck-wheat is harvested, and stocked. About the end of the eighth month barley, wheat, and beans are harvested. After the harvest, the crop is left on the field for about fifteen days to dry. Then it is gathered in large stacks. In the ninth month the harvested crop is spread out on the ground, and several oxen are driven over it. Afterwards the grain is stocked. In the autumn in the tenth and eleventh month, thanksgiving is offered to the Three Jewels, regardless of whether the harvest was very good or bad.

Kolong

བུ་ཚ་སྐྱེས་སྐོར།

བུ་ཚ་སྐྱེས་ཏེ་བླ་མ་ལ་བསྐྱོད་ཞུ་ཅེན། བླ་མ་བསྐྱོད་དེ་ཕྱུ་གུ་ལ་ཁྲུས་གསོལ་ཞུ་ཅེན། ཁྲུས་གསོལ་ཞུས་ཚར་ཏེ་ཕྱུ་གུ་ལ་མིང་ཞུ་ཅེན། དེ་ནས་ཕྱུ་གུ་ལོ་གཅིག་གཉིས་སོང་ནས་སྐྱ་འབྲེག་ཅེན། དེ་ནས་གཉེན་དུང་དང་ཡུལ་མི་ཕམས་ཅད་བོས་ཏེ་ཇ་ཞང་གིས་ཕྱུ་གུའི་སྐྱ་འབྲེག་ཅེན། དེའི་གཞུག་ལ་ཡུལ་མི་དང་གཉེན་དུང་ཕམས་ཅད་ལ་ཟེས་དང་ཆང་བཏང་ཅེན། དེ་ནས་ཕྱུ་གུ་ལ་ཕམས་ཅད་ཀྱིས་དཏུལ་རེ་རེ་བཏང་ཅེན། དེ་ནས་ཕྱུ་གུ་ལ་མིང་བཏགས་མཁན་བླ་མ་ལ་ཡོན་ཕུལ་ཅེན། དེ་ནས་ཕྱུ་གུ་ལ་བླ་མས་བསྐྱང་ང་བསྟལ་ཅེན། དེ་ནས་བླ་མ་ལ་ཕྱུ་གུ་དང་ཨ་མས་བྱིན་རླབས་དང་སྨོན་ལམ་ཞུས་ཏེ་བླ་མ་ལོག་སྟེ་ཐེབས་ཅེན། དེའི་གཞུག་ལ་ཡུལ་མི་ཕམས་ཅད་དང་དཔོན་པ་ལ་ཆ་ཅེན།།

Transcription

Bu-ʦha skyes-skor |

Bu-ʦha-skyes-te-bla-ma-la-bskyod-žu-čen | bla-ma-bskyod-de-phru-gu la-khrus-gsol-žu-čen | khrus-gsol-žus-ʦhar-te-phru-gu-la-miṅ-žu-čen | de-nas-phru-

gu-lo-gčig-gñis-soṅ-nas-skra-'breg-čen | de-nas-gñen-druṅ-daṅ-yul-mi-thams-čad-bos-te-a-žaṅ-gis-phru-gu'i skra-'breg-čen | de'i-gžug-la-yul-mi-daṅ gñen-druṅ-thams-čad-la-za-čes-daṅ-čhaṅ-btaṅ-čen | de-nas-phru-gu-la-thams-čad-kyis-dṅul-re-re-btaṅ-čen | de-nas-phru-gu-la-miṅ-btags-mkhan-bla-ma-la-yon-phul-čen | de-nas-phru-gu-la-bla-mas-bsruṅ-ña-bstsal-čen | de-nas-bla-ma-la phru-gu-daṅ-a-mas-byin-rlabs-daṅ-smon-lam-žus-te-bla-ma-log-ste-phebs-čen | de'i-gžug-la-yul-mi-thams-čad-raṅ-raṅ-gi-khaṅ-pa-la-čha-čen ||

Phonetic Transcription

Bu-ʦ'a kʲe-kor |

Bu-ʦ'a kʲē-te lama-la kʲöḍ-žu-čen | lama kʲöḍ-de ʈʳ'u-gu-la ʈʳ'ū-sol' žu-čen | ʈʳ'ū-sol' žu-ʦ'ar-te ʈʳ'u-gu-la miŋ žu čen | de-nē ʈʳ'u-gu lo-čig-ñī soŋ-nē šʳa ḍʳak-čen | de-nē ñen-ḍʳuŋ daŋ jul'-mi t'am-čäḍ bō-te ʔa-žaŋ-gi ʈʳ'u-guĭ šʳa ḍʳaḳ-čen | deĭ žug-la jul'-mi daŋ ñen-ḍʳuŋ t'am-čäḍ-la za-čē daŋ č'aŋ t'aŋ-čen | de-nē ʈʳ'u-gu-la t'am-čäḍ-kʲi mul' re-re t'aŋ-čen | de-nē ʈʳ'u-gu-la miŋ tag-gen-la-ma-la jön p'ul'-čen | de-nē ʈʳ'u-gu-la la-mē šʳuŋ-ŋa sal'-čen | de-nē la-ma-la ʈʳ'u-gu daŋ ʔa-mē č'in-laḅ daŋ mön-lam žū-te la-ma log-te p'eḅ-čen deĭ žug-la jul'-mi t'am-čäḍ raŋ-raŋ-gi k'aŋ-pa-la č'a-čen ||

Translation

Birth Ceremony.

When a boy is born, a priest is invited. The priest having arrived, performs the ceremony of blessing the new-born infant. After the ceremony, the infant is given a name.

Then after a year or two, the ceremony of cutting the hair is performed. All relatives and countrymen are invited, and an uncle cuts the boy's hair. After the ceremony, all the invited guests are offered food and drink. After this, all the guests present the boy with one rupee each, and the priest who performed the accompanying ceremony is given an offering. The boy is then given by the officiating priest a talisman, and the parents ask the priest for a blessing and prayer. The priest then takes leave, and the guests return to their homes.

Kolong

གཅིན་གྱི་ལུགས་སྲོལ།

དང་པོ་ཁོ་འཐུ་མོ་བཏང་དགོས་ན། དེ་ནས་བཏང་ན་ཚང་ཁྱེར་ཅེས། དེ་ནས་སྐད་ཅ་འདྲི་ཅེས་ལ་ཡང་ཚང་ཁྱེར་ཅེས་ལ་མི་གཅིས་ཆ་ཅེན། མི་གཅིས་ཀྱིས་དཔེ་སྒྲ་འདྲི་ཅེན། ཡང་ཞང་གིས་མི་གཅིས་ལ་ཆོས་པ་བཅུ་ལ་ངའི་ཐུ་མོ་སྡེར་ཅེན། དེ་ནས་བྱ་ཚའི་ཁང་པ་ནས་མི་བརྒྱད་

དགུ་བྱ་མོ་ལེན་མཁན་ཕྱིན། ཚང་རྩ་མ་གཅིག་ཏྲེར་ཡིན། དེ་ནས་གླུ་བཏང་ཅེན་རྩེ་ཅེན། དེ་ནས་བྱ་མོའི་ཨ་ཝ་ཨ་མའི་ཁང་པ་རྟ་བྱ་མོ་ལེན་མཁན་མི་ཐམས་ཅད་ལ་ཚང་དང་ཟ་ཅེས་བཏང་ཅེན། དེ་ནས་མི་བརྒྱད་དགུ་བྱ་མོ་ཟིན་ཅེན། ཡང་བྱ་མོའི་ཨ་ཝ་ཨ་མས་ཚང་བཏང་ཅེན། མི་ཐམས་ཅད་ར་རོའི་སོང་། དེ་ནས་བྱ་མོའི་ཁང་པ་རྟ་མི་ཐམས་ཅད་ཀྱི་ལག་པ་ལ་མེ་དོག་བཏང་ཅེན། དེ་ནས་མི་ཐམས་ཅད་ཀྱིས་དབུལ་རེ་ཞེས་བཀ་མ་ལ་བཏང་ཅེན། དེ་ནས་བྱ་མོའི་ཨ་ཝ་ཨ་མས་བྱ་མོ་ལ་ཁ་བརྡའ་བསླབ་བྱ་བཏང་ཅེན། བྱ་མོའི་ཁང་པ་རྟ་ཐྲ་མ་གཅིས་གསུམ་གཡང་ཁྲག་བཏང་ཅེན། དེ་ནས་ཐྲ་མས་དར་ཆོག་སྐྱ་ལྷའི་མདའ་དར་བྱ་མོའི་ལག་ལ་བཏང་ཅེན། འདི་གཡང་ཁྲག་མ་ཚར་བར་ལ་མདའ་དར་བྱ་མོའི་ལག་ཏུ་འཁྱར་ཏེ་བསྡད་ཅེན། གཡང་ཁྲག་ཚར་བ་དང་ཐྲ་མའི་ཐུག་ལ་མདའ་དར་ཐུལ་ཅེན། དེ་ནས་བྱ་མོ་ལ་མི་བརྒྱད་དགུས་ཏ་ཡོད་ན་ཏ་ལ་བཞོན་ཏེ་འཁྱོང་ཅེན། ཏ་མེད་ན་མིའི་རྒྱབ་ལ་འཁྱོང་ཅེན། དེ་ནས་བྱ་ཚའི་ཁང་པ་རྟ་བསྟེབས་ནས་བྱ་ཚ་ཡངས་ཏེ་བསྡད་ཅེན། བྱ་མོ་བྱའི་འབྲམ་ལ་བྱ་མོ་ཡ་དོའི་རྩ་ཤ་ལ་མགོ་བཞག་ནས་ཉལ་བསྡད་ཅེན། འདི་ཡུལ་གྱི་ལུགས་སྲོལ་ཡིན། བྱ་ཚ་བྱ་མོ་གཅིས་དང་ཡུལ་མི་ཐམས་ཅད་ལ་ཚང་དང་ཟ་ཅེས་བཏང་ཅེན། དེ་ནས་མི་ཐམས་ཅད་རྩེ་ཅེན་བླུ་བཏང་ཅེན། དེ་ནས་བྱ་ཚ་དང་བྱ་མོ་གཅིས་ཀོད་ཁང་པ་སོ་སོའི་ནང་ལ་ཉལ་ཅེན། དེ་ནས་ཐོ་རངས་ལ་བྱ་མོའི་ཁང་བའི་ཨ་ཝ་ཨ་མ་མིང་པོ་དང་གཅིག་བྱང་ཐམས་ཅད་བྱ་ཚའི་ཁང་པ་ལ་མཚོན་ལ་འབོད་ཅེན། དེ་ནས་བྱ་ཚ་བྱ་མོ་གཅིས་ཀོད་ནས་མི་ཐམས་ཅད་ལ་མེ་དོག་བཏང་ཅེན། དེ་ནས་ཡུལ་གྱི་མི་དང་གཅིག་བྱང་ཐམས་ཅད་ནས་བྱ་ཚ་ལ་ཁ་ཅིག་དབུལ་རེ་རེ་དང་ཁ་ཅིག་དབུལ་གཅིས་གཅིས་བཏང་ཅེན།།

Transcription

gÑen-gyi lugs-srol ।

Daṅ-po-kho'i-bu-mo-btaṅ-dgos-na । de-nas-btaṅ-na-čhaṅ-khyer-čes । de-nas-skad-ča-'dri-čes-la-yaṅ-čhaṅ-khyer-čes-la-mi-gñis-čha-čen । mi-gñis-kyis-dpe-sgza-'dri-čen । a-žaṅ-gis-mi-gñis-la-tshes-pa-bču-la-ña'i-bu-mo-ster-čen । de-nas-bu-

böḏ-čen। de-nē bu-ʦʻa bu-mo ñī-kö-nē mi-tʻam-čaḏ-la mento tʻaŋ-čen। de-nē julʼ-gʲi mi daŋ ñen-ḍʳuŋ-tʻam-čaḏ-nē bu-ʦʻa-la kʻa-čig̱ mulʼ re-re kʻa-čig̱ mulʼ ñī-ñī tʻaŋ-čen ॥

Translation

Marriage Ceremony

If a girl is to be given in marriage, country beer should be presented. After this the matter is discussed. Two middlemen go to the house of the bride, and discuss the matter. After which the uncle declares that he will give the girl in marriage on the 10th day of the month. On that day, eight or nine men start from the house of the bridegroom to bring the bride. They take with them a jug of country beer. They sing songs and partake of food. At the house of the bride's parents, the guests are offered country beer and food. After the meal, the eight or nine men take the bride, and the bride's parents again offer them country beer, and all present drink until they get drunk. After this, the bride's parents offer to all present flowers, and each of the guests presents the bride with one rupee. Then the parents instruct the girl. At the bride's home several priests perform a ceremony to secure happiness and prosperity. The priest presents the bride with an arrow with silk ribbons of five different colours attached to it (by hooking such an arrow into the collar of the bride, the match-maker draws her forth from among her maiden companions). While the ceremony is performed, the bride remains sitting, holding in her hand the arrow. As soon as the ceremony is finished, she presents the arrow to the officiating priest. Then the eight or nine men take the bride and place her on a horse, if there is one, or carry her on their backs. On arrival at the bridegroom's house, the bridegroom awaits the bride, standing in front of his house. The bride is then placed at the side of the bridegroom, and rests her head on the lap of her maiden companion. This is the custom of the country. Then the bridegroom and the bride and all the invited guests partake of food, and country beer. After the meal, songs are sung. Then the bridegroom and bride retire to their respective rooms. A few days later, the bride's parents invite all relatives to a feast at the bridegroom's home. The bride and bridegroom offer to all present flowers. In return the guests offer the bridegroom, some one rupee, others two rupees.

Kolong

ལོ་གསང།

ལོ་གསང་བྲ་བ་བཆུ་གཉིས་བའི་ཚེས་པ་བཆུ་དང་བཆུ་གཉིས་ཀྱི་ནང་ལ་བདང་ཅེན། ཕྱུ་གུ་བུ་ཚ་གཉིས་གོས་ལག་དང་དུང་འཕྲང་གོན་ནས་གྲོང་ཡུལ་ཕམས་ཅད་ལ་ཆ་དེ་ཕྱུ་གུ་གཉིས་དང་ཡུལ་མི་ཕམས་ཅད་བྱོང་རེ་རེ་ནང་ཆ་དེ་བླུ་བདང་ཅེན། དེ་ནས་འགལ་པ་འཕང་ཅེན། དེ་ནས་

འགལ་བ་ལ་མེ་སྦྱར་ཏེ་བླུ་བཏང་ཅེན། དེ་ནས་འགལ་བ་འཕང་ཅེན། དེ་ནས་ཡང་བྱོང་ཅིག་ལ་ཆ་ཏེ་ཡང་དེ་ཅོག་སེ་ཐམས་ཅད་ལ་བསྒྲུབ་ཅེན། དེ་ཚར་བ་དང་དེ་ནས་ཏུ་ར་འཕང་ཅེན། ཏུ་ར་མེ་དོག་འཕང་ཅེན། དོན་ནི་ལོ་གཅིག་གི་བཅོག་བ་ཐམས་ཅད་འཕང་ཅེས་ཡིན། དེ་ནས་རང་རང་གི་ཁང་བའི་ནང་ལ་ལོག་སྟེ་ཡོང་སྟེ་སྡོགས་ཏི་ལ་ཆ་ཅེན། རང་གི་ཡུལ་སོ་སོ་འི་མྱུར་ཏི་ནས་ཆུ་འཁྱོང་ཏེ་ཁང་བ་རྟ་ཟངས་མོ་ཆེ་རྟ་ཆུ་འཁྱལ་ཏེ་ཟ་ཅེས་བཀལ་ཅེས་ལ་ཆུ་འདི་ཡིན། ཞག་མ་བདུན་ཙམ་ལོ་གསར་སྐྱིད་པོ་བཏབ་ཅེན། ཞག་མ་བདུན་བར་དུ་རང་རང་གི་ཁང་བ་རྟ་སྐྱིད་པོ་བཅོས་ཅེན། དེ་ནས་ཞག་བདུན་པ་ལ་པུ་ཉ་བཏང་ཅེན། ཡུལ་མི་ཐམས་ཅད་འཛོམས་ཏེ་བླུ་བཏང་ཅེན་ཆང་འཐུང་ཅེན། དེ་ནས་གཤོག་གུའི་ངོས་ལ་གཡག་གི་གཟུགས་ཅིག་བྲིས་ཏེ་ཤིན་རིན་མོའི་བར་ལ་བཅུག་ཏེ་བོར་ཅེན། གླུ་བཏང་སྟེ་གཡག་གི་གཟུགས་ལ་མདའ་རྒྱབ་ཅེན། མདའ་རྒྱབ་ཏེ་དེ་མེ་ལ་བསྲེགས་ཏེ་ཁའི་ཁ་ལ་བོར་ཅེས་ཡིན་ནོ།།

Transcription

Lo-gsar ।

Lo-gsar-zla-ba-bču-gñis-pa'i-tshes-pa-bču-daṅ-bču-gñis-kyi-naṅ-la btaṅ-čen । phru-gu-bu-tsha-gñis-gos-lag-daṅ-duṅ-'phreṅ-gon-nas-groṅ-yul-thams-čad-la-ča-te-phru-gu-gñis-daṅ-yul-mi-thams-čad-groṅ-re-re-naṅ-ča-te-glu-btaṅ-čen । de-nas-'gal-pa-'phaṅ-čen । de-nas-'gal-pa-la-me-spar-te-glu-btaṅ-čen । de-nas-'gal-pa-'phaṅ-čen । de-nas-yaṅ groṅ-čig-la-ča-te-yaṅ-de-tsog-se-thams-čad-la-bskyod-čen । de-tshar-pa-daṅ-de-nas-hā-ra-'phaṅ-čen । hā-ra-me-tog-'phaṅ-čen । don-ni-lo-gčig-gi-btsog-pa-thams-čad-'phaṅ-čes-yin । de-nas-raṅ-raṅ-gi-khaṅ-pa'i-naṅ-la-log-ste-yoṅ-ste-snags-ti-la-ča-čen । raṅ-gi-yul-so-so'i-mur-ti-nas-ču-'khyoṅ-ste-khaṅ-pa-ru-zaṅs-mo-če-ru-ču-'khyil-te-za-čes-bkal-čes-la-ču-'di-yin । žag-ma-bdun-tsam-lo-gsar-skyid-po-btaṅ-čen । žag-ma-bdun-bar-du-raṅ-raṅ-gi-khaṅ-pa-ru-skyid-po-bčos-čen । de-nas-žag-bdun-pa-la-puṇa-btaṅ-čen । yul-mi-thams-čad-'dzoms-te-glu-btaṅ-čen-čhaṅ-'thuṅ-čen । de-nas-gśog-gu'i-ṅos-la-gyag-gi-gzugs-čig-bris-te-śiṅ-rin-mo'i-bar-la-bčug-te-bor-čen । glu-btaṅ-ste-gyag-gi-gzugs-la-mda'-rgyab-čen । mda'-rgyab-te-de-me-la-bsregs-te-kha'i-kha-la-bor-čes-yin-no ।।

Phonetic Transcription

Lo-sar

Lo-sar ḍa-wa čugñī-peĭ ʦʻē-pa ču daŋ čugñī-kʲi raŋ-la tʻaŋ-čen । ʈ̪ʳʻugu bu-ʦʻa ñī goĭ-lag daŋ duŋ-ʈ̪ʳʻaŋ gön-nē ḍʳoŋ-julʼ tʻam-čäḍ-la čʻa-te । ʈ̪ʳʻugu ñī

daŋ jul′-mi t‘am-čäḍ ḍʳoŋ-re-re-naŋ č‘a-te lū t‘aŋ-čen | de-nē gal′-pa p‘aŋ-čen | de-nē gal′-pa-la me par-te lū t‘aŋ-čen | de-nē gal′-pa p‘aŋ-čen | de-nē jaŋ ḍʳoŋ-čig-la č‘a-te jaŋ de-ʦog-se t‘am-čäḍ-la kʲoḍ-čen | de ʦ‘ar-pa-daŋ de-nē hāra p‘aŋ-čen | hāra mento p‘aŋ-čen | dön-ni lo-čig-gi sog-pa t‘am-čaḍ p‘aŋ-čē-jin | de-nē raŋ-raŋ-gi k‘aŋ-peĭ naŋ-la log-te joŋ-te ŋag-ti-la č‘a-čen | raŋ-gi jul′ so-söĭ murti-nē č‘u kʲoŋ-te k‘aŋ-pa-ru zaŋ-mo č‘e-ru č‘u kʲil′-te za-čē kal′-čē-la č‘u-di jin | žag-ma dün-ʦam lo-sar kʲiḍ-po t‘aŋ-čen | žag-ma dün-bar-du raŋ-raŋ-gi k‘aŋ-pa-ru kʲiḍ-po čō-čen | de-nē žag-dün-pa-la puŋa t‘aŋ-čen | jul′-mi t‘am-čäḍ ʤom-te lū t‘aŋ-čen č‘aŋ t‘uŋ-čen | de-nē śog-guĭ ŋō-la ja-gi zug-čig ḍʳi-te śiŋ-riŋ-möĭ bar-la čug-te bor-čen | lū t‘aŋ-te ja-gi zug-la dā-gʲaḅ-čen | dā-gʲaḅ-te de me-la šʳeg-te kʰaĭ kʰa-la bor-čē-jin |

Translation

The New Year Ceremony

The New Year Ceremony is performed on the 10th and 12th day of the 12th month.

Two boys, attired in their best garments, and wearing necklaces made of shells, make a round of the village. Accompanied by villagers, they enter every village, and partake of country beer, and sing songs. Afterwards kindling small pieces of Juniper wood, they throw them away. Then they visit another village, and perform a similar ceremony. On finishing this ceremony they throw garlands of flowers. The purpose of this ceremony is to drive away the evil influences of the year. On returning to their homes, they perform the water ceremony. Water is brought from the spring, and is placed in a large brass caldron, and is then used in preparing food. The New Year festivities continue for seven days. For seven days all enjoy themselves at their homes. Then on the seventh day, the alms-giving ceremony is performed. All villagers assemble and sing songs, and partake of country beer. The figure of a yak is then designed on a piece of paper, and the paper is then hoisted on a staff. Songs are then sung, and the figure of the yak is pierced with arrows. After it has been shot through, the image is burnt, and the remains scattered over the snow on the ground.

Koksar

ལོ་གསར།

ཉིན་ བཅུ་བཅུ་གཉིས་པའི་ཉི་ཤུ་དགུ་ལ་དགུག་ གཉིས་ཆང་ ཤ་རག་ ཚང་ མ་བཏེག་ནས་ ལྷུ་བྱུ་ ཚང་མ་ལ་མཆོད་པ་ཕུལ་ཅེས་ཡིན། དགོན་པ་ལ་ བྱ་མས་སྐུ་རིམ་འཕངས་ཅེས་ཡིན། སྤྱོང་ལ་སྐྱེ་ལངས་དེ་ཁང་ པ་ ཚང་མ་ ལ་གཞལ་ལ་ རྒྱབ་སྤྱི་ལྷུ་ བསས་ ཅད་ལ་གཙང་ སྦྱི་བྱེད་ཅེན།

དེ་ནས་ཤ་བཅུག་ཚུར་བེ་བཅུག། རྩམ་པ་ཅུལ་དེ་ཐུག་པ་བགོ་པ་དེ་ཐུག་པ་འཐུང་ཅེས་ཡིན། དེ་ནས་བག་ཐུ་བཙིས་དེ། ཉི་མ་ཐྱེད་ཚུགས་པ་བསྒྲུར་བཅུག་ནས་མར་ནག་གི་ནང་ལ་འཁྲུར་བཅོས་དེ་བོར་ཅེས་ཡིན། དེ་ནས་ཉི་མ་ཐྱེ་དེག་ཙམ་གཅིག་ལ་ཡུལ་མིའི་བུ་ཚ་ཚང་མ་འཛོམས་དེ་ལྷ་ལ་ལུག་ཅིག་བདང་ཅེས་ཡིན། དེ་ནས་མཆོག་ལ་ཡུལ་པ་ཐམས་ཅད་འཛོམས་དེ་ཤ་དང་ཚང་འཐུང་ཅེན། ཁང་པའི་ནང་ལ་མོ་བི་ཐམས་ཅད་ཀྱིས་མར་དང་རྩམ་པ་བཙིས་དེ་དེའི་མིང་ལ་བ་ལ་ར་ཪ་ཟེར་ཅེན། དེའི་ཐྱེ་བྱེ་ལ་འཁྲུར་ར་བོར་ནས་མེ་དེག་བོར་དེ། གདན་ཀི་ཁ་ལ་བོར་དེ་མདུན་ལ་མཆོད་མེ་ཐུལ་ནས་བོར་ཅེས་ཡིན། དེ་ནས་བྱ་ཚ་ཚང་མ་རང་རང་སོ་སོའི་ཁང་པ་ཏུ་ཡོང་སྟེ་ གཟུགས་པོ་ཁྲུས་ནས་གོས་ལག་སོ་མ་སོ་མ་གྱོན་དེ་མགོ་རྩེ་ཐོད་རྒྱབ་དེ། ཤུགས་པའི་ཤིང་ཐུ་མོ་བཤགས་དེ་མྱ་ས་ལ་བཅིངས་དེ། དེའི་མིང་ལ་ཁལ་དོ་ཟེར་ཅེས་ཡིན། དེ་ནས་ཁལ་དོ་བཏུབ་དེ་ཐྱེ་ལ་ཁྱེར་ཅེན། མོ་བི་གཅིག་ལག་ལ་ཆང་དང་མེ་དེག་འཁྲུར་དེ་མགོ་ལ་དཏུལ་གྱི་འབའ་རི་བཏགས་དེ་འདོགས་དགར་བཀད་དེ་ཐྱེ་རྒྱ་སོང་སྟེ་ཡུལ་མི་ཐམས་ཅད་འཛོམས་དེ། ཁ་ཅིག་ལ་མྱ་ས་ལ་ཚང་མ་བཏབ་ནས། དེ་ནས་འཕངས་བཏང་ཅེན། དེ་ནས་ལོག་སྟེ་ནང་ཀ་སོ་སོའི་ཁང་པ་ཏུ་ཡོང་སྟེ་ཆང་དང་ཤ་ནག་དང་འབྲས་དང་ཤ་ཟོས་དེ་སྐྱིད་པོ་བྱས་དེ་ཉལ་བསྟད་ཅེན། དེ་ནས་ཐོ་རེ་སྟ་མོ་ལངས་དེ། བྱ་ཚས་ལྷ་ལ་མེ་དེག་ཐུལ་དེ་ལོར་ཀིའི་ནང་དུ་ཆུ་འཁྲུར་དེ་ཁང་པ་ཏུ་ཡོང་ཅེན། དེ་ནས་དེ་ཞག་ལ་ནང་ལ་བསྟད་དེ་གཞན་མ་མིའི་གདོང་ཡང་བལྟ་ཅེས་མིན། མིང་ཡང་བདེན་ཅེས་མིན། ཆང་ཤ་ནག་འཐུང་སྟེ་ཟ་ཅེས་སྐྱིད་པོ་ཟེས་དེ་རང་སོ་སོའི་ཁང་པའི་ནང་དུ་བསྟད་དེ་སྐྱིད་པོ་ཡིན། དེ་ནས་ཆོས་པ་གཉིས་ཞག་དེ་སྟ་མོ་ལངས་དེ་ཟ་བཏུང་བཟེས་དེ་གཞན་མ་མིས་རྒྱལ་པོའི་མིང་བདེན་ཅེས་ཡིན། དེ་ནས་མཁར་གྱི་མིང་བདེན་ཅེས་ཡིན། དེ་ནས་ཡུལ་པ་ཐམས་ཅད་འཛོམས་དེ་ཆང་འབྱོང་ཅེན། དེ་ནས་ཡོས་དང་མར་བསྲེས་ནས་ལྷ་ལ་མཆོད་ཅེས་ཡིན། དེ་ནས་ཆང་འཐུང་ཤ་ནག་འཐུང་

ར་རོས་ཏེ་བྱ་ཚ་བྱ་མོ་ཐམས་ཅད་ལངས་ནས་རྩེད་དེ་ལྷད་མོ་འཇིགས་པོ་ཡོང་ཅེན། དེ་ནས་རང་ཀ་སོ་སོའི་ཁང་པ་ལ་སོང་སྟེ་ཟ་ཅེས་བཟོས་ཏེ་སྐྱིད་པོ་བྱེད་ཅེས་ཡིན་ཏོ།།

དེ་ནས་ཡང་ཆོས་པ་གསུམ་གྱི་ཞག་དེ་སྟ་མོ་ལངས་ཏེ་ཐ་དང་ཐུག་པ་འཐུང་སྟེ་ཡུལ་མི་ཐམས་ཅད་འཛོམས་ཏེ་ཆང་འཐུང་ཅེན། དེ་ནས་ཀྱི་མ་ཕྱེད་ཙམ་ཅིག་ལ་ཁང་པ་རེ་རེ་ནས་བྱ་ཚ་རེ་ཐོན་ཏེ་འཁུར་ར་དང་བོ་རོལ་རེ་རེ་ཨ་རག་འཁུར་ཏེ་མགོ་ལ་ཐོད་ཀྱབ་ཏེ་དགོན་པ་ལ་མཐལ་ལ་ཆ་ཅེན། དགོན་པ་རྟ་བསྒེབ་ཏེ་ཕྱི་དྲོ་ལ་བསྡད་དེ་གྲོང་པ་གཅིས་ཀྱི་མི་ཐུག་སྟེ་ཡང་གཏམ་ལབ་ཅེས་མིན། དེ་ནས་བླ་མ་སུ་ཕུག་གསུམ་འཕངས་ནས་དགོན་བའི་ནང་ལ་ཆ་ཅེས་ཡིན། མཆོད་མེ་ཕུལ་ཏེ་ཕུག་བྱེད་ཅེས་ཡིན། དེ་ནས་བླ་མ་ལ་ཕུག་འཚལ་བྱས་ཏེ་མེ་དོག་ཕུལ་ནས་གཏམ་ལབ་ཅེས་ཡིན། དེ་ནས་བླ་མའི་ནང་ལ་ཆ་ཅེས་ཡིན། དེ་ནས་ཆང་དཀར་ཡོལ་མཆོད་དེ་བཏང་ཅེས་ཡིན། དེ་ནས་མཚན་ཆེ་རེ་ཆང་ཨ་རག་འཐུང་སྟེ་གླུ་བཏང་ནས་ལྷད་མོ་བྱས་ཏེ་སྟ་མོ་ཡང་གཞན་མ་ཡུལ་དུ་སོང་སྟེ་དེ་ཅུ་ཡང་ཆང་ཨ་རག་འཐུང་སྟེ་ཞག་མ་གསུམ་བཞི་དེ་རྟ་ཀ་བསྡད་ཅེན། དེ་ནས་ཆོས་པ་བརྒྱད་ཀྱི་ཞག་དེ་རང་གི་ཁང་པ་རྟ་ཆ་ཅེན། དེ་ནས་ཆོས་པ་དགུའི་ཞག་དེ་བསྡད་དེ་ཆོས་པ་བཆུ་ལ་གུ་རྟའི་ཆོས་བཆུ་ཟེར་ཅེན། མཆོད་མེ་མང་པོ་ཕུལ་ཏེ་སྨོན་དབོན་ལ་ཕུག་མང་པོ་ཕུལ་ཅེན། དེའི་ཞག་ལ་ཕྱེ་མར་ཟེར་མཁན་དེ་ཟ་ཅེས་ཡིན། དེ་ནས་ཡུལ་མི་ཚང་མ་འཛོམས་ཏེ་ཆོག་ཕུལ་ཅེན། ཆང་ཨ་རག་བསྟུས་ཏེ་འཐུང་ཅེན། གླུ་བཏང་སྟེ་རྩེད་ཅེན། མོ་བི་ཐམས་ཅད་སྐེད་པ་ལ་ལག་པས་ཟིན་དེ་རྩེད་ཅེས་ཡིན། ཁྱོ་བོ་བྱ་ཚ་ཚང་མ་རང་རང་སོ་སོ་རྩེད་ཅེས་ཡིན། ཡང་གླུ་ཅིག་གི་མིང་ལ་སྒང་བ་གླུ་ཟེར་ཅེན། རྣོལ་ཀི་བརྡུང་སྟེ་བྱ་མོ་གཅིས་རྩེད་ཅེན། དེ་ནས་ཡང་ཆོས་པ་བཆུ་གཅིག་ཞག་དེ་ཡུལ་ལ་ཆད་པོ་ཆེན་མོ་སྐུ་ཡོད་མི་ཚང་མ་བོད་ནས་ཁྱེར་ཅེན། དེ་ནས་ཆད་པོའི་རྟ་རྟ་མི་ཚང་མ་ཆ་ཅེན། དེ་ནས་ཐུ་མ་གང་ཚང་དཀར་ཡོལ་དགོན་མཆོག་ལ་མཆོད་དེ་མི་ཚང་

མཚ་ལ་ཆང་ཁ་རག་བཀང་སྟེ་བཏང་ཅེན། དེ་ནས་ཟ་ཅེས་ལ་འབྲས་དང་ཤ་བཏང་ཅེན། མོ་བི་ཚང་མ་ལ་དུ་ཁི་གང་དེ་འཁྲུངས་ར་བཏང་ཅེས་ཡིན། དེ་ནས་མོ་བི་ཐམས་ཅད་ཁ་ཁ་རག་འཐུང་སྟེ་གླུ་བཏང་ནས་རྩེད་དེ་ལྡང་མོ་མང་པོ་རྩེད་ཅེས་ཡིན། དེ་ནས་ཕྱི་རྒྱ་རང་རང་སོ་སོའི་ཁང་པ་རུ་སོང་སྟེ་བསྡད་ཅེས་ཡིན། དཔའ་བོ་ཆོག་ཤེ་བླ་བ་དང་པོ་འི་ཚེས་གཅིག་ནས་བླ་བ་གཅིས་པའི་བཅུ་དྲུག་ཚུན་དྲུག་ཚུགས་པ་འདི་ཆོག་ཤེ་སྐྱིད་པོ་བསྡད་ཅེས་ཡིན་ནོ། ॥

Transcription

Lo-gsar।

Hor-zla-bču-gñis-pa'i-ñi-śu-dgu-la-dguṅ-ka'i-čhaṅ-a-rag-tshaṅ-ma-bton-nas-lha-klu-tshaṅ-ma-la-mčhod-pa-phul-čes-yin। gdon-pa-la-bla-mas-sku-rim-'phaṅs-čes-yin। stoṅ-la-sña-mo-laṅs-te-khaṅ-pa-tshaṅ-ma-la-gžal-la-rgyab-ste-lha-klu-thams-čad-la-gtsaṅ-sbra-byed-čen। de-nas-śa-bču-čhur-pe-bču। rtsam-pa-hrul-te-thug-pa-bkol-te-thug-pa-'thuṅ-čes-yin। de-nas-bag-phye-brdzis-te। ñi-ma-phyed-tshugs-pa-bskyur-bču-nas-mar-nag-gi-naṅ-la-'khur-ra-btsos-te-bor-čes-yin। de-nas-ñi-ma-phyi-tog-tsam-gčig-la-yul-mi'i-bu-tsha-tshaṅ-ma-'dzoms-te-lha-la-lug-čig-btaṅ-čes-yin। de-nas-mtshaṅ-la-yul-pa-thams-čad-'dzoms-te-śa-daṅ-čhaṅ-'thuṅ-čen। khaṅ-pa'i-naṅ-la-mo-bi-thams-čad-kyi-mar-daṅ-rtsam-pa-brdzis-te-de'i-miṅ-la-bā'-la-rā'-dza-zer-čen de'i-phyi-dro-la-'khur-ra-bor-nas-me--tog-bor-te। gdan-ni-kha-la-bor-te-mdun-la-mčhod-me-phul-nas-bor-čes-yin। de-nas-bu-tsha-tshaṅ-ma-raṅ-raṅ-so-so'i-khaṅ-pa-ru-yoṅ-ste-gzugs-po-khrus-nas-gos-lag-so-ma-so-ma-gyon-te-mgo-rtse-thod-rgyab-te। śugs-pa'i-śiṅ-phra-mo-bśags-te-mu-sa-la-bčiṅs-te। de'i-miṅ-la-hal-do-zer-čes-yin। de-nas-hal-do-btub-te-phyi-la-khyer-čen। mo-bi-gčig-lag-la-čhaṅ-daṅ-me-tog-'khur-te-mgo-la-dṅul-gyi-'ba'-ri-btags-te-'dogs-dgar-bkad-de-phyi-ru-soṅ-ste yul-mi-thams-čad-'dzoms-te। kha-čig-la-mu-sa-la-tshaṅ-ma-btab-nas-de-nas-'phaṅs-btaṅ-čen। de-nas-log-ste-raṅ-ka-so-so'i khaṅ-pa-ru-yoṅ-ste-čhaṅ-daṅ-a-rag-daṅ-'bras-daṅ-śa-zos-te-skyid-po-byas-te-ñal-bsdad-čen। de-nas-tho-re-sña-mo-laṅs-te। bu-tshas-lha-la-me-tog-phul-te-lor-ki'i-naṅ-du-čhu-'khur-te-khaṅ-pa-ru-yoṅ-čen। de-nas-de-žag-la-naṅ-la-bsdad-de-gžan-ma-mi'i-gdoṅ-yaṅ-blta-čes-yin। miṅ-yaṅ-bton-čes-min। čhaṅ-a-rag-'thuṅ-ste-za-čes-skyid-po-za-zos-te-raṅ-so-so'i-khaṅ-pa'i-naṅ-du-bsdad-de-skyid-po-yin। de-nas-tshes-pa-gñis-žag-de-sña-mo-laṅs-te-za-btuṅ-bzos-te-gžan-ma-mis-rgyal-po'i-miṅ-bton-čes-yin। de-nas-mkhar-gyi-miṅ-bton-čes-yin। de-nas-yul-pa-thams-čad-'dzoms-te-čhaṅ-'khyoṅ-čen। de-nas-yos-daṅ-mar-bsres-nas-lha-la-mčhod-čes-yin। de-nas-čhaṅ-'thuṅ-a-rag-'thuṅ-ra-ros-te-bu-tsha-bu-mo-thams-čad-laṅs-nas-rtsed-de-ltad-mo-'jigs-po-yoṅ-čen। de-nas-raṅ-ka-so-so'i khaṅ-pa-la-soṅ-ste-za-čes-bzos-te-skyid-po-byed-čes-yin। de-nas-yaṅ-tshes-pa-gsum-gyi-žag-de-sña-mo-laṅs-te-ja-daṅ-thug-pa-'thuṅ-ste-yul-mi-thams-čad-'dzoms-te-čhaṅ-'thuṅ-čen। de-nas-ñi-ma-

phyed-ʦam-čig-la-khaṅ-pa-re-re-nas-bu-ʦha-re-re-thon-te-'khur-ra-daṅ-bo-tol-re-re-a-rag-'khur-te-mgo-la-thod-rgyab-te-dgon-pa-la-mǰal-la-ča-čen | dgon-pa-rubsleb-te-phyi-dro-la-bsdad-de-groṅ-pa-gñis-kyi-mi-thug-ste-yaṅ-gtam-lab-čes-min | de-nas-bla-ma-su-phyag-gsum-'phaṅs-nas-dgon-pa'i-naṅ-la-ča-čes-yin | mčhod-me-phul-te-phyag-byed-čes-yin | de-nas-bla-ma-la-phyag-'ʦhal-byas-te-me-tog-phul-nas-gtam-lab-čes-yin | de-nas-bla-ma'i-naṅ-la-ča-čes-yin | de-nas-čhaṅ-dkar-yol-mčhod-de-btaṅ-čes-yin | de-nas-mtʦhan-ʦhe-re-čhaṅ-a-rag-'thuṅ-ste-glu-btaṅ-nas-ltad-mo-byas-te-tho-re-sña-mo-yaṅ-gžan-ma-yul-du-soṅ-ste-de-ru-yaṅ-čhaṅ-a-rag-'thuṅ-ste-žag-ma-gsum-bži-de-ru-ka-bsdad-čen | de-nas-ʦhes-pa-brgyad-kyi-žag-de-raṅ-gi-khaṅ-pa-ru-ča-čen | de-nas-ʦhes-pa-dgu'i-žag-de-bsdad-de-ʦhes-pa-bču-la-gu-ru'i-ʦhes-bču-zer-čen | mčhod-me-maṅ-po-phul-te-slob-dpon-la-phyag-maṅ-po-phul-čen | de'i-žag-la-phye-mar zer-mkhan-de-za-čes-yin | de-nas-yul-mi-ʦhaṅ-ma-'ʣoms-te-ʦhogs-phul-čen | čhaṅ-a-rag-bsdus-te-'thuṅ-čen | glu-btaṅ-ste-rʦed-čen-mo-bi-thams-čad-sked-pa-la-lag-pas-zin-te-rʦed-čes-yin | khyo-bo-bu-ʦha-ʦhaṅ-ma-raṅ-raṅ-so-so-rʦed-čes-yin | yaṅ-glu-čig-gi-miṅ-la-spaṅ-ba-glu-zer-čen | ḍol-ki-brduṅ-ste-bu-mo-gñis-rʦed-čen | de-nas-yaṅ-ʦhes-pa-bču-gčig-žag-de-yul-la-rgad-po-čhen-mo-su-yod-mi-ʦhaṅ-ma-bod-nas-khyer-čen | de-nas-rgad-po'i-rʦa-ru-mi-ʦhaṅ-ma-ča-čen | de-nas-rʣa-ma-gaṅ-čhaṅ-dkar-yol-dkon-mčhog-la-mčhod-de-mi-ʦhaṅ-ma-la-čhaṅ-a-rag-bkaṅ-ste-btaṅ-čen | de-nas-za-čes-la-'bras-daṅ-śa-btaṅ-čen | mo-bi-ʦhaṅ-ma-la-ta-li-gaṅ-re-'khur-ra-btaṅ-čes-yin | de-nas-mo-bi-thams-čad-čhaṅ-a-rag-'thuṅ-ste-glu-btaṅ-nas-rʦed-de-ltad-mo-maṅ-po-rʦed-čes-yin | de-nas-phyi-ru-raṅ-raṅ-so-so'i khaṅ-pa-ru-soṅ-ste-bsdad-čes-yin | da-'di-ʦog-se-zla-ba-daṅ-po'i-ʦhes-gčig-nas-zla-ba-gñis-pa'i-bču-drug-ʦhug-pa-'di-ʦog-se-skyid-po-bsdad-čes-yin ||

Phonetic Transcription

fior-ḍa čug̱ñī-peĭ ñi-śu-gu-la gün-keĭ č'aŋ ʔara ʦ'aŋ-ma t'ön-nē lā lu-la ʦ'aŋ-ma-la č'öḏ-pa p'ul'-čē-hin | gon-pa-la lama-su ku-rim p'aŋ-čē-hin | toŋ-la ŋa-mo laŋ-te k'aŋ-pa ʦ'aŋ-ma-la ža-la g^{i}aḇ-te lā lu-t'am-čaḏ-la saŋ-ra č'ē-čen | de-nē śa čug̱ č'ur-pe čug̱ | sam-pa šzul'-te t'ug̱-pa kol'-te t'ug-pa t'uŋ-čē-hin | de-nē pag-p'e zī-te ñi-ma p''et ʦ'ug-pa k^{i}ur čug̱-nē mar-na-gi naŋ-la k'u-ra ʦoĭ-te bor-čē-hin | de-nē ñi-ma p'^{i}i-tog-zam-či-la jul'-mihi bu-ʦ'a ʦ'aŋ-ma zom-te lā-la ɪug̱-čig̱ t'aŋ-čē-hin | de-nē ʦ'än-la jul'-pa t'am-čaḏ zom-te śa daŋ č'an t'uŋ-čen | k'aŋ-peĭ naŋ-la mo-bi t'am-čaḏ-su mar daŋ zam-pa zī-te deĭ miŋ-la bālarāza zer-čen | deĭ p'^{i}i-ro-la k'u-ra bor-nē mento bor-te | den ni k^{h}a-la bor-te dun-la č'oḏ-me p'ul'-ne bor-čē-hin | de-nē bu-ʦ'a ʦ'aŋ-ma raŋ-raŋ su-suĭ k'aŋ-pa-ru joŋ-te zug-po ʈ^{r}'uĭ-nē goĭ-la so-ma-so-ma gon-te go-ʦe-la t'öḏ g^{i}aḇ-te | śug-peĭ śiŋ ʈ^{r}'a-mo śag̱-te mu-sa-la čiŋ-te | deĭ miŋ-la haldo zer-čen | de-nē haldo t'uḇ-te p'^{i}i-la k'^{i}er-čen | mo-bi-či la-la č'aŋ daŋ mento k'ur-te go-la mul'-g^{i}i bāri t'ag̱-te doɣar kaḏ-te p'^{i}i-ru soŋ-te jul'-mi t'am-čaḏ zom-te | k'a-čig̱-la mu-sa-la ʦ'aŋ-ma t'aḇ-nē | de-nē p'aŋ t'aŋ-čen | de-nē log̱-te raŋ-ka su-suĭ k'aŋ-pa-ru joŋ-te č'aŋ daŋ ʔara daŋ ḍ^{r}e daŋ śa zoĭ-te k^{i}iḏ-po č'e-te ñal' daḏ čen | de-nē t'o-re ŋa-mo laŋ-te | bu-ʦ'a lā-

la mento p'ul'-te lorkiĭ naŋ-du č'u k'ur-te k'aŋ-pa-ru joŋ-čen | de-nē de-ž'ag-la naŋ-la daḍ-de žan-ma mihi doŋ jaŋ ta-čē-män | miŋ jaŋ t'ön-čē-män | č'aŋ ʔara t'uŋ-te za-čē kʲiḍ-po zoĭ-te | raŋ su-suĭ k'aŋ-pi naŋ-du daḍ-de kʲiḍ-po hin | de-nē ʦ'ē-pa ñī ž'ag-de ŋa-mo laŋ-te zaḅt'uŋ zoĭ-te žan-ma misi gʲal-poĭ miŋ t'ön-čē-hin | de-nē kʰar-gʲi miŋ t'ön-čē-hin | de-nē jul'-pa t'am-čaḍ zom-te č'aŋ kʲ'er-čen | de-nē joĭ daŋ mar šʳe-nē lā-la č'öḍ-čē-hin | de-nē č'aŋ t'uŋ ʔara t'uŋ ra-roĭ-te bu-ʦ'a bu-mo t'am-čaḍ laŋ-nē se-de taḍ-mo žiχ-po joŋ-čen | de-nē raŋ-ka su-suĭ k'aŋ-pa-la soŋ-te za-čē zoĭ-te kʲiḍ-po č'e-čē-hin | de-nē jaŋ ʦ'ē-pa sum-gʲi ž'ag-de ŋa-mo laŋ-te ča daŋ t'ug-pa t'uŋ-te jul'-mi t'am-čaḍ zom-te č'aŋ t'uŋ-čen | de-nē ñi-ma p''et-zam-či-la k'aŋ-pa re-re-nē bu-ʦ'a re-re t'ön-te k'u-ra daŋ botol' re-re ʔara k'ur-te go-la t'öḍ gʲaḅ-te gon-pa-la ǰa-la č'a-čen | gon-pa-ru leb-te p'ʲi-ro-la daḍ-de ḍʳoŋ-pa ñīsi mi t'ug-te jaŋ tam lab-čē-män | de-nē lama-su č'ag-sum p'aŋ-nē gon-pi naŋ-la č'a-čē-hin | č'oḍ-me p'ul'-te č'ag-čē-hin | de-nē lama-la č'ag-ʦ'al' č'e-te mento p'ul'-nē tam lab-čē-hin | de-nē lami naŋ-la č'a-čē-hin | de-nē č'aŋ kal'-ǰ'or č'öḍ-de t'aŋ-čē-hin | de-nē ʦ'än-ʦe-re č'aŋ ʔara t'uŋ-te lū t'aŋ-nē taḍ-mo č'e-te | t'o-re ŋa-mo jaŋ žan-ma jul'-du soŋ-te de-ru jaŋ č'aŋ ʔara t'uŋ-te ž'ag-ma sum-ži de-ru-ka daḍ-čen | de-nē ʦ'ē-pa gʲad-kʲi ž'ag-de raŋ-gi k'aŋ-pa-ru č'a-čen | de-nē ʦ'ē-pa guĭ ž'ag-de daḍ-de | ʦ'ē-pa ču-la gu-ruĭ ʦ'ē-ču zer-čen | č'öḍ-me maŋ-po p'ul'-te loḅ-pön-la č'ag-maŋ-po p'ul'-čen | deĭ ž'ag-la p'e-mar zer-gen-de za-čē-hin | de-nē jul'-mi ʦ'aŋ-ma zom-te ʦ'oχ-p'ul'-čen | č'aŋ ʔara duĭ-te t'uŋ-čen lū t'aŋ-te se-čen | mo-bi t'am-čaḍ ke-pa-la la-pē zum-te se-čē-hin | kʲ'o-wo bu-ʦ'a ʦ'aŋ-ma raŋ-raŋ su-su se-čē-hin | jaŋ lū čig-gi miŋ-la paŋ-wa lū zer-čen | ḍol-ki duŋ-te bu-mo ñī se-čen | de-nē jaŋ ʦ'ē-pa čugšig ž'ag-de jul'-la gäḍ-po č'en-mo su jöḍ mi-ʦ'aŋ-ma bö-nē kʲ'er-čen | de-nē gäḍ-po ʦa-ru mi ʦ'aŋ-ma č'a-čen | de-nē za-ma gaŋ č'aŋ kal'- ǰ'or kon-č'o-la č'öḍ-de mi ʦ'aŋ-ma-la č'aŋ ʔara kaŋ-te t'aŋ-čen | de-nē za-čē-la ḍʳe daŋ śa t'an-čeŋ | mo-bi ʦ'aŋ-ma-la tali gaŋ re k'u-ra t'aŋ-čē-hin | de-nē mo-bi t'am-čaḍ č'aŋ ʔara t'uŋ-te lū t'aŋ-nē se-de taḍ-mo maŋ-po se-čē-hin | de-nē p'ʲi-ru raŋ-raŋ su-suĭ k'aŋ-pa-ru soŋ-te daḍ-čē-hin | dā di-ʦog-se ḍa-wa daŋ-poĭ ʦ'ē-čig-nē ḍa-wa ñī-pi ču-rug ʦ'u-pa di-ʦog-se kʲiḍ-po daḍ-čē-hin ||

Translation

New Year Ceremony

On the 29th day of the 12th month, the winter arag (brandy) and barley beer are brought out, and an offering is made to the gods and nāgas. In the monastery the lamas perform a religious service. On New Year's eve, all rise very early, and clean the house. The religious images are cleaned. Then meat, cheese and parched barley flour are prepared, and a broth is made, which is then consumed. Wheat-flour is pressed, and left to ferment, and a kind of vermicelli is prepared with oil. Then later in the day, all villagers assemble, and a hymn is sung to the gods. Another gathering is held at night-time, and then meat and beer is served. In the house the womenfolk press parched

barley flour, and butter, which is called bālarāja. Later vermicelli is placed on a carpet on the snow, and an offering lamp is put in front of it. Then everybody returns to their respective homes, bathe, and attire themselves in their best clothes, placing turbans on their heads. Then juniper wood is split into small pieces, which are then bound in bunches, called 'haldo'. These pieces are afterwards carried outside and thrown away. Then a woman holding a cup of country beer, and flowers, and wearing silver ornaments on her head, and the turquoise ornament (this ornament consists of a crown covered with flat pieces of turquoise), steps outside, and all the villagers follow her. The pieces of Juniper wood are then cut and scattered. Then everybody returns home and partakes of country beer, arag, rice and meat, and enjoy themselves. After the meal everybody retires. Early in the morning all rise, and offer flowers to the gods. Water is brought in a jug and kept inside the house. This day is spent inside, and neither the face of a stranger, nor his name are mentioned. Beer and arag are served, and all enjoy eating. This time spent at home is very pleasant. On the second day, all rise early, prepare food and drink, and drink in honour of the King (in the old days a toast was pronounced in honour of the East India Company—Kompani č'ag-ts'al-lo—'Hail to the Company!'). Then everybody drinks in honour of the Fort (residence of the local ruling chief). Then all villagers gather, and wine is served. Roasted corn and butter are cooked and an offering is made to the gods. Then all partake of beer and arag, and dance. It is a great spectacle! Later all return to their homes, and enjoy food.

Then again on the third day, all rise early, and partake of a broth. Then all gather together, and beer is served. Then about midday, from each house, a man comes out carrying vermicelli, and a bottle of arag, and wearing a turban on his head, and all proceed to the monastery. Having arrived at the monastery, they stay outside. Men from different villages abstain from speaking to each other. They greet the lamas three times. Then they enter the monastery, present offering lamps, and make obeisance. Then greetings are exchanged with the lamas, flowers offered, and conversation held. Then all go to the lamas' quarters. Drinking cups are filled, and the night is spent in drinking beer and arag, singing songs, and in enjoyment. Next morning all proceed to another place. There all are again offered beer and arag, and three or four days are thus spent. Then on the eighth day everybody returns home. The ninth day is spent at home. The tenth day is called the 'Tenth day of the Guru'. Many offering lamps are offered, and obeisance is paid to Lobpön Rinpoč'e. They partake of prepared food, and a religious service is held. Beer and arag are mixed, and consumed. Then songs are sung and a dance is performed, the women holding each other by the waist. The men dance separately. One of the songs is called sPaṅ-ba glu. They beat the drum, and two girls perform a dance.

On the eleventh day the oldest man of the village is invited, and all pay him a visit bringing with them jugs of beer which are offered to the Three Jewels, and then distributed to all present. Later meat and rice are served. Each woman is given a plate with vermicelli. Songs are sung, and a dance is held, and there is great enjoyment. Late at night all return to their homes. Thus they enjoy themselves from the first day of the New Year till the sixteenth day of the second month.

Koksar

A Story

ང་རང་ནང་མོ་ཉང་དི་ལ་ཆ་ཅེན། ཨ་བ་ཞུང་ལ་དཏུལ་ལྱ་བཆུ་གཏོང་། ང་ནང་མོ་ཆ་ཅེན། བྱ་ཚ་ང་ལ་དཏུལ་མེད། ཁྱོད་རང་གི་བྱད་མེད་ལ་ནོར་མང་པོ་ཡོད། ཁོ་ལ་ཟེར། བྱད་མེད་ང་ལ་དཏུལ་ལྱ་བཆུ་གཏོང་། ཁྱོད་ལ་དཏུལ་བཏང་ང་མིན། ཁྱོད་ཚང་འཐུང་སྟེ་དཏུལ་ཚང་མ་ཚར་འདུག། དེ་ཟླག་ཟེར་ཅེན་དང་མཉམ་པོ་ཁྱོ་བོ་ལངས་ཏེ་བྱད་མེད་ལ་བརྡུང་སྟེ་བལ་འབྱད་བཏང་། བྱད་མེད་དག་སྤྲིལ་ལ་སོང་སྟེ་ཨཛ་བཏང་འདུག། དག་སྤྲིལ་ནས་ཅོ་པྲ་སི་བཏང་སྟེ་ཁྱོ་བོ་ལ་ལྷགས་བཀད་དེ་དག་སྤྲིལ་ལ་འཁྱོངས། ཕྱི་དྲོ་ཅིག་ཁོ་འཛལ་ཁ་ན་ལ་འབྲིད་དེ་བོར་འདུག། གོ་རེ་སྐུ་མོ་ན་ཁྲིམས་བཅས་ཏེ་དཏུལ་ལྱ་བཆུ་ཆད་པ་ཞོག་འདུག། དཏུལ་མེད་དེ་རྟ་ཅིག་བཅོང་སྟེ་ཆད་པ་འཛལ་འདུག། དེ་ནས་ཁྱོ་བོ་བྱད་མེད་གཉིས་སྐད་པ་བཅད་དེ་རང་ཀ་སོ་སོའི་ཁང་པ་ལ་སོང་། ཁྱོ་བོ་དེ་ལ་བྱད་མེད་མ་གྲོབ་དེ། དྲ་ཚོར། དེ་ནས་ཨ་བ་དེ་ལ་ཟེར་ཚག། བྱ་ཚ་ཁྱོད་ཅི་ལ་ཁོག་སྐྱག་བྱེད་ཡོད། ང་སོང་སྟེ། ཁྱོད་ལ་བྱད་མེད་འཆོར་མོ་ཅིག་འཁྱོང་སྟེ་བཏང་ངཡིན། ང་རྟེ་གི་ཐར་གྱི་ཡུལ་ལ་སོང་སྟེ་དཏུལ་ལྱ་བཆུ་བཤལ་དེ་འཁྱོང་ངཡིན། ཁྱོད་རང་ཁ་ཡི་ལུག་རྡོ་དེ་རྩ་སོང་སྟེ་ར་མཐོང་ལྱ་ཉོས་དེ་འཁྱོང་། ནང་མོ་ང་ལ་བག་སྟོན་བྱེད་ཡིན། བྱ་ཚ་འཐད་དེ་གཏི་རྩ་སོང་སྟེ་ར་མཐོང་ལྱ་ལ་སྐོར་མོ་ཉི་ཤུ་ཉི་ཤུ་བཏང་སྟེ་ཁང་པ་ལ་ཡོང་། དེ་ནས་ཨ་མ་ལ་དྲིས། ཨ་མ་ཚང་མང་པོ་ཡོད་དམ། ནང་མོ་གཤངས་ལ་ངའི་བག་སྟོན་ཡིན། བྱ་ཚ་ཚང་ནི་ཉམ་མ་མི་འདུག། བྱ་ཚ་ལ་ཡང་ཁོག་སྐྱག་འཆོར་རི་བཞུགས། བྱ་ཚ་ཁྱོད་འཆོར་མ་བྱེད། ང་ཚང་མི་རྩ་རྩ་སོང་སྟེ་སྐུམ་རྡ་ལྱ་བཆུ་ཉོས་

དེ་འབྱོང་ཡིན། ཕྱི་དོག་ལ་ཨ་བ་ཡང་ཁང་པ་རྙེ་བསྟེབས། ནང་མོ་ཐོ་རེ་ལ་བག་སྡོམ་ཡིན། རང་གི་གཉེན་དུད་པོ་ཚང་མ་ལ་སྐད་ཆུབ་དེ་འབྱོང་། མི་མདའ་བཙུ་བག་མ་ལེན་ན་ལ་སོང་། ཐག་མ་ཁང་ལ་འབྱོང་། དེ་ནས་བྱ་ཚ་མནའ་མ་གཉིས་ཀྱི་བག་སྡོམ་བྱས། མི་ཚང་མ་ལ་སྐྱིད་པོ་བྱུང་། མི་ཚང་མ་ར་རེ་འི་གྱེ་ཏ་བདང་རོལ་བདང་། མི་ཚང་མ་རྩེད་དེ་ལྷད་མོ་མང་པོ་བྱས། དེ་ནས་ཡང་གཉེན་དུད་པོ་ཚང་མ་ལ་བག་མ་ལངས་དེ་ཟླ་མ་ལ་མེ་དོག་ཕུལ་དེ་ཟླ་མས་རྩོང་ལ་སྐུང་ང་ཅིག་དང་སྐོར་མོ་བཏུ་བདང་སོང་། ཨ་བས་རྩོང་ལ་རྟ་གཅིག་བདང་སོང་། ཨ་མས་རྩོང་ལ་སྐོར་མོ་ལྷ་བཙུ་བདང་སོང་། ཨ་ཞང་གིས་སྐོར་མོ་བཙུ་བདང་། མིང་པོས་སྐོར་མོ་བཙུ་བདང་། ཚ་མོས་སྐོར་མོ་ལྷ་བདང་། གཞན་གཉེན་དུད་པོ་ཚང་མས་སྐོར་མོ་རེ་རེ་བདང་སོང་། བསྟོམས་ལ་མནའ་མ་ལ་རྩོང་སྐོར་མོ་བཞི་བཏུ་དང་སུམ་ཅུ་བྱུང་སོང་། དེ་ནས་མནའ་མ་དང་བུ་ཚ་བུ་མོ་འི་ཁང་ལ་ཕྱག་ལ་ཆ་ཅེས་ལ་བཅོལ་པོ་གསུམ་འཁྲུར་ར་བཙུག། པོ་དོལ་ཉི་ཤུ་ཨར་བཙུག། ཤ་ལག་པ་གཅིག། བ་ཤ་གསུམ་མར། མི་མདའ་བཙུ་གྲོགས་བྱས་དེ་ཕྱག་ལ་སོང་། དེ་ནས་གྲོས་པོ་དང་སྐྱག་མོ་གཉིས་ལ་བྱ་མོ་དང་མག་པ་གཉིས་ཀྱིས་བཞུགས་བཞུགས་མང་པོ་བྱས། དེ་ནས་ཤ་ལག་པ་ཨ་ར་འཁྲུར་ར་ཚང་ཚང་མ་ཨ་བ་ཨ་མ་གཉིས་ཀྱི་ལག་ལ་བདང་། དེ་ནས་ཡ་དོ་བཙུ་དང་བག་གསར་བག་མ་གཉིས་གླལ་ལ་བསྡད་དེ་ཨ་བ་ཨ་མ་གཉིས་ཀྱིས་རྩ་མ་གང་ཚང་སྐལ་བཅོར་བཀད་དེ་མཆོད་དོ།།

Transcription

Ña-raṅ-naṅ-mo-Ñuṅ-ti-la-ča-čen। aba-žu-ña-la-dṅul-lña-bču-gtoṅ। ña-naṅ-mo-ča-čen। bu-tsha-ña-la-dṅul-med। khyod-raṅ-gi-bud-med-la-nor-maṅ-po-yod। kho-la-zer। bud-med-ña-la-dṅul-lña-bču-gtoṅ। khyod-la-dṅul-btaṅ-ña-min। khyod-čhaṅ-'thuṅ-ste-dṅul-tshaṅ-ma-tshar-'dug। de-zug-zer-čen-daṅ-mñam-po-khyo-bo-laṅs-te-bud-med-la-brduṅ-ste bal-'bud-btaṅ। bud-med-tag-sīl la-soṅ-ste-ardzi-btaṅ'-dug। tag-sīl-nas-čoprasi-btaṅ-ste-khyo-bo-la-lčags-bkad-de-tag-sīl-la'-khyoṅs। phyi-dro-čig-kho-'jal-khana-la-'khrid-de-bor-'dug। tho-re-sña-mo khrims-bčas-te-dṅul-lña-bču-čhad-pa-phog-'dug। dṅul-med-de-rta-čig-btsoṅ-ste-čhad-pa-'jal-'dug। de-nas-khyo-bo-bud-med-gñis-skud-pa-bčad-de-raṅ-ka-so-so'i khaṅ-pa-la-soṅ। khyo-bo-de-la-bud-med-ma-thob-te-ṅu-tshar। de-nas-a-ba-de-la-

zer-ʦ'ag | bu-ʦ'a-khyod-či-la-khug-srug-byed-yod ña-soṅ-ste | khyod-la-bud-med-'čhor-mo-čig-'khyoṅ-ste-btaṅ-ña-yin | ña-he-gi-phar-gyi-yul-la-soṅ-ste-dṅul-lṅa-brgya bśal-te-'khyoṅ-ña-yin | khyod-raṅ-ha-yi-lug-ʣi-de-ru-soṅ-ste-ra-mthoṅ-lṅa-ños-te-'khyoṅ | naṅ-mo-ña-la-bag-ston-byed-yin | bu-ʦha-'thad-de-gādī-rʦa-ru-soṅ-ste-ra-mthoṅ-lṅa-la-sgor-mo-ñi-śu-ñi-śu-btaṅ-ste-khaṅ-pa-la-yoṅ | de-nas-a-ma-la-dris | a-ma-čhaṅ-maṅ-po-yod-dam | naṅ-mo-gnaṅs-la-ña'i-bag-ston-yin | bu-ʦha-čhaṅ-ni-ñun-ma-na-mi-'dug | bu-ʦha-la-yaṅ-khog-srug-'ʦher-ri-bžugs | bu-ʦha-khyod-'ʦher-ma-byed | ña-čhaṅ-mi-rʦa-ru-soṅ-ste-glum-rʣa-lṅa-bču-ños-te-'khyoṅ-yin | phyi-tog-la-a-ba-yaṅ-khaṅ-pa-ru-bslebs | naṅ-mo-tho-re-la-bag-ston-yin | raṅ-gi-gñen-druṅ-po-ʦhaṅ-ma-la-skad-rgyab-te-'khyoṅ | mi-mda'-bču-bag-ma-len-na-la-soṅ | bag-ma-khaṅ-la-'khyoṅ | de-nas-bu-ʦha-mna'-ma-gñis-kyi-bag-ston-byas | mi-ʦhaṅ-ma-la-skyid-po-byuṅ | mi-ʦhaṅ-ma-ra-ro'i-gīta-btaṅ-rol-btaṅ | mi-ʦhaṅ-ma-rʦed-de-ltad-mo-maṅ-po-byas | de-nas-yaṅ-gñen-druṅ-po-ʦhaṅ-ma-la-bag-ma-laṅs-te-bla-ma-la-me-tog-phul-te-bla-mas-rʣoṅ-la-sruṅ-ña-čig-daṅ-sgor-mo-brgya-btaṅ-soṅ | a-bas-rʣoṅ-la-rta-gčig-btaṅ-soṅ | a-mas-rʣoṅ-la-sgor-mo-lṅa-bču-btaṅ-soṅ | a-žaṅ-gis-sgor-mo-bču-btaṅ | miṅ-pos-sgor-mo-bču-btaṅ | ʦha-mos-sgor-mo-lṅa-btaṅ | gžan-gñen-druṅ-po-ʦhaṅ-mas-sgor-mo-re-re-btaṅ-soṅ | bsdoms-la-mna'-ma-la-rʣoṅ-sgor-mo-bži-brgya-daṅ-sum-ču-byuṅ-soṅ | de-nas-mna'-ma-daṅ-bu-ʦha-bu-mo'i khaṅ-la-phyag-la-ča-čes-la-btsel-po-gsum-'khur-na-bčug | botol-ñi-śu-a-rag-bčug | śa-lag-pa-gčig | baṭi-gsum-mar | mi-mda'-bču-grogs-byas-te phyag-la-soṅ | de-nas-gyos-po-daṅ-sgyugs-mo-gñis-la-bu-mo-daṅ-mag-pa-gñis-kyis-bžugs-bžugs-maṅ-po-byas | de-nas-śa-lag-pa-a-rag-'khur-ra-čhaṅ-ʦhaṅ-ma-a-ba-a-ma-gñis-kyi-lag-la-btaṅ | de-nas-ya-do-bču-daṅ-bag-gsar-bag-ma-gñis-gral-la-bsdad-de-a-ba-a-ma-gñis-kyis-rʣa-ma-gaṅ-čhaṅ-skal-bčor-bkad-de mčhod-do ||

Phonetic Transcription

ŋa-raŋ naŋ-mo Ñuŋ-ti-la č'a-čen | ʔa-wa žu ŋa-la mul'-ŋaḇču-toŋ | ŋa naŋ-mo č'a-čen | pu-ʦ'a ŋa-la mul'-meḏ | k'ʲoḏ-raŋ-ŋi pig-meḏ-la nor maŋ-po jöḏ | kʰo-la zer | pig-meḏ ŋa-la mul' ŋaḇču toŋ | k'ʲoḏ-la mul' t'aŋ-ŋa-män | k'ʲoḏ č'aŋ t'uŋ-te mul' ʦ'aŋ-ma ʦ'ar-do | de-zug zer-čen daŋ ñam-po k'ʲo-wo laŋ-te pig-meḏ-la duŋ-te ṷal'-put-t'aŋ | pig-meḏ taksīl-la soŋ-te arʣi t'aŋ-do | taksīl-na čoprasi t'aŋ-te k'ʲo-wo-la čag-kaḏ-de taksīl-la k'ʲoŋ | p'ʲi-ro-či kʰo ǰal'-khana-la ʈʳ'id-de bor-du | t'o-re ŋa-mo-na ʈʳ'im-čē-te mul' ŋaḇču č'e-pa p'og-do | mul' meḏ-de ta-čig ʦoŋ-te č'äḏ-pa ǰal'-do | de-nē k'ʲo-wo pig-meḏ ñī küḏ-pa čaḏ-de raŋ-ka su-suĭ k'aŋ-pa-la soŋ | k'ʲo-wo de-la pig-meḏ ma-t'oḇ-te | ŋū-ʦ'ar | de-nē ʔa-wa de-la zer-ʦ'a | bu-ʦ'a k'ʲoḏ-či-la kok-śu č'e-jaḏ | ŋa soŋ-te | k'ʲoḏ-la pig-meḏ č'ormo-či k'ʲoŋ-te t'aŋ-ŋa-hin | ŋa hegi p'ar-gʲi jul'-la soŋ-te mul' ŋaḇgʲa śal'-te k'ʲoŋ-ŋa-hin | k'ʲoḏ-raŋ ha-yi lug-ʣi de-ru soŋ-te ra-t'oŋ ŋa ñō-te k'ʲoŋ | naŋ-mo ŋa-la bag-t'ön č'e-hin | bu-ʦ'a t'aḏ-de gādī ʦa-ru soŋ-te ra-t'oŋ ŋa-la gir-mo ñi-śu ñi-śu t'aŋ-te k'aŋ-pa-la joŋ | de-nē ʔa-ma-la ḍʳī | ʔa-ma č'aŋ maŋ-po jöḏ-da | naŋ-mo naŋ-la ŋaĭ bag-t'ön

hin | bu-ʦʻa čʻaŋ ni ñun ma-na mindu | bu-ʦʻa-la jaŋ kok-śu ʦʻer-ri žug | bu-ʦʻa kʻⁱoḏ ʦʻer-ma-čʼe | ŋa čʻaŋ-mi ʦa-ru soŋ-te lum-za ŋaḇču ñõ-te kʻⁱoŋ-hin | pʻⁱi-to-la ʔa-wa jaŋ kʻaŋ-pa-ru leḇ | naŋ-mo tʻo-re-la bag-tʻön hin | raŋ-gi ñen-ḏʳuŋ-po ʦʻaŋ-ma-la kaḏ-gⁱaḇ-te kʻⁱoŋ | mindā ču bag-ma len-na-la soŋ | bag-ma kʻaŋ-la kʻⁱoŋ | de-nē bu-ʦʻa nā-ma ñīsi bag-tʻön čʼe | mi ʦʻaŋ-ma-la kⁱiḏ-po čʼuŋ | mi ʦʻaŋ-ma ra-roĭ gīta tʻaŋ rolʼ tʻaŋ | mi ʦʻaŋ-ma se-de taḏ-mo maŋ-po čʼe | de-nē jaŋ ñen-ḏʳuŋ-po ʦʻaŋ-ma-la bag-ma laŋ-te la-ma-la mento pʻulʼ te lama-su zoŋ-la šʳuŋ-ŋa-čig daŋ gir-mo gⁱa tʻaŋ-soŋ | ʔa-wa-su zoŋ-la ta-čig tʻaŋ-soŋ | ʔa-ma-su zoŋ-la gir-mo ŋaḇču tʻaŋ-soŋ | ʔa-žaŋ-su gir-mo ču-tʻaŋ | miṅ-po-su gir-mo ču-tʻaŋ | ʦʻa-mo-su gir-mo ŋa tʻaŋ | žan ñen-ḏʳuŋ-po ʦʻaŋ-ma-su gir-mo re-re tʻaŋ-soŋ | dom-la nā-ma-la zoŋ gir-mo žiḇgⁱa daŋ sum-ču čʼuŋ-soŋ | de-nē nā-ma daŋ bu-ʦʻa bu-möĭ kʻaŋ-la čʼag-la čʻa-čē-la ʦe-bo sum kʻura čug | botolʼ ñi-śu ʔa-ra čug | śa-lag-pa čig | baṭi sum-mar | mindā ču ḏʳog-čʼe-te čʼag-la soŋ | de-nē gⁱo-po daŋ gⁱug-mo ñī-la bu-mo daŋ mag-pa ñīsi žu-žu maŋ-po čʼe | de-nē śa-lag-pa ʔa-ra kʻura čʻaŋ ʦʻaŋ-ma ʔa-wa ʔa-ma ñīhi lag-la tʻaŋ | de-nē jā-do ču daŋ bag-sar bag-ma ñī ṭʳalʼ-la daḏ-de ʔa-wa ʔa-ma ñīsi za-ma gaŋ čʻaŋ kalʼ-čor kaḏ-de čʻöḏ-do ||

Translation

A Story

'To-morrow early I shall start for Kulu. Father, give me some fifty rupees', said the son. 'Son', answered the father, 'I have no money. Your wife is a woman of wealth, you should ask her'. 'Wife, loan me fifty rupees!', demanded the son. "I shall not give you any money! You are always drunk, and all money is gone!' answered the wife. On hearing this, the husband rose to his feet, and gave her a good beating, making her very miserable. The wife made a complaint to the Taksil. Orderlies were sent to fetch the husband, and placed iron shackles on him, and brought him to the Taksil. Later he was taken to the Jail, and kept there. Early next morning, his case was tried, and he was fined fifty rupees. Having no money, he was obliged to sell a horse to meet the fine. Then a string held between the husband and wife having been cut (this signifies divorce in Lahul) both parties returned to their respective homes. The husband was much afflicted by the loss of his wife, and his father said to him: 'Son, why are you crying? I shall go, and find for you a beautiful wife! I shall go to the village over there and offer them five hundred rupees, and bring a bride here. You go over there to the shepherd and buy five grown-up goats. To-morrow we shall hold the marriage ceremony.' The son proceeded to the shepherd, for each of the five grown-up goats he gave the shepherd twenty rupees, and then returned home. He then asked his mother: 'Mother, have we sufficient wine? To-morrow is my marriage ceremony!' 'Son', said the mother, 'we have only

very little country beer'. Noticing that the son became sad, the mother said: 'Son, don't be sad! I shall go to the wine merchant and buy fifty jugs of country beer'. In the evening the father returned home. Early next morning the marriage ceremony started. All relatives were invited. Ten men went to bring the bride to the house of the bridegroom. The marriage ceremony is then performed. The guests partake of food, beer, arag, etc. All enjoy themselves, sing songs and play music. Then all rise and dance. It is a great spectacle! On the next day all guests return to their homes. The bridegroom offers flowers to all guests, and to the officiating priest. He then receives as dowry from the priest an amulet and a hundred rupees. From his father he gets a horse, from his mother fifty rupees, from his uncle ten rupees, from his cousin five rupees, from the other relatives one rupee each. Altogether he receives as dowry four hundred and thirty rupees. Later the bridegroom and bride proceed to the bride's home, and bring with them three baskets of pastry, ten bottles of arag, one shoulder of mutton, and three seers of butter. Ten men accompany them to carry the baskets. The father and mother-in-law having greeted the bride and bridegroom, the provisions are presented to them. The bride and bridegroom and their ten companions are then asked to sit in a row, and the bride's parents serve them with country beer.

Vocabulary

ཀ ka.

ཀ་བ ka-ba, C.T. ka-wa; Lah. k'a-wa, column, pillar.

ཀུན kun, C.T. k'ün∼kṳ̃; Lah. kun∼gün. all, every; sign of plural in Lahul Tibetan.

ཀྲད་ཀྲད་ kraṅ—kraṅ, Lah. ṭ̣ʳaŋ—ṭ̣ʳaŋ, leg.

ཀླུ klu, C.T. lu; Lah. lu. nāga, a denizen of the lower region.

ཀློག་པ klog-pa, C.T. lo-pa; Lah. log-pa to read.

དཀན dkan, C.T. ken; Lah. kän palate. also རྐན, rkan.

ཡ་རྐན, ya-rkan, C.T. jarken; Lah. jal'-kän, upper part of the palate.

མ་རྐན, ma-rkan, C.T. marken; Lah. markän, the lower part of the palate.

དཀར་པོ dkar-po, C.T. kar-po; Lah. kar-po, white.

དཀར་ཡོལ dkar-yol, C.T. kar-jõ; Lah. (Kolong) kal'-jor, (Koksar) kal'-ǰ'or. cup, tea-cup.

དཀོན་མཆོག dkon-mčhog, C.T. kṍ-č'o; Lah. kon-č'o, the jewel.

བཀའ་གསལ bka'-gsal, C.T. kā-sal'; Lah. kās∼kāsĕ, yes. (Koksar) kās.

བཀྲ་ཤིས bkra-śis, C.T. ṭ̣ra-śī, Lah. ṭ̣ʳa-śī ∼kra-śī, happiness, prosperity, blessing.

བཀྲམས bkrams, pf. stem of འཕྲོ་བ, 'grem-pa, to spread, C.T. ṭ̣ʳam; Lah. ṭ̣ʳam.

རྐང་པ rkaṅ-pa, C.T. kaŋ-pa; Lah. kaŋ-pa; Ld. ˢkaŋ-pa; Baltī ˢkaŋ-pa. foot; leg.

རྐང་ཡ rkaṅ-ya, Lah. kaŋ-ja, thigh.

རྐུ་བ rku-ba, C.T. ku-wa; Lah. ku-čē, to steal, to rob.

རྐུན་མ rkun-ma, C.T. ku-ma; Lah. kun-ma, thief.

རྐྱང་ rkyaṅ, Equns hemionus, C.T. čʲaŋ; Lah. kʲaŋ.

སྐད skad, C.T. kĕ; Lah. kaḍ, voice, sound, cry; speech, words, language.

སྐད་ཆ skad-čha, C.T. kĕ-č'a; Lah. kaḍ-č'a, conversation.

སྐད་ཆ་འདྲི་བ skad-čha 'dri-ba, C.T. kĕ-č'a ḍʳī-wa; Lah. kaḍ-č'a ḍʳi-čē, to speak, to converse. cf. དཔེ་རྒྱ་འདྲི་རེས, dpe-ra 'dri-čes, Lah. pe-ra ḍʳi-čē, to converse.

སྐབས skabs, C.T. kaḅ; Lah. kaḅ. time, period.

སྐབས་སུ skabs-su, Lah. kaḅ-su, during, in the time of.

སྐར་ཁུང་ skar-khuṅ, Lah. kar-kʰuŋ, window.

སྐར་མ skar-ma, C.T. kar-ma; Lah. kar-ma, star.

སྐུ་མཁར sku-mkhar, C.T. ku-k'ar; Lah. ku-kʰar, castle, fort.

སྐུ་རིམ sku-rim, C.T. ku-rim; Lah. ku-rim ∼gu-rim, service, order.

སྐུད་པ skud-pa, C.T. kü-pa; Lah. küḍ-pa, string.

སྐྱ་བོ skya-bo, C.T. ʦʲa-wo, Lah. kʲa-wo, light-gray; layman.

སྐྱིད་པོ skyid-po, C.T. kʲi-po; Lah. kʲiḍ-po, happy, pleasant.

སྐྱིད་ལེགས skyid-legs, C.T. kʲi-leg; Lah. kʲi-li, happiness.

སྐྱུར་བ skyur-ba, pf. བསྐྱུར, bskyur, C.T. čʲur-wa; Lah. kʲur-čē, to throw, to cast.

(སྐྱེ་)བ skye-ba, pf. སྐྱེས, skyes, C.T. čⁱe-wa; Lah. kⁱe-čes, to be born.

(སྐྱེ)མ་པ skyem-pa; C.T. kⁱem-pa; Lah. kⁱem-pa, to partake.

(སྐྱོ)ད་པ skyod-pa, pf. བསྐྱོད, bskyod; C.T. č′oḍ-pa; Lah. kⁱoḍ-pa, to go, come.

སྐྲ skra; C.T. ṭʳa; Lah. šʳa∼šā. cf. Koksar, bāl′<Hind. बाल, hair. མགོ་སྤུ, mgo-spu, go-pu.

བསྐལ་པ bskal-pa<skrt. kalpa, period.

བསྐལ་པ་བཟང་པོ bskal-pa bzaṅ-po, Lah. kal′-pa zaŋ-po, the good or blessed kalpa.

ཁ kha.

ཁ kha; C.T. k‘a; Lah. k‘a, mouth, opening, face, surface.

ཁ་ཅིག kha-čig; C.T. k‘a-čig; Lah. k‘a-či(g), some.

ཁ་བརྡ kha-brda’, C.T. k‘a-dā; Lah. k‘a-dā, instruction, admonition.

ཁ་ལྤགས kha-lpags; Lah. k‘al′-pag, lip.

ཁ་སྤུ kha-spu; Lah. k‘aspu, moustache.

ཁ་བ kha-ba; C.T. k‘a-wa; Lah. kʰā, snow.

ཁང་པ khaṅ-pa; C.T. k‘aŋ-pa; Lah. k‘aŋ-pa, house, residence. hon གཟིམས་ཁང་, gzims-khaṅ; C.T. zim-k‘aŋ; Lah. zim-k‘aŋ.

ཁབ khab; C.T. k‘ap; Lah. kʰaḅ, needle.

ཁོ kho; C.T. k‘o; Lah. kʰo, he, she.

ཁོ་བ kho-ba; Lah. kʰo-wa, they.

ཁོ་རང་ kho-raṅ; C.T. k‘o-raŋ; Lah. kʰo-raŋ, himself.

ཁོ་ཞ kho-ža; Lah. (Koksar) kʰo-ž′a, they.

ཁོང་ khoṅ; C.T. k‘oŋ; Lah. kʰoŋ, he (hon.).

ཁྱི khyi; C.T. k‘ⁱi∼čⁱi; Lah. k‘ⁱi, dog.

ཁྱི་ཤིག khyi-śig; C.T. k‘ⁱi-śi; Lah. k‘ⁱi-śi, flea.

ཁྱེམ khyem; C.T. k‘ⁱem; Lah. k‘ⁱem, shovel.

ཁྱོ་ག་བུ་ཚ khyo-ga bu-tsha; C.T. č′o-ga bu-ts‘a; Lah. k‘ⁱo-ga bu-ts‘a-male.

ཁྱོ་བོ khyo-bo; C.T. č′o-wo; Lah. k‘ⁱo,-wo, husband.

ཁྱོད khyod; C.T. čⁱö; Lah. k‘ⁱöḍ, thou, you.

ཁྱོད་ཞ khyo-ža; Lah. k‘ⁱö-ž′a, you.

ཁྲ་བོ khra-bo; C.T. ṭʳa-wo; Lah. čʳa-wo, ∼ṭʳa-wo, many-coloured, piebald.

ཁྲག khrag; C.T. ṭʳ‘ag∼ṭʳ‘a; Lah. ṭʳ‘ag∼ṭʳ‘a, blood.

ཁྲད་པ khrad-pa; Lah. ṭʳ‘aḍ-pa, stretched out.

ཁྲལ་ཁྲོལ khral-khrol; C.T. ṭʳ‘al′-ṭʳ‘ol′; Lah. ṭʳal′-ṭʳ‘ol′, pure.

ཁྲི khri; C.T. ṭʳ‘i; Lah. ṭʳ‘i, throne.

ཁྲིམས khrims; C.T. ṭʳ‘im; Lah. ṭʳ‘im, law.

ཁྲིམས་མེད khrims-med; C.T. ṭʳ‘im-me; Lah. ṭʳ‘im-mĕ, violent, cruel.

ཁྲུས་གསོལ khrus-gsol; C.T. ṭʳ‘ū-sol′; Lah. ṭʳ‘ū-sol′, baptism.

ཁྲུས་གསོལ་ཞུ་ཅེས khrus-gsol žu-čes, ṭʳ‘ū-sol′ žu-čē, to baptize.

ཁྲོམ khrom; Lah. ṭʳ‘om, a multitude of people, assembled on the occasion of a holiday.

མཁྲགས་པ mkhrags-pa; C.T. ṭʳ‘ag-pa; Lah. ṭʳ‘ag∼ṭʳ‘a-pa, firm, enduring. cf. šan-ta, strong, firm.

འཁུར་བ 'khur-ba; C.T. k'u-ru; Lah. k'ur-ra, pastry.

འཁོལ་བ 'khol-ba; C.T. k'ol'-wa; Lah. k'ol'-čē, to boil.

འཁྱིལ་བ 'khyil-ba: Lah. k'^{i}il'-čē, to boil.

འཁྱེར་བ 'khyer-ba; C.T. k'^{i}er-wa; Lah. k'^{i}er-čē, to carry, to take away.

འཁྱོན་བ 'khyoṅ-wa; C.T. k'^{i}oŋ-wa; Lah. k'^{i}oŋ-čē, to bring.

ག ga.

གა་ནས ga-nas, C.T. ka-nē; Lah. ga-nē, from where.

གა་རུ ga-ru, Lah. ga-ru, where?

གངས gaṅs, Lah. gaŋ, snow.

གངས་རི gaṅs-ri, C.T. kaŋ-ri; Lah. gaŋ-ri, snow mountain.

གལ་ཏེ gal-te, C.T. gal-te; Lah. gal-te, if, whether.

གུང་ guṅ, Lah. guŋ, heaven.

གུར gur, C.T. kur; Lah. gur. hon. བཞུགས་གུར, bžugs-gur, Lah. žu-gur. cf. tambu (Hind.).

གོང་ goṅ, C.T. koŋ; Lah. koŋ, above.

གོང་ goṅ, C.T. koŋ; Lah. goŋ, price.

གོད་ཆག god-čhag, C.T. gö-č'a; Lah. göḍ-č'a, calamity.

གོན་ཅེས gon-čes, Lah. gon-čē, attire, garment.

གོས gos, C.T. kō; Lah. gō~goĭ, garment, clothing.

གོས་ལག gos-lag, C.T. kō-la; Lah. goĭ-lag, clothing, garment.

གྱི་ལིང་ gyi-liṅ, C.T. g^{i}i-liŋ; Lah. g^{i}i-liŋ, a steed.

གྱེན་ལ gyen-la; C.T. k^{i}en-la; Lah. g^{i}en-la, up, upwards.

གྱེན་མེད་ཐུར་མེད gyen-med thur-med; Lah. g^{i}en-mĕ t^{h}ur-mĕ, 'neither up-hill, nor down-hill', straight.

གྱོས་པོ gyos-po, C.T. k^{i}ō-po; Lah. g^{i}o-po, father-in-law.

གྲྭ་པ grva-pa, C.T. ṭ^{r}a-pa; Lah. ḍ^{r}a-pa, monk; novice.

གྲན་མོ graṅ-mo, C.T. ṭ^{r}aŋ-mo; Lah. ḍ^{r}aŋ-mo, cold.

གྲལ gral, C.T. ṭ^{r}e; Lah. ṭ^{r}al', row, line.

གྲི gri, C.T. ṭ^{r}i; Lah. ḍ^{r}i~ḍ^{r}iu, knife.

གྲུ་གཟིངས gru-gziṅs, C.T. ṭ^{r}u-siŋ; Lah. ḍ^{r}u-ziŋ, boat.

གྲོ gro, C.T. ṭ^{r}o; Lah. ṭ^{r}o, wheat.

གྲོ་ལྗང་ gro-ljaṅ, C.T. ṭ^{r}o-ǰaŋ; Lah. ṭ^{r}o-ž'aŋ, green wheat.

གྲོགས་པོ grogs-po, C.T. ṭ^{r}o-po~ṭ^{r}ok-po; Lah. ḍ^{r}og-po, friend.

གྲོང་ groṅ, C.T. ṭ^{r}oŋ; Lah. ḍ^{r}oŋ, village.

གྲོང་གསེབ groṅ-gseb, C.T. ṭ^{r}oŋ-sep; Lah. ḍ^{r}oŋ-seḇ, village.

གྲོང་པ groṅ-pa, C.T. ṭ^{r}oŋ-pa; Lah. ḍ^{r}oŋ-pa, villager.

གྲོད་པ grod-pa, C.T. ṭ^{r}ö-pa; Lah. ḍ^{r}ö-pa, belly.

གླག glag, C.T. la; Lah. la, eagle.

གླང་ཏོ glaṅ-to, Lah. laŋ-to, bull.

གླང་པོ་ཆེ glaṅ-po-čhe, C.T. laŋ-po-č'e; Lah. laŋ-po-č'e, elephant.

གླང་ཟ glaṅ-ma, C.T. laŋ-ma; Lah. laŋ-ma, willow.

གླིང་ཀ gliṅ-ka; C.T. liŋ-ka; Lah. liŋ-ka, garden.

གླུ glu, C.T. lū; Lah. lū, song.

གླུམ་རྫ་ glum-rdza, C.T. lum-dza; Lah. lum-za, jug of wine.

དགུ dgu, C.T. gū; Lah. gū, nine.

དགུ་བཅུ་ཐམ་པ dgu-bču tham-pa, C.T. gupču t'am-pa; Lah. gupču t'am-pa, ninety.

དགུན་ཀ dgun-ka, C.T. gṳ̈-ka∼gün-ka; Lah. gun-ka, winter.

དགྲ dgra, C.T. ḍ^{r}a; Lah. ḍ^{r}a, enemy.

མགར་བ mgar-ba, C.T. gar-ra; Lah. gar-ra, blacksmith.

མགོ mgo, C.T. go; Lah. go, head.

མགོ་རྩེ mgo-rtse, C.T. go-ʦe, 'crown of the head'; Lah. (Koksar) go-ʦe, 'head'.

མགྲོན་ལ་འབོད་ཅེས mgron-la-'bod-čes; Lah. ḍ^{r}ön-la böḍ-čē, to invite.

འགོད་པ 'god-pa, pf. བཀོད, bkod; Lah. kaḍ-čē, to put, place.

འགྱངས་ནས 'gyaṅs-nas, Lah. ǰ^{i}aŋ-nē, from afar.

འགྲམ་པ 'gram-pa, C.T. ʈ^{r}am-pa; Lah. ḍ^{r}am-pa, cheek.

འགྲམ་ལ 'gram-la, C.T. ḍ^{r}am-la; Lah. ḍ^{r}am-la, at the side.

འགྲུལ་པ 'grul-pa, C.T. ḍ^{r}ṳ̄-pa; Lah. ḍ^{r}ül'-pa, traveller.

རྒད་པོ rgad-po, C.T. ge-po∼ga-bu; Lah. gäḍ-po, old man.

རྒོད་པོ rgod-po, Lah. göḍ-po, hero.

རྒོད་མ rgod-ma, C.T. gö-ma; Lah. göḍ-ma, mare.

རྒྱ་དར rgya-dar for རྒྱ་ཆེར་དར་བ, rgya-čher dar-ba, C.T. ǰ^{i}a-tar; Lah. g^{i}a-dar, extensive, numerous.

རྒྱ་དུད་ rgya-duṅ, C.T. ǰ'a-duŋ; Lah. g^{i}a-duŋ, big trumpet.

རྒྱ་སོག rgya-sog, Lah. g^{i}a-so, saw.

རྒྱང་ཤེལ rgyaṅ-śel, C.T. ǰ^{i}aŋ-śē; Lah. ǰ^{i}aŋ-śel', field-glasses.

རྒྱབ་རི rgyab-ri, C.T. ǰ^{i}aḇ-ri; Lah. g^{i}aḇ-ri, mountain retreat.

རྒྱབ་ལ rgyab-la, C.T. ǰ^{i}aḇ-la; Lah. g^{i}aḇ-la, 'on the back'.

རྒྱལ་པོ rgyal-po, C.T. ǰ^{i}e-po∼g^{i}al-po; Lah. g^{i}a-po, king.

རྒྱལ་མོ rgyal-mo, C.T. ǰ^{i}e-mo; Lah. g^{i}al-mo, queen.

རྒྱལ་ལ rgyal-la, Lah. g^{i}al-la, well, good.

རྒྱལ་ལ་མེད rgyal-la-med, Lah. g^{i}al-la-mĕ, bad.

རྒྱུགས་པ rgyugs-pa, C.T. ǰ'uḡ-pa; Lah. ǰ^{i}uḡ-pa, racing.

བརྒྱ་ཐམ་པ brgya-tham-pa; C.T. ǰ^{i}a-t'am-pa; Lah. g^{i}a-t'am-pa, hundred.

བརྒྱད brgyad, C.T. g^{i}e; Lah. g^{i}aḍ, eight.

བརྒྱད་བཅུ་ཐམ་པ brgyad-bču tham-pa, C.T. ǰ^{i}e-ču t'am-pa; Lah. g^{i}e-ču t'am-pa, eighty.

སྒ sga, C.T. ga; Lah. ga-ča, saddle.

སྒོ sgo, C.T. go; Lah. go, door.

སྒོ་ཁྱི sgo-khyi, C.T. go-č^{i}i; Lah. go-k'^{i}i, watch dog.

སྒོ་ན་ sgo-ña, C.T. goŋa; Lah. goŋa, egg. Cf. t'ul'.

སྒྱུག་མོ sgyug-mo, C.T. ǰ^{i}uḡ-mo; Lah. g^{i}uḡ-mo∼g^{i}uḍ-mo, mother-in-law.

སྒྲ sgra, C.T. ḍ^{r}a; Lah. ḍ^{r}a∼ra, noise.

སྒྲོག་བུ sgrog-bu, C.T. ʈ^{r}og-bu; Lah. ḍ^{r}og-bu, button.

(Jaeschke, Dictionary, p. 122 notes a pronunciation rog-bu.)

ང་ ṅa

ང་ ṅa ; C.T. ŋa ; Lah. ŋa, I.

ང་རང་ ṅa-raṅ ; C.T. ŋa-raŋ ; Lah. ŋa-raŋ, myself.

ང་ཞ་ ṅa-ža ; Lah. ŋa-ča∼ŋa-ž'a, we.

ངན་སོང་ ṅan-soṅ ; Lah. ŋen-soŋ, damnation.

ངུ་བ་ ṅu-ba ; C.T. ŋu-wa ; Lah. ŋu-čē, to cry.

ངོས་ ṅos ; C.T. ŋō ; Lah. ŋō, face, surface.

མྣར་ mṅar ; C.T. ŋar ; Lah. ŋar, sweet.

མྣར་མོ་ mṅar-mo ; C.T. ŋar-mo∼ŋa-mo ; Lah. ŋar-mo, sweet-scented, well-tested.

དཀྱུལ་ dṅul ; Lah. mul' ; C.T. ŋū̃, silver.

ཪ་ rṅa ; C.T. ŋa ; Lah. ŋa, drum.

ཪ་བ་ rṅa-ba ; C.T. ŋa-wa ; Lah. ŋa-čē, to harvest, to reap.

ཪ་བོང་ rṅa-boṅ ; Lah. ŋa-boŋ, camel.

ཪ་མ་ rṅa-ma ; C.T. ŋa-ma ; Lah. ŋa-ma, yak-tail.

དཀྱུལ་ཆུ་ rṅul-čhu ; Lah. mul'-č'u, perspiration. cf. C.T. ŋū̃-na.

རྨོག་མ་ rṅog-ma ; CT. ŋo-ma ; Lah. ŋo-ma, mane. cf. ཐོད་སྤུ་, thod-spu ; Lah. t'öḏ-pu.

ལྔ་ lṅa ; C.T. ŋa ; Lah. ŋa, five.

ལྔ་བཅུ་ཐམ་པ་ lṅa-bču tham-pa ; C.T. ŋapču-t'am-pa ; Lah. ŋaḇču t'am-pa, fifty.

སྨོན་པོ་ sṅon-po ; C.T. ŋōn-po ; Lah. ŋon-po, blue.

སྨོན་ཚེ་ sṅon-tshe ; C.T. ŋōn-ʦ'e ; Lah. ŋon-ʦ'e, former times.

ཅ་ ča

ཅ་རི་ ča-ri ; Lah. ča-ri, bug.

ཅི་ či ; Lah. či, what ? Lah. či-la, why.

གཅན་གླགས་ gčan-glags ; Lah. čan-la, eagle.

གཅིག་ gčig ; C.T. čig∼či ; Lah. či∼čig, one.

བཅུ་ bču ; C.T. ču ; Lah. ču, ten.

བཅུ་གཅིག་ bču-gčig ; C.T. čugči ; Lah. čugči∼čugśig, eleven.

བཅུ་གཉིས་ bču, gñis ; C.T. čugñī ; Lah. čugñī, twelve.

ལྕགས་ lčags ; C.T. čag∼ča ; Lah. čag, iron ; čag-zo-pa, ironsmith.

ལྕགས་སོ་ lčags-so ; Lah. ča-so, saw. cf. ǰ'a-so.

ལྕང་མ་ lčaṅ-ma ; C.T. čaŋ-ma ; Lah. čaŋ-ma, willow.

ལྕེ་ lče ; C.T. če ; Lah. če, tongue.

ཆ་ čha

ཆ་བ་ čha-ba ; Lah. č'a-čē, to go, depart.
k'o č'a-ru ; 'he goes'.
śiŋ maŋ-po č'a-jin ; 'a great deal of wood will be needed'.

ཆང་ čhaṅ ; C.T. č'aŋ ; Lah. č'aŋ, wine, country beer.

ཆད་པ་ čhad-pa ; C.T. č'e-pa ; Lah. č'äḏ-pa, fine.

ཆར་པ་ čhar-pa ; C.T. č'ar-pa ; Lah. č'ar-pa, rain.

ཆུ་ čhu ; C.T. č'u ; Lah. č'u, water.

ཆུ་དོན་ čhu-doṅ ; C.T. č'u-toŋ ; Lah. č'u-doŋ, well.

ཆུ་སྨིག་ čhu-mig ; C.T. č'u-mi ; Lah. č'u-mig, spring.

ཆུང་བ chuṅ-ba; C.T. č'uŋ-wa, č'uŋ-č'uŋ; Lah. čuɣun∼čuŋ-nu∼čuŋun, small, little.

ཆུར་པེ chur-pe; Lah. č'ur-pe, a kind of vermicelli prepared from boiled butter milk.

ཆུ་ཟོམ chu-zom; Lah. č'u-zom, pot, water jar.

ཆེན་པོ (མོ) čhen-po (mo); C.T. č'en-po; Lah. č'en-mo∼č'ed-mo, big, great, large.

མཆུ་ལྟོ mčhu-lto; C.T. č'u-to; Lah. č'u-to, lip.

མཆོད་རྟེན mčhod-rten; C.T. č'orten; Lah. č'orten, stūpa.

མཆོད་པ mčhod-pa; C.T. č'ö-pe; Lah. č'öḍ-čē, to offer.

མཆོད་མེ mčhod-me; C.T. č'ö-me; Lah. č'öḍ-me, offering lamp.

འཆོར་མོ 'čhor-mo; C.T. č'or-mo; Lah. č'or-mo, beautiful.

ཇ ǰa

ཇ ǰa; C.T. ča; Lah. ča, tea.

ཇག་པ ǰag-pa; C.T. ǰag-pa; Lah. ǰag-pa∼žag-pa, brigand.

འཇམ་པོ 'ǰam-po; C.T. ǰam-po; Lah. žam-po, soft, smooth.

འཇལ་བ 'ǰal-ba; C.T. čal-wa; Lah. žal'-čē, to pay, repay.

འཇིག་རྟེན 'ǰig-rten; C.T. ǰig-ten; Lah. žig-ten, external world, universe.

འཇིགས་པོ 'ǰigs-po; C.T. ǰig-po; Lah. žig-po∼žiχ-po, fearful, tremendous; also used as sign of the superlative.

ཇང་ཁུ lǰaṅ-khu; C.T. ǰaŋ-k'u; Lah. žaŋ-k'u∼žaŋ-gu, green.

ལྗིད་པ lǰiṅ-pa; C.T. ǰiŋ-pa; Lah. žiŋ-pa, throat.

ཉ ña

ཉ ña, C.T. ña; Lah. ña, fish.

ཉ་ཆེན ña-čhen; C.T. ña-č'en; Lah. ña-č'en, great fish.

ཉ་ཟིན་པ ña-zin-pa; C.T. ña-sim-pa; Lah. ña zum-čē, to fish.

ཉལ་བ ñal-ba, C.T. ñē-wa; Lah. ñal'-čē, to lie down, to sleep.

ཉི་མ ñi-ma; C.T. ñi-ma; Lah. ñi-ma, son; day.

ཉིན་མོ ñin-mo, Lah. ñin-mo, day. cf. ཟག, žag, Lah. ž^{i}ag∼žag-ma; C.T. ša-ma.

ཉིན་གསུམ་མཚན་གསུམ ñin-gsum mtshan-gsum, Lah. ñin-sum ʦ'än-sum, the three watches of day and night.

ཉི་ཤུ ñi-śu; C.T. ñi-śū; Lah. ñi-śu, twenty.

ཉུང་བ ñuṅ-ba, C.T. ñuŋ-ñuŋ; Lah. ñuŋ; a few; little.

ཉུང་ཏི ñuṅ-ti, Lah. ñuŋ-ti, the Lahulī name of Kuḷū.

ཉེ་མོ ñe-mo; C.T. ñe-mo; Lah. ñe-mo, near, close by.

གཉའ་ལོ gña'-lo; C.T. ña-lo; Lah. ñā-lo, n. of a flower.

གཉིས gñis; C.T. ñī; Lah. ñī; two.

གཉིས་ཀོད gñis-kod; C.T. ñī-ka; Lah. ñī-kö∼ñī-köḍ, both, the two.

གཉེན་དྲུང་ gñen-druṅ, C.T. ñē-ḍ^{r}uŋ; Lah. ñen-ḍ^{r}uŋ, relatives.

མཉམ་པོ mñam-po, C.T. ñam-po; Lah. ñam-po, like, same.

རྙིང་པ rñiṅ-pa, C.T. ñiŋ-pa; Lah. ñiŋ-pa, old; Lah. mā-ñiŋ-pa, very old.

སྙུན་གཞི sñun-gži, C.T. ñuŋ-ši; Lah. ñun-ži, illness.

ཏ ta

toŋ-toŋ-'bu, pron. toŋ-toŋ-bu, wasp.

ཏ་ rta ; C.T. ta ; Lah. ta, horse. cf. Ld. sta.

ཏ་ལ་ཞོན་པ rta-la žon-pa, C.T. ta-la šöm-pa ; Lah. ta-la žön-čē, to ride horseback. cf. ŋa ta-la žöna jöḍ— 'I am riding horseback.'

ལྟག་རྩ ltag-rtsa, Lah. tag-sa~tag-pa, back of neck.

ལྟད་མོ ltad-mo, C.T. te-mo ; Lah. täḍ-mo~taḍ-mo, show, spectacle.

སྟ་རི / སྟ་རེས sta-ri, C.T. ta-re ; Lah. ta-ri. sta-res, axe.

སྟག stag, C.T. ta ; Lah. tag, tiger.

སྟག་ཆེན stag-čhen, C.T. ta-č'ē ; Lah. tag-č'en, the mighty tiger.

སྟེང་ steň, C.T. teŋ ; Lah. teŋ, heaven.

སྟོང་ stoň, C.T. toŋ ; Lah. toŋ, thousand. toŋ, the last day of the month ; New Year's eve.

སྟོད stod ; C.T. tŏ ; Lah. töḍ~tŏ, high, lofty.

སྟོན་ཀ ston-ka, C.T. tō̆-ka ; Lah. ton-ka, autumn.

སྟོན་ཏོག / སྟོན་ཐོག ston-tog, C.T. tō̆-t'o ; Lah. tön-t'o~t'og, harvest.

ཐ tha.

ཐག་པ thag-pa, C.T. t'ag-pa ; Lah. t'ag-pa, rope.

ཐག་རིང་ thag-riň, C.T. t'a-riŋ ; Lah. tha-riŋ~thag-riŋ, far, distant.

ཐན་དཀར thaň-dkar, C.T. t'aŋ-kar ; Lah. t'aŋ-kar, white-tailed eagle.

ཐབ thab, C.T. t'ap ; Lah. thaḅ~thaḅ-ka, store.

ཐམས་ཅད thams-čad ; C.T. t'am-čĕ ; Lah. t'am-čaḍ~t'am-čäḍ, all, every.

ཐལ་བ thal-ba, C.T. t'e-la ; Lah. t'al'-wa~t'al'-la, ashes.

ཐུག་པ thug-pa, C.T. t'ug-pa ; Lah. t'ug-pa, broth.

ཐུགས thugs, C.T. t'ug ; Lah. t'ug, mind (hon.).

ཐུན་བ thuň-ba, C.T. t'uŋ-t'uŋ ; Lah. t'ugun~t'uŋ-ŋu~t'ūŋ, short.

ཐུར thur, C.T. t'ur-la ; Lah. thur-gia-la, down, downwards.

ཐུར་བུ(རུ) thur-bu(ru) ; Lah. t'u-ru, colt. t'uru-p'o, colt (male). t'u-ru-mo, colt (female).

ཐུར་མ thur-ma, C.T. t'ur-ma ; Lah. thur-mą, spoon.

ཐོ་རེ thore, Lah. t'o-re, to-morrow.

ཐོག thog, C.T. t'o ; Lah. thog, ceiling.

ཐོད་པ thod-pa, C.T. t'ö-pa ; Lah. t'öḍ-pa, forehead.

ཐོབ་ཆི thob-čhi, C.T. t'op-č'i ; Lah. t'uḅ-č'i, button.

མཐོ་བ mtho-ba ; C.T. t'o-wa ; Lah. t'o-wa, high, lofty.

མཐོང་བ mthoň-ba ; C.T. t'oŋ-wa ; Lah. t'oŋ-čē, to see.

འཐད་པ 'thad-pa ; C.T. t'e-pa ; Lah. t'aḍ-čē, to go, start.

ད da.

དང་པོ daň-po, C.T. taŋ-po ; Lah. daŋ-po, first.

དང་པོར daň-por, C.T. taŋ-pō ; Lah. daŋ-po, at first.

དར dar, C.T. tar ; Lah. dar, silk.

དར་ཚོན་སྣ་ལྔའི་མདའ་དར་ dar-ʦhon sna-lṅa'i mda'-dar, Lah. dar-ʦs'ön-na-ŋēĭ dā-dar, an arrow with silk ribbons of five different colours.

དར་ཟབ dar-zab, C.T. tar-sap; Lah. dar-zaḇ, costly silk.

དལ་ལ་སོང་ dal'-la soŋ, go in peace. hon. dal'-la k'iödָ, go in peace.

དུ་བ du-ba, C.T. tū-wa; Lah. du-ba~du-wa; smoke.

དུང་ duṅ, C.T. duŋ; Lah. duŋ, conch, conch-shell.

དུང་འཕྲེང་ duṅ-'phreṅ, Lah. duŋ-ʈ'aŋ, a rosary made of conch-shells; a garland of shells worn as a necklace in Lahul.

དུས dus, C.T. tū; Lah. duĭ, time.

དེ de, C.T. te; Lah. de, that, that one.

དེའི་གཞུག་ལ de'i gžug-la, C.T. teĭ šug-la; Lah. deĭ žŭg-la, after that. Lah. deĭ tiŋ-la, after that.

དེ་རིང་ de-rīṅ, C.T. te-riŋ; Lah. di-riŋ, to-day.

དེ་རུ de-ru, C.T. te-ru; Lah. de-ru, there. Lah. de-ru-ka, there.

དོན don; C.T. tön; Lah. don~dön, sense, meaning, matter.

དོམ dom; C.T. tom; Lah. dom, bear.

དོམ་ནག dom-nag, C.T. tom-na; Lah. dom-na, black bear.

དྲན་པོ draṅ-po; C.T. ʈ'raŋ-po; Lah. ɖ'raŋ-pa, straight, truthful.

དྲི་མ dri-ma; C.T. ʈ'ri-ma; ɖ'ri-ma, smell, odour.

དྲིན drin; C.T. ʈ'riṅ; Lah. ɖ'rin, kindness.

དྲིལ་བུ dril-bu; C.T. ʈ'ri-bu; Lah. ɖ'ril'-bu, bell.

དྲིལ་བུ་རི dril-bu-ri; Lah. ɖ'ril'-bu-ri name of a sacred mountain in Lahul—a well-known place of an annual pilgrimage.

དྲུག drug; C.T. ʈ'ruk; Lah. ɖ'ruḡ, six.

དྲུག་ཅུ drug-ču; C.T. ʈ'ruk-ču; Lah. ɖ'ruḡ-ču, sixty.

དྲེལ drel; C.T. ʈ'rē; Lah. ʈ'ri, mule.

དྲེའུ dre'u; Lah. ɖ'riu; Lah. ʈ'ri-la žön-čē, to ride on a mule.

གདུབ་བུ gdub-bu; C.T. du-gu; Lah. du-gu~duu, bracelet.

བདུད་རྩི bdud-rʦi; C.T. dü-ʦi; Lah. dursi, amṛta.

བདུན bdun; C.T. dün~dṻ; Lah. dun~dün, seven.

བདུན་བཅུ bdun-bču; C.T. dṻ-ču; Lah. dün-ču, seventy.

བདུན་ཕྲག bdun-phrag; C.T. dün-ʈ'r'a; Lah. dün-ʈ'r'aḡ, week.

བདེ་མོ bde-mo; Lah. de-mo, pleasant.

མདའ་ mdaṅ; Lah. daŋ, yesterday. cf. di-ž'aḡ, yesterday; one day before.

མདའ mda'; C.T. dā; Lah. dā, arrow.

མདའ་དར mda'-dar; C.T. dā-tar; Lah. dā-dar, an arrow with a flag fastened to it.

མདུང་ mduṅ; C.T. duŋ; Lah. duŋ, spear. cf. barʦa, lance.

འདམ 'dam; C.T. dam; Lah. dam, marsh, swamp.

འདོགས་དགར 'dogs-dgar; Lah. doγar~dogar, turquoise crown worn by Lahulī women.

འདོགས་པ 'dogs-pa, pf. བཏགས, btags; Lah. dog-čē, to stock.

འདོན་པ 'don-pa, pf བརྟན་པ bton-pa; C.T. t'ö-pa; Lah. t'ön-pa, to take out, show.

དྲེ་ 'dre; C.T. ṭʳe; Lah. ḍʳe, spirit, devil.

རྡོ་ rdo; C.T. do; Lah. do~doa, stone.

རྡོ་རྗེ་ rdo-rje; C.T. dorje; Lah. dorje~dorže, thunder bolt; pers. name.

རྡོ་རྗེ་སྤུན་ rdo-rje-spun; Lah. dorje-pün, spiritual or trusted friend.

རྡོ་རྗེ་སྤུན་ཚོགས་ rdo-rje spun-grogs, brotherhood of disciples, following one teacher.

ལྡོན་པ་ ldon-pa; Lah. dön-čē, Jaeschke, Dictionary, p. 292, translates the word: to give or pay back, to return. In West Tibet the word is used in honorific expressions, similar to the C.T. བཞེས་པ་, bžes-pa, šē-pa, to accept.

བསྡོམས་ལ་ bsdoms-la; Lah. dom-la, altogether, in all.

ན na

ནག་པོ་ nag-po; C.T. nak-po; Lah. nag-po~na-po, black.

ནགས་ nags; Lah. nā, forest.

ནགས་གསེབ་ nags-gseb; C.T. nag-sep; Lah. nag-seb; (Koksar) naχ-seb, forest.

ནང་མོ་ naṅ-mo; Lah. naŋ-mo, to-morrow.

ནམ་མཁའ་ nam-mkha'; C.T. nam-kʰā; Lah. nam-kʰā, sky.

ནས་ nas; C.T. nē; Lah. nē, barley.

ནོར་འཛོམས་པ་ nor-'dzoms-pa; C.T. nor-dzom-pa; Lah. nor-dzom-pa, to bestow or gather treasures.

གནམ་ gnam; Lah. nam, weather.

སྨན་མ་ mna'-ma; C.T. nā-ma; Lah. nā-ma, bride.

རྣ་མཆོག་ rna-mčhog; C.T. nam-č'o~ʔam-č'o; Lah. nam-č'o, ear.

རྣ་མཆོག་གོ་འགྱངས་ rna-mčhog go-'gyaṅs; Lah. nam-č'o gu-ǰ'aŋ, deaf.

རྣ་མཆོག་ཚོར་བ་ rna-mčhog-tshor-ba; Lah. namč'o ts'or-čē, to hear.

སྣོན་པ་ rnon-po; C.T. nöm-po; Lah. non-po, sharp.

སྣ་ sna; Lah. na, nose.

སྣ་ཚོགས་ sna-tshogs; Lah. na-ts'og, various, different.

སྣམ་ཞ་ snam-ža; Lah. nam-ja, trowsers. cf. རྐང་སྣམ, rkaṅ-snam, kaŋ-nam.

སྣོད་ snod; C.T. nö; Lah. nöḍ, pot.

སྣོད་སྤྱད་ snod-spyad; Lah. nö-śäḍ, pot. Lah. nö č'o-k'än~nöḍ č'o-ɣän, pother.

བསྣམས་ bsnams, pf. of སྡོམ་པ, to hold, take; Lah. nam.

པ pa.

པགས་པ་ pags-pa; C.T. p'ag-pa; Lah. p'ag-po~p'a-po, p'ag-po šu-k'än-tanner, skin, hide.

པི་ pi, Lahuli demonstrative pronoun, corresponds to the L.T. རེ, de, that. pi-mi, 'that man'.

པི་ཤི་ pi-śi; Lah. pi-śi, cat.

པུས་མོ་ pus-mo; C.T. pī-mo; Lah. pig-mo; knee. cf. Ld. pis-mo.

དཔལ་ dpal; C.T. pal; Lah. pal, glory, majesty, splendour.

དཔུང་པ་ dpuṅ-pa; C.T. puŋ-pa; Lah. p'uŋ-pa, shoulder. p'uŋ-pa lag-nē t'en-pa, lit. 'pulling the shoulder with the hand',—assisting.

དཔེ་སྒྲ་ dpe-sgra; Lah. pe-ra, speech.

དཔེ་གཏམ་ dpe-gtam; Lah. pe-tam~pe-dam, proverb.

དཔོན་པོ dpon-po; C.T. pön-po; Lah. pön-bo, official.

དཔྱིད་ཀ dpyid-ka; C.T. čʲi-ka; Lah. pʲiḍ-ka, spring.

སྤང་ spaṅ; C.T. paŋ; Lah. paŋ, meadow. paŋ-mar, beautiful meadow.

སྤང་ལེབ spaṅ-leb; C.T. paŋ-le; Lah. paŋ-leḇ, floor.

སྤུ spu; C.T. pu; Lah. pu, hair.

སྤུན spun; C.T. pṻ; Lah. pun, cousin.

སྤོས spos; C.T. pō; Lah. poĭ, incense, perfume.

སྤྱང་ཁུ spyaṅ-khu; C.T. ǰ′aŋ-kʻu; Lah. š′aŋ-kʻu, wolf.

སྤྲིན sprin; C.T. ṭʳin; Lah. šʳin, cloud.

སྤྲེའུ spre'u; C.T. piu; Lah. šʳi-ʻu∼ṭʳeu, monkey.

ཕ pha.

ཕག phag; C.T. pʻak; Lah. pʰag∼pʰa, swine, pig.

ཕུག་པ phug-pa; C.T. pʻu; Lat. pʰug, cave.

ཕུག་རོན phug-ron; Lah. pʻu-ron, pigeon.

ཕུབ phub; C.T. pʻup; Lah. pʻuḇ, shield.

ཕུབ་ཆུན་ phub-čhuṅ, Lah. pʻuḇ-čʻuŋ, shield.

ཕེབ་པ pheb-pa, pf. phebs; Lah. pʻeḇ-čē, to go.

ཕོ pho; C.T. pʻo; Lah. pʻo, male.

ཕོ་ཆེན pho-čhen; C.T. pʻo-čʻę̄; Lah. pʻo-čʻen, gelding.

ཕོ་བ pho-ba; C.T. pʻo-wa; Lah. pʻo-wa, stomach. cf. གྲོད་པ, grod-pa; Lah. ṭʳoḍ-pa, stomach, belly.

ཕོ་བྲང་ pho-braṅ; C.T. pʻo-ṭʳaŋ; Lah. pʰo-ḍʳaŋ, palace.

ཕོ་རོག pho-rog; C.T. pʻo-ro; Lah. pʻo-roḡ, crow, raven. cf. ga-roḡ, crow.

ཕོགས phogs; C.T. pʰo; Lah. pʰoḡ; salary.

ཕྱ་དཀར phya-dkar; C.T. čʻiā-kar; Lah. čʻia-kar, cup with auspicious signs.

ཕྱག phyag; C.T. čʻ′a; Lah. čʻ′ag, hon. for hand. cf. Ld. čʻ′aḡ; Purig pʻiag.

ཕྱག་འཚལ་བ phyag-'tshal-ba; C.T. čʻ′a-ʦʻē-wa; Lah. čʻ′ag-ʦʻal′-čē, to salute, to make obeisance.

ཕྱི་རྟོག phyi-tog; Lah. pʻi-to, later.

ཕྱི་སྟ་ལ phyi-sta-la; Lah. pʻi-ta-la, out, outside.

ཕྱི་རོ phyi-dro; Lah. pʻi-ro, late, evening; outside.

ཕྱི་བ phyi-ba; Lah. pʻi-čē, to be late.

ཕྱི་འབིགས phyi-'bigs; Lah. pe-ja, marmot.

ཕྱུག་པོ phyug-po; C.T. čʻ′uḡ-po; Lah. čʻ′uḡ-po, rich, wealthy. cf. sarkar (Hind.), rich.

ཕྲ་མོ phra-mo; C.T. ṭʳʻa-po; Lah. ṭʳʻa-mo, fine, thin, small.

ཕྲུ་གུ phru-gu; C.T. ṭʳʻu-gu; Lah. ṭʳʻu-gu, child, boy.

འཕངས་པ 'phaṅs-pa; Lah. pʻaŋ-čē, to throw.

འཕངས་པ 'phaṅs-pa; Lah. pʻaŋ-čē, to perform.

ཕུབས phubs, pf. stem of འབུབས་པ, 'bubs-pa, to pitch; Lah. pʻuḇ.

འཕྲེང་བ 'phreṅ-ba; C.T. ṭʳʻeŋ-wa; Lah. ṭʳʻeŋ-wa∼ṭʳʻaŋ-ŋa, rosary.

བ ba.

བ ba; C.T. pa; Lah. pa, cow.

བ་གླང་ ba-glaṅ; Lah. pa-laŋ, cattle.

བ་སྤུ་ ba-spu; Lah. pa-pu, socks.

བག་སྟོན་ bag-ston; C.T. pak-t'ǒ; Lah. bag-t'ön, marriage ceremony.

བག་ཕྱེ་ bag-phye; Lah. bag-p'e, wheat-flour.

བག་མ་ bag-ma; C.T. pak-ma; Lah. bag-ma, bride.

བག་མ་ལེན་པ་ bag-ma-len-pa, Lah. bag-ma len-čē, to take a bride; Lah. bag-ma lena-la č'a-ru—'he went to fetch the bride'.

བག་ལེབ་ bag-leb; C.T. pag-le; Lah. pag-leb~paŋ-leb, bread.

བལ་ bal; C.T. pē; Lah. bal', wool.

བལ་འབུད་གཏོན་བ་ bal-'bud-gtoṅ-ba; Lah. ual'-put taŋ-čē, to make miserable.

བུ bu; C.T. pu; Lah. bu~pu, boy, child.

བུ་མོ་ bu-mo; C.T. pu-mo; Lah. bu-mo, girl, woman; niece.

བུ་མོ་ཡ་དོ་ bu-mo ya-to; Lah. pu-mo ja-to, female companion, friend. cf. C.T. བག་གྱོག་མ, bag-gyog-ma, pak-jo-ma.

བུ་ཚ་ bu-tsha; C.T. puts'a; Lah. bu-ts'a ~pu-tsa, male, son; nephew.

བུ་སྲིན་ bu-sriṅ; C.T. pu-siŋ; Lah. bu-šriŋ, brothers and sisters.

བུད་མེད་ bud-med; C.T. pü-mě; Lah. pig-mě, wife.

བེ་ཏོ་ beto; Lah. beto, calf.

བོན་བུ་ boṅ-bu; C.T. puŋ-gu; Lah. puŋ-gu, ass, donkey.

བྱ་མོ་ bya-mo; C.T. č'a-mo; Lah. ǰ'a-mo, hen.

བྱ་རུ་ bya-ra; Lah. č'a-ra, headman. cf. šruŋ-k'än; naŋ-lön. Sikk. č'a-ro.

བྱི་བ་ byi'u; C.T. č'in; Lah. ǰ'i-pa~ǰ'a-č'ugun, small bird.

བྱི་བ་ byi-ba; Lah. bi-wa, rat.

བྱིན་རླབས་ byin-rlabs; C.T. č'in-lap; Lah. č'in-laḅ, blessing.

བྱེ་མ་ bye-ma; C.T. č'e-ma; Lah. b'e-ma, sand.

བྲ་བོ་ bra-bo; C.T. ṭra-wo; Lah. bra-wo ~ḍra-wo~ṭra-wo, buck wheat.

བྲག་ brag; C.T. ṭrak; Lah. prag~ḍra, rock.

བྲང་ braṅ; C.T. ṭraŋ~paŋ-k'o; Lah. ṭraŋ, breast.

བྲང་སྐ braṅ-sa; Lah. ḍraŋ-sa, stage. cf. Ld. braŋ-sa.

བླ་མ་ bla-ma; C.T. la-ma; Lah. la-ma, priest, monk.

དབུ་མཁར་ dbu-mkhar; Lah. ʔu-khar, castle.

དབུ་ཐོད་ dbu-thod; Lah. u-t'oḍ~u-stöḍ, crown, turban.

དབེན་པ་ dben-pa; Lah. ʔen-pa, solitary.

དབྱར་ཀ་ dbyar-ka; C.T. jar-ka; Lah. jar-ka, summer.

འབར་བཙའ་ 'bar-btsa,'; Lah. bar-tsa, lance.

འབིགས་ལྕགས་ 'bigs-lčags; Lah. bi-ča, sword.

འབུ་ཞྭ་ 'bu-žaṅ; Lah. bu-ž'aŋ, mosquito.

འབུ་རིན་མོ་ 'bu-riṅ-mo; Lah. bu-riŋ-mo, serpent.

འབོར་བ་ 'bor-ba, pf. བོར, bor; Lah. bor-čē, to place, keep.

འབྲས་ 'bras; C.T. ḍrē; Lah. ḍrē, rice.

འབྲི་མོ་ 'bri-mo ; C.T. ḍ^{r}i-mo ; Lah. ḍ^{r}i-mo, a cross-breed.

འབྲུག་སྐད་ 'brug-skad ; C.T. ḍ^{r}uk-ke ; Lah. ḍ^{r}ug-kaḍ, thunder.

Lah. ḍ^{r}ug der-du, 'it thunders'.

འབྲེག་པ་ 'breg-pa ; Lah. ḍ^{r}ag-čē, to cut.

སྦ་ཐག་ sba-thag, ba-t'a, root.

སྦུག་སུབ་མེ་ཏོག་ sbug-sub me-tog ; Lah. bug-suḅ mento, lucerne.

སྦྱར་བ་ sbyar-ba ; Lah. ž'ar-čē, to attach.

སྦྲན་རྩི་ sbraṅ-rtsi ; C.T. ḍ^{r}aŋ-tsi ; Lah. ḍ^{r}aŋ-si, honey.

སྦྲུལ་ sbrul ; C.T. ḍ^{r}ū ; Lah. rul', serpent. cf. also ḍ^{r}u-lu< སྦྲུལ་ལུ་, sbrul-klu.

མ ma.

མ་ཁང་ ma-khaṅ ; Lah. ma-k'aŋ, home.

མ་གཏོགས་ ma-gtogs ; C.T. ma-to ; Lah. ma-na, only.

Lah. ñun ma-na mindu,—'only very little'.

མ་དཔེ་ ma-dpe ; Lah. ma-pe, original, sample, true copy.

མ་ཞིང་ ma-žiŋ ; Lah. ma-žiŋ, field.

མ་ལེ་ male ; Lah. ma-le, chin.

མག་པ་ mag-pa ; C.T. mak-pa ; Lah. mag-pa, son-in-law.

མང་པོ་ maṅ-po ; C.T. maŋ-po ; Lah. maŋ-po, many ; much. maŋ also used to denote plurality.

མར་ mar ; C.T. mar~ma ; Lah. mar, butter ; Lah. žü-mar, oil.

མར་འགབ་ mar-'gab ; Lah. mal'-gaḅ~ mar-gaḅ, lower lip. cf. jal'-gaḅ.

མར་ནག་ mar-nag ; C.T. mar-na ; Lah. mar-na, oil.

མི་ mi ; C.T. mi ; Lah. mi, man.

མི་མདའ་ mi-mda' ; Lah. mindā, man. Lah. mi-soḡ-po, a bad man. mi-zün, a liar.

མིག་ mig ; C.T. mik~mi ; Lah. miḡ~mi, eye.

མིག་ཆུ་ mig-čhu ; C.T. miḡ-č'u ; Lah. miḡ-č'u, tears.

མིག་སྤུ་ mig-spu ; C.T. miḡ-pu ; Lah. miḡ-pu, eye-brows.

མིག་ཞར་བ་ mig-žar-ba ; C.T. miḡ-ž'a-ra ; Lah. miḡ-ž'a-ra, blind. cf. miḡ-še-la, blind.

མིག་ཤེལ་ mig-śel ; C.T. miḡ-śē ; Lah. miḡ-śēl', eye-glasses.

མིང་ miṅ ; C.T. miŋ ; Lah. miŋ, name. Lah. miŋ žu-čē, to give a name.

མིན་བདག་མཁན་བླ་མ་ miṅ-btags-mkh-an-bla-ma ; C.T. miŋ-ta-k'en la-ma ; Lah. miŋ-tag-γän (gän) la-ma, 'The name-giving priest'.

མིང་པོ་ miṅ-po ; C.T. miŋ-po ; Lah. miŋ-po, brother in relation to his sister.

མིན་ min ; Lah. män, no, not.

མེ་ me ; C.T. me ; Lah. me, fire.

མེ་ཆུང་ me-čuṅ ; Lah. me-čuŋ, wife of uncle.

མེ་སྤར་བ་ me spar-la ; C.T. me-par-wa ; Lah. me par-čē, to put fire.

མེ་ཏོག་ me-tog ; C.T. me-to ; Lah. mento, flower.

མེས་པོ་ mes-po ; C.T. meme ; Lah. meme, grandfather. cf. ʾabi~ aïbi, grandmother.

མོ་བི་ mo-bi ; Lah. mo-bi, woman. cf. in Sikkim Tibetan mo-bi is used to designate wife.

སྨོན་པ mon-pa ; Lah. mon, the non-Tibetan inhabitants of the Southern Himālayan valleys. cf. རོན་པ, roṅ-pa ; Lah. roŋ-pa.

དམག dmag ; C.T. mag-ma ; Lah. ma~mag, war.
ma gʲaḃ-čē, to fight.

དམག་མི dmag-mi ; C.T. mag-mi ; Lah. mag-mi, soldier.

དམར་པོ dmar-po ; C.T. mar-po ; Lah. mar-po, red.
mar is also used in the sense of 'beautiful, fine, very'. mā~mar-gʲal-la, very well.

རྨིག་པ rmig-pa ; C.T. mig-pa ; Lah. mig-pa, hoof.

རྨིག་ལྕགས rmig-lčags ; C.T. mig-čā ; Lah. mig-čā, shoe.

སྨན sman ; C.T. men ; Lah. män, medicine, drug.

སྨན་པ sman-pa ; C.T. mem-pa ; Lah. män-pa, doctor. cf. ʔamč'i, doctor.

སྨུག་པོ smug-po ; C.T. muk-po ; Lah. mug-po, brown.

སྨོན་ལམ smon-lam ; C.T. mǫ̈-lam ; Lah. min-lam, prayer.

སྨྱུ་གུ smyu-gu ; C.T. ñu-gu ; Lahul ñu-gu, pen.

སྨྲ་བ smra-ba ; C.T. mā-wa ; Lah. mra-čē, to say, speak.

ཙ tsa.

ཙམ tsam ; C.T. tsam ; Lah. tsam~sam. how much ; how many ; about ; Lah. tsam-tag-ta, much, many.

གཙང་ gtsaṅ ; C.T. tsaŋ ; Lah. saŋ ; clean ; pure. Lah. saŋ-čhaḃ, pure water.

གཙང་པོ gtsaŋ-po ; C.T. tsaŋ-po ; Lah. saŋ-po, river.

བཙན btsan, Lah. tsen, demon.

བཙུན་པ btsun-pa ; C.T. tsün-pa ; Lah. tsün-pa, venerable.

བཙོག་པ btsog-pa ; C.T. tsog-pa ; Lah. sog-pa~sog-po, dirt ; defilement ; dirty.

རྩ rtsa ; C.T. tsa ; Lah. sa, grass.

རྩ་བ rtsa-ba ; C.T. tsa-wa ; Lah. sa-wa~tsa-wa, root.

རྩམ་པ rtsam-pa ; C.T. tsam-pa ; Lah. sam-pa, parched barley flour.

རྩིག་པ rtsig-pa ; C.T. tsik-pa ; Lah. sig-pa, wall.

རྩེ་བ rtse-ba ; C.T. tse-wa ; Lah. se-čē, to play.

རྩེད་པ rtsed-pa ; C.T. tsĕ-pa ; Lah. seḍ-čē~se-čē, to dance, play.

སྩལ་བ stsal-ba ; C.T. tsal'-wa ; Lah. sal'-čē, to give, bestow.

བརྩེ་བ brtse-ba ; C.T. tse-wa ; Lah. se-wa, to love.

ཚ tsha.

ཚྭ tshva ; C.T. ts'ā ; Lah. ts'ā, salt.

ཚ་བོ tsha-bo ; C.T. ts'a-wo ; Lah. ts'ao, grandson. Lah. ts'a-mo, wife, ts'a-mo-tsi, grand-daughter.

ཚང་མ tshaṅ-ma ; C.T. ts'aŋ-ma ; Lah. ts'aŋ-ma, all ; sign of plural in Lahulī.

ཚད་པ tshad-pa ; C.T. ts'ĕ-pa ; Lah. tseḍ-pa, heat.

ཚུགས་ཤིང་ tshugs-śiṅ ; C.T. ts'ug-śiŋ ; Lah. ts'ug-śiŋ, tent-pole.

འཚུགས་པ 'tshugs-pa, pf. ཙུགས, tshugs, Lah. ts'ug-čē, to pitch.

ཚེ tshe ; C.T. ts'e ; Lah. ts'e, life ; time.

ཚེས་པ tsʰes-pa; C.T. tsʰē-pa; Lah. tsʰē-pa, date.

ཚོགས tsʰogs; C.T. tsʰog; Lah. tsʰog; (Koksar) tsʰoχ, assembly; congregation.

མཚན mtsʰan; C.T. tsʰē; Lah. tsʰän, name; night. Koksar. tsʰaḍ-mo.

མཚམས་འཐག mtsʰams-'thag, Lah. tsʰam-tʰa, embroidery on a tent flap.

མཚོ mtsʰo; C.T. tsʰo; Lah. tsʰo, lake.

འཚེར་བ 'tsʰer-wa; Lah. tsʰer-čē, to grieve, to be sad.

འཚོང་བ 'tsʰoṅ-ba; C.T. tsʰoŋ-wa; Lah. tsʰoŋ-čē, to sell.

ཛ dza.

མཛུབ་མོ mdzub-mo; C.T. dzu-gu; Lah. dzuu∼zu-gu, finger.

མཛོ mdzo; C.T. dzo; Lah. dzo, cross-breed between a yak and a cow.

འཛོམས་པ 'dzom-pa; C.T. dzom-pa; Lah. zom-čē, to meet, gather.

རྫ་མ rdza-ma; C.T. dza-ma; Lah. za-ma, beer-jug.

རྫི་བ rdzi-ba, pf. བརྫིས, brdzis; Lah. zī-čē, to press.

རྫོང་བ rdzoṅ-ba; C.T. dzoŋ-wa; Lah. zoŋ-ŋa, dowry.

ཝ wa.

ཝ་རྩེ wa-rtse; C.T. wa-tse; Lah. a-dze∼wa-tse, fox.

ཝ་ཞྭ wa-žva; C.T. wa-šā; Lah. a-ža, fur-hat.

ཞ ža.

ཞིང་ žiṅ; C.T. šiŋ; Lah. žiŋ, field.

ཞུ་བ žu-ba; C.T. šu-wa; Lah. žu-čē, to ask.

གཞལ་ལ་རྒྱབ་པ gžal-la rgyab-pa, Lah. ža-la gʲaḅ-čē, to sweep, clean.

གཞི་རྒྱ gži-rgya; Lah. ži-gʲa, family.

གཞི་སྨད gži-smad; Lah. ži-mäḍ, family.

གཞུ gžu; C.T. šu; Lah. ž′u, bow.

གཞེས gžes; Lah. žē, day after tomorrow.

བཞི bži; C.T. ši; Lah. ži, four.

བཞི་བཅུ bži-bču; C.T. šipču; Lah. žiḅču, forty.

བཞུགས་པ bžugs-pa; C.T. šug-pa; Lah. žug-čē, to sit, dwell; Lah. žu-lē, greeting<LT. bžugs-legs.

བཞུགས་ས bžugs-sa; C.T. šug-sa; Lah. ž′ug-sa, abode, dwelling.

བཞེངས་པ bžeṅ-ba; C.T. šaŋ-wa; Lah. žeŋ-čē∼žaŋ-čē, to erect.

ཟ za.

ཟ་བ za-ba; C.T. za-wa; Lah. za-čē, to eat; Lah. za-čē, foodstuffs, food.

ཟ་བཏུང་ za-btuṅ; Lah. zaḅtʰuŋ, food and drink.

ཟ་བླང་ za-blaṅ; Lah. za-laŋ, chopsticks.

ཟངས zaṅs; Lah. zaŋ, copper, brass.

ཟངས་བུ zaṅs-bu; Lah. zaŋ-bu∼zaŋ-mo, kettle. cf. tiḅ-ril′; ča-lug.

ཟིན་པ zinpa; C.T. sim-pa; Lah. zum-čē, to capture, seize, hold.

ཟེར་བ zer-ba; C.T. ser-wa∼se-wa; Lah. zer-čē, to say.

ཟླ་དཀར zla-dkar; C.T. ḍā-kar; Lah. ḍār∼ḍaɣar, moon.

ཟླ་བ zla-ba; C.T. ḍā-wa; Lah. ḍā∼ḍā-wa, month.

གཟིག gzig; C.T. sig; Lah. zig, leopard. gaŋ-zig, snow-leopard.

གཟུག gzug; C.T. sug; Lah. zug, pain. Lah. ʔi-ru zug jöḍ—'there is pain here'.

གཟུགས gzugs, C.T. sū∼sug; Lah. zūg, figure.

འ 'a.

འར་པོ 'ar-po; Lah. ar-po; angry.

འུག་པ 'ug-pa; C.T. ʼug-pa; Lah. u-pa∼'ug-pa, owl.

འུམ་བུ 'um-bu; Lah. 'um-bu, tamarisk.

འུར་སྒྲ 'ur-sgra; C.T. ur-ḍʳa; Lah. 'ur-ḍʳa ∼ur-ḍʳa, noise.

འོ་མ 'o-ma; C.T. o-ma; Lah. 'o-ma∼ho-ma, milk.

འོག་ལ 'og-la; C.T. ʼog-la; Lah. jog-la, under, below.

འོབས 'obs; C.T. oḅ∼, 'oḅ; Lah. hoḅ, ditch, trench.

འོལ 'ol; Lah. 'ol', clover field.

འོལ་མོ 'ol-mo; Lah. 'ol'-mo, broom, brush.

ཡ ya.

ཡ་དོ ya-do; Lah. ja-do, friend, companion.

ཡང་ yaṅ; C.T. jaŋ; Lah. jaŋ, also.

ཡབ yab; C.T. jaḅ; Lah. jaḅ, father.

ཡར་འགབ yar-'gab; Lah. jal'-gaḅ∼jar-gap, upper lip. cf. mal'-gaḅ, lower lip.

ཡུམ yum; C.T. jum; Lah. jum, mother.

ཡུལ yul; C.T. jul'∼jū; Lah. jul', country, village.

ཡུལ་པ yul-pa; Lah. jul'-pa.

ཡུལ་མི yul-mi; Lah. jul'-mi, countryman, villager.

ཡོན་བ yoṅ-ba; Lah. joŋ-čē, to come.

ཡོན་པོ yon-po; Lah. jön-te∼jön-ti, curved.

ཡོན་འབུལ་བ yon 'bul-ba; C.T. jōn p'ul'-wa; Lah. jön p'ul'-čē, to make an offering.

ཡོབ་ཆེན yob-čhen; Lah. hoḅč'en, stirrup.

ཡོས yos; Lah. joĭ, slightly roasted corn.

གཡག gyag; C.T. ja; Lah. ja, a yak.

གཡང་ཁུག gyaṅ-khug; C.T. jaŋ-k'u; Lah. jaŋ-k'u, a bag in which auspicious articles are kept; name of a religious ceremony.

གཡས gyas; C.T. jē; Lah. jē, right.

གཡུ gyu; C.T. jü; Lah. ju, turquoise.

གཡུ་མཚོ gyu-mtsho; C.T. jumts'o; Lah. jumts'o, turquoise lake.

གཡུ་རལ་ལེགས་མོ gyu-ral legs-mo, ju-ra lā-mo, the beautiful turquoise mane of the lion.

(The 'mighty lion' is always represented with a white body and turquoise blue mane.)

གཡོག་པོ gyog-po; C.T. jok-po; Lah. jog, servant. cf. la-bo; žaḅ-šī<lt. žabs-phyi.

གཡོན gyon; C.T. jǭ; Lah. jön, left.

ར ra.

ར་ཕོ ra-pho; Lah. ra-pʰo, he-goat.

ར་མ ra-ma; Lah. ra-ma, she-goat. cf. ར་མཐོན་, ra-mthoṅ; Lah. ra-t'oŋ, grown-up goat.

རེའུ་ཕོ་ re'u-pho ; Lah. riu-p^{h}o~ɮriu-p^{h}o, a young he-goat.

རེའུ་མོ་ re'u-mo ; Lah. riu-mo~ɮriu-mo ; a young she-goat.

ཕོ་རི་ p^{h}o-ri ; p^{h}o-ri, a young he-goat.

མོ་རི་ mo-ri ; Lah. mo-ri, a young she-goat.

རི་གུ་ ri-gu ; Lah. ri-gu, a young goat, kid. Lah. re-t'oŋ, he-goat. Koks. la-riχ<ra-rigs, goats in general.

ར་རོ་ ra-ro ; Lah. ra- ro~ra-roĭ, drunkenness ; drunk.

རག་རྒན་ rag-rgan ; C.T. rag ; Lah. raγan~ ragen, brass.

རལ་གྲི་ ral-gri ; C.T. rē-ʈ^{r}i ; Lah. rel'-ḍ^{r}i, sword. cf. འབིགས་ལྕགས་, 'bigs-lčags, Lah. bi-ča, sword.

རས་ ras ; C.T. rē ; Lah. rē, cloth.

རི་ ri, C.T. ri ; Lah. ri~ɮria, mountain.

རི་ཁྲོད་ ri-khrod ; C.T. ri-ʈ^{r}'ö ; Lah. ri-ʈ^{r}'oḍ, hermitage.

རི་གའ་ ri-ga ; Lah. ri-ga, a mountain summit.

རི་ཕག་ ri-phag ; C.T. ri-p'a ; Lah. ri-p'ag~ri-p'a, boar, wild pig.

རི་བོན་ ri-boň ; C.T. ri-woŋ ; Lah. ri-boŋ, hare.

རི་མོ་ ri-mo ; C.T. ri-mo ; Lah. ri-mo, design, picture.

རིགས་ rigs ; C.T. rig ; Lah. rig~riχ, family, lineage.

རིན་མོ་ riň-mo ; Lah. riŋ-mo, long.

རིན་ཆེན་ rin-čhen ; C.T. rin-č'ē ; Lah. rin-č'en, jewel, precious.

རུས་པ་ rus-pa ; C.T. rū-pa~rū-k'o ; Lah. ruĭ-pa, bone.

རོ་སྟོད་ ro-stod ; Lah. rostöḍ~rö-t'oḅ, back.

རླུང་པོ་ rluň-po ; Lah. luŋ-po, wind.

ལ la.

ལ་ la ; C.T. la ; Lah. la, mountain pass.

ལག་ན་ lag-ňar ; Lah. la-ŋar, arm.

ལག་པ་ lag-pa ; C.T. lak-pa ; Lah. lag-pa~la-pa, hand.

ལངས་པ་ laňs-pa ; Lah. laŋ-čē, to rise.

ལམ་ lam ; C.T. lam ; Lah. lam, road. Lah. lam-č'ugun, small path, trail.

ལས་ las ; C.T. lē-ka ; Lah. lē, work. Lah. lē ga-po dug, difficult work.

ལུག་ lug ; C.T. lu ; Lah. lug, sheep. lug-riχ, sheep.
k'al'-pa, a ram.
ma-mo, ewe.
lu-gu, lamb.

ལུས་ lus ; C.T. lū ; Lah. luĭ, body.

ལུས་ལ་ཨོལ་བསྣམས་པ་ lus-la a-loň bsnams-pa ; Lah. luĭ-la ʔa-loŋ nam-pa, lit. 'wearing an ear-ring on the body,'—layman.

ལེགས་མོ་ legs-mo ; Lah. leg-mo~laχ-mo, good, well.

ལོ་ lo ; C.T. lo ; Lah. lo, year.

ལོ་མ་ lo-ma ; C.T. lo-ma ; Lah. lo-ma, leaf.

ལོ་གསར་ lo-gsar ; C.T. lo-sar ; Lah. lo-sar, New Year.

ལོན་གུ་ loň-gu ; Lah. loŋ-gu, nose ornament.

ཤ śa.

ཤ་ śa ; C.T. śa ; Lah. śa, meat, flesh.

ཤ་ཕོ་ śa-pho ; Lah. śag-p'o, brother-in-law.

ཤ་མོ་ śa-mo ; Lah. śag-mo. cf. ʦsau, sister-in-law.

ཤར་ས་ śar-sa ; Lah. śar-sa, appearance.

ཤལ་མ་ śal-ma ; Lah. śal′-ma, rocky slope.

ཤི་བ་ śi-ba ; Lah. śi-čē, to die.

ཤིང་ śiṅ ; Lah. śiŋ, wood.

ཤིན་ཐོག་ śiṅ-thog ; C.T. śiŋ-t‘o ; Lah. śīŋ-t‘o, fruit.

ཤུབས་ śubs ; C.T. śuḇ ; Lah. śuḇ, case, covering.

ཤེལ་ śel ; C.T. śel′∼śē ; Lah. śel′, crystal.

ཤེལ་ཁྲི་ śel-khri ; Lah. śel′-ʈ‘i, crystal throne.

ཤོག་གུ་ śog-gu ; C.T. śu-gu ; Lah. śog-gu, paper.

བཤགས་ bśags, pf. stem of ཀ་ཤག་པ་, gśog-pa, to split ; Lah. śag-čē.

གཤོལ་ gśol ; C.T. śō ; Lah. śol′, plough.

ས Sa.

ས་ sa ; C.T. sa ; Lah. sa, earth.

sa-bʲi-lig, mouse.

སམ་དལ་ sam-dal ; Lah. sam-dal′, moustache (loan-word from Ld.).

སུ་ su ; C.T. su ; Lah. su, who.

སུམ་ཅུ་ sum-ču ; Lah. sum-ču, thirty.

སེང་གེ་ seṅ-ge ; C.T. seŋ-ge ; Lah. seŋ-ge, lion.

སེང་ཆེན་ seṅ-čhen ; Lah. siŋ-č‘en, the mighty lion.

སེན་མོ་ sen-mo ; Lah. seḍ-mo, nails.

སེར་སྣ་ ser-sna ; C.T. ser-na ; Lah. ser-na, avarice.

སེར་པོ་ ser-po ; C.T. ser-po ; Lah. ser-po, yellow.

སེར་མིག་ ser-mig ; Lah. ser-miġ, the yellow-eye, a name of a fish.

སོ་ so ; C.T. so ; Lah. so∼soa, tooth.

སོ་རྒྱབ་པ་ so-rgyab-pa ; C.T. so-ǰʲap-pa ; Lah. soa gʲaḇ-čē, to bite.

སོ་མ་སོ་མ་ so-ma soma ; C.T. soma soma ; Lah. so-ma so-ma, new, very new.

སོར་གདུབ་ sor-gdub ; Lah. sur-duḇ, ring.

སོལ་ལ་ sol-la ; C.T. sō-la ; Lah. so-la, charcoal.

སྲན་མ་ sran-ma ; C.T. ʂʳe-ma ; Lah. šʳäḍ-ma, peas.

སྲབ་ srab ; C.T. ʂʳap ; Lah. šʳaḇ, bridle.

སྲིན་མོ་ sriṅ-mo ; Lah. šʳiŋ-mo, female demon.

སྲུན་ཉ་ sruṅ-ña ; C.T. sruŋ-ŋa ; Lah. šʳuŋ-ŋa, talisman.

སྲོ་ལོ་ sro-lo, Lah. šo-lo, n. of a flower ; Sedum and similar plants.

སླེབ་པ་ sleb-pa, Lah. leḇ-čē, to come.

གསུམ་ gsum ; C.T. sum ; Lah. sum, three.

གསེབ་ gseb ; C.T. sep ; Lah. seḇ, stallion.

གསེར་ gser ; C.T. ser ; Lah. ser, gold.

གསེར་ཁྲི་ gser-khri ; Lah. ser-ʈ‘i, golden throne.

བསྲེག་པ་ bsreg-pa ; Lah. šʳag-čē, to burn.

བསླབ་བྱ་ bslab-bya ; C.T. laḇ-č′a ; Lah. laḇ-ǰ′a, instruction, admonition.

ཧ ha.

ཧི་རི hi-ri ; Lah. hi-ri~hilig, corn-stack.

Note.—hi-ri seems to be derived from the Hind. hâra, which corresponds to the Tibetan དྲ་བ, dra-ba, 'necklace', བ་གམ, ba-gam, parapet, wall, and བོག་རེ, bog-re—'stack'.

hi-ri gʲaḇ-čē, to pile up a stack.
hi-ri sig-če, ibid.

ཧོར་ཟླ hor-zla ; C.T. hor-ḍā ; Lah. fior-ḍā, 12-month cycle.

ཧྲུལ་བ hrul-ba ; Lah. šʳul′-čē, to parch.

ལྷ lha ; C.T. l'a ; Lah. lā, god.

ལྷ་ས lha-sa ; C.T. L'a-sa ; Lah. Lā-sa, Lhasa, capital of Tibet. cf. Ld. hlā ; hlāsa.

ལྷམ lham ; C.T. l'am ; Lah. lām, boot.

ཨ a.

ཨ་ཁུ a khu ; Lah. ʔa-gu, uncle.

ཨ་ཆེ a-če ; Lah. ʔaǰi, elder sister.

ʔaǰi-no, sisters.
ʔaǰi-no-mo, ibid.

ཨ་ཇོ a-ǰo ; Lah. ʔa-ǰo, elder brother. cf. čo-čo, middle brother ; no, younger brother.

ʔaǰo-no, brothers (plur.).

ཨ་ནེ a-ne ; Lah. ʔa-ni, aunt ; nun.

ཨ་བ a-ba ; Lah. ʔa-wa, father.

ʔa-wa č'uɣun, younger uncle.
ʔa-wa č'eḍ-mo, elder uncle.

ཨ་བོ a-bo ; Lah. ʔa-wo, self, myself, ourselves.

ʔa-wo raŋ, ibid.

ཨ་མ a-ma ; Lah. ʔa-ma, mother.

ʔa-ma č'uɣun, aunt.

ཨ་ཞང་ a-žaṅ ; Lah. ʔa-žaŋ, uncle, father-in-law.

ʔa-žaŋ ʔani, mother-in-law.

ཨ་བཟང་ a-bzaṅ for ཨ་བ་བཟང་པོ, a-ba-bzaṅ-po ; Lah. ʔa-zaŋ, blessed father.

ཨ་ལོན་ a-loṅ ; Lah. ʔa-loŋ, ear-ring.

ཨི i ; Lah. ʔi, this. heĭ~hegi, that.

ཨི་ཟུག i-zug ; Lah. ʔi-zug, such. cf. ʔi-zog-se.

ཨི་རུ i-ru ; Lah. ʔi-ru, here. ʔe-ru, there.

(perhaps 'i' is related to the Manchāṭī indefinite article i, 'a'.)

Loan-words

The Lahul Tibetan is rich in loan-words from Arabic, Persian (through the medium of Urdu-Hindustāni), Hindī (through the medium of Western Pāhāṛī), and neighbouring Himālayan dialects, such as Manchāṭī, Bunān, and Tinān. The following list does not pretend to exhaust all the existing material, and merely gives a few of the loan-words, currently used in the everyday speech of the Lahulī hillmen :—

kaktse<Hind. काक, crow.

kataḇ<Ar. كتاب, book (used only for books having the European book form).

kanči<Turk. قينچى, qaiṅcī, scissors.

kabśa<Pers. کَفْش, shoe, slipper, leather shoes of Hindu fashion.
kukri<Hind. कुकड़ी, kukṛī, hen, fowl.
p'o kukri, ruster.
mo kukri, hen.
kundi<कुंडल, nose ring.
kurkuti~kurkutaŋ<Bunān, ant.
kurti<Pers. کرتہ, jacket, shirt.
kursī<Ar. کرسي, chair.
kōt<Engl. coat.
gādī<W. Păh. gādī, shepherd.
gīta<Hind. गीत, song.
čoprasī<Hind. चपरासी, orderly.
ǰal'-khana<Anglo-Indian jail-khāna, jail, prison.
ñuŋ-ku-tu<Bunān and Tinān, elbow.
taksīl<Hind. टकसाल, revenue office.
tambū<Hind. तम्बू, tent.
tibi<Hind. टोपी, hat.
(Jaeschke, Dictionary, p. 203, writes the word ti-pi.)
t'ā-li<Hind. थाली, plate, a small brass dish.
t'op<Pers. توپ, gun.
du-bag~du-ba~du-wa<Ld. tu-pag<Turk. تويك, gun, rifle.
Note.—The modern Lahulī pronunciation du-wa may perhaps represent the Tib. དུ་བ, du-ba, a word which primarily signifies 'smoke', but sometimes denotes 'gun'.
dürbīn<Pers. دوربين, field-glasses.
ḍolki<Hind. ढोल, drum.
pīpa<Hind. पीपा, water jug.
pistōl'<Engl. pistol.
puṇa<Hind. पुण्य, virtuous, good action, auspicious ceremony.
p'a-la<Hind. फल, the iron blade of the plough.
baṭī<Hind. बटिया, a small weight, about two seers.
bārī<Hind. बारी, ornaments worn in the ears and nose.
bāl'<Hind. बाल, hair.
bazār<Pers. بازار, market.
basket~baskōt<Engl. waist-coat.
bižil'<Hind. बिजली, electricity.
cf. ग्लॅग, klog, pron. lo, electricity.

būt<Engl. boot.

buṭa<Hind. बूटा, shrub, tree.

botol'<Engl. bottle.

manzi<Ar. منزل, a bed.

mau<Hind. मौ, bee.

mur-ti<Bunān, a small stream of water from a spring.
cf. Manchāṭī 'ti', water.

musala< Hind. मुसल, pestle, the pounding end of a rice-pounder; a club; a bunch.
cf. J. Bloch, Bull. of the Sch. of Or. Studies, V, p. 741.

roṭi<Hind. रोटी, bread.

lorki<Hind. लोटा, vase.

mūʦa<Hind. मूछ, moustache.

sarka<Hind. सरकारी, road, highway.

hara<Hind. हार, garland, necklace.

haldo<Bunān and Tinān, a bunch of small pieces of Juniper wood used in the New Year Ceremonies.
cf. musala.

āru<Hind. आलू, potato.

ʔarzi<Ar.-Pers. عرضی, complaint.

ūt<Hind. ऊंट, ūṇṭ, camel.
cf. ŋa-boŋ.

CHRONICLE OF CENTRAL ASIATIC EXPLORATIONS FOR 1932

DESPITE political unrest and general economic depression, the scientific exploration of Central Asia and adjacent regions continues, and several important undertakings have been planned during 1932.

The Yale North India Expedition, directed by Dr. Hellmut de Terra, and organized by the Yale University, has just returned after nine months of extensive field-work. The expedition was organized to investigate geographical, geological, and biological history of the N.W. Himālayas and the Karakorum region during the pre-glacial and post-glacial epochs. In his report to President Angell, of Yale University, Dr. de Terra writes :

'Surveys in this region indicate the geological recent origin of the southern Himālayan range. Strata which are so young as to be contemporary with formations laid down during the Ice Age in Europe and America have been folded and pushed out of their original positions by the great pressure of mountain-making in this region.' Fossil plants and marine fossils found by the Expedition in the Himālayas throw new light on the sub-recent climatic changes in that region. Dr. G. E. Hutchinson, the biologist of the Expedition, has collected valuable scientific data on the fauna and flora of the Kashmir Valley and the Karakorum uplands. The important collections gathered by the Expedition are under examination. Through the assistance of the American Geographical Society, the Expedition was able to enlist a topographer who joined through the courtesy of the Surveyor General of India.

Dr. Roy Chapman Andrews is planning a new expedition to Inner Mongolia to search for the ancestor of the 'Peking Man'. Due to great difficulties encountered in negotiations with the Nanking authorities, the American explorer has decided to transfer his headquarters to Mukden in Manchuria. The Manchukuo authorities have accepted Dr. Andrews' offer to divide the specimens found, with the government, in return for unqualified co-operation. The expedition also will have Manchukuo scientists on its staff.

In June, 1932, a brief telegram from Peking announced the return of the Sino-Swedish Expedition under the leadership of Dr. Sven Hedin. An account of this great undertaking is given elsewhere in this Journal.

The Lamb Expedition, whose object it was to explore the Koko-nōr region, has encountered difficulties on reaching Ning-hsia. The Society for the Preservation of Cultural Objects in Peking has demanded the cancellation of the Expedition's passports and immediate deportation from China. Mr. G. Lamb was accompanied by his wife and seven other members.

In August, 1932, Professor J. M. Benade, of Forman College, Lahore, conducted

an expedition to Rupshu to carry out cosmic ray obervations on high altitudes. Prof. Benade's account of this interesting expedition is given in this Journal.

Captain F. Kingdon Ward, the well-known British exploring botanist, is leaving shortly on an expedition to Po-yul in South-eastern Tibet, for which he has received permission from the Tibetan authorities. It will be remembered that in 1931 Captain Kingdon Ward and the Earl of Cranbrook conducted a fruitful expedition to Burma.

It is announced that another expedition to Mount Everest is being organized. Admiral Sir William Goodenough, Chairman of the Mount Everest Expedition Committee of the Royal Geographical Society, has announced that Mr. Hugh Ruttledge has been appointed leader of the expedition.

An important epigraphical discovery was made by the Hungarian archæologist Guillaume de Hevesy, and announced at a meeting of the French Academy on the 16th September, 1932. Some sixty years ago Bishop Janssen, of Tahiti, discovered a mysterious writing found on wooden tablets and other objects sent to him by missionaries from the Easter Islands off the Chilean coast. Professor de Hevesy has now demonstrated that these signs reveal striking similarities with the unknown script discovered at Mohenjo Daro and Harappa, and that both scripts have probably originated from the same source. This interesting discovery brings again to the foreground the question of the existence of an ancient civilization with important ramifications in the basin of the Indian Ocean and the Pacific.

The first definite link between the Indus civilization and that of Mesopotamia is reported to have been found at Tell Asmar by the expedition of the Chicago Oriental Institute. According to Dr. Henry Frankfort, whose opinion is supported by Sir John Marshall, some of the objects discovered at the Tell Asmar site represent elephants, rhinoceroses and crocodiles, none of which lived in Mesopotamia at that time. These objects must have come from Mohenjo Daro in India.

In our Chronicle of Central Asiatic Exploration for 1931, we mentioned the important excavations at Tepe Hissār in Northern Persia, conducted by Dr. Erich Schmidt on behalf of the University of Pennsylvania Museum, and the American Institute for Persian Art and Archæology. During the last year's field season, the excavators uncovered a complete town site, dating c. 2000 B.C. Particular interest is attached to the discovery of a ruined palace which must have been the centre of the town, and which had been destroyed by fire. A cemetery situated in the proximity of the town site yielded many interesting finds: Copper daggers with beautiful checker-board pattern of silver on the grip; hundreds of small gold and silver ornaments representing birds; pedestals and large disks made of alabaster; vessels of beautiful shape and ornamentation. One of the most interesting of the finds is a copper plate, representing in low relief a buffalo felled by a lion. Near a corner of the palatial building was found buried a

dancing girl, her body covered with silver and copper ornaments. In stratum I, the excavators unearthed beautiful hand-made pottery, painted with black geometric design on a vivid red background. The decoration of the copper implements indicates that the first level was perhaps contemporaneous with the first level at Susa. Dr. Schmidt reports the important find of a treasure, which he dates c. 1500 B.C., and which includes five gold mouflon heads, beautiful diadem, necklaces, spear ornaments, copper weapons, and vessels made of alabaster. Tepe Hissār is situated in the vicinity of Dāmghān, which had been once the capital of the Parthian Empire.

In our last issue we gave an account of the Citroën Central-Asian Expedition, and its journey to Urumchi, which was reached on October 26th. After a month's stay at the capital of Hsin-chiang, the Expedition left on the 29th November for Hāmi, where another delay was experienced due to political unrest along the Hsin-chiang-Kansu border. From Hāmi, the Expedition journeyed along the Hsin-chiang-Peking caravan route through Su-chou, Kan-chou, Liang-chou, the Alashan, Ning-hsia, San-tao-ho, and reached on January 28th, 1932, Pao-t'ou. From Pao-t'ou the Expedition continued its march through Pei-ling miao, Khalgan to Peking, where it arrived on the 12th of February, 1932. The crossing through Kansu and south-eastern Mongolia was effected under extremely adverse conditions. The whole region was agitated in the turmoil of a rebellion, and the explorers showed great courage and endurance under attack. On its homeward journey the Expedition suffered the cruel loss of two of its most active members: Mr. Georges M. Haardt, the indefatigable leader of the Expedition, and Lt. V. Point, commandant of the China group of the Expedition. The large archæological and ethnographical collections brought back by the Expedition, as well as the photographic records were exhibited at an Exhibition opened on June 18th in Paris. Of particular interest are copies of the Bāmiyān and Turfān frescoes made by A. Jacovleff in his usual masterful way. On November 30th, at a solemn occasion held in the large amphitheatre of the Sorbonne, the members of the Expedition received the golden medal of the French Geographical Society. On this occasion the Rev. Teilhard de Chardin described some of the scientific results of the Expedition. Mr. Joseph Hackin, the archæologist of the Expedition, was able to gather new information on the frescoes of the Turfān oase. Mr. Hackin who is at present in Japan, has made in the course of 1932 a series of brilliant conferences on the results of his researches in Afghanistān and Eastern Turkistān. The Rev. Teilhard de Chardin himself made during the thirteen months' journey some very interesting observations on the physiography of the traversed country. Their ethnologists brought back a rich collection, especially from China.

The forthcoming volume on the Expedition, prepared by M. Audouin-Dubreuil will be expected with intense interest.

On the occasion of the return of the Citröen Central-Asiatic Expedition, Prof. Nicholas de Roerich greeted the Expedition with the following address.

CITRÖEN CENTRAL-ASIATIC EXPEDITION

The second expedition arranged by Citröen has returned. We have received the newspapers with the first information about the results. We have seen the first photographs of the objects brought by the second expedition. We deeply regret the loss to the expedition in the premature death of its chief, Haardt. But we were delighted that the remaining participants of this expedition in the persons of Louis Audouin-Dubreuil, J. Hackin, F. Teilhard de Chardin, and others returned safely and brought new scientific reports. We were delighted to hear about the splendid new drawings of Jacovleff. From personal experience we are aware of how difficult such trails are and how necessary it is to value each success among these valorous achievements.

After this second expedition arranged by Citröen, one cannot but make a complete deduction and mark the uniqueness of these undertakings. We did not see the first exhibition, the results of the African expeditions; however, we know the reports about it and the excellent edition of the field-works of Jacovleff, who expressed the unrepeatable character of the countries through which they passed.

Both expeditions, the African as well as the Asiatic, evoked definite attention, so needed in the contemporary movements of culture. Looking over the staff of the expedition one may delight at the unusually successful and varied assembling of co-workers in all specialities. Every branch has been represented by one of its most vital and best qualified workers. And yet this does not happen often and every one knows that such a varied chord is not easy to select.

We know of many expeditions which not only failed to reach their goal, but fell apart on the way because of the inexcusable mutual human antagonisms. But in the case of Citröen's expedition we see not only the conquering of difficulties, but also a vital, convincing, multiform result.

In this case, we are reminded that the automobile, as one of the most powerful methods of communication, became unifying force in scientific, artistic, cultural researches. In this sense the introduction of an industrial factor, as a unifying and connecting link, appears to be uniquely valuable.

The tasks of Culture, about which so much is spoken of at present, also demand contemporary expressions. Culture, as such, excludes each jealous, antagonistic separation. If the heights of civilization and the highest dominions of culture, appear primarily to be a synthesis of all the conquests of human genius, then the methods for the fulfilment of these broadened tasks must also be truly contemporary. In other words, the broad horizon of Culture, as the elevation of the general trend of thought, leads us towards all contemporary discoveries and improvements.

Motors, the radio, television, all submarine and subterranean communications,

must lead towards mutual understanding and unity. It is precisely these collective expeditionary tasks, which were expressed with especial vividness in the expeditions of Citröen and can recall to us the duties of co-operation, which are not based upon nebulous abstractions, but upon the discoveries of our present day. The visitors to the Citröen exhibitions, and the readers of the reports about these expeditions, will be thankful for their collective unity, which not only transports them vividly into other lands but, by its multiformity, actually broadens their consciousness.

Some time ago, as was remarkably defined by Anatole France, people were afraid of each synthesis, of each generalization, and through this they forced upon themselves an inevitable, insignificant and fierce dis-unity. The entire culture of our most recent times, in its industrial aspects as well as its spiritual aspirations, strives towards an expression of true co-operation. Mankind is strenuously seeking formulæ which would make it possible to come together for peaceful and creative work. All new Conferences, new Societies, Institutions, in one or another measure, have within themselves, this task of cultural unification and mutual understanding.

If it formerly seemed that cultural unification could be expressed primarily in some cultural and artistic domains, it now becomes especially clear, that such unification is much broader than individual branches. They are expressed in a generally elevated trend of mind, in the sense of universal creativeness in all parts of life.

Thus, in the name of Culture, from the League of Culture, one wishes to thank all undertakings similar to the enlightened tasks of the Citröen expedition. In other words, one wishes to thank the inspirators, builders and co-workers of all such undertakings, who, by their self-sacrificing labours, are rousing human thought, and of course, elevating it to a new step. Without these courageous discoveries mankind would again stoop to the routine of daily vulgarity. We know all the difficulties of transportation upon mountain paths and upon the sands of Taklamakan and upon the glacial ranges.

Upon the path we have met many friendly local stories about the great explorer, Sven Hedin, as well as reminiscences of Prjevalsky and many others, who brought from the depths of the desert, new considerations and new impulses for human thought.

Let us not regret that the romantic camel caravan gives way to the motor, aeroplane, railroads. Let us not regret that the ' long ear ' of Asia accedes its possibilities to the telegraph and the radio. But let us believe that these improvements will live not only with civilization, but that they will enter benevolently into Culture, not lessening the worth of spiritual values.

The more jealously-guarded science will be spread, the more it will bring bliss. Folk legends and traditions thousands of years old, will, if correctly interpreted in the new light of research, give only brilliant new possibilities, and

in the true co-operation there cannot appear anything hostile, impeding, or bemoaning. Everything destructive and decomposing will remain within the limits of ignorance. But every step of co-operation and unification will mean movement towards true enlightenment.

These considerations appear when we see before us the collected works of the last expeditions. One wants to thank the directors and participants for that vigour of thinking, which they are undoubtedly bringing into the human consciousness, at present so agitated and so oppressed. Because verily the new step of progress shall comprise the condition that the latest improvements give their hand to science and art. This collective creativeness imparts that vigour of the spirit of which the new generation is so much in need.

Sincere greetings !

NICHOLAS DE ROERICH.

KEYLANG, HIMĀLAYAS, *Aug. 20th, 1932.*

To the above address, the leader of the expedition, Monsieur Audouin Dubreuil sent the following letter on behalf of the members of the Expedition :

A M. LE PROFESSEUR N. DE ROERICH,
Naggar, Indes Britanniques.

PARIS, LE
22 Octobre, 1932.

Monsieur,

Madame de Vaux-Phalipau a bien voulu me transmettre l'article que vous avez rédigé sur notre Expedition au Centre—Asie, ou plutôt le vibrant salut que vous nous avez adressé du camp de Kyelang.

Au nom de tous mes camarades, et au mien, je vous exprime les sentiments de notre reconnaissance. Un témoignage comme le votre nous est précieux, nous en sommes fiers.

En outre, dans les lignes bienveillantes et pleines d'intérêt que vous avez écrites, vous avez su admirablement expliquer les buts que nous poursuivions, les moyens que nouz avions eus a notre disposition, et la foi qui nous animait.

Puisque je vous écrie, je dois vous dire que mes camarades et moi, avons pour votre personne, Monsieur le Professeur, la plus haute estime et la plus vive admiration.

Votre action et votre oeuvre sont de celles qui servent d'exemple aux hommes et qui font honneur à l'humanité, en même temps qu'elles lui rendent les plus grands services.

Veuillez croire, Monsieur le Professeur, à l'assurance de ma considération et de mon dévouement.

L. AUDOUIN DUBREUIL.

ANNUAL REPORT FOR 1932

THE year under review has been a period of constant growth. Not only did the Institute carry out its scientific programme, but also added considerably to its building area at the headquarters. During the year new and significant contacts were made with scientific institutions. The Institute was represented at the second Assembly of the Union Internationale pour le Pacte Roerich held on August 8th, 1932, at Bruges, Belgium. The Institute was happy to express thus its adhesion to the important work carried out by the Union under its distinguished President M. C. Tulpinck.

Department of Archæology, Related Sciences and Arts

During the past year, the department was engaged in the following activities :—

1. Ethnographic and linguistic exploration of Lahul (N.W. Himālayas). The cost of this trip was again donated by Professor de Roerich.
2. Work on the large Tibetan-English Dictionary to be published by the Institute.
3. The completion of the first volume of the series TIBETICA and the preparation of volumes II and III.

1. The Expedition left the headquarters of the Institute at Naggar on the 25th of July, and established its headquarters at the summer camp above Kyelang. This year's work consisted chiefly in continuing the linguistic survey undertaken by the Institute. New and interesting material was collected on local folklore, and the collection of Lahuli songs considerably increased.

The Director completed his study of the Tibetan dialect of Lahul. This monograph is published as the first volume of the series TIBETICA. It is contemplated to issue a series of such monographs dedicated to different spoken dialects of Tibet. The monographs will form part of the series TIBETICA, and will constitute a Linguistic Survey of Tibet. A study of the Zangskar dialect is in preparation, and it is hoped to complete the work on it during the next field season. Each of these monographs will contain a description of the phonetic and morphological structure of the dialect, songs and texts printed in the Tibetan script and phonetic transcription, and vocabularies in which each word will be given in its literary form, its dialectical form, and the form used in Central Tibetan, which rapidly becomes the lingua franca of Tibet. Other monographs of the same series are planned and will include studies of the Spiti dialect, the dialect of Nga-ri kor-sum, and that of the Western Hor (Nub-hor). During the stay in Lahul, the Director and Lama Lobzang Mingyur Dorje continued to collect Tibetan xylographs. Lama Lobzang Mingyur Dorje is

also engaged in gathering for the Institute a collection of gnas-yig or guide-books to holy places of pilgrimage in Tibet and the Himālayas. These guide-books contain often valuable information of the history of Buddhism and its spread north of the Himālayan barrier. Many of these places of pilgrimage represent sites of ancient pre-Buddhistic religious cults, and their study is important to determine the inter-relation of religious influences.

The Ethnographical collection of the Institute was considerably augmented, and we take this opportunity to express our gratitude to Professor de Roerich for his several donations to the collection.

2. Work on the large Tibetan-English Dictionary undertaken by the Institute's staff, has made good progress during the year. A special leaflet was issued to collect subscriptions for the dictionary, and gratifying results have been obtained. The leaflet contains a specimen page of the dictionary. Every effort is being made by the Director and Lama Lobzang Mingyur Dorje to complete the work towards 1934. Special attention is paid to colloquial Tibetan which during the recent period has coined many new words. It is a well-known fact that the Tibetan language has a strong tendency to coin new words with the material available in the language, and therefore the number of loan-words is not so large as would be expected in a country which has received its culture from India and China. A special class is constituted by honorific words and expressions. The existing dictionaries of the Tibetan language are sadly lacking words of this class, although the honorific language of the country is of the utmost importance for the proper understanding of the spoken language, and even its literary form. The dictionary under preparation will include honorific words and expressions, both literary and colloquial.

3. The first volume of the series TIBETICA has been completed and will be issued early in 1933. Two other volumes are in preparation, and will be issued in the course of 1933-1934.

As previously, the European Centre of the Roerich Museum in Paris acted as representative of the Institute in Europe, and we take this opportunity to express our sincere appreciation to Mme de Vaux-Phalipau, and Dr. G. Chklaver.

On January 9th, 1932, Madame de Vaux-Phalipau read a paper on the activities of the Institute before the Ethnographical Society of Paris.

At the same meeting, the Director's paper on the Ceremony of Breaking the Stone, was read.

The Director's communication to the 15th International Congress of Anthropology, held in Paris in September, 1931, entitled: 'Problème d'éthnologie tibétaine: les Goloks et leur caractère ethnique' appeared in the 'Ethnographie', Nouvelle Série, No. 23, 1931, p. 139.

In Paris a Society of Ossetian studies has been organized at the European Centre of the Roerich Museum. The aim of the Society is to investigate and collect data on the Ossetian language, folklore and antiquity. At the first

meeting of the Society, Captain Dzambulat Dzanti, Secretary of the Society, read a paper on the Ossetian language and the historical rôle of the Alano-Ossetes. The lecturer stressed the importance of the study of the Ossetian language and people, the last remnant of a great and powerful nation which once held sway in the vast expanses of the Eurasian steppe-country. It is a well-known fact that many rivers and localities in South Russia still bear names which can be traced back to Iranian originals, that is the language of the ancient Sarmatians, the forefathers of the Alans. Let us hope that by carefully exploring all available sources, and by applying a rigorous method to the study of the ancient Ossetian, we shall be able to obtain fresh information on the language of the Scythians and Sarmatians.

The Ossetic folklore is extraordinarily rich, and merits a careful study to preserve this heroic epos from disappearance. Numerous archæological remains scattered throughout the Ossetian highlands still await their explorer, for here we possess a real treasure trove. The Society hopes to build up a Centre of Ossetic studies to enable students to explore this glorious and colourful past. The Himālayan Research Institute welcomes this new undertaking, and expresses the hope that the Society will give a new impetus to the study of the Caucasus and the Eurasian steppe-country, its antiquity, and cultural heritage. The Society of Ossetian studies, and its energetic Secretary, Captain Dzambulat Dzanti have started a noble and useful work.

Professor de Roerich presented to the Archæological Institute of America two of his recent paintings ' Three Glaves ' (representing rock drawings discovered by the Expedition in Lahul), and ' Menhirs in the Himālayas '. Both paintings have been forwarded to the Archæological Institute.

Department of Natural Sciences and Applied Research

In March, 1932, part of the botanical and zoological collections gathered by the Institute in the course of the several expeditions during 1931-1932, were shipped to the Roerich Museum in New York in order to carry out their proper investigation. The botanical collection gathered during the 1932 Expedition to Rupshu, Ladak, and Zangskar was handed over to Dr. E. D. Merrill, Director-in-Chief of the New York Botanical Garden. The identification of the collection is being carried out under the personal supervision of Dr. E. D. Merrill. Among the material sent to the New York Botanical Garden there have been found three new species of mosses to which Dr. E. D. Merrill has given the following names :

Blindia Roerichii n.sh.
Lindbergia Koelzii n.sh.
Mielichhoferia labulensis n.sh.

The Institute wishes to express here its deep appreciation for the splendid co-operation of Dr. Merrill. The zoological collection will be exhibited in future at the Institute's Museum in New York.

The National Museum of Natural History in Paris continues to study the botanical collection forwarded to them in March, 1931. Seeds of Himālayan plants sent to them have been planted in the Museum's experimental gardens and a great many of them have germinated. This work is being carried out under the supervision of Professor P. Lemoine, Director of the Museum of Natural History. The Institute has arranged an exchange of botanical specimens with the United States National Museum, Washington, D.C. and 147 Chinese phanerogams, collected by Joseph F. Rock, Dorsett and Ching in the Sino-Tibetan borderland, have been received. Material from the medium and higher altitudes of the Himālayan region will be forwarded in exchange.

An exchange of botanical material has been also established with the Fan Memorial Institute of Biology in Peking.

During the 1932 Expedition to Lahul a representative mineralogical collection of Lahul has been gathered by Mr. S. N. Roerich. The collection will be exhibited in the Museum of the Headquarters. A palæontological collection has also been started (the collection at present contains material from Spiti and Zangskar). It is proposed to develop this part of the Institute's work.

Dr. W. Koelz is no longer connected with the Himālayan Research Institute.

Bio-chemical Laboratory

During 1932 the Institute has completed the building of its Bio-chemical Laboratory. An account of the building is given elsewhere in this issue of the Journal by Mr. V. Shibayev, who has devoted much of his time and energy to the building, and we express our sincere appreciation to the builder.

A survey of the proposed site for the hydro-electric plant of the Institute was carried out and negotiations are in progress with the Government with the view to obtain the necessary water rights to establish the plant.

The scientific work of the department consisted chiefly in gathering a collection of Tibetan Materia Medica. For this purpose a native practitioner has been engaged since February, 1932. In this field, the Institute planned its work along the lines of the splendid work carried out by Dr. Bernard Read, of the Peiping Union Medical College, in ancient Chinese Pharmacopœia. The Institute's collection of local Materia Medica with data furnished by native medicine men has been catalogued, and will form the basis of the future study of the material in the laboratories of the Institute. Besides this collection, the Institute possesses a Medicinal Plant Record in which are listed the medical uses of plants according to Tibetan Pharmacopœia. In connection with the above work, the Director has prepared a translation of the Nus-pa rkyaṅ-sel, a Tibetan work on Pharmacology, containing a list of Tibetan Materia Medica, according to the rGyud-bži and the Baidūrya sṅon-po. It is hoped to publish the translation as one of future volumes of the series TIBETICA.

Lama Lobzang Mingyur Dorje has been actively engaged in collecting medical

texts for the Library of the Institute, as well as in gathering information for the Institute's Medicinal Plant Record.

It is hoped that the equipment of the Institute's laboratories will be soon completed in order to enable the Institute's staff to continue their work in this important field.

Colonel A. E. Mahon, D.S.O., continued to conduct as the official representative of the Institute, negotiations with Governmental authorities, and has visited Delhi on the Institute's business. We take this opportunity to express to him our sincere appreciation of his ever-helpful assistance in the manifold problems confronting the Institute. During the past summer field-work, Col. and Mrs. Mahon visited the Institute's camp in Lahul.

Research Library

During the past year the Library of the Institute was considerably enlarged through grants and book exchanges. Gifts of books were received from the following and are here gratefully acknowledged by the Institute :—

Carnegie Institution, Washington, D.C. ; Professor N. de Roerich ; Dr. Bernard Read, of the Peiping Medical College ; Colonel A. E. Mahon, D.S.O. ; Dr. Frederick L. Hoffman ; Dr. L. Scherman ; Dr. St. Fr. Michalski-Iwienski ; Professor Sh. R. Kashyap ; Georges de Roerich and Mr. V. Shibayev.

The second volume of the Journal of 'Urusvati' Himālayan Research Institute, was published in March, 1932, and contained articles by Col. A. E. Mahon, D.S.O. ; Dr. E. Shramek, Assistant Director of the Laboratory for Experimental Phonetics at the College de France ; V. A. Pertzoff, M.A. and M. Aisner ; Dr. W. Koelz ; Mr. V. Shibayev ; and the Director of the Institute. This second volume was dedicated to the memory of Professor Albert A. Michelson, world eminent physicist.

Mr. Alexander Kirilov has sent us an interesting paper on 'The Problems of Vibrations (Cosmic Rays)', in which he stresses the importance of further investigation of the problem through observations in different localities and altitudes. In this paper the author approaches the interesting question of the possible influence of these rays on living organisms, and its importance for the biological and medical sciences. Further attempts in such fields are welcome.

During the past year the Institute continued an exchange of publications with the following Institutions in the United States :

Agricultural Experiment Station (University of Pennsylvania).
Agricultural Experiment Station (University of North Dakota).
Agricultural Experiment Station (New Jersey State).
Agricultural Experiment Station (Pennsylvania State College).
American Nature Association, Washington, D.C.
American Council of Learned Societies, Washington, D.C.
Agricultural History Society, Washington, D.C.

Academy of Science of St. Louis, St. Louis, Mo.
American Philosophical Society for Promoting useful Knowledge, Philadelphia.
American Midland Naturalist (University of Notre Dame), Notre Dame, Ind.
American School of Prehistoric Research (Yale University), New Haven, Conn.
American Oriental Society (Yale University), New Haven, Conn.
Academy of Medicine of Cleveland, Cleveland, Ohio.
Association of American Medical Colleges, Chicago, Ill.
American Medical Association, Chicago, Ill.
Art Institute of Chicago, Chicago, Ill.
American Library Association, Chicago, Ill.
American Academy of Arts and Sciences, Boston, Mass.
Aurora Public Library, Aurora, Ill.
Albany Public Library, Albany, N.Y.
American Society for the Control of Cancer, Inc. New York City, N.Y.
Archæological Institute of American, New York City, N.Y.
American Ethnological Society, Inc. (American Museum of Natural History), New York City, N.Y.
American Museum of Natural History, New York City, N.Y.
American Institute of Chemists, New York City, N.Y.
American Geographical Society, New York City, N.Y.
Brown University, Providence, R.I.
Butte Free Public Library, Butte, Montana.
Buffalo Public Library, Buffalo, N.Y.
Brooklyn Institute of Arts and Science, Brooklyn, N.Y.
Brooklyn Botanical Gardens, Brooklyn, N.Y.
Boston Public Library, Boston, Mass.
Bangor Public Library, Bangor, Maine.
Brooklyn Public Library, Brooklyn, N.Y.
California Academy of Sciences, San Francisco, Cal.
Carnegie Institution of Washington, Cold Spring Harbor, L.I.
Carnegie Institution of Washington, Washington, D.C.
Carnegie Free Public Library, Sioux Falls, South Dakota.
Civic Centre Public Library, San Francisco, Cal.
Colgate-Rochester Divinity School, Rochester, N.Y.
Carnegie Museum, Pittsburgh, Pa.
Connecticut Geological and National History Survey, Hartford, Conn.
Carnegie Public Library, Fort Worth, Texas.
Colorado Scientific Society, Denver, Col.
Colorado Museum of Natural History, Denver, Col.
Colorado Medicine, Denver, Col.
Colorado College, Colorado Springs, Col.
Cleveland Public Library, Cleveland, O.

Cleveland Museum of Natural History, Cleveland, O.
Chicago Academy of Sciences, Chicago, Ill.
Cornell University Medical College, New York City, N.Y.
College of Physicians and Surgeons (Columbia University), New York City.
College of Pharmacy (Columbia University), New York City, N.Y.
Carnegie Endowment for International Peace, New York City, N.Y.
Camden Free Public Library, Camden, N.J.
Duke University, Durham, North Carolina.
Enoch Pratt Free Library, Baltimore, Md.
Evanston Public Library, Evanston, Ill.
Field Museum of Natural History, Chicago, Ill.
Free Public Library, New Bedford, Mass.
Free Library of Philadelphia, Philadelphia, Pa.
Grosvenor Library, Buffalo, N.Y.
Gorgas Memorial Institute, Ancon, Canal Zone.
George William Hooper Foundation for Medical Research (University of California), San Francisco, Cal.
Geological Survey (U.S. Dept. of Interior), Washington, D.C.
General Electric Co. Research Laboratory, Schenectady, N.Y.
Harvard University, Cambridge, Mass.
Hahnemann Medical College and Hospital (University of Chicago), Chicago, Ill.
Hebrew Union College, Cincinnati, Ohio.
Highlands Museum, Highlands, North Carolina.
Indiana University, Bloomington, Ind.
Indiana State Library, Indianapolis, Ind.
Indianapolis Public Library, Indianapolis, Ind.
Johns Hopkins University, Baltimore, Md.
Jacksonville Free Public Library, Jacksonville, Fla.
Kansas Academy of Science (University of Kansas), Lawrence, Kansas.
Life Extension Institute, Inc. New York City, N.Y.
Laboratoire de Pharmacologie, Inc. Paris, N.Y.
LeHigh University, Bethlehem, Penn.
Long Beach Public Library, Long Beach, Cal.
Los Angeles Museum of History, Science and Art, and Otis Art Institute.
Louisville Free Public Library, Louisville, Ky.
Linguistic Society of America (Yale University), New Haven, Conn.
Library Company of Philadelphia, Philadelphia, Pa.
Metropolitan Museum of Art, New York City, N.Y.
Museum of Fine Arts, Boston, Mass.
Mid-West Homeopathic News Journal, Chicago, Ill.
McGregor Public Library, Highland Park, Mich.
Memphis Medical Journal, Memphis, Tenn.

Marquette University School of Medicine, Milwaukee, Wis.
Milwaukee Public Museum, Milwaukee, Wis.
Minneapolis Public Library, Minneapolis, Minn.
Minnesota State Pharmaceutical Ass. (University of Minnesota), Minneapolis.
Minneapolis Public Library, Minneapolis, Minn.
Mosouri State Medical Association, St. Louis, Mo.
Mayo Foundation for Medical Education and Research, Rochester, Minnesota.
Medical College of Virginia, Richmond, Virginia.
Minnesota Public Health Association, St. Paul, Minnesota.
The Missouri Botanical Garden, St. Louis, Missouri.
National Acad. of Sciences, Washington, D.C.
National Medical Association, Newark, N.J.
Natural History Museum, San Diego, Calif.
National Institute of Health, Washington, D.C.
Nevada State Library, Cason City, Nevada.
New York Academy of Medicine, New York City, N.Y.
New York Academy of Sciences, New York City, N.Y.
New York Botanical Garden, Bronx Park, N.Y.
New York Public Library, New York City, N.Y.
New York State College of Forestry (Syracuse University).
New York State Library, Albany, N.Y.
Newark Public Library, Newark, N.J.
Oberlin College, Oberlin, Ohio.
Ohio Academy of Science (Ohio State University), Columbus, Ohio.
Ohio State Archæological and Historical Society (Ohio University), Columbus.
Oklahoma Agricultural and Mechanical College, Stillwater, Oklahoma.
Oregon State Library, Salem, Oregon.
Oriental Institute (University of Chicago), Illinois.
The Panama Canal Zone Experiment Gardens, Summit, Canal Zone.
Philadelphia Museum of Art and Science, Philadelphia.
Public Library of Denver, Denver, Colorado.
Public Library, Detroit, Michigan.
Public Library, Evansville, Indiana.
Public Library, Galesburg, Illinois.
Purdue University, Lafayette, Indiana.
Queens Borough Public Library, Long Island.
Rhode Island Medical Journal, Providence, Rhode Island.
Russell Sage Foundation, New York City, N.Y.
Russian Medical Society, New York City, N.Y.
Rutgers University, New Brunswick, N.J.
Ryerson Library, Chicago, Illinois.

St. Louis Public Library, St. Louis, Missouri.
St. Louis University, St. Louis, Missouri.
San Diego Zoological Society, San Diego, Calif.
School of American Research, Santa Fe, New Mexico.
Science Service, Inc., Washington, D.C.
Sheffield Scientific School (Yale University), New Haven, Conn.
Smithsonian Institution, Washington, D.C.
Social Science Abstracts (Columbia University), New York City, N.Y.
Southern California Academy of Sciences, Los Angeles, Calif.
Stanford University, Stanford, Calif.
State Educational Dept., Albany, N.Y.
State Library and Museum, Harrisburg, Pa.
State of Delaware Library, Dover, Delaware.
State University of Iowa, Iowa City, Iowa.
Tennessee Academy of Science (Vanderbilt University), Nashville, Tennessee.
Tennessee State Library, Nashville, Tennessee.
Toledo Museum of Art, Toledo, Ohio.
Toledo Zoological Society, Toledo, Ohio.
Tropical Plant Research Foundation, Yonkers, N.Y.
Union of American Biological Societies, University of Pennsylvania, Penn.
United States Department of Agriculture : Bureau of Entomology.
United States Department of Agriculture : Bureau of Plant Industry.
United States Department of Interior : National Park Service (Yosemite).
United States National Museum, Washington, D.C.
University of California, Berkeley, Calif.
University of Chicago, Chicago, Ill.
University of Cincinnati, Ohio.
University of Illinois, Urbana, Ill.
University of Iowa, Iowa City, Iowa.
University of Michigan, Ann Arbor, Michigan.
University of Minnesota, Minneapolis, Minn.
University of Missouri, Columbia, Missouri.
University of Nebraska, Lincoln, Nebraska.
University of New Mexico, Albuquerque, New Mexico.
University of North Carolina, Chapel Hill, N.C.
University of Oklahoma, Norman, Okla.
University of Oregon, Eugene, Oregon.
University of Pennsylvania, Philadelphia, Penn.
University of Pittsburgh, Pittsburgh, Penn.
University of Southern California, Los Angeles, Calif.
University of State of New York, Albany, N.Y.
University of Texas, Austin, Texas.

University of Washington, Seattle, Wash.
University of Wisconsin, Madison, Wis.
Western Reserve University, Cleveland, Ohio.
Wisconsin Academy of Sciences, Arts, and Letters, Madison, Wisconsin.
Wisconsin Free Library Commission, Madison, Wisc.
Wittenberg College, Springfield, Ohio.
Worcester Art Museum, Worcester, Mass.
Yale University, New Haven, Conn.
Zoological Society, Philadelphia, Penn.

An exchange of publications was continued with the following institutions in Europe :—

Institute International d'Anthropologie (Paris).
Société d'Ethnographie de Paris.
Société de Géographie Commerciale (Paris).
Office National des Plantes Médicinales (Paris).
Museum d'histoire Naturelle (Paris).
Laboratoire de Pharmacologie, Inc. (Paris).
Deutsche Morgenlaendische Gesellschaft (Halle).
Museum fuer Voelkerkunde (Muenchen).
Orientalni Ustav (Prague).
Museum of Far Eastern Antiquities (Stockholm).
Le Monde Oriental (Uppsala).
Kern Institute (Leiden).
Le Bulletin des Missions (Bruges).

An exchange of publications was continued with the following scientific institutions and publications in India :—

Government of India Geological Survey.
Royal Asiatic Society of Bombay.
Journal of the Andhra Historical Research Society.
Proceedings of the Bose Institute, Calcutta.
Visva-Bharati, Bholpur.
Bhandarkar Oriental Research Institute, Poona.
Geological, Mining, and Metallurgical Society of India.
Society of Biological Chemists, Bangalore.
Kashmir State Forest Department.
Indian Historical Quarterly, Calcutta.
Indian Current Science, Bangalore.
Scientific Indian, Calcutta.
Journal of the Indian Chemical Society.
Review of Philosophy and Religion, Poona.

ANNUAL REPORT FOR 1932

Museum

During the past period new material was added to the Natural History collections of the Museum. The Herbarium has been fitted with adequate furniture to accommodate the rapidly increasing collections and material received in exchange.

The Institute's rooms in the Roerich Museum in New York have drawn numerous visitors. A loan exhibition of 60 charts from the botanical specimens, sent by the Institute to the New York Botanical Garden in the year 1931, was on display during the months of January and February, after which it was forwarded to the Buffalo Museum of Science, where it remained for the period of a month. Loan exhibition from the Institute's Museum have included botanical and ethnological specimens to the Buffalo Museum of Science.

Miss E. J. Lichtmann has donated to the Institute a representative collection of slides of the Kulu Valley and Lahul.

Activities in New York

The year 1932 has seen a marked expansion in the activities of the Institute in New York. The activities have been supervised by Miss Esther J. Lichtmann, who during her long sojourn at the Institute's headquarters in Naggar, has gained a first-hand knowledge of conditions and work carried out at the headquarters. We express to her the Institute's sincere thanks for her kind assistance. The Institute's office in New York remained in charge of its secretary Miss Kathryn Linden.

During the course of the year, the following lectures were held under the auspices of the Institute, and we take this opportunity to thank the Roerich Society and its President Mrs. N. Horch for their kind help in organizing lectures :

January 11th, Dr. E. D. Merrill, Director-in-Chief of the New York Botanical Garden, lectured on ' Crops and Civilization '.

January 24th, Capt. John Noel, Member of the Mount Everest Expedition, gave an illustrated lecture on ' Kashmir and the Mt. Everest Expedition '.

January 25th, Dr. Ralph V. D. Magoffin, Head of Department of Classics, New York University, lectured on the ' Archæological Glories of the Past '.

February 24th, Miss Esther J. Lichtmann lectured on ' Kulu Valley—the Realm of 360 gods '.

May 18th, Capt. John Noel lectured on ' The Land of the Lamas '.

October 6th, Dr. N. Zavadsky, of the Radium Institute of Paris, lectured on ' The Heredity of Cancer Predisposition '.

The Institute was particularly pleased to sponsor also an extensive illustrated lecture course by Dr. Ralph V. D. Magoffin on the Art and Archæology of Mediterranean countries, during the Fall of 1932. The course, which was

endorsed by the Board of Education of the City of New York, and for which college credit was given, comprised the following subjects :—

October 17th, ' An Archæological Ramble through the ancient Near East '.

October 24th, ' Egypt, Mesopotamia, Palestine, Syria, Crete and the country of the Hettites from the Historical and Archæological Points of View '.

October 31st, ' Illustrated Art and History of Etruria, A Sphinx of Antiquity '.

November 7th, ' Illustrated Art, Archæology, and History of the Minoans and Mycenaeans '.

November 14th, ' The Women of Ancient Greece and Rome '.

November 21st, ' The Art of the Greeks '.

November 28th, ' Daily Life and Times in Athens '.

December 5th, ' Pompeii and Herculaneum of Yesterday and To-day '.

December 12th, ' Roma Imperatrix Mundi '.

December 19th, ' Contemporary Pictures of Roman Manners and Customs '.

December 26th, ' The Roman and his Hours of Ease '.

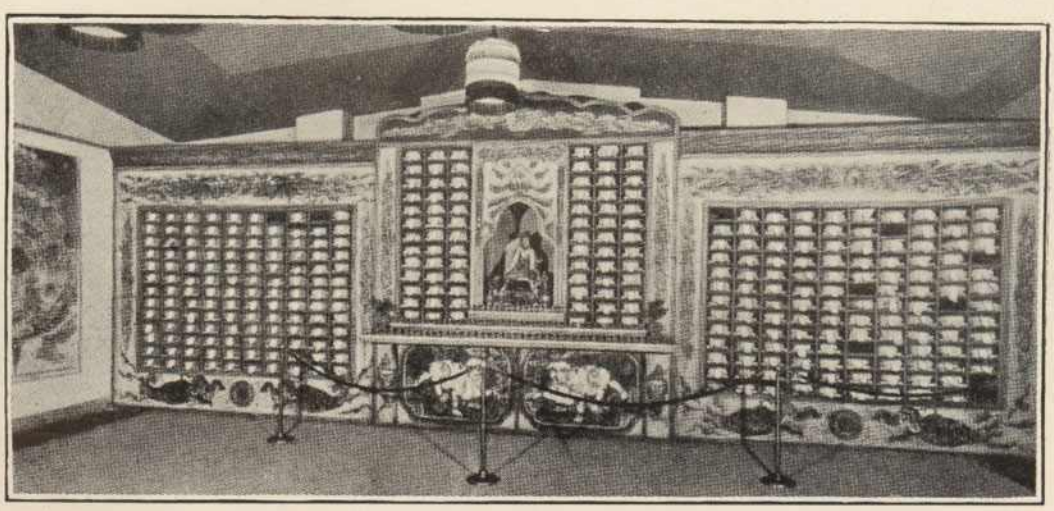
The series of lectures by Dr. Ralph V. D. Magoffin was very well attended. A number of activities were organized under the auspices of the Committee of the Bio-chemical Laboratory in New York, dedicated to the construction and equipment of the Laboratory at the Headquarters of the Institute. A collective subscription was started for the purchase of the painting ' St. Panteleimon the Healer ', graciously donated by Professor Nicholas de Roerich, together with the proceeds from the sale of his book, ' Realm of Light ', for the benefit of this fund. Deep appreciation is here expressed to the Committee and to its Chairman Major J. O. Phelps Stokes for their effort and noble assistance in making possible this humanitarian research at the Headquarters of the Institute. The Institute wishes also to express here its gratitude to Captain John Noel, as well as the Colombian (S.A.) Society of the Roerich Museum, and to Mme Lucia Gario, who have arranged events for the benefit of this fund.

We are pleased to announce that Dr. Frederick L. Hoffman, the eminent authority on cancer, has joined the Institute as Honorary Member.

The American Press has commented widely on the Cancer Research programme of the Institute, the American Society for the Control of Cancer publishing in their Bulletin of February, 1932 a full-page article by Miss Esther J. Lichtmann on the work of the Himālayan Research Institute. Articles on the Institute have appeared also in the Bulletin of the Association of American Medical Colleges, the Journal of the Missouri Medical Association, and the Bulletin of the New York Botanical Garden.

To our Founders, Professor and Madame de Roerich, and to the President and Board of Trustees of the Roerich Museum, we owe sincere gratitude for their constant guidance, and furthering of the Institute's plans.

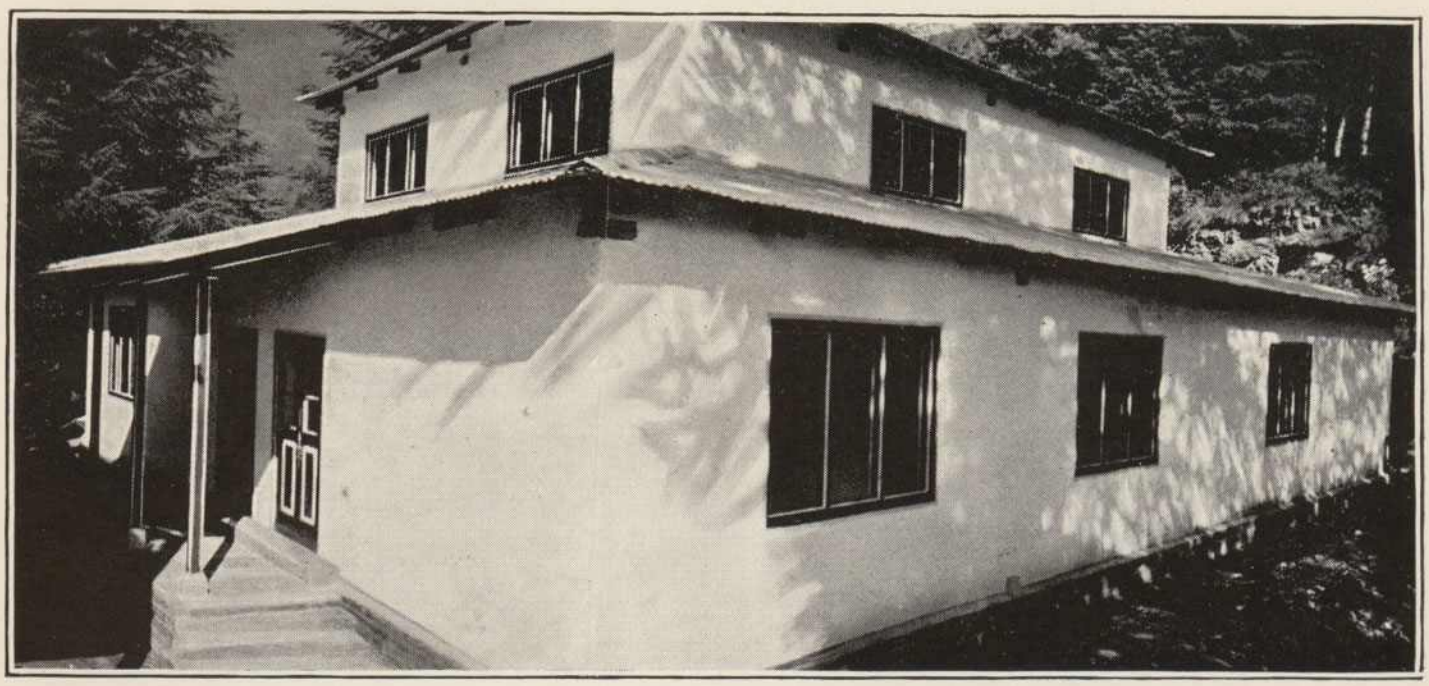
THE ROERICH MUSEUM IN NEW YORK.



TIBETAN LIBRARY OF ROERICH MUSEUM.

PLATE II.

GENERAL VIEW OF THE HEADQUARTERS AND MEDICAL RESEARCH LABORATORIES AT NAGGAR, KULU, PUNJAB, INDIA.

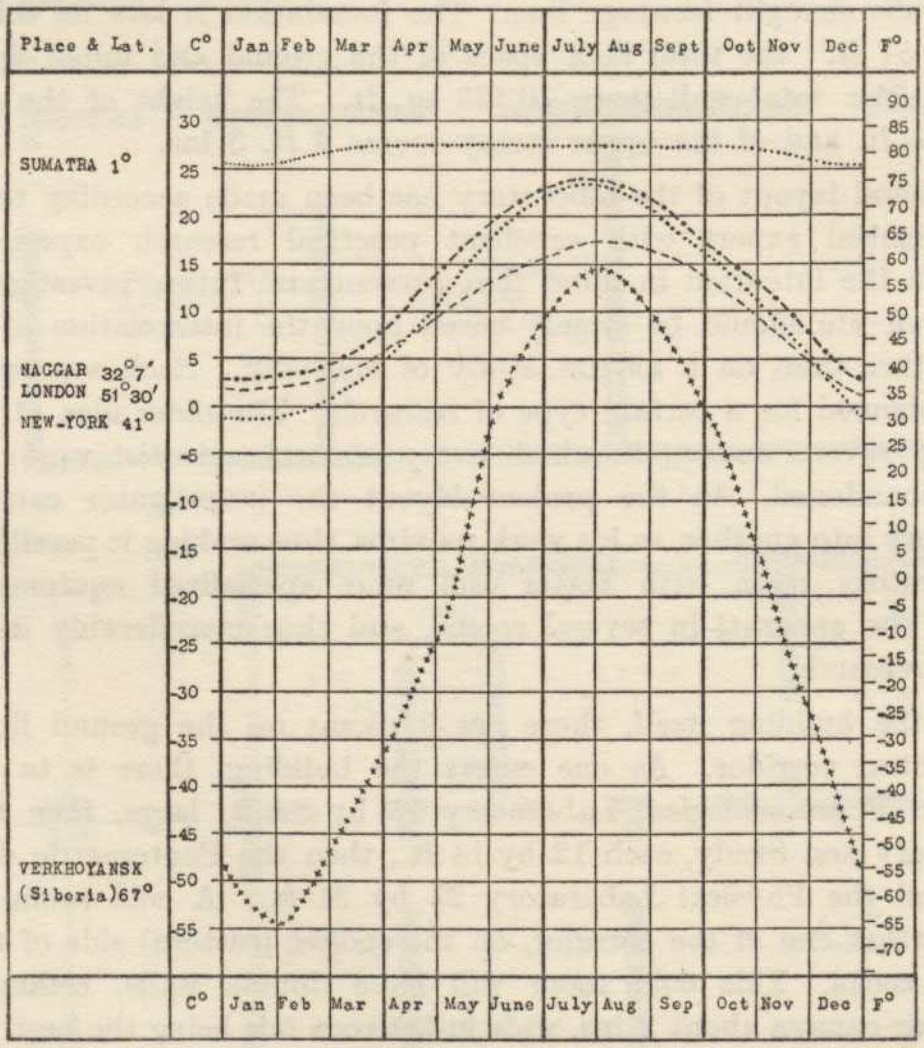


GENERAL VIEW OF THE NEW BUILDING FOR MEDICAL RESEARCH.

THE INSTITUTE'S NEW BUILDING FOR MEDICAL RESEARCH AT NAGGAR

IN accordance with its programme in the field of medicinal and biochemical research the Institute had to expand its premises at Naggar and early in 1932 commenced the building of a biochemical laboratory, where this research is to be conducted. The new building, with the exception of its inner technical installation and equipment, was completed by the end of the same autumn. The construction was made possible thanks to a donation of a friend of the Institute in New York, who desires to remain anonymous.

For the benefit of those who know little of North-Western India, it should be mentioned that the Beas Valley, in which Naggar is situated, lies in the



western part of the Great Himālayan Range, the glaciers of which surround the upper Beas from three sides (N., E., and W. within ten miles by airline), the nearest highest peaks of the Range being 21,760 and 23,050 ft. above sea-level,

straight to the East from Naggar, 33 and 65 miles respectively by airline. The range on the slope of which Naggar is situated, has peaks 13,500 to 14,500 ft. high (which is higher than Mt. Jungfrau in the Bernese Alps), with a pass—Chandarkhani P.—12,200 ft. leading into the Malana Valley. This pass is less than six miles by road from Naggar. Despite the high altitudes, vegetation grows up to 19,000 ft. in the summer, this being more than 3,000 ft. higher than the Mont Blanc! The Latitude of Kulu is that of Morocco. The given table shows the mean temperatures in C°. and F°. of Naggar for each month, as compared with the most extreme and normal temperatures of the world.

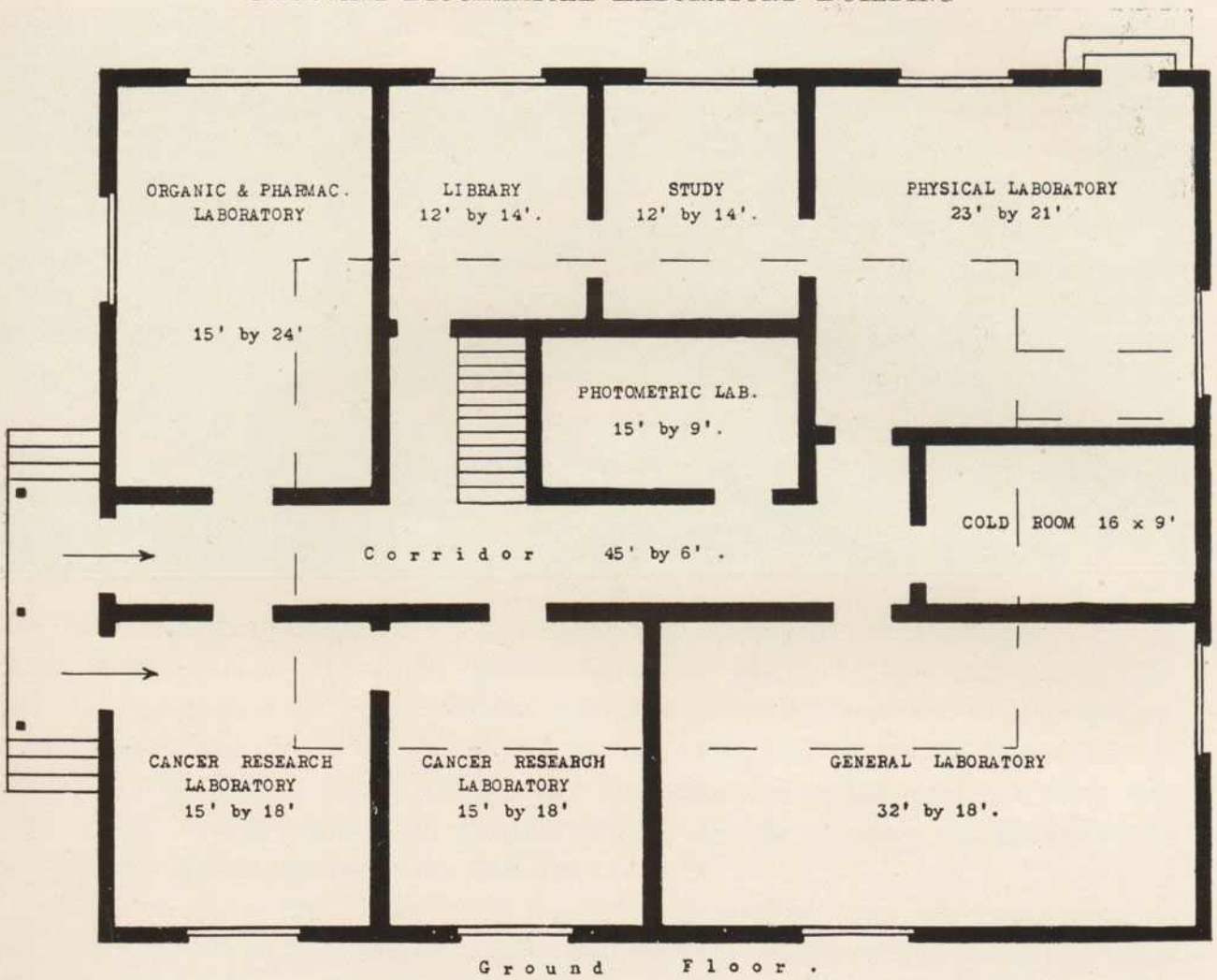
To the North of Kulu lies Lahul, to the West Chamba State, to the East Spiti and to the South Mandi State and Bashahr.

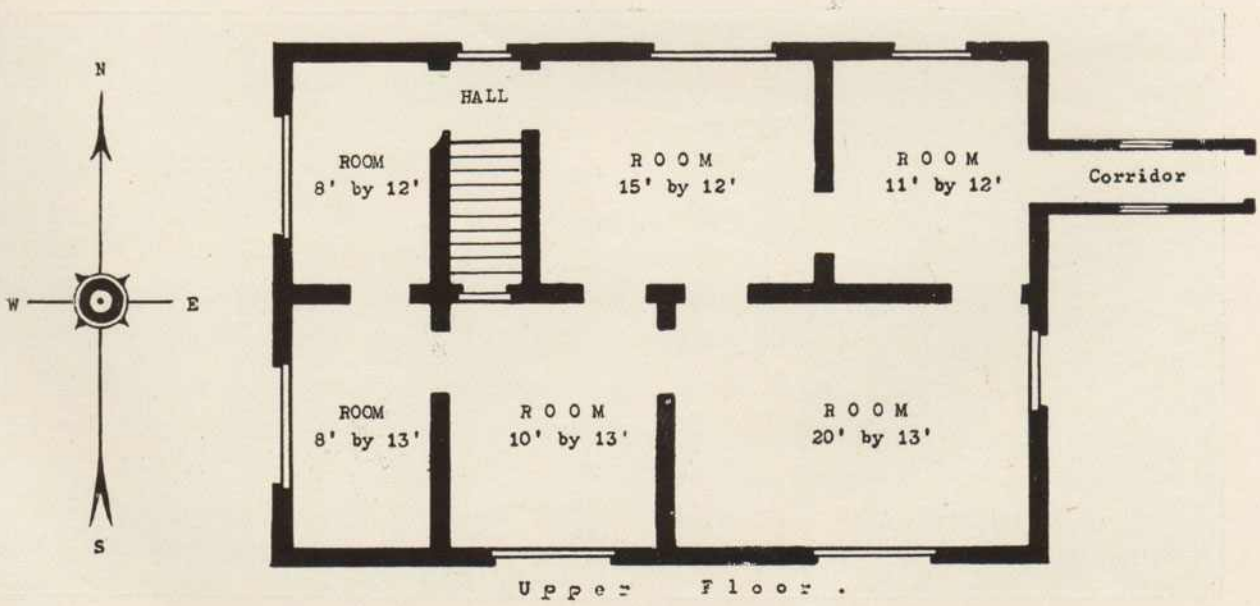
The actual height of the Laboratory building above sea-level is 6,220 ft. The building lies to the East of the Institute's Headquarters and is separated from these headquarters by a passage four yards wide, both the buildings running in one straight frontage line. The foundation is laid on solid rock and is 64 ft. by 51 ft.; the total floor space of the ground and upper floors is 4,076 sq. ft. and the total wall space 10,523 sq. ft. The height of the ground floor rooms is 10½ ft. and of the upper storey rooms 9 ft. 3 ins.

The general layout of the laboratory has been made according to suggestions of a biochemical expert with excellent practical research experience in this matter, with the intention in mind that present and future investigations of the phenomena of life should be largely based upon the interrelation of the various sciences, rather than on a narrow study of one only. Each separate room has thus been planned for a certain type of research. The older idea of arranging in a laboratory several rooms, in which every research scientist works by himself, has been abandoned. In the present layout the investigator can move from one laboratory into another, as his work requires, thus making it possible to provide every laboratory room with better and more specialized equipment, without duplicating the apparati in several rooms, and thus considerably improving the quality of research.

As to the building itself, there are 9 rooms on the ground floor, situated along a central corridor. As one enters the building, there is to the left the Organic and Pharmacological Laboratory 15 by 24 ft. large, then the entrance to the Library and Study, each 12 by 14 ft., then the Photometric darkroom, 15 by 9 ft., and the Physical Laboratory 23 by 21 ft. A cold room 16 by 9 ft. is at the further end of the corridor, on the coolest (eastern) side of the building, facing the rocks. This cold room will have double walls, ceiling and floor, leaving an air camera about 2 ins. wide in-between (air being the best isolator) and will be cooled by an electric refrigerating plant. A thermostat will regulate the temperature to be kept permanently at 5°C., which is the best for this kind of work.

URUSVATI BIOCHEMICAL LABORATORY BUILDING





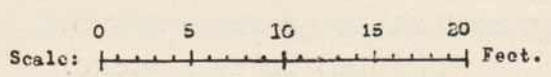
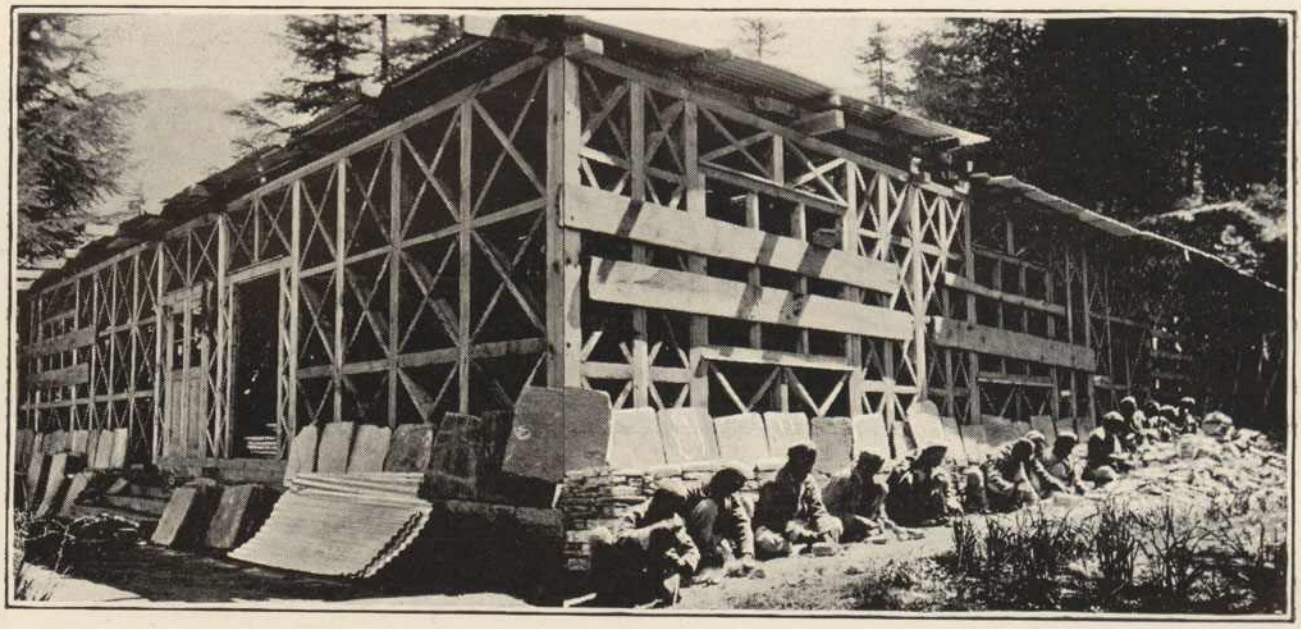
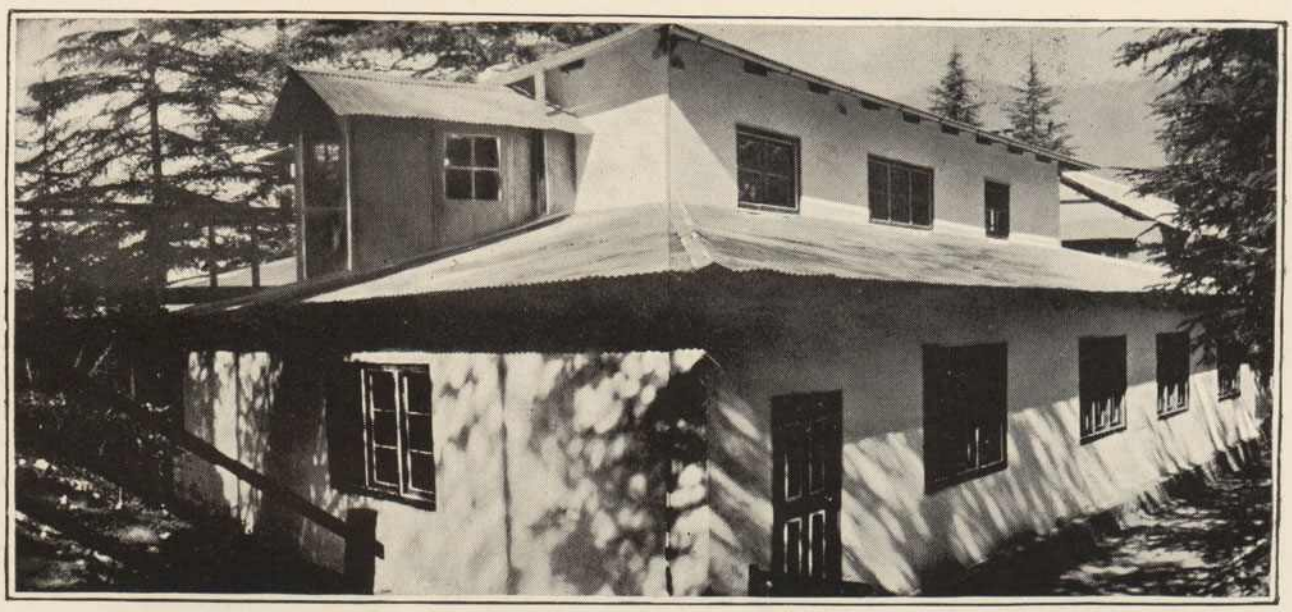


PLATE IV.



THE EARTHQUAKE PROOF DHAJJI DIWAR CONSTRUCTION.



A VIEW OF THE NEW BUILDING FROM THE N.E., SHOWING BRIDGE LEADING TO THE ROCKS.

To the right of the corridor are two rooms for Cancer Research, each 15 by 18 ft. and the spaceous General Laboratory 32 by 18 ft. large.

The laboratories will be heated by thermostatically controlled electric radiators, one under every window, automatically preventing the temperature from falling below the required point. The ideal temperature for such laboratories is 20°C. (68°F.), with variation from 15°C. to 25°C. being tolerable but higher temperatures being exceedingly objectionable, as no work involving biological material could then be carried out accurately. The refrigerating plant in its essentials consists of an electric motor driving a pump, a cooling liquid and a system of piping. This refrigerating liquid may be carried a considerable distance, thus providing refrigeration for all those rooms of the laboratory where a regulation of temperature is essential.

The ventilation of the rooms will be carried out by exhaust fans, probably the De Botezat type will be used and separate exhaust fans will have to be used for the hoods, preventing obnoxious gases in certain chemical work from finding their way into the rooms.

As we succeeded in obtaining 20 and 24 ft. iron girders, and thus could considerably strengthen the ceilings, the erection of the upper storey became possible, and six more rooms could be added to the building. This upper floor is connected by a wooden staircase with the ground floor corridor, and the rooms are 20 ft. by 13 ft., 15 ft. by 12 ft., 11 ft. by 12 ft., 10 ft. by 13 ft., 8 ft. by 13 ft., and 8 ft. by 12 ft. large. A glass corridor from one of the upper rooms leads to a bridge, which having a span of about 20 ft. takes one across to the rocks to the East.

All rooms have extremely large windows, admitting the maximum possible amount of light from the outside. The ground floor windows are seven feet wide and five feet high, having nine glass panes 16 ins. by 20 ins., thus admitting 20 sq. ft. of outside light. The three large General, Physical, and Organic laboratories have each two such windows. The indoor lighting will be electric.

The construction is in wood and stone, covered with plaster and whitewashed. This method of construction is known here as the dhajji diwar construction and has proved to be the best, if not even the only, method of construction that resists earthquakes, which used to be quite frequent in this region. Most of the Government buildings in Dharmsala for instance, are built in this style and have proved to be the best. It is interesting that in its essential principle this mode of building rather resembles the steel structure of modern skyscrapers, with the difference of course that wooden beams are used instead of steel girders. Thus the wisdom of the people in its own way found the best solution, how to give the utmost binding strength and rigidity with the local material available. The walls can be seen on the attached photographs, showing how the vertical beams are bound by horizontal beams, and the resulting squares are fortified with a diagonal cross, making the skeleton structure perfectly stress and strain resisting

on the same principle as the triangular girder construction. All corners and joints are then strengthened by steel bolts and iron hooks and the open triangular spaces are then filled with large stones and binding material, and the walls plastered inside and outside and whitewashed. This actually makes the whole wall become one solid piece.

Over a hundred trees were required for the wooden part of the construction and for seasoning timber for making furniture for the laboratory. Since the Forest Department was not in a position to sell us trees nearer than mixed unselected forest plots at Devi-di-Jhir and Patha-Nali (beyond and above Bundrole), a distance of 11 miles and on the opposite side of the Beas River, we express our thanks to Mr. W. H. Donald for selling to the Institute trees at our own selection from his forests at Ghordrour and Kalaunti. The carriage was made on coolies. Most of the trees were blue pine (local name 'kail', *Pinus excelsa*), but for windows and doors and furniture, deodar wood (local name 'kelo', *Cedrus Libani Deodara*) was used. Ceiling and floors, wherever the latter were not laid in large stone slabs, were made in spruce (local name 'rai', *Picea Morinda*). The timber had been purchased already in 1931 and had been stocked to season. Stone was available from nearby rocks and about twenty-two thousand cubic feet were used. The large square stone slabs (four square feet each) for flooring are also to be had nearby and about half a thousand of these were required. The roofing took over 350 corrugated iron sheets which together with other material, like bolts, screws, instruments, etc. had to be brought on lorries from Amritsar and Lahore, a distance of 300 miles from Naggar.

The maximum number of workmen employed at a time was 72. The head carpenters were from Hoshiarpur, and the rest of carpenters, masons, coolies, etc. were employed locally. Naturally every detail of construction, planning, outlay, levelling, measuring, etc. had to be personally directed and minutely supervised.

The clearing of the site for the laboratory necessitated further the removal of the old servants' quarters and kitchen, and new servants' quarters 40 ft. long by 13½ ft. wide, were constructed to the N.-E. of the laboratory on a plot of land also donated by Prof. de Roerich for this purpose. The servants' quarters have four rooms, 12 ft. by 9½ ft., with a window and door each. A veranda runs along the whole length of the quarters. A new kitchen has also been constructed, adjoining the Institute's Headquarter building.

It remains now to install the laboratory equipment and fixtures and to fit the water supply and electric light and power. Thanks to the advantageous situation in the hills, it is possible to derive electric power from a nearby mountain stream, which can be conducted in a channel to give a hundred feet drop, thus providing for about 80 kw. of electricity. A survey of the spot has already been made and found by experts to be fully suitable. Estimates for the hydro-electric plant are expected as well as the granting of the necessary land and water rights. The turbine and generator will be located on the Chhaki river,

hardly four furlongs from the Institute's buildings and current will be transmitted by overhead lines. It is planned to install at 110 V. A.C. current, three phase, fifty cycles. The consumption of the electric room heaters, chemical heaters, thermostats, pressure pump, refrigerating plant and electric motor is estimated at 55 kw., the balance being required for lighting of all the buildings, motors for carpenters' workshops, stoves, fans, driers, etc. and for possible expansion in the future. A converter will be installed to change part of the current for D.C.

Whilst it is impossible in this short article to dwell on the biochemical side of the Laboratory work to be carried out (particulars of preliminary collections for which are mentioned elsewhere in this Journal, and particulars of the laboratory research work will follow in later issues of the Journal when the work will have been started), but it is interesting to mention here, that though considerable biochemical and botanical research work is being carried out in India by able scientists in the laboratories at Dehra Dun and at Calcutta, etc., our Institute is the first to establish such modern up-to-date laboratories right up in the mountains, where research work can be conducted on the spot under ideal conditions (with nurseries and plantations) on l i v i n g m o u n t a i n herbs and plants. Why the properties of medicinal plants growing on altitudes are different, is not in the competency of the writer to discuss here, but it would seem that already the very much lower atmospheric pressure (for example on 15,000 ft. above sea-level 427 mm. (16·8 ins.) as compared to 760 mm. (29·9 ins.) at sea-level) and the different composition of the atmosphere must have a considerable influence on plant life, its cell structure, plant nutrition, etc. ; and no doubt these are only few of numerous other influences and conditions.

THE SECRETARY.

BOOK REVIEWS

J. Bacot: *Dictionnaire Tibétain-Sanscrit par Tse-ring Ouang-gyal (Che riñ dBañ rgyal).* Buddhica, 2-me série, Vol. II. Reproduction phototypique. Paris, Geuthner, 1930, large 8°, pp. VI, 104 planches doubles.

THE present edition is a phototype of the original manuscript. The dictionary contains about 15,000 words. In many respects it is richer than the Mahāvyutpatti, and furnishes a number of new meanings. The dictionary is based on the Amarakośa; the Kāmadhenu by Subhūticandra; the Abhidhānamuktāmāla; the Avadānakalpalatā; Daṇḍin's Kāvyadarśa; the Chandoratnākara by Ratnākaraśanti; the commentary on the Pāṇinivyākaraṇa; the commentary on the Sarasvatīvyākaraṇa by Tāranātha, etc. The orthography of Tibetan, and especially of Sanskrit words[1] is at times faulty, and will have to be corrected in a future critical edition.

Professor J. Bacot deserves gratitude for having made this important lexicographical work accessible.

G. de Roerich.

Bibliographie Bouddhique I (January 1928—May 1929). Buddhica, Vol. III, Paris, Geuthner, 1930, pp. VIII—64.

Bibliographie Bouddhique II (May 1929—May 1930). Buddhica, Vol. V, Paris, Geuthner, 1931, pp. IX—97.

The above two volumes are extremely useful repertories of recent works on Buddhism and allied subjects compiled by a group of scholars under the direction of Professor Jean Przyluski. Each entry is followed by a short account of its contents, and a list of reviews published on the work. Each volume contains the following sections: General works; Text editions, translations, catalogues, dictionaries, glossaries; Philology and exegesis; History and spread of Buddhism; Legends, Doctrine, Philosophy; Discipline and cult; Art, archæology, epigraphy; Modern Buddhism.

Part two contains a bibliography of the works by Leon Feer compiled by Marcelle Lalou.

The two volumes form an indispensable instrument of work, and part three will be eagerly anticipated.

G. de Roerich.

[1] Some of this corrupt orthography of Sanskrit words, has been sanctified by usage in Tibetan, and in some cases is apparently due to local pronunciations.

LOUIS DE BROGLIE: *An Introduction to the Study of Wave Mechanics.* 246 pp. and 14 diagrams. Translated by H. T. Flint, D.Sc., Ph.D., Edition of E. P. Dutton and Co., Inc., New York.

The author is a professor at the Henri Poincaré Institute in Paris. He is the winner of the Nobel Prize for Physics for 1929. The book under review contains an exposition of a new dynamical theory by one of its originators.

There are recognized at present two kinds of motion: that of a particle and wave motion. The famous question about the propagation of light was discussed for centuries. Newton held the view that light is a motion of material particles, but it was until recently almost universally accepted that light is a vibratory movement of ether. With the experiment of Michelson-Morley and of other physicists, and with the appearance of the Theory of Relativity, the old notion of ether was shaken to its foundations and new conceptions of space and dynamics were developed. In order to satisfy the new physical data and the famous Plank's theory of black body radiation, it appeared to be necessary to return to the Newtonian understanding of light propagation, as a stream of particles, accepted in the new theory of protons. The discovery of the photo-electric effect confirmed by the Compton effect, showed that the idea of granular structure of light must be introduced into optics, while the phenomena of diffraction and interference insisted on the conservation of the concept of waves. This light cannot be described as a motion of simple particles, and physics faces a curious dualism of motion. The author has undertaken in this book to show that mathematically both theories can be reconciled. He studies here the phenomena of associated waves, where is no interaction between particles, the phenomena of a train of particles acting one upon another and the movement of a single particle through a generalized space. The author accepts as a well established principle that the square of the amplitude of the wave, i.e. its intensity, must measure the probability of localization of the associated particle for each point of space and at each instant of time. The logical consequence of this postulate is that this principle is necessary to account for the phenomena of interference and diffraction of light, for the maximum of luminous energy is found in the places of the Fresnel wave's greatest intensity. The phenomena of interference and diffraction are not incompatible with the corpuscular theory and the formulæ of the associated and single waves in various media are in agreement with the equations of the moving particle. The author thus establishes a parallelism between the old mechanics and the propagation of the light waves proceeding according to the laws of geometric optics. The corpuscular theory of light receives a new confirmation. But the difficulty arises, when we try to represent physically the motion of a particle. We can imagine a cloud of particles describing all paths, which correspond to one and the same function of Jacobi, in which case the density of the cloud can be measured by the intensity of the associated wave. The trajectory of an imaginary particle here can be

represented as the wave-train since in the total motion of the particles of the cloud, the position of a single one will coincide at each instant of time with that predicted mathematically. It is more difficult to understand the trajectory of a single particle in cases where the conditions of geometrical optics do not prevail. There are several theories to explain its trajectory, but none of them is entirely satisfactory. Schrödinger thinks that a single particle should be regarded as a 'wave-packet', constituted by a group of waves at neighbouring frequencies, which obeys the laws of geometrical optics. But, according to this theory an electron diffracted by a crystal should be completely dispersed and destroyed and no particle would have a stable existence. This theory is not confirmed by the experiments and cannot be generalized. There is another theory of the pilot-wave. Since the motion of the particle agrees with the propagation of the wave, it may be supposed that the particle is guided by the wave, or, according to a modification of this view by Kennard, instead of speaking of the actual trajectory, we can speak of the trajectory of the 'elements of probability'. But there are several objections to this theory, the main of which is this: the experiments with a mirror cannot agree with the assumption, that the wave is a physical phenomenon, and if the wave is a symbolic representation of a probability, it is difficult to understand the guidance of the particle by the wave. There is also neither conservation of energy, nor of momentum, for the 'probability elements' even in the absence of a field. There are other serious considerations against the pilot-wave theory. The most favoured view at present is that of Bohr and Heisenberg. According to it the wave does not represent a physical phenomenon, but is simply a symbolic representation of our knowledge of the moving particle. No experiment can show exactly that actual position of the particle or its particular velocity. The experiment shows only a probability of the position and the velocity within certain limits. Consequently there is no longer a rigorous determination in Nature, but only laws of probability. This assumption introduces new conceptions of physics, where the wave has non-physical character and the particle cannot be portrayed as a very small object, having position in space, a velocity and a trajectory. In other words, physical phenomena according to Bohr have not clear, definite meanings accepted by the mechanics. Einstein pointed out two possible attitudes: the first consists of retaining the idea of the particle localized at each instance in space. But a natural law expressed by Heisenberg's relations does not permit one to determine exactly the position and state of motion of the particle. The undeterminism of Bohr and Heisenberg must be regarded only as an uncertainty within definite limits. The second attitude accepts the view that the particle associated with an extended wave-train is not actually localized in space and time, but in a certain sense is present throughout the extent of the wave-train, and by some unknown cause it is condensed at a definite point to produce an observable effect. The interpretation of the dualism of waves and particles contains many difficulties, especially

in the question of localization of the particle on the wave and the author thinks that a satisfactory solution will be reached probably by the introduction of some new idea into the present notions of the space-time frame. The work of de Broglie is very interesting because it shows that there is no fundamental difference between the wave propagation and the motion of a particle, but even more so because at the same time he points out the difficulties arising from the actual conception of displacement of a particle. We think, that there is no actual means to observe directly a motion of a body in space, because the observer receives throughout the motion continuously new light waves bombarding his retina and thus he sees in every place practically another body. Then, the body in motion is a cloud of moving particles and it suffers continuous molecular and intra-atomic changes, so that the body is in every new place different from that in the previous place. We may ask, whether a single particle in every instant of its motion remains the very same particle, or is it a newly originated particle very similar to the previous one ? The question cannot be answered until a new conception of space and matter will be introduced. Classical physics tacitly accepted the existence of a homogeneous space as a sort of container of matter. The theory of Relativity showed that this is only a particular case in a series of different possible spaces. This theory studied the qualities of space still separating the conception of it from that of matter. The physical motion may be characterized as a certain change in space-time. Therefore, to study the nature of motion we must study the nature of space. The relativity theory states, that the field of force produces certain qualities of the corresponding space. Then, the total energy of a particle is creating a particular space within the particle which is most intimately related to the physical properties of the particle. In every new place it meets a new spacial condition and the very fact of displacement means a certain change of the particle. Therefore, we cannot regard a ' displaced ' particle as identical with the previous one, but only as analogous. Its energy being intimately related to the space-value, cannot be separated from space and probably should be regarded as a condensation of the particular space. Thus a moving particle will in fact represent a continuous consecutive generation of new particles along the trajectory not dissimilar to the consecutive raising of particles of a liquid forming a wave. The length of a motion-wave will correspond to the distance between the positions of the two consecutively generated particles and the amplitude—to the intensity, which in this case will be the intensity of condensation of space. It is probably, that this conception of motion which agrees apparently with wave propagation and mechanical movement theories and permits to localize the particle on the definite trajectory will bring some clearness into the question under discussion. It will be then necessary to study space as a medium generating matter with its mathematical conditions of condensation. Space will thus become a real cosmic tension and matter its function. De Broglie has touched in the present book an exceedingly interesting

point, which will probably lead to an entire reconstruction of our notion of space and dynamics.

C. LOZINA.

DOROTHEA CHAPLIN: *Some aspects of Hindu Medical Treatment.* London, Luzac & Co., 1930, pp. 71.

This little book is the result of a practical experience of Hindu medical treatment, and verbal information acquired from Dr. S. M. Mitra. Some of the chapters are interesting as for example the chapters on Psychotherapy and Colour-Therapy. The Ayurvedic treatment of nerve disorders merits a thorough investigation, as well as the treatment of asthma and cancer. As in the case of other ailments, the treatment is directed to the patient, and not to the part affected. The study of early symptoms is interesting.

It is our firm belief, that the ancient Hindu medicine, as well as its sister-branch the medical science of Tibet, have still something to teach us.

G. DE ROERICH.

FRANKLIN EDGERTON: *The Elephant-Lore of the Hindus. The Elephant-Sport (Mātaṅga-Līlā) of Nīlakaṇṭha.* Translated from the original Sanskrit with introduction, notes, and glossary. New Haven, Yale University Press, 1931, pp. XX—129.

In this volume Professor Edgerton has given us a translation of the Mātaṅga-Līlā, an interesting text on the ancient Hindu science of 'elephantology' or gaja-śāstra. The author of the work is Nīlakaṇṭha, but nothing is known about him or about the date of the composition of the book. Professor Keith (History of Sanskrit Literature, p. 465) regards it as more modern than the Hastyāyurveda, another treatise on elephantology, dealing with the medical treatment of elephants. Professor Edgerton considers this improbable, since there is no evidence to prove it. According to him, the Mātaṅga-Līlā is a work based on an ancient tradition, whose antiquity it is almost impossible to ascertain. In preparing his translation, Professor Edgerton consulted another work on the elephant-science, unfortunately incomplete and very corrupt, now preserved in the Tanjore Palace Library. The Introduction to the present translation is full of learned comments on the position of the elephant-lore in Indian literature, and the author's analysis of the theoretical and practical elements of the 'science' will prove invaluable to students of Indian folk-lore, and shows that our modern knowledge of the animal is far from being complete. The highly elaborate character of the 'science' is explained by the multifarious rôle played by the elephant in Hindu civilization. Fragments of this elephant-science have even penetrated into countries, which had no practical experience of elephants, but had adopted some elements of the elephant-lore together with

other Indian sciences, thus creating a highly artificial culture, such as Tibet, for example. Professor Edgerton's translation is an example of scholarly rendering of a highly condensed and technical text. The Glossary added to the volume contains over 130 words of the special vocabulary, and not defined in the senses here found in any existing dictionaries.

The eminent author is to be congratulated for having undertaken this valuable study of this important branch of ancient Hindu knowledge.

G. DE ROERICH.

Freski Dmitrovskogo Sobora vo Vladimire. Berlin, 'Petropolis', pp. 15, with LXVIII plates.

The book represents a short monograph on the frescoes of the famous Dmitrovski Cathedral in Vladimir. The Cathedral dates from the 12th century, and represents an important monument of art of the Suzdal period. The frescoes were first discovered in 1843 during a restoration of the Cathedral, and were studied by Professor Solntsev and Count Stroganov. In 1918, Mr. Igor Grabar made another discovery of important fragments of frescoes in the Cathedral. According to him the frescoes must belong to an art with a rich tradition behind it, and for whose origin we should search in Byzantium and the other great countries of the Near East.

The book contains numerous well-executed plates.

G. DE ROERICH.

DWIGHT GODDARD: *The Buddha's Golden Path.* A Manual of Practical Buddhism based on the teachings and practices of the Zen sect, but interpreted and adapted to meet modern conditions. London, Luzac & Co., 1931, pp. 214.

During his residence in Japan the author has studied Buddhism in Zen monasteries, and the present book contains an exposition of the main tenets of the doctrine. The book is divided into three parts. In some cases the author has somewhat westernized the dogmas of the teaching. Some of the chapters are written with a great deal of earnestness and contain a good exposition of the subject, for example the chapter on Right Concentration.

The book will be found useful by many interested in the doctrine and its modern interpretation.

G. DE ROERICH.

SWĀMI JAGADISWARANANDA: *Buddhism and Vedanta.* The Calcutta Review, Nov.-Dec., 1932, pp. 161–176.

With each new advance of our knowledge of Buddhism, it seems more difficult to separate it from the ancient doctrine of the Upanishads. Far from being atheistic, Buddhism teaches the existence of a transcendental substratum

that underlies everything, that the basic property of the world is 'becoming,' and that the conditioned ever-evolving change creates the phases of things in this world. The germs of all these thoughts are found in the Upanishads, but their treatment in Buddhism is more systematic, more rigorous. In his article the author quotes the latest works by Rhys Davids, Rokotoff, and Radhakrishnan. Speaking of the notion of the Nirvāṇa, the author very appropriately quotes Saṃyutta Nikāya, III, 109.

We must be thankful to the learned Swāmi for having given us this inspiring essay on a fascinating subject.

G. DE ROERICH.

MARCELLE LALOU: *Iconographie des ètoffes peintes (paṭa) dans le Mañjuśrīmūlakalpa.* Buddhica, VI, Paris, Geuthner, 1930, pp. 116.

In this interesting study, the author describes the rite of paṭa, or the preparation of an image painted on cloth according to established rules (Tibetan : ras-čhog). The present study is based on the Mañjuśrīmūlakalpa. The passages describing the rite of paṭa are translated by the author, and the corresponding Tibetan text is added in transcription. The author shows in her Introduction (p. 4) that the term paṭa means an image painted on cloth according to prescribed rules, but whose composition does not include diagrams. In this lies its principal difference from the so-called maṇḍalas or spheres of influence, which are usually drawn on a geometrical plan. The composition of such painted images is governed by rigid iconographical rules. Some of the iconographical aspects described in the Mañjuśrīmūlakalpa are of great interest, as they no doubt represent an early tradition. For example : Maitreya represented as a brahmacārin, wearing the kāṣāya, and the skin of a black antelope, with a rosary attached to his left shoulder, and holding the alms bowl and the mendicant's staff (Cf. Mañjuśrīmūlakalpa, Ch. IV).

In Ch. V, the author discusses the parallels that exist between the bodhisattva Mañjuśrī of the Mahāyāna, and the gandharva Pañcaśikha of the Hīnāyāna.

The present study forms a valuable contribution to the literature on Northern Buddhist iconography.

G. DE ROERICH.

OWEN LATTIMORE: *High Tartary.* Pp. XIV, 370, illustrated. Little, Brown & Co., Boston, 1930.

The first part of the journey was described by the author in 'The Desert Road to Turkestan', which was reviewed in Volume I of the present Journal. The present account starts with Ku-ch'eng-tze where the author dismissed his caravan which brought him across Inner Mongolia from Kuei-hua ch'eng. After a short stay in Ku-ch'eng-tze the author journeyed to Urumchi, the provincial capital of Hsin-chiang, and then to Chuguchak on the Siberian border to meet

his wife, who was travelling by the Siberian railway. From Chuguchak the party returned to Urumchi, and after a short visit to Turfān proceeded via Urumchi to Kulja and the Ili highlands. A visit was paid to the nomad pasture grounds in the upper Tekes valley and the Kök-su. Crossing the Muzart Pass, the party reached Aksu, and then through Maralbāshi and Kāshgar to Yārkand. From Yārkand the party travelled to India by the Karakorum trade route (Sanju Pass, Suget, Karakorum, Sasser, Karaul dawān and Khardong). The author's principal interest lies in the people and the economic conditions of the country he traversed. His fluent knowledge of Chinese permitted him to make himself thoroughly familiar with the Chinese administrative methods in the Province, and his observations of the present economic state of the country are interesting. The author interrupts his narrative to give us several good descriptions of nomad tribes he met on his way. A short description is given of the curious Erh-hun-tze, a cross breed between Mongols, Tāghliks and Chinese, who inhabit the mountain tracts between Ku-ch'eng-tze and Barköl. A whole chapter is devoted to the T'ung-kan or Chinese Mohammedan population of the Province. The origin of the T'ung-kan is still a much debated question. They are a mixed race of Sino-Iranian and Sino-Turkish parentage. It is possible that the Khorezmian colonists, who were carried away to the 'eastern lands' during the Mongol conquest of Turkistān were the ancestors of the present T'ung-kan. The modern T'ung-kan are mostly Shafi'ites—a sect which exercised a strong influence in Khorezmia in the 13th century (see: Barthold, Turkestan during the Mongol Invasion, p. 436, n.). Some authors consider them to be somatologically Mongolized Turks. The author gives a good account of the Kirghiz and Ḳazāḳ tribes in Jungaria and the T'ien Shan. On the contrary the Mongol tribes of the region attracted but scant attention. An interesting chapter is devoted to horse-breeding problems in the Province, and I concur with the author's opinion that the Barköl horse preserves traits of the old Hun horse. The Karashahr pony seems to be a descendant of the famous T'ang horse immortalized in the clay figurines that are such a prominent feature of our Museum collections. The town name Dorbujing (p. 63 and elsewhere) should read Dörbüljing.

The book is well written and faithfully reproduces the jostle of a caravan route in Inner Asia. A map showing the route of the Expedition across Jungaria and Chinese Turkistān is added to the volume.

GEORGES DE ROERICH.

OWEN LATTIMORE: *Manchuria. Cradle of Conflict.* New York, The Macmillan Company, 1932, pp. XVI—311, with four maps.

Mr. Lattimore's latest book on Manchuria is a worthy successor to his two previous volumes dealing with Central Asia. The author's vast experience on

the Sino-Mongolian border, Inner Mongolia, Chinese Turkistān, and his good knowledge of the Chinese language and national character, enabled him to interpret the various forces at work in the Far East in relation to their historical background and geographical environment. The book is founded on the experience and information gained during a nine months' journey through Manchuria in the course of 1929-30. The journey was carried out under the auspices of the Social Science Research Council, and the American Geographical Society. The author's discussion of the physical and economic geography of Manchuria serves as an introduction to the study of the tribal movements along the north-eastern frontiers of China, the inter-relation of the various national groups within the 'reservoir' region of the Chinese borderland, and their reaction to the growing process of 'westernization'. The important factor of Chinese colonization of the modern period, its overwhelming character, and the determined attempt to plant Chinese culture among the alien population, north of the Great Wall, are discussed with a good knowledge of facts, and will be read with interest by all students of the tribal movements on the Chinese border. The author's statement that 'it should, however, be a prime object of future research in Mongolia and Manchuria (and Chinese Turkistān as well) to determine as clearly as possible how far the spread of Chinese cultural elements is to be regarded as an assertive and positive expression of Chinese advance, and how far as "loot" brought back by the barbarians themselves' (p. 40)—presents a new approach of the problem of inter-tribal cultural relations within the Central Asiatic region, and the dominating rôle played by the northern nomads in the history of China proper.

The book is written in a clear style, and is perhaps the best documented work on the subject, among the many books on the Far East published in connection with the recent events in Manchuria.

G. DE ROERICH.

LEONARD A. LYALL: *Mencius*. London, Longmans, Green & Co., 1932, pp. XXVIII—277.

The large work by Mencius written in the form of advices to Rulers, represents a systematic exposition of the teachings of Confucius. Chu-Hsi, the great thinker of the Sung period, was the first to recognize the value of this outstanding work of Chinese antiquity. In propagating the glories of Confucian doctrine, Mencius here and there introduced new notions, and his ethical basis of the doctrine of the State, is at times tinted with Taoism.

Mr. Lyall has given us a good English version, which supersedes that of Legge. The volume is a worthy addition to the already large number of works on the great Chinese Master.

G. DE ROERICH.

N. D. Mironov: *Nyāyapraveśa I.* Sanskrit Text. Edited and reconstructed. T'oung Pao, Vol. XXVIII, 1931, pp. I—24.

This work by the distinguished Indologist contains the reconstruction of the original Sanskrit text of the Nyāyapraveśa, the famous treaty by Dignāga (c. 450 A.D.). While working in 1910 on a copy of the Nyāyapraveśaṭīkā by Haribhadra, Professor Mironov observed that the initial śloka of the text commented upon by Haribhadra coincided with the initial verse of the Tibetan version in the bsTan-'gyur, that the commentary by Haribhadra represented a scholium on the Nyāyapraveśa, and that one of the manuscripts, at Professor Mironov's disposal [A.MS. Deccan Library (Poona), No. 738] contained about one-fifth of the original text (mūla). This important discovery led to the reconstruction of the lost Sanskrit original of the Nyāyapraveśa, which up to now was known only in Chinese and Tibetan translations. The Tibetan translation of the Nyāyapraveśa was made in the 12th century A.D. by the Kashmirian Paṇḍita Sarvajñaśrī-rakṣita, assisted by Grags-pa rgyal-mtshan-dpal-bzaṅ (Kīrtidhvajaśrībhadra), and ascribed the work to Dignāga (Cordier, Catalogue du Fonds Tibétain, Vol. III, p. 435, No. 7). The Chinese Tripiṭaka contains a Nyāyapraveśatarka-śāstra, attributed to Śaṅkarasvāmin, a pupil of Dignāga, and translated in 647 A.D. by Hsüan-tsang (Nanjio' Catalogue, No. 1216). The Chinese version seems to agree with the Nyāyapraveśa-nāma-pramāṇa-śāstra contained in the bsTan-'gyur (Cordier, p. 435, No. 8) said to have been translated from Sanskrit into Chinese by Hsüan-tsang, and from Chinese into Tibetan by the Kalyāṇamitra sTon-gžon, and a Chinese translator. The Tibetan translation attributes this last work likewise to Dignāga. Recently a controversy took place over the authorship of the Nyāyapraveśa, and some scholars were inclined to deny Dignāga's authorship (Randle, Tubiansky), while others (Keith, Bhattacharya) seemed ready to accept arguments in favor of his authorship. In his Introduction to the reconstructed text, Professor Mironov discusses the question of authorship basing himself on internal evidence from the text and Haribhadra's commentary, and reaches the conclusion that ' so far as Haribhadra is concerned : for him the Nyāyapraveśa is a work of Dignāga '. Professor Mironov's discussion of the question settles the matter of the authorship of the text commented upon by Haribhadra.

The study of the original text of the Nyāyapraveśa, and some remarks in the text which no doubt represent old glosses, show that Haribhadra commented upon a revised text of the Nyāyapraveśa. Professor Mironov expresses the opinion that the early editor (vārtikakṛt) of the original text by Dignāga might have been Śaṅkarasvāmin (c. 500 A.D.), who is said to have been the author of the Nyāyapraveśa, translated into Chinese by Hsüan-tsang.

The reconstruction of the text is carried out in the usual scholarly manner, characteristic of the works of the distinguished Russian Indologist.

G. de Roerich.

MURIEL WHELDALE ONSLOW: *Practical Plant Biochemistry.* Cambridge at the University Press. Third edition, 1929.

This well-known text, going now through its third edition, is primarily intended for students of Botany. 'Such a student's knowledge of plant products is usually obtained, on the one hand from Plant Physiology, on the other hand, from Organic Chemistry; between these two standpoints there is a gap....' The book undertakes to fill in this need and does so very adequately.

Certain minor points seem to the reviewer rather doubtful, such as on p. 21 the statement that the products of the hydrolysis of erepsin are polypeptides and amini-acids. It would seem better not to mention the polypeptides.

It is also hoped that at some future date the information now found in the appendix should form an integral part of the text and that some more recent work should find its way into the book.

A trace of physical chemistry of purely descriptive type might be found stimulating. It is badly needed in the chapter dealing with proteins and amino-acids.

The value of the book lies in an extremely good selection of the material. This alone makes the work outstanding and an extremely valuable text for any student of practical plant biochemistry.

V. A. PERTZOFF.

WILLIAM BERRYMAN SCOTT: *An introduction to Geology.* New York, The Macmillan Company, 1932, Vol. I, pp. XIII—604; Vol. II, pp. 485.

This is the third entirely revised edition of the well-known text-book. The first volume deals with Physical Geology, the second with Historical Geology. The present edition is considerably augmented. The treatment of the subject is thorough and well documented. The work having been written for American readers, most of the illustrative material is drawn from the geology of North and South America. The geology of the peripheral regions of the Asiatic continent is discussed in its main outlines, and reference is made to the physiography and stratigraphy of the regions of Inner Asia. The problem of the Quaternary glaciation in Central Asia has been the subject of a systematic exploration by Dr. Erik Norin, of the Sino-Swedish Expedition, whose researches supplement those of Huntington and others.

The volumes are well produced and contain some excellent illustrations.

G. DE ROERICH.

JOHN SHRYOCK: *The Temples of Anking and their cults.* A study of modern Chinese Religion. Paris, Geuthner, 1931, pp. 206.

The author has given us an interesting description of the temples and religious life at Anking, the capital of the Anhui province in Central China.

The author groups the numerous temples of Anking in six classes: 1. Ancestral temples ; 2. Temples in Honor of Famous Men ; 3. State Temples ; 4. Buddhist Temples ; 5. Taoist Temples ; 6. Individual Cults.

To Dr. Shryock's remarks about the Bodhisattva Kṣitigarbha (p. 80), we may add that the cult of this bodhisattva, as Lord of the Six Ways and as the Lord of Hell, has been very popular in Central Asian Buddhism, and it is very likely that the cult of this bodhisattva has been created in that region. We possess numerous images of the bodhisattva and his parivāra from Tun-huang and Eastern Turkistān. In India, although known since the fourth century, his cult never became popular, and iconographical documents mention him as a deity in the retinue of Lokanātha.

We must be grateful to the author for having given us an account of this colourful religious life, in which Buddhist, Confucian, and Taoist elements blend together to form the modern Chinese syncretism, which often leads towards religious indifference, and a purely ritualistic understanding of religion.

G. DE ROERICH.

GEORGE SOULIE DE MORANT: *A History of Chinese Art from ancient times to the present day.* New York, Jonathan Cape and Harrison Smith, 1931, pp. 296, illustrated.

The author has attempted to give a short history of Chinese graphic and plastic arts in 279 pages. From necessity the author's treatment of the various periods is brief, and merely gives an outline of the styles of each period. Some of the author's statements could be challenged, a few examples will suffice.

P. 75. The identification of the Yüeh-chih with the Getae has been abandoned.

P. 75. The tribal name Wu-sun has nothing to do with the Chinese name for Russia. The Wu-sun were a blond and blue-eyed tribe inhabiting the Ili region in the 2nd century B.C. Their origin is still a much debated question. Prof. Jarl Charpentier thinks them to be identical with the Asioi or Asiani of the Classical authors, the ancestors of the Alans (Charpentier : Die ethnographische Stellung der Tocharer, ZDMG, Vol. 71, pp. 347 ff.). According to Marquart the Wu-sun were akin to the Western T'u-chüeh (Marquart : Ueber das Volkstum der Komanen, p. 69).

Kien-ku (Chien-ku) represents the transcription of the tribal name Kirghiz, and has nothing to do with Circassians !

P. 123. The fourth century kingdom of Ts'in in Shên-hsi was founded by a people of Mongol origin.

P. 142. It is impossible to speak of Tibetans using the sexagenary cycle in the 4th century A.D. The first year of the Tibetan sexagenary cycle began in 1027 A.D., and all sources tend to show that it was introduced into Tibet about that date from Central Asia. The common name for the cycle in Tibet

is Hor-zla, which means 'Hor calendar', Hor being the ethnic name for Central Asiatic tribes of Turkish origin.

P. 169. It is now generally admitted that the Hsiung-nu were of Turkish origin.

Notwithstanding its brevity, the book will be found useful by those eager to obtain a rapid survey of China's brilliant art. A short bibliography of Chinese works on art is added to the volume. The book is amply illustrated.

G. DE ROERICH.

BOOKS RECEIVED

(to be reviewed in a later issue)

BROUGHTON: *The Vision of Kwannon Sama.* London, Luzac and Co., 1929, pp. 154.

DAWSON: *The Ethical Religion of Zoroaster.* New York, The Macmillan Company, 1931, pp. XIX—271.

GRIMM: *La Sagesse du Bouddha.* Paris, Geuthner, 1931, pp. 125.

DE MARATRAY: *Le Dhammapada.* Paris, Geuthner, 1931, pp. 95.

PELLIOT: *Le Premier Voyage de l'Amphitrite.* Paris, Geuthner, 1930, pp. 79.

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