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Plate 1: Geological map of the NW Indian Himalaya

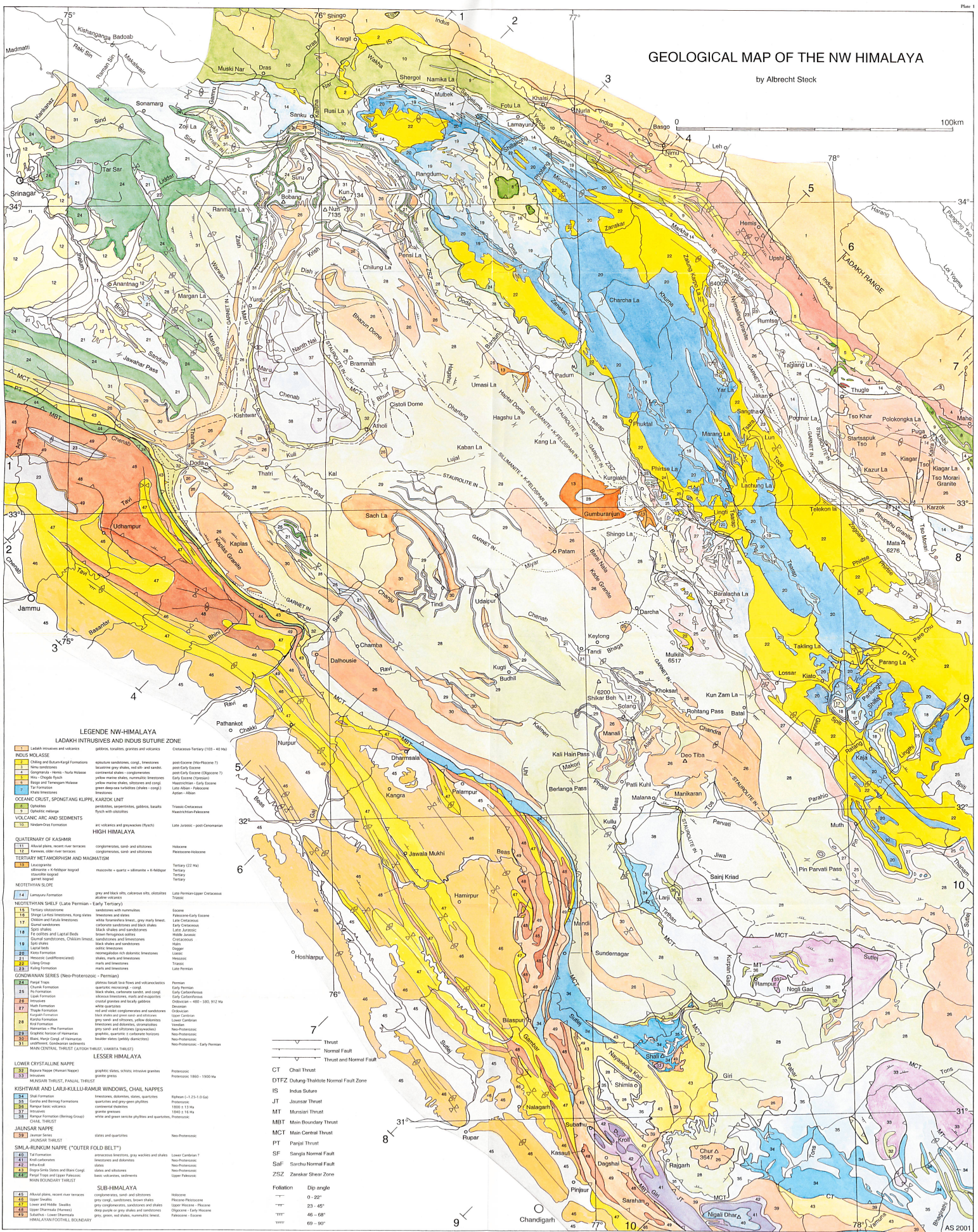
Plate 2: Geological sections through the NW Indian Himalaya

Plate 3: Tectonic map of the NW Indian Himalaya

Plate 4: Metamorphic map of the NW Indian Himalaya

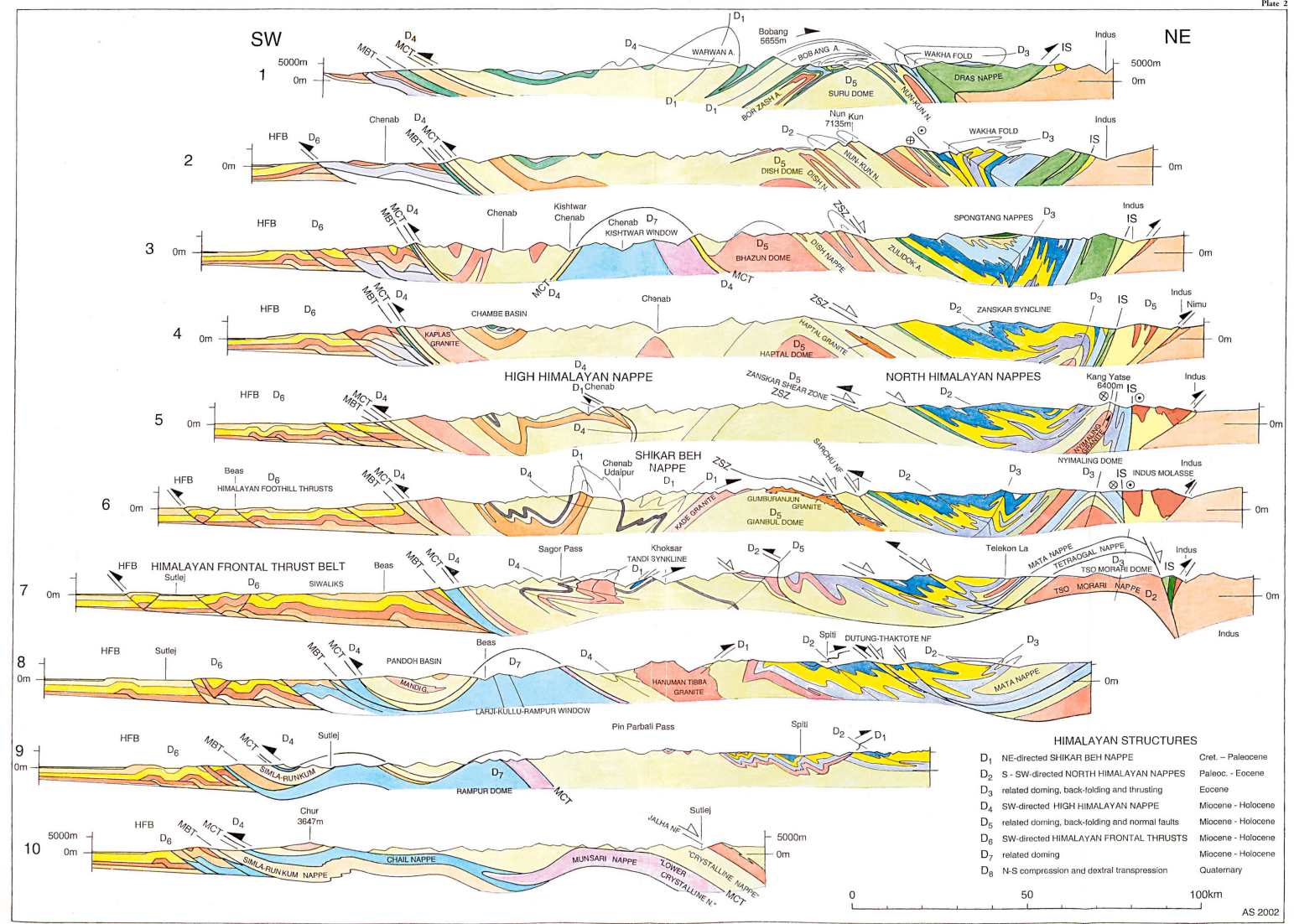
GEOLOGICAL MAP OF THE NW HIMALAYA

by Albrecht Steck



LEGENDE NW-HIMALAYA LADHAK INTRUSIVES AND INDUS SUTURE ZONE

1	Ladakh intrusives and volcanics	granitic, syenitic, granitic and volcanics	Cretaceous-Tertiary (105 - 40 Ma)
INDUS MOLASSE			
2	Indus (Baramulla) Formation	quartzite sandstones, congl. limestone	post-Eocene (100-Flouren 7)
3	Newly sandstones	limestone grey shales, red sh. and sandst.	post-Early Eocene
4	Dagshai - Hathi, Naha, Holiase	conglomerates, sandstones, shales	post-Early Eocene (Dagshai 7)
5	Miyu - Chaghi Flysch	yellow marls shales, nummulitic limestone	Early Eocene (Dagshai)
6	Yellow Flysch	yellow marls shales, nummulitic limestone	Early Eocene - Early Oligocene
7	The Karampora	grey deep-sea turbidites (shales - congl.)	Lower Albian - Fluviocene
8	Indus Intrusives	granite	Albian - Albian
OCEANIC CRUST, SPONGTANG KLIPPE, KARZOK UNIT			
9	Ophiolites	peridotites, serpentinites, gabbros, basalts	Triassic-Cretaceous
10	Serpentine release	shales with ophiolites	Mesozoic-Neogene
VOLCANIC ARC AND SEDIMENTS			
11	Indus-Cashmir Formation	volcanics and gneissites (thrust)	late Jurassic - post-Cretaceous
QUATERNARY OF KASHMIR			
12	Alluvial plains, recent river terraces	conglomerates, sands and silts	Holocene
13	Terrestrial, older river terraces	conglomerates, sand and silts	Pleistocene-Holocene
TERTIARY METAMORPHISM AND MAGMATISM			
14	Ultramylonite	mylonite + quartz + sillimanite + K-feldspar	Tertiary (22 Ma)
15	Mylonite, older than mylonite	mylonite + quartz + sillimanite + K-feldspar	Tertiary
NEOTETHYAN SCAPES			
16	Zaskar nappe	grey and black shales, calcareous shales, siltstones	late Permian-Upper Cretaceous
17	Tertiary ophiolites	basalts and shales	Triassic
18	Chikim and Lagaral Intraoceanic	basalts and shales	Triassic
19	Spirit shales	white to tan shales, grey, very fine grained	Lower Cretaceous
20	Forbes and Lagaral Shale	calcareous shales and black shales	Early Cretaceous
21	Chikim sandstones, Chikim Intraoceanic	black shales and sandstones	Cretaceous
22	Spirit shales	black shales and sandstones	Upper Cretaceous
23	Lower Intraoceanic	calcareous shales and sandstones	Dogger
24	Upper Intraoceanic	calcareous shales and sandstones	Lower Cretaceous
25	Lower Intraoceanic	shales, marls and limestone	Triassic
26	Upper Intraoceanic	shales and limestone	Triassic
27	Lower Intraoceanic	marls and limestone	Lower Permian
CONDWANAN SERIES (Neo-Proterozoic)			
28	Permal Group	quartzite, quartzite, congl.	Permian
29	Permal Group	quartzite, quartzite, congl.	Permian
30	Permal Group	quartzite, quartzite, congl.	Permian
31	Permal Group	quartzite, quartzite, congl.	Permian
LESSER HIMALAYA			
32	Bakura Nappe (Dagshai Nappe)	granitic, shales, shales, intrusive granites	Proterozoic
33	Indus	granite gneiss	Proterozoic 1800 - 1900 Ma
KASHMIR AND LAR-KHULLI-RAMUR WINDOWS, CHAIL NAPPES			
34	Chail Formation	quartzite and grey-green gneisses	Proterozoic
35	Ganai and Bering Formations	quartzite and grey-green gneisses	Proterozoic
36	Bakura Nappe (Dagshai Nappe)	granite gneiss	1800 - 1900 Ma
37	Indus	granite gneiss	1800 - 1900 Ma
38	Bakura Nappe (Dagshai Nappe)	granite gneiss	Proterozoic
JAUNSGAR NAPPE			
39	Jaunsgar Nappe	shales and quartzites	Neo-Proterozoic
SMILAKHURUM NAPPE ("OUTER FOLD BELT")			
40	Indus	amphibolite, quartzite, grey shales and shales	Lower Cambrian?
41	Indus	shales and dolerites	Neo-Proterozoic
42	Indus	shales and dolerites	Neo-Proterozoic
43	Indus	shales and dolerites	Neo-Proterozoic
44	Indus	shales and dolerites	Neo-Proterozoic
MAJOR TECTONIC FEATURES			
45	Alluvial plains, recent river terraces	conglomerates, sand and shales	Holocene
46	Lower and Middle Swakla	grey quartzite, sandstones, shales and shales	Proterozoic-Neoproterozoic
47	Lower and Middle Swakla	grey quartzite, sandstones and shales	Proterozoic-Neoproterozoic
48	Lower and Middle Swakla	grey quartzite, sandstones and shales	Proterozoic-Neoproterozoic
49	Lower and Middle Swakla	grey quartzite, sandstones and shales	Proterozoic-Neoproterozoic
HIMALAYAN FOOTWALL BOUNDARY			



HIMALAYAN STRUCTURES

D ₁	NE-directed SHIKAR BEH NAPPE	Cret. - Paleocene
D ₂	S - SW-directed NORTH HIMALAYAN NAPPES	Paleoc. - Eocene
D ₃	related doming, back-folding and thrusting	Eocene
D ₄	SW-directed HIGH HIMALAYAN NAPPE	Miocene - Holocene
D ₅	related doming, back-folding and normal faults	Miocene - Holocene
D ₆	SW-directed HIMALAYAN FRONTAL THRUSTS	Miocene - Holocene
D ₇	related doming	Miocene - Holocene
D ₈	N-S compression and dextral transposition	Quaternary

TECTONIC MAP OF THE NW HIMALAYA
by Albrecht Steck

