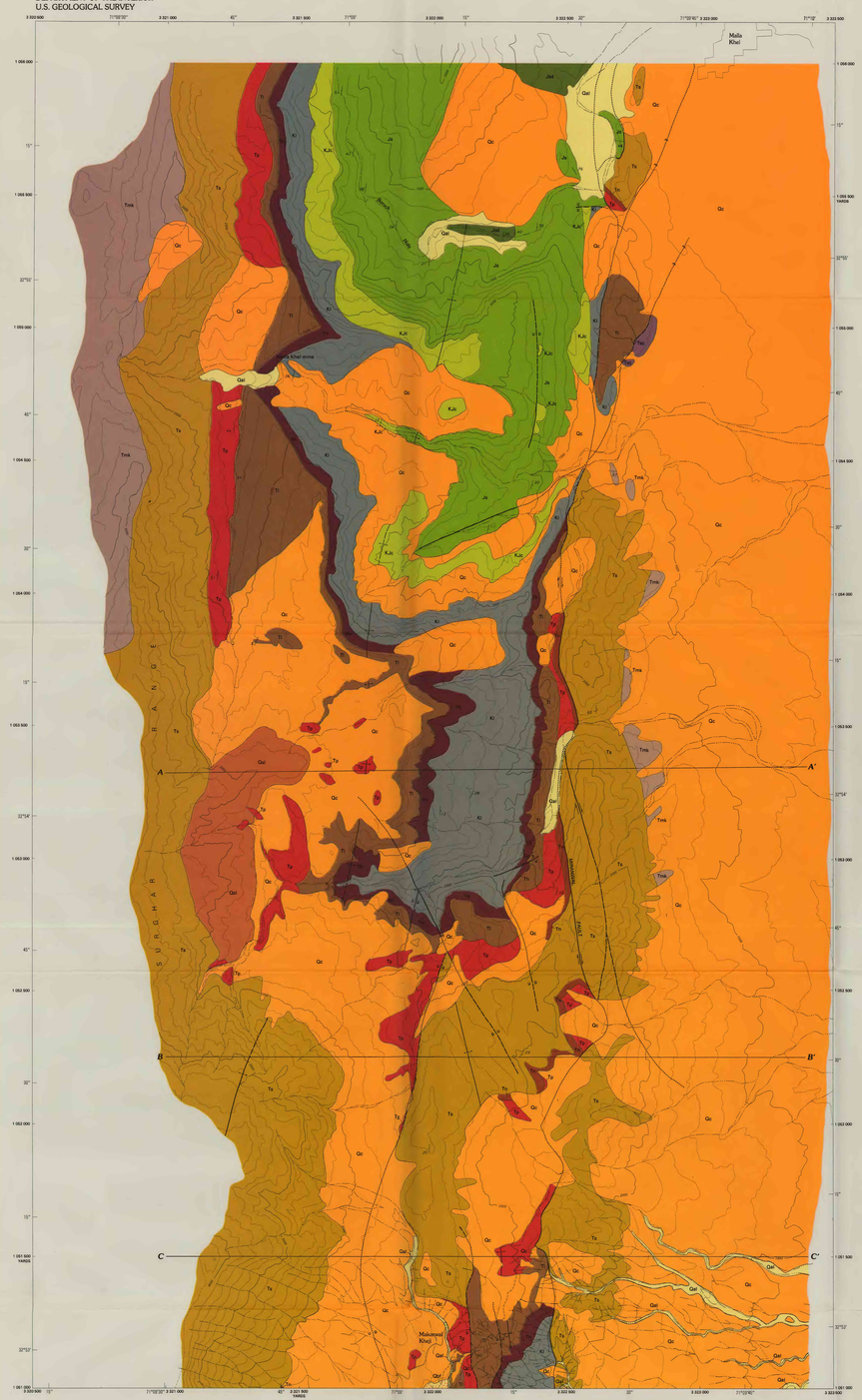
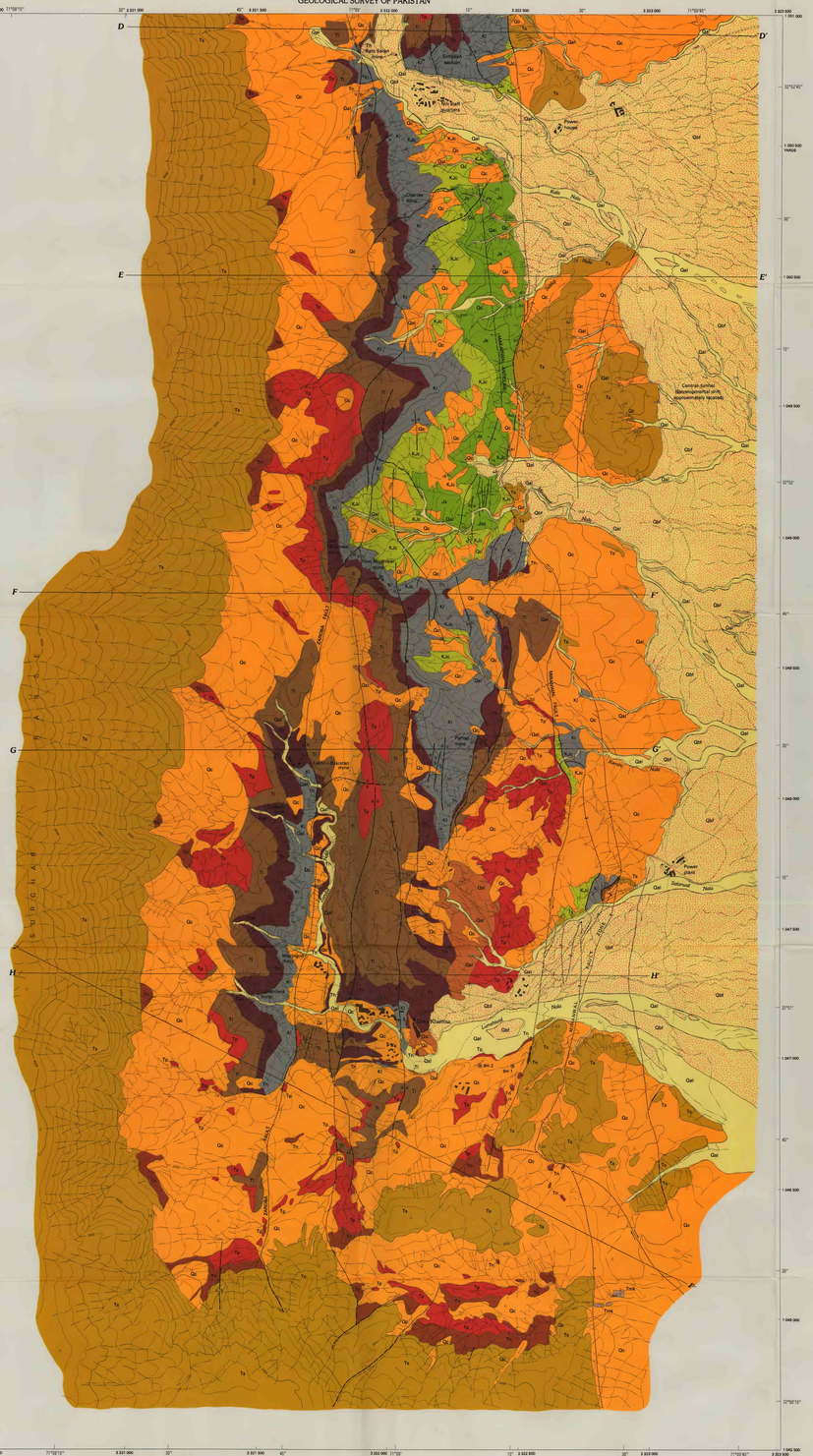
DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

PREPARED IN COOPERATION WITH THE
MINISTRY OF INDUSTRIES AND NATURAL RESOURCES
GEOLOGICAL SURVEY OF PAKISTAN

PROFESSIONAL PAPER 1341
PLATE 2



NORTH HALF



SOUTH HALF

Geology mapped 1955–61 by
S. M. Ibrahim Shah and M. Ganichk

SCALE 1:6 000

CONTOUR INTERVAL 100 FEET

EXPLANATION

Qal Qc — Alluvium and colluvium
Qal, alluvial deposits of present watercourses
Qc, colluvial deposits of local origin on hillslopes
— HOLOCENE

Qlsl Qls — Alluvium and landslide material
Qlsl, alluvial deposits of alluvial fans
Qls, landslide deposits and slumped blocks
— HOLOCENE

UNCONFORMITY

Tmc — Chinji Formation
Reddish-brown siltstone and medium-gray sandstone
— MIOCENE

Tmk — Miocene Khatak Formation
Brown sandstone, siltstone, and conglomerate
— MIOCENE OR OLIGOCENE

Ts — Sakesar Limestone
White, massive limestone and marl

Tn — Nammal Marl
Very light blaish-gray marlstone, marl, and limestone
— EOCENE

Tp — Patala Shale
Dark-brownish-gray claystone

Tl — Lockhart Limestone
Yellowish-brown, nodular limestone

Th — Hangu Formation
Dark-yellowish-brown and dark-gray sandstone and coaly shale; Makarwal coal bed at the base
— PALEOCENE

KJ — Lumshiwal Formation
Light-yellowish-gray sandstone

KJs — Chichali Formation
Dark-brownish-gray and reddish-brown, glauconitic sandstone
— CRETACEOUS

Js — Samana Suk Limestone
Light-yellowish-brown limestone

Jsd — Shinawari and Datta Formations, undifferentiated
Alternations of shale and sandstone
— JURASSIC

Contact

Fault
Dashed where approximately located, dotted where concealed, queried where existence of fault is doubtful or inferred. Arrows indicate direction of relative movement; U, upthrown side; D, down-thrown side. Dart and numeral indicate direction and amount of dip of inclined surface of fault

Syncline
Dashed where approximately located, dotted where concealed

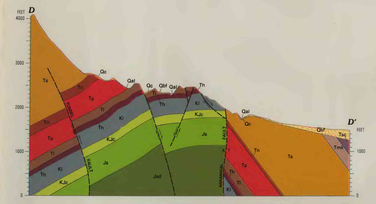
Anticline
Dashed where approximately located

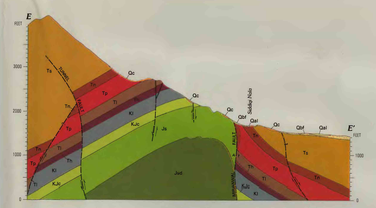
Strike and dip of beds

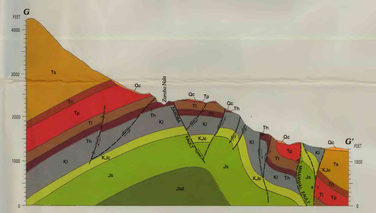
Strike and dip of overturned beds

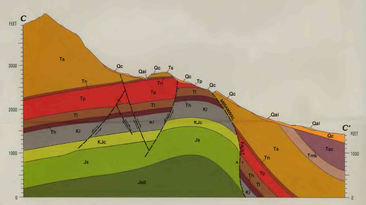
Mine adit, opening in coal

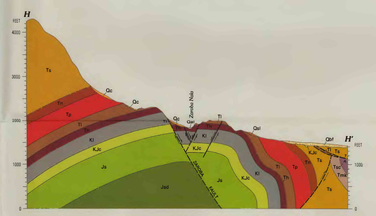
Adit, opening in rocks
⊕ BH-2
Bore hole











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GEOLOGIC MAP AND SECTIONS OF THE MAKARWAL COAL FIELD, PAKISTAN