

MINERAL SURVEY REPORTS JAMMU & KASHMIR GOVERNMENT.

PRECIOUS AND SEMI-PRECIOUS GEMSTONES

OF

JAMMU AND KASHMIR

BY

C. S. MIDDLEMISS, C.I.E., F.R.S., F.G.S.,

*Superintendent, Mineral Survey, His Highness's Government,
Jammu and Kashmir.*

(with Plates 1 to 7).



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Printed at The Ranbir Government Press—5-1-88—300.

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P R E F A C E.

This account of the Precious and Semi-precious Gem-stones is the ninth, and last, of the present series of reports printed by order of His Highness' Government. Nominally it completes the record of the economic minerals of Jammu and Kashmir, so far as they are at present known.

Absolute finality, in compilatory work of this sort, is of course impossible; for the simple reason that, during the period occupied in writing, setting up the type, preparing and printing the maps and other illustrations, and issuing the finished reports, fresh information keeps coming in and accumulates. This new material, relating either to old areas reported on or to other entirely new areas and minerals, is already far from negligible, and points to further compilations being necessary at some future date.

For the time being, however, a pause is indicated. The compilations on which I have been engaged have indeed been most interesting and absorbing, and have taken longer than I expected; but they are now at last finished. With their completion, I take the opportunity of tendering my grateful thanks to His Highness the Maharaja Bahadur, for having extended my period of service so as to enable me to accomplish this.

As regards the source of the material for the present account, it will be seen that Mr. Joti Prashad, B. A., F. G. S., Assistant Superintendent, Mineral Survey (retired), was the first active pioneer in discovering and investigating many of these precious and semi-precious gem-stones, at a time when he, as Mining and Prospecting Officer, was carrying on, single-handed, duties similar to those since taken over by the reorganised Mineral Survey under my direction. Hence, nearly all the earlier references to these gem-stones, herein given, depend for their data on that pioneer work carried out, often under difficulties, by Joti Prashad. Most of the detailed field-work, and practically all the more important discoveries made in the Padar district, are, however, of more recent date and must be credited to Assistant Superintendent Labhu Ram Badyal, M. Sc., whose energy and resourcefulness in the field I cannot too warmly commend.

The arranging and working of the gem-cutting experiment, described at page 24 of the report, was carried out by Joti Prashad with the co-operation of Pandit Hira Nand Raina, B. Sc., LL. B.

Much detailed descriptive work, in connection with engineering and other proposals for the working of the Sapphire Mines, has been contributed by Mr. L. Zutshi, B. Sc., A. R. S. M., F. G. S., late Mining Engineer to the Government.

No chemical work has been required during these investigations, and no outside authorities have so far been officially consulted on any questions concerning the gem-stones; but Mr. Albert Ramsay of New York, a specialist in precious stones, visited the State to inspect the sapphire collection in the Toshakhana; and, at His Highness' request, selected and sent out to us an up-to-date lapidary outfit. This only arrived recently and has not yet been able to be made use of for any further gem-cutting experiments.

Subjoined is a full list of published reports on Kashmir minerals that have so far appeared since the Mineral Survey started work in 1917, including the present report. The first three of these appeared in the *Records of the Geological Survey of India*. The last nine were published by order of His Highness' Government and printed some at the Ranbir State Press, Jammu, others by Thacker & Co., Calcutta and the one on Ore Deposits by the Times of India Press, Bombay :—

- (1) Note on the Aquamarine mines of Daso on the Braldu R., Shigar Valley, Baltistan (published in *Records Geological Survey of India*, Vol. XLIX, pt. 3, 1918, with plates 6 to 10).
- (2) Possible occurrence of Petroleum in Jammu Province: Preliminary note on the Nar-Budhan dome of Kotli Tehsil in the Punch Valley, (published in *Records Geological Survey of India*, Vol. XLIX, pt. 4, 1919 with plates 13 to 16).
- (3) Lignitic Coalfields in the Karewa formation of the Kashmir Valley, (published in *Records Geological Survey of India*, Vol. LV, pt. 3, 1923, with plates 28 to 30).
- (4) Abrasives : Note on the Polishing material of Risin Spur Khunamuh near Srinagar, (printed by order of the Kashmir Government, with plates 1 and 2).
- (5) The Graphite deposit of Braripura, Uri Tehsil, Kashmir, (printed by order of the Kashmir Government, with plates 1 to 5).

- (6) Ochre deposits of Nur Khwah, Rata Sar and Jhuggi in the Jhelum Valley, Uri Tehsil, Kashmir, (printed by order of the Kashmir Government, with plates 1 to 6).
- (7) The Gypsum deposit of the Lachhipura, Bagna, Islamabad, Limbar and Katha talas, Uri Tehsil, Kashmir, (printed by order of the Kashmir Government).
- (8) Bauxite deposits of Jammu Province (printed by order of the Kashmir Government, with plates 1 to 17).
- (9) A Resurvey of Jammu Coalfields : The Kalakot, Metka and Mahogala fields (with notes on the Chakar, Chinkah and newly discovered Dhansal-Sawalkot fields), (printed by order of the Kashmir Government with plates 1 to 25).
- (10) Ore deposits of Lead, Copper, Zinc, Iron and other metals, in Jammu and Kashmir State, (published by order of the Kashmir Government, with plates 1 to 16).
- (11) The Non-metallic Minerals of Jammu and Kashmir (printed by order of the Kashmir Government, with plates 1 to 7).
- (12) Precious and Semi-precious Gem-stones of Jammu and Kashmir (printed by order of the Kashmir Government, with plates 1 to 7).

(Sd.) C. S. MIDDLEMISS.

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(v)

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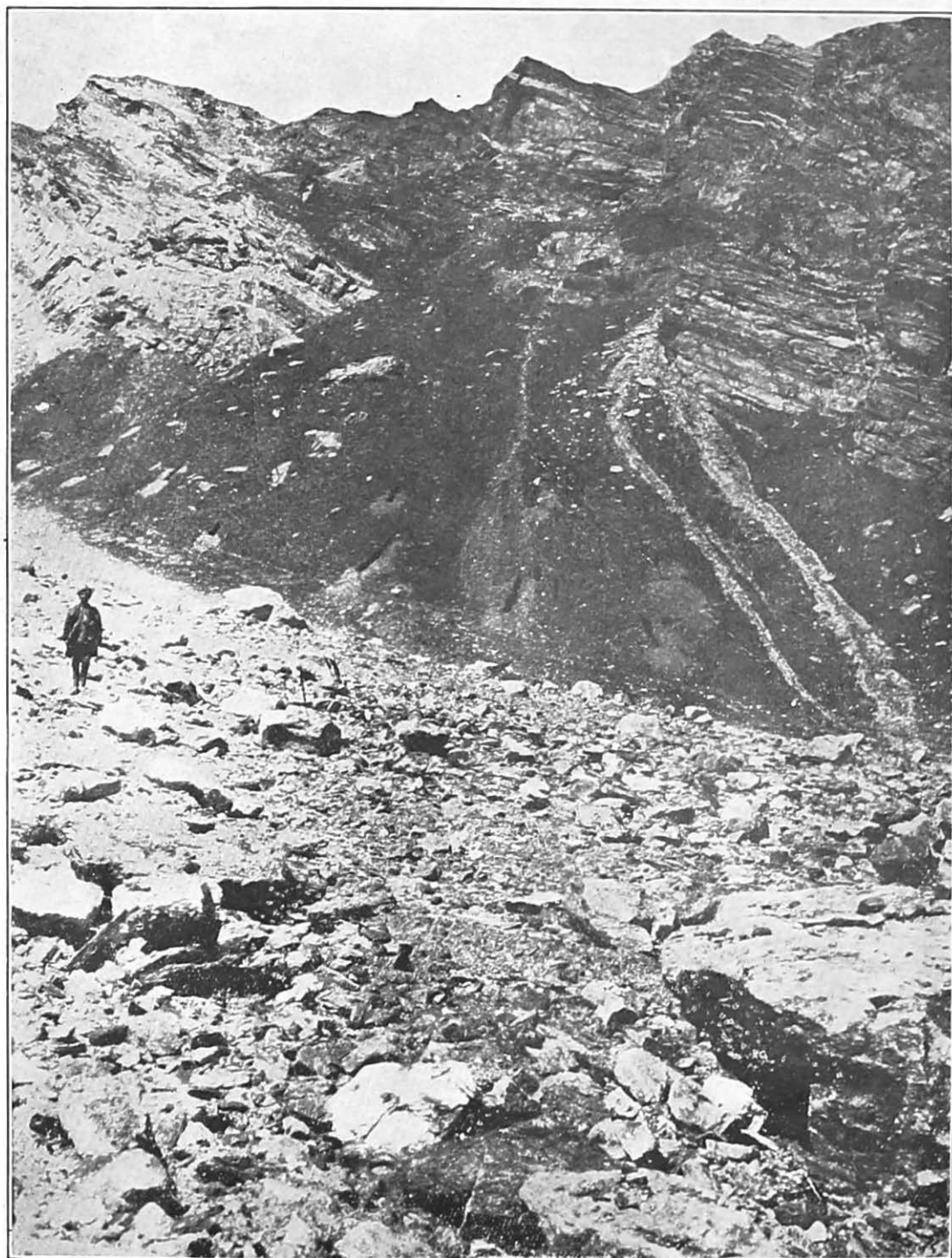
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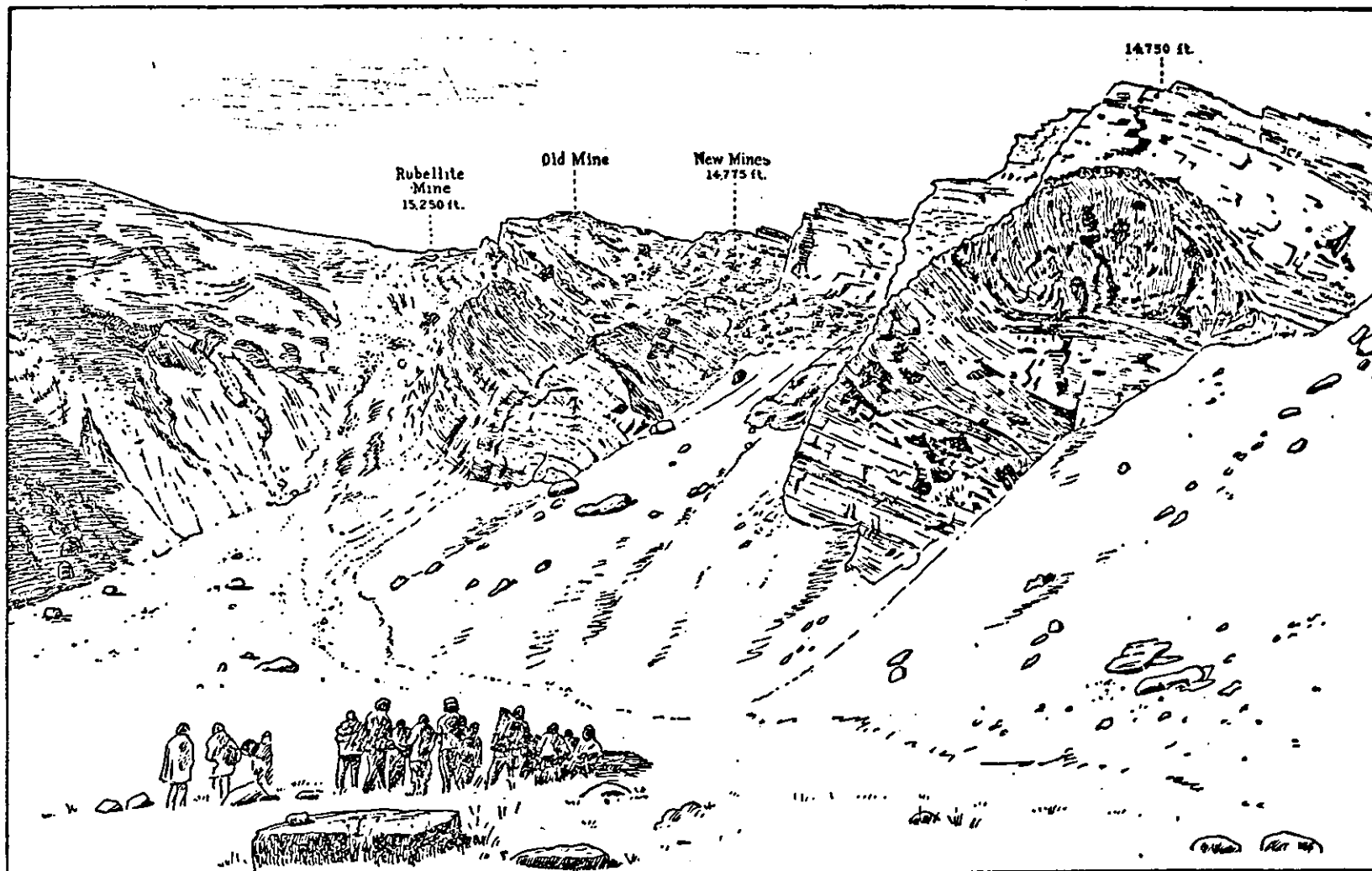
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MINERAL SURVEY OF KASHMIR.

Plate I.



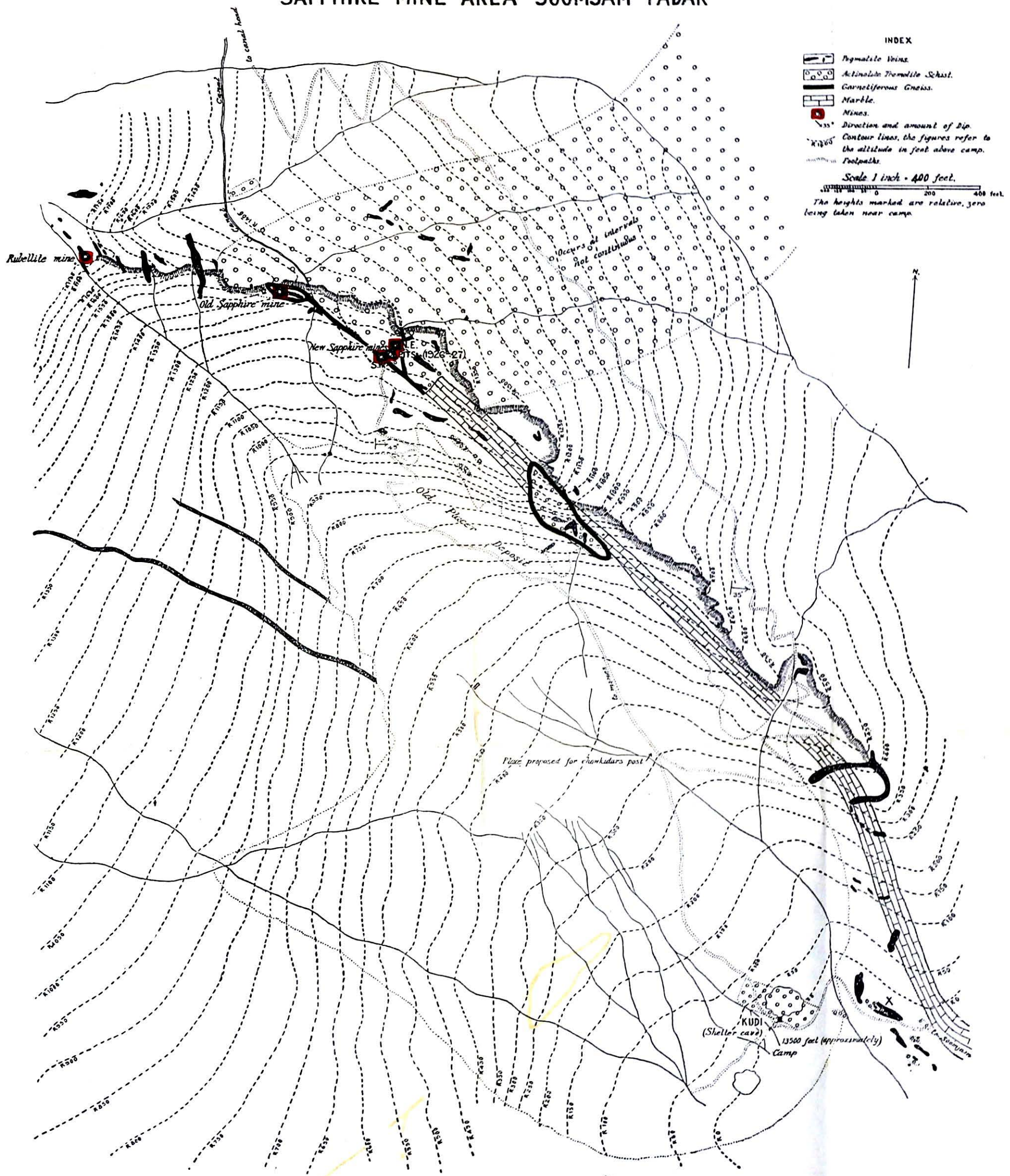
SLOPES BELOW NEW MINES SHOWING TRENCHING DONE.



(From a photo. by T. D. La Touche)
1897-1898

SAPPHIRE MINES OF SUMJAM, PADAR,
LOOKING NORTH FROM NEAR KUDI

SAPPHIRE MINE AREA SOOMJAM PADAR



INDEX

- Pyramidal Veins.
 - Actinolite Tremolite Schist.
 - Garnetiferous Gneiss.
 - Marble.
 - Mines.
 - Direction and amount of Dip.
 - Contour lines, the figures refer to the altitude in feet above camp.
 - Footpaths.
- Scale 1 inch = 400 feet.
- The heights marked are relative, zero being taken near camp.


MINERAL SURVEY OF KASHMIR

Plate 4

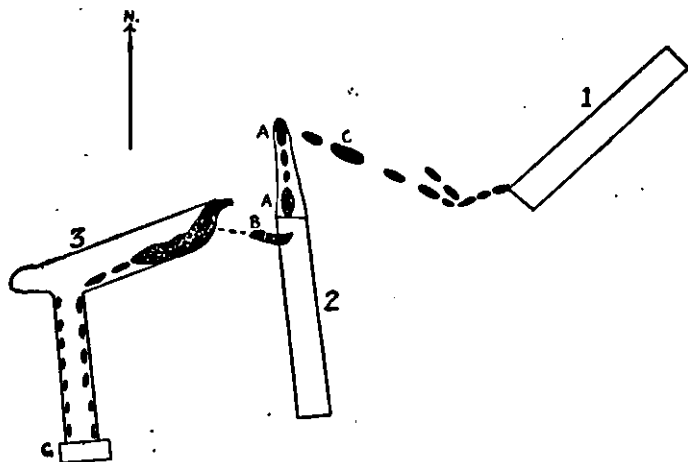
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1. NE. Mine: Old filled-in trench made by C.M.P. Wright.
2. Open trench begun by L. Jagan Nath in 1926 and reopened and deepened by the Mineral Survey 1927.
 A = Lenticles worked by L. Jagan Nath and continued by Mineral Survey 1927 up to date of accident.
 B = Lenticle worked by Mineral Survey 1927. Most of the Sapphire collected 1927 came from here.
3. SW. Mine: Underground working made by M.S. Wright not worked 1927.
 G = Gate and wall fixed 1927 by Mineral Survey.

N.B. The lenticles shown at 3 are underground. Those north of 2 including lenticle C are exposed at the surface. Throws had occurred at C.

Scale:  20 feet.

PLAN OF "NEW MINES" SOOMJAM (1926-1927) SHEWING PEGMATITE LENTICLES



MINERAL SURVEY OF KASHMIR

Plate 5



Fig. 1.

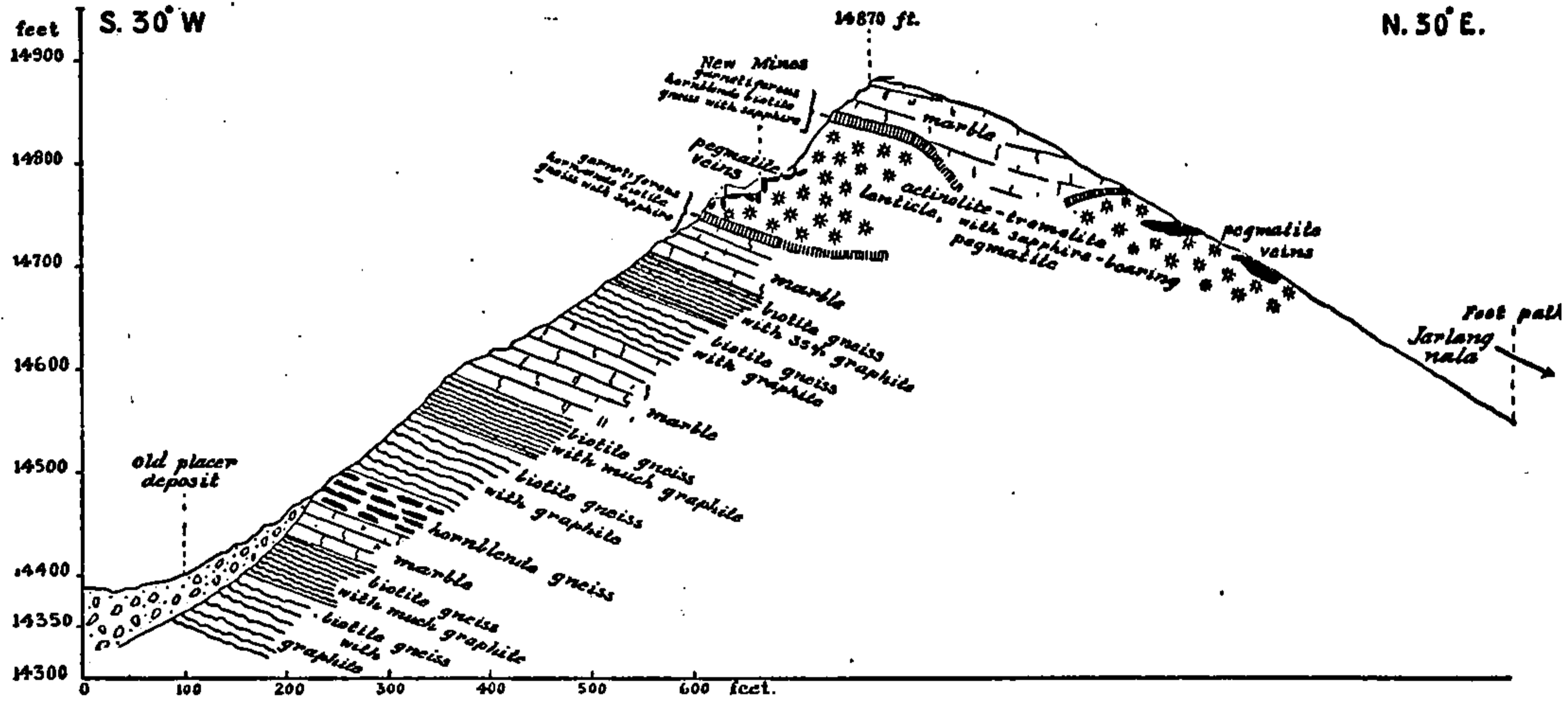


Fig. 2.

CORUNDUM-SAPPHIRE CRYSTALS

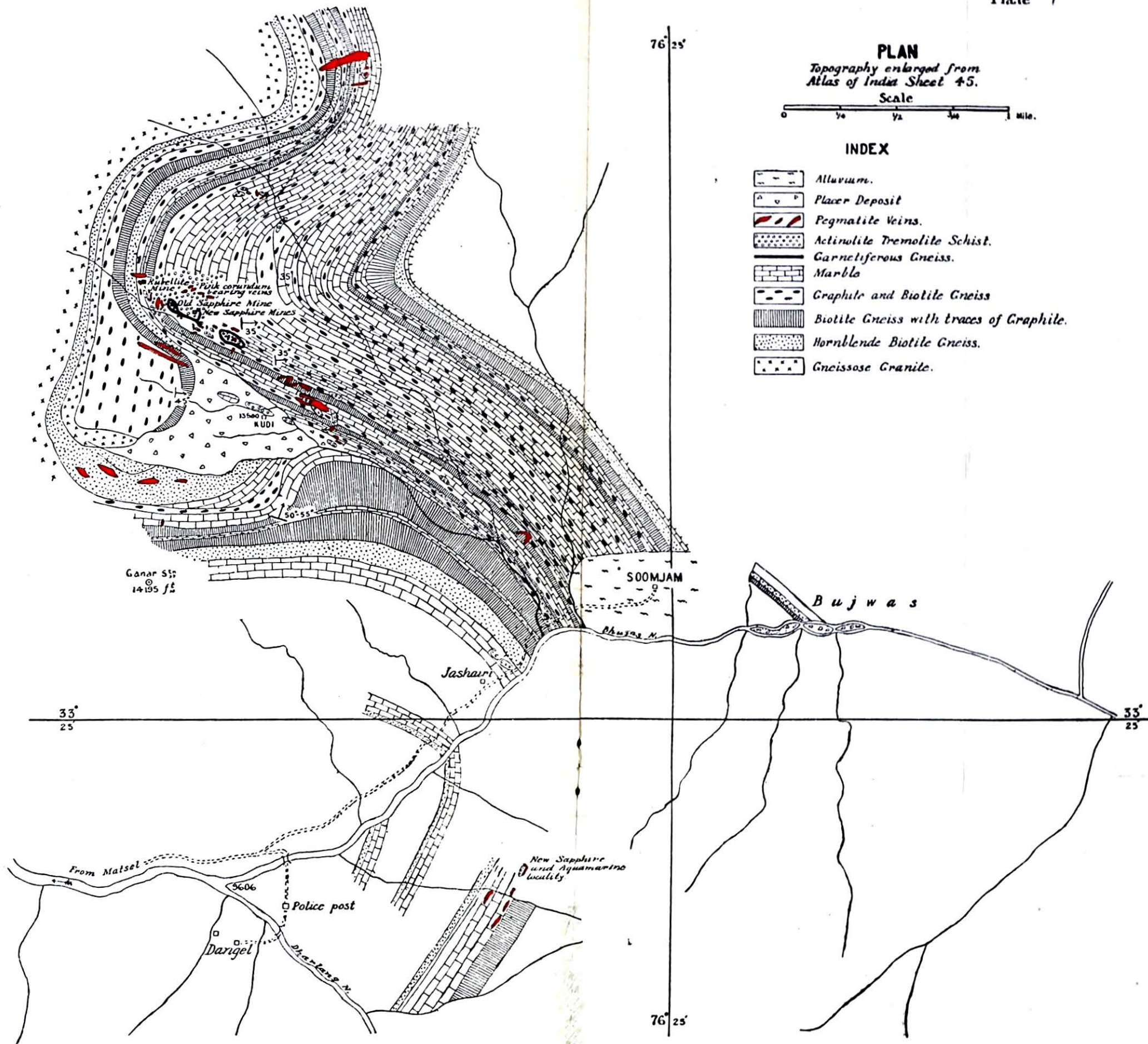
MINERAL SURVEY OF KASHMIR

Plate 6
N. 50° E.



Section through NEW MINES

SAPPHIRE MINES SOOMJAM



SAPPHIRE MINE AREA SOOMJAM