# GEOLOGICAL SURVEY OF HOKKAIDO: A GENERAL REPORT ON THE GEOLOGY OF YESSO

Published @ 2017 Trieste Publishing Pty Ltd

#### ISBN 9780649485154

Geological Survey of Hokkaido: A General Report on the Geology of Yesso by Benjamin Smith Lyman

Except for use in any review, the reproduction or utilisation of this work in whole or in part in any form by any electronic, mechanical or other means, now known or hereafter invented, including xerography, photocopying and recording, or in any information storage or retrieval system, is forbidden without the permission of the publisher, Trieste Publishing Pty Ltd, PO Box 1576 Collingwood, Victoria 3066 Australia.

All rights reserved.

Edited by Trieste Publishing Pty Ltd. Cover @ 2017

This book is sold subject to the condition that it shall not, by way of trade or otherwise, be lent, re-sold, hired out, or otherwise circulated without the publisher's prior consent in any form or binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

www.triestepublishing.com

### BENJAMIN SMITH LYMAN

# GEOLOGICAL SURVEY OF HOKKAIDO: A GENERAL REPORT ON THE GEOLOGY OF YESSO



#### GEOLOGICAL SURVEY OF HOKKAIDO.

#### A

#### GENERAL REPORT

ON THE

## GEOLOGY OF YESSO;

BY

BENJAMIN SMITH LYMAN,

CHIEF GEOLOGIST AND MINING ENGINEER.

PUBLISHED BY THE KAITAKUSHI.

1877.

Wa N en

5+

### CONTENTS.

1	Page
I.—Situation	1
Position, shape and extent of Yesso	1
Limits of the survey	2
2.—LAY OF THE LAND ,	2
General mountainous character	9
Mountain lines	2
Rivers	4
Alluvial regions	4
Harbors	5
Towns and population	6
Roads	6
S.—Grology	7
General section.	
a.—New Alluvium	
Ishcari valley	7
Other valleys	8
Coast plains	9
Tarumai pumice plain	9
Origin of the coast plains	10
Sinking of Yesso within alluvial times	11
Composition of the new alluvium	11
_Iron sand	11
_ Bog ore	12
- Gold sand	12
- Peat	12
Timber	13
Extent	13
Amount	13
Onelity	14

	Page
bOld Alluvium	14
Origin and character	14
Fan shaped slopes	14
Marine terraces	15
Glacial action	15
Composition and properties	16
Farming land	16
Gold	17
· Iron, peat and lignite	17
e.—New Volcanic Rocks	17
Age	17
Places	17
Recent eruptions	18
- Pumice	18
~ Sulphur fumes	18
- Other sulphur deposits	19
Inactive new volcanoes.	19
d.—Toshibeté Group	19
Places	12 DO:
Character	20
Sections	21
- Clay rocks	21
On the Toshibets	21
Section	21
Character	22
On the Musa	22
Section	23
Character	23
Chingkombe shales	24
On the Chingkombs	24
Section	24
Character	24
Below the Toshibets gold field	24
On the Muse	25
Section	25
Character	25
Toshibets Group on the Horumui	25
Huge balls in Toshibets Group	25
Gold	25
Structure	26
Fossils.	26
e.—Old Volcanic Rocks	27
Places	27
Source	27

P
Geological structure
Character
Composition
Color and texture
Tufa
Old pumice
Columnar structure
Upper Ishcari rocks
_ Metallic orea
Base metals and silver
Gold
f.—Horumei or Coal Bearing Group
[1] : [ [ [ [ [ [ [ [ [ [ [ [ [ [ [ [ [ [
Fields
Places
Extent
Corresponding age
Age of the group
Section
Character of the section
Correspondence of local sections
Makumbets
Sorachi
Urakawa
Structure
Two separate systems of axes
Combined system of axes
Relative age of the two systems
Contemporaneous local variations.
g.—Kamoikolan Group
Places
Age
Local characteristics
Absence of sections
Structure
Axes
Dips
Minerals
Base metals
Gold
Useful Minerals
a.—Coal
Workableness
Ten best beds '
Nine next best beds

	Page
Ten poorer beds	61
Limit of workableness	
Thickness	62
Depth	62
Natural drainage	62
Quality	62
Assays and analyses	62
Correspondence of beds	63
Tables	
Extent and amount of the best beds	67
Kayanoma	67
Poronai	. G8
Ichikishiri	68
Nuppaomanai	69
Bibai	69
Sankebibai	70
Makumbets	70
All the surveys	71
All Yesso	71
Extent of fields	71
The surveys as samples	72
Uncertainties	72
Average productiveness	73
Number of square miles in the surveys	73
Amount of coal in the surveys of the main field	73
Average to the square mile	73
Amount for all Yesso	73
Amount of all the workable coal	74
Limit of thickness	74
Mode of reckoning	74
Amount	74
.—Iron	74
Iron sand	74
Okotsunai	75
Kobui	75
Shirikishinai	76
Komangadake	76
All together	. 76
Bog ore	
Places	
Oyahuru	77
Hiragishimura	
Carbonate	
Whole amount of iron	

	Page	
c.—Gold	77	
Workable amount	77	
Toshibets	77	
Musa	77	
Working	77	
Past	77	
Future	78	
d.—Sulphur	78	
Origia	78	
Amount	78	
Volcanie sulphur	78	
Itashibeoni	78	
Yield at other places	79	
Nuburibets	79	
Oi Lake	79	
Iwaonobori	79	
· Tarumai	79	
Esan	79	
Meakan	80	
Working	80	
Accessibility	80	
Refining	80	
Gray sulphur near Kobui	81	
Whole amount	81	
e Limestone and Other Building Materials	81	
Limestone		
Rock groups	81	
Amount	81	
Garonosawa	81	
Isbizaki	82	
Ksmiyunosawa	82	
Kamoikotan	82	
Washinoki	82	
Musa gold field	83	
In general	83	
Gypeum	83	
Building stone	84	
Brick clay	85	
Fire clay	85	
f.—Water	85	
Water power	86	
Kamoikotan	86	
Great Falls of the Ishcari	86	
Both together and in all Yesso	86	
DOWN CONGRESS BUT IN WILL I SEED	00	

i i	Page
Mineral springs	86
Sulphur springs	86
Iron springs	87
Copperas (?) spring	88
Pure warm springs	88
Rock group	88
g.—Oil	88
Amount	88
Washinoki	88
Yamukushinai	89
Idzumisawa	89
Quality	89
Working	89
k.—Lignite	
i.—Peat	90
j.—Other minerals	90
Amount	
Zine	90
Lead	90
Copper	90
Silver	90
Manganese	90
Orpiment	91
Mines	91
5.—Working of Minerals	91
a.—Natural Facilities	91
Absence of improvements	91
Choice of places for improvement	91
Kayanoma	92
Present advantages and disadvantages	
Proposed breakwater	93
Poronal	93
Proposed rail-road lines.	
Canal	
Ishcari harbor improvement	94
A rail-road to Mororan	
A new harbor near Yuubuts	
Ishcari the best port	96
b.—Political Obstacles	2020
Treaty regulations bearing upon foreigners' mining	96
Removal of the present prohibition	97
Practical avoidance of the obstacles	97
Benefit of associating native and foreign business men	
Advantage of a limited experiment	98
Advantage of a limited experiment	50