

第Ⅱ部 各 論

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第1章 既存資料の収集，コンパイル，解析

1.1 資料収集

これまで調査地域内で行われた地質調査，鉱床調査及び探鉱の結果が報告されている各種文献及び報告書並びに未公表の卒論・学位論文及び報告書をマレーシア地質調査所サバ事務所内の図書室で収集し，これらをおもに日本の地質調査所で収集したものと合わせて，出典別に次の9つに分類し，それぞれについて，年代順に並べた収集資料一覧表 (Table 3～Table 11) を作成した。

I. Annual report of Geological Survey of Malaysia	資料数	200
II. Memoir, report or bulletin of Geological Survey of Malaysia	資料数	11
III. Proceedings and geological papers of Geological Survey of Malaysia ...	資料数	25
IV. Bulletin of Geological Society of Malaysia	資料数	11
V. Thesis (unpublished)	資料数	23
VI. Joint Malaysian-German mineral exploration project in Sabah (unpublished)	資料数	13
VII. Joint Malaysia-Japan mineral exploration program in the Kinabalu area (unpublished)	資料数	4
VIII. Other unpublished reports	資料数	2
IX. The others (日本で収集したもの)	資料数	12
	計	301

Table 3 I. Annual Report of Geological Survey of Malaysia

Number	Author(s)	Title of Report	Page	Year
I-1	Fitch F.H.	The mineral resources of the Colony of North Borneo	57~ 69	1949
I-2	"	The mineral resources of North Borneo	49	1950
I-3	"	The geology of North Borneo	50~ 55	"
I-4	"	Progress report: Geological reconnaissance of the Segama River and Darvel Bay region	68~ 87	1951
I-5	"	Mineral resources of North Borneo	96~ 99	1952
I-6	"	Progress report: Cataclasis, thermal metamorphism, and metasomatism in the Segama River area	100~102	"
I-7	Collenette P.	Progress report on work in the Brantian River area	103~108	"
I-8	Stephens E.A.	Geology of the Kota Belud area	114~119	"
I-9	Roe F.W.	An outline of the geology of British Borneo	6~ 22	1954
I-10	Fitch F.H.	Mineral resources of North Borneo	88~ 94	"
I-11	"	Progress report: Geology of the Diwata Valley	95~ 97	"
I-12	"	Progress report: Notes on Tingkayu River and Ulu Segama geology	97~101	"
I-13	"	Progress report: Geological Reconnaissance of the Labuk Valley	101~105	"
I-14	"	Progress report: Volcanicity in North Borneo	106~110	"
I-15	Collenette P.	Progress report: Geological reconnaissance of the Kinabalu area	110~125	"
I-16	Stephens E.A.	Progress report: The manganese deposits at Taritipan, Marudu Bay, with an account of the regional geology	125~166	"
I-17	Roe F.W.	Geology of North Borneo	129~130	1956
I-18	"	Mineral resources of North Borneo	130~133	"
I-19	Fitch F.H.	Geology of the Sandakan area and parts of the Kinabatangan and Labuk valleys	134~167	"
I-20	Collenette P.	Geology and mineral resources of the Jesselton - Kinabalu area	167~177	"

Number	Author(s)	Title of Report	Page	Year
I-21	Stephens E.A.	Geology and mineral resources of the Kota Belud and Kudat area	177~182	1956
I-22	Kirk H.J.C.	A preliminary account of Cretaceous to Recent volcanic activity in relation to the geological structure of British Borneo	23~ 29	1957
I-23	Roe F.W.	Geology of North Borneo	125~127	"
I-24	"	Mineral resources of North Borneo	127~130	"
I-25	Fitch F.H.	Geology of the Sandakan area and parts of the Kinabatangan and Labuk valleys; Memoir 9	130~151	"
I-26	Collenette P.	Jesselton-Kinabalu area survey; Notes on the geology of the headwaters of the Labuk, Sugut and Karamuak rivers	151~163	"
I-27	"	Chromite deposit at Paranchangan near Ranau	164~168	"
I-28	Roe F.W.	Geology of North Borneo	143~146	1958
I-29	"	Mineral resources of North Borneo	146~150	"
I-30	Fitch F.H.	Geology of the Sandakan area and parts of the Kinabatangan and Labuk valleys, Memoir 9	150~153	"
I-31	Collenette P.	Pensiangan and upper Kinabatangan survey; Memoir 12	154~170	"
I-32	Wilson R.A.M.	Banggi island and Sugut river area; Memoir 15	170~190	"
I-33	Kirk H.J.C.	Geology and mineral resources of the Semporna peninsula; Memoir 14	191~206	"
I-34	Paton T.R.	A geological reconnaissance of the Semporna peninsula	206~224	"
I-35	Roe F.W.	Geology of North Borneo	88~ 92	1959
I-36	"	Mineral resources of North Borneo	92~102	"
I-37	"	Geochemical prospecting for copper and chromium	102~104	"
I-38	Collenette P.	Pensiangan and upper Kinabatangan area; Memoir 12	134~154	"
I-39	Wilson R.A.M.	Banggi island and Sugut river area; Memoir 15	154~181	"
I-40	Kirk H.J.C.	Progress report on the Semporna peninsula survey; Memoir 14	182~195	"
I-41	Collenette P.	Mineral resources of North Borneo	68~ 76	1960
I-42	Willson R.A.M.	Geology of North Borneo	80~ 83	"

Number	Author(s)	Title of Report	Page	Year
I-43	Fitch F.H.	Aeromagnetic profile, Banggi island to Labuan	96~ 98	1960
I-44	Collenette P.	Pensiangan and upper Kinabatangan area, North Borneo (Memoir 12)	99~106	"
I-45	Kirk H.J.C.	Semporna peninsula, North Borneo; (Memoir 14)	106~123	"
I-46	Wilson R.A.M.	North Borneo mineral resources	59~ 70	1961
I-47	Kirk H.J.C.	North Borneo geology	78~ 83	"
I-48	"	Semporna peninsula, North Borneo; (Memoir 14)	88~ 92	"
I-49	Wilson R.A.M.	Geology of the region	17~ 19	1962
I-50	Kirk H.J.C.	Igneous rocks of North Borneo and Sarawak (Bulletin 5)	20~ 36	"
I-51	Brondijk J.F.	Sedimentological investigations in North Borneo and northern Sarawak	61~ 74	"
I-52	Kirk H.J.C.	North Borneo mineral resources	141~152	"
I-53	Wilson R.A.M.	Nickeliferous laterite in the Taguuk area, Labuk valley, North Borneo	152~155	"
I-54	Kirk H.J.C.	Cinnabar near Ranau, North Borneo	155~157	"
I-55	Haile N.S.	North Borneo geology	162~169	"
I-56	Collenette P.	Pensiangan and upper Kinabatangan area, North Borneo; Memoir 12	170~173	"
I-57	"	Mineral resources of Sabah	30~ 40	1963
I-58	"	Chromite prospecting in Sabah: 1959-63	47~ 58	"
I-59	Kirk H.J.C.	Regional geology: Eastern Sabah	78~ 81	"
I-60	"	Igneous rocks of Sabah and Sarawak	82~ 94	"
I-61	Collenette P.	Progress report: Pensiangan and Upper Kinabatangan area (Memoir 12)	103~104	"
I-62	Brondijk J.F.	The Danau formation in northwest Borneo	167~178	"
I-63	Kirk H.J.C.	Summary of geological results of prospecting by Borneo Mining Limited	188~198	"
I-64	Collenette P.	Mineral resources of Sabah	44~ 56	1964
I-65	"	Prospecting in Sabah by Borneo Mining Limited; 1959-1963	56~ 61	"
I-66	Wilson R.A.M.	Regional geology: Northwest Borneo geosyncline	79~ 82	"
I-67	"	Regional geology: Eastern Sabah	82~ 86	"

Number	Author(s)	Title of Report	Page	Year
I-68	Kirk H.J.C	Igneous rocks of Sabah and Sarawak	87~ 93	1964
I-69	Newton-Smith J.	Progress report: Bidu-Bidu Hills, Sabah	114~121	"
I-70	Lewis D.E.	Case history of a geochemical anomalous copper zone at Pinanduan, Sabah	163~175	"
I-71	Cooper R.A., Woolf D.L., Tooms J.S.	A geochemical reconnaissance survey of part of the Labuk Valley, Sabah	176~185	"
I-72	Newton-Smith J.	Copper mineralization in River Mamut area, Kinabalu, Sabah	88~ 96	1965
I-73	Wilson R.A.M.	Regional geology: Northwest Borneo geosyncline and eastern Sabah	110~115	"
I-74	Kirk H.J.C	Igneous rocks of Sabah and Sarawak	116~119	"
I-75	Newton-Smith J.	Progress report: Bidu-Bidu Hills, Sabah	134~140	"
I-76	Dhonau T.J., Hutchison C.S.	Progress report: The Darvel Bay area, Sabah	141~160	"
I-77	Collenette P.	The Garinono Formation, Sabah	161~167	"
I-78	Kirk H.J.C.	Mineralogy of the Pinanduan copper deposit, Sabah	196~204	"
I-79	Winkler H.A.	Geophysical prospecting in the Kiabau and river Sualog areas, Labuk Valley, Sabah	205~211	"
I-80	Woolf D.L., Tooms J.S., Kirk H.J.C.	Geochemical surveys in the Labuk Valley, Sabah, 1965	212~226	"
I-81	Collenette P.	Mineral resources of Sabah	23~ 32	1966
I-82	Wong N.P.Y.	Regional geology: Eastern Sabah	43~ 45	"
I-83	Kirk H.J.C.	Regional geology: Igneous rocks	46~ 48	"
I-84	Newton-Smith J.	Progress report: Bidu-Bidu Hills area	58~ 62	"
I-85	Wong N.P.Y.	Progress report: Mount Silam area	62~ 68	"
I-86	Collenette P.	Labuk Valley mineral investigation and consequent development	68~ 71	"
I-87	Wilford G.E.	Mineral resources of Sabah	22~ 32	1967
I-88	Kirk H.J.C.	Regional geology: Eastern Sabah	43~ 47	"
I-89	Wong N.P.Y., Leong K.M.	Progress report: Segama-Darvel Bay area	48~ 52	"
I-90	Newton-Smith J.	Progress report: Bidu-Bidu Hills	52~ 53	"

Number	Author(s)	Title of Report	Page	Year
I-91	Kirk H.J.C.	Igneous rocks of Sarawak and Sabah	62~ 64	1967
I-92	Wong N.P.Y.	Geochemical prospecting, Segama area	66	"
I-93	Newton-Smith J.	Geochemical prospecting in the Semporna peninsula	66~ 70	"
I-94	Wong N.P.Y.	Mineral resources of Sabah	43~ 52	1968
I-95	Wong N.P.Y., Lee D.T.C.	Regional geology: Eastern Sabah	74~ 75	"
I-96	Kirk H.J.C.	Regional geology: Igneous rocks	75~ 78	"
I-97	Leong K.M.	Progress report: Segama Valley-Darvel Bay area	120~124	"
I-98	G.J.	Progress report: Gunung Kinabalu area	126~130	"
I-99	Wong N.P.Y.	Geochemical prospecting in Sabah	130~133	"
I-100	Wong N.P.Y., Lee D.T.C.	Mineral resources of Sabah	35~ 44	1969
I-101	Leong K.M.	Regional geology: Eastern Sabah	66~ 67	"
I-102	"	Regional geology: Igneous rocks	68~ 70	"
I-103	"	Progress report: Upper Segama-Darvel Bay area (Memoir 4 revised)	186~189	"
I-104	Lee D.T.C.	Progress report: Semporna area	190	"
I-105	G.J.	Progress report: Gunung Kinabalu area	190~194	"
I-106	Wong N.P.Y.	Geochemical prospecting in Sabah	194~195	"
I-107	Lee D.T.C.	Mineral resources of Sabah	33~ 42	1970
I-108	Leong K.M.	Regional geology: Eastern Sabah	64~ 65	"
I-109	"	Regional geology: Igneous rocks	66~ 68	"
I-110	"	Progress report: Upper Segama and Darvel Bay area, Sabah (Memoir 4 revised)	170~180	"
I-111	Lee D.T.C.	Progress report: Semporna area, Sabah	180~183	"
I-112	"	Geochemical prospecting in Sabah	200~202	"
I-113	"	Search for mercury, Kenipir Valley, southeast of Ranau	202~203	"
I-114	"	Mineral resources of Sabah	38~ 48	1971
I-115	Leong K.M.	Regional geology: Eastern Sabah	70~ 71	"
I-116	"	Regional geology: Igneous rocks	72~ 74	"
I-117	Lee D.T.C.	The geology and mineral resources of the Semporna area	145~147	"

Number	Author(s)	Title of Report	Page	Year
I-118	Leong K.M.	Introduction to the geology of the Ranau-Paranchangan area, Sabah	148-154	1971
I-119	Nicholas P.Y.W.	Geochemical prospecting in the Semporna Peninsula, Sabah	154-159	"
I-120	Lee D.T.C.	Mineral resources of Sabah	40~ 50	1972
I-121	Leong K.M.	Regional geology: Eastern Sabah	72~ 74	"
I-122	"	Regional geology: Igneous rocks	75~ 77	"
I-123	"	Progress report: Ranau-Paranchangan area (Report 12)	239-241	"
I-124	Lee D.T.C.	Progress report: Semporna, eastern Sabah	241-242	"
I-125	"	Mineral resources of Sabah	47~ 55	1973
I-126	Leong K.M.	Regional geology: Eastern Sabah and Igneous rocks	77~ 81	"
I-127	Johnston P.J., Walls J.C.	Geology of the Telupid area, Sabah	213~220	"
I-128	Leong K.M.	Progress report: Ranau-Paranchangan area (Report 12)	220	"
I-129	Lee D.T.C.	Mineral resources of Sabah	56~ 65	1974
I-130	Leong K.M.	Regional geology: Eastern Sabah	87~ 88	"
I-131	"	Regional geology: Igneous rocks	89~ 91	"
I-132	Lim P.S.	Progress report: The Gunung Wullersdorf area, Semporna, Sabah	228-232	"
I-133	Walls P.J., Johnston J.C.	Progress report: Telupid area, Sabah	232-236	"
I-134	Lee D.T.C.	Mineral resources of Sabah	61~ 70	1975
I-135	Leong K.M.	Regional geology: Eastern Sabah	92~ 94	"
I-136	"	Regional geology: Igneous rocks	94~ 96	"
I-137	Lim P.S.	Progress report: Gunung Wullersdorf area	231-236	"
I-138	Walls P.J., Johnston J.C.	Progress report: Telupid area	236-238	"
I-139	Leong K.M.	Miocene chaotic deposits in eastern Sabah: Characteristics, origin and petroleum prospects (Abstract)	238	"
I-140	Lee D.T.C.	Mineral resources of Sabah	62~ 70	1976
I-141	Leong K.M.	Regional geology: Eastern Sabah	92~ 94	"
I-142	"	Regional geology: Igneous rocks	94~ 96	"
I-143	Lee D.T.C.	Progress report: Note on Semporna area	213	"

Number	Author(s)	Title of Report	Page	Year
I-144	Lim P.S.	Preliminary notes on the Balung formation, Wullersdorf area, Sabah	213~220	1976
I-145	Lee D.T.C.	Mineral resources of Sabah	55~ 63	1977
I-146	"	Regional geology: Eastern Sabah	82~ 84	"
I-147	Leong K.M.	Regional geology: Igneous rocks	84~ 86	"
I-148	Lim P.S.	Progress report: The geology of the Wullersdorf area, eastern Sabah	191~193	"
I-149	Lee D.T.C.	Mineral resources of Sabah	67~ 77	1978
I-150	"	Regional geology: Eastern Sabah	102~105	"
I-151	Leong K.M.	Regional geology: Igneous rocks	105~108	"
I-152	Lim P.S.	Geochemical prospecting in the Wullersdorf area, Sabah	295~297	"
I-153	"	Preliminary notes on the major element chemistry and chemical affinity of the Semporna volcanics, Sabah	298~305	"
I-154	Lee D.T.C.	Mineral resources of Sabah	68~ 79	1979
I-155	"	Regional geology: Sabah	119~129	"
I-156	"	Mineral resources of Sabah	70~ 81	1980
I-157	"	Regional geology: Sabah	121~131	"
I-158	Lee D.T.C., Kwan H.E.	Bauxite deposit at Sungai Mansan and Sungai Wasai, Telupid, Labuk Valley, Sabah	298~306	"
I-159	Lee D.T.C.	Segama Valley alluvial gold, Sabah	307~316	"
I-160	"	Mineral resources of Sabah	70~ 80	1981
I-161	"	Regional geology: Sabah	119~128	"
I-162	Weber H.S.	Joint Malaysian-German mineral resources investigation in Sabah-some results of the first project year	356~368	"
I-163	Hoppe P., Liau D.K.H. Weber H.S.	Photogeological investigation of the Gunung Wullersdorf area	369~386	"
I-164	Yan A.S.W.	Geochemical exploration in the Gunung Pock area	386~400	"
I-165	Lee D.T.C.	Mineral resources of Sabah	62~ 71	1982
I-166	"	Regional geology: Sabah	106~114	"
I-167	Lim P.S.	Geology of the Mankadau area, Merungin, Sabah	251~254	"

Number	Author(s)	Title of Report	Page	Year
I-168	Markwich H., Weber H.S.	Joint Malaysian-German mineral resources investigation in Sabah-Selected results of the second project year	254~259	1982
I-169	Lee D.T.C., Weber H.S.	Discovery of Cyprus-type massive sulfide mineralization in the Sualog area, Bidu-Bidu Hills, Sabah	260~267	"
I-170	Lee D.T.C.	Mineral Resources of Sabah	65~ 75	1983
I-171	"	Regional geology: Sabah	112~121	"
I-172	"	Malaysian-German mineral exploration project in Sabah	331~334	"
I-173	Muff R, Myllus H.G., Weber H.S.	Cupriferous massive sulfide occurrences in the Bidu-Bidu Hills, Sabah	334~346	"
I-174	Lim P.S.	History of earthquake activities in Sabah, 1897-1983	350~357	"
I-175	Lee D.T.C.	Mineral resources of Sabah	69~ 79	1984
I-176	"	Regional geology: Sabah	116~126	"
I-177	Tungah S.	Brief geology of the Karamuak area, Sabah	330~333	"
I-178	Lee D.T.C.	Exploratory drilling at West Sualog copper prospect, Bidu-Bidu, Sabah	333~353	"
I-179	"	Mineral resources of Sabah	73~ 83	1985
I-180	"	Regional geology: Sabah	122~131	"
I-181	Tungah S.	Iron prospecting at Tavai plateau south, Sabah	444~451	"
I-182	Lee D.T.C.	The occurrence of massive sulfides at Klabau, Labuk valley, Sabah	451~465	"
I-183	Lim P.S.	Seismic activities in Sabah and their relationship to regional tectonics	465~480	"
I-184		General review 1986: Sabah	19~ 21	1986
I-185	Lee D.T.C.	Regional geology: Sabah	66~ 75	"
I-186	"	Mineral resources: Sabah	115~126	"
I-187	"	Occurrences of platinum group minerals in Sabah and their possible source rocks	569~577	"
I-188	Tungah S.	Controlled source audio-frequency magneto telluric survey of the Bambang-Kundsang area, Sabah (abstract only)	577~578	"
I-189	Mohd Y.R., Lim P.S.	Detailed geochemical survey of the Lingangaa area, Sabah (abstract)	579~580	"

Number	Author(s)	Title of Report	Page	Year
I-190	Yan A.S.W.	Progress report: Geological mapping, Gunung Meliau area, Sheet 5/117/1, Sabah	580~590	1986
I-191		General Review 1987: Sabah	13~ 14	1987
I-192		Regional geology: Sabah	51~ 59	"
I-193		Mineral resources: Sabah	93~104	"
I-194	Muda J.	Alluvial gold investigation, middle Segama valley, Lahad Datu, Sabah	364~375	"
I-195	Yan A.S.W.	Follow-up geochemical exploration for base metals in the Bukit Luminotong area, Labuk valley, Sabah	375~386	"
I-196	Lim P.S.	Porphyry copper mineralization in the upper Bambang valley, Sabah	387~402	"
I-197	"	Geology and geothermal potential of the Tawau area, Sabah	402~413	"
I-198		Mineral exploration: Sabah	16	1988
I-199		Regional geology: Sabah	67~ 75	"
I-200		Mineral resources: Sabah	111~121	"

Table 4 II. Memoir, Report or Bulletin of Geological Survey of Malaysia

Number	Author(s)	Title of Report	Page	Year
II-1	Fitch F.H.	The Geology and mineral resources of part of the Segama Valley and Darvel Bay area, Colony of North Borneo. (Memoir 4)	1~142	1955
II-2	Fitch F.H.	The geology and mineral resources of the Sandakan area and parts of the Kinabatangan and Labuk valleys, North Borneo. (Memoir 9)	1~202	1958
II-3	Wilson R.A.M.	The geology and mineral resources of the Banggi Island and Sugut River area, North Borneo. (Memoir 15)	1~143	1961
II-4	Kirk H.J.C.	The geology and mineral resources of the Semporna Peninsula, North Borneo. (Memoir 14)	1~178	1962
II-5	Collenette P.	The geology and mineral resources of the Pensiangan and Upper Kinabatangan area, Sabah, Malaysia. (Memoir 12)	1~150	1965
II-6	Newton-Smith J.	Bidu-Bidu Hills area, Sabah. (Report 4)	1~109	1967
II-7	Kirk H.J.C.	The igneous rocks of Sarawak and Sabah (Bulletin 5)	1~210	1968
II-8	Jacobson G.	Gunong Kinabalu area, Sabah. (Report 8)	1~111	1970
II-9	Leong K.M.	The geology and mineral resources of the Upper Segama Valley and Darvel Bay area, Sabah, Malaysia. (revised Memoir 4)	1~348	1974
II-10	Lim P.S.	Wullersdorf area, Sabah, Malaysia. (Report 15)	1~106	1981
II-11	Lee D.T.C.	Gunung Pock area, Semporna Peninsula, Sabah, Malaysia. (Report 9)	1~120	1988

Table 5 III. Proceedings and Geological Papers of Geological Survey of Malaysia

Number	Author(s)	Title of Report	Page	Name of Bulletin	Year
III-1	Fitch F.H.	Possible role of continental core movement in the geological evolution of British Borneo	31~ 46	Proceedings of the British Borneo geological conference 1961	1961
III-2	Collenette P.	The Miocene backdeep in North Borneo	47~ 60	"	"
III-3	Wilson R.A.M.	Chert-Spilite Formation of North Borneo	61~ 78	"	"
III-4	Adams C.G., Kirk H.J.C.	The Madai-Baturong limestone member of the Chert-Spilite Formation, North Borneo	79~ 90	"	"
III-5	Walker P.B., Tooms J.S.	Secondary dispersion of copper from the Karang lode, North Borneo	91~118	"	"
III-6	Kirk H.J.C.	Pliocene and Quaternary volcanic activity in British Borneo	137~152	"	"
III-7	Stauffer P.H.	Studies in the Crocker Formation, Sabah	1~ 13	Geological Papers, 1966	1966
III-8	Koopmans B.N.	Deformation of the metamorphic rocks and the Chert-Spilite Formation in the southern part of the Darvel Bay area, Sabah	14~ 24	"	"
III-9	Koopmans B.N., Stauffer P.H.	Glacial phenomena on Mount Kinabalu, Sabah	25~ 35	"	"
III-10	Wilford G.E.	Notes on rock weathering at Bukit Kukusan, Tawau, Sabah	41~ 42	"	"
III-11	Kirk H.J.C.	Hydrothermal mineralization and igneous rocks in East Malaysia	53~ 61	"	"
III-12	Lewis D.E.	The Karang copper prospect, Karamuak valley, Sabah	62~ 67	"	"
III-13	Kirk H.J.C.	The Mamut copper prospect, Kinabalu, Sabah	68~ 80	"	"

Number	Author(s)	Title of Report	Page	Name of Bulletin	Year
III-14	Wong N.P.Y.	Geology and copper mineralization of the Bambangan valley, Kinabalu, Sabah	81~ 88	Geological Papers, 1966	1966
III-15	Wilford G.E.	Notes on the geomorphology of Sabah	1~ 22	Geological Papers, 1967	1967
III-16	"	Notes on the geology of the Karabakan area	23~ 31	"	"
III-17	Wong N.P.Y., Leong K.M.	Unconformity between the Chert-Spilitic Formation and Crystalline Basement around Sungai Agob and Sungai Sabalan, east Sabah	32~ 33	"	"
III-18	Wong N.P.Y.	Orchid Plateau, Segama area, Sabah	34~ 35	"	"
III-19	Newton-Smith J., Wilford G.E.	Radiocarbon age determination on wood from Kambarangoh, Sabah	36~ 37	"	"
III-20	Wilford G. E.	Iron and nickel prospecting at Tavai Plateau, Sabah, 1962-64	80~ 87	"	"
III-21	Newton-Smith J.	Geology and mineralization at the Mamut copper prospect, Sabah	55~ 65	Geological Papers, Vol. 2, 1977	1977
III-22	Myers L.C.	A weathering profile developed on ultrabasic rocks at Telupid, Sabah	66~ 71	"	"
III-23	Lim P.S.	The evaluation, assessment and calculation of ore reserves of the Mamut Mine-a case history	114~125	Geological Papers Vol. 3, 1980	1980
III-24	Lee D.T.C.	Application of Landsat images to regional geologic studies, with reference to the geology of central and west coast Sabah and adjacent areas	126~133	"	"
III-25	Muda J., Yan A.	Base metals exploration in the Ulu Marasimsim area, Marudu Bay, Sabah	83~ 92	Proceedings of the 20th geological conference, 1989-Technical papers Vol. 1	1989

Table 6 IV. Bulletin of Geological Society of Malaysia

Number	Author(s)	Title of Report	Bulletin	Page	Year
IV-1	Stauffer P.H.	Glaciation of Mount Kinabalu	No.1	63	1967
IV-2	Hutchison C.S.	Tectogene hypothesis applied to the Pre-Tertiary of Sabah and Philippines	"	65~ 79	"
IV-3	Leong T.K.	Bouldery mudflow deposit at Ranau, Sabah, East Malaysia	No.3	139-146	1970
IV-4	Leong K.M.	New ages from radiolarian cherts of the Chert-Spilitite Formation, Sabah	No.8	109-111	1977
IV-5	Bol A.J., Hoorn B.V.	Structural styles in western Sabah offshore	No.12	1~ 16	1980
IV-6	Holloway N.H.	The north Palawan block, Philippines: its relation to the Asian Mainland and its role in the evolution of the South China Sea	No.14	19~ 58	1981
IV-7	Levell B., Kasumajaya A.	Slumping at the late Miocene shelf-edge offshore west Sabah: a view of a turbidite basin margin	No.18	1~ 29	1985
IV-8	Wood B.G.M.	The mechanics of progressive deformation in crustal plates- A working model for Southeast Asia	"	55~ 99	"
IV-9	McManus J., Tate R.B.	Mud Volcanoes and the origin of chaotic deposits in Sabah	No.19	193-205	1986
IV-10	Lee D.T.C., Weber H.S.	Base metal exploration in Sabah	"	405-419	"
IV-11	Levell B.K.	The nature and significance of regional unconformities in the hydrocarbon-bearing Neogene sequence offshore west Sabah	No.21	55~ 90	1987

Table 7 V. Thesis (unpublished)

Number	Author(s)	Title of Report	Page	Year
V-1	Walker P.B. (M Sc.)	Secondary dispersion of copper and chromium from mineral deposits in North Borneo	1~253	1960
V-2	Sevillano A.C. (M Sc.)	Secondary dispersion of copper, molybdenum, tungsten and nickel in Mount Nungkok area, Sabah, Malaysia	1~125	1961
V-3	Bailey P.S. (M Sc.)	The chromiferous ultrabasic rocks of the Silam-Beeston Range, North Borneo	1~108	1963
V-4	Hancock W.G. (D Ph.)	The Mount Tawai peridotite, North Borneo	1~369	1964
V-5	Tan B.K. (B Sc.)	Studies on the ultrabasic and gneissic complex of Silam and Darvel Bay area, Sabah, Malaysia	1~109	1965
V-6	Hutchison C.S. (D Ph.)	Tectonic and petrological relations within three rock associations of orogenic zones in Malaysia	1~270	1966
V-7	Toh S.C. (B Sc.)	Geology of the Lihak Lihak area, Sabah, East Malaysia	1~128	"
V-8	Choo M.K. (B Sc.)	A petrological study of the Ranau-Luhan area, Sabah, East Malaysia	1~128	1968
V-9	Newton-Smith J. (D.I.C)	Geology and mineralization at the Mamut copper prospect, Sabah, Malaysia	1~142	"
V-10	Tan T.H. (B Sc.)	Geology and soils of the Ranau-Luhan area, Sabah, East Malaysia	1~ 89	1969
V-11	Quah P.H. (B Sc.)	Ultrabasics, metabasites and sedimentary rocks of the Morouporou area, southeast of Ranau, Sabah, East Malaysia	1~162	"
V-12	Wong C.B. (B Sc.)	Geology and pedology of the Quoin Hill olivine-basalt and associated volcanic areas, Sabah, East Malaysia	1~ 87	1970
V-13	Lim P.S. (B Sc.)	Geology and copper mineralization of the Mamut area, Sabah, East Malaysia	1~116	1973
V-14	Nagano K.	On the mineralization and ore-forming fluids of porphyry copper deposits, with special reference to the Mamut Mine, Sabah	1~135	1976
V-15	Bull P.F. (M Sc.)	The Gunung Nungkok copper prospect	1~137	"
V-16	Goh K.T.K. (B Sc.)	Petrology of the ophiolitic rocks of Sungai Kawag area, Sabah	1~ 67	1979
V-17	Lai H.K. (B Sc.)	Geology of the Upper Bole River, Segama Valley, Sabah, East Malaysia	1~ 68	"

Number	Author(s)	Title of Report	Page	Year
V-18	Yan A.T.W. (B Sc.)	Petrology and geochemistry of the ophiolite suite, Lower Bole area, Lahat Datu, eastern Sabah	1~ 59	1979
V-19	Gasah L. (B Sc.)	Petrology and petrochemistry of the volcanic rocks of the eastern region of north Tawau area, Tawau, Sabah	1~ 30	"
V-20	Tan G.J. (B Sc.)	The geology of lower Umas Umas and Merotai Besar valley, Tawau, Sabah	1~ 82	"
V-21	Tungah Surat (B Sc.)	Petrology and geochemistry of the ophiolitic rocks of the upper Mallo area, Telupid, Sabah	1~ 39	1982
V-22	Osman R.M. (B Sc.)	Geology of Telupid, Sabah, with emphasis on the ophiolite	1~ 59	"
V-23	Tan H.M. (B Sc.)	Petrological studies of the ophiolitic rocks of upper Taliwas area, Sabah	1~263	1989

Table 8 VI. Joint Malaysian-German Mineral Exploration Project in Sabah
(unpublished)

Number	Author(s)	Title of Report	Page	Year
VI-1	Hoppe P., Lee D.T.C., Stövesand G., Weber H.S.	Report on geochemical exploration in Gunung Pock area/Semporna Peninsula	1~ 29	1981
VI-2	Lim P.S., Stövesand G., Weber H.S.	Report on geochemical prospecting in Tawau area/Semporna Peninsula	1~ 21	"
VI-3	Hoppe P., Yan A., Weber H.S.	Report on geochemical exploration in Kinabalu-Ranau-Paranchangan area/Sabah	1~ ?	"
VI-4	Lee D.T.C., Weber H.S.	Report on geochemical exploration in the Bidu Bidu Hills/NE-Sabah	1~ 34	1982
VI-5	Hoppe P.	Report on photogeology of the Paranchangan-Sungai Paliu ara	1~ 10	"
VI-6	"	Reconnaissance photogeology of Trusmadi area	1~ 12	"
VI-7	"	Report on Photogeology of Kinabalu and Bidu-Bidu Hills	1~ 13	"
VI-8	Yan A.S.W., Grisseemann C.	Geophysical survey in west Sualog, Kiabau and Ulu Pari areas, Bidu-Bidu Hills, northeast Sabah	1~ 8	1983
VI-9	Weber H.S., Yan A.	Report on geochemical prospecting in the Labuk Valley area/NE-Sabah	1~ 46	"
VI-10	Lim P.S., Markwisch H., Weber H.S.	Report on base metals prospecting in Gunung Wullersdorf area/Semporna Peninsula, Sabah; 1981-1983	1~ 35	"
VI-11	Weber H.S., Yan A.	Report on geochemical prospecting in the Segama-Darvel Bay area/SE Sabah	1~ 31	"
VI-12	Grisseemann C., Muff R., Mylius H.G., Weber H.S., Yan A.S.W.	Report on base metals prospecting in the Bidu Bidu Hills/NE Sabah; 1982-1984	1~262	1985
VI-13	Weber H.S.	Final report on investigation of mineral resources in Sabah; 1980-1984	1~128	"

Table 9 VII. Joint Malaysia-Japan Mineral Exploration Program in the Kinabalu Area
(unpublished)

Number	Author(s)	Title of Report	Page	Year
VII-1	JICA & MMAJ (*1) (*2)	Report on the collaborative mineral exploration of Sabah area; Phase I	1~302	1986
VII-2	"	Report on the mineral exploration in Sabah, Malaysia; Phase II	1~136	1987
VII-3	"	Report on the mineral exploration in Sabah, Malaysia area; Phase III	1~ 80	1988
VII-4	"	Report on the mineral exploration in Sabah, Malaysia; Consolidated report	1~168	"

Note; (*1): Japan International Cooperation Agency
 (*2): Metal Mining Agency of Japan

Table 10 VIII. Other Unpublished Reports

Number	Author(s)	Title of Report	Page	Year
VIII-1	United Nations	Natural resources survey of the Labuk Valley, Malaysia (United Nations Development Program)	7~100	1968
VIII-2	Hunting Geology and Geophysics Ltd.	Aeromagnetic survey of the Kinabalu-Tambuyukon area, Sabah, Malaysia	1~ 35	1970
VIII-3	Overseas Mineral Resources Development Co., Ltd.	Report on prospecting survey in Mamut prospecting licence area	1~ 11	"

Table 11 IX. The Others

Number	Author(s)	Title of Report	Journal	Year
IX-1	Ben-Avraham Z., Uyeda S.	The evolution of the China Basin and Mesozoic paleogeography of Borneo	Earth and planetary science letters 18, 365-376	1973
IX-2	Tokuyama A., Yoshida S.	Kinabalu fault, a large strike-slip fault in Sabah, East Malaysia	In Kobayashi T. and Torizawa R., eds., "Geology and paleontology of southeast Asia": Univ. Tokyo Press, V. 14, 175-188	1974
IX-3	Kosaka H., Wakita K.	Geology and mineralization of the Mamut Mine, Sabah, Malaysia (Abstract in English)	Mining Geology, 25, 303-320 (in Japanese)	1975
IX-4	"	Some geologic features of the Mamut porphyry copper deposit, Sabah, Malaysia	Economic Geology, Vol. 73, 618-627	1978
IX-5	Haile N.S.	Rotation of the Borneo microplate completed by Miocene; paleomagnetic evidence	Warta Geologi 5, 19-22	1979
IX-6	Hamilton W.	Tectonics of the Indonesian region	USGS Professional Paper 1078, 348P	"
IX-7	Uyeda S., Nishiwaki C.	Stress field, metallogensis and mode of subduction	In "The continental crust and its mineral deposits", edited by D.W. Strangway, Geological Association of Canada Special Paper 20, 323-339	1980
IX-8	Nishiwaki C.	Tectonic control of porphyry copper genesis in the southwestern Pacific island arc region (Abstract in English)	Mining Geology, 31, 131-146 (in Japanese)	1981
IX-9	Holloway N.H.	The north Palawan block, Philippines-Its relation to the Asian mainland and its role in the evolution of South China Sea	The American Association of Petroleum Geologist Bulletin, Vol. 66, No. 9, 1355-1383	1982
IX-10	Jolivet L., Huchon P., Rangin C.	Tectonic setting of Western Pacific marginal basins	Tectonophysics, 160, 23-47	1989
IX-11	Rangin C.	The Sulu Sea, a back-arc basin setting within a Neogene collision zone	Tectonophysics, 161, 119-141	"

Number	Author(s)	Title of Report	Journal	Year
IX-12	Gower R.J.W.	Early Tertiary plate reconstructions for the South China Sea region: constraints from northwest Borneo	Journal of Southeast Asian Earth Sciences, Vol. 4, No. 1, 29-35	1990

1.2 収集資料の分類

次に収集した資料全部をその内容により、下記の3分野に分類し、それぞれの分野について年代順に並べた分野別の収集資料一覧表 (Table 12~Table 14) を作成した。同一資料で内容が2分野または3分野からなっているものは各分野の一覧表にそれぞれ載せて、当該頁を括弧内に示した。

A. General geology (Table 12, 資料数 184)

B. Mineral resources, mineral occurrences, mineral deposits (Table 13, 資料数 94)

C. Prospecting or exploration (Table 14, 資料数 72)

(資料数計 350)

Table 12 A. General Geology

Number	Author(s)	Title of Report	Bulletin	Page	Year
I-3	Fitch F.H.	The geology of North Borneo	Annual Report of GSM, 1950	50~ 55	1950
I-4	"	Progress report: Geological reconnaissance of the Segama River and Darvel Bay region	Annual Report of GSM, 1951	68~ 87	1951
I-6	"	Progress report: Cataclasis, thermal metamorphism and metasomatism in the Segama River area	Annual Report of GSM, 1952	100~102	1952
I-7	Collenette P.	Progress report on work in the Brantian River area	"	103~108	"
I-8	Stephens E.A.	Geology of the Kota Belud area	"	114~119	"
I-9	Roe F.W.	An outline of the geology of British Borneo	Annual Report of GSM, 1954	6~ 22	1954
I-11	Fitch F.H.	Progress report: Geology of the Diwata Valley	"	95~ 97	"
I-12	"	Progress report: Notes on Tingkaya River and Ulu Segama geology	"	97~101	"
I-13	"	Progress report: Geological reconnaissance of the Labuk Valley	"	101~105	"
I-14	"	Progress report: Volcanicity in North Borneo	"	106~110	"
I-15	Collenette P.	Progress report: Geological reconnaissance of the Kinabalu area	"	110~125	"
II-1	Fitch F.H.	The geology and mineral resources of part of the Segama Valley and Darvel Bay area, Colony of North Borneo	Memoir of GSM (Memoir 4)	1~142 (1~ 95)	1955
I-17	Roe F.W.	Geology of North Borneo	Annual Report of GSM, 1956	129~130	1956

Number	Author(s)	Title of Report	Bulletin	Page	Year
I-19	Fitch F.H.	Geology of the Sandakan area and parts of the Kinabatangan and Labuk valleys	Annual Report of GSM, 1956	134~167 (134~149)	1956
I-21	Stephenes E.A.	Geology and mineral resources of the Kota Belud and Kudat area	"	177~182	"
I-22	Kirk H.J.C	A preliminary account of Cretaceous to Recent volcanic activity in relation to the geological structure of British Borneo	Annual Report of GSM, 1957	23~ 29	1957
I-23	Roe F.W.	Geology of North Borneo	"	125~127	"
I-25	Fitch F.H.	Geology of the Sandakan area and parts of the Kinabatangan and Labuk valleys; Memoir 9	"	130~151	"
I-26	Collenette P.	Jesselton-Kinabalu area Survey; Notes on the geology of the headwaters of the Labuk, Sugut and Karamuak rivers	"	151~163	"
I-28	Roe F.W.	Geology of North Borneo	Annual Report of GSM, 1958	143~146	1958
I-30	Fitch F.H.	Geology of the Sandakan area and parts of the Kinabatangan and Labuk valleys; Memoir 9	"	150~153	"
I-31	Collenette P.	Pensiangan and upper Kinabatangan survey; Memoir 12	"	154~170 (154~166)	"
I-32	Wilson R.A.M.	Bangi island and Sugut river area; Memoir 15	"	170~190	"
I-33	Kirk H.J.C.	Geology and mineral resources of the Semporna peninsula; Memoir 14	"	191~206 (191~199)	"
I-34	Paton T.R.	A geological reconnaissance of the Semporna Peninsula	"	206~224	"

Number	Author(s)	Title of Report	Bulletin	Page	Year
II-2	Fitch F.H.	The geology and mineral resources of the Sandakan area and parts of the Kinabatangan and Labuk valleys, North Borneo	Memoir of GSM (Memoir 9)	1~202 (1~114)	1958
I-35	Roe F.W.	Geology of North Borneo	Annual Report of GSM, 1959	88~ 92	1959
I-38	Collenette P.	Pensiangan and upper Kinabatangan area; Memoir 12	"	134~154	"
I-39	Wilson R.A.M.	Banggi island and Sugut river area; Memoir 15	"	154~181 (154~171)	"
I-40	Kirk H.J.C.	Progress report on the Semporna peninsula survey; Memoir 14	"	182~195	"
I-42	Wilson R.A.M.	Geology of North Borneo	Annual Report of GSM, 1960	80~ 83	1960
I-43	Fitch F.H.	Aeromagnetic profile, Banggi island to Labuan	"	96~ 98	"
I-44	Collenette P.	Pensiangan and upper Kinabatangan area, North Borneo; (Memoir 12)	"	99~106	"
I-45	Kirk H.J.C.	Semporna peninsula, North Borneo; (Memoir 14)	"	106~123	"
I-47	"	North Borneo Geology	Annual Report of GSM, 1961	78~ 83	1961
I-48	"	Semporna peninsula, North Borneo; (Memoir 14)	"	88~ 92	"
II-3	Wilson R.A.M.	The geology and mineral resources of the Banggi Island and Sugut River area, North Borneo	Memoir of GSM (Memoir 15)	1~143 (1~106)	"
III-1	Fitch F.H.	Possible role of continental core movement in the geological evolution of British Borneo	Proceedings of the British Borneo geological conference 1961	31~ 46	"
III-2	Collenette P.	The Miocene backdeep in North Borneo	"	47~ 60	"
III-3	Wilson R.A.M.	Chert-Spilite Formation of North Borneo	"	61~ 78	"

Number	Author(s)	Title of Report	Bulletin	Page	Year
III-4	Adams C.G., Kirk H.J.C.	The Madai-Baturong limestone member of the Chert-Spilitic Formation, North Borneo	Proceedings of the British Borneo geological conference 1961	79~ 90	1961
III-6	Kirk H.J.C.	Pliocene and Quaternary volcanic activity in British Borneo	"	137~152	"
V-2	Sevillano A.C.	Secondary dispersion of copper, molybdenum, tungsten and nickel in Mount Nungkok area, Sabah, Malaysia	Unpublished Report (Thesis for MSc.)	1~125 (1~ 18)	"
I-49	Wilson R.A.M	Geology of the region	Annual Report of GSM, 1962	17~ 19	1962
I-50	Kirk H.J.C.	Igneous rocks of North Borneo and Sarawak (Bulletin 5)	"	20~ 36	"
I-51	Brondijk J.F.	Sedimentological investigations in North Borneo and northern Sarawak	"	61~ 74	"
I-55	Halle N.S.	North Borneo geology	"	162~169	"
I-56	Collenette P.	Pensiangan and upper Kinabatangan area, North Borneo; Memoir 12	"	170~173	"
II-4	Kirk H.J.C.	The geology and mineral resources of the Semporna Peninsula, North Borneo	Memoir of GSM (Memoir 14)	1~178 (1~ 136)	"
I-59	"	Regional geology: Eastern Sabah	Annual Report of GSM, 1963	78~ 81	1963
I-60	"	Igneous rocks of Sabah and Sarawak	"	82~ 94	"
I-61	Collenette P.	Progress report: Pensiangan and Upper Kinabatangan area; (Memoir 12)	"	103~104	"
I-62	Brondijk J.F.	The Danau formation in northwest Borneo	"	167~178	"
I-63	Kirk H.J.C.	Summary of geological results of prospecting by Borneo Mining Limited	"	188~198	"

Number	Author(s)	Title of Report	Bulletin	Page	Year
I-66	Wilson R.A.M.	Regional geology: Northwest Borneo geosyncline	Annual Report of GSM, 1964	79~ 82	1964
I-67	"	Regional geology: Eastern Sabah	"	82~ 86	"
I-68	Kirk H.J.C	Igneous rocks of Sabah and Sarawak	"	87~ 93	"
V-4	Hancock W.G.	The Mount Tawai peridotite, North Borneo	Unpublished Report (Thesis for D Ph.)	1~369	"
I-73	Wilson R.A.M.	Regional geology: Northwest Borneo	Annual Report of GSM, 1965	110~115	1965
I-74	Kirk H.J.C	Igneous rocks of Sabah and Sarawak	"	116~119	"
I-76	Dhonau T.J.	Progress report: The Darvel Bay area, Sabah	"	141~160	"
I-77	Collenette P.	The Garinono Formation, Sabah	"	161~167	"
II-5	"	The geology and mineral resources of the Pensiangan and Upper Kinabatangan area, Sabah, Malaysia	Memoir of GSM (Memoir 12)	1~150 (1~118)	"
V-5	Tan B.K.	Studies on the ultrabasic and gneissic complex of Silam and Darvel Bay area, Sabah, Malaysia	Unpublished Report (Thesis for B Sc.)	1~109	"
I-82	Wong N.P.Y.	Regional geology: Eastern Sabah	Annual Report of GSM, 1966	43~ 45	1966
I-83	Kirk H.J.C.	Regional geology: Igneous rocks	"	46~ 48	"
I-84	Newton-Smith J.	Progress report: Bidu-Bidu Hills area	"	58~ 62	"
I-85	Wong N.P.Y.	Progress report: Mount Silam area	"	62~ 68	"
III-7	Stauffer P.H.	Studies in the Crocker Formation, Sabah	Geological Papers of GSM, 1966	1~ 13	"
III-8	Koopmans B.N.	Deformation of the metamorphic rocks and the Chert-Spilitite Formation in the southern part of the Darvel Bay area, Sabah	"	14~ 24	"

Number	Author(s)	Title of Report	Bulletin	Page	Year
III-9	Koopmans B.N., Stauffer P.H.	Glacial phenomena on Mount Kinabalu, Sabah	Geological Papers of GSM, 1966	25~ 35	1966
III-10	Wilford G.E.	Notes on rock weathering at Bukit Kukusan, Tawau, Sabah	"	41~ 42	"
V-6	Hutchison C.S.	Tectonic and petrological relations within three rock associations of orogenic zones in Malaysia	Unpublished Report (Thesis for D Ph.)	1~270	"
V-7	Toh S.C.	Geology of the Lihak Lihak area, Sabah, East Malaysia	Unpublished Report (Thesis for B Sc.)	1~128	"
I-88	Kirk H.J.C.	Regional geology: Eastern Sabah	Annual Report of GSM, 1967	43~ 47	1967
I-89	Wong N.P.Y., Leong K.M.	Progress report: Segama- Darvel Bay area	"	48~ 52	"
I-90	Newton- Smith J.	Progress report: Bidu- Bidu Hills	"	52~ 53	"
I-91	Kirk H.J.C.	Igneous rocks of Sarawak and Sabah	"	62~ 64	"
III-15	Wilford G.E.	Notes on the geomorphology of Sabah	Geological Papers of GSM, 1967	1~ 22	"
III-16	"	Notes on the geology of the Karabakan area	"	23~ 31	"
III-17	Wong N.P.Y., Leong K.M.	Unconformity between the Chert-Spilitic Formation and Crystalline Basement around Sungai Agob and Sungai Dabalan, east Sabah	"	32~ 33	"
III-18	Wong N.P.Y.	Orchid Plateau, Segama area, Sabah	"	34~ 35	"
II-6	Newton- Smith J.	Bidu-Bidu Hills area, Sabah	Report of GSM (Report 4)	1~109 (1~ 67)	"
III-19	Newton- Smith J., Wilford G.E.	Radiocarbon age determination on wood from Kamarangoh, Sabah	Geological Papers of GSM, 1967	36~ 37	"
IV-1	Stauffer P.H.	Glaciation of Mount Kinabalu	Bulletin of Geological Society of Malaysia, No.1	63	"

Number	Author(s)	Title of Report	Bulletin	Page	Year
IV-2	Hutchison C.S.	Tectogene hypothesis applied to the Pre-Tertiary of Sabah and Philippines	Bulletin of Geological Society of Malaysia, No.1	65~ 79	1967
I-95	Wong N.P.Y., Lee D.T.C.	Regional geology: Eastern Sabah	Annual Report of GSM, 1968	74~ 75	1968
I-96	Kirk H.J.C.	Regional geology: Igneous rocks	"	75~ 78	"
I-97	Leong K.M.	Progress report: Segama Valley-Darvel Bay area	"	120~124	"
I-98	G.J.	Progress report: Gunung Kinabalu area	"	126~130	"
II-7	Kirk H.J.C.	The igneous rocks of Sarawak and Sabah	Bulletin of GSM (Bulletin 5)	1~210 (1~ 93) (108~ 118)	"
I-101	Leong K.M.	Regional geology: Eastern Sabah	Annual Report of GSM, 1969	66~ 67	1969
I-102	"	Regional geology: Igneous rocks	"	68~ 70	"
I-103	"	Progress report: Upper Segama-Darvel Bay area (Memoir 4 revised)	"	186~189	"
I-104	Lee D.T.C.	Progress report: Semporna area	"	190	"
I-105	G.T.	Progress report: Gunung Kinabalu area	"	190~194	"
V-10	Tan T.H.	Geology and soils of the Ranau-Lukan area, Sabah	Unpublished Report (Thesis for B Sc.)	1~ 89	"
V-11	Quah P.H.	Ultrabasics, metabasites and sedimentary rocks of the Morouporou area, southeast of Ranau, Sabah, East Malaysia	"	1~162	"
I-108	Leong K.M.	Regional geology: Eastern Sabah	Annual Report of GSM, 1970	64~ 65	1970
I-109	"	Regional geology: Igneous rocks	"	66~ 68	"
I-110	"	Progress report: Upper Segama and Darvel Bay area, Sabah (Memoir 4 revised)	"	170~180 (170~ 175)	"

Number	Author(s)	Title of Report	Bulletin	Page	Year
II-8	Jacobson G.	Gunong Kinabalu area, Sabah	Report of GSM (Report 8)	1~105 (1~ 98)	1970
I-111	Lee D.T.C.	Progress report: Semporna area, Sabah	Annual Report of GSM, 1970	180~183 (180~ 182)	"
IV-3	Leong T.K.	Bouldery mudflow deposit at Ranau, Sabah, East Malaysia	Bulletin of Geological Society of Malaysia, No. 3	139~146	"
V-12	Wong C.B.	Geology and pedology of the Quoin Hill olivine-basalt and associated volcanic areas, Sabah, East Malaysia	Unpublished Report (Thesis for B Sc.)	1~ 87	"
I-115	Leong K.M.	Regional geology: Eastern Sabah	Annual Report of GSM, 1971	70~ 71	1971
I-116	"	Regional geology: Igneous rocks	"	72~ 74	"
I-117	Lee D.T.C.	The geology and mineral resources of the Semporna area	"	145~147	"
I-118	Leong K.M.	Introduction to the geology of the Ranau-Paranchangan area, Sabah	"	148~154 (148~ 151)	"
I-121	"	Regional geology: Eastern Sabah	Annual Report of GSM, 1972	72~ 74	1972
I-122	"	Regional geology: Igneous rocks	"	75~ 77	"
I-123	"	Progress report: Ranau-Paranchangan area (Report 12)	"	239~241	"
I-126	"	Regional geology: Eastern Sabah and Igneous rocks	Annual Report of GSM, 1973	77~ 81	1973
I-127	Johnston P.J., Walls J.C.	Geology of the Telupid area, Sabah	"	213~220 (213~ 218)	"
I-128	Leong K.M.	Progress report: Ranau-Paranchangan area (Report 12)	"	220	"
IX-1	Ben-Avraham Z., Uyeda S.	The evolution of the China Basin and Mesozoic paleogeography of Borneo	Earth and planetary science letters 18	365~376	"

Number	Author(s)	Title of Report	Bulletin	Page	Year
I-130	Leong K.M.	Regional geology: Eastern Sabah	Annual Report of GSM, 1974	87~ 88	1974
I-131	"	Regional geology: Igneous rocks	"	89~ 91	"
I-132	Lim P.S.	Progress report: The Gunung Wullersdorf area, Semporna	"	228~232 (228~ 230)	"
I-133	Walls P.J., Johnston J.C.	Progress report: Telupid area, Sabah	"	232~236 (232~ 235)	"
II-9	Leong K.M.	The geology and mineral resources of the Upper Segama Valley and Darvel Bay area, Sabah	Memoir of GSM (Memoir 4 revised)	1~354 (1~ 272)	"
IX-2	Tokuyama A., Yoshida S.	Kinabalu fault, a large strikeslip fault in Sabah	In Kobayashi T. and Torizawa R. eds., "Geology and paleontology of southeast Asia"; Univ. Tokyo Press, Vol. 14.	175~188	"
I-135	Leong K.M.	Regional geology: Eastern Sabah	Annual Report of GSM, 1975	92~ 94	1975
I-136	"	Regional geology: Igneous rocks	"	94~ 96	"
I-137	Lim P.S.	Progress report: Gunung Wullersdorf area	"	231~236 (231~ 234)	"
I-139	Leong K.M.	Miocene chaotic deposits in eastern Sabah: Characteristics, origin and petroleum prospects (Abstract only)	"	238	"
IX-3	Kosaka H., Wakita K.	Geology and mineralization of the Mamut Mine, Sabah, Malaysia	Mining Geology, 25. (in Japanese, abstract in English)	303~320 (303~ 309)	"
I-141	Leong K.M.	Regional geology: Eastern Sabah	Annual Report of GSM, 1976	92~ 94	1976
I-142	"	Regional geology: Igneous rocks	"	94~ 96	"
I-144	Lim P.S.	Preliminary notes on the Balung formation, Wullersdorf area, Sabah	Annual Report of GSM, 1976	213~220	"

Number	Author(s)	Title of Report	Bulletin	Page	Year
I-146	Lee D.T.C.	Regional geology: Eastern Sabah	Annual Report of GSM, 1977	82~ 84	1977
I-147	Leong K.M.	Regional geology: Igneous rocks	"	84~ 86	"
I-148	Lim P.S.	Progress report: The geology of the Wullersdorf area, eastern Sabah	"	191~193	"
III-21	Newton-Smith J.	Geology and mineralization at the Mamut copper prospect, Sabah	Geological Papers of GSM, Vol. 2, 1977	55~ 66 (55~ 59)	"
III-22	Myers L.C.	A weathering profile developed on ultrabasic rocks at Telupid, Sabah	"	66~ 71	"
IV-4	Leong K.M.	New ages from radiolarian cherts of the Chert-Spilitic Formation, Sabah	Bulletin of Geological Society of Malaysia, No.8	109~111	"
I-150	Lee D.T.C.	Regional geology: Eastern Sabah	Annual Report of GSM, 1978	102~105	1978
I-151	Leong K.M.	Regional geology: Igneous rocks	"	105~108	"
I-153	Lim P.S.	Preliminary notes on the major element chemistry and chemical affinity of the Semporna volcanics	"	298~305	"
IX-4	Kosaka H., Wakita K.	Some geologic features of the Mamut porphyry copper deposit, Sabah, Malaysia	Economic Geology Vol. 73	618~627 (618~ 623)	"
I-155	Lee D.T.C.	Regional geology: Sabah	Annual Report of GSM, 1979	119~129	1979
IX-5	Haile N.S.	Rotation of the Borneo micro-plate completed by Miocene; paleomagnetic evidence	Warta Geologi, 5	19~ 22	"
IX-6	Hamilton W.	Tectonics of the Indonesian region	USGS Professional Paper 1078	1~348	"
V-16	Goh K.T.K.	Petrology of the ophiolitic rocks of Sungai Kawag area, Sabah	Unpublished Report (Thesis for B Sc.)	1~ 67	"

Number	Author(s)	Title of Report	Bulletin	Page	Year
V-17	Lai H.K.	Geology of the Upper Bole River, Segama Valley, Sabah	Unpublished Report (Thesis for B Sc.)	1~ 68	1979
V-18	Yan A.T.W.	Petrology and geochemistry of the ophiolite suite, Lower Bole area, Lahat Datu, eastern Sabah	"	1~ 59	"
V-19	Gasah L	Petrology and petrochemistry of the volcanic rocks of the eastern region of north Tawau area, Tawau, Sabah	"	1~ 30	"
V-20	Tan G.J.	The geology of lower Umas Umas and Merotai Besar valley, Tawau, Sabah	"	1~ 82	"
I-157	Lee D.T.C.	Regional geology: Sabah	Annual Report of GSM, 1980	121~131	1980
III-24	"	Application of Landsat images to regional geologic studies, with reference to the geology of central and west coast Sabah and adjacent areas	Geological Papers of GSM, Vol. 3, 1980	126~133	"
IV-5	Bol A.J., Hoorn B.V.	Structural styles in western Sabah offshore	Bulletin of Geological Society of Malaysia, No.12	1~ 16	"
IX-7	Uyeda S., Nishiwaki C.	Stress field, metallogenesis and mode of subduction	In "The continental crust and its mineral deposits", edited by D.W. Strangway, Geological Association of Canada Special Paper 20	323~339	"
I-161	Lee D.T.C.	Regional geology: Sabah	Annual Report of GSM, 1981	119~128	1981
I-163	Hoppe P., Liau D.K.H., Weber H.S.	Photogeological investigation of the Gunung Wullersdorf area	"	369~386	"
II-10	Lim P.S.	Wullersdorf area, Sabah, Malaysia	Report of GSM (Report 15)	1~106 (1~ 80)	"

Number	Author(s)	Title of Report	Bulletin	Page	Year
IV-6	Holloway N.H.	The north Palawan block, Philippines: its relation to the Asian mainland and its role in the evolution of the South China Sea	Bulletin of Geological Society of Malaysia, No.14	19~ 58	1981
IX-8	Nishiwaki C.	Tectonic control of porphyry copper genesis in the southwestern Pacific island arc region	Mining Geology 31, (in Japanese, abstract in English)	131~146	"
I-166	Lee D.T.C.	Regional geology Sabah	Annual Report of GSM, 1982	106~114	1982
I-167	Lim P.S.	Geology of the Mankadau area, Merungin, Sabah	"	251~254 (251~ 253)	"
IX-9	Holloway N.H.	The north Palawan block, Philippines-Its relation to the Asian mainland and its role in the evolution of South China Sea	The American Association of Petroleum Geologist Bulletin, Vol 66, No. 9	1355~ 1383	"
V-21	Tungah Surat	Petrology and geochemistry of the ophiolitic rocks of the upper Mallo area, Telupid, Sabah	Unpublished Report (Thesis for B Sc.)	1~ 39	"
V-22	Osman R.M.	Geology of Telupid, Sabah, with emphasis on the ophiolite	"	1~ 59	"
VI-5	Hoppe P.	Report on photogeology of the Paranchangan-Sungai Paliu area	Unpublished Report (Joint Malaysian-German mineral exploration project)	1~ 10	"
VI-6	"	Reconnaissance photogeology of Trusmadi area	"	1~ 12	"
VI-7	"	Report on photogeology of Kinabalu and Bidu-Bidu Hills	"	1~ 13	"
I-171	Lee D.T.C.	Regional geology: Sabah	Annual Report of GSM, 1983	112~121	1983
I-174	Lim P.S.	History of earthquake activities in Sabah, 1897-1983	"	350~357	"

Number	Author(s)	Title of Report	Bulletin	Page	Year
I-176	Lee D.T.C.	Regional geology: Sabah	Annual Report of GSM, 1984	116~126	1984
I-177	Tungah S.	Brief geology of the Karamuak area, Sabah	"	330~333	"
I-180	Lee D.T.C.	Regional geology: Sabah	Annual Report of GSM, 1985	122~131	1985
I-183	Lim P.S.	Seismic activities in Sabah and their relationship to regional tectonics	"	465~480	"
IV-7	Levell B., Kasumajaya A.	Slumping at the late Miocene shelf-edge offshore West Sabah: a view of a turbidite basin margin	Bulletin of Geological Society of Malaysia, No. 18	1~ 29	"
IV-8	Wood B.G.M.	The mechanics of progressive deformation in crustal plates-A working model for Southeast Asia	"	55~ 99	"
I-185	Lee D.T.C.	Regional geology: Sabah	Annual Report of GSM, 1986	66~ 75	1986
I-190	Yan A.S.W.	Progress report: Geological mapping, Gunung Meliau area, Sheet 5/117/1, Sabah	"	580~590 (580~588)	"
IV-9	McManus J., Tate R.B.	Mud volcanoes and the origin of chaotic deposits in Sabah	Bulletin of Geological Society of Malaysia, No. 19	193~205	"
I-192		Regional geology: Sabah	Annual Report of GSM, 1987	51~ 59	1987
I-197	Lim P.S.	Geology and geothermal potential of the Tawau area, Sabah	"	402~413	"
IV-11	Levell B.K.	The nature and significance of regional unconformities in the hydrocarbon-bearing Neogene sequence offshore West Sabah	Bulletin of Geological Society of Malaysia, No. 21	55~ 90	"
I-199		Regional geology: Sabah	Annual Report of GSM, 1988	67~ 75	1988
II-11	Lee D.T.C	Gunung Pock area, Semporna Peninsula, Sabah, Malaysia	Report of GSM, (Report 9)	1~120 (1~ 65)	"

Number	Author(s)	Title of Report	Bulletin	Page	Year
IX-10	Jolivet L., Huchon P., Rangin C.	Tectonic setting of Western Pacific marginal basins	Tectonophysics, 160,	23~ 47	1989
IX-11	Rangin C.	The Sulu Sea, a back-arc basin setting within a Neogene collision zone	Tectonophysics, 161	119~141	"
IX-12	Gower R.J.W.	Early Tertiary plate reconstructions for the South China Sea region: constraints from northwest Borneo	Journal of Southeast Asian Earth Sciences, Vol. 4, No. 1	29~ 35	1990

[Note] GSM: Geological Survey of Malaysia

Table 13 B. Mineral Resources, Mineral Occurrences, Mineral Deposits

Number	Author(s)	Title of Report	Bulletin	Page	Year
I-1	Fitch F.H.	The mineral resources of the Colony of North Borneo	Annual Report of GSM, 1949	57~ 69	1949
I-2	"	The mineral resources of North Borneo	Annual Report of GSM, 1950	49	1950
I-4	"	Progress report: Geological reconnaissance of the Segama River and Darvel Bay region	Annual Report of GSM, 1951	68~ 87 (84)	1951
I-5	"	Mineral resources of North Borneo	Annual Report of GSM, 1952	96~ 99	1952
I-10	"	Mineral resources of North Borneo	Annual Report of GSM, 1954	88~ 94	1954
I-13	"	Progress report: Geological Reconnaissance of the Labuk Valley	"	106~110 (105)	"
I-15	Collenette P.	Progress report: Geological reconnaissance of the Kinabalu area	"	110~125 (123)	"
I-16	Stephenes E.A.	Progress report: The manganese deposits at Taritipan, Marudu Bay, with an account of the regional geology.	"	125~166	"
II-1	Fitch F.H.	The geology and mineral resources of part of the Segama Valley and Darvel Bay area, Colony of North Borneo	Memoir of GSM (Memoir 4)	1~142 (113~ 125)	1955
I-18	Roe F.W.	Mineral resources of North Borneo	Annual Report of GSM, 1956	130~133	1956
I-19	Fitch F.H.	Geology of the Sandakan area and parts of the Kinabatangan and Labuk valleys	"	134~167 (156~ 167)	"
I-20	Collenette P.	Geology and mineral of the Jesselton - Kinabalu area	"	166~177	"
I-21	Stephenes E.A.	Geology and mineral resources of the Kota Belud and Kudat area	"	177~182 (181~ 182)	"

Number	Author(s)	Title of Report	Bulletin	Page	Year
I-24	Roe F.W.	Mineral resources of North Borneo	Annual Report of GSM, 1957	127~130	1957
I-25	Fitch F.H.	Geology of the Sandakan area and parts of the Kinabatangan and Labuk valleys; Memoir 9	"	130~151 (140~145)	"
I-27	Collenette P.	Chromite deposit at Paranchangan	"	164~168	"
I-29	Roe F.W.	Mineral resources of North Borneo	Annual Report of GSM, 1958	146~150	1958
I-30	Fitch F.H.	Geology of the Sandakan area and parts of the Kinabatangan and Labuk valleys, Memoir 9	"	150~153 (151)	"
I-31	Collenette P.	Pensiangan and upper Kinabatangan survey; Memoir 12	"	154~170 (170)	"
I-33	Kirk H.J.C.	Geology and mineral resources of the Semporna peninsula; Memoir 14	"	191~206 (200~206)	"
II-2	Fitch F.H.	The geology and mineral resources of the Sandakan area and parts of the Kinabatangan and Labuk valleys, North Borneo	Memoir of GSM (Memoir 9)	1~202 (115~124) (174~187)	"
I-36	Roe F.W.	Mineral resources of North Borneo	Annual Report of GSM, 1959	92~102	1959
I-39	Wilson R.A.M.	Banggi island and Sugut river area; Memoir 15	"	154~181 (172~181)	"
I-41	Collenette P.	Mineral resources of North Borneo	Annual Report of GSM, 1960	68~ 76	1960
I-45	Kirk H.J.C.	Semporna peninsula, North Borneo; Memoir 14	"	106~123 (111~114)	"
V-1	Walker P.B.	Secondary dispersion of copper and chromium from mineral deposits in North Borneo	Unpublished Report (Thesis for M Sc.)	1~253	"
I-46	Wilson R.A.M.	North Borneo Mineral Resources	Annual Report of GSM, 1961	59~ 70	1961

Number	Author(s)	Title of Report	Bulletin	Page	Year
III-5	Walker P.B., Tooms J. S.	Secondary dispersion of copper from the Karang lode, North Borneo	Proceedings of the British Borneo geological conference 1961	91-118	1961
V-2	Sevillano A.C.	Secondary dispersion of copper, molybdenum, tungsten and nickel in Mount Nungkok area, Sabah, Malaysia	Unpublished Report (Thesis for M Sc.)	1~125 (19~125)	"
I-52	Kirk H.J.C.	North Borneo mineral resources	Annual Report of GSM, 1962	141~152	1962
I-53	Wilson R.A.M.	Nickeliferous laterite in the Taguuk area, Labuk valley, North Borneo	"	152~155	"
I-54	Kirk H.J.C.	Cinnabar near Ranau, North Borneo	"	155~157	"
II-4	"	The geology and mineral resources of the Semporna Peninsula, North Borneo	Memoir of GSM (Memoir 14)	1~178 (163~168)	"
I-57	Collenette P.	Mineral resources of Sabah	Annual Report of GSM, 1963	30~ 40	1963
I-64	"	Mineral resources of Sabah	Annual Report of GSM, 1964	44~ 56	1964
I-69	Newton-Smith J.	Progress report: Bidu Bidu Hills, Sabah	"	114~121	"
I-72	Newton-Smith J.	Copper mineralization in River Mamut area, Kinabalu, Sabah	Annual Report of GSM, 1965	88~ 96	1965
I-75	"	Progress report: Bidu-Bidu Hills, Sabah	"	134~140	"
II-5	Collenette P.	The geology and mineral resources of the Pensiangan and Upper Kinabatangan area, Sabah	Memoir of GSM (Memoir 12)	1~150 (119~132)	"
I-81	"	Mineral resources of Sabah	Annual Report of GSM, 1966	23~ 32	1966
I-85	Wong N.P.Y.	Progress report: Mount Silam area	"	62~ 68 (66~ 67)	"
III-11	Kirk H.J.C.	Hydrothermal mineralization and igneous rocks in East Malaysia	Geological Papers of GSM, 1966	53~ 61	"

Number	Author(s)	Title of Report	Bulletin	Page	Year
III-13	Kirk H.J.C.	The Mamut copper prospect, Kinabalu, Sabah	Geological Papers of GSM, 1966	68~ 80 (72~ 78)	1966
III-14	Wong N.P.Y.	Geology and copper mineralization of the Bambang valley, Kinabalu, Sabah	"	81~ 88	"
I-87	Wilford G.E.	Mineral resources of Sabah	Annual Report of GSM, 1967	22~ 32	1967
II-6	Newton-Smith J.	Bidu Bidu Hills area, Sabah	Report of GSM (Report 4)	1~109 (68~ 103)	"
I-94	Wong N.P.Y.	Mineral resources of Sabah	Annual Report of GSM, 1968	43~ 52	1968
II-7	Kirk H.J.C.	The igneous rocks of Sarawak and Sabah	Bulletin of GSM (Bulletin 5)	1~210 (94~ 107)	"
V-9	Newton-Smith J.	Geology and mineralization at the Mamut copper prospect, Sabah	Unpublished Report (Thesis for D.I.C.)	1~142	"
I-100	Wong N.P.Y., Lee D.T.C.	Mineral resources of Sabah	Annual Report of GSM, 1969	35~ 44	1969
I-107	Lee D.T.C.	Mineral resources of Sabah	Annual Report of GSM, 1970	33~ 42	1970
I-110	Leong K.M.	Progress report: Upper Segama and Darvel Bay area, Sabah (Memoir 4 revised)	"	170~180 (178~ 180)	"
I-111	Lee D.T.C.	Progress report: Semporna area, Sabah	"	180~183 (182~ 183)	"
I-113	"	Search for mercury, Kenipir Valley, southeast of Ranau	"	202~203	"
II-8	Jacobson G.	Gunong Kinabalu area, Sabah	Report of GSM (Report 8)	1~105 (99~ 101)	"
I-114	Lee D.T.C.	Mineral resources of Sabah	Annual Report of GSM, 1971	38~ 48	1971
I-118	Leong K.M.	Introduction to the geology of the Ranau-Paranchangan area, Sabah	"	148~154 (151~ 154)	"

Number	Author(s)	Title of Report	Bulletin	Page	Year
I-120	Lee D.T.C.	Mineral resources of Sabah	Annual Report of GSM, 1972	40~ 50	1972
I-125	Lee D.T.C.	Mineral resources of Sabah	Annual Report of GSM, 1973	47~ 55	1973
I-127	Johnston P.J., Walls J.C.	Geology of the Telupid area, Sabah	"	213~220 (218~ 219)	"
V-13	Lim P.S.	Geology and copper mineralization of the Mamut area, Sabah	Unpublished Report (Thesis for B Sc.)	1~116	"
I-129	Lee D.T.C.	Mineral resources of Sabah	Annual Report of GSM, 1974	56~ 65	1974
I-132	Lim P.S.	Progress report: The Gunung Wullersdorf area, Semporna	"	228~232 (231~ 232)	"
I-133	Walls, P.J., Johnston J.C.	Progress report: Telupid area, Sabah	"	232~236 (235~ 236)	"
II-9	Leong K.M.	The geology and mineral resources of the Upper Segama Valley and Darvel Bay area, Sabah	Memoir of GSM (Memoir 4 revised)	1~348 (273~ 316)	"
I-134	Lee D.T.C.	Mineral resources of Sabah	Annual Report of G S M, 1975	61~ 70	1975
I-137	Lim P.S.	Progress report: Gunung Wullersdorf area	"	231~236 (235~ 236)	"
IX-3	Kosaka H., Wakita K.	Geology and mineralization of the Mamut Mine, Sabah, Malaysia	Mining Geology, 25 (in Japanese, abstract in English)	303~320 (310~ 318)	"
I-140	Lee D.T.C.	Mineral resources of Sabah	Annual Report of GSM, 1976	62~ 70	1976
V-14	Nagano K.	On the mineralization and ore-forming fluids of porphyry copper deposits, with special reference to the Mamut Mine	Unpublished Report	1~135	"
V-15	Bull P.F.	The Gunung Nungkok copper prospect	Unpublished Report (Thesis for M Sc.)	1~137 (12~ 24)	"
I-145	Lee D.T.C.	Mineral resources of Sabah	Annual Report of GSM, 1977	55~ 63	1977

Number	Author(s)	Title of Report	Bulletin	Page	Year
I-148	Lim P.S.	Progress report: The geology of the Wullersdorf area, eastern Sabah	Annual Report of GSM, 1977	191~193 (193)	1977
III-21	Newton-Smith J.	Geology and mineralization at the Mamut copper prospect, Sabah	Geological Papers of GSM, Vol. 2, 1977	55~ 65 (59~ 65)	"
I-149	Lee D.T.C.	Mineral resources of Sabah	Annual Report of GSM, 1978	67~ 77	1978
IX-4	Kosaka H., Wakita K.	Some geological features of the Mamut porphyry copper deposit, Sabah, Malaysia	Economic Geology Vol. 73	618~627 (623~ 626)	"
I-154	Lee D.T.C.	Mineral resources of Sabah	Annual Report of GSM, 1979	68~ 79	1979
I-156	"	Mineral resources of Sabah	Annual Report of GSM, 1980	70~ 81	1980
I-158	Lee D.T.C., Kwan H.E.	Bauxite deposit at Sungai Mansan and Sungai Wasai, Telupid, Labuk Valley, Sabah	"	298~306	"
I-159	Lee D.T.C.	Segama Valley alluvial gold, Sabah	"	307~316	"
I-160	"	Mineral resources of Sabah	Annual Report of GSM, 1981	70~ 80	1981
II-10	Lim P.S.	Wullersdorf area, Sabah, Malaysia	Report of GSM (Report 15)	1~106 (81~ 98)	"
IX-8	Nishiwaki C.	Tectonic control of porphyry copper genesis in the southwestern Pacific island arc region	Mining Geology, 31 (in Japanese, abstract in English)	131~146	"
I-165	Lee D.T.C.	Mineral resources of Sabah	Annual Report of GSM, 1982	62~ 71	1982
I-167	Lim P.S.	Geology of the Mankadau area, Merungin, Sabah	"	251~254 (253)	"
I-170	Lee D.T.C.	Mineral resources of Sabah	Annual Report of GSM, 1983	65~ 75	1983
I-173	Muff R., Mylius H.G., Weber H.S.	Cupriferous massive sulfide occurrences in the Bidu-Bidu Hills, Sabah	"	334~346	"
I-175	Lee D.T.C.	Mineral resources of Sabah	Annual Report of GSM, 1984	69~ 79	1984

Number	Author(s)	Title of Report	Bulletin	Page	Year
I-179	Lee D.T.C.	Mineral resources of Sabah	Annual Report of GSM, 1985	73~ 83	1985
I-186	"	Mineral resources: Sabah	Annual Report of GSM, 1986	115~126	1986
I-187	"	Occurrences of Platinum group minerals in Sabah and their possible source rocks	Annual Report of GSM, 1986	569~577	"
I-190	Yan A.S.W.	Progress report: Geological mapping, Gunung Meliau area, Sheet 5/117/1, Sabah	"	580~590 (588~ 589)	"
I-193		Mineral resources: Sabah	Annual Report of GSM, 1987	93~104	1987
I-196	Lim P.S.	Porphyry copper mineralization in the upper Bambangan valley, Sabah	"	387~402 (387~ 390)	"
I-200		Mineral resources: Sabah	Annual Report of GSM, 1988	111~121	1988
II-11	Lee D.T.C.	Gunung Poek area, Semporana Peninsula, Sabah, Malaysia	Report of GSM (Report 9)	1~120 (66~ 74)	"

Note: Pages in brackets show pages being concerned with mineral resources, mineral occurrence and mineral deposit.

Table 14 C. Prospecting or Exploration

Number	Author(s)	Title of Report	Bulletin	Page	Year
II-1	Fitch F.H.	The geology and mineral resources of part of the Segama Valley and Darvel Bay area, Collony of North Borneo. (Memoir 4)	Memoir of GSM (Memoir 4)	1~142 (96~112)	1955
I-19	"	Geology of the Sandakan area and parts of the Kinabatangan and Labuk valleys	Annual Report of GSM, 1956	134~167 (159~164)	1956
II-2	"	The geology and mineral resources of the Sandakan area and parts of the Kinabatangan and Labuk valleys, North Borneo	Memoir of GSM (Memoir 9)	1~202 (125~151)	1958
I-37	Roe F.W.	Geochemical prospecting for copper and chromium	Annual Report of GSM, 1959	102~104	1959
I-58	Collenette P.	Chromite prospecting in Sabah: 1959-63	Annual Report of GSM, 1963	47~ 58	1963
I-64	"	Mineral resources of Sabah	Annual Report of GSM, 1964	44~ 56 (49~53)	1964
I-65	"	Prospecting in Sabah by Borneo Mining Limited; 1959-1963	"	56~ 61	"
I-70	Lewis D.E.	Case history of a geochemical anomalous copper zone at Pinanduan, Sabah	"	163~175	"
I-71	Cooper R.A., Woolf D.L., Tooms, J.S.	A geochemical reconnaissance survey of part of the Labuk Valley, Sabah	"	176~185	"
I-78	Kirk H.J.C.	Mineralogy of Pinanduan copper deposit, Sabah	Annual Report of GSM, 1965	196~204	1965
I-79	Winkler H.A.	Geophysical prospecting in the Kiabau and river Sualog areas, Labuk Valley, Sabah	"	205~211	"
I-80	Woolf D.L., Tooms J.S., Kirk H.J.C.	Geochemical surveys in the Labuk Valley, Sabah, 1965	"	212~226	"
I-85	Wong N.P.Y.	Progress report: Mount Silam area	Annual Report of GSM, 1966	62~ 68 (66~67)	1966

Number	Author(s)	Title of Report	Bulletin	Page	Year
I-86	Collenette P.	Labuk Valley mineral investigation and consequent development	Annual Report of GSW, 1966	68~ 71	1966
III-12	Lewis D.E.	The Karang copper prospect, Karamuak valley, Sabah	Geological Papers of GSM, 1966	62~ 67	"
III-13	Kirk H.J.C.	The Mamut copper prospect, Kinabalu, Sabah	"	68~ 80 (68~72) (78~79)	"
I-92	Wong N.P.Y.	Geochemical prospecting, Segama area	Annual Report of GSM, 1967	66	1967
I-93	Newton-Smith J.	Geochemical prospecting in the Semporna Peninsula	"	66~ 70	"
II-6	"	Bidu-Bidu Hills area, Sabah	Report of GSM (Report 4)	1~109 (68~102)	"
III-20	Wilford G.E.	Iron and nickel prospecting at Tawai Plateau, Sabah, 1962~64	Geological Papers of GSM, 1967	80~ 87	"
I-99	Wong N.P.Y.	Geochemical prospecting in Sabah	Annual Report of GSM, 1968	130~133	1968
VIII-1	United Nations	Natural resources survey of the Labuk Valley, Malaysia	Report of United Nations Development Programme	7~100 (7~ 70)	"
I-106	Wong N.P.Y.	Geochemical prospecting in Sabah	Annual Report of GSM, 1969	194~195	1969
I-110	Leong K.M.	Progress report: Upper Segama and Darvel Bay area, Sabah (revised Memoir 4)	Annual Report of GSM, 1970	170~180 (175~ 178)	1970
I-112	Lee D.T.C.	Geochemical prospecting in Sabah	"	200~202	"
VIII-2	Hunting Geology and Geophysics Ltd.	Aeromagnetic survey of the Kinabalu-Tambuyukon area, Sabah, Malaysia	Unpublished report	1~ 35	"
VIII-3	Overseas Mineral Resources Development Co., Ltd.	Report on prospecting survey in Mamut prospecting licence area	"	1~ 11	"
I-114	Lee D.T.C.	Mineral resources of Sabah	Annual Report of GSM, 1971	38~ 48 (44~45)	1971

Number	Author(s)	Title of Report	Bulletin	Page	Year
I-119	Nicholas P.Y.W.	Geochemical prospecting in the Semporna Peninsula, Sabah	Annual Report of GSM, 1971	154~159	1971
I-124	Lee D.T.C.	Progress report: Semporna, eastern Sabah	Annual Report of GSM, 1972	241~242	1972
I-128	Leong K.M.	Progress report: Ranau-Paranchangan area (Report 12)	Annual Report of GSM, 1973	220	1973
I-132	Lim P.S.	Progress report: The Gunung Wullersdorf area, Semporna	Annual Report of GSM, 1974	228~232 (230~ 231)	1974
II-9	Leong K.M.	The geology and mineral resources of the upper Segama Valley and Darvel Bay area, Sabah	Memoir of GSM (Memoir 4 revised)	1~348 (273~ 299) (317~ 330)	"
I-138	Walls P.J., Johnston J.C.	Progress report: Telupid area	Annual Report of GSM, 1975	236~238	1975
IX-3	Kosaka H., Wakita K.	Geology and mineralization of the Mamut Mine, Sabah, Malaysia	Mining Geology, Vol. 25 (in Japanese, abstract in English)	303~320 (310~ 316)	"
I-143	Lee D.T.C.	Progress report: Note on Semporna area	Annual Report of GSM, 1976	213	1976
V-15	Bull P.F.	The Gunung Nungkok copper prospect	Unpublished Report (Thesis for MSc.)	1~137 (25~34)	"
I-152	Lim P.S.	Geochemical prospecting in the Wullersdorf area, Sabah	Annual Report of GSM, 1978	295~297	1978
III-23	"	The evaluation, assessment and calculation of ore reserves of the Mamut mine-a case history	Geological Papers of GSM, 1980	114~125	1980
I-162	Weber H.S.	Joint Malaysian-German mineral resources investigation in Sabah-some results of the first project year	Annual Reports of GSM, 1981	356~368	1981
I-164	Yan A.S.W.	Geochemical exploration in the Gunung Pock area	"	386~400	"
II-10	Lim P.S.	Wullersdorf area, Sabah, Malaysia	Report of GSM (Report 15)	1~106 (81~87)	"

Number	Author(s)	Title of Report	Bulletin	Page	Year
VI-1	Hoppe P., Lee D.T.C., Stövesand G., Weber H.S.	Report on geochemical exploration in Gunung Pock area/Semporna Peninsula	Unpublished Report (Joint Malaysian-German mineral exploration project)	1~ 29	1981
VI-2	Lim P.S.	Report on geochemical prospecting in Tawau area/Semporna Peninsula	"	1~ 21	"
VI-3	Hoppe P., Yan A., Weber H.S.	Report on geochemical exploration in Kinabalu-Ranau-Paranchangan area/Sabah	"	1~ ?	"
I-168	Markwich H., Weber H.S.	Joint Malaysian-German mineral resources investigation in Sabah- Selected results of the second project year	Annual Report of GSM, 1982	254~259	1982
VI-4	Lee D.T.C., Weber H.S.	Report on geochemical exploration in the Bidu Bidu Hills/NE-Sabah	Unpublished Report (Joint Malaysian-German mineral exploration project)	1~ 34	"
I-169	"	Discovery of Cyprus-type massive sulfide mineralization in the Sualog area, Bidu-Bidu Hills, Sabah	"	260~267	"
I-172	Lee D.T.C.	Malaysian-German mineral exploration project in Sabah	Annual Report of GSM, 1983	331~334	1983
VI-8	Yan A.S.W., Grisseemann C.	Geophysical survey in west Sualog, Kiabau and Ulu Pari areas, Bidu-Bidu Hills, Sabah	Unpublished Report (Joint Malaysian-German mineral exploration project)	1~ 8	"
VI-9	Weber H.S.	Report on geochemical prospecting in the Labuk Valley area/NE-Sabah	"	1~ 46	"
VI-10	Lim P.S., Markwich H., Weber H.S.	Report on base metals prospecting in Gunung Wullersdorf area/ Semporna Peninsula, Sabah; 1981~1983	"	1~ 35	"

Number	Author(s)	Title of Report	Bulletin	Page	Year
VI-11	Weber H.S., Yan A.	Report on geochemical prospecting in the Segama-Darvel Bay area/SE Sabah	Unpublished Report (Joint Malaysian-German mineral exploration project)	1~ 31	1983
I-178	Lee D.T.C.	Exploratory drilling at West Sualog copper prospect, Bidu-Bidu, Sabah	Annual Report of GSM, 1984	333~353	1984
I-181	Tungah S.	Iron prospecting at Tavai plateau south, Sabah	Annual Report of GSM, 1985	444~451	1985
I-182	Lee D.T.C.	The occurrence of massive sulfides at Kiabau, Labuk Valley, Sabah	"	451~465	"
VI-12	Grisseman C., Muff R., Mylius H.G., Weber H.S., Yan A.S.W.	Report on base metals prospecting in the Bidu-Bidu Hills/NE Sabah; 1982~1984	Unpublished Report (Joint Malaysian-German mineral exploration project)	1~262	"
VI-13	Weber H.S.	Final report on investigation of mineral resources in Sabah; 1980~1984	"	1~128	"
I-184		General review 1986: Sabah	Annual Report of GSM, 1986	19~ 21	1986
I-188	Tungah S.	Controlled source audio-frequency magneto telluric survey of the Bambang-Kundsang area, Sabah	"	577~578	"
I-189	Mohd Y.R., Lim P.S.	Detailed geochemical survey of the Lingangaa area, Sabah	"	579~580	"
IV-10	Lee D.T.C., Weber H.S.	Base metal exploration in Sabah	Bulletin of Geological Society of Malaysia	405~409	"
VI-1	JICA, MMAJ (*1) (*2)	Report on the collaborative mineral exploration of Sabah area; Phase I	Unpublished Report (Joint Malaysia-Japan mineral exploration program)	1~302	"

Number	Author(s)	Title of Report	Bulletin	Page	Year
I-191		General review 1987: Sabah	Annual Report of GSM, 1987	13~ 14	1987
I-194	Muda J.	Alluvial gold investigation, middle Segama valley, Lahad Datu, Sabah	"	364~375	"
I-195	Yan A.S.W.	Follow-up geochemical exploration for base metals in the Bukit Luminitong area, Labuk Valley, Sabah	Annual Report of GSM, 1987	375~386	"
I-196	Lim P.S.	Porphyry copper mineralization in the upper Bambang valley, Sabah	"	387~402 (390~402)	"
VII-2	JICA MMAJ	Report on the mineral exploration in Sabah, Malaysia; Phase II	Unpublished Report (Joint Malaysia-Japan mineral exploration program)	1~136	"
I-198		Mineral exploration: Sabah	Annual Report of GSM, 1988	16	1988
II-11	Lee D.T.C.	Gunung Pock area, Semporna Peninsula, Sabah, Malaysia	Report of GSM (Report 9)	1~120 (75~109)	"
VII-3	JICA, MMAJ	Report on the mineral exploration in Sabah, Phase III	Unpublished Report (Joint Malaysia-Japan mineral exploration program)	1~ 80	"
VII-4	"	Report on the mineral exploration in Sabah, Malaysia; consolidated report	"	1~168	"
III-25	Muda J., Yan A.	Base metals exploration in the Ulu Marasimsim area, Marudu Bay, Sabah	Proceedings of the 20th geological conference, 1989-Technical Papers Vol. 1	83~ 92	1989

Note; Pages in brackets show pages being concerned prospecting or exploration.

(*1): Japan International Cooperation Agency

(*2): Metal Mining Agency of Japan

1.3 既知鉱徴地一覧表 (Table 15 List of known mineral deposits and mineral occurrences) の作成

上記の分野別収集資料一覧表のうち (B) Mineral resources, mineral occurrences, mineral deposits (Table 13) 及び (C) Prospecting or exploration (Table 14) に属する資料の内容を検討して、資料の中から露頭のある鉱徴地及び鉱床 (prospect) を選び出して Table 15 List of known mineral deposits and mineral occurrences を作成したが、原則として、転石 (float or boulder) だけのもの及び地化探のアノーマリーだけで、その後の探鉱作業 (follow-up work) の行われなかったものは除外した。

Table 15 List of Known Mineral Occurrences and Mineral Deposits

Number	Prospect Name	Location	Ore Mineral	Type of Ore Deposit	Host Rock	Exploration History
A-1	Bambangan	Bambangan Valley, near Mount Kinabalu	Chalcopyrite, pyrrhotite, sphalerite, molybdenite	Porphyry copper	Adamellite porphery, hornfels	1963~65: Geochemical prospecting by UNDP (*1) 1970: Geochemical prospecting, drilling by OMRD (*2) (no ore intersected) 1981: Geochemical prospecting by MGM (*3) 1985: Geophysical prospecting (CSAMT, IP, SIP) by MJP (*4) 1985~87: Drilling by MJP (18 holes, 6,063.3m)
A-2	Kenango	Kenango, Mankadau V., near Ranau	Cu			1962: Geochemical prospecting by Soriano y Cia (Cu anomaly detected)
A-3	Kenipir	Kenipir V., near Ranau	Cinnabar		Eocene Trusmadi Formation	1962: Discovered in stream sediment
A-4	Latu	Latu, Lenisidan V., Kinabalu area	Stibnite	Irregular vein in joint	Lower~Middle Eocene sandstone, siltstone	Further investigation is not justified (deposit is too small)
A-5	Lingangaa	Lingangaa, Mankadau V., near Ranau	Pyrite, chalcopyrite (Cu 34~38%, Au 1.18~1.71 g/t, Ag 157~158 g/t)	Boulder (ø1.2m) of massive sulfide		1962: Geochemical prospecting by Soriano y Cia (Cu anomaly detected) 1981: Geological survey by GSM (*5) 1986: Detailed geochemical prospecting by MJP (included in Mankadau)
A-6	Liwagu	Liwagu V., near Ranau	Cinnabar in Alluvial			1962: Discovered
A-7	Mamut	Upper Mamut V., north of Ranau	Chalcopyrite, molybdenite, (galena, sphalerite)	Porphyry copper	Adamellite porphyry, serpentinite, siltstone of Trusmadi Formation	1965: Geochemical prospecting by UNDP 1966: Follow-up geochemical survey and shallow drilling (29 holes, 2,217 feet), 200 pits by GSM 1967: Prospecting license to OMRD 1968: DDH 10 holes (2,500m) 1969: DDH 53 holes (11,000m), tunnelling (755m) mining lease to OMRD 1975: Production started
A-8	Mankadau	Lingangaa Creek, Mankadau Valley, Ranau area	Copper sulfide	Boulder of massive copper sulfide	Peridotite	1963: Discovered by Soriano y Cia 1985: Geological survey, geochemical prospecting, geophysical prospecting (CSAMT) by MJP
A-9	Nungkok	Gunung Nungkok, Kinabalu area	Pyrrhotite, chalcopyrite, pyrite, (arsenopyrite, molybdenite, magnetite, sphalerite, scheelite)	Porphyry copper	Silicified sedimentary rocks, quartz diorite	1965: Discovered, geochemical prospecting, geophysical prospecting (SP, EM) by Soriamont Investment Co. 1966~68: Drilling (21 holes, 3,354m) 1973: Drilling (6 holes, 762m) by Srikundasan Development and BHP 1974: Magnetic survey and geochemical prospecting
A-10	Paliu	S. Paliu, Ranau area	Pyrite	Stringer and/or disseminated with quartz veinlets (<several cm)	Sedimentary rocks	1985: Geological survey, geochemical prospecting by MJP 1986: Geochemical prospecting, 10 trenches
A-11	Paranchangan	Paranchangan, Sugut V., Ranau area	Chromite (aluminium magnesiochromite) Cr ₂ O ₃ 31.0~53.6%	Small, irregular lense	Serpentinite	1910: Discovered by R.R. Pilz 1957: Rediscovered 2 trenches, 40 pits by GSM

Number	Prospect Name	Location	Ore Mineral	Type of Ore Deposit	Host Rock	Exploration History
A-12	Rendagong	Rendagong, Ranau area	Stibnite			
A-13	Samalang	Samalang V., Ranau area	Cinnabar in stream sediment			
A-14	Sansogan	Sansogan V., Mankadau V., near Ranau	Cu	Gossan, boulder of Cu ore		1962: Geochemical prospecting by Soriano y Cia (Cu anomaly detected)
A-15	Timbalong	Timbalong, Mankadau V., near Ranau	Cu			1962: Geochemical prospecting by Soriano y Cia (Cu anomaly detected)
B-1	Bangau Bangau A	Bangau Bangau V., Bidu Bidu Hills, Labuk Valley	Pyrite, chalcopyrite, chalcocite	Vein or lense W = 1~3 ft. L = 5~20 ft.	Serpentinised peridotite	1959~60: Geochemical survey by Borneo Mining Limited 1962~64: Geophysical survey, drilling by Asian Mining Corporation
B-2	Bangau Bangau B	Bangau Bangau V., Bidu Bidu Hills, Labuk Valley	Pyrite, chalcopyrite, chalcocite	Vein or lense W ≤ 9 in. L = 4 ft.	Serpentinised peridotite	1959~60: Geochemical survey by Borneo Mining Limited 1962~64: Geophysical survey, drilling by Asian Mining Corp.
B-3	Bangau Bangau B1	Bangau Bangau V., Bidu Bidu Hills, Labuk Valley	Pyrite, chalcopyrite, chalcocite	Vein or lense W = 18 in. L = 15 ft.	Serpentinised peridotite	1959~60: Geochemical survey by Borneo Mining Limited 1962~64: Geophysical survey, drilling by Asian Mining Corp.
B-4	Bangau Bangau C	Bangau Bangau V., Bidu Bidu Hills, Labuk Valley	Pyrite, chalcopyrite, chalcocite	Vein or lense W = 1~6 in. L = 1~4 ft.	Serpentinised peridotite	1959~60: Geochemical survey by Borneo Mining Limited 1962~64: Geophysical survey, drilling by Asian Mining Corp.
B-5	Bangau Bangau D	Bangau Bangau V., Bidu Bidu Hills, Labuk Valley	Chalcopyrite	Dissemination	Serpentinised peridotite	1959~60: Geochemical survey by Borneo Mining Limited 1962~64: Geophysical survey, drilling by Asian Mining Corp.
B-6	Bangau Bangau E	Bangau Bangau V., Bidu Bidu Hills, Labuk Valley	Pyrite, chalcopyrite, chalcocite	Dissemination	Spilite & dolerite of Chert-Spilite Formation	1962~64: Geophysical survey, drilling by Asian Mining Corp.
B-7	Bidu Bidu	Bidu Bidu V., Bidu Bidu Hills, Labuk Valley	Pyrite, (sphalerite, chalcopyrite, malachite)	Disseminations, stringers, clusters of sulfides in sicicified zone	Basalt, gabbro, Chert-Spilite Formation	1959~60: Investigated by Borneo Mining Limited
B-8	Bidu Bidu Hills	Bidu Bidu Hills, Labuk Valley	Limonitic iron, lateritic iron	Residual deposit by weathering of peridotite	Peridotite	1904: Discovered, investigated by British Borneo Exploration Co. 1908, 1910: Reinvestigated 1962: Investigated by Malayan Miners Limited
B-9	Northern Bidu Bidu Hills	Bidu Bidu Hills, Labuk Valley	Iron rich laterite		Ultrabasic rock	1959: Discovered 1963: 3 augers by Southern Mining & Development Ltd. 1965: Pitting by Borneo Industrial Enterprises Co., Ltd.
B-10	Ensuan	Ensuan V., Lower Labuk Valley	Nickeliferous laterite garnierite (Ni silicate)	Residual deposit in weathering zone of ultrabasic rock	Ultrabasic rock	1960: Discovered 1961: 85 pits and auger holes by Malayan Miners Co., Ltd.

Number	Prospect Name	Location	Ore Mineral	Type of Ore Deposit	Host Rock	Exploration History
B-11	Karang	Karang V., Karamuak V., Kinabatangan V., south of Telupid	Pyrite, (chalcopyrite)	Chalcopyrite bearing pyritic quartz vein in shear zone (striking N~NE, dipping 90°)	Spilitic basalt	1904: discovered; 1908~12: 500 ft. adit, 3 shaft by British Borneo Exploration Co.; 1955~56: geochemical prospecting; 1964: geochemical prospecting, geophysical prospecting (SP, EM), drilling (3 holes, 1,113 ft.) by Soriamont Investment Co.
B-12	Katai	Bukit Lumisir, 6 miles northeast of Telupid	Chromite	Thin lense, bands, pods W=6 ft., L=15 ft.	Dunite	1961: Investigated by Borneo Mining Limited by pitting
B-13	Kiabau	Kiabau, Bidu Bidu Hills, Labuk Valley	Pyrite, (chalcopyrite, magnetite)	Cyprus type massive sulfide similar to West Sualog deposit	Basic volcanic rock in ophiolite sequence (dipping 50°W)	1959~60: Geophysical prospecting by Borneo Mining Ltd. 1964: Geochemical prospecting, geophysical prospecting (SP, ABEM) by UNDP 1933: Geological survey, geochemical prospecting, geophysical prospecting (PEM, IP) by MGM 1984: Detailed geochemical survey, PEM, 4 test drilling by MGM 1985: Drilling (2 holes) by MGM
B-14	West Kiabau	1 mile west of Kiabau, Bidu Bidu Hills, Labuk Valley	Bauxite		Gabbro	1959: Discovered (by A.W. Allen), pitting (depth ≤ 5 ft.) 1963: Reinvestigated
B-15	Luminitong	Bukit Luminitong, Labuk Valley	Pyrite, (chalcopyrite)	Fracture filling with network veinlets & stringers of quartz	Brecciated spilite & spilitic basalt	1963~65: Geochemical prospecting by UNDP 1986: Follow-up geochemical survey by GSM
B-16	Lumisir	Mt. Lumisir, Labuk Valley	Chromite			1961: Discovered
B-17	Mansan	Mansan R., near Terupid	Chalcopyrite, sphalerite	Cu-Zn bearing quartz vein in silicified shear zone	Brecciated pillow basalt	1974: Discovered by GSM
B-18	Mansan & Wasai	Mansan R. & Wasai R., south of Telupid	Bauxite	Residual deposit by weathering of gabbro	Gabbro	1978~79: Pitting (66 pits), augering (7 holes) by GSM
B-19	Meliau	Meliau R., Labuk Valley	Pyrite, chalcopyrite	Pyrite-chalcopyrite bearing irregular, lenticular quartz vein (W=1.5 ft., H=8 ft.)	Diorite, basalt	1909: Discovered 1910~11: Trenching by Borneo Exploration Co. 1962: Geochemical prospecting by Soriano y Cia (Cu anomaly detected)
B-20	Paliu	Paliu V., Lower Labuk Valley	Manganiferous limonite similar to Taritipan ore			Uneconomical due to low content of Mn (poor quality, too small quantity)
B-21	Pinanduan	Pinanduan V., Karamuak V., Kinabatangan Valley	Pyrrhotite, (chalcopyrite)	Chalcopyrite bearing pyrrhotite-vein	Serpentinised peridotite	1962~63: Geochemical prospecting 1963: Geophysical prospecting (SP, EM) by Soriano y Cia 1964: Pitting, augering, drilling (4 holes) by Soriamont Investment Co.
B-22	Porog (Cr)	Porog V., Labuk Valley	Chromite (Cr ₂ O ₃ 45.93~50.42%)	Bands and dissemination (T=15 ft.)	Serpentinised dunite in peridotite	1959: Discovered 1962: Drilling (9 holes, 1,952 ft.) by Borneo Mining Ltd.

Number	Prospect Name	Location	Ore Mineral	Type of Ore Deposit	Host Rock	Exploration History
B-23	Porog (Fe)	Porog V., Labuk Valley	Lateritic iron ore	Residual deposit by weathering of peridotite	Peridotite	1957: Investigated
B-24	Sualog (Fe)	Sualog V., Bidu Bidu Hills, Labuk Valley	Manganiferous limonite			1958: Pitting (10 pits), trenching (1) by GSM
B-25	Northeast Sualog	Sualog V., Bidu Bidu Hills, Labuk Valley	Gossan	Vein type along fault zone	Red shale of Chert-Spilite Formation	1961: Geochemical prospecting by Borneo Mining Ltd. 1963-64: Geochemical prospecting by UNDP 1983-84: Reinvestigation by MGM
B-26	Southwest Sualog	Sualog V., Bidu Bidu Hills, Labuk Valley	Pyrite, (chalcopyrite, sphalerite)	Sulfide dissemination (W=1-3 in., L=15 ft.)	Chert-Spilite Formation	1961: Investigation by Borneo Mining Ltd. 1963-64: Geochemical prospecting by UNDP 1983-84: Reinvestigation by MGM
B-27	West Sualog	Sualog V., Bidu Bidu Hills, Labuk Valley	Pyrite, chalcopyrite, (covellite, bornite)	Cyprus type cupriferous massive sulfide, 2 sulfide bodies (eastern sulfide body, western sulfide body)	Underlying basaltic rock and overlying shale of ophiolite	1961: Investigated by Borneo Mining Ltd. 1962-63: Geophysical prospecting, shallow drilling by Asian Mining Ltd. 1964: Geophysical prospecting (SP, EM) by UNDP 1965: Geochemical prospecting by UNDP 1980: Reevaluated by MGM 1982-84: Geophysical prospecting (PEM, IP), drilling (13 holes) by MGM until 1988: 90 drill holes by Leadstar Co.
B-28	Taguuk	Taguuk R., Ensuan R., Labuk Valley	Chromite	Pods and bands (T ≤ 6 in.)	Dunite in peridotite	1961: Investigated by Borneo Mining Ltd.
B-29	Tavai Plateau	Tavai Plateau, Labuk Valley	Nickeliferous limonite	Residual deposit by weathering of ultrabasic rock	Ultrabasic rocks	1962: Drilling (20 holes, 800 ft.) & pitting by Borneo Mining Ltd. 1964: Augering by Soriamont Investment Co.
B-30	Tavai Plateau South	South of Tavai Plateau, Labuk Valley	Iron laterite		Peridotite	1984-85: Pitting (11 pits) & augering by GSM
B-31	Tonsuan	Mount Tonsuan, Labuk Valley	Chromite			1961: Discovered by Borneo Mining Ltd.
B-32	UI Pari	Sualog R., Bidu Bidu Hills, Labuk Valley	Gossan	Cyprus type cupriferous massive sulfide	Basic volcanic lava with shale	1961: Investigation & geochemical prospecting by Borneo Mining Ltd. 1963-64: Geochemical prospecting by UNDP 1980: Reevaluated by MGM 1983: Geological survey, geochemical prospecting, geophysical prospecting (PEM, IP) by MGM 1984: Drilling (3 holes), 3 holes were abandoned due to mechanical trouble
C-1	Beeston	Mt. Beeston, Darvel Bay	Chromite		Ultrabasic rocks	1962: Investigated by Borneo Mining Ltd.
C-2	Edam (Au)	Edam R., Kuala Sungai Bole, Segama Valley	Alluvial gold (1.5 g/t Au)			1986: Detailed panning by GSM
C-3	Edam (Pt)	Edam R., Kuala Sungai Bole, Segama Valley	Alluvial PGM (platinum group minerals) ø0.3-1.0 mm, 85% Pt			1986: Detailed panning by GSM
C-4	Diwata	Diwata V., Darvel Bay	Pyrite, (chalcopyrite) (Ag 10-14 oz/t, Au nil)	Dissemination, minute vein, thin film	Diorite, ultrabasic rock, Chert-Spilite Formation	1961: Discovered & investigated by Borneo Mining Ltd.

Number	Prospect Name	Location	Ore Mineral	Type of Ore Deposit	Host Rock	Exploration History
C-5	Kalung	Kalung Island, Darvel Bay	Chromite	Discontinuous bands (4 zones, 1/8 in.~2 ft. thick, 150 ft. long)	Dunite	1961~63: Investigated by Borneo Mining Limited
C-6	Laila	Laila Island, Darvel Bay	Chromite	Discontinuous bands (1/8~1/2 in. thick)	Dunite	1961~63: Investigated by Borneo Mining Ltd.
C-7	Sadde	Saddle Island, Darvel Bay	Chromite	Fractured band (1 ft.~3 ft. 3 in. thick, 10 ft. long)	Dunite	1961~63: Investigated by Borneo Mining Ltd.
C-8	Silam (Hitam)	Mt. Silam, Darvel Bay	Chromite (Cr ₂ O ₃ 32.55~48.48%) (drill core)	Lenticular (43 ft.×23 ft.×2 ft.)	Serpentinised dunite	1962: Investigated by Borneo Mining Ltd. 1963: Drilling by Borneo Mining Ltd.
C-9	Subahan	Subahan R., Darvel Bay	Cu, Ni			1962~63: Geochemical prospecting by Soriamont Investment Co.
C-10	Telewas	Telewas R., Segama Valley	Alluvial gold	In river gravel		1963: Discovered
C-11	Tingkayu	Tingkayu R., southwest of Orchid Plateau, Darvel Bay	Pyrite, chalcopyrite	Along foliation planes	Epidote-amphibole schist or meta tuffaceous rock	1962~63: Geochemical prospecting by Soriano y Cia
C-12	Tribulation	Mt. Tribulation, upper Segama Valley	Pyrite (Ag 2.3~3.3 dwt/t)	Dissemination	Schist	
C-13	Ulu Segama	Ulu Segama, Upper Segama Valley	Pyrite, (chalcopyrite)	Pyrite, chalcopyrite bearing quartz vein	Amphibole schist	1962~63: Geochemical prospecting by Soriano y Cia
C-14		Unnamed small island, Silam Harbour, Darvel Bay	Chalcopyrite, chalcocite, malachite	Quartz vein (W=few in.~2 ft.)	Silicified schistose dioritic rock	1966: Discovered
C-15	Upper Danum	Upper Danum V., Segama Valley	Pyrite, (chalcopyrite)	Quartz vein, dissemination	Sheared dolerite	1962~63: Geochemical prospecting by Soriano y Cia; 1980~81: Reassessment by MGM
C-16	Upper Umas Umas	Upper Umas Umas V., Umas Umas Valley	Millerite (Ni sulfide)		Serpentinite	1962: Investigated
D-1	Baturong	South of Mt. Baturong, Semporna Peninsula	Bauxite (Al ₂ O ₃ 53.0%, SiO ₂ 4.0%)			1962: Discovered by British Aluminium Co., Ltd. GSM failed to relocate
D-2	G. Pock	Gunung Pock, Semporna Peninsula	Pyrite, chalcopyrite, sphalerite, galena	Sulfides bearing quartz vein	Silicified dacite, dacite (Alteration minerals: quartz, chlorite, epidote, calcite, sericite, pyrite, magnetite, kaoline)	1967~68: Reconnaissance geochemical survey (stream sediment) by GSM 1972: Follow-up geochemical survey (stream sediment & soil) by GSM 1977~79: Detailed grid geochemical survey (soil) by GSM 1980: Reevaluated by MGM 1981: Follow-up geochemical survey, drilling (3 holes) by MGM

Number	Prospect Name	Location	Ore Mineral	Type of Ore Deposit	Host Rock	Exploration History
D-3	G. Wullersdorf	G. Wullersdorf, Semporna Peninsula	Pyrite, chalcopyrite, sphalerite, galena, (covellite, chalcocite, malachite)	Sulfides bearing quartz vein (T=15 cm), sulfides in joints, or quartz veins, dissemination of sulfides and quartz, stockwork of sulfides and quartz	Silicified, chloritised, epidotised dacite breccia, silicified dacite (W=6.0 m)	1967-69: Reconnaissance geochemical survey (stream sediment) 1971, 73: Follow-up geochemical survey (soil) 1974-78: Detailed geochemical survey by GSM 1980: Reevaluated by MGM 1981-83: Follow-up geological survey, geochemical survey, shallow drilling (15 holes, 29.5 m) by MGM
D-4	Kalumpang	Kalumpang V., Semporna Peninsula	Sulfide, (Au, Ag) in quartz			1962: Discovered
D-5	Mantri	Mantri R., Upper Kalumpang R., Semporna Peninsula	Alluvial gold		May be derived from silicified volcanic rocks of Mt. Wullersdorf	1960: Discovered
D-6	Mentarip	Mentarip R., south of Mt. Pock, Semporna Peninsula	Alluvial gold		May be derived from volcanic rocks and minor intrusive rocks forming Mt. Pock range	1960: Discovered
D-7	Umas Umas	Umas Umas R., Semporna Peninsula	Alluvial gold	Quartz vein along faults (origin)	Kalumpang Formation	1960: Discovered
E-1	Manjupanju	Manjupanju R., Taritipan, Marudu Bay	Malachite (Cu 2.96%)	Film on the boulder of basalt	Basalt	1904: Discovered 1909-10: Pitting (2 pits) by Pilz
E-2	Marasimsim	Ul Marasimsim area, Marudu Bay	Sulfide	Sulfide bearing quartz-calcite veinlets with pyritic dissemination	Spilitic pillow lava	1968: Reconnaissance geochemical survey (stream sediment) by GSM 1988: Follow-up geochemical survey by GSM
E-3	Pingan Pingan	Pingan Pingan, Taritipan, Marudu Bay	Pyrite, chalcopyrite, sphalerite	Sulfide bearing quartz vein (T=several inches)	Basalt	1909-10: Trenching, drilling (800 ft.), 2 adits (50 ft., 16 ft. long), 1 shaft (5 ft. deep) by British Borneo Exploration Co. 1980-81: Reassessment by MGM
E-4	Tagaho	Tagaho Hill, near Mumus, Marudu Bay	Lateritic limonite	Residual deposit formed by weathering of peridotite	Peridotite	1905: Discovered by British Borneo Exploration Co. 1959: Reinvestigation, pitting (4 pits) by GSM
E-5	Taritipan	Taritipan, Marudu Bay	Psilomelane, (pyrolusite)	Mn oxide in lateritic soil (D=3-4 ft.)	Chert of Paleocene-Eocene	1902: Discovered 1903 May-July: Exploration by British Borneo Exploration Co. 1903 August-1908: Mining

Note: (): Mineral in brackets is minor mineral.

(*1) UNDP : United Nations Development Program

(*2) OMRD: Overseas Mineral Resources Development Co., Ltd.

(*3) MGM : Joint Malaysian-German Mineral Exploration Project in Sabah

(*4) MJP : Joint Malaysia-Japan Mineral Exploration Program in the Kinabalu area

(*5) GSM : Geological Survey of Malaysia

A : Kinabalu - Upper Sugut Valley area

B : Labuk Valley - Upper Kinabatangan Valley area

C : Upper Segama Valley - Darvel Bay area

D : Semporna Peninsula area

E : Marudu Bay area

1.4 既存資料調査結果総括表 (Table 16 List of prospecting results of mineral deposits and mineral occurrences) の作成

前記既知鉱徴地一覧表 (Table 15) に記載の鉱徴地及び鉱床のうち、分野別収集資料一覧表のうちの (B) Mineral resources, mineral occurrences, mineral deposits (Table 13) 及び (C) Prospecting or exploration (Table 14) に属する資料に探鉱結果及び結論 (または recommendation) の記述のある鉱床・鉱徴地 (prospect) を選び出して Table 16 List of prospecting results of mineral deposits and mineral occurrences を作成した。

既存資料調査結果一覧表には既知鉱徴地一覧表 (Table 15) には記載されていないが、分野別収集資料一覧表のうちの (C) Prospecting or exploration (Table 14) 記載の資料の中で地化探アノーマリーがあり、今後の探鉱が提言されている鉱床・鉱徴地 (prospect) も記載した。

既存資料調査結果一覧表には資料を検討した結果得られた見解を検討結果 (result of study) として記載した。

Table 16 List of Prospecting Results of Mineral Deposits and Mineral Occurrences

Number	Prospect Name	Prospector	Year	Prospecting Method	Result of Prospecting	Conclusion from Prospecting Result	Result of Study
A-1	Bambangan	UNDP(*1) OMRD(*2) " MGM(*3) MJP(*4) "	1963~65 1970 1970 1981 1985 1985~87	Geochemical prospecting Geochemical prospecting Drilling Geochemical prospecting Geophysical prospecting Drilling (18 holes, 6,063.3 m)	Mineralized zone L=400m, W=200m~250m, T=90m Average grade Cu 0.14%, Au 0.07 g/t Size of ore deposit will be small.	No further exploration for the mineralized zone is necessary, low possibility of new mine to be developed.	
A-7	Mamut	UNDP GSM(*5) OMRD " " "	1965 1966 1968 1969 " 1975	Geochemical prospecting Follow-up geochemical prospecting, shallow drilling (29 holes, 2,217 feet), 200 pits Drilling (10 holes, 2,500m) Drilling (53 holes, 11,000m) Tunneling (755m) Production started	Mineralized zone L=1,200m, W=1,000m Ore reserves 179 million tons Cu 0.476%, Au 0.5 g/t Minable ore reserves 77 million tons, Cu 0.608% Au & Ag contents in copper concentrates: Au 20 g/t, Ag 120 g/t		
A-8	Mankadau	Soriano y Cia MJP	1963 1985	Discovered Geological survey, geochemical prospecting, geophysical prospecting (CSAMT)	Failed to locate ore outcrop; Geochemical anomaly and low resistivity zone were not detected.	No further survey work is advisable.	
A-9	Nungkok	Soriamont Investment Co. " Srikundasan Development & BHP "	1965 1966~68 1973 1974	Geochemical prospecting, geophysical prospecting (SP, EM) Drilling (21 holes, 3,354m) Drilling (6 holes, 762m) Magnetic survey & geochemical prospecting	Mineralized zone L=915m, W=366m Grade of mineralised zone Cu 0.18~0.56%, Mo 0.003~0.051%, Au<0.02 oz/t, Ag 0.03~0.31 oz/t	Discouraging and inconclusive	Mineralised zone is small and grade is low.
A-10	Paliu	MJP "	1985 1986	Geological survey, geochemical prospecting Geochemical prospecting, trenching (10 trenches)	Mineralization is weak.	No further survey is advisable.	
A-11	Paranchangan	R. R. Pilz GSM	1910 1957	Discovered 2 trenches, 40 pits	Ore zone (L=45 feet, W=20 feet, D=7 feet, 150 yd ³)	Deposit is small.	
B-1	Bangau Bangau A	Borneo Mining Ltd. Asian Mining Corporation	1959~60 1962~64	Geochemical prospecting Geophysical prospecting, drilling	Drilling failed to locate any horizontal or vertical extension of primary ore.	Further exploration was not warranted.	
B-2	Bangau Bangau B	Borneo Mining Ltd. Asian Mining Corporation	1959~60 1962~64	Geochemical prospecting Geophysical prospecting, drilling	Drilling failed to locate any horizontal or vertical extension of primary ore.	Further exploration was not warranted.	
B-3	Bangau Bangau B1	Borneo Mining Ltd. Asian Mining Corporation	1959~60 1962~64	Geochemical prospecting Geophysical prospecting, drilling	Drilling failed to locate any horizontal or vertical extension of primary ore.	Further exploration was not warranted.	

Number	Prospect Name	Prospector	Year	Prospecting Method	Result of Prospecting	Conclusion from Prospecting Result	Result of Study
B-4	Bangau Bangau C	Borneo Mining Ltd. Asian Mining Corporation	1959~60 1962~64	Geochemical prospecting Geophysical prospecting, drilling	Drilling failed to locate any horizontal or vertical extension of primary ore.	Further exploration was not warranted.	
B-5	Bangau Bangau D	Borneo Mining Ltd. Asian Mining Corporation	1959~60 1962~64	Geochemical prospecting Geophysical prospecting	Drilling failed to locate any horizontal or vertical extension of primary ore.	Further exploration was not warranted.	
B-6	Bangau Bangau E	Asian Mining Corporation	1962~64	Geophysical prospecting, drilling	Drilling failed to locate any horizontal or vertical extension of primary ore.	Further exploration was not warranted.	Reinvestigation (detailed geological survey, geochemical prospecting & geophysical prospecting) is recommended to search for massive sulfide which might be present in the area.
B-7	Bidu Bidu	Borneo Mining Ltd.	1959~60	Investigation			Reinvestigation (detailed geological survey, geochemical prospecting and geophysical prospecting) is recommended to search for massive sulfide which might be present in the area.
B-8	Bidu Bidu Hills	British Borneo Exploration Co. Malayan Miners Ltd.	1904 1908, 1910 1962	Investigation Reinvestigation Investigation	Ore reserves 1,500,000 t (area=1,100 yd. × 400 yd.)		
B-9	Northern Bidu Bidu Hills	Southern Mining & Development Ltd. Borneo Industrial Enterprises Co. Ltd.	1963 1965	Augering (3 augers) Pitting	Volume: 10 million cubic yard (depth=12 ft.) Fe 40~45%, Ni 0.37%		
B-10	Ensuan	Malayan Miners Co., Ltd.	1961	Pitting (85 pits) & augering	Area=160 acres (depth=20 ft.) Ni 0.5%	Prospecting work proved discouraging. Nickel content of limonite is too low.	
B-11	Karang	British Borneo Exploration Co. GSM Soriamont Investment Co.	1908~12 1955~56 1964	Adit (500 ft.), 3 shafts Geochemical prospecting Geochemical prospecting, geophysical prospecting (SP, EM), drilling (3 holes, 1,113 ft.)	Drilling showed uncommercial mineralization in shear zone in spilitic basalt (by Soriamont)	Further prospecting was not justified (by Soriamont). Reinvestigation (detailed geological survey & PEM) should be considered, because geological setting & mineralization are similar to those of W-Sualog. (by MGM)	Same opinion as indicated by MGM
B-12	Katai	Borneo Mining Ltd.	1961	Investigation, pitting		Inconclusive	

Number	Prospect Name	Prospector	Year	Prospecting Method	Result of Prospecting	Conclusion from Prospecting Result	Result of Study
B-13	Kiabau	Borneo Mining Ltd. UNDP MGM " "	1959~60 1964 1983 1984 1985	Geophysical prospecting Geochemical prospecting, geophysical prospecting (SP, ABEP) Geological survey, geochemical prospecting, geophysical prospecting (PEM, IP) Detailed geochemical survey, geophysical survey (PEM), test drilling (4 holes) Drilling (2 holes)	No conductor detected. (by Borneo Mining Ltd.) Conductor is too weak. (by UNDP) Strong EM conductor was detected. (by MGM) 2 holes intersected cupriferous massive sulfide (20m thick, Cu 0.5~2.5%, Au 0.1~1.0 g/t, Ag 2~5 g/t) in 1984. (other 2 holes were abandoned due to mechanical trouble.)	Too small for economic consideration. No recommendation for further work (by UNDP) Further substantial drilling is needed to outline geometry of sulfide bodies, their mineral composition and metal contents. (by MGM)	Ore body seems to be not so big.
B-14	West Kiabau	A.W. Allen GSM	1959 1963	Pitting (depth \leq 5 ft.) Reinvestigation		Economically unattractive, no further work is warranted (by GSM)	
B-15	Luminitong	UNDP GSW	1963~65 1986	Geochemical prospecting Follow-up geochemical prospecting		Massive sulphide similar to West Sualog might not be present.	Geophysical survey (PEM) is recommended to search for massive sulfide which might be, still, present in the area.
B-17	Mansan	GSM	1974	Discovered			Reinvestigation (detailed geological survey, geochemical prospecting, geophysical prospecting) is recommended to search for massive sulfide which might be present in the area.
B-18	Mansan & Wasai	GSM	1978~79	Pitting (66 pits), augering (7 holes)	Ore reserves: 2.5 million T Grade: Al_2O_3 45~54% Area: 2.4 Km \times 1.6 Km Thickness: several cm ~ 3.7 m	Ore reserve is insufficient to mine, due to long distance from the port.	
B-19	Meliau	Borneo Exploration Co. Soriano y Cia	1910~11 1962	Trenching Geochemical prospecting			Reinvestigation (detailed geological and geochemical surveys) is recommended to search for massive sulfide which might be present in this area.
B-21	Pinanduan	Soriano y Cia " Soriamont Investment Co.	1962~63 1963 1964	Geochemical prospecting Geophysical prospecting (SP, EM) Pitting, augering, drilling (4 holes)	Drilling showed uncommercial sulfide mineralization.	No further work was warranted.	
B-22	Porog (Cr)	Borneo Mining Ltd.	1962	Drilling (9 holes, 1,952 ft.)	No continuation in depth was found by drilling.	Failed to locate chromite in minable quantity in commercial quality	
B-23	Porog (Fe)	GSM	1957	Investigation	Ore reserves: 50,000 t (Fe 60%, Cu 0.2~0.3%)	Too small orebody; no immediate commercial interest	

Number	Prospect Name	Prospector	Year	Prospecting Method	Result of Prospecting	Conclusion from Prospecting Result	Result of Study
B-24	Sualog (Fe)	GSM	1958	Pitting (10 pits), trenching	No economic value	No further work is recommended.	
B-25	Northeast Sualog	Borneo Mining Ltd. UNDP MGM	1961 1963~64 1983~84	Geochemical prospecting Geochemical prospecting Reinvestigation	Result of reinvestigation was disappointing.	No further prospecting work is recommended. (by MGM)	
B-26	Southwest Sualog	Borneo Mining Ltd. UNDP MGM	1961 1963~64 1983~84	Investigation Geochemical prospecting Reinvestigation	Result of reinvestigation was disappointing.	No further prospecting work is recommended. (by MGM)	
B-27	West-Sualog	Borneo Mining Ltd. Asian Mining Ltd. UNDP " MGM	1961 1962~63 1964 1965 1982~84	Investigation Geophysical prospecting, shallow drilling Geophysical prospecting (SP, EM) Geochemical prospecting Geophysical prospecting (PEM, IP), drilling (13 holes)	9 holes out of 13 holes intersected massive sulfide. Ore reserves: 1,542,240 t Eastern body- 1,224,000 t (300m × 15m × 80m × 3.4) Western body- 318,240 t (130m × 12m × 60m × 3.4) Cu 6.2~10.1%, Au 1.6~7.3 g/t, Ag 14.6~30.3 g/t	Further substantial drilling is needed to outline geometry of sulfide bodies, their mineral composition and metal contents. (by MGM)	Ore body appears to be not so big.
B-28	Taguuk	Borneo Mining Ltd.	1961	Investigation		Finding chromite concentration of economic importance is poor.	
B-29	Tavai Plateau	Borneo Mining Ltd. Soriamont Investment Co.	1962 1964	Drilling (20 holes, 800 ft.), pitting Augering	Drilling indicated substantial tonnage. Ore reserves: 200 million tons (area=15 Km ² , Ni 0.40~0.55%, Fe 40~49%)	Further drilling to test Fe & Ni contents is necessary. (by Borneo Mining Ltd.) Uneconomical, due to low content of Fe. (67% Fe is necessary.) (by GSM)	Same opinion as indicated by GSM
B-30	Tavai Plateau South	GSM	1984~85	Pitting (11 pits) & augering	Area=3.5 Km ² , 2~10m thick (Fe 35~50%, Cr 0.32~1.5%, Ni 0.12~1.18%) Ore reserves=4.9 million tons (cut off: Fe 45%)	Uneconomical, due to low content of Fe. (67% Fe is necessary.)	
B-31	Ul Pari	Borneo Mining Ltd. UNDP MGM "	1961 1963~64 1983 1984	Geochemical prospecting Geochemical prospecting Geological survey, geochemical prospecting, geophysical prospecting (PEM, IP) 3 drill holes (abandoned)	Strong EM conductor was detected.	Further drilling for EM conductor is recommended.	
B-33	Bangau Bangau (Bidu Bidu Hills)	MGM	1982~84	Geochemical follow-up prospecting	Geological environment in the southern part of the area is believed to offer some prospect for massive sulfide mineralization.	Detailed geological mapping, soil sampling, and possibly geophysical work is considered in selected parts of Bangau Bangau area.	

Number	Prospect Name	Prospector	Year	Prospecting Method	Result of Prospecting	Conclusion from Prospecting Result	Result of Study
B-34	East-Sualog (Bidu Bidu Hills)	MGM	1982~84	Geochemical follow-up prospecting	Geological conditions are quite similar to those of W-Sualog. Significant Cu/Zn geochemical anomalies were detected.	Additional follow-up work (grid soil sampling, geophysical survey) is warranted to examine as to whether massive sulfide mineralization at W-Sualog extends to the east.	
B-35	Sualog/Pari (Bidu Bidu Hills)	MGM	1982~84	Geochemical follow-up prospecting	Geological conditions are quite similar to those of W-Sualog. Significant Cu/Zn geochemical anomalies were detected.	Additional follow-up work (grid soil sampling, geophysical survey) is warranted to examine as to whether massive sulfide at W- Sualog extends to the south.	
B-36	Ulu West-Sualog (Bidu Bidu Hills)	MGM	1982~84	Detailed geochemical and geophysical surveys	Additional massive sulfide prospects are indicated by the results of geophysical work.	Drilling should be carried out for massive sulfide prospects indicated by geophysical work to outline additional ore potential.	
B-37	Binalik (Labuk Valley)	UNDP MGM	1963~64 1980~81	Geochemical prospecting reassessment of UNDP work	Significant geochemical Cu anomalies which have close spatial relationship to outcrops of Chert- Spilite Formation representing pillow lava stage of ophiolite sequence were detected.	Systematic PEM surveys are recommended.	
B-38	Ulu Unsand- Tungud/ Pinapakang (Labuk Valley)	UNDP MGM	1963~64 1980~81	Geochemical prospecting reassessment of UNDP work	Outstanding geochemical anomalies which have close spatial relation- ship to outcrops of the Chert- Spilite Formation representing pillow-lava stage of ophiolite sequence in the area were detected.	Narrow-spaced stream and base-of-slope samplings followed by soil survey as first step are recommended.	
C-4	Diwata	Borneo Mining Ltd.	1961	Investigation	Mineralization is too poor.		Detailed geological survey & geochemical survey are recommended to investigate whether ophiolite sequence of Chert-Spilite Formation with possible massive sulfide is present.
C-5	Kalung	Borneo Mining Ltd.	1961~63	Investigation	No evidence to suggest that chromite occurs in minable quantity at shallow depth	The search was unsuccessful.	
C-6	Laila	Borneo Mining Ltd.	1961~63	Investigation	No evidence to suggest that chromite occurs in minable quantity at shallow depth.	The search was unsuccessful.	
C-7	Saddle	Borneo Mining Ltd.	1961~63	Investigation	No evidence to suggest that chromite occurs in minable quantity at shallow depth.	The search was unsuccessful.	

Number	Prospect Name	Prospector	Year	Prospecting Method	Result of Prospecting	Conclusion from Prospecting Result	Result of Study
C-8	Silam (Hitam)	Borneo Mining Ltd. " GSM	1962 1963 1970	Investigation Drilling Investigation	Prospecting failed to prove minable ore reserves. (BML) Drill records are incomplete and it is not known whether other ore bodies were found. (GSW)	The search was unsuccessful. (Borneo Mining Ltd.) More pits and trenches could be dug to be supplemented by drilling if warranted. (GSW)	Same conclusion as indicated by Borneo Mining Ltd.
C-9	Sabahan	Soriamont Investment Co.	1962~63	Geochemical prospecting	Unsuccessful		
C-11	Tingkayu	Soriano y Cia	1962~63	Geochemical prospecting	Geochemical Cu anomaly was detected.	Further detailed work especially soil sampling in the area is recommended.	
C-13	Ulu Segama	Soriano y Cia	1962~63	Geochemical prospecting		Further detailed work especially soil sampling in the area recommended.	
C-15	Upper Danum	Soriano y Cia MGM	1962~63 1980~81	Geochemical prospecting Reassessment of previous prospecting	Geochemical anomalies of Cu were found. (by Soriano) These anomalies can be considered as potential indicators for the massive sulfide mineralization. (by MGM)	Detailed follow-up work (narrow spaced stream & base-of-slope sampling combined with geological mapping perhaps followed by soil sampling) is recommended. (by Soriano and MGM)	
D-2	G. Pock	GSM " " MGM	1967~68 1972 1977~79 1981	Reconnaissance geochemical survey (stream sediment) Follow-up geochemical survey (stream sediment & soil) Detailed grid geochemical survey (soil) Follow-up geochemical survey, drilling (3 holes)	The geochemical anomalies were found to reflect widespread base metals sulfides. Drilling penetrated altered andesite disseminated by pyrite, but did not intersected economic mineral.	Further investigation are not considered. (MGM)	Hydrothermal alteration around G. Pock should be investigated to delineate hydrothermal alteration halo which might be a indicator of porphyry copper type mineralization emplaced underground.
D-3	G. Wullersdorf	GSM " " MGM	1967~69 1971, 73 1974~78 1981~83	Reconnaissance geochemical survey (stream sediment) Follow-up geochemical survey (soil) Detailed geochemical survey Follow-up geological survey, geochemical survey, shallow drilling (15 holes, 29.5m)	Geochemical anomalies originate from widespread but discontinuous, generally low-grade sulfide mineralization. Sulfide mineralizations outcropping in stream beds were found in 23 localities in the northern part of the Wullersdorf area.	Further investigations comprising more extensive narrow spaced grid soil sampling, trenching, and perhaps geophysical survey should be carried out in a step-by-step approach in the Bukit Mantri area. (MGM)	The hydrothermal alteration in the Bukit Mantri - G. Wullersdorf area should be investigated to delineate hydrothermal alteration halo which might be a indicator of porphyry copper type mineralization emplaced underground.
E-1	Manjupanju	R. R. Pilz	1909~10	Pitting (2 pits)	No copper ores were found by pitting.	No economic value	
E-2	Marasimsim	GSM GSM	1968 1988	Reconnaissance geochemical survey (stream sediment) Follow-up geochemical survey	3 Cu-Zn-Ag anomalies in stream sediment were detected. (1988) These anomalies are related to vein type mineralization in spilitic pillow lava and may resemble the stockwork zone of Cyprus-type cupriferous massive sulfide deposit.	Follow-up work, including ridge and spur soil sampling and rock-chip sampling within the anomalies, to delineate the extent of the stockwork zone which may possibly lead to the detection of the underlying massive sulfide deposit.	

Number	Prospect Name	Prospector	Year	Prospecting Method	Result of Prospecting	Conclusion from Prospecting Result	Result of Study
E-3	Pingan Pingan	British Borneo Exploration Co. MGM	1909-10 1980-81	Trenching, drilling (800 ft.), 2 adits (50 ft., 16 ft. long), 1 shaft (5 ft. deep) Reassessment	No copper was found by drilling. Occurrences of copper mineralization in basaltic rocks of Chert-Spilitic Formation suggest prospects for West-Sualog type massive sulfides. (MGM)	Copper occurs in negligible quantities and deposit appears to be of no economic value. Reinvestigation work should initially start with narrow-spaced drainage and base-of-slope sampling perhaps followed by soil surveys with the aim to indentify target zones for ground geophysical surveys. (MGM)	Same opinion as indicated by MGM
E-4	Tagaho	British Borneo Exploration Co. GSM	1905 1959	Investigation Reinvestigation, pitting (4 pits)	Ore reserves: 25 million T (British Borneo Syndicate)	Ore reserves are greatly overestimated. Ore is of no economic value. (GSM)	
E-5	Taritipan	British Borneo Exploration Co. "	1903 1903-08	Exploration Mining	Ore body is small in quantity. (Ore reserves at the various mining localities are estimated at most as a few hundred tons.)	Mining was unsuccessful. (Quality of ore is not marketable due to high silica content derived from chert.)	

Note: (*1) UNDP : United Nations Development Program
(*2) OMRD: Overseas Mineral Resources Development Co., Ltd.
(*3) MGM : Joint Malaysian-German Mineral Exploration Project in Sabah
(*4) MJP : Joint Malaysia-Japan Mineral Exploration Program in the Kinabalu area
(*5) GSM : Geological Survey of Malaysia
(*6) BML : Borneo Mining Limited

1.5 鉱物分布図の補足

1976年現在でマレーシア地質調査所が作成した縮尺50万分の1のサバ州鉱物分布図に、1977年以降に発見された鉱徴地及び鉱床の位置、鉱種及び鉱床・鉱徴地(prospect)名を記入した。

追加記入したprospectの内訳は次の通りである。

(A) Kinabalu地域

- (1) BambangonのCu occurrence をCu large depositに修正
- (2) Lingangaaのprospect名を記入

(B) Labuk 川地域

- (1) Ulu Pari (Cu occurrence) を記入
- (2) Wasai Mansan (AlFe occurrence) を記入
- (3) Tavai South (Fe large deposit) を記入
- (4) West SualogのCu occurrence をCu large depositに修正
- (5) Kuala Kiabau のCu occurrence をCu large depositに修正

(C) Segama川上流—Darvel湾地域

- (1) Silam山付近のCr occurrence を2ヶ所記入
- (2) Silam山付近及びTingkayu山付近のMg occurrence を記入
- (3) Tingkayu 山付近のCu occurrence を記入
- (4) Ambun山及びTribulation 山付近のAg occurrence を記入
- (5) Beeston山—Heather 山間のalluvial Au を6ヶ所記入
- (6) Segama 上流地域のAlluvial Cr を13ヶ所記入

(D) Semporna半島

- (1) Wullersdorf山周辺のCu—Zn—Pb occurrence を12ヶ所記入
- (2) Pock 山周辺のCu—Zn—Pb occurrence を記入
- (3) Pock 山周辺のCu occurrence を記入
- (4) Wullersdorf山周辺のCu—Zn—Pb—Au—Ag floatを6ヶ所記入
- (5) Pock 山周辺のalluvial Au を3ヶ所記入

1.6 サバ州で実施された地化学探鉱の概況

過去に国連、マレーシア地質調査所及び西独がサバ州で行なった地化学探鉱の概況は次の通りであり、その実施地域を図10に示す。

1.6.1 United Nations Labuk Valley Project

1963-1965にKinabalu地域及びLabuk Valley地域において実施された。

(1) Kinabalu地域

実施面積：980km²

サンプリング方法：Reconnaissance stream sediment and base-of-slope(bank)sampling及び
びdetailed follow-up stream sediment and grid soil sampling

採取サンプル数：7,560ヶ

サンプリング間隔：半マイル毎

サンプリング密度：2.6 ケ/km²

分析元素：Cu, Ni

(2) Labuk Valley地域

実施面積：2,600km²

サンプリング方法：Reconnaissance stream sediment and base-of-slope sampling 及びdetailed
follow-up stream sediment and grid soil sampling

採取サンプル数：15,600ヶ

サンプリング間隔：半マイル毎

サンプリング密度：2 ケ/km²

分析元素：Cu, Ni

1.6.2 Geological Survey of Malaysia が実施せるもの

(1) Upper Segama-Darvel Bay 地域

実施年：1966-1970

実施面積：約 4,500km²

サンプリング方法：Reconnaissance stream sediment and bank sampling

採取サンプル数：5,529ヶ

サンプリング間隔：3/4 ~ 1 マイル

分析元素：total Cu

(2) Pock山地域

実施年：1967-1972

実施面積：約 500km²

サンプリング方法：Reconnaissance stream sediment and bank sampling及びfollow-up closer
spaced stream sediment and soil sampling

採取サンプル数：1,830ヶ

サンプリング間隔：750m

サンプリング密度：3.6ヶ/km²

分析元素：total Cu

(3) Wullersdorf山地域

実施年：1967-1973

実施面積：約500km²

サンプリング方法：Reconnaissance stream sediment and bank sampling及びReconnaissance grid soil sampling

サンプリング密度：stream sediment and bank……1.75ヶ/km²
soil…… 300m×300m grid (面積16km²)

分析元素：Reconnaissance stream sediment ……Cu
soil……Cu, Zn

(4) Tawau 地域

実施年：1969

実施面積：約1,050km²

サンプリング方法：Reconnaissance stream sediment and bank sampling

サンプリング密度：1.5ヶ/km²

(採取サンプル数：1.5×1,050=1,575ヶ)

1.6.3 Joint Malaysian-German Mineral Exploration Project

過去に国連及びマレーシア地質調査所が実施した地化学探鉱の結果を再検討の上、保存されていた表17記載の地域のサンプルの再分析とPock山地域及びWullersdorf山地域のfollow-up stream sediment(drainage)samplingが1980年9月-1981年8月に行われた。

さらに1982年にはWullersdorf山地域においてRidge-and-spur soil sampling (総延長30,000 m, 50m間隔)及びgrid soil sampling (25m×100m grid), Labuk Valley地域のBidu Bidu Hillsにおいてdetailed grid soil samplingが行われた。

(Joint Malaysian-German Mineral Exploration Projectの“Final Report on investigation of mineral resources in Sabah 1980-1984”から簡略化した)。

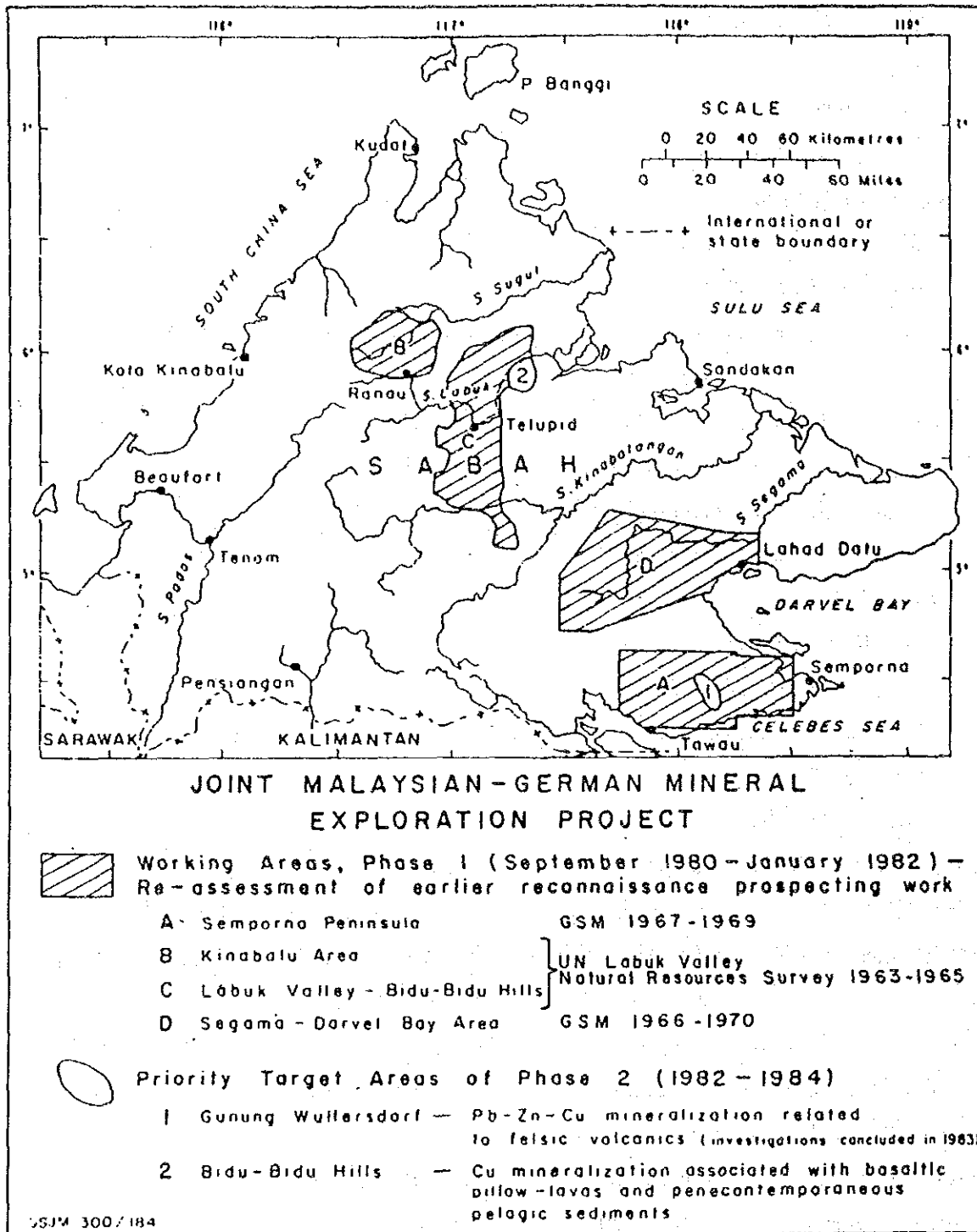


図10 サバ州地化探実施位置図

(“Final Report on investigation of mineral resources in Sabah 1980-1984” からとった)

Table 17 Joint Malaysian-German Mineral Exploration Project
Analytical work performed during Phase 1 (September 1980-August 1981)

Area	Surface covered by reconnaissance survey (sq km)	Reconnaissance Survey		Earlier follow-up prospecting work	MGM follow-up prospecting work	Number of determinations
		Number of drainage samples analyzed *)	Number of base-of-slope samples analyzed *)	Number of soil samples (ridge & spur and grid samples) analyzed *)	Number of drainage samples analyzed *)	
Gunung Poek (Semporna)	500	2048 (7)	1153 (3)	208 (4)	237 (3)	19338
Gunung Wul-lersdorf (Semporna)	500	2610 (7) 204 (5)	1235 (3)	224 (5)	717 (4)	26983
Tawau (Semporna)	1050	1565 (6) 1565 (3)	-	-	-	14085
Kinabalu	980	2521 (6)	183 (3)	-	-	15675
Kota Belud	150	515 (6)	-	-	-	3090
Labuk Valley	2600	6648 (6)	585 (3)	2675 (4)	-	52343
Segama-Darvel-Bay	4000 (sample location maps of about 1000 sqkm missing)	1286 (6)	-	-	-	7716
Total :		18962	3156	3107	954	139230 **)

*) In brackets respective number of elements determined

**) 25,470 determinations carried out in the laboratory of the Geological Survey of Malaysia in Ipoh

(Taken from "Final Report on investigation of mineral resources in Sabah 1980-1984")

第2章 地形データ及び地質データのデジタル化

地形データ及び地質データのデジタル化作業の内訳は次の通りである。

2.1 調査地域の縮尺50万分の1の地形図データ入力

サバ州の縮尺50万分の1の地形図をもとに、デジタイザーによる等高線の読取り作業を実施した。等高線の読取り作業は500フィート間隔で行ない、等高線読取りの他、道路、河川、都市の地物・名称の入力及び山岳名・山岳標高入力を含むものとした。

入力面積は調査地域の約26,500km²で、デジタイザーでの読取り原点は図面左下の東経116°00′、北緯4°00′の地点とした。入力データの確認は、コンピュータを使い紙に等高線を出力し、視覚的に比較し検査した。

2.2 調査地域の縮尺50万分の1の地質図データ入力

サバ州の縮尺50万分の1の地質図から調査地域約26,500km²の地質情報をポリゴン入力した。入力項目は地質情報の他、リニアメント、断層等の入力も含むものとした。デジタイザーでの読取り原点は2.1と同様とした。また入力データの確認はコンピュータを使い、紙に線図を出力し、視覚的に比較し、検査した。

2.3 精査地域の主要な地形データ（縮尺5万分の1）の入力

調査地域内の精査地域（約8,000km²）の主要な地形データ（縮尺5万分の1）を500メートル・メッシュ（図面上の長さ1cmのメッシュ）の交点の座標値をデジタイザーで読み取って、デジタル入力した。

2.4 特定地域の主要な地形データ（縮尺5万分の1）の入力

精査地域内の特定区域（2,250km²）の主要な地形データ（縮尺5万分の1）を50メートル・メッシュ（図面上の長さ1mmのメッシュ）の交点の座標値をデジタイザーで読み取って、デジタル入力した。

2.5 地形図と地質図の重合鳥瞰図の作成

2.1でデジタル化した地形データから作った鳥瞰図に2.2でデジタル化した地質図データの画像を重ね合わせて重合鳥瞰図を作成した。重合鳥瞰図は地質の分布を表わした鳥瞰図(Annex 2)及び断層、褶曲軸などを表わした鳥瞰図(Annex 3)の2枚よりなっている。

2.6 地形データとランドサット画像の重合鳥瞰図の作成

2.4で入力された地形データから作った鳥瞰図にランドサット画像のデジタルデータを重ね合わせて重合鳥瞰図(Annex 4)を作成した。ランドサット画像は赤外カラー画像とし、重ね合せ鳥瞰図は2方向から見た4種類の画像から作成した。