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A Field Trip to Taiwan in 1933

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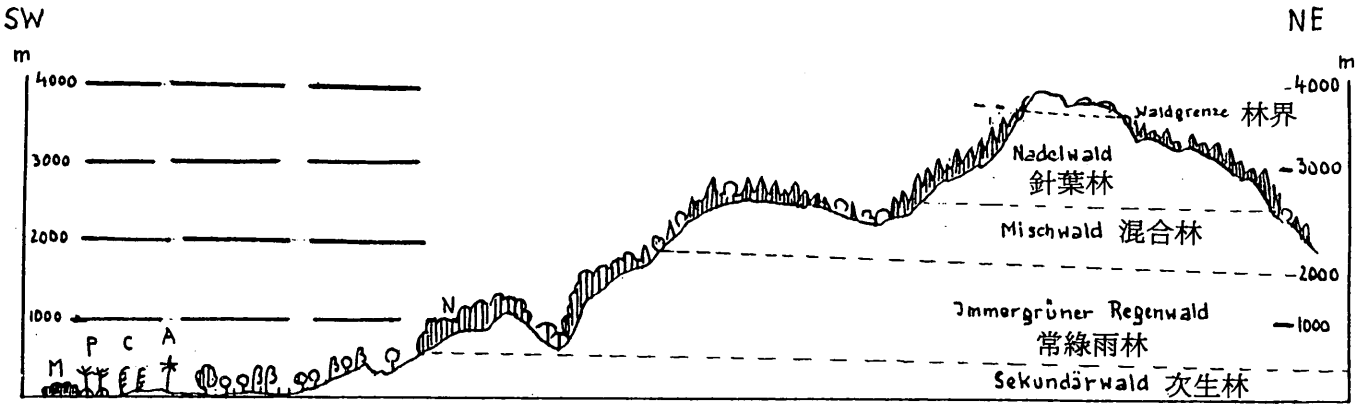
I . INTRODUCTION

In 1993 it is exactly 60 years ago since Canton-based WOLFGANG PANZER, at that time a professor at Sun Yat Sen University, made his research trip to Formosa, as the island was then called. He was accompanied by HANS ESCHENLOHR from the Forestry Department of the same university. They spent the summer vacation 1933 exploring the island. The two of them were especially interested in the regional geography of the less accessible parts of the mountains.

ESCHENLOHR had a keen interest in the techniques of making timber and in reforestation, while the geographer, PANZER, investigated the effects of the Japanese colonization process on the entire landscape. His main interest however lay in the natural landscape. In addition to his basic curiosity about regions scarcely explored and described by modern geographers from outside Asia, PANZER was eager to conduct a systematic inventory of the vegetation cover, collecting and classifying the plants, especially from the mountainous regions.

Recently I had the chance to view and study his herbarium and found it in very good condition though sixty years have now passed since its compilation.

However PANZER not only collected plants for his herbarium; he also conducted an intensive study of the spatial variation and distribution of the vegetation cover. He ascertained the altitudinal belts of vegetation from the coast to the highest point of the island, Yushan(Fig.1). But he did more: in modern terminology one would say that his research had an ecological base. He saw the



Höhengliederung der Vegetation auf Formosa (Entwurf Panzer)

台灣植物垂直分布圖（潘策 繪製）

M = Mangrove 紅樹林
P = Pandanus dickicht mit Phoenixpalmen 林投灌叢間雜棟榔
C = Casuarinenhecken 木麻黃叢
β = Bambus 竹林
A = Arecapalmen 檳榔
ϕ = Acacia confusa 相思樹
= Kulturflächen 耕作地

= Immergrüner Regenwald 常綠雨林
= Baumfarne 樹形蕨類（如：筆筒樹類）
N = Nebelwald（熱帶）霧林
= Sommergrüner Laubwald 夏綠闊葉林
= Nadelwald 針葉林
= Knieholz, Polsterpflanzen 山松、匍匐類植物

Fig.1: Altitudinal vegetation belts on Formosa; from: PANZER, unpublished materials, not dated
（圖中之中文係由編者加註）

natural landscape in the light of the reciproque influences of climate, vegetation geology and history of landforms.

Unlike other travellers, for example Stöpel(1889/1905), neither PANZER nor ESCHENLOHR ever published a report on their journey. PANZER did plan a book on the regional geography of Taiwan, for which he finished the preliminary work but unfortunately never completed it. In fact PANZER published very little the wealth of materials he had gathered in Taiwan at all. However in his lectures he did often read from his unpublished findings. The herbarium, the field books, notes, sketches and fotos - all as yet untapped sources of information - are preserved by his widow, Mrs. MARTHA PANZER, who is in charge of her late husband's estate.

II. THE FIELD TRIP

It is from Mrs. PANZER that I have learnt something of the external aspects of the journey itself. The two travellers went by boat to Formosa at the beginning of July 1933. There they started out from Taipei, where the authorities issued them with a permit for their itinerary. A copy of the original itinerary follows:

1st day	Taihoku 台北 (by rail, 8.46 a.m.) - Rato 羅東 (11.53 a.m.) change the train, which leaves from Chikurin Station 竹林車站 at about 1:30 p.m. - Doba 土場 (about 3 hours by rail), stay at Eirinshokurabu (Forestry Bureau Club)
2nd day	On foot - Doba (4.500 ft.) - Eboshi - Siesen - Rumoan 留茂安 - Kurapp - Shikikun 四季 (Police station) 20 kilometers
3rd day	On foot - Shkikun - Meira 米羅 - Ugan - Dangai - Piyanan Pass 匹亞南鞍部 (6.200 ft.) stay at Police Station. 20 kilometers
4th day	On foot - Piyanan Pass - Yuusho 有勝 - Shirafushi 志良節 - Heiganzan 平岩山 (6.000 ft.) -Taiboku 太保久 (今松茂) - Kunugigaoka (6.700 ft.) - Matsumine 松嶺 (8.560 ft.) stay at Police station. 25 kilometers
5th day	On foot - Matsumine - Marikowen (6.500 ft.) - Maleppa 望洋 (4.500 ft.) - Hakku 白狗 (今瑞岩) Stay at Police Station. 28 kil-

	meters
6th day	On foot - Hakku - Habon - Tatsutake立鷹（7.332 ft.）- Rudoff - Musha霧社（3.390 ft.） Stay at Sakura櫻社（今春陽）Hotel. 25 kilometers
7th day	Stay at Musha.
8th day	On foot - Musha - Baikei眉溪（Push-car）- Hori埔里, change the car - Gyochi魚池（on foot）- Suisha水社（Lake Jitsugetsutan日月潭）. Stay at Kampekiro涵碧樓Hotel.
9th day	Stay at Suisha - Sail across the lake and visit Kabansha化番社（今德化社）
10th day	On foot - Suisha - Gojo五城（Push-car）- Galshatei外車埕（By rail 9.31 a.m.）- Suiriko水裡坑（Push-car）- Tompo東埔（about 7 hours ride on Push-car）, Stay at Police Station
11th day	On foot - Tompo - Rakuraku 樂樂 - Taigan 對觀 - Kanko 觀高 - Hattsukan八通關stay at Police Station. 20 kilometers
12th day	On foot - Hattsukan - Niitakayama 新高山（今玉山）- Taatakaambu塔塔加鞍部（Hütte）.
13th day	On foot - Taatakaambu - Arisan阿里山（stay at Arisan Hotel）.
14th day	Stay at Arisan.
15th day	Arisan (by train) about 9 a.m. - Kagi嘉義- Tainan台南
16th day	Tainan - Takao高雄- Choshu潮洲- Garampi鵝鸞鼻- Shijukei四重溪by motor-bus.
17th day	Shijukei - Choshu (by train) - Takao（motor-bus）.
18th day	Takao（by steamer）- Taito台東.
19th day	
20th day	Taito - Karenko花蓮港.
21th day	Karenko（by motor-bus）- Kyoko 太魯閣峽口（enterance of Gorge）on foot - Batagan 16 kilometers. Stay at Police Station.
22th day	Batagan - Kyoko（by bus）- Suo蘇澳（by rail）- Taihoku.

（official itinerary kindly provided by Mrs. M. PANZER）

*旅程表之中文地名係由編者加註

PANZER and his companion did not always stick closely to this official itinerary; sometimes they stayed overnight in the cabins of lumberjack's families. Here they learned about the way in which these families who had come to the interior of the island had to live.

Mrs. PANZER has many tales to tell about certain incidents and aspects of the journey: the bath shared with whole host families in the lumber camps; being arrested by the police in spite of having valid travel permits; travelling by train, on foot and by push-car; walking through dense subtropical forests, walking through misty mountain forest, crossing deep chasms on rope bridges that swayed at every step. Then there was the language problem: they managed to find their way around even though they sometimes had to rely on gesticulating in sign language and sometimes on PANZER's ability to read and draw the symbols of the Chinese tongues. Now and then PANZER even found somebody with

On top of Yushan. Prof.PANZER(left), Prof.ESCHENLOHR(right) July 1933. Self-timer. Foto: Courtesy Mrs.MARTHA PANZER

whom he could communicate in Mandarin. Thus PANZER's Mandarin lessons came in useful after all, even in the interior parts of what was then Formosa.

III. TRACES OF THE ICE AGE

PANZER's unpublished materials are not only of historical and cultural interest. The meticulous documentations which he has left behind also provide an excellent starting point for evolution studies of the natural landscape, for comparisons between the state of the natural landscape in the summer of 1933 and in recent years.

One article to come out of the research trip was published by PANZER in German in 1935, entitled "Eiszeitspuren auf Formosa" (Traces of the Ice Age on Formosa). The political situation looming at the time together with the fact that the article appeared only in German probably prevented it from reaching a wide audience. Nevertheless, although almost sixty years have passed and new insights have been gained into glaciations, the regional findings remain of value today. Hence it is not only against a historical background that I venture to present here the findings of a study that is more than half a century old since its main results merit a discussion even today.

In climbing Yushan PANZER and his companion chose the least difficult ascent; they followed the path in the valley northeast of the main summit. Neither in the alpine belt above the timberline and up to the highest arêtes of the mountain group nor below the timberline did PANZER find any indications of glacial landforms. The valleys are not U-shaped but V-shaped, they are deeply intersected, the slopes are extremely steep. The topograpgy is fluvial, typical of high mountains at the latitude of the tropic of Cancer in predominantly humid climate.

Weathering, denudation and erosion are intense, so one might conclude that if any traces of glacial influance did once exist, they no longer do so. However in spits of these conditions - seemingly unfavourable for investigations of glacial relics as they are - near the timberline but still within the densely forested area PANZER found a deposit on the slope which differs starkly from the deposits on the valley floors and on the slopes of the area in general. The boulders, pebbles and gravels of the valley floors are fresh, show signs of recent torrential trans-

portation; the gravels and the blocks, and sometimes the boulders too are subrounded. In contrast to the bed load, the detritus of the slopes is not subrounded and it is small-sized. Both types of deposit are widespread here. The deposit PANZER describes at an altitude of 3160m consists of slate and quartzite blocks and stones. The biggest block has a volume of about 2 m^3. The bigger components are subangular; the stony fragments do not display any orientation. They are embedded in a matrix of fine, loamy detritus.

Striation is rare. PANZER explains this with the monotonous rock association of the drainage area. The predominant slate does not seem to be very favourable to the conservation - and the formation - of glacial striation. According to PANZER the general structure of the deposit allows a classification as a glacial accumulation form, a moraine.

This moraine, a wall on the southeastern slope of the above mentioned valley, runs down at an acute angle to the slope. The wall is covered with grass and is thus clearly distinguishable from the dense fir stands of its surroundings. In PANZER's view the topography of the location shows that the wall must have been part of a lateral moraine which is no longer complete, but marks the left side of an ancient glacier origination in the spring pits under the north and main summits of Yushan. PANZER assumes this glacier to have a maximum of two km in length. This seems to be very long considering the actual topography. Therefore PANZER takes into consideration a diminution of the drainage area of the E. side of Yushan since the last glaciation. This is indicated by the continual shifting of the divide of Yushan to the east.

As there is no evidence either of real cirques or of glacier work in the valley topography there is a great discrepancy between the occurrence of morainic material and the non-existent glacial landforms. PANZER did not find other moraines or morainic landforms in the Yushan group itself. The wall of blocks he found on the talus slope west of the southern arête of Yushan is, according to him, no moraine in the strict sense but a slightly convergent form, a snow moraine. The wall is shaped in lobal form, blocks are fresh, angular and loosely packed. To me this wall seems to be a rock glacier, a phenomenon which should be studied more intensely.

PANZER dates the lateral moraine of the eastern side of Yushan to the Riss

period, which means the middle Pleistocene. According to PANZER there was only a minor slope glaciation in the younger Pleistocene, his Wuerm period. PANZER tries to determine the snowline at Yushan for the glacier reconstructed by means of the lateral moraine: he calculates a height of the snowline of about 3500m for the middle Pleistocene period.

PANZER suspected traces of Pleistocene glaciation in the mountains east of Yushan and found this to correspond well with the findings of KANO(1934) and TANAKA/KANO(1934) in the Northern part of the Central Mountains.

IV. FINAL REMARKS

The summit weather station of Yushan which PANZER would so much have liked to see established in fact now exists. Research has been carried out on the correlations between coral reefs, terraces, tectonics and climate, subjects which, in the thirties, he had wanted to be dealt with.

Since PANZER and ESCHENLOHR visited Formosa, a lot of the island has undergone far-reaching change. Nevertheless part of PANZER's scientific work - whether published or not - records aspects of the natural landscape in particular which reflect the major developments in the dynamic natural and cultural environment of Taiwan.

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〔附錄〕

＊潘策（WOLFGANG PANZER）先生小傳（1896～1983）：羅賀芬（MARIANNE ROLSHOVEN）原撰

楊宗嶔　編譯

潘策先生成長在一書香世家，其父親爲德文教授。少年時代在海德堡與法蘭克福渡過。大學生涯則在黑森林區內大學城佛萊堡 (Freiburg)，主修學科爲地理學與地質學。1922年以對德國中部山脈陶努斯（Taunus）山地所做的地形研究獲頒博士學位。隨即進入基森（Gieβen）大學地理所工作，1925年以對西班牙河谷演育與冰河期氣候相關研究，取得教授升等資格，並晉升爲該所助教授職等。

1929年橫越大西洋赴美國西岸加州柏克萊大學地理系，開授地理學及地圖學課程一年。次年，續西行越過太平洋，抵達中國，受聘於廣州中山大學地理系，任教四年。

1934年底返回德國，任職於柏林大學，教授東亞地理課程。1936年被海德堡大學聘任，擔任地理系正教授。1939年受徵召入伍參戰。戰後，於1950年才重新恢復教職，受聘於麥茲（Mainz）大學，一直到退休（1961/62）。1963-66年再度應邀赴美任教於佛蒙州的Middlebury學院。

在數十年的教授生涯裡，開授課程無數，但最主要的學科爲：地形學、地圖學及區域地理（以亞洲、環地中海地區及德國爲主）。

潘策先生學術素養豐富、野外實察工作細緻。戰前（1936～1939）曾擔任德國大學地理教師聯盟主席一職，學養備受學界尊崇，由此亦可見一斑。私下並極重情誼，終其一生與他海內、外的門生一直保持著良好的聯繫。

潘策先生熱愛中國，在廣州的四年內，足跡幾乎踏遍整個南中國，同時，爲了進一步認識中國的文化與民俗等，每日並勤學中文。此外，他也利用假期

到海外旅行研究，他到過日本、菲律賓、新幾內亞及俾斯麥群島。在1933年暑假且渡海到台灣，深入中央山脈，探尋冰河遺跡。

潘策先生非多產學者，其壯年時期又值戰亂，著作雖少，但那本1965年編寫的「地形學」增修多次，至今仍是德國地理系學生參與地形學畢業考必讀書籍之一。

至於潘策先生有關中國所發表的論文如下：

Geographical problems in the Lofushan region. in: Quatern. Journal of Geography, Canton 1933, pp.79

Zur Geomorphologie Sudchinas. in : Geologische Rundschau Bd. 26, 1935, pp.155

Eiszeitspuren auf Formosa. in : Zeitschrift für Gletscherkunde, Bd.23, pp.81

Der südchinesische Hafen Pakhoi, in: Geographischer Anzeiger, 1939, pp.214

Verwitterungs - und Abtragungsformen im Granit von Hongkong. in: Ergebnisse und Probleme moderner geographischer Forschung, Hans Mortensen zu seinem 60. Geburtstag. Abhandlungen der Akademie für Raumforschung und Landesplanung, Bd. 28, Bremen 1954, pp.41

*本文作者M. ROLSHOVEN簡介：

1976年西德科隆大學博士學位。主修地理學、地質學及拉丁系語言。現任職於南德艾許城（Eichstätt）天主教大學。教授自然地理學科類，生態學、市場經濟等。1985及1987年曾二度來台，研究自然災害、高山地帶動能、及地層滑動、山崩預估等。爲潘策夫人好友，受託整理其先夫遺留下有關中國及台灣的田野工作資料。