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AN INVESTIGATION OF A REPORTED "GAS BLOW" NEAR WABAG, WESTERN HIGHLANDS, NEW GUINEA.

BY

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GENERAL

A phenomenon, thought to be a possible "gas blow", occurring in the Sirunki - Laiagam area, 9 miles west-northwest of Wabag, Western Highlands, was investigated by the writer in August, 1952 after it had been reported to the Senior Geologist at Port Moresby by the Assistant District Officer stationed at Wabag. The writer was accompanied into the area by Patrol Officer T. Dwyer. Pace and compass and time and compass methods were used to record observations on the patrol. A geological reconnaissance map accompanies this report.

TOPOGRAPHY

The general topography of the area is rugged and heights range from 5,000 feet above sea level. The principal rivers are the Lagaip which flows to the west and the Lama and Lalu. These two latter rivers join near Kubalis Village and flow to the east past Wabag. The river below the junction is named the Lai River. The rivers and their tributaries show signs of early maturity and have eroded the sedimentary rocks of the region to a considerable extent leaving heavily timbered ranges and spurs. The valleys are well grassed and cultivated by the local natives.

Two lakes occur in the area examined. The larger one, Lake Ivei, is $\frac{3}{4}$ mile by $\frac{1}{2}$ mile in diameter and is situated $\frac{3}{4}$ mile west of Sirunki Village. Lake Inim, 3 miles east of Sirunki, is 500 yards in diameter. Marshy flats surround these two lakes and cover the floor of a broad valley for 4 miles south of Lake Ivei. Both lakes occupy depressions which were formed during uplift of the country and are now being drained by streams.

GENERAL GEOLOGY.

The rocks observed in the area consist of grey and brown shales, sandstone and limestone. The limestone is interbedded with shales and is usually white and very fine grained. These sedimentary rocks are considered by H.J. Ward (Bureau of Mineral Resources Report No. 1949-79) to be part of the western continuation of the Wahgi Series of Mesozoic Age.

The general strike of the beds is northwest. They have been folded but stratigraphical relationships were not investigated. No igneous rocks were encountered during the patrol.

"GAS BLOW" PHENOMENON.

The reported phenomenon occurs $\frac{3}{4}$ mile northeast of Lake Inim. The "gas blow" is actually a mud spring issuing from the southern part of a small hill of grey shale. The nearby hills are composed of interbedded shale, sandstone and limestone. The summit of the small hill is 50 feet above the surrounding country and thick grey mud and small fragments of grey shale and white limestone are slowly being deposited on the southern slope of the hill. According to the local natives this has been occurring for at least a decade. Some of the rock fragments consist of alternating thin beds of shale and limestone up to $\frac{1}{2}$ inch thick.

The crest of the mud deposit is approximately 50 feet by 40 feet in area and has a thin crust of dried mud. On breaking this dry crust and vigorously stirring the thick wet mud underneath a few bubbles of gas were emitted. This gas had no noticeable odour but was inflammable. Temperatures were normal and no films were observed on

the mud. It was impossible to collect any of the gas as it was not under pressure and very little was emitted. When heavy rain descended on the area the thin crust of dried mud disintegrated and the mud flowed at an increased rate down the hillside but the amount of gas emitted was again very small. The mud is alkaline and limey in taste. Tests by the Australiam Petroleum Company Ltd. show no trace of oil.

The mud spring appears to be a natural spring of meteoric waters containing a small quantity of gas. Part of this gas is apparently a hydrocarbon (? methane) generated by reactions within the sedimentary rocks which probably contain pyrite and various forms of organic matter. The meteoric waters ascend under hydrostatic conditions and transport fragments of the sedimentary rocks to the surface where they are deposited as a mixture of thick mud and rock fragments. The largest fragments seen were 4 inches long, 3 inches wide and $1\frac{1}{2}$ inches thick.

Photographs taken of the phenomenon are included as an Appendix to this report.

Another spring reported by the local natives was examined. This is situated 2 miles east of Lake Ivei. The spring, which is very small, is issuing from an opening in the shale half way up the northern slope of a hill and depositing fragments of grey shale and limestone at the surface. Only grey shale was observed outcropping on the hill but undoubtedly, limestone is interbedded with the shale. This spring is also a spring of meteoric waters which are transporting fragments of the underlying rocks to the surface.

CONCLUSION.

No economic importance can be attached to these springs but they are of interest academically.

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