

TABLE I

Amounts of manganese and iron found on the stones and other calculated parameters

Sl. No.	Wt. of the rock (gms)	Surface area (SA) (cm <sup>2</sup> )	Manganese (Mn) (mg)	Iron (Fe) (mg)	Mn/SA (ppm)	Mn/Wt (ppm)	Fe/SA (ppm)	Fe/Wt (ppm)
1.	375	187.9	9.3	2.36	49.49	24.80	12.54	6.285
2.	62	48.1	4.59	34.63	95.43	74.03	719.9	558.5
3.	74	64.1	3.54	86.87	55.23	47.84	1255.0	1174.0
4.	65	41.75	2.86	106.2	68.50	44.00	2544.0	1634.0
5.	84	69.00	13.70	649.8	198.6	163.1	9417.0	7736.0
6.	92	77.80	3.92	14.19	50.39	42.61	182.4	154.2
7.	50	39.50	1.50	33.40	37.97	30.00	845.5	668.0
8.	126	82.50	5.66	55.05	68.61	44.92	667.3	436.9
9.	211	125.00	5.56	2.52	44.48	26.35	20.16	11.94
10.	350	182.0	4.90	29.64	26.92	14.00	162.90	84.68

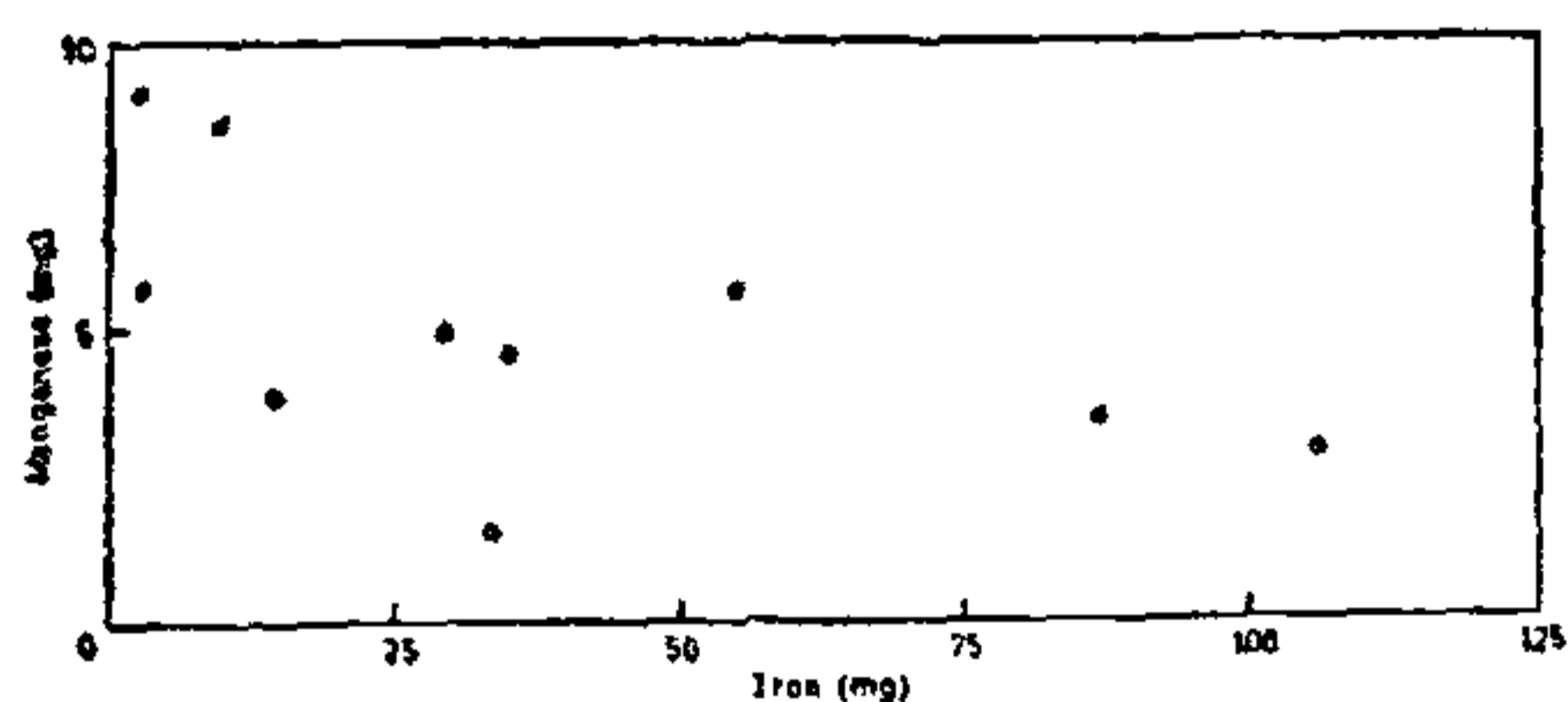


FIG. 1. The plot of total manganese versus total iron found on each sample.

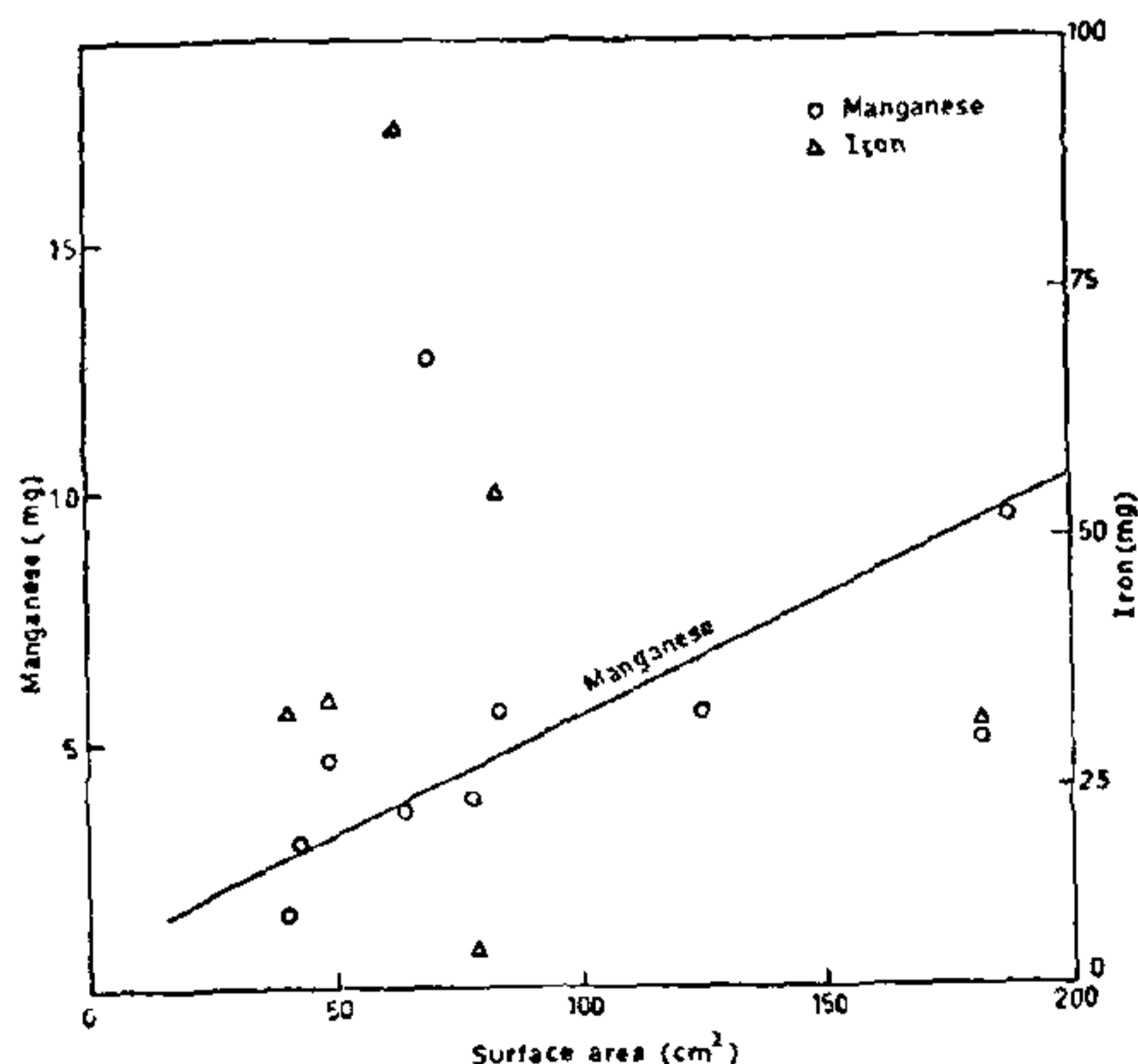


FIG. 2. The plot of total manganese and iron versus the surface area of the samples.

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#### A REVIEW OF STRATIGRAPHIC SIGNIFICANCE OF MEYERIPOLLIS BAKSI AND VENKATACHALA IN ASSAM-ARAKAN BASIN

*Meyeripollis* Baksi and Venkatachala is one of the important fossil palynomorph taxa in the Tertiary sediments of Assam-Cachar-Tripura region. Meyer<sup>12</sup> reported the occurrence of the fossil for the first time from India, in the subsurface Barail sediments of Nahorkatiya oil field of Upper Assam. Subsequently Baksi<sup>1,2</sup>, Ghosh, *et al.*<sup>11</sup>, Salujha *et al.*<sup>14</sup>, Banerjee, *et al.*<sup>7</sup>, Sein and Sah<sup>15</sup> and others noted the occurrence of *Meyeripollis* from different parts of Assam. Sahe and Dutta<sup>13</sup>, however, did not mention the taxon in their synthesis of palynological data of the region.

Biswas<sup>8</sup> and Baksi<sup>3</sup> have recorded the taxon from the subsurface Burdwan Formation of West Bengal. The former has referred to this form as *Lygodium dubia*.

This taxon has, so far, been known from Assam including Meghalaya besides West Bengal subsurface. The recent study conducted by this laboratory has indicated the presence of this form from Cachar-Tripura region as well.

Biswas<sup>8</sup> has considered *Meyeripollis* as a marker for Oligocene age in West Bengal subsurface supported by foraminiferal data. Baksi<sup>4</sup> has also regarded *Meyeripollis* as a guide fossil for the Barail sediments of Assam region and has maintained the conventional Oligocene age for the Barail sediments. While instituting the taxon, Baksi and Venkatachala<sup>5</sup> have, however, indicated the biozone as ranging from Upper Eocene to Miocene.

Chakraborty and Baksi<sup>9</sup> and Chakraborty *et al.*<sup>10</sup> have also opined that the Barail sequence is of Oligocene age. Salujha *et al.*<sup>14</sup> have reported the occurrence of Barail sediments along the southern slope of the Garo Hills, based on the occurrence of *Meyeripollis* and a few other taxa in the surface samples, studied by them. Banerjee *et al.*<sup>7</sup> have recorded the taxon from the subsurface Barail sequence encountered in the wells drilled by the Oil and Natural Gas Commission in Upper Assam. Subsequently, Banerjee<sup>6</sup> recorded the occurrence of *Meyeripollis* from Boldamgiri (= ? Tipam), Kherapara (= ? Farail) and Rowak (= ? Kopili) Formations in the subsurface of Garo Hills, and discussed the distribution of the taxon in Assam region.

Recent study conducted in this laboratory on samples, both surface and subsurface, from Cachar-Tripura region, have yielded interesting data, having far reaching stratigraphic implications. Common occurrence of *Meyeripollis* has been recorded from Laisong, Jenam, Renji, Lower Bhuban and Middle Bhuban Formations from samples collected along Jowari-Badarpur road section (92° 30' : 25° 3') (*unpublished report of this laboratory*). The section, located in the western Barail Range, represents some of the typical sections of the above formations. Other important finds by this laboratory are the occurrence of *Meyeripollis* from the subsurface sequence of Baramura anticline (91° 37' : 23° 50') in Tripura dated as ? Oligocene/Lower Miocene to Middle Miocene, based on planktonic foraminiferal evidence and from the oldest exposed surface sediments ( ? Oligocene-Lower Miocene) in Atharamura anticline (91° 45' 23° 45') (*unpublished report of this laboratory*). The oldest stratigraphic record of its occurrence is from subsurface (89° 52' 51" : 25° 21' 36") of Garo Hills in Middle Eocene sediments, dated on the basis of foraminiferal evidence (*unpublished ONGC report*). Level of occurrence of *Meyeripollis* from Boldamgiri Formation of Garo Hills subsurface (Banerjee<sup>6</sup> is considered timewise as not younger than the stratigraphic level of Middle Bhuban in its type area.

The above evidence has indicated that *Meyeripollis*

as a taxon has longer biozone than what has so far been considered. This taxon cannot be used as a guide fossil for Oligocene age or characteristic of Barail Group except locally and, that too, based on careful investigations and other supporting evidences. Local restricted stratigraphic occurrences are considered to be ecologically controlled. Available evidences indicate that the biozone of *Meyeripollis* ranges from Middle Eocene to Middle Miocene and its stratigraphic distribution from Sylhet Formation to Middle Bhuban in various basin positions of Assam-Arakan Geological Province.

Records of occurrences of *Meyeripollis* indicate its close association with microplanktons and other shallow marine and brackish organisms, implying brackish to shallow marine habitat rather than affinity with terrestrial vegetation.

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