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31. Gem Minerals From Southern Quaternary Coastal Deposits of Sri Lanka

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Sri Lanka has many varieties and sizes of gems (precious and semiprecious stones) globally known for more than 2500 years. The precious stones are mainly ruby, sapphire and chrysoberyl. Emeralds were recently discovered in the southern coastal zone of Sri Lanka. The semi-precious stones consist of spinel, zircon, amethyst, aquamarine, garnet moonstone, quartz, topaz and tourmaline. However, until recently, exploration for gemstone was carried out using traditional methods in the valleys of central highlands (Ratnapura, Opanayake, Balangoda, Deniyaya and Rakwana areas).

The southern coastal plain (Lowland I below 30m) of the Walawe basin is formed of medium and somewhat high dunes, salterns and salt marshes. Barrier beaches and sand spits in the area are also common features. The almost flat flood plain (Lowland II, below 30m) is very narrow as compared to the flood plains of other river basins in Sri Lanka. Extensive gem bearing gravel deposits are found between Ranna and Pallemalala areas in the coastal lowland and the flood plain. Microscopic analysis shows that semiprecious gemstones mainly consist of green and honey tourmaline, spinel, topaz and garnet. Minerals of corundum family are rare, locally concentrated gold dust was also noticed. It is very difficult to identify the crystal shape of the fragments due to rounding. It is possible to infer that the gem minerals have rolled several miles from central highland areas towards the coastal plain by running water. Based on field investigations, following observations have been made: (a) although the deposits are not so deep (less than 3m), they are overlaid by fluvial and wind-blown deposits; (b) stone artifacts and potetry fragments of the overlying deposits indicate a distinct separate human culture that existed during the period of deposition, and associated quartz and ironstone gravel of the gem-bearing layers have been deposited as fluvial material under a dry climatic condition during the last glacial period.