B.K. Mishra); eastern and western parts of Bastar craton (S.K. Srivastava et al. K. Shashidharan et al.); Karnataka (A.R. Nambiar et al.); Tamil Nadu (R. Srinivasan and V. Chandrasekaran) and Ib, Tel, Indravati and Ong river basins (Orissa, Chattisgarh).

Neelakantam describes 21 known diamondiferous kimberlite pipes of Wajrakarur (13), Chigicherla (5), Kalyandurg (3) and 34 pipes, so far not known to carry diamonds from Narayanpet field, as also 12 lamproite fields of Krishna region. Conglomerates and Krishna gravels are also covered. In Bastar craton, exploration started with widespread reports of diamond in stream gravels in Bahardih-Payaliknand area, Raipur district, Chattisgarh. Four kimberlite pipes (two diamondiferous) and 40 indicator mineral anomalies were located by stream sediment surveys in Mainpur kimberlite field. Work in other areas led to the discovery of four kimberlite pipes in Indravati basin and of Tokapal kimberlite field. Several blocks are identified to airborne and detailed ground exploration.

Platinum Group of Elements

M.M. Mukherjee and R.N. Patra describe work done in Baula-Nausahi area, Orissa and provide future vision for nation wide exploration. The status paper on Tamil Nadu covers ultramafics of Sitampundi complex, Mettupalyam and Torappadi. There are articles on PGE with gold in Mahakoshal Group (M.P. and U.P.) in Bhimsain and Killapahar in Maharashtra and noble metals in Ladakh.

Gemstones

S.K. Kar and J.K. Sinha have surveyed the gemstones of India (diamond, emerald, aquamarine, chrysoberyl and alexandrite, ruby, sapphire, garnet and agate group). The other articles deal with the gem tracts of east Godavari (A.P.), Tamil Nadu, West Bengal and Orissa. Surprisingly there is no mention of recent studies on gems in India (e.g., K.R. Karanth's book on Gems and Gem Industry in India published by the Geological Society of India).

In summary, the publication of this volume is an excellent way of celebrating the 150[th] anniversary of the GSI. Ravi Shanker, Director General and Dr. S.K. Mazumder, Senior Dy. Director General, along with the large team of their colleagues, deserve our appreciation and gratitude.

Bangalore B.K. Dhruva Rao

AEROMAGNETIC IMAGE OF A PART OF PENINSULAR INDIA, GEOLOGICAL SURVEY OF INDIA, 2001: A REVIEW

The aeromagnetic image map of a part of peninsular India, prepared by the Geological Survey of India, presents anomaly features between latitudes 8° N and 25° N and longitudes 74° E and 89° E, at a height of 7000 feet above mean sea level. The basic aeromagnetic data are acquired from various sources in the form of 347 analog absolute total intensity magnetic field contour maps on scales ranging from 1:30,000 to 1:250,000. Processing of data for the area south of 17° N latitude was carried out at AMSE, GSI, Bangalore and that for the area north of this latitude at NGRI, Hyderabad. Final editing, grid creation and matching was accomplished at AMSE. The original contoured maps were digitized and individually gridded at suitable resolution; the different grids were corrected for IGRF to get the anomaly values. The data were continued to 7000 ft above msl and merged to remove artifacts. The pseudo-colour-shaded relief image map at 1:2,000,000 is presented, depicting anomalies ranging in values from -1794 nT to 1166 nT. Aeromagnetic data collected at significantly different altitudes are presented separately as four inset maps. Geological and geophysical characteristics evident on this map are very well outlined.

The map very clearly brings out the tremendous utility and potentiality of the aeromagnetic dataset. Based on the anomaly pattern, the image map has been divided into three blocks: block I (between latitudes 8° N and 12° N) and block III (between latitudes 22° N and 25° N) are relatively homogeneous blocks characterized by generally high density of anomaly distribution compared to the more heterogeneous block II (between latitudes 12° N and 22° N). Several known surface geological features are manifest in this map, and more importantly, signatures of the subsurface are also amply evident. The match with tectonic features like shear zones is spectacular. Schist belts and iron ore belts are amply evident on the map. The amazingly good match with known geological and geophysical characteristics lends credence to the main features brought out in the map. The gross features up to 17° N compares very well with the map of

Harikumar et al. (Proc. Indian Acad. Sci. (E & P), v.109, pp.381-391, 2000) though there maybe differences in detail.

It maybe noted that the colour scale bar provided appears to be incorrect. For a properly corrected map, generally, most of the anomalies should lie within 300 nT with localized much higher or lower anomalies. In the present map, possibly due to the incorrect scale bar, there appears to be a preponderance of very high magnitude anomalies with very large ranges.

A point of concern about the map is that there is no mention of the grid interval used. As the original data have not been used, and the contoured maps have been digitized and gridded, the grid interval is of paramount importance. In our experience of working with the data digitized from the contour maps, we find that the maps are very sensitive to the grid spacing used. If the grid spacing is very small, it generates pairs of high low features, "bull's eye pattern" and "string of beads" effect. In particular, we find that if the grid interval is reduced to below 2 km, then though the gross features do not change, additional (E-W) high-low pairs appear and the extreme values increase dramatically. However, with a grid spacing greater than 2 km, the results are quite stable i.e. the extreme values do not change and most of the anomalies are within 300 nT. It may be worthwhile to note that for most of the available degree sheet maps, along the flight lines the data have been collected very closely, but the flight lines are separated by 4 km. We tend to believe that the flight line spacing (related to Nyquist frequency) has a role to play in the grid interval used to produce stable results. It is possible to use a smaller grid interval and then filter out the noise generated; however, in that case it would help the user involved in interpretation, to know those details.

An aeromagnetic map of this scale and extent has been long overdue and the present map definitely establishes the need for a detailed aero-magnetic survey of the unexplored region of the entire country to be undertaken on a priority basis. This map should prove to be of great help to all earth scientists working on problems of the Indian peninsula especially to geophysicists working with gravity, magnetic, heat flow, magneto-telluric, and seismic data. The aeromagnetic anomalies show much larger variations than the gravity anomalies due to the larger susceptibility variations than density variations of the crustal rocks and this has great relevance to the different metamorphic grades of the crustal rocks. Regional metamorphism plays a key role in transforming the magnetic signatures of rocks and many minerals are associated with faults and intrusions; it is in this light that the map will also be invaluable to petrologists, mineralogists, structural geologists and students, among others. In particular, it will be of great help to both geologists and geophysicists planning surveys, as it could help them to decide profile extent and direction. Coupled with other data, it could be used for exploration purposes, to map subsurface structures, build tectonic history of the region and as an aid to interpretation of other geophysical data.

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MAHANADI DELTA - GEOLOGY, RESOURCES AND BIODIVERSITY, Edited by N.H. Mahalik, C-13, HIG, OSBH Colony, Baramunda, Bhubaneswar - 751 003 and published by the Asian Institute of Technology Alumni Association (India Chapter), New Delhi, 2000, 169p., Rs.500/-, US$50.

There have been many studies on deltas of different parts of the world, mostly on the physical features and some on their resources. Noteworthy among them are those by H.N. Fisk, H.Th. Verstappen, R.J. Russel, J.P. Morgan, M.L. Broussand and L.D. Wright. Studies on some aspect or the other on modern deltas of India are few and far between. The available studies deal mostly with the physical, geomorphic, biological and natural resources, since the 1940s. A relatively comprehensive attempt to present the then available literature on different aspects of modern Indian deltas are those by K. Bagchi (1944, The Ganges Delta, Univ. of Calcutta, 157p.; 1972, The Bhagirathi-Hoogly basin, Proc. Interdisciplinary Symp., Sibendranath Kanjilal, Calcutta, 361p) and by R. Vaidyanadhan (Editor, 1991, Quaternary Deltas of India. Mem. Geol. Soc. India, no.22, 291p).

The volume under review on Mahanadi Delta is a laudable attempt to bring together data available on