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MADRAS RECORD OFFICE.

Government of Madras.

REVENUE DEPARTMENT.

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Dated 6-6- 1893.

Not to be folded or roughly handled

From Dr. H. WARTH, Officiating Superintendent, Government Central Museum, to the Secretary to Government, Revenue Department, dated Madras, 28th April 1893, No. 513.

I have the honour to submit to the Right Honorable the Governor in Council my report on the working of the Government Central Museum during 1892–93.

ADMINISTRATION REPORT OF THE GOVERNMENT CENTRAL MUSEUM FOR THE YEAR 1892–93.

1. VISITORS TO THE MUSEUM.—The statistics of the number of visitors are given in appendix A. The total number was 341,238 against 361,452 in the previous year. The deficient number may have been due to the continued drought. The number of gosha visitors was 1,957 against 1,409 in the previous year.

The following statement shows the number of visitors to the Museum during the last five years :—

1888-89	337,801
1889-90	378,234
1890-91	364,542
1891-92	361,452
1892-93	341,238

On two days of the year it is customary for Hindus to visit the Museum in large numbers. On the 31st December there were 13,862 visitors and on the 14th January 40,301.

2. DONATIONS TO THE MUSEUM.—A list of the donations of specimens will be found in appendix B and of books and periodicals in appendix C.

3. BUILDINGS AND GROUNDS.—The Museum building and the Superintendent's house underwent general repairs during the year. A reservoir was erected near the taxidermist's room for use in macerating bones and preserving skins of large size. The downstairs hall of the Museum building underneath the mineral gallery was provided with windows for the better utilization of this reserve space. A single storied out-house on the north-east side of the Museum buildings was made into an office room to render the old office room available for the enlargement of the mineral gallery. The wooden roof verandah on the upstairs of the Superintendent's quarters was covered with a layer of Mangalore pattern tiles. A new shed was erected for placing in order and protecting from rain the large number of Amarávati marbles.

4. TOURS.—The Officiating Superintendent made the following excursions :—

To the Shevaroys in the Salem district where the taxidermists were occupied with the collection of birds and other specimens; also to Sithampundi in the same district for the purpose of inspecting corundum deposits.

To Hunsur in Mysore territory to visit the corundum deposits.

To the cretaceous rocks of the neighbourhood of Pondicherry at the occasion of a geological excursion with students of the Presidency College.

To Trichinopoly twice for ascertaining more exactly the extent of phosphatic [illegible] for making collections of cretaceous fossils.

[illegible] the above inspections, see appendix E.)

The Second Assistant was deputed twice to the Trichinopoly district, once for the collection of 1 ton of phosphatic nodules for sending to the Right Honorable the Secretary of State for India for purposes of examination and analysis, and a second time for making some preliminary excavations on the site of the deposit of phosphatic nodules.

The collecting taxidermist was also deputed to Bellary for specimens. The herbarium-keeper completed the collection of cotton plants and produce of the Madras Presidency which had been commenced in the previous year for the London Imperial Institute and he travelled for the purpose in the cotton-producing districts of Bellary, Kurnool and Cuddapah and he also went to Mysore.

5. Art Gallery.—One broken stone flute obtained from the treasures belonging to the Royal house of Tanjore was presented by Mr. Misquita of the "Victoria Natural History Institute" and was exhibited together with the ancient arms from Tanjore.

The collection of articles illustrating the ethnology of the Todas (a hill tribe of the Nílgiris) referred to in my last report was exhibited in the art gallery together with the model of a Toda hut received during the year. Specimens of Sivaganga brass-ware purchased during the year were exhibited in a small wall case. Two well sculptured bronze statues, procured through the Collector of North Arcot, were exhibited along with others in the Museum collection as well as one Perumal idol belonging to the ruined Chola temple at Poigai, Vellore taluk, presented by the Acting Magistrate of North Arcot and a statue and a bowl procured through the Collector of Trichinopoly under the Treasure Trove Act. A tray of inlaid Tanjoreware was added to the existing collections during the year.

A number of articles were obtained from the Madras Arsenal stores including a model of the Madras Lighthouse and of the Munro monument.

6. Ethnology and Antiquities.—The antiquities have received an important addition through Mr. Rea's discoveries amongst the ruined Buddhist stûpa at Bhattiprolu, Répalle taluk, of the Kistna district. Mr. Rea unearthed three foundation stones which were buried at different depths in the central axis of the stûpa.

These foundation stones contain inscriptions and they were exhibited in the sculpture gallery and the contents of the stones were deposited in the coin room of the Museum.

The alphabet, we are informed, indicates the age of the relics to date back to about 240 B.C. The relics of the three caskets together include, besides numerous gold leaves, coins, plates of metal, &c., three round receptacles made of colorless and perfectly transparent rock crystal highly polished with lids and about 2 inches diameter.

Further a six-sided quartz prism 3 inches long with characters scratched on each side, numerous small pearls which have all more or less lost their lustre, two small bits of perforated coral, two small beads of quartz crystal and probably topaz, three amethysts and five beryls from $\frac{1}{4}$ to $\frac{3}{4}$ inches long. The beryls are of a light blue and particular care was taken to make certain that they had been correctly recognized. One of them, of 2·69 specific gravity, was examined under the polariscope by Dr. Max Bauer and two of them show the hexagonal prism of the original crystals.

There was another beryl of larger size, a six-sided prism $\frac{3}{4}$ inches high which was well polished and hollowed out so as to make a small phial holding three tiny bits of bone. It differed from the other beryls by its greenish colour, but it was well ascertained as beryl by its hardness, specific gravity = 2·67, its form and the uniaxial interference rings which it showed in polarized light. The phial has a lid of quartz and was coated with gold. Some further details may be gathered from Mr. Rea's letter, see G.O., No. 270, dated 22nd April 1892, Revenue Department.

Two pattern rails of Buddhist sculptures from Amarávati aggregating to 45 feet length with two rows of rosettes were erected by the Archæological Survey. A further selection of sculptures was made for erecting a larger portion of rail 43 feet long and 15 feet high with 3 rows of rosettes and cornices resting on them according to the pattern of the original stûpa.

The remaining sculptures were set up in inclined positions under the shelter of temporary arcades 130 feet in length. This facilitates the inspecti[on]

through the sheds shows what a great variety there is in the sculptures and how many of them are in an excellent state of preservation. Seven pieces of ancient pottery and 2 pieces of gold female head ornaments dug out of tombs called Rakshasa Guthalus in the village of Tangaralapalli, Markapur taluk, Kurnool district, were received from the Collector of Kurnool. Some ancient pottery with bones, a sculptured slab and a rough-stone relic casket were received at the end of the year from the Superintendent, Archæological Survey, Madras, who discovered these articles at the Buddhist remains of Arugôlu in the Godávari district. Veterinary Captain R. W. Burke, F.R.C.V.S., kindly examined the bones and recognized a number of them as belonging to a large ruminant. There were 2 incisor teeth, portion of metacarpus, metatarsus, ischium and ilium. There were also some flat plates resembling the shields of a tortoise.

A *facsimile* of Asoka inscriptions measuring 15 feet by 11 feet was received from Dr. E. Hultzsch, Government Epigraphist, Bangalore, and hung up on the wall of the antiquity gallery. Two stone cart wheels were purchased through the aid of the Collector of Kurnool and exhibited in the antiquity gallery. These wheels are made of hard gneiss and largely used at this present day; but they will be of interest to visitors from districts in which such wheels are unknown. As they will in time be replaced by wooden and iron wheels, it is perhaps not out of place to exhibit them along with stone implements and other antiquities.

A cannon found in the Getty Mudali tank, Námakkal division, Salem district, and presented to the Museum by the Collector and an earthen jar found buried in a paramba called Kuttialipurath in Mainlayi amsam and desam in the Chirakkal taluk, Malabar district, and procured through the Acting Collector.

The following photographs presented by His Highness Rama Varmah, the 1st Prince of Travancore, were hung up in the library:—

Suchindrum tower, a teppakolam at South Travancore.

The Tripurapu falls, South Travancore. The Kuttalam falls, Tinnevelly district.

7. Herbarium.—Specimens of cotton plants from 7 districts and parts of Mysore collected by the herbarium-keeper were sent to Calcutta for the Imperial Institute where it is expected that they will be accurately named. Duplicates were reserved for the Herbarium. Fifty other botanical specimens from these districts and from Mysore were added to the Herbarium, and a number of plants were identified for private parties.

Dr. G. King, Superintendent, Royal Botanical Gardens, Calcutta, presented 133 dried plants from the Malay peninsula and the Andamans.

8. Economic Products.—Simultaneously with the botanical specimens, samples of cotton in capsules, ginned cotton and cotton fabrics were obtained for the Imperial Institute and for the Museum.

Samples of Brush-making material were received from the Board of Revenue, Madras, as follows:—

Aloe	Screwpine.
Palmyra.	Poondicodi (Tamil name of a plant not yet determined).
Cocoanut	

Also from the Collector, South Arcot—

Cephalandra Indica.

Further were received—

Rubber made of Calotropis gigantea

Sandalwood oil.

Soap.

Further collected in the Bangalore gardens—

13 specimens of fruits and seeds.

For the Chicago Exhibition the Forest Department was supplied with 9 specimens of woods and products and 15 specimens of dye-yielding substances.

A commencement was made to re-arrange the whole of the economic collection in accordance with Dr. Watt's dictionary, the letter F having been reached at the end of the budget year.

9. M[in]eral Gallery.—The mineral gallery was entirely re-arranged so as to [ex]hibit a selection of the mineral rocks and fossils of Southern India.

Hitherto the mineral gallery had been split up into 50 collections by the separate exhibition of economic minerals, ores, marbles, &c., and of the minerals and of the rocks of each individual district. Suitable as this arrangement was for showing at a glance what each district produced, the detailed collections were too small to be really instructive. It was therefore decided to abolish all divisions and to make the whole collection into one series, scientific specimens and economic samples of all descriptions being every one brought into its proper place according to the scientific classification of minerals and rocks.

The united collection begins with meteorites and after them the minerals are in the same order as they were formerly arranged in the index and district collections.

The rock collection is divided into eruptive, metamorphic, and sedimentary rocks arranged according to mineral constitution only. Next we have one case illustrating geological phenomena weathering glaciation, &c.

Lastly we have the fossiliferous formations of Southern India chiefly represented by fossils from the cretaceous strata of Trichinopoly which have been added during the year.

Appendix D shows the arrangement of the mineral gallery more in detail and serves at the same time as a catalogue.

The mineral gallery shows now easily the distribution of each species in the entire Presidency and students have before them of each kind of mineral all specimens from different localities.

Specimens of each kind are still arranged according to districts in the same order as followed in the mineral catalogue of 1890, so that by the aid of this catalogue all the specimens of one particular district may be found in their new places.

Numerous specimens of corundum were added to the collection during the year. The number of localities represented is now 30 from nine districts and two principalities (appendix E).

Corundum was presented to the Museum by H. G. Turner, Esq., H. R. P. Carter, Esq., and W. F. Petrie Hay, Esq., of Hunsur and others as shown in the list of donations, appendix B. Further additions were due to the Officiating Superintendent's visit to the corundum localities of Sithampundi in the Salem district and Hunsur in Mysore. Details about these visits will be noticed in appendix E.

Specimens of phosphatic nodules from the deposits in the Trichinopoly district were analysed and the results are reproduced in appendix E. The same appendix contains also details about the entire deposit examined during the year. The quantity of nodules estimated lying loose on the surface is 4,000 tons.

The spread of the deposit over such a large area of 10 square miles would *primâ facie* produce expectations of more important deposits under ground. For reasons shown in the appendix, such deposits were, however, hitherto not considered workable. As soon as practicable one or two sections will be thoroughly examined, so that no doubt can remain as to the nature and extent of the strata from which the surface deposits of phosphates have weathered out. It may here also be mentioned that celestine (Strontium sulphate) was found amongst the same deposits in large quantity. An analysis of the mineral was made by Herbert H. Dains, Esq., Vizianagrum.

A considerable number of cretaceous fossils were collected during two tours in the Trichinopoly district. They occupy ten new cases in the mineral gallery besides 968 specimens of 171 * species more or less which were sent to Europe. These Dr. W. Waagen has kindly undertaken to examine. They comprise a large number of ammonitidæ. Amongst others, 100 specimens of ammonites rotomagensis were included to facilitate eventually a determination of varieties.

	Species.
* Cœlenterata	5
Echinodermata	5
Annulosa	9
Lamellibranchiata	38
Gastropoda	47
Cephalopoda	67
Total ...	171

A reference to the donation list shows the minerals which were presented to the Museum during the year. Amongst them I would mention garnet crystals from Messrs. Arbuthnot and Co. Many of these show the icositetrahedron, the 24-faced form 2-1-1.

Also kyanite and crude asbestos.

Mr. Primrose presented coal from the Tenasserim in Lower Burmah.

A collection of 92 pot stone articles and sample blocks was made for the Imperial Institute.

The Collectors of nine districts have contributed (Nellore, Kurnool, Bellary, Anantapur, North Arcot, Salem, Coimbatore, South Canara, Malabar) and the Bangalore Museum supplied a collection from Mysore.

Specimens of corundum and of phosphatic nodules were also sent to Calcutta for the Imperial Institute.

10. Natural History.—Mr. A. T. Pringle has been so kind to take in hand the enlargement of the collection of butterflies from the neighbourhood of Madras city. He has contributed many specimens and has arranged to place in the collection as many as 5 specimens of each species.

Fish.—The following fish, all from the Madras coast, were preserved during the year.

In alcohol.—Narcine timlei, Pempheris mangula, Caranx leptolepis, Arius sp., Exocœtus pœcilopterus.

Stuffed.—Carcharias melanopterus, Zygæna blochii, Stegostoma tigrinum, Clarias magur, Clupea toli, Serranus hexagonatus, Serranus bœnack, Lutjanus rivulatus, Lutjanus roseus, Diagramma cuvieri, Lethrinus karwa, Polynemus indicus, Caranx hippos, Chorinemus lysan, Thynnus thunnina, Cybium commersonii, Cybium guttatum, Mugil cunnesius.

The specimen of Rhinodon typicus referred to in the last report has been entirely remounted. A wooden frame was made which consisted of a girder over the whole length to which ribs shaped accurately according to measurements were fastened at every foot distance. Over the ribs dealwood bars were fastened lengthways and shaped according to the outline of the fish. The skin was soaked in concentrated alum solution in a reservoir built with cement but coated with tar. After the skin had remained in the solution for three weeks it was taken out, coated internally with arsenical paste, mounted on the model and sewn up. It was very pliable when it came out of the alum and after drying it became very hard and tight. A thin layer of tow was stuffed between the model and the skin. As it was impossible to fit the model to exact size, it had been made a little smaller and the deficiency was made up by stuffing. After the fish had thoroughly dried, the gill openings were closed with oilpaste and the whole fish varnished. The fish is now after a lapse of half a year in perfect order. Further notes and a ferro cyanide picture of the fish are added in appendix F.

A rare specimen of a snake, Dipsas Forsteni, from the Palmanér hills, Kátpádi, North Arcot, was presented by Mr. H. R. P. Carter, and two fine specimens of lizards, Calotes ophiomachus were presented by Dr. J. R. Henderson. An ibex skin with its skull presented by Mr. A. W. Turner will be mounted over a wooden frame. A fine specimen of bison's skull was purchased from W. Ditmas, Esq., who had lent it to the Museum for exhibition (see Administration Report, 1884–85). The bison was shot just within the Coorg frontier on the Brahmagiri hill. The horns are 43 inches across. Seventy-six birds and mammals were stuffed and added to the collection.

Appendix G gives a list of all the birds and all the mammals excluding skeletons from Southern India which were in the Museum at the close of the year under report. This list is added with the special object that naturalists and sportsmen, who may be inclined to assist the Museum by presenting specimens, may know what specimens the Museum is in want of.

11. Numismatics.—As will be found in the list of donations (appendix B), the Museum is indebted for contributions of coins to the Asiatic Society of Bengal and to its Bombay branch, to Colonel Fane Sewell, to several district authorities and others. Twenty Gupta coins were purchased, chiefly Pathans, so that the total number of coins received were 188. Thirty coins obtained by the Museum with the late Mr. Scotts' collection during 1891–92 were examined by Dr. E. Hultzsch. They comprise coins of Vijayanagara, Chola, Madura, British India Company and 1 French coin of Karikal. An account was published by Dr. E. Hultzsch in the Indian Antiquary of November

12. LIBRARY.—The number of visitors to the library during the year was 6,622 against 6,298 in 1891–92.

The additions to the library were as follows:—

	Works.	Volumes.
* Donations of standard works	101	269
* Donations of periodicals	15	164
Reports and other papers presented by Government	99	169
Purchased standard works	52	87
Purchased periodicals	32	459
Publications of the British Museum	5	7
Papers of the patent office	4	102
Records of the Master of the Rolls	9	13
Parliamentary Blue books	41	45
Total ...	358	1,315

* For a list of all donations to the library, see Appendix C.

GOVERNMENT CENTRAL MUSEUM,
EGMORE,
Madras, 28th April 1893.

(Signed) H. WARTH,
Offg. Supt., Govt. Central Museum.

APPENDICES.

A.

VISITORS TO THE GOVERNMENT CENTRAL MUSEUM DURING THE YEAR 1892-93.

Total number of visitors in each month—

April	29,440	December	42,216
May	20,147	January	69,260
June	20,488	February	18,933
July	23,388	March	20,736
August	22,857	Total ...	341,238
September	23,147		
October	24,009		
November	26,617		

Of these there were men and boys 54 per cent., women and girls 46 per cent.
Of these 341,238 visitors the following numbers signed their names in—

English	30,090	Maharatta	46
Tamil	23,852	Bengali	93
Telugu	7,438	Chinese	6
Hindustani	3,252	Singalese	3
Canarese	679	Total ...	66,671
Malayalam	688		
Goojeratti	444		
Nagari	80		

The remaining (80 per cent.) could not write their names.

B.

LIST OF SPECIMENS PRESENTED TO THE GOVERNMENT CENTRAL MUSEUM DURING THE YEAR.

Abboy, T., Naidu—
50 specimens of plants; 13 specimens of fruits and seeds.

Arbuthnot and Co., Messrs., Madras—
Garnets and mica shist containing garnets; crystals of kyanite and a kind of asbestos: all from Mysore State.

Arsenal, Madras, officer in charge of—
Bellows, wooden, Chinese.
Block, wooden, teak, 1 cubic foot.

Bolster for cutting dies with spring complete.
Hydraulic crane lifting heavy weights.
Hydrostatic press.
Instruments, brass, for taking distances.
Instruments for laying mortars proposed by Lieut. Gloay.
Machines for cleaning shot.
Madras Light-house.
Monuments (Munro), Man and horse made of brass.
Sundial model.
Water level, French.

Athisayam, T. G., Mr.—
8 shells; 1 scorpion; 2 eggs of Corvus splendens the common Indian crow; 2 eggs of Hirundo (the red-humped swallow); 1 egg of Cotyle sinensis (the Indian bank martin); 1 egg of Leptocoma zeylonica (the Amethyist-rumped honey-sucker); 1 egg of Passer flavicollis (the yellow-necked sparrow); 1 egg. (The above specimens were collected at Vizagapatam).

Bakerson and Co., Richard, Messrs., East Cheap, London—
1 sample of monazite sand.

Board of Revenue, Revenue Settlement, Land Records and Agriculture—
12 sets of manufactured articles and samples of fibres and brush-making materials from the districts of North Arcot, South Arcot, Madura, Chingleput and Tinnevelly; Felspar found with corundum at Kemmar village, South Canara; corundum from Kemmar village, Uppinangudi taluk, South Canara.

Bradley, H., Esq., Acting Collector of Kurnool—
2 gold female head ornaments (conic disc and a ribbon) 1 tolah. Found in a stone-lined tomb with earthern vessels and human remains in the village of Tungaralapalli, Markapur taluk, Kurnool district. Such tombs are known in locality as "Rakshasa Guthalus" and are locally supposed to have been used as places of refuge by the Rakshasas in their wars with Rama. Two guthalus were dug up—one a stone-lined grave 7′ by 5′ 6″ deep, covered with very heavy rough slabs. In this were only pottery and human bones. The second measured 6′ 3″ by 1′ 4″, depth 2′ 3″, covered with large stone slabs 6″ thick. The upper part of this tomb was found 7½ feet below the ground. White blocks of quartz marked the site of the tombs. Seven ancient pottery dug out of the tombs called "Rakshasa Guthalus" described above.

Burns, L. H., Esq., Kilpauk, Madras—
A large black scorpion found in Kilpauk.

Carter, H. R. P., Esq.—
1 snake (Dipsas forsterrie), Palmanér Hills. This snake was found eating a bat, and it is a rare species; 1 spider (Mygale faciatus); 1 crocodile. Specimens of corundum from Shegrispolliam and Karootapolliam of Palladam taluk of the Coimbatore District.

Dobie, S. L., Esq., Superintendent, Government Lunatic Asylum—
1 copper coin from Calicut of 1746.

Dunhill, H. A. R., Esq.—
1 egg.

Farquhar, William, Esq., Bombay—
4 crystals of crysoberyl.

Gaudoin, H., Mr., Student, Doveton College, Madras—
1 honey comb.

Hay, P. F., Esq., Hunsur, Mysore Province—
Many specimens of crystalized corundum from the Hunsur taluk in Mysore: specimens of corundum rock including a block 305 lb. weight.
A sample of sandalwood oil made at Hunsur, Mysore Province.

Henderson, J. R., Dr.—
2 Calotoes ophiomachus.

His Highness the First Prince of Travancore—
2 photographs of Travancore secenery; 1 picture representing the Suchindrum tower and Teppacoolam (South Travancore).

Holder, E., Esq., Acting Superintendent, School of Arts—
1 sample of kaolin from Bellary district.

Holmes W. T. H., Esq., Madras Club—
To illustrate the use of mica in electric apparatus 10 mica foils for electric lights. A piece of rubber made from 6 ounces of the white juice of colotropis gigantea; specimens of corundum from Pasur.

Honorary Secretary (Philological) Asiatic Society of Bengal—
Pathan coins—Sher Shah 5
Goojeratti coins—Muzaffar Shah ... 5
} Found in Saugor district.

Moghul gold coins—10 of Jehangir, Shah Jehan and Aurangazib.
Moghul silver coins—8 of Jehangir, Shah Jehan and Aurangazib.
Moghul gold coins—2 of Muhammad Shah.

7 specimens of a find of ancient coin in Kangra district—

Bactrian apollodatus	2
Old Hindu Kuninda variety	5

Honorary Secretary, Bombay Branch Royal Asiatic Society, Bombay—
1 silver coin *guddhea* found in the Nassick district.
1 silver coin *gupta* found in the Kaira district.

Honorary Secretary, Indian Museum, Calcutta—
26 silver coins from Gwaliar durbar, viz., silver rupees of Khar Shah of the months of Shahi, Jehangir of the Ilahi year, Shah Jehan, and Aurangazib.

Hultzsch, E., Dr., Government Epigraphist, Bangalore—
Facsimile of inscription of Devanam Piye Piyadasi (Asoka) on a rock near Siddapur, Chitaldroog district, Mysore.

Jardine, W. E., Esq., Hospet, Bellary—
2 buck skins.

Jayaram and Brothers, Messrs., Auctioneers and Commission Agents—
Civet cat.

Joint Honorary Secretary, Bombay Branch Royal Asiatic Society, Bombay—
1 gold fanam found in the Dharwar district.

Kelly, F., Mr., Poodoopet—
1 duck's egg.

King, G., Dr., Superintendent, Royal Botanical Gardens, Calcutta—
133 dried specimens of plants from the Malayan Peninsula, Andamans, &c.

Kuruvilla, K. B. A., Mr., C. M. S. College, Kóttayam, Travancore—
Garnotiferous rock.

Love, H. D., Major, R.E.—
1 hornblende schist with garnet; 1 moth actias selene.

Marshall, H. H., Esq., Madras—
2 specimens of sea-snake (Chersydrus granulatus) from Ennore.

Meenakshi Soondramiah, M. S., M.R.Ry., Sivaganga, Madura district—
1 Meenatchy rose soap.
1 carbolic toilet soap.
1 Meenatchy transparent glycereine soap.
1 Terbine soap.
1 shaving bar soap, 1 pound.

Meppan, F. D., Esq., Bangalore—
Samples of asbestos from Mysore, Canada and Italy.

Misquita, T., Esq., Victoria Natural History Institute, Madras.
1 broken stone flute.

Morrison, E., Esq., Egmore—
15 plates of mica from Nellore of dark color.

Moore Theod Mr., Mineral Prospector, Badami district, Southern Mahratta Railway, Deccan—
Pyrite crystals transformed into limonite in Kaladgi.

Municipal Commission, Madras, the President—
1 tapir (6 days old); 1 lion; 1 leopard;
1 portax pictus (the Nilgai); 1 purple coot (porphyrio policephalus); 1 ourang-outang.

North Arcot, Collector and District Magistrate of—
9 pieces of corundum tapering hexagonal crystals with rock matrix adhering; 1 old Perumal idol from ruined Chola temple at Poigai, Vellore taluk.

Pinhey, Arthur, Esq., Collector of Vizagapatam—
Collection of shells of sorts; 2 tor-toise shells.
1 cast (Abhyasthum).

Primrose, A. H., Esq.—
1 ferruginous slab with leaf impressions and coal from Tennaserim.

Pringle, A. T., Esq., Madras Secretariat—
A collection of butterflies from Madras City.

Rea, A., Esq., Superintendent, Archæological Survey—
6 slabs of stones from Pedda Ganjam; relics from three foundation stones of a Buddhist stupa at Bhattiprolu, Kistna district; some ancient pottery with bones; a sculptured slab and a rough stone relic casket discovered at the Buddhist remains of Arugolu in the Godávari district.

Salem District, General Deputy Collector, Námakkal division—
1 cannon.

Sargeant, E. H., Esq.—
1 rhombus of mica.

Sewell, R., Esq., Collector of Bellary—
1 specimen of felspar.

Sewell, Fane, Colonel—
52 copper coins (chiefly Pathans).

South Arcot district, Collector of—
6 Porto Novo gold pagodas; 37 small gold coins.

Streeramulu Rajoo, M.R.Ry., Contractor, Madras—
3 corundum specimens from Coorg, Mysore and Salem.

Subraya Sastry, M.R.Ry., District Munsif, Gooty—
1 nest of ploceus baya (the common weaver bird).

Tailor, R. S. M., Mr., Poodoopet—
2 Hyderabad copper coins.

Thomson, J., Esq., Collector of Chingleput—
4 gold coins; coin figured by Sir Walter Elliot, Pl. I, Fig. XII.

Thurston, Edgar, Esq.—
Mus perrotetti, Coonoor.

Trichinopoly district, Collector of—
Idol of Krishna and Bowl.

Turner, A. W., Devikulam—
1 skin and skull of a buck (Nilgiri Ibex)—

Turner, H. G., Esq.—
Specimen of corundum.

Venkatasubbiah, M.R.Ry., Acting Deputy Tahsildar, Paramatti, Salem district—
Corundum specimens from Paramatti, Salem district.

Warth, H., Dr.—
Berlin Fisheries Exhibition medal.
7 striated pebbles, &c., from Glaciers and ancient Moraines in Switzerland collected in June 1890.

West, H. S., Esq.—
1 snake (Lycodon aulicus); 2 pieces of mica schist from Tettoo in Nellore district.

C.

DONATIONS TO THE LIBRARY.

Standard Works.

Agricultural Department—Bulletins Nos. 24 to 26, Names of the Field Crops grown, Palmyra, Palm and its uses, Sugar Mill, Madras, 1892, 3 copies.
American Museum of Natural History—Bulletin, 1891,
Annals of the Queensland Museum No. 2—Zoology of British New Guinea, 1892.
Appendix Series of the Indian Forester.—Iron Resources and Iron Industries of the Southern Districts, Madras Presidency; Resin and Turpentine from Indian Pines, 2 copies.
Archæological Drawings.—Plates and Texts, 1892, 34 copies.
Army (Annual) Act (55 Victoria, Chapter 2), 1892.
Bendire, C.—Life Histories of North American Birds, United States National Museum, Special Bulletin No. 1, 1892.
Benson, C.—An Account of the Normal Distribution of the Rainfall in the Madras Presidency 1892.
Black, C. E. D—A Memoir on the Indian Surveys, 1875 to 1890, 1891.
Blanford, W. T.—Fauna of British India, Ceylon and Burma (Mammalia), 1888-91.
Bœttger, O.—Herpetologische Mitteilungen, 1892.
Bollettino Della Societa Di Naturalisti in Napoli—Vols. 5 and 6, 1891-92, 2 copies.
Brazier, J.—Marine Shells of Australia and Tasmania No. II (Pteropoda), 1892.
Burgess, J.—Report of the Archæological Survey of India, North-Western Provinces and Oudh, New Series, Vol. I, 1889.
Canadian Institute Transactions, 1891-92, 2 numbers; Annual Archæological Report and an Appendix to the Report of the Minister of Education, Canadian Institute, Session 1891.
Catalogue of Mysore Exhibits for Exhibition at Chicago, 1893.
Catalogue of Books in the Library of the Mysore Government Museum, Bangalore, 1892.
Catalogue of Books in the Library of the Presidency College, Madras, 1883.
Catalogue of Books in the Library of the Oriental Region by M. J. M. F. Bigot, Part 2, 1891.
Catalogue of the Diptera of the Oriental Region by M. J. M. F. Bigot, Part 2, 1891.
Catalogue of Rare and Valuable Gold, Silver and Copper Coins, the property of Mr. Eugene Leggett, Karachi, Sind.

Catalogue of Sanskrit Manuscripts in the Library of the India Office, Part 3, 1891.
Census of India (1891)—Assam Report, Tables and Resolution, 1892, 3 vols.; Berar or the Hyderabad Assigned Districts, Vol. 6, 1892; Bombay, Vols. 7 and 8, 1892, 2 vols.; Burma Report, Vols. 9 and 10, 1892, 2 vols.; Punjab and its Feudatories, Vols. 20 and 21, Parts 2 and 3, 1892, 2 vols.; Rajputana, Vol. 26, Parts 1 and 2, 1892, 2 vols.
Challenger, H. M. S.—Report on the Scientific Results of the Deep Sea Deposits, 1891.
Chatterton, A.—Proposals for Utilizing Water-power in Southern India, 1892.
Cincinnati Museum Association—Catalogue of an Exhibition of Modern Etchings and Drawings, 1892; Catalogue of Oil Paintings and Sculpture, 1892.
Commercial Museum at Frankfurt, Germany, 1886.
Cotes, E. C.—Notes on a Conspectus of the Insects which affect Crops in India, in the Indian Museum, Vol 2, No. 6, 1893.
Cunningham, D. J.—Contribution to the Surface Anatomy of the Cerebral Hemispheres, 1892.
Distant, W. L.—Oriental Cicadidae in the Indian Museum, Calcutta, 1892.
Douglas, J.—Bombay and Western India, 1893, 2 vols.
Duthie, J. F.—Fodder Grasses of Northern India, 1888.
Duthie, J. F.—Illustrations of the Indigenous Fodder Grasses of the Plains of North-Western India, 1886-87, 2 parts.
Edinburgh University Calendar, 1869-70 and 1878-79, 2 vols.
Eigenmann, C. H and R. S.—Proceedings of the California Academy of Sciences, Vol. 3, Part I, 1891.
Eliot, J.—Indian Meteorological Memoirs, Vol 5, Parts 1 and 2, 1892, 2 parts.
Eliot, J.—Meteorological Observations, 7 copies, 1891; 10 copies, 1892, 17 copies.
Eliot, J.—Indian Weather Review Annual Summary, 1891.
Eliot, J.—Monthly Weather Review from July to December 1891, and from January to October 1892, 16 copies.
Fleming, S.—An Appeal to the Canadian Institute on the Rectification of Parliament, 1892.
Ganguli, G. D.—Catalogue of the Reference Library of the Provincial Museum, North-Western Provinces and Oudh, 1891.
Geographical and Statistical Memoir of the Survey of the Travancore and Cochin States, Vol. I, from July 1816 to the end of the year 1820, 1863.
Geological and Natural History Survey of Canada—Annual Report, New Series, Vol. 4, Part D, Maps Nos. 1 to 9; Part N, Nos. 1 to 3, 1888-89.
Geological Survey of Victoria Observations of New Vegetable Fossils of the Auriferous Drifts, 1874 and 1883, 2 parts; Report of Progress, Nos. 2 to 6, 1874-80, 5 copies.
Hand-books of Commercial Products, Indian Section, Imperial Institute, Series Nos. 1 to 10 and 12, 1892-93, 11 copies.
Handel's Geographie, 1890-91.
Haraprasad Shastri—Notices of Sanskrit Manuscripts, Vol. 10, Part 2, 1892.
Holland, T. H.—Preliminary Report on the Iron Ores and Iron Industries of the Salem District, 1892, 2 copies.
Imperial Institute—Year Book, 1892.
Indian Engineering—An Illustrated Weekly Journal, 1892.
India Office List, 1892.
Ireland, A.—Address on the Moral Influence of Free Libraries, Manchester, 1892.
Jacob, C. S. S.—Jeypore Portfolio of Architectural Details, Parts 1 to 6, 1890, 6 copies.
Jathisangrahasaram in Tamil, 1872.
Journal of the Society of Arts, Vol XI, No. 2054, 1892.
Kalyani Inscriptions erected by King Dhammaceti at Pegu, Text and Translation, 1892.
List of Notifications and Rules revised up to 31st December 1891, issued and published under the Provisions of Acts and Regulations in Madras, 1892.
Logan, W.—A Collection of Treaties, Engagements and other Papers of Importance relating to British Affairs in Malabar, Vol. 3, 2nd edition, 1891.
London University Calendar for the years 1870, 1876 and 1878, 3 vols.
Madras Christian College Magazine.—Vol. 10, Nos. 1, 3, 5, 7, 8 and 9, 1892-93, 6 parts.
Madras University Calendar, 1892-93, 2 vols.
Monograph on the Pottery and Glass Industries of the Punjab, 1890-91.
Muttrich, A.—Forsttich Meteorologischen Stationen, Nos. 1 to 6, 1892, 6 copies.
Muybridge, E.—Science of Animal Locomotion Zoopraxography, 2 copies.
North-Western Provinces and Oudh.—Minutes of the Managing Committee, 1889-91, 1891-92, 2 vols.
Ogilby, J. D.—Catalogue of Australian Mammals, Australian Museum, Sydney, 1892.
Owen's College Calendar, 1874-75.
Pandian, Rev. T. B.—Slaves of the Soil in Southern India, 1892.
Peter, A.—Wandtafeln Zur Systematik Morphologie und Biologie der Pflanzen fur Universitaten und Schulen, 1 sheet large folio.
Poudaung Inscription erected by King Sinhyuyin, in 1874, A.D. 1891.
Pratapa Chandra Ray—Mahabharata, Parts 70 to 77, 1891-92, 8 copies.

Preservation of National Monuments.—Second and Third Reports of the Curator of Ancient Monuments in India, 1882-83, 1883-84, 2 copies.
Rainfall Data of India, 1891.
Ramsay, E. P.—Records of the Australian Museum, Vol. 2, Nos. 1 to 4, 1892-93, 4 copies.
Rare Photographic Memorials of the Mutiny, 1892.
Royal Gardens, Kew—Bulletin of Miscellaneous Information, 1 copy for 1891, 2 copies for 1892, 3 copies.
Royal Institute of British Architects—Journal of Proceedings, New Series, Vols. 1 to 3, and Vols 5 to 8, 1885, 1887, 1889 to 1892, 7 vols; Kalendar, 1892-93, 2 vols; Transactions, Vols. 4 to 8, 1888-92, 5 vols.
Royal Irish Academy Transactions—Vol. 30, Parts 3 and 4, 1892-93, 2 parts; Proceedings, Vol. 2, No. 2, 1892.
Rules of the Bangalore Library, 1892.
Rust, D.—Contributions to Canadian Micro-Palaeontology, 1892.
Sarat Chandra Mitra—Biographical Sketches of Indian Antiquarians, 2 numbers.
Schlagintweit, E.—Indien in Wort und Bild, 1890-91, 2 vols.
Scientific Results of the Second Yarkand Mission, 1878-91.
Sclater, W. L.—List of the Batrachia in the Indian Museum, 1892.
Shanar Vigarpa Vinavidai in Tamil, 1891.
Smith, C. M.—Madras Meteorological Results, 1861-90
Smith, C. M.—Madras Observatory Meridian Circle Observations, 1874-75 and 1876, 1892.
Smithsonian Report, Washington, 1890.
Spink and Sons.—Numismatology, Vol 1, No. 7, 1892.
Srinivasa Raghavaiyangar, S.—Memorandum on the Progress of the Madras Presidency during the last 40 years of British Administration, 1892.
Stein, M. A.—Kalhanas Rajatarangini in Sanskrit, Vol. I, 1892.
Strachey, J.—Hastings and the Rohilla War, 1892, 2 copies
Theobald, F. V.—An Account of British Flies (Diptera), Vol. I, Parts 5, 6, 7 and 8, 1892-93, 4 copies.
Transactions of the Seventh International Congress of Hygiene, Vol. II, Indian Hygiene and Demography, 1892.
United States National Museum—Bulletin No. 41, Published Writings of Dr. Charles Girard, 1891; Bulletin No. 42, Preliminary Descriptive Catalogue of the Systematic Collections in Economic Geology and Metallurgy, 1891; Reports, 1889.
Vannikula Vilakkam—English and Tamil, 1891, 2 vols.
Victoria, 1883—Mineral Statistics of Victoria, 1892.
Victoria, 1883—Report of the Chief Inspector of Mines to the Honorable the Minister of Mines, 1882; Reports of the Mining Surveyors and Registrars, Quarters ended 30th March and 30th June 1883, 2 copies.
Watt, G.—Dictionary of the Economic Products of India, Vol. 6, Part 1, 1892, Vols. 1 to 4, 2 parts in Vol. 5, interleaved, Ed. 1889-91, 7 vols.
Whitaker, W.—Memoirs of the Geological Survey of England and Wales, Geology of London, Vol. I, 1889.
Wingham.—A Report on the Analysis of Oriental Metal Work, &c., in the South Kensington Museum, 1892.
Wytsman, P.—Entomology, No. 9.

Periodicals.

Asiatic Society of Bengal—Journal, 8 parts, and Proceedings, 8 parts.
Bombay Natural History Society—Journal, 4 parts.
Epigraphia Indica, 3 parts.
Fort St. George Gazette, 48 issues.
Geological Survey of India—Memoirs, 1 part, and Index of the First Twenty Volumes and Records, 4 parts.
Hindu Reformer—A Monthly Journal, Vol. 8, Nos. 1 to 7, 1892-93, 7 copies.
Indian Antiquary, 13 issues.
Indian Art Journal, 4 parts.
London Royal Society Proceedings, 14 parts.
Madras Ports—Imports and Exports, 11 numbers.
Memoirs of the Geological Survey of India—Index of the genera and species described in the Palaeontologia Indica.
Musical Herald, 9 issues.
Oesterreichische Monatsschrift fur den Orient, 12 parts.
Pandit—Sanscrit Literature, 15 monthly issues.

D.

MINERAL GALLERY, GOVERNMENT CENTRAL MUSEUM.

EXTRA TERRESTRIAL OBJECTS.

Meteorites.

Meteoric Stones and Iron fallen or found on the following dates:—

Ensisheim, France, 1492.
Kraonojarsh, Siberia, 1775.
Tolucca, Mexico, 1784.
Krakhut, Benares, 1798.
Stannern, Moravia, 1808.
Elbogen, Bavaria, 1811.
Lenarto, Hungary, 1815.
Juvenar, France, 1821.
Bokkevelt, The Cape, 1838.
Namianthal, South Arcot, 1886.
Kakangari, Salem district, 1890.

Models of Meteoric Stones fallen in India.

Daruba, Pattiala, 1815.
Bittoor, Allahabad, 1822.
Busta, North-West Provinces, 1852.
Segowlee, India, 1853.
Peprassee, India, 1861.
Nellore, Madras Presidency, 1852.
Nine more models without labels. Total, 26 specimens.

TERRESTRIAL SPECIMENS.

Minerals.

108 kinds of minerals, of which 73 were exhibited from Southern India, the remaining being index specimens from elsewhere; bracketted in the list.

	System of crystallisation.	Number of specimens.
Native Elements.		
Gold	Is.	15
(Silver)	Is.	1
Copper	Is.	2
(Osmiridium)	Is.	1
(Platinum)	He.	1
(Iron)	Is.	1
(Amalgam)	Is.	1
(Arsenic)	Is.	2
(Bismuth)	He.	1
Sulphur	He.	4
Diamond	Or.	2
Graphite	Is.	11
	He. ?	
Sulphides.		
(Argentite)	Is.	1
(Zincblende)	Is.	1
(Cinnabar)	He.	1
Galena	Is.	17
Copper pyrites	Is.	5
Iron pyrites	Is.	18
(Orpiment)	Or.	2
(Stibuite)	Or.	2

	System of crystallisation.	Number of specimens.
Oxides.		
Corundum	He.	24
Spinel	Is.	3
Heamatite	He.	122
Braunite	Te.	2
Magnetite	Is.	269
Chromite	Is.	7
Gôthite	Or.	2
Limonite	..	107
Manufactured iron and steel	..	292
Manganite	Or.	12
Pyrolusite	Or.	6
Quartz	He.	75
Agate, etc.	..	162
Opal	..	26
Rutile	Te.	1
Tinstone	Te.	4
Zircon	Te.	2
Silicates.		
Artificial silicate—Glass	..	8
Augite (Coccolite)	Mo.	1
(Rhodonite)	Mo.	1
Hornblende	Mo.	9
(Tremolite)	Mo.	1
Actinolite	Mo.	4
Asbestos	Mo.	6
Beryl	He.	2
(Olivine)	Or.	3
Garnet	Is.	31
(Cinnamon stone)	Is.	2
(Pyrope)	Is.	1
(Idocrase)	Te.	2
(Lapis lazuli)	Is.	1
Mica	Mo.	40
Biotite	Mo.	1
(Lepidolite)	Mo.	1
Orthoclase	Mo.	4
Adularia	Mo.	5
Microcline	Tr.	2
Clevelandite	Tr.	1
Albite	Tr.	10
Oligoclase	Tr.	1
(Indianite)	Tr.	1
Labradorite	Tr.	6
Felspar, not named	..	10
Felspar, decomposing	..	2
Chlorite	Mo.	1
Talc	Mo. ?	10
Steatite	..	23
Meerschaum	..	2
Serpentine	..	15
Verdantique	..	1
Kyanite	Mo.	6
Staurolite	Or.	3
Tourmaline	He.	11
(Topaz)	Or.	1
Epidote	Mo.	9
Hydrous silicates.		
Prehnite	Or.	4
Natrolite	Or.	4
Mesolite, fibrous	..	1
Thomsonite	Or.	3
Chabazite	He.	2
Stilbite	Or.	8
Pinite	..	1
	..	24
		4

	System of crystallisation.	Number of specimens.
Titanates, &c.		
(Sphene)	Mo.	1
(Wolframite)	Mo.	1
(Wulfenite)	Te.	1
Sulphates.		
Barite	Or.	11
Celestine	Or.	3
(Anhydrite)	Or.	2
Gypsum	Mo.	20
(Alunite)	Is.	1
Phosphates.		
Apatite	He.	4
Turquoise	..	1
Carbonates.		
Calcite	He.	64
Magnesite	He.	9
Siderite	He.	2
(Calamine)	He.	2
Dolomite	He.	3
(Aragonite)	Or.	5
(Witherite)	Or.	1
(Strontianite)	Or.	1
(Cerussite)	Or.	2
Malachite	Mo.	14
Azurite	Mo.	2
Nitrates, Chlorides, &c.		
Nitre	Or.	1
Rock salt	Is.	2
(Fluorspar)	Is.	3
Of Vegetable origin.		
Coal		4
(Bitumen)		3
Resinite		1
Peat		1

ROCK SPECIMENS.

General collection of Rocks.

Eruptive or Igneous Rocks.

Orthoclase group.	
Granite	70
Pegmatite	14
Granulite	1
Epidote and Pistacite granite	8
Syenite	14
Porphyry	9
Felsite	3
Plagioclase group.	
Basalt	7
Dolerite	18
Porphyritic dolerite	2
Trap, general term	16
Greenstones, general term	3
Diorite	13
Serpentine group.	
Serpentine	5
Potstone and steatite	5
Collection of potstone articles	

	Number of specimens.
Metamorphic Rocks.	
Gneiss (many of these rocks require microscopic examination).	186
Granitoid gneiss	5
Epidote rock	2
Staurolite rock	1
Mica shist	14
Horublende shist	7
Talcose shist	15
Chlorite shist	12
Quartzose shist	5
Slate, ordinary	8
Clayslate	8
Marble and serpentinous limestone in large slabs	20
Limestones and marbles of various colours and patterns, more or less crystalline	60
Quartzite	36
Vein Rocks.	
Quartz from veins in Southern India	69

SEDIMENTARY ROCKS ARRANGED ACCORDING TO MINERAL CONSTITUTION INDEPENDENT OF AGE.

Quartzose Rocks.	
Conglomerates	20
Breccias	7
Grits	4
Sandstones	68
Quartzites	27
Argillaceous Rocks.	
Kaolin	7
Clays of various colours	26
Shales and shaly clays	33
Laterites	24
Peaty shales and clays	7
Peat	2
Calcareous Rocks.	
Limestone	40
Cement, samples of cement	3
Dolomite	9
Marl	2
Shell limestone	8
Travertine	10
Kankar	7
Gypsum	1
Lithographic limestone and shell limestone in large slabs	14

SPECIMENS ILLUSTRATING GEOLOGICAL PHENOMENA.

Slab of limestone showing the bedding	1
Slab of limestone with cast of sun cracks	1
Slab of sandstone showing ripple marking	1
Slab of sandstone showing concentric markings	1
Slabs of sandstone with dendritic markings	3
Septaria with veins, weathered into segments	2
Casts of salt crystals in sandstone	1
Slickenslide on quartz	1
Jointing, rhombic prisms of shist, sandstone and shale	3
Weathering. A piece of limestone	1
Gypsum with sharp edges	1
Pebbles with veins	5
Conglomerate of large pebbles	1
Ice scratched pebbles from modern glacier	4
Floor of modern glacier	1
Stone from old moraine	1

THE GEOLOGICAL FORMATIONS OF SOUTHERN INDIA IN CHRONOLOGICAL ORDER.

Carboniferous.

	Number of specimens.
Kamptee beds near Nagpur. Specimens presented by Rev. Hislop. Fossil plants	48

Cretaceous.

The Cretaceous rocks of Southern India, Trichinopoly district.

Cœlenterata (Corals)	10
Echinodermata	25
Terebratula	2
Mollusca—	
Lamellibranchiata	216
Gasteropoda	91
Cephalopoda Nautilus	80
Ammonitidæ	250
Belemnites	10
Teeth of fish	2
Fossil fish	1
Teeth of Saurian	2
Plates and bones of Saurian	4
Collected before 1892 from Cretaceous of Trichinopoly area (mostly mollusca)	96
Nodules, concretions and minerals from the cretaceous rocks of Trichinopoly	120

Post Cainozoic.

Alluvial tin gravel of Lower Burmah	40
Sub-fossil reef of Pámban	60

The following tabular statement represents the collection from European fossiliferous strata arranged for students.

The table shows the number of rock specimens, plants and animal remains, the latter divided into thirteen sub-kingdoms and classes. The geological periods are enumerated from above downwards.

—	Rock specimens.	Plant remains.	Protozoa. Nummulites.	Porifera. Spongiæ.	Cœlenterata. Corals.	Echinodermata. —	Annuloida. Annelida.	Annuloida. Crustacea.	— Molluscoidea.	Mollusca. Lamellibranchiata.	Mollusca. Gastropoda.	Mollusca. Cephalopoda.	Vertebrata. Fishes.	Vertebrata. Reptiles.	Vertebrata. Mammals.	Total. Specimens.
Miocene	..	..	..	..	3	..	..	..	..	35	62	..	..	2	6	108
Eocene	..	..	6	..	1	..	..	6	..	81	76	1	2	1	1	123
Chalk	..	..	..	6	3	49	3	2	15	37	..	12	5	2 (Coprolites).	..	134
Greensand ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	89
Wealden ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	14
Upper oolite ..	..	2	..	3	3	4	1	2	10	40	7	19	..	1	..	14
Middle oolite ..	..	..	..	..	..	..	..	4	..	5	2	3	3	1	..	74
Lower oolite ..	..	4	..	..	..	..	..	..	3	4	1	19	..	..	..	133
Lias	..	4	..	..	10	10	..	..	7	23	8	17	6	14	..	100
Trias	..	..	..	1	..	15	1	..	44	28	1	39	1	6	..	49
Permian ..	24	2	..	..	..	3	..	..	11	81	2	3	1	..	..	31
Carboniferous ..	16	..	..	..	..	2	..	..	..	9	..	1	5	..	..	275
Devonian ..	92	74	..	..	..	1	..	..	6	2	..	5	5	..	..	63
	13	1	..	..	11	12	..	1	58	5	9	3	5	..	..	
Total specimens ..	144	87	6	10	33	96	5	20	176	264	172	122	86	26	7	1,207

SUMMARY.

	Number of Specimens.
Extra terrestrial, meteorites	26
Terrestrial.	
Minerals, local, 73 species	1,600
Minerals, foreign, 35 species	50
Rocks, all from India.	
Eruptive (orthoclase, plagioclase and serpentine groups) ..	213
Metamorphic and vein rocks	448
Sedimentary rocks (quartzose, argillaceous and calcareous) ..	319
Geological phenomena illustrated	28
Indian geological formations, arranged chronologically, Kampti's	48
Trichinopoly cretaceous	909
Burmah alluvial	40
Pámban reef	60
Total ..	3,741
European fossils, arranged according to formations chronologically	1,207
Total ..	4,948

H. WARTH,
Offg. Supt., Govt. Central Museum.

1*st March* 1893.

E.

NOTES ON MINERALS.

Corundum.

The following is a list of localities from which samples of corundum are at present in the Government Central Museum, Madras :—

1. Vizagapatam district, Kodur.
2. Gódávari district, hills north-west of Rajahmundry.
3. Kistna district, Guntúr.
4. Kurnool district, Munagala, Ramallokot taluk.
5. Bellary district.
6. North Arcot district, Kuppam.
7. North Arcot district, Timmajammas estate near Chittoor.
8. Salem district, Kavandampatti.
9. Salem district, Pennagaram in the Dharmapuri taluk, presented by Sriramulu Raju, Contractor of Madras.
10. Salem district, Sithampundi.
11. Salem district, Solasiramani=Sholasigamany.
12. Salem district, Yelagiri hills.
13. Coimbatore district, crystals.
14. Coimbatore district, banks of the Cauvery.
15. Coimbatore district, Sholasigamany.
16. Coimbatore district, presented by H. G. Turner, Esq.
17. Coimbatore district, Gopichettipalayam.
18. Coimbatore district, Shegrispollaim and Karootapollaiam of Palladam taluk.
19. Coimbatore district, Pasur, presented by W. T. Hamilton Holmes, Esq.
20. South Canara district.
21. South Canara district, Kemmar village, Uppinangudi taluk.
22. Mysore Province, Hunsur, in block 300 lb.
23. Mysore Province, hills near Bangalore.
24. Mysore Province, Mallakotah (French Rocks near Seringapatam, presented by Sri Rmulu Raju, Contractor of Madras.

25. Mysore Province, Mysore.
26. Mysore Province, Saringamandahalli.
27. Mysore Province, Narnapeenhalli.
28. Mysore Province, Kalhully, Mandaya taluk.
29. Mysore Province, Singina Marina Halli near Hunsur.
30. Coorg Mysore Province, Kushalnagar.

More attention has of late been directed to the deposits of corundum in the Madras Presidency as a valuable article of export and on account of its possible use for the manufacture of aluminium at some future date. According to the above list the collection contains now specimens from 30 different localities, and there is a prospect of this number being considerably increased since the Board of Revenue have issued a circular inviting District officers to send specimens from all new localities that may come to their notice. The occurrence of corundum is limited to the area of metamorphic rocks, but a glance at the geological map of this Presidency issued with the last annual report shows that these rocks occupy far the largest portion of the country. At present the specimens in the Musuem come from 9 districts—Vizagapatam, Gódávari, Kistna, Kurnool in the north and the North Arcot, Salem, Coimbatore, South Canara further south. Corundum has also been reported from Ganjam, Anantapur, and the principality of Travancore, also from H. H. the Nizam's dominions and from Coorg. The southernmost part of the Presidency comprising 6 districts is entirely unrepresented.

I have been able to examine one of the localities where corundum occurs as usual in isolated crystals scattered through gneiss and other metamorphic rock. This was on a square mile of waste lands south of the village of Sithampundi in the Salem district. It is 2 miles E.S.E. from Sola siramani on the Cauvery river and also in the Salem district. The principal rock was a grey rock consisting of the quartz and hornblende with a little felspar which weathers easily; there are also beds of hornblende rock and garnetiferous shist, veins of quartz and lenticular masses of flesh-colored felspar a yard in thickness. Greenish corundum was obtained from shallow excavations scattered over the area of exposed shist; less frequent a red kind of corundum was found and followed up by deeper excavations.

No work was in progress during my visit, but a trial excavation in loose ground gave 1 part of corundum to 300 parts of matrix. The crystals were only half an inch in diameter. But it is known that larger crystals of about 1 inch diameter are also found, and very likely there are much richer places than the one I was able to test. Samples of the greenish corundum obtained by the Collector of Salem were good cleavage pieces of the foundamental rhombohedron of 86°. Dr. Max Bauer, Professor of Minerlogy, Marburg University, measured a number of them and found the angle always a few minutes above 86°. The fine net-work of lines on all the surfaces are due to twinning planes parallel to the three faces of the rhombohedron and they afford easy cleavage. Some rough tapering hexagonal prisms occurred also. Magnetite, calcite and hornblende were mixed with the corundum which the people had collected. The white powder with which many of the specimens were coated proved to be carbonate of lime. The pieces of red corundum were smaller but had also the characteristic striation or net work of twining lines. They differed in nothing from precious rubies except by their want of transparency. In fact a few small transparent pieces were also obtained from the neighbourhood by the district authorities. A small number of red or violet red crystals were examined, and as some of them showed inferior hardness and apparently octohedral form, they were all supposed to be spinel. A later examination of 10 small transparent crystals under the polarizing microscope showed that there were 3 spinels, 1 garnet, 6 rubies, the latter, however, not of sufficient size or quality to be sold as gems.

Another corundum locality which I was able to pass through is the taluk of Hunsur, in Mysore territory, about 30 miles west of Mysore city. Mr. F. W. Petrie Hay had corundum collected under a lease of the Mysore Government from a number of villages to the south and west of the town of Hunsur. Very excellent crystals of yellowish corundum with a brown weathered surface were collected from the fields. Some tapering hexagonal prisms up to 5 inches length and a cubical piece of about 4 inches side were amongst the specimens which Mr. Hay was kind enough to present to the Museum. But what struck me most at the very beginning were large blocks of quarried corundum which Mr. Hay had obtained. I considered them as of the greatest importance, because a much larger and more continuous yield would be expected from them than from the smaller scattered crystals.

The quality of the quarried pieces is very little inferior to that of the crystals. I found the specific gravity of the large crystals 4·02 and of the rock corundum 3·80. Mr. Hay presented to the Museum a block of this corundum weighing 300 lb. It appears that this rock corundum occurs in blocks 2 feet thick arranged in lines in the metamorphic rocks.

There is yet a possibility of beauxite being discovered and supplied at a lower rate for the manufacture of aluminium. It has lately been shown that beauxite occurs near Marburg in Germany as a product of alteration from basalt similar in origin to the kaolins and certain laterites which abound in India. The price of beauxite from near Marburg is quoted at eight Rupees a ton, whilst corundum costs in India eighty Rupees a ton.

The Phosphatic nodules of the Trichinopoly District.

Under instructions from the Government of Madras, one ton of nodules were sent to Her Majesty's Secretary of State, and the following chemical analysis obtained (omitting second places of decimals and some other details):—

	Voelcker.	J. F. King.
Phosphoric acid *	26·0	27·0
Lime	45·5	46·9
Alumina and iron oxide	5·8	4·0
Magnesia, sulphuric acid, &c.	1 0	3·2
Fluorine and alkalis	4·8	...
Silica	5·3	2·8
Carbonic acid †	7·2	10·3
Organic matter, moisture, &c.	4·4	5·8
	100·0	100 0
* Equal to tribasic phosphate	56·9	59·6
† Equal to carbonate of lime	16·4	23·4

We learn from Dr. Voelcker's report that the carolina phosphates at present shipped from America to England do not contain more phosphate of lime than the above, but they contain less alumina and iron oxide and less carbonate. Dr. Voelcker recommends the direct use of these phosphates without manufacturing them into superphosphate. To manufacture superphosphate profitably would require large quantities, more than 60,000 tons. During my last visit I have been able to ascertain that the entire area covered by phosphatic nodules equals 10 square miles, and that about 4,000 tons of nodules are lying more or less loosely on the surface. From the first I observed that the nodules on the surface had been accumulated by the washing away of the cretaceous shales in which they were embedded. The proportion of nodules in the shales, wherever I had an opportunity of examining the latter, appeared to me too small for profitable working. *Primâ facie* the existence of a superficial deposit of phosphates spread over such a large surface is certain to rouse expectation of more extensive underground deposits.

The excavation of soft shales enclosing the nodules is also very cheap comparatively, and although richer underground layers have not been observed nor any indications of such, yet it is impossible to say absolutely that there are none. It is therefore proposed to examine in detail one or two complete underground sections across the band of nodules. These sections are expected to settle the question of a possible larger supply definitely and they will be taken in hand as soon as possible.

Iron.

Iron ores.—As regards the possible utilization of the rich iron ores of this Presidency on a larger scale than the still existing local industry, I would refer to the publication of Mr. T. H Holland's pamphlet (Preliminary report on the Iron ores and Iron industries of the Salem District).

Mr. Holland has shown in figures how the scarcity of fuel prevents the development of this highly desirable industry. As an example of the scarcity of fuel I might mention the fact that at this present moment the Kolar Gold Companies in the heart of Southern India use English coal for their engines, and yet it is with English iron and steel brought to this country for mere nothing that the Indian iron has to compete. The fuel difficulty remains an obstacle even should measures be taken to reduce the quantity of charcoal to a minimum. Wood-fuel or coal used as gas in reverberatory furnace would also cause an economy of fuel, but it would absorb all waste heat which in other cases would be available for steam-power. Water-power would have to be on the spot or be conveyed at great cost by electricity for working up the metal. As regards Mr. Chatterton's proposal of using electricity only without any fuel, this method would just as easily produce aluminium and with the electricity from waterfalls available it would pay better to make the former metal than even the most precious steel.

The only prospect under present circumstances of doing anything with the iron ore must be based upon their abundance, richness and quality. Their abundance and richness stands undoubted. As regards the quality it is of the greatest importance that elaborate chemical analysis should be made. We require to know first of all whether the amount of phosphorus is so small as not to require elimination for the best quality of iron and steel. Upon this condition hinges at present the possibility of working with exceptional economy of fuel. This point will be decided by the work which Mr T. H. Holland has started. I am informed that analysis of all the specimens collected on his late tour through the iron districts are being made in England. It would be very satisfactory if the absence of phosphorus in some rich

deposits would be established. The direct process of steel-making in the Salem district indicates freedom from phosphorus, whilst the manufacture of Wootz steel in other districts points rather to the contrary, wrought iron being first produced and afterwards made into cast steel. For all this we must await the promised chemical analysis which will give the most ample and unerring information.

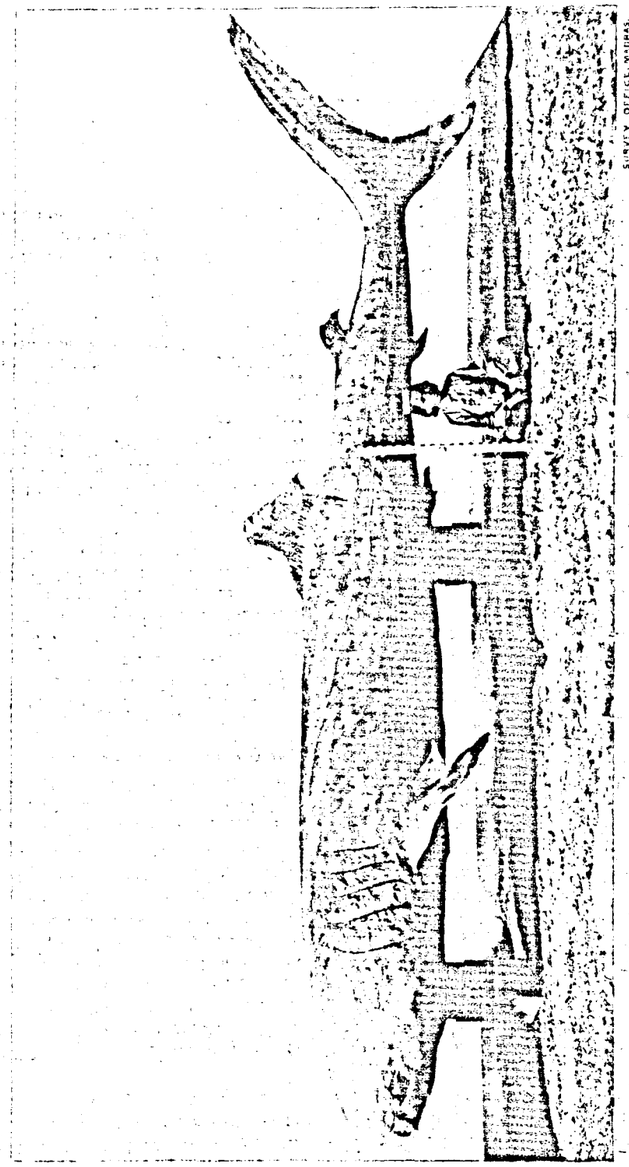
F.

The following is a ferro cyanide picture of the Shark rhinodon typicus set up in the fish gallery. The bar shown resting against the fish is of three feet length. It was cast ashore, dead at Madras, in the year 1889, and temporarily stuffed and has now been more carefully preserved.

Specimens of this species are rare. Günther in his study of fishes says: "It is perfectly harmless, its teeth being extremely small and numerous, placed in broad bands. It has been stated to feed on tang—an observation which requires confirmation." The stomach of this specimen was examined, but found empty. Smith in his illustrations of the zoology of South Africa gives a picture of the fish and says the following about its food: "When our shark proceeds to feed, the first step it probably takes is to open its jaws to their full extent in order to permit the mouth and pharynx to become filled with sea water. On that being accomplished, the jaws are then probably closed in order that the water shall, by muscular effort in the pharynx, be propelled through the tubes in the branchiæ and forced thus to leave behind it whatever mollusca it may chance to contain.

The measurement of the dimensions makes the specimen 70 cubic feet, representing in sea water a weight of two tons. The weight of the stuffed specimen, with the skin and model together, is 6 cwt. The following measurements were kindly supplied by Dr. A. G. Bourne who took them when the fish was still lying at the beach:—

	INCHES.
Total length 22 feet	or 264
Root of 1st dorsal (fin) to upper jaw	118
Anterior edge of 1st dorsal	22
Base of 1st dorsal	24
Distance between 1st and 2nd dorsal	27
Anterior edge of 2nd dorsal	11½
Base of 2nd dorsal	10½
Length of upper caudal lobe	60
Length of lower "	30
Anterior edge of pectoral fin	38
First branchia to anterior edge of pectoral fin	15
Breadth of pectoral fin at base	20
Length of 1st gill opening	23
Length of 2nd "	23½
Length of 3rd "	21
Length of 4th "	20
Length of 5th "	17
Eye diameter	1½
Spiracle	⅝ inch by 1
Mouth	30
Teeth, lower jaw	14 rows.
Tip of snout to 1st branchia	40
Tip of snout to eye	10
Eye to spiracle	4



Rhinodon typicus.

G.

LIST OF THE MAMMALS IN THE MAMMAL GALLERY.

All from Southern India.

Blanford's No.	Latin names.	English names.	No.
	Order Primates.		
5.	Macacus silenus	The lion-tailed monkey	1
10.	Macacus sinicus	The bonnet monkey	1
15.	Semnopithecus hypoleucus	The Malabar langur	1
16.	Semnopithecus johni	The Nilgiri langur	1
27.	Loris gracilis	The slender loris	2
	Order Carnivora.		
29.	Felis tigris	The tiger	1
30.	Felis pardus	The leopard or panther	3
35.	Felis viverrina	The fishing cat	1
36.	Felis bengalensis	The leopard cat	1
41.	Felis chaus	The jungle cat	1
42.	Felis caracal	The caracal	1
44.	Cynælurus jubatus	The hunting leopard	1
46.	Viverra civettina	The Malabar civet-cat	1
48.	Viverricula malaccensis	The small Indian civet	2
51.	Paradoxurus niger	The Indian palm-civet	2
54.	Paradoxurus jerdoni	The brown palm-civet	1
60.	Herpestes mungo	The common Indian mungoose	1
62.	Herpestes fuscus	The Nilgiri brown mungoose	1
64.	Herpestes vitticollis	The stripe-necked mungoose	1
66.	Hyæna striata	The striped hyæna	1
69.	Canis aureus	The jackal	1
70.	Cyon dukhunensis	The Indian wild dog	2
72.	Vulpes bengalensis	The Indian fox	1
77.	Mustela flavigula	The Indian marten	1
89.	Mellivora indica	The Indian ratel	1
92.	Lutra vulgaris	The common otter	2
95.	Lutra leptonyx	The clawless otter	1
100.	Melursus ursinus	The sloth-bear or Indian bear	1
	Order Insectivora.		
101.	Tupaia ellioti	The Madras tree-shrew	1
108.	Erinaceus micropus	The South Indian hedgehog	2
118.	Crocidura cærulea	The grey-musk shrew	2
120.	Crocidura bidiana	Bidie's shrew	1
125.	Crocidura perrotteti	The Indian pigmy shrew	1
	Order Chiroptera.		
134.	Pteropus medius	The Indian fruit-bat or flying-fox ...	2
138.	Cynopterus marginatus	The short-nosed fruit-bat	1
150.	Rhinolophus affinis	The allied horse-shoe bat	1
161.	Hipposiderus speoris	Schneider's leaf-nosed bat	1
194.	Nycticejus kuhli	The common yellow bat	1
213.	Cerivoula picta	The painted bat	2
220.	Taphozous longimanus	The long-armed sheath-tailed bat ...	1
222.	Taphozous saccolæmus	The pouch-bearing sheath-tailed bat ...	1
223.	Rhinopoma microphyllum	The long-tailed bat	1
225.	Nyctinomus plicatus	The Indian wrinkled-lipped bat	1

Blanford's No.	Latin names.	English names.	No.
	Order Rodentia.		
239.	Sciurus indicus	The large Indian squirrel	2
253.	Sciurus palmarum	The palm-squirrel or common striped squirrel	2
263.	Platacanthomys lasiurus	The Malabar spiny mouse	1
264.	Gerbillus indicus	The Indian gerbille or antelope rat	3
272.	Mus rattus	The common Indian rat	2
274.	Mus decumanus	The brown rat	2
282.	Mus musculus	The common house-mouse	2
287.	Mus buduga	The common Indian field-mouse	2
290.	Mus mettada	The metad rat or soft-furred field-rat	1
295.	Nesocia bengalensis	The Indian mole-rat	2
296.	Nesocia bandicota	The bandicoot-rat	3
315.	Hystrix leucura	The Indian porcupine	1
319.	Lepus nigricollis	The black-naped hare	1
351.	Hemitragus hylocrius	The Nilgiri wild goat	1
357.	Antilope cervicapra	The Indian antelope or black buck	2
362.	Cervulus muntjac	The rib-faced deer or barking deer	3
368.	Cervus axis	The spotted deer	1
371.	Tragulus meminna	The Indian chevrotain or mouse deer	3
374.	Sus cristatus	The Indian wild boar	1
	Order Cetacea.		
390.	Steno plumbeus	The plumbeous dolphin	1
391.	Steno perniger	Elliot's dolphin	1
	Order Edentata.		
399.	Manis pentadactyla	The Indian pangolin	2

LIST OF THE BIRDS IN THE BIRD GALLERY.

All from Southern India.

Order Raptores—Birds of Prey.

Jerdon's No.	Latin names.	English names.	No.
2.	Otogyps calvus	Black vulture	1
5.	Gyps bengalensis	Common brown vulture or white-backed vulture	1
6.	Neophron percnopterus	White scavenger vulture	2
8.	Falco peregrinus	The peregrine falcon	3
9.	Falco peregrinator	The shahin falcon	3
14.	Hypotriorchis severus	The Indian hobby	1
16.	Hypotriorchis chicquera	The red-headed merlin	1
17.	Tinnunculus alaudarius	The kestril	2
21.	Astur palumbarius	The goshawk	1
22.	Astur trivirgatus	The crested goshawk	1
23.	Micronisus badius	The shikra	3
29.	Aquila fulvescens	The tawny eagle	1
31.	Aquila pennata	The dwarf eagle	2
32.	Neopus malaiensis	The black eagle	1
35.	Limnætus cristalellus	The crested hawk eagle	1
38.	Circætus gallicus	The common serpent eagle	2
40.	Pandion haliætus	The osprey	2
43.	Haliætus leucogaster	The grey-backed sea eagle	2
48.	Poliornis teesa	The white-eyed buzzard	2
53.	Circus melanoleucos	The pied harrier	2
54.	Circus æruginosus	The marsh harrier	2

Jerdon's No.	Latin names.	English names.	No.
55.	Haliastur indus	The maroon-backed kite	2
56.	Milvus govinda	The common Pariah kite	2
57.	Pernis cristata	The crested honey buzzard	1
59.	Elanus melanopterus	The black-winged kite	1
60.	Strix javanica	The Indian screech owl	1
65.	Syrnium sinense	The mottled wood owl	2
69.	Urrua bengalensis	The rock horned owl	2
74.	Ephialtes pennatus	The Indian scops owl	2
76.	Athene brama	The spotted owlet	2
78.	Athene malabarica	The Malabar owlet	2
81.	Ninox scutellatus	The brown hawk owl	2
	Order Insessores—Perching Birds.		
86.	Hirundo fluvicola	The Indian cliff swallow	2
96	Acanthylis gigantea	The Brown-necked spine tail	1
98,	Cypselus melba	The Alpine swift	1
100.	Cypselus affinis	The common Indian swift	2
104.	Dendrochelidon coronatus	The Indian crested swift	3
107.	Caprimulgus indicus	The jungle nightjar	1
117.	Merops viridis	The common Indian Bee-eater	2
118.	Merops philippensis	The blue-tailed Bee-eater	1
122.	Nyctiornis athertoni	The blue-necked Bee-eater	2
123.	Coracias indica	The Indian roller	2
127.	Halcyon leucocephalus	The brown-headed kingfisher	1
129.	Halcyon fuscus	The white-breasted kingfisher	2
130.	Halcyon atricapillus	The black-capped purple kingfisher	2
131.	Halcyon coromandelianus	The ruddy kingfisher	2
134.	Alcedo bengalensis	The common Indian kingfisher	1
136.	Ceryle rudis	The pied kingfisher	1
140.	Homraius bicornis	The great horn bill	2
141.	Hydrocissa coronata	The Malabar pied horn bill	1
144.	Meniceros bicornis	The common grey horn bill	1
147.	Palæornis alexandri	The Alexandrine parrakeet	3
149.	Palæornis rosa	The rose-headed parrakeet	2
151.	Palæornis columboides	The blue-winged parrakeet	1
153.	Loriculus vernalis	The Indian lorikeet	1
160.	Picus mahrattensis	The yellow-fronted woodpecker	2
164.	Yungipicus Hardwickii	The southern-pigmy woodpecker	1
165.	Hemicircus canente	The heart-spotted woodpecker	2
179.	Micropternus gularis	The Madras rufous woodpecker	1
180.	Brachypternus aurantius	The golden-backed woodpecker	1
188.	Yunx torquilla	The common wryneck	2
194.	Megalaima viridis	The small green barbet	2
197.	Xantholæma indica	The crimson-breasted barbet	1
199.	Cuculus canorus	The European cuckoo	2
203.	Cuculus micropterus	The Indian cuckoo	1
205.	Hierococcyx varius	The common hawk-cuckoo	2
208.	Polyphasia nigra	The Indian plaintive cuckoo	3
211.	Chrysococcyx hodgsoni	The emerald cuckoo	1
212.	Coccystes melanoleucos	The pied-crested cuckoo	2
213.	Coccystes coromandus	The red-winged crested cuckoo	2
214.	Eudynamys orientalis	The Indian koel	3
216.	Zanclostomus viridirostris	The small green-billed malkoha	1
217.	Centropus rufipennis	The common coucal	1
232.	Leptocoma zeylonica	The Amethyst-rumped Honey-sucker	1
234.	Arachnechthra Asiatica	The Purple Honey-sucker	2
250.	Sitta castaneoventris	The Chesnut-bellied Nuthatch	1
253.	Dendrophila frontalis	The Velvet-fronted Blue Nuthatch	2
255.	Upupa nigripennis	The Indian Hoopoe	2
257.	Lanius erythronotus	The Rufous-backed Shrike	2
260.	Lanius hardwickii	The Bay-backed Shrike	1
265.	Tephodornis pondiceriana	The Common Wood Shrike	1
267.	Hemipus picatus	The Little Pied Shrike	1
268.	Volvocivora sykesii	The Black headed Cuckoo Shrike	2

Blanford's No.	Latin names.	English names.	
270.	Graucalus macei	The Large Cuckoo Shrike	2
272.	Pericrocotus flammeus	The Orange Minivet	2
276.	Pericrocotus peregrinus	The Small Minivet	2
278.	Dicrurus macrocercus	The Common Drongo Shrike	1
281.	Dicrurus coerulescens	The White-bellied Drongo	1
282.	Chaptia aenea	The Bronzed Drongo	2
285.	Edolius Malabaricus	The Malabar Racket-tailed Drongo	2
286.	Chibia hottentota	The Hair-crested Drongo	1
287.	Artamus fuscus	The Ashy Swallow Shrike	2
288.	Tchitrea paradisi	The Paradise Flycatcher	3
297.	Alseonax latirostris	The Southern Brown Flycather	1
300.	Ochromela nigrorufa	The Black and Orange Flycatcher	1
342.	Myiophonus Horsfieldii	The Malabar Whistling Thrush	2
345.	Pitta Bengalensis	The Yellow-breasted Ground Thrush	2
353.	Orocetes cinclorhynchus	The Blue-headed Chat Thrush	1
354.	Geocichla cyanotus	The White-winged Ground Thrush	2
355.	Geocichla citrina	The Orange-headed Ground Thrush	2
356.	Geocichla unicolor	The Dusky Ground Thrush	1
357.	Turdulus wardii	Ward's Pied Blackbird	1
359.	Merula nigropileus	The Black-capped Blackbird	1
372.	Oreocincla Nilgiriensis	The Neilgherry Thrush	1
385.	Pyctorhis sinensis	The Yellow-eyed Babbler	1
423.	Trochalopteron cachinnans	The Neilgherry Laughing Thrush	2
433.	Malacocircus griseus	The White-headed Babbler	2
434.	Malacocircus Malabaricus	The Jungle Babbler	2
437.	Layardia subrufa	The Rufous Babbler	2
450.	Criniger ictericus	The Yellow-browed Bulbul	1
452.	Ixos luteolus	The White-browed Bush Bulbul	1
460.	Otocompsa Jocosa	The Red-whiskered Bulbul	2
462.	Pycnonotus haemorhous	The Common Madras Bulbul	2
464.	Phyllornis Malabaricus	The Malabar Green Bulbul	2
467.	Iora zeylonica	The Black-headed Green Bulbul	1
469.	Irena puella	The Fairy Bluebird	3
470.	Oriolus kundoo	The Indian Oriole	2
471.	Oriolus Indicus	The Black-naped Indian Oriole	1
473.	Oriolus ceylonensis	The Southern Black-headed Oriole	5
475.	Copsychus saularis	The Magpie Roben	2
476.	Kittacincla macroura	The Shama	1
479.	Thamnobia fulicata	The Indian Black Robin	1
481.	Pratincola caprata	The White-winged Black Robin	1
497.	Ruticilla rufiventris	The Indian Redstart	1
507.	Larvivora cyana	The Blue Wood Chat	1
530.	Orthotomus longicauda	The Indian Tailor Bird	1
534.	Prinia socialis	The Dark Ashy Wren Warbler	1
589.	Motacilla Maderaspatana	The Pied Wagtail	1
591.	Motacilladukhunensis	The Black-faced Wagtail	1
592.	Calobates sulphurea	The Grey and Yellow Wagtail	1
631.	Zosterops palpebrosus	The White-eyed Tit	2
645.	Parus cinereus	The Indian Grey-tit	1
660.	Corvus culminatus	The Indian Corby	1
663.	Corvus splendens	The Common Indian Crow	1
674.	Dendrocitta rufa	The Common Indian Magpie	3
678.	Dendrocitta leucogastra	The Long-tailed Magpie	1
681.	Sturnus vulgaris	The Common Starling	1
684.	Acridotheres tristis	The Common Myna	3
686.	Acridotheres fuscus	The Jungle Myna	1
687.	Temenuchus pagodarum	The Black-headed Myna	2
688.	Temenuchus Malabaricus	The Grey-headed Myna	2
690.	Pastor roseus	The Rose-colored Starling	1
694.	Ploceus baya	The Common Weaver-bird	2
695.	Ploceus manyar	The Straited Weaver-bird	1
697.	Munia Malacca	The Black-headed Munia	2
699.	Munia undulata	The Spotted Munia	2
703.	Munia malabarica	The Plain Brown Munia	2
704.	Estrelda amandava	The Red Wax-bill	2
706.	Passer indicus	The Indian House Sparrow	2

Blanford's No.	Latin Names.	English Names.	
711.	Passer flavicollis	The Yellow-necked Sparrow	1
755.	Mirafra affinis	The Madras Bush Lark	1
765.	Spizalauda deva	The Small-crested Lark	1
767.	Alauda gulgula	The Indian Sky-lark	1
	Order gemitores Pigeons.		
773.	Crocopus chlorigaster	The Southern Green Pigeon	1
774.	Osmotreron bicincta	The Orange-breasted Green Pigeon	1
781.	Carpophaga insignis	The Bronze-backed Imperial Pigeon	1
786.	Palumbus elphinstonei	The Neilgherry Wood-pigeon	1
788.	Columba intermedia	The Blue Rock-pigeon	1
793.	Turtur meena	The Rufous Turtle-dove	2
795.	Turtur suratensis	The Spotted Dove	2
796.	Turtur risoria	The Common Ring-dove	2
798.	Chalcophaps indicus	The Bronze-winged Dove	1
	Order Rasores.		
800.	Pterocles fasciatus	The Painted Sand-grouse	3
802.	Pterocles exustus	The Common Sand-grouse	2
803.	Pavo cristatus	The Common Peacock	2
813.	Gallus sonneratii	The Grey Jungle-fowl	2
814.	Galloperdix spadiceus	The Red Spur-fowl	2
815.	Galloperdix lunulosus	The Painted Spur-fowl	2
822.	Ortygornis ponticeriana	The Grey Partridge	2
826.	Perdicula cambayensis	The Jungle Bush-quail	1
827.	Perdicula Asiatica	The Rock Bush-quail	3
828.	Perdicula erythrorhyncha	The Painted Bush-quail	2
829.	Coturnix communis	The Large Grey Quail	2
831.	Excalfactoria chinensis	The Blue-breasted Quail	2
832.	Turnix taigoor	The Black-breasted Bustard Quail	3
	Order Grallatores.		
836.	Eupodotis Edwardsii	The Indian Bustard	1
839.	Sypheotides auritus	The Lesser Florikin	2
842.	Glareola orientalis	The Large Swallow-plover	2
843.	Glareola lactea	The Small Swallow-plover	2
844.	Squatarola Helvetica	The Grey Plover	4
845.	Charadrius longipes	The Golden Plover	2
848.	Aegialitis cantianus	The Kentish Ring-plover	2
856.	Sarciophorus bilobus	The Yellow-wattled Lapwing	1
858.	Esacus recurvirostris	The Large Stone-plover	1
859.	Oedicnemus crepitans	The Stone Plover	2
862.	Haematopus ostralegus	The Oyster-catcher	2
863.	Grub antigone	The Sarus Crane	1
866.	Anthropoides virgo	The Demoiselle Crane	1
867.	Scolopax rusticola	The Wood-cock	1
868.	Gallinago nemoricola	The Wood-snipe	1
870.	Gallinago stenura	The Pin-tailed Snipe	4
871.	Gallinago scolopacinus	The Common Snipe	4
872.	Gallinago gallinula	The Jack Snipe	2
873.	Rhynchaea Bengalensis	The Painted Snipe	2
875.	Limosa aegocephala	The Small Godwit	1
876.	Terekia cinerea	The Avoset Sandpiper	2
877.	Numenius arquata	The Curlew	2
878.	Numenius phæopus	The Whimbrel	2
880.	Philomachus pugnax	The Ruff	6
884.	Tringa minuta	The Little Stint	2
891.	Actitis glareola	The Spotted Sandpiper	2
894.	Totanus glottis	The Green Shanks	2
895.	Totanus stagnatilis	The Little Green-shanks	2
896.	Totanus fuscus	The Spotted Red-shanks	2
897.	Totanus calidris	The Red-shanks	2
898.	Himantopus candidus	The Stilt or Long-legs	2
899.	Recurvirostra avocetta	The Avoset	1

Blanford's No.	Latin names.	English names.	
901.	Hydrophasianus chirurgus	The Pheasant-tailed Jacana	1
902.	Porphyrio poliocephalus	The Purple Coat	2
904.	Gallicrex cristatus	The Water Cock	2
905.	Gallinula chloropus	The Water Hen	2
907.	Gallinula phœnicura	The White-breasted Water-hen	2
911.	Porzana fusca	The Ruddy Rail	1
917.	Mycteria Australis	The Black-necked Stork	1
919.	Ciconia alba	The White Stork	1
923.	Ardea cinerea	The Blue Heron	1
924.	Ardea purpurea	The Purple Heron	1
925.	Herodias alba	The Large Egret	1
927.	Herodias garzetta	The Little Egret	2
930.	Ardeola leucoptera	The Pond Heron	2
931.	Butorides javanica	The Little Green Heron	1
932.	Ardetta flavicollis	The Black Bittern	2
934.	Ardetta sinensis	The Yellow Bittern	1
936.	Botaurus stellaris	The Bittern	2
937.	Nycticorax griseus	The Night Heron	1
938.	Tantalus leucocephalus	The Pelican Ibis	1
940.	Anastomus oscitans	The Shell Ibis	1
941.	Threskiornis melanocephalus	The White Ibis	1
942.	Geronticus papillosus	The Warty-headed or Black Ibis	1

Order Natatores.

944.	Phoenicopterus roseus	The Flamingo	1
949.	Anser indicus	The Barred-headed Goose	2
951.	Nettapus Coromandelianus	The White-bodied Goose-teal	2
952.	Dendrocygna awsuree	The Whistling Teal	2
953.	Dendrocygna major	The Large Whistling Teal	1
957.	Spatula clypeata	The Shoveller	2
959.	Anas poecilorhyncha	The Spotted-billed Duck	2
960.	Anas caryophyllacea	The Pink-headed Duck	1
961.	Chaulelasmus streperus	The Gadwall	1
962.	Dafila acuta	The Pin-tail Duck	2
963.	Mareca penelope	The Wigeon	2
964.	Querquedula crecca	The Common Teal	2
965.	Querquedula circia	The Blue-winged Teal	2
967.	Branta rufina	The Red-crested Pochard	2
971.	Fuligula cristata	The Tufted Duck	2
975.	Podiceps philippensis	The Little Grebe	3
979.	Kroikocephalus ichthyaetus	The Great Black-headed Gull	1
980.	Xema brunnicephala	The Brown-headed Gull	1
989.	Thalasseus cristatus	The Large Sea-tern	2
990.	Thalasseus Bengalensis	The Smaller Sea-tern	2
995.	Rhynchops albicollis	The Indian Skimmer	1
1004.	Pelecanus philippensis	The Grey Pelican	2
1005.	Graculus carbo	The Large Cormorant	2
1007.	Graculus javanicus	The Little Cormorant	2
1008.	Plotus melanogaster	The Indian Snake Bird	1

CLASSIFIED LIST OF EXPENDITURE OF THE GOVERNMENT CENTRAL MUSEUM DURING THE YEAR 1892-93.

	Actuals, 1892-93.	Revised estimate, 1892-93.
	RS.	RS.
Salaries.		
Superintendent	10,150	9,600
Permanent Establishment.		
First Assistant, Second Assistant, First, Second and Third Taxidermists, Herbarium Keeper, Artist, Writer, Librarian, Assistant Librarian, Head Humal, Superintendent's peon—12 persons	4,884	4,884
Temporary Establishment.		
Assistant writer, 12 humals, chickledar, 3 gardeners, collecting taxidermist, 2 sweepers, 4 watchmen, water-pandal Brahmin, office peon, 2 punkah pullers—28 persons	2,565	...
Total, establishment	7,449	4,884
Allowance.		
Travelling allowance	1,178	1,000
Supplies and Services.		
Cost of specimens purchased on tour	1,378	1,000
Cost of specimens, objects of interest and coins at head-quarters	99	200
Preparation of fittings, furniture, &c., for the collection	2,999	3,000
Total, Supplies and Services	4,476	4,200
Cost of books and publications	2,172	1,800
Contingencies.		
Purchase and repair of furniture	195	200
Binding books and lithographing plates	380	800
Rents, rates and taxes	1,098	1,098
Postal charges, telegram charges, office expenses and miscellaneous	1,571	4,024
Kerosine-oil grant	15	19
Total, Contingencies	3,259	6,141
Grand Total	28,684	27,625

291

No. 566

GOVERNMENT CENTRAL MUSEUM,
Pantheon Road, Egmore,
Madras, 11th May 1893.

From

DR. H. WARTH,

OFFICIATING SUPERINTENDENT,

Government Central Museum,

Madras,

To

The Secretary to Government

Revenue Department

With the Governor

Stonehouse Hill.

Sir,

1/ In obedience to Para 3 of G.O. Revenue Department No. 224 dated 7th March 1893 I have the honor to sa...

Vide G.O. 1149 R. 10-6-93

which Contain a Circular.

on the working of the Government
Central Museum for 1892-93.

2/ I have also the honor to enquire whether I am to forward the 35 copies plus 2 advance copies of the Report without the Government receive thereon to the Assistant Secretary to Government Revenue Department as per G.O. Revenue Department No. 290 dated 25th January 1893 for transmission to the India office etc as desired in para 2 of G.O. Financial Department

Revenue Department No. 1409 dated 19th April 1893.

I have the honor to be,

Sir,

Your most obedient Servant

C Warth.

Officiating Superintendent

Government Central Museum

Govt 22-4-92. No 270

Revenue (1893) Department

From 3623

Dr H. Warth

Officiating Superintendent

Govt Central Museum

Madras

No 566

Dated 11th }
Despatched —do— } May 1893
Received 13 }

Enclosures 2.

Subject

Forwarding 2 printed copies of his report on the working of the Government Central Museum for 1892-93 and requiring to whom the 37 copies of the report without the Government revenue cover should be sent.

Read. C. No 3623 of 93

Read/ Ordered 6 June 1893, No: 478.

With his letter cited above Dr. Warth submits his report on the administration of the Govt Central Museum during 1892-3. The report contains much matter of scientific interest and shows satisfactory progress in all departments of the museum.

3/6/93

2. As compared with the previous year the total number of visitors to the museum showed a decrease of 20,214 which is not satisfactorily accounted for. The number of persons who visit a public institution like a museum depends, however, on a variety of causes and naturally fluctuates from year to year. The number of Moshi ladies who visited the museum rose from

the library received numerous additions in the shape of books & publications, and a library Catalogue which has recently been compiled & is now being printed will supply a long felt want

No. 1838
17-5-93

3. Dr. Warth made some interesting geological excursions during the year, the results of which are embodied in his "Notes on minerals" which one fills form Appendix ~~B~~ to his administration report. It was mentioned in the previous year's review that a sample of phosphatic nodules discovered by Dr. Warth in the Erichinopoly district had been sent to England for analysis by an agricultural Chemist. The analysis, the result of which has recently been communicated to the Govt by the Secy of State for India, is satisfactory, but it has proved fairly [illegible]

for purposes of Exploration by for use locally, and Dr. Warth has been instructed to make further enquiries on the subject in consultation with the Director of Agriculture and to submit a full report to Govt.

4. The actual Expenditure of the museum department during the year under review amounted to Rs 28,684, or Rs 1084 ? in excess of the Revised Estimate. The reasons for the variations from the Revised Estimate, which occur chiefly under the heads "Supt's salary", "Cost of specimens purchased on tour", "Cost of books & publications" have been briefly explained in the classified list of Expenditure appended to the report.

5. In conclusion the Govt. in Council desire

2610 - 2700 = 1084

Note
The increase under "Supt's salary" is apparently due to the increase of Rs 100/- p.m in the Supt's pay sanctioned in April 1892 with retrospective effect. The Supt presumably drew arrears of increment during the official year 1892-93, the arrears from 15th Sept. 1891 (Rs 650/- for 6½ months) being debited to provincial revenues vide G.O. 2246 / 3.5.92

To The Supt. G.C.P. Mr. & Public Dept

6. Separate orders have been issued on the question raised in para 2 of the Superintendent's letter read at the Xmas Mess!

Rec
30-5
Ch
30 May

Dup Received

of the administration Report of the Govt. Central Museum for 1892-93

C Secy 6th June 1893 no: 478 Hills

Print Shop
Copies
Secretariat
Simla
6/6/93