

Obituaries

PROFESSOR DIVYA DARSHAN PANT

October 18th 1919 - May 8th 2001.



Professor Divya Darshan Pant, a world-renowned plant morphologist and palaeobotanist, breathed his last on 8th May 2001 at Allahabad. In his death the palaeobotanical world has lost an expert par-excellence on Gondwana flora. A prolific writer, visionary and interpreter with perfect blend of living and fossil botany was active till his last. His leadership established a flourishing school of Palaeobotany and Morphology at Allahabad University, which he headed for 16 long years and was also Dean of the Science Faculty known for his researches in Palaeobotany and Morphology. Professor Pant was inspiring perceptor for generations of students and researchers. He was champion for the cause and upliftment of basic researches.

Professor Pant was born on 18th October 1919 at Ranikhet a picturesque place in Kumaon Himalaya. He had his early education in Ranikhet and Nainital from there he moved to Lucknow for University Education, where he was initiated by Professor Birbal Sahni, FRS in Botany research. Later he received British Council Grant – 1954 and was associated in research with Professor T.M. Harris, FRS of Reading University, Regius, Professor John Walton at Glasgow University and Professor R. Kraüsel of Senckenberg Institute, Frankfurt.

He is well known for his equal facility in living and fossil plants and started work on Cyacadales half a century ago publishing his first paper on cycads in 1953. His first comprehensive account of cycads appeared in 1963 in *Senckenbergiana biologica* and first edition of his book 'Cycas' in 1962 which was later revised and enlarged, appeared in

1973. He has ever since continued his researches on living and fossil cycads that have resulted in altogether a new book "An introduction to Gymnosperms, Cycas and Cyacadales" which is being released with this volume.

His significant contributions include the work on morphology and anatomy of the root and shoot systems of living plants, their air pores, stomatal ontogeny and structure, nodal anatomy and the study of fossils mainly of the Glossopteris flora. His well-known contributions on the gametophytic nature of *Rhynia guyne-vaughanii*, which provided a widely quoted new concept about the life cycles of early vascular plants and their gametophytic generations. This led others like Remy and Remy (1980) and Remy *et al.* (1980) to work on Rhynie Chert where they discovered more gametophytes with archegonia & antheridia in the Rhynie Chert.

In order to have comparative idea about comparable gametophytes of living plants he worked on the gametophytes of the Ophioglossaceae and published a monograph on gametophytes of Ophioglossaceae (Pant *et al.*, 1984). His morphological and anatomical studies of diverse pteridophytes and Gymnosperms led to modification of Bower's concept about the phyletic slide of annulus in fern (Pant & Khare, Trans. Roy. Soc. London, 1974) and led to establish a new family—Damudopteridaceae from the Lower Gondwanas of India. His work on *Buriadia* (Pant & Nautiyal, Phil. Trans. Roy. Soc. London, 1967) and *Birsinghia* (Pant *et al.*, 1995) are of fundamental importance in formulating concepts about the evolution of early conifers as emphasised by Rothwell (1988)

and Clement-Westershof (1988). His major contribution is in the understanding of the plant of *Glossopteris*. Besides, working on the cuticles and other structural features of diverse glossopterids, he reconstructed the plant of *Glossopteris* (Pant, 1977). He explained the occurrence of two kinds of leaves arranged in a decussate manner in *Diphyllopteris* as those of a seedling of *Glossopteris* (Rev. Palaeobot. Palynol.—Harris Comm. Vol. 1987). Lately additional evidence favoured his view on the plant of *Glossopteris* and suggested that *Glossopteris* and other glossopterids were large deciduous trees in Lower Gondwana forests (Pant, 1999). He had also made important contributions on Triassic plants. He demonstrated the spiral insertions of cupules in *Pteruchus*. His papers on classification of fossil spores and pollen (Bot. Rev. 1954) and the concept of primitive mode are classic. His studies on the carbonaceous pulls of compressions of the *Trizygia gondwanensis* suggested that in all likelihood these fossils belong to Sphenophylls and he also found diverse *Sphenophyllum* in the *Glossopteris* flora. He elucidated the structural features of two genera *Phyllothea indica* and also those of *Raniganjia bengalensis* which indicated that they were different from northern *Umbellaphyllites* and are assignable to two families Damudopteridaceae and Asterothecaceae. Besides he reported *Chiguites mamalensis*, a modern *Chigua-* like leaf impression and *Cycadites meyenii* from the Permo-Carboniferous strata of Kashmir.

He had contributed more than 300 original research papers, reviews and monographs published in reputed international journals. Present volume of the *The Palaeobotanist* carries one of his contributed papers submitted by his student after his death. During his last days he was engaged in giving shape to a monograph on “*Pinus* and *Pinales*”.

He was fellow and member of several leading Academic societies of the world namely, Linnean Society (London), International Society of Plant Morphologists, International Association of Plant Taxonomy, Society of Plant Taxonomists, International Organisation of Palaeobotany, Indian National Science Academy, Indian Academy of Science and National Academy of Sciences of India. He was Honorary Foreign Life Member of the Cycad Society of South Africa, and Palm and Cycad Society of Australia and also Member, Cycad Group IUCN – International Union for Conservation of Nature and Natural Resources.

His academician wife Radha, an accomplished son, two daughters and host of students initiated by him to Palaeobotany, survives him.

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PUBLICATIONS OF PROFESSOR D.D. PANT

1941

On the morphology and anatomy of the root system in *Asphodelustenuifolius*. *Proc. Indian Sci. Congr.* Banaras, 159-160.

1943

On the morphology and anatomy of the root system in *Asphodelus tenuifolius* Cavan. *Jour. Indian bot. Soc.*, **22** (1): 1-26, 3 Pls. 29 Figs.

1949

Triassic plant remains from the Salt Range in the Punjab. *Nature*, **163**: 214.

On a cluster of male cones from the Jurassic of the Rajmahal Hills, Bihar. *Proc. Indian Sci. Cong.*, Allahabad, 11.

1950

Microfossils from a micaceous shale from the Talchir coalfield. Palaeobotany in India. *Jour. Indian bot. Soc.*, **29**: 15.

1953

Notes on *Cycas* plants growing at Allahabad. *Jour. Indian bot. Soc.*, **32**: 145-156, 11 Figs.

1954

Suggestions for the classification and nomenclature of fossil spores and pollen grains *Bot. Rev.*, **20**: 33-60.

Need for a standardized international glossary of terms in botany. *Science*, **119**: 910-911

1955

On two new disaccate spores from the Bacchus Marsh Tillite, Victoria (Australia). *Ann. Mag. Nat. Hist.* London, **8** (12): 757-764, 1 Pl. 1 Text-fig.

1956

On two compressed Palaeozoic axes: *Stigmaria ficoides* in *Gymnostrobilus* condition and *Vertebraria indica*. *Ann. Bot.*, London (N.S.), **20**: 419-429, 1 Pl. 4 Text-figs.

1957

The classification of gymnospermous plants. *Palaeobotanist*, **6**: 65-70, 1957, (1959).

1958

The structure of some leaves and fructifications of the *Glossopteris* flora of Tanganyika. *Bull. Brit. Mus. (Nat. Hist.) London Geol.*, **3** (4): 127-175, 4 Pls. 21 Text-figs.

1960

Some seeds and sporangia of *Glossopteris* flora from Raniganj coalfield, India *Palaeontographica*, Stuttgart, **107 B**: 41-64, 4 Pls. 16 Text-figs (with D.D. Nautiyal)

1961

Lycostachys protostelicus gen. Et sp. nov. and some associated megaspores from the Lower Carboniferous of Scotland. *Palaeontographica*, Stuttgart, **108 B**: 1-10, 3 Pls. 5 Text-figs (with Professor John Walton).

Nodal anatomy of *Boerhaavia diffusa* L. *Phytomorphology*, **11**: 384-405, 13 Text-figs (with Bharati Mehra).

Occurrence of intracortical roots in *Bambusa*. *Curr. Sci.*, **30**: 308, 1 Fig (with Bharati Mehra).

Structural studied on Lower Gondwana megaspores. Part I. Specimens from Talchir coalfield, India. *Palaeontographica*, Stuttgart, **109 B**: 45-61, 2 Pls. 7 Text-figs (with G.K. Srivastava).

1962

The gametophyte of the Psilophytales. *Proc. Siammer School of Botany, Darjeeling* (1960) 276-301, 5 Pls. 1 Text-fig.

Some recent contributions towards our knowledge of the Glossopteris flora. *Proc. Siammer School of Botany, Darjeeling* 302-319. 11 Figs.

Structural studies on Lower Gondwana megaspores. Part II. Specimens from Brazil and Tanganyika. *Palaeontographica*, Stuttgart, **111 B**: 96-111. 4 Pls, 4 Text-figs (with G.K. Srivastava).

Seed cuticles in some modern cycads. *Curr. Sci.*, **31**: 75-76. 4 Figs (with D.D. Nautiyal).

Path of bundles in the stem of *Bougainvillea*. *Curr. Sci.*, **31**: 295-296, 1 Fig (with Bharati Mehra).

Stem anatomy of some *Nyctaginaceae*. *Curr. Sci.*, **31**: 199-201, 2 Figs (with Bharati Mehra).

The genus *Isoetes* in India. *Proc. Nat. Inst. Sci. India*, **28 B** (3): 242-280. 4 Pls. 12 Text-figs (with G.K. Srivastava).

1963

On the occurrence of glossopterid spores in the Bacchus Marsh Tillite. Victoria, Australia. *Grana Palynol.*, Erdtman Comm. Vol., **4** (1): 111-120. 1 Pl. 1 Text-fig. (with Bharati Mehra)

Development of stomata in *Psilotum nudum* (L.) Beauv. *Curr. Sci.*, **32** (9): 420-422. 1 Text-fig (with Bharati Mehra)

Development of cayophyllaceous stomata in *Asteracantha longifolia* Nees. *Ann. Bot.* (N.S.), **27** (108): 647-652, 3 Text-figs (with Bharati Mehra).

Nodal anatomy of *Mirabilis* and *Oxybaphus*. *Proc. Nat. Inst. Sci. India*, **29** (1): 41-76. 2 Pls. 13 Text-figs (with Bharati Mehra).

Nodal anatomy of *Bougainvillea glabra* Choisy, *B. spectabilis* Willd, and *Abronia elliptica* Nelson. *Proc. Nat. Inst. Sci. India*, **29 B** (4): 434-466. 12 Figs (with Bharati Mehra).

On the epidermal structure of *Sphenophyllum speciosum* (Royle) Zeiller. *Palaeontographica*, Stuttgart, **112 B**: 51-57, 1 Pl. 2 Text-figs (with Bharati Mehra).

On a cycadophyte leaf *Pteronilssonia gopatii* gen. et sp. nov. from the Lower Gondwanas of India. *Palaeontographica*, Stuttgart, **113 B**: 126-134, 2 Pls, 3 Text figs (with Bharati Mehra).

On *Maheshwariella bicornuta* gen. et sp. nov., a compressed seed from Lower Gondwana of Karharbari coalfield, India. *Maheshwari Comm. Vol.*, *Jour. Indian bot. Soc.* **42**: 150-158, 3 Pls, 1 Text-fig (with D.D. Nautiyal).

On the anatomical structure of pinnae of some species of *Cycas*. *Curr. Sci.*, **32** (5): 232-234, 4 Figs (with D.D. Nautiyal).

Epidermal structure of pinnae of *Macrozamia* Miq. *Curr. Sci.*, **32**: 280-281. 2 Figs (with D.D. Nautiyal).

The epidermal structure of the sporangia of some modern cycads. *Curr. Sci.*, **32** (12) 559-561, 4 Figs (with D.D. Nautiyal).

On the structure of leaves of *Rhabdotaenia* Pant from the Raniganj coalfield, India. *Palaeontology*, London, **6** (2): 301-314, 2 Pls, 6 Text-figs (with B.K. Verma).

Cuticle and epidermis of recent Cycadales. Leaves, sporangia and seeds *Senckenbergiana biologica*, Frankfurt, **44** (4): 257-348, 11 Pls. 33 Text-figs. 10 Tables (with D.D. Nautiyal).

1964

On *Walkomiellospermum indicum* gen. et sp. nov., seed-like bodies and alete megaspores from Talchir coalfield, India. *Proc. Nat. Inst. Sci. India*, **29 B** (6): 575-584, 2 Pls, 2 Text-figs (with G.K. Srivastava).

On three new species of *Noeggerathiopsis* Feistmantel. *Naturwissenschaften*, **51** (491) 1-2, 3 Figs (with B.K. Verma).

Epidermal structure and development of stomata in *Ephedra foliata* Boiss. *New. Phytol.*, **63** (1): 91-95, 13 Figs (with Bharati Mehra).

Ontogeny of stomata in some Ranunculaceae. *Flora*, **155**: 179-188, 15 Text-figs (with Bharati Mehra).

Nodal anatomy in retrospect. *Phytomorphology*, **14** (3): 384-387 (with Bharati Mehra)

On the diversity in the development and organization of stomata in *Phyla nodiflora* Michx. *Curr. Sci.*, **33** (21): 653-654, 1 Text-fig (with P.F. Kidwai). Further observations on some Triassic plant remains from the Salt Range, Punjab. *Palaeontographica*, Stuttgart, **114 B**: 79-93, 2 Pls, 4 Text-figs (with G.K. Srivastava).

The cuticular structure of *Noeggerathiopsis* Feistmantel and *Cordaites* Unger. *Palaeontographica*, Stuttgart, **115 B**: 21-44. Pls 9 Text-figs (with B.K. Verma)

On the structure of *Palaeovittaria raniganjensis* n.sp. from the Raniganj coalfield, India, *Palaeontographica*, Stuttgart, **115 B**: 45-50, 1 Pl, 2 Text-figs (with B.K. Verma).

Development of stomata in leaves of three species of *Cycas* and *Ginkgo biloba* L. *J. Linn. Soc., London*, **58**: 491-497, 1 Pl. 3 Text-figs (with Bharati Mehra).

1965

On the ontogeny of stomata and other homologous structures. *Plant Sci Series*, Allahabad, **1**: 1-24, 6 Figs.

Indelible clues to stomatal development in mature epidermis of plants. *Naturwissenschaften*, **52**: 481-482, 8 Text-figs.

Indelible clues to stomatal development in mature epidermis of plants - II. *Curr. Sci.*, **34** (20): 588-589, 9 Text-figs.

Ontogeny of stomata and hairs in some cucurbits and allied plants. *Jour. Indian bot. Soc.*, **44** (2): 191-197, 26 Text-figs (with Rina Banerji).

Epidermal structure and development of stomata in some Convolvulaceae. *Senckenbergiana biologica*, **46** (2): 155-173. 77 Figs. 1 Table (with Rina Banerji).

Structure and ontogeny of stomata in some Piperaceae. *J. Linn. Soc., London*, **60** (378): 223-228. 3 Figs (with Rina Banerji).

Ontogeny of stomata in some Rubiaceae: *Phytomorphology*, **15**: 300-310. 7 Text-figs (with Bharati Mehra).

Seed bearing *Ottokaria*-like fructifications from India. *Nature*, **207**: 623-624. 5 Figs (with G.K. Srivastava).

Some Lower Gondwana miospores from Brazil. *Micropalaeontol.* **11** (4): 468-478, 1 Pl, 2 Text-figs (with G.K. Srivastava).

Cytology and reproduction of some Indian species of *Isoetes*. *Cytologia*, **30**: 239-251, 7 Figs (with G.K. Srivastava).

Development of stomata in some fern allies. *Proc. Nat. Inst. Sci. India*, **30 B** (2): 92-98, 2 Figs (with Bharati Mehra).

1966

Notes on *Phylloglossum drummondii* Kunze. *Proc. Nat. Inst. Sci. India*, **31** (1 & 2): 54-66. 2 Pls 4 Text-figs (with Parveen Kidwai).

Origin of ovules or seeds and their integuments. *Proc. Autumn School in Botany, Mahabaleshwar*, 237-253, 5 Text-figs.

Development of stomata and foliar structure of some Magnoliaceae. *J. Linn. Soc. London*, **59** (379): 265-277, 2 Pls. 5 Text-figs (with Kusum Lata Gupta).

Epidermal structure and stomatal ontogeny in some Celastraceae. *New Phytol.*, **65** (3): 288-295, 1 Pl, 3 Text-figs (with Parveen Kidwai).

On two peculiar fossils of Karharbari stage, India. Symp. "Floristics and Stratigraphy of the Gondwanaland", Birbal Sahni Inst. Palaeobot., Lucknow, 98-101, 2 Pls (with D.D. Nautiyal).

Epidermal structure and stomatal ontogeny in some Pandanales and Spathiflorae. *Senckenbergiana biologica*, Frankfurt, **47** (4): 309-333 (with Parveen Kidwai).

1967

On the stem and attachment of *Glossopteris* leaves. *Phytomorphology* (Maheshwari Memorial Vol.), **17** (1-4): 351-359, 18 Figs.

Development of stomata in some Cruciferae. *Ann. Bot. London*, **31** (123): 513-521, 1 Pl, 3 Text-figs (with Parveen Kidwai).

On the structure of *Buriadia heterophylla* (Feistmantel) Seward & Sahni and its fructification. *Phil. Trans. Roy. Soc. London*, **252 B** (774): 27-48. 9 Pls, 6 Text-figs (with D.D. Nautiyal).

On the structure of *Raniganjia bengalensis* (Feistmantel) Rigby with a discussion of its affinities. *Palaeontographica*, Stuttgart, **121 B**: 52-64, 4 Pls, 4 Text-figs (with D.D. Nautiyal).

1968

Cuticular structure of some Indian Lower Gondwana species of *Glossopteris* Brongniart, Part I. *Palaeontographica*, Stuttgart, **124 B**: 45-81. 8 Pls. 4 Text-figs (with D.D. Nautiyal).

1968

Cuticular structure of some Indian Lower Gondwana species of *Glossopteris* Brongniart. Part I. *Palaontographica*, Stuttgart, **124** B: 45-81, 8 Pls. 14 Text-figs (with Kusum Lata Gupta).

Structure and ontogeny of stomata in some Caryophyllaceae. *J. Linn. Soc. London*, **60** (383): 309-314, 1 Pl. 2 Text-figs (with Parveen Kidwai).

Ontogeny of stomata in some Gentianaceae. *J. Linn. Soc. London*, **62**: 71-76, 2 Text-figs (with Parveen Kidwai)

Development of stomata in *Equisetum*. *Ann. Bot. London*, **32**: 601-608, 1 Pl. 3 Text-figs (with Parveen Kidwai).

On the structure of stem and leaves of *Phyllothea indica* Bunbury. *Palaontographica*, Stuttgart, **121** B: 102-121, 4 Pls. 6 Text-figs, 2 Tables (with Parveen Kidwai).

The structure of *Vertebraria indica* Royle. *Palaontology, London*, **11** (5): 643-653, 4 Pls. 3 Text-figs (with R.S. Singh).

On the genus *Gangamopteris* McCoy. *Palaontographica*, Stuttgart, **124** B: 83-101, 6 Pls. 6 Text-figs, 1 Table (with K.B. Singh).

On the cuticular structure of *Araucaria* (*Araucarites*) *cutchensis* comb.nov. from the Jabalpur series. India. *J. Linn. Soc. London*, **61** (384): 201-206, 1 Pl. 2 Text-figs (with G.K. Srivastava).

1969

Epidermal structure and stomatal ontogeny in some cusporangiate ferns. *Ann. Bot. London*, **33** (132): 795-805, 2 Pls. 4 Text-figs (with P.K. Khare).

1971

Cuticular structure of some Indian Lower Gondwana species of *Glossopteris* Brongniart Part II. *Palaontographica*, Stuttgart **132** B: 130-152, 7 Pls. 10 Text-figs, 1 Table (with Kusum Lata Gupta).

Epidermal structure of psilotales and stomatal ontogeny in *Tmesipteris tannensis* Bernh. *Ann. Bot.*, **35** (139): 151-152, 2 Pls. 3 Text-figs (with P.K. Khare).

Notes on the spore morphology of *Ophioglossaceae* and the occurrence of *Ophioglossum* and its gametophytes in the Gangetic valley. *Geophytology*, **1** (1): 48-53, 4 Pls (with P.K. Khare).

Cuticular structure of some Indian Lower Gondwana species of *Glossopteris* Brongniart. Part III. *Palaontographica*, Stuttgart **135** B: 1-40, 13 Pls, 13 Text-figs, 3 Tables (with K.B. Singh).

The origin and evolution of flowering plants. *Golden Jubilee Vol. Jour. Indian bot. Soc.*, **56** A: 242-274, 10 Text-figs (with P.F. Kidwai).

"Fossil Gymnosperm Woods in Hungary from the Permian to the Pliocene" by Pal Greguss, 1967 (Review). *Phytomorphology*, **21** (1): 97-98.

Intraspecific variation in *Striatites* spores. *Palaobotanist*, **20**: 318-324, 3 Pls. 3 Text-figs (with Suman Bhatnagar)

Population explosion in palaeopalynology. *Symp. On structure, nomenclature and classification of pollen and spores, Palaobotanist*, 53-62.

1972

Epidermal structure and stomatal ontogeny of *Anemia* spp. *Ann. Bot. London*, **36**: 809-821, 4 Pls. 6 Text-figs (with P.K. Khare).

Development of stomata in *Lactuca sativa* L. *Ann. Bot. London*, **36**: 1005-1009, 1 Pl. 2 Text-figs (with Parveen Kidwai).

Symposium on "Major evolutionary event and the geological records of plants", *Biol. Rev.*, **45** (3): 17-454, 1970 (Review), *Phytomorphology*, **22** (1): 104-107

1973

Pterichus indicus sp.nov. from the Triassic of Nidpur, India. *Palaontographica*, Stuttgart, **144** B: 11-24, 3 Pls. 5 Text-figs (with Nupur basu).

1974

Taxonomy of the genus *Ephedra*. Significance of stem and leaf epidermis and cuticle. *Bot. J. Linn. Soc. London*, **69** (4): 287-308, 6 Pls. 6 Text-figs (with B.K. Verma).

Damudopteris gen.nov. – a new genus of ferns from the Lower Gondwana of the Raniganj coalfield. India. *Proc. Roy. Soc. London*, **186** B: 121-135, 43 Figs (with P.K. Khare).

On the stem and attachment of *Glossopteris* and *Gangamopteris* leaves, Part II – Structural features. *Palaontographica*, Stuttgart, **147** B (1-3): 42-73, 13 Pls, 11 Text-figs (with R.S. Singh).

1975

Development of air pores and stomata in some bryophytes. *Recent Advances in Botany, Mehra Comm. Vol.*, 55-65, 3 Text-figs (with B.K. Verma).

The theory of continental drift in the light of recent researchs. *3rd Birbal Sahni. Mem. Lecture, Birbal Sahni Inst. Palaebot., Lucknow*. 1-22, 9 Text-figs.

Morphological studies in *Argyria* Lour. (Convolvulaceae). *Bot. J. Linn. Soc., London*, **70** (1): 45-69, 6 Pls. 10 Text-figs (with Suman Bhatnagar).

The cuticle, epidermis and stomatal ontogeny of *Casuarina equisetifolia* Forst. *Ann. Bot.*, **39**: 1117-1123, 1 Pl. 3 Text-figs (with D.D. Nautiyal & Sudha Singh).

A new kind of foliage shoot *Searsolia oppositifolia* gen. Et sp.nov. from Lower Gondwanas of Raniganj coalfield, India. *Palaontographica*, Stuttgart, **152** B: 191-199, 2 Pls. 3 Text-figs (with Suman Bhatnagar).

1976

Compressions of new type of pteridophyll. *Asansolia* gen.nov. from the Lower Gondwanas of the Raniganj coalfield, India. *Palaontographica*, Stuttgart, **155** B: 129-139, 3 Pls. 3 Text-figs (with Lata Misra).

Spore morphology of *Ophioglossum vulgatum* L. *Phytomorphology*, **25** (4): 465-470, 2 Figs (with D.R. Misra).

Epidermal structure and ontogeny of stomata in *Gnetum gnemon*, *G. montanum* and *G. ula*. *Phytomorphology*, **26** (3): 282-296, 8 Figs (with D.D. Nautiyal & Sudha Singh).

1977

The plant of *Glossopteris*. *Presid. Add., Indian Botanical Society, Jour. Indian bot. Soc.*, **56** (1): 1-23, 12 Figs.

Early conifers and conifer allies. Birbal Sahni Gold Medal Award Address. *Jour. Indian bot. Soc.*, **56** (1): 23-37, 8 Figs.

On the structure of *Gleichenia rawahensis* Feistmantel and allied fossils from the Jabalpur series, India. *Palaontographica*, Stuttgart, **163** B: 152-161, 3 Pls. 3 Text-figs (with G.K. Srivastava).

On some seeds, synangia and scales from the Triassic of Nidpur, India. *Palaontographica*, Stuttgart, **163** B: 162-178, 4 Pls. 5 Text-figs (with Nupur Basu).

On two genera of pteridophytes, *Damudosorus* gen.nov. and *Trithecopteris* gen.nov. from Lower Gondwanas of the Raniganj coalfield. *Palaontographica*, Stuttgart, **164** B: 76-86, 4 Pls. 4 Text-figs (with Lata Misra).

On the genus *Belemnopteris* Feistmantel. *Palaontographica*, Stuttgart, **164** B: 153-166, 6 Pls. 6 Text-figs (with A. Choudhury).

A comparative study of the leaves of *Cathaya argyophylla* Chun & Kuang and three species of *Keteleeria* Carriere. *Bot. J. Linn. Soc.*, **75**: 271-282, 1 Pl. 4 Text-figs (with Nupur Basu).

Morphological studies in *Nepenthes* Linn. (Nepenthaceae). *Phytomorphology*, **27**: 13-34, 15 Figs (with Suman Bhatnagar).

1978

Some strange witnesses of the past-glimpses into the early history of primitive land plants with special reference to India. *Presid. Add. (Botany Section), 65th Session, Indian Science Congress, Ahmedabad*. 1-20.

On two structurally preserved bryophytes from the Triassic of Nidpur, India. *Palaobotanist, Silver Jubilee Vol.*, **25**: 340-352, 3 Pls, 18 Figs (with Nupur Basu).

Cuticular structure and affinities of *Cheirophyllum lacerata* (Feistmantel) n.comb. *Palaobotanist, Silver Jubilee Vol.*, **25**: 353-362, 2 Pls. 2 Text-figs (with Sudha Singh).

A revision of the floral characters of *Tiliacora actinonata* Miers. *Phyta*, **1**: 87-104, 3 Pls. 8 Text-figs (with D.D. Nautiyal & Sudha Singh).

Cuticular studies of reproductive organs of *Gnetum* and *Ephedra*. *Phytomorphology*, **28** (2): 142-150, 5 figs (with D.D. Nautiyal & Sudha Singh).

1979

Some further remains of fructifications from the Triassic of Nidpur, India. *Palaontographica*, Stuttgart, **168** B: 129-146, 6 Pls. 8 Text-figs (with Nupur Basu).

On some megaspores from the Triassic of Nidpuri, India. *Rev. Palaobot. Palynol.*, **28**: 203-221, 4 Pls. 3 Text-figs (with Nupur Basu).

Cauophyllites indica gen. et sp.nov. from the Giridih coalfield, India. *Palaeontographica*, Stuttgart, **169** B: 107-115. 3 Pls, 3 Text-figs (with Sudha Singh).

1980

Cuticular and epidermal structure and ontogeny of stomata in some leptosporangiate ferns. *Phyta*, **2-3**: 33-50. 1 Pl. 6 Text-figs (with D.D. Nautiyal and P.K. Khare).

A Comparative study of aerobiota of Allahabad, Lucknow and some microfossils reported from Saline series. *Phyta*, **2-3**: 51-61. 3 Pls, 2 Text-Figs (with D.D. Nautiyal and Manju Midha).

1981

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PROFESSOR T.S. SADASIVAN

May 22nd 1913 - August 18th 2001



The demise of Professor T.S. Sadasivan on 18th August 2001 must have come as a message of mourning to scores of students of Botany who had obtained their degrees in that subject from the Madras University during the 40s, 50s, 60s and 70s of 20th Century. Even those who passed out in the 80s would know his name as he was the first director of the Centre of Advanced Studies in Botany (CAS) at the University of Madras. He was a renowned Plant Pathologist and an excellent teacher.

After graduation from the Madras Presidency College in 1934, he had a long academic pursuit at England. He was awarded Ph.D. in Plant Virology and Soil Microbiology from the University of London.

My acquaintance with Professor Sadasivan goes back to 1959-61, He used to engage us then in intercollegiate lectures at the Old Botany Lab in the university compound. Subsequently (1962) onwards, our interactions grew through practical demonstration together.

During the years 1976-1980 when he was the Chairman, Birbal Sahni Institute of Palaeobotany (BSIP), Lucknow, I was a research scholar under UGC's Faculty Improvement Program (FIP). With his persistent encouragement, I could successfully complete my Ph.D. program. Professor Sadasivan was the first occupant of the Chair of Birbal Sahni erected in

1978 at BSIP. He occupied it as Professor Emeritus between 1978-1980 and was engaged in writing a monograph on 'The Diseased Plant'.

Professor Sadasivan was prompt to reply all letters written to him and was meticulously punctual in his responses to greetings sent on festive occasions. He evinced special interest inquiring not only about academic progress but also about the welfare of family members. His wife, Mrs Radha Sadasivan, is the sister of Mrs Chandrasekaran, spouse of Dr Chandrasekaran of 'Black-Hole' fame. Students who had the opportunity of studying under his leadership and had benefitted academically and spiritually miss this inspired teacher.

He was awarded Padma Bhushan in 1974 and was a fellow of the Indian Academy of Sciences, Indian National Academy and many other national and international scientific bodies.

He was survived by his wife and three daughters.

Professor D.E.P. Jeyasingh
'Nithyam' No. 16(14), Maruthi Nagar,
2nd Main Road, Rajakilpakkam,
Selaiyur P.O., Chennai 600 073.

PROFESSOR HENRY N. ANDREWSJune 15th 1910 - March 03rd 2002

Palaeobotanical World has lost one of the greatest Palaeobotanist, a thorough gentlemen and a perfect human being on 3rd March 2002 at the ripe age of 91 at Concord Hospital in Concord, New Hampshire, USA.

Personally it was a great loss to me as he was my mentor, inspiring teacher, guide and philosopher.

He was born on 15th June 1910 in Melrose, Massachusetts. He received his Bachelor's Degree in Food Technology from MIT in 1934. From Food Technology to Palaeobotany was a big jump in which he received Master's Degree in 1937 and Ph.D. in 1939 from Washington University, St. Louis, Missouri, USA. He carried out research in Palaeobotany under the supervision of Professor Hamshaw Thomas in the famous Palaeobotanical Laboratory at Cambridge University, Cambridge, England.

Professor Andrews was most loyal to his *alma mater*. i.e., Department of Botany, Washington University, St. Louis. He was a graduate student in this University where he worked later as a Tutor, Assistant Professor, Professor, Chairman and Dean of Science.

I was privileged to be his last Ph.D. student in Washington University, which he left in 1964 to join as Professor and Chairman, Department of Botany, Connecticut University, Storrs, Connecticut. He retired from this position in 1985. He settled down at his ancestral farmhouse in Sanbornton, Laconia, New Hampshire. He continued his writings from this place. His professional life was very rich with outstanding accomplishments. He published 79 original research papers and 7 books. His textbook "Studies in Palaeobotany" published by John Wiley & Sons, New York, 1961 was most popular among the graduate and research students and teachers of Botany and Geology throughout the world.

He served as a Palaeobotanist and Assistant to the Director at Missouri Botanical Garden in St. Louis and as a staff member of the US Geological Survey.

He was very simple, jovial person and had better understanding of India and Indian science since he spent almost one year with his family at Poona in 1961 as a Visiting Fulbright Scholar in the Department of Botany, University of Poona. He

and his family — wife, two sons and daughter travelled widely in India. He spent most enjoyable and memorable days hiking in the foothills of Himalayas near Simla. His palaeobotanical exploration took him to many countries, most outstanding and productive one was to Ellesmere Island in Canadian Arctic. He published his monumental work on Devonian *Archaeopteris* based on this expedition jointly with T.L. Phillips and N.W. Radforth in 1965.

He wrote an excellent book on history of Palaeobotany entitled "Fossil Hunters: In search of ancient plants" published in 1984. This book makes a very interesting reading as it is full of historical information, anecdotes, his personal experience with outstanding Palaeobotanists world over. He devoted a full chapter in it on Indian Palaeobotanical work and Birbal Sahni Institute of Palaeobotany at Lucknow. He had great admiration for Professor Birbal Sahni who had visited his laboratory in Washington University, St. Louis. Professor Andrews also appreciated quality of work carried out by Palaeobotanists at the Birbal Sahni Institute of Palaeobotany at Lucknow. He also admired the quality of journal Palaeobotanist in which he published a paper on Coenopterid fructification from American coal balls jointly with me in 1962.

Though earlier he worked mostly on Upper Carboniferous Coal Ball flora later he shifted his attention to Devonian plants of Eastern USA and published a monograph on Devonian plants jointly with his student Patricia Gensel.

A few of the outstanding books published by him are listed below.

- Ancient plants and the world they lived (1947). Cornell University Press, Ithaca p. 279.
- Studies in Palaeobotany (1961). John Wiley & Sons, New York p. 487.
- The Fossil Hunters : In search of ancient plants (1984). Cornell University Press, Ithaca. p. 421.
- Plant life in the Devonian (with Patricia G. Gensel) 1984. Praeger Publishers. p. 380.
- Index of generic names of Fossil plants: 1820-1965. 1970. U.S. Geological Survey Bull. 1300. p 354.

Professor Andrews will be always remembered for his following attributes:

- Simplicity in thinking, dressing and behaviour.
- Excellent skill in writing and photography.
- Compassionate understanding of his colleagues and students.
- Hospitality to one and all.
- Total dedication to teaching and research in Palaeobotany.
- Keen interest in his students' work and welfare. Incidentally he had only one Ph.D. student at a time and hence he was always available to his research student for guidance and discussion.

May his soul rest in peace and give courage to his innumerable admirers to emulate some of his good qualities.

Shripad N. Agashe
Professor Emeritus
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PROFESSOR RAMESH CHANDRA MISRAJanuary 8th 1913 - June 6th 2002

Professor Misra was born at Muktesar, a small town northeast of Nainital in the Kumaun Himalaya on January 8, 1913, the youngest of five children – four sons and a daughter. His father Kaiser-I-Hind Captain Ayodhya Prasad Misra was an Army Doctor. Born in a family of army men, scientists, doctors and academicians, Professor Misra as a child soon found himself in an ideal geological surrounding at Muktesar, whose picturesque mountain landscape filled in him an inherent and abounding love of nature.

He was a brilliant, hardworking and devoted student. In 1929, he passed the High School from Christ Church College, Kanpur, the *alma mater* of his personality but also left a deep impact on his young and receptive mind by way of self-discipline, dedication and diligence. He passed the Intermediate and B.Sc. Examination in 1931 and 1933, respectively, from Banaras Hindu University. With the background of physics and mathematics as his subjects of study, he very much wanted to be an engineer. Had it been so, geology would have been deprived of a versatile person – a teacher, explorer, researcher, scholar, administrator, writer, and above all a naturalist. But it was not to be. An inborn love for nature, mountains and rocks lured him to geology. He obtained M.Sc. degree in 1935 from the Geology Department of Banaras Hindu University.

While in Banaras Hindu University, Professor Misra was greatly influenced by geological stalwarts of those days like Professor K.K. Mathur, Professor V.S. Dubey, Professor K.P. Rode, Professor D.K. Chakravarti and others. He worked as Lecturer in Geology Department of Banaras Hindu University till 1943. During those days, particularly in the early thirties and forties, geological field work used to be very hazardous with gripping fears of epidemics like plague, malaria and of wild animals, local tribes, etc. Ignoring all difficulties and banishing fear, he worked in Jammu and Kashmir, Kumaun, Mirzapur, Bundelkhand, Chhota Nagpur, Maihar, Satna,

Kodarma mica belt and in some areas in Tamil Nadu. In 1943, he joined Lucknow University as Lecturer in Geology. He obtained his Ph.D. degree in 1944.

In Lucknow he had a very fruitful association with Professor Birbal Sahni, F.R.S., the then Head of the Department of Botany and Geology, Lucknow University. He accompanied Professor Sahni to the Salt Range in October 1943. Professor Sahni and Professor Misra worked very hard for the development of the Department since its inception in 1943. They realised the need for a separate building and their efforts soon resulted in the construction and opening of the new building of the Geology Department in July 1951.

Gifted with a remarkable memory, Professor Misra was a very knowledgeable person and his interests encompassed the entire gamut of earth sciences. Whenever he was approached for a reference on any branch of geology, he used to reel out from his memory, reference of the important contributions.

His field of study ranges from deep bore holes as a part of groundwater investigations to the mighty Himalaya. Professor Misra was in proud possession of a chip of 'Everest Limestone' from the summit of the Everest, which was presented to him by the legendary hero, the late Sonam Gyatso.

Professor Misra's pioneering work on Bundelkhand rocks, discovery of minerals pyrophyllite and diaspore, Vindhyan sedimentation and Himalayan geology are well known, which has led to extensive work of very high order by his students in these fields.

His inherent interest in the Himalaya and his association with the late Professor D.N. Wadia, F.R.S., the then Geological Adviser to Government of India, led to the founding of Wadia Institute of Himalayan Geology, now at Dehradun.

Professor Misra's interactions with overseas geologists like Martin F. Glaessner of Australia, Mme. Raaben of Russia, Late Professor Arthur Holmes and Late Professor H.H. Read of England, Professor A.T. Cross, Late Professor Arthur Buddington, Professor J.M. Schopf, Professor B.F. Howell, Professor Preston Cloud – all of U.S.A., Professor K.H. Wedepohl of West Germany and host of others have kept him abreast of the latest developments in the various fields of geological sciences.

Professor Misra successfully guided twelve students for Ph.D. degree in Lucknow University; He has over ninety research papers to his credit.

During his long association with Lucknow University extending over thirty-two years, he held many eminent positions. He became Dean, Faculty of Science in 1972, but resigned after a year because of interference and hindrance in teaching and research work. He was Dean of Students Welfare, Chief Provost, President of the Lucknow University Teachers' Association and Member Administrative Committee of Lucknow University.

His sphere of activities has not been confined to Geology alone. He was a great lover of nature. He had a very good collection of roses. A true sportsman, he had been a good hockey player in his college days and continued to take very active interest in sports and other activities in the University and was associated with the Canning College Athletic Association – the sports body of Lucknow University – for a very long time, patronizing, nurturing and encouraging young sportsmen.

Professor Misra was very kind and generous. He would open his doors and purse for the needy students. He never failed to spot out hidden talents. He was a connoisseur of good things, good clothes and good food. He was a visionary, a perfectionist, an optimist, an idealist and above all a nationalist to the core. Physically very active and mentally extremely alert, Professor Misra was leading a peaceful, quite and regulated life after retirement in January 1975. Both he and his wife, Dr (Mrs) Savitri Misra, Lecturer in Sanskrit in Lucknow, lived happily in their house ‘Rasavgunthan’ on Ram Krishna Marg, Lucknow.

Professor Misra wrote many papers, edited books and made other academic contributions. He was a fellow of Indian National Science Academy and joined on various boards and committees of several institutes. He headed the Indian Committee on Geology under ICSU. He had been President of the Palaeobotanical Society and also of several other prestigious organisations.

In his demise on 6th June 2002, after a prolonged illness, we have lost a great teacher, scientist, academician, science-manager, a great human being and also a great friend of the Institute.

We pay our respects to him and offer our condolences to his bereaved family members.

Anshu Kumar Sinha

(Text adopted and modified after Girjesh Chandra, Lucknow University, published in *Geology of Vindhyānchal*. Eds Valdiya KS, Bhatia SB and Gaur VK 1982, Hindustan Publishing Corporation Press, New Delhi 3-8.)