

(2)

1-7

To Mr. Krishna, Admin. Officer, RRI
From: Sarojini, PA to Prof. Dhawan

Fax: 3340492

Attn. Mr. Krishna

As desired I am sending the
Biographical Data of Prof. S. Dhawan.
With regards.

Sarojini
9.1.02.

16 Copy

S. DHAWAN : BIOGRAPHICAL DATA

- I. BORN : September 25, 1920, Srinagar, Kashmir, India
- II. EDUCATION : Punjab University, Lahore (undivided India), University of Minnesota, USA and California Institute of Technology, USA:
 - BA Physics & Mathematics - Punjab 1938
 - MA English Literature – Punjab – 1941
 - BE Hons. Mechanical Engineering Punjab 1945
 - MS Aero Engineering, University of Minnesota – 1947
 - Aero Engineering Degree CALTECH – 1949
 - Ph.D Aeronautics & Mathematics CALTECH – 1951
- III. MARRIED 1956 - NALINI NIRODI B.Sc (Hons) Mysore University, (India); Ph.D. Botany, Washington, University.St.Louis, USA
 - Three children – One Son & Two Daughters
- IV. CAREER
 - Technical/Research Assistant (1947 – 1951)GALCIT, Pasadena, California, USA
 - Senior Scientific Officer (1951 - 52), Dept. of Aeronautics, Indian Institute of Science, Bangalore
 - Asst. Professor (1952 - 55), Dept. of Aeronautics, IISc, Bangalore
 - Professor & Head (1955 – 1962), Dept. of Aeronautics, IISc, Bangalore
 - Director (1963 – 1981), IISc, Bangalore
 - Visiting Professor (1970-71), GALCIT, Pasadena, USA

- Secretary, Dept. of Space & Chairman, Space Commission (1972 – 1981), Government of India, while Director, IISc, Bangalore
- Senior Advisor (Space) (1981–83), Department of Space, Bangalore
- Member, Space Commission, (1981-2001) Govt. of India, Bangalore

V. MEMBERSHIP OF RESEARCH INSTITUTES/ORGANISATIONS etc.:-

- Member, Governing Council TIFR (1967-1984)
- Member, Board of Directors, Hindustan Aeronautics Ltd (1964-72)
- Scientific Advisory Committee of the Cabinet (1965–68) &(1977-80)
- Member, University Grants Commission (1966 – 71)
- Executive Delegate for India, Commonwealth Aeronautics Advisory Committee (1967 – 69)
- Member, Defence R & D Council (1967 – 71) (1982 – 84)
- Member Aeronautics R & D Board (1971)
- Member, Atomic Energy Commission (1971 – 76) & (1981 – 84)
- Chairman, INSAT Coord Committee of Secretaries (1977)
- Member, Electronics Commission (1977 – 84)
- Member, National Committee on Science & Technology (1977 – 80)
- Member (1963 - 69), and then Chairman (1981 – 94), Research Council National Aero Space Lab (CSIR), Bangalore

- Member, Raman Research Institute, Board of Trustees (1974 – to date)
- Chairman, Governing Council, RRI, Bangalore (1974 – 2000)

VI. FELLOWSHIP/MEMBERSHIP OF LEARNED SOCIETIES:-

- Member, Association of Scientific Workers of India (1952 - continuing)
- Member, Society for Scientific Values (1952- continuing)
- Fellow, Royal Aero Society (1963), London, UK
- President (1968-69), Hon. Fellow (1979), Aero Society of India, New Delhi
- Fellow, Indian Academy of Sciences (1972), President (1977-80), Bangalore
- Fellow, Indian National Academy of Sciences, New Delhi (1978)
- Hon. Fellow, National Academy of Sciences, Allahabad (1978)
- Foreign Hon. Member, American Academy of Arts & Sciences (1972), USA
- Foreign Associate, US National Academy of Engineering (1978), USA
- Chairman, Asian Congress of Fluid Mechanics (1980), India
- Hon. Fellow, Indian Institute of Science (1981), Bangalore
- Hon. Fellow, Institution of Engineers (India) (1983), Roorkee

- Hon. Fellow, Tata Institute of Fundamental Research (1996),
Bombay
- Fellow, Third World Academy of Science (1985)

VII AWARDS, etc.

- D.Sc (Hon.C.) University of Roorkee (1967)
- Alumni Distinguished Service Award (CALTECH) (1969)
- D.Sc(Hon. C.) Cranfield Institute of Technology, U.K. (1975)
- D.Sc. (Hon. C.) Punjab University (1978)
- D.Sc. (Hon. C.) Indian Institute of Technology, Madras (1981)
- Aryabhata Medal, Indian National Academy of Sciences (1983),
New Delhi
- D.Sc.(Hon. C) University of Bombay (1983), Bombay
- Jawaharlal Nehru Award in Engineering & Technology (1983) by
Madhya Pradesh Government
- Rajyotsava Award of the State of Karnataka (1984), Bangalore
- Om Prakash Bhasin Award for Science & Technology (1985), New
Delhi
- Parikh Memorial Award (1986), Bombay
- Watumull Foundation Medal (1987), Bangalore
- Gujar Mal Modi Innovative Science & Technology Award, (1988),
New Delhi
- Vikram Sarabhai Memorial Award (1998) ISCA - for Outstanding
contributions to the advancement of Science at Hyderabad

- Indira Gandhi Award for National Integration (1999), New Delhi

- Government of India Awards: Padma Shri (1966);
 Padma Bhushan (1971);
 Padma Vibhushan (1981)

VIII. COUNTRIES VISITED FOR TECHNICAL/PROFESSIONAL WORK

USA, UK, Canada, Federal Republic of Germany, France, Soviet Union/Russia, China, Australia, French Guyana, Venezuela, Brazil, Egypt, Iran, Singapore, Japan.

IX. TECHNICAL/SCIENTIFIC PUBLICATIONS

1. "Problems in Shock Reflection" (with H.W.Liepmann). Report, Guggenheim Aeronautical Laboratory, California Institute of Technology (1949).
2. "Design and Use of a Flexible Nozzle for the GALCIT (4" x 10") Transonic Wind Tunnel". Report, Guggenheim Aeronautical Laboratory, California Institute of Technology (1949).
3. "A Flexible Nozzle for small Supersonic Wind Tunnel" (with A Roshko), Journal of the Aeronautical Sciences, 18, pp.253-258 (1951).
4. "An Instrument for the Direct Measurement of Skin Friction". Report, Guggenheim Aeronautical Laboratory, California Institute of Technology (1951).
5. "Direct Measurements of Local Skin Friction in Low Speed and High Speed Flow" (with H.W. Liepmann). Proceedings of the First US National Congress of Applied Mechanics (1951).
6. "On Reflection of Shock Waves from Boundary Layers" (with H.W. Liepmann & A Roshko). Tech. Note 2334, National Advisory Committee for Aeronautics, Washington DC (1951). NACA Rept. 1100, 1952
7. "A Miniature Supersonic Wind Tunnel". Report, Department of Aeronautics, Indian Institute of Science, Bangalore (1952).

8. "Direct Measurements of Skin Friction". Tech. Report No.1121, National Advisory Committee for Aeronautics, Washington DC (1953).
9. "Design and Operation of an Intermittent 1" x 3" Supersonic Wind Tunnel. Journal Aeronautical Society, India, 7(1), pp.1-17 (1955).
10. "Transition from Laminar to Turbulent Motion". Proceedings of the Third Indian Congress of Theoretical and Applied Mechanics (1957).
11. "Some Properties of Boundary Layer Flow during the Transition from Laminar to Turbulent Motion" (with R Narasimha). Journal of Fluid Mechanics, 3: pp.418-436 (1958).
12. Some Problems Associated with the Design of Transonic Wind Tunnels". Proceedings of the Defence Science Conference, Defence Science Journal (1958), Government of India, New Delhi.
13. "Data on Peak Starting Loads in Supersonic Wind Tunnels". Report Department of Aeronautics, Indian Institute of Science (1960).
14. "Equations for Stress Distribution in Model String for the NAL Trisonic Wind Tunnel". Technical Note No.4, Department of Aeronautics, Indian Institute of Science (1960).
15. "Wind Tunnel Tests on the HF-24 Air Intake" (with V Krishnamoorthy). Report IWTR 33, Department of Aeronautics, Indian Institute of Science (1961).
16. "An Evaluation of the AVRO/HS 748 Aircraft in India". Report of a one-man Committee appointed by Government of India in April 1973. (Classified) (1975).
17. "Indian statement" -- Committee on Space Research, 19th Plenary Meeting, 8-14 June 1976, Philadelphia, Penn., USA. 3p.
18. "A glimpse of the Indian Space programme". Presidential Address Delivered at the 43rd Annual Meeting of the Indian Academy of Sciences, Calcutta 26- 29 Nov 1977. Proc. Indian Academy of sciences, 1978, 1, P 1-26.
19. "INSAT-1 A Multipurpose Domestic Satellite System for India" (with P P Kale & J P Singh). IEEE Trans. Broadcast, BC-25(4), pp.121-127 (1979).
20. "A Glimpse of Fluid Mechanics Research in Bangalore 25 years ago". Proc. Indian Acad. Sci., C4, pp.95-109 (1981).
21. "The Indian Space Programme". 13th International Symposium on Space Technology and Sciences (ISTS), Tokyo (1982) (with Prof U R Rao).
22. "Science, Education & Values" for a college journal in Bangalore -- Oct. 26, 1987.
23. "JRD Tata and Indian Aviation". Current Science, Vol.66, No.6, March 25, 1994, pp.452-454 (1994).
24. Book Review - "The Simple Science of Flight: From Insects to Jumbo Jets. By Henk Tennekes, The MIT Press, Cambridge Mass, USA & London, UK" in Current Science, Vol. 73, No.7, 10 Oct. 1997.

X. STUDENT RESEARCH THESES SUPERVISED

1. "A Study of Transition from Laminar to Turbulent Flow in the Boundary Layer on a Flat Plate". AllSc Thesis: R Narasimha (1958), Indian Institute of Science, Bangalore.
2. "An Experimental Investigation of Base Flows at Supersonic Speeds". AllSc Thesis: M A Badrinarayanan (1958), Indian Institute of Science, Bangalore. Journal Roy. Aero Soc. Vol.65, No.607, July 1961, pp.475-482.
3. "Studies on the Pitot Tube Displacement Effect in Boundary Layer Measurements". AllSc Thesis: B R Vasudeva (1959), Indian Institute of Science, Bangalore.
4. "Studies on the Transition from Laminar to Turbulent Flow in a Pipe". MSc Thesis: P V Pantulu (1963), Indian Institute of Science, Bangalore.
5. "A Study of Boundary Layer Expansion from Interactions near a sharp corner in Supersonic Flow". MSc Thesis: R Vivekanandan (1964), Indian Institute of Science, Bangalore.
6. "A Study of Laminar Boundary Layers and Separation Bubbles near the Leading Edge of Two-Dimensional Airfoils". Ph.D Thesis: S K Ojha (1965), Indian Institute of Science, Bangalore.
7. "An Investigation on Turbulent Boundary Layers over Ventilated Walls". MSc Thesis: M A Ramayya (1965), Indian Institute of Science, Bangalore.
8. "Two Dimensional Turbulent Wall Jets with and without Constant Outside Stream". MSc Thesis: S P Parthasarathy (1965), Indian Institute of Science, Bangalore.
9. "Inverse Transition Flow from Turbulent to Laminar Flow in a two-dimensional channel". PhD Thesis : M A Badrinarayanan (1967), Indian Institute of Science, Bangalore.
10. "Effect of Convex Transverse Surface Curvature on Transition and other properties of Incompressible Boundary Layers", PhD Thesis: G N V Rao (1968), Indian Institute of Science, Bangalore.
11. "A Study of Mean Velocity Profiles in Three-Dimensional Incompressible Turbulent Boundary Layers". PhD Thesis: T S Prahlad (1971), Indian Institute of Science, Bangalore.

XI. LECTURES /ADDRESSES/TALKS

1. "Aeronautical Research in India." - Twenty Second British Commonwealth Lecture. 3rd Nov 1966, London. Journal of Royal Aeronautical Society, 1967, 71(675), Page 149-184.
2. "Launching of the first Indian Satellite" Radio Talk, 16th Feb. 1975, All India Radio.

3. "Space technology and the utilization of forest wastes" - Dr A L Mudaliar Memorial Second Lecture, 2nd Feb, 1976, IIT, Madras, 8p+13 figs (with V R Gowarikar)
4. "India's progress in Space Research during the last decade" - Radio talk - 24th Feb 1976 - All India Radio.
5. "Education and Communications" - Address at the Special Convocation of the University of Bombay - 31st March 1976, 10 p, Bombay
6. "The National Satellite System" - Lecture, Indian Academy of Sciences, Dec 24, 1979, Chandigarh, 6p
7. "Space Launchers for India" - Sir Mokshagundam Visveswaralah Memorial Lecture, Diamond Jubilee, Celebrations of the Institute of Engineers (India), Hyderabad, Feb 8, 1981, 40 P.
8. "Space and Industry" - Sri Ram Memorial Lecture, at P H D Chamber of Commerce & Industry, New Delhi, on Feb 4, 1983, 22p
9. "Application of Space Technology in India". Aryabhata Lecture at the Indian National Science Academy, New Delhi (Aug 02, 1985) 18p+33 figs.
10. "Star wars: the arms race in Space" - Lecture to Peace Conference, July 5th, 1986, Bangalore.
11. "National Space Science Symposium" - Inaugural Address, Feb. 19-22 1986, Gauwhati, 10p
12. Opening Remarks: Astronomical Society of India - Annual Meeting, Dec 5, 1986, 2p, Bangalore.
13. "Science and values" - Talk to a Bangalore School, Sept 1987, 5p
14. "A message for Indian Intellectuals" - Parikh Memorial Lecture, Dec 7, 1987, Bombay
15. "Prospects for a Space Industry in India" - Fifth Lala Karam Chand Thapar Memorial Lecture, Patiala Technical Education Trust, New Delhi, Feb 26, 1988, 32 p
16. "Space and foreign policy" - K P S Menon Memorial Lecture, Andhra Bhawan, New Delhi, 29th Oct 1988, 30p Man & Development, March 1989, XI(1): 1-30.
17. "Use of space technology for management of the natural resources of Jammu & Kashmir" - G M Modi Award Lecture at Srinagar, G M Modi Science Foundation, New Delhi, April 29, 1989, 10p+22 figs.
18. "Using science for development: A possible approach for Himachal Pradesh" - G M Modi Award Lecture at Shimla, Oct 31, 1989, Shimla 18p+10 figs.
19. "Bird Flight". Raman Memorial Lectures, 1998-CSIR, Special Publication - SP9019, Oct. 1990 NAL/CSIR. Also in abridged form. Sadhana, Vol.16, Part 4 Dec. 1991.- Academy Proceedings in Engineering Sciences, 1991, Indian Academy of Sciences 16(4): 275-352.

20. **"JRD Tata 1904-1993" - Remarks at a Memorial Meeting held in Raman Research Institute, Bangalore on Dec. 2, 1993.**
21. **"8th Space Science Symposium", - Inaugural Address, Trivandrum, Dec. 20, 1994.**
22. **"Whither Space & Astronautics" - Lecture to the Astronomical Society of India, Bangalore, Sept 6, 1996 32p**
23. **"Opening Remarks: 7th Asian Congress of Fluid Mechanics" - Dec 8, 1997, Chennai.**
24. **Remarks on receiving Indira Gandhi Award for National Integration for the year 1999 on 31st Oct. 2000 at Teen Murti House, New Delhi.**