
CENTRE FOR ADVANCED STRATEGIC STUDIES



AIR MARSHAL YV MALSE MEMORIAL LECTURE

BY

AIR CHIEF MARSHAL (RETD) PV NAIK, PVSM, VSM

THE FUTURE OF AEROSPACE POWER

29th June, 2012

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WELCOME BY DIRECTOR**AIR MARSHAL S. KULKARNI**

Air Marshal S. Kulkarni welcomed everyone present for the Air Marshal YV Malse Memorial Lecture : 2010. He said that late Air Marshal Malse was the founder of the Centre for Advanced Strategic Studies. With his perseverance and dynamism he succeeded in getting together industrial stalwarts, late Shri Shantanurao Kirloskar and late Shri Navalmal Firodia, late Shri PVR Rao, former Secretary of Defence, Admiral (Retd) JG Nadkarni, former Chief of the Naval Staff, late Shri RD Sathe, IFS, former Foreign Secretary, Shri Sharad Marathe, IAS, former Industries Secretary, Government of India, late Professor VG Bhide, former Vice Chancellor, University of Pune and formed the National Security Forum. He saw the relevance of the Forum and the need to establish a "Think Tank" away from Delhi, deliberating and discussing National Security issues. Within a short time, through his tireless efforts the National Security Forum was transformed into the Centre for Advanced Strategic Studies in October, 1992. He persuaded late Shri PVR Rao, former Defence Secretary to take over as the President and Admiral JG Nadkarni, former Chief of the Naval Staff to take over as the Director of the Centre.

Air Marshal YV Malse passed away in 2006. Since then the Centre has organized five memorial seminars/lectures. The first one was on "Aerospace Power in a Changing National Security Environment" on 28th July, 2007, the Second on "India's Strategic Environment and Its Implications for Military Modernisation" on 08th July, 2008, the third on "Military Force Application in the Contemporary Context" on 10th July, 2009, the fourth on "Essentials of An Aerospace Power : Indian Context" on 09th July, 2010 and the fifth on "DRDO : The Challenges Ahead" on 22nd October, 2011.

Air Marshal S. Kulkarni said that we are fortunate to have Air

Chief Marshal PV Naik, former Chief of the Air Staff to deliver the Memorial Lecture. He has had a first hand experience in shaping the future of Indian Air Force's Aero Space Power in the foreseeable future. As Chief of Air Staff, he has interacted with the politicians and bureaucrats to translate his ideas into tangible inductions for the IAF. Air Marshal Kulkarni further said that we are equally fortunate that Air Marshal BN Gokhale, former Vice Chief of the Air Staff, presently consultant to the Principal Scientific Advisor to the Government of India and also to Defence Research and Development Organisation has kindly consented to chair this event. He also works in the National Security Council.

AIR MARSHAL YV MALSE MEMORIAL LECTURE
AIR CHIEF MARSHAL (RETD) PV NAIK, PVSM, VSM
FORMER CHIEF OF THE AIR STAFF
THE FUTURE OF AEROSPACE POWER

Introduction

Good morning. I am conscious of the privilege of having been invited to deliver this Air Marshal Malse Memorial lecture today. Air Marshal Malse was the leading pioneer and a strong exponent of Airpower, as it was known those days. Today, as you all know, it is synonymous with Aerospace power. In fact both are interchangeable. Today I wish to share my thoughts on The Future of Aerospace Power, with special reference to India.

Environment.

To this audience, I am not going to discuss the threat scenario in the region and our geo-strategic compulsions. I am sure that you know as much about it as I do. But undoubtedly, it is a new world order that is emerging because of complex relationships, strategic interests and influences. Asia is the happening place and for a variety of factors. For obvious reasons, it is full of turmoil and instabilities. Internal dynamics and external influences have led to increase in the degree of instability and uncertainty. Last but not the least; it is the playground of terrorism.

Threat Spectrum

India is faced with a full spectrum of threats, which emerge from all these issues. The spectrum itself is increasing in complexity and technological sophistication. So with the spectrum changing as well as being unpredictable, we have to look at full-spectrum dominance. Aerospace Power also will have to focus in the same direction.

It is, therefore, prudent that we move away from a threat-based

assessment to a capability-based approach. A capability can then be tailored or applied to meet the challenge. The capability will allow us to apply the right force in any form of conflict across the entire spectrum. This will ensure effectiveness as well as efficacy.

Remember, the whole focus is on full-spectrum dominance. Yes, it will require new technology, modernisation and replacement of equipment. But just material-superiority and technology is not enough. Of equal importance is the development of doctrine, organisation, training and education of leaders and people who can effectively take advantage of the technology.

Aerospace Power

If we analyse the wars/skirmishes in the recent past, two 'Gospel Truths' have emerged. The first is 'Aerospace Power by itself cannot win a war'. The contradiction is that 'No major war has been won without the use of Aerospace Power'. This is likely to hold true for the foreseeable future also. It does not decry or belittle other forms of military power like Land or Sea; but is slowly and surely emerging to be a 'given' that aerospace power is the power of the future.

The corollary, therefore, that Aerospace Industry is the industry of the future is equally true. Hence any country aspiring for greatness must concentrate on and invest in aerospace power and aerospace industry.

Let us have a peep, then, at 'What is Aerospace Power?' There is popular belief that aerospace power is about aircraft and satellites. This is not altogether wrong, but I would like to qualify the statement. It is the 'Total capacity of a nation to exploit the medium of air and space.' Besides aircraft and satellites it involves civil aviation, passenger and cargo; communication systems for management and control; radars, data links; airfields, RANADS, support infrastructure. It involves a strong technological base capable of absorbing new hi tech; a pool of techno savvy and trained manpower; hi tech training centres and laboratories. It involves a strong

manufacturing sector both public and private with the will and enthusiasm to put the money where the mouth is; with sufficient depth and dexterity to adapt to hi tech; impeccable processes leading to high quality consciousness and control. Equally important is the user commitment which ensures viability. It involves investment and commitment to R&D. It demands a clear, comprehensive policy and an organization to nurture this activity. Last but not the least, it requires National Will.

Colloquially speaking, Aerospace power is synonymous with its military aspect. The military aspect of aerospace power ensures that a nation has the freedom to exploit and exert the full spectrum of its aerospace power. This, as you well know, includes aircraft, satellites, launch platforms, weapons, radars, communication, Air Defence, Space control, cyberspace management and many other aspects. I should like to discuss this military aspect further in three parts :-

- a) Capability Build up.
- b) My vision of the future of Aerospace Power, especially in India.
- c) What do we need to do.

Capability Buildup

Environment

First of all we need to analyse the geopolitical environment obtaining around us. We have already been through this earlier. The highlights are that we face the full spectrum of threats from nuclear to terrorism. So we need to go in for full spectrum dominance.

Policy Directives

The Raksha Mantri issues the RM's directive for war to all three Chiefs. But there is no policy on how to prepare for war or how to build up capability. For this each Service has to fall back on its own experience and brain power.

Mission

An important factor to consider is your Mission. My mission in Air Force is 'To protect the country from threats arising through the medium of air and space.' Similarly, Army will have it for 'Land' and Navy for 'Sea'.

Aspirations

The IAF should be able to meet the aspirations of the country. The PM has already defined our Zone of Influence to be from the Gulf of Hormuz in the West to Malacca straits and beyond in the East.

Analysis

We follow the 'Appreciation' method where we consider all threats to the country, however small. After our analysis we realized that if we went country specific it would result in a never ending arms race. So we decided to go capability specific. What capabilities would we require to meet the country's aspirations. Putting it simplistically, there would be four supporting pillars for the buildup. SEE, REACH, HIT and PROTECT;-

- a) See. We should be able to see first and farthest. Includes satellites, AWACS, long range radars, Aerostats, etc.
- b) Reach. Having seen, reach first and farthest. Includes long range aircraft, escorts, Aerial refueling, BVR weapons, Navigation Systems etc.
- c) Hit. Hit hard and accurately. Air-surface weapons, PGMs, LGBs, etc.
- d) Protect So that the force is available for war.

HR

HR is a vital function. Manning, recruiting, training, skill development, retention, etc.

Finance

Thereafter, depending on budget allocation, prioritise over 3-4 Plan periods.

As our capabilities evolve, we expect our potential adversaries to also try and keep pace matching up with us. Today we may have superior conventional warfighting capabilities and effective nuclear deterrence against a potential adversary, but a favourable capability balance is not static. At each stage we should be able to conduct prompt, sustained and synchronised operations tailored to specific situations. In addition we should have access and freedom to operate in all domains – space, air, land and sea and most importantly, the information domain.

The problem is that this transformation is a long drawn process. It can't be achieved overnight. Long drawn because of our type of set-up. It is not a single condition to be achieved, nor is it like a normal evolution. Transformation for us will be a continued series of fundamental changes each leading to a better capability. Keeping all this in mind, we need to understand what we need for our capability build-up.

Crystal Gazing; Future Aerospace Power

In my opinion, aerospace power will proliferate and find utility with many more agencies. Because of its inherent flexibility and rapid response, it will become the preferred tool for many more contingencies. It will be able to offer up more options to the leadership in times of national crises. But the same pluses will raise fundamental questions of management, policy, organisation structures and ownership.

Aerospace technologies will continue to evolve creating exciting possibilities. Revolution in Engine design and Artificial Intelligence has already commenced. Technologies for intelligence gathering and Surveillance will leapfrog generations ahead. Instrumentation, metallurgy, communication and computing power will be

revolutionized. Weapons capable of directed energy and controlled destruction are already being tested. Non-lethal air launched weapons are on the cards.

Aerospace Power will seek to enhance its fundamentals of reach, accuracy, lethality, survivability, command and control. More complex situations will witness increased employment of Remotely Piloted Aircraft (RPAs). Peacetime employment of aerospace power will increase. It will be interwoven into the fabric of homeland security in many more roles for tackling asymmetric forces.

Increased use of Space by the 'Have's' will be a distinct advantage in conflicts. Even in a 'No Conflict' situation lack of 'Space' will reduce 'bargaining' or 'negotiating' power. Guarding or protecting Space assets will become a high priority area.

With rapid developments in Information Technology, Nano Technology, Directed Energy, Electronic and Cyber warfare and ISR it is difficult to predict the nature of Aerospace Power in, say, 2050:-

- a) Will the whole accent shift to Remotely Piloted Aircraft (RPA)?
- b) Will 'Space' operations become routine and user friendly?
- c) Will supersonic or hypersonic transitions become routine?
- d) What limits to miniaturization?
- e) How to integrate Space with air, land and sea?

These are questions with tremendous consequences. Systems which were dreams only 10 years ago are already being operationalised. So if this be the future, what do we need to do to ensure we are there, up front?

What Do We Need To Do

Policy

We need a comprehensive National Strategy on Aerospace spelling out where we go. We need to institutionalize the process so that there are minimum changes. We need a regulatory mechanism with teeth for implementation of the strategy like the Federal Aviation Authority. This must have representation of all stakeholders. A change in the mindset of policy makers needs to be brought about. They must feel they, too, are stakeholders and not disinterested observers.

Technological Base

Enhance technical training by having more IITs and Tech Institutes with access for deserving students. Enhance and retain our pool of expert manpower. Today they are in USA, UK, Singapore.

Industrial Base

Encourage the concept of 'Brand India' with quality consciousness and control. Empower Private Sector by encouraging joint ventures and ensuring suitable policy changes to make it financially viable. We need to institutionalize these changes to prevent reversals and ensure user commitment. In return, private sector must commit to put money where the mouth is.

Acquisitions and Offsets

In the next 10 years we are likely to spend 235 billion USD on acquiring Defence systems. Even at 30% offsets it amounts to a whopping \$80 bn. First we need to understand offsets and then exploit their potential. Countries like Brazil and South Korea have used 100 to 120% offsets. We need to redefine offsets. Make the definition broader. One point to remember here is that offsets never fetch you cutting edge technology. It is always better to pay up front. Today our acquisitions process is slow. It needs to be streamlined. Involvement and accountability at ministry levels needs to increase to avoid delays.

R&D

There is a crying need to invest more in R&D, not only by the Govt. but by the Private and Public sectors too. The running of DRDO must be streamlined to minimize wastage and to get a better bang for the buck. The accountability of DRDO needs to increase. They must set time bound, achievable objectives. We should also lay emphasis on allocating broad based research to renowned educational institutions.

Organisational Changes

We need minor modifications in the organisational aspects. I have already discussed an autonomous FAA like structure. We need to simplify processes and procedures. On the military side we need to effect two changes. The first is the formation of a Space Command. This will be tri-Service. However, manning must be as per Service requirements and skill levels instead of the standard 8:2:3 for army, navy and AF. The second is Air Defence Command. This, again must be tri Service. It must be headed by the AF since AD is the prime responsibility of the IAF. With suitable representation from other Services and agencies.

National Will

Last but not the least. The message must spread that this is not only a military or governmental issue. The spinoffs will benefit the entire Nation. Hence the whole Nation must feel that it is a stakeholder.

Conclusion

Ladies and gentlemen, aerospace power is the power of the future. We must, therefore, invest in the power and technology. We need to spread this awareness to the Nation. Policymakers need to appreciate that they are stakeholders too. We need to institutionalize policy guidelines to prevent reversals of decisions. We need to create an environment that facilitates Private and Public sector participation.

Today we are at the cusp of our capabilities. The ramping up will start in 2015. We do have 3-4 years to prepare. If we use them wisely, we will be there, right near the top, in a strong position to exploit this great medium of Aerospace.

CHAIRPERSON REMARKS

AIR MARSHAL (RETD) BN GOKHALE, PVSM, AVSM, VM

Air Chief Marshal PV Naik, Air Marshal Kulkarni, Family of Late Air Marshal Malse, Mrs. Alurkar as well as Mr. Parag and Mrs. Pandey, Dr. Dalvi, other Seniors Officers, Ladies and Gentlemen.

It is indeed a great opportunity, which the family of Air Marshal Malse provides every year, to organize a memorial lecture in memory of one of the visionaries of the Indian Air Force. This year, on the topic of "The Future of Aerospace Power", the Centre of Advanced Strategic Studies (CASS) could not have found a better speaker than Air Chief Marshal PV Naik, who has had a first hand experience in shaping the future of Indian Air Force's Aero-Space Power in the foreseeable future. As a Chief, he has interacted with the politicians and bureaucrats so as to translate the ideas into tangible inductions for the Indian Air Force.

Ever since, the human race transformed itself from Stone Age to the Iron Age, first known Revolution in Military Affairs (RMA) took place, with the invention of arrows and spears. In the subsequent years there were many such RMA like the Gun Powder, the Machine Gun, Submarine, Armoured Tank etc. But ever since the invention of heavier than air, an aircraft was flown in 1903 by the Right Brothers, this RMA has revolutionized the whole world, in last 110 odd years. Air and its contiguous medium of Space have influenced every walk of life, due to the inherent characteristics of alacrity and flexibility. While the first use of aircraft in combat role was done in Italy-Turkey war of 1911, we are aware of its battle winning effect in the First and Second World Wars. With technological advances made in this field, it has added even more to its devastating effect. The First Gulf War of 1991-92 also brought in the Space segment and has since given multifarious dimensions to the Aero Space Power.

What is of equal importance is the application of Aerospace power and it needs to be understood by all the decision makers. Hence there is another term called the Revolution of Strategic Application or RSA, which needs to be understood. While the Indian Air force was used in October 1947 to quickly induct Army troops to Srinagar on the very day that Maharaja Hari Singh signed the treaty of accession with India, it changed the history and geography of our country. But the same thing didn't happen in 1962 due to wrong intelligence inputs. Due to which, the Indian Air Force was not used against the advancing Chinese troops. If we had used the airpower to even bomb the hillsides to create land slides we would have been able to affect the Chinese movement and again the history and geography of India would have been changed. In those days the Chinese logistics infrastructure was nowhere near it is now. This is a classic example of how there is a need for the decision makers to understand and apply this great instrument of power for national use.

Air Chief Marshal Naik has spoken about the need for a regulatory body like the National Aeronautics Commission, which I totally endorse. Regarding indigenization DRDO is making some changes in their policies to amalgamate collaborative approach with some of the strategic partners, so that we leap frog the technology, instead of reinventing the wheel. BrahMos is one such classic example of such collaborative project. I also endorse his views regarding involving academic institutions in R&D as well as the indigenous Defence Industry. In Pune we have this classic example of Netra UAV, which has been made by some young entrepreneurs who are ex-IIT Mumbai with the help of R&D Engineers DRDO. There are also some other projects in hand in the laser field for example, which will help in enabling India to acquire state of the art technology. For this we also need to ensure that our contracting action incorporate clauses which will help us acquire transfer of such technology. Another point that I would like to stress about technology is that if we do not innovate to be at the cutting edge, we will always be importing the equipment. To illustrate our Kaveri engine has still not been developed. It works on Jet fuel or ATF; on the other hand the Western countries are already developing engines which will be using alternate fuels like Ethanol to reduce the carbon foot-print. There are already talks of levying carbon

duty on Indian air carriers which fly to Europe. It is a matter of time before IATA brings out a resolution that only those aircraft fitted with engine using alternate fuels will be allowed to be flown over Europe and America. This will again force us to keep importing such engines. Hence, a comprehensive strategy by agency such as the Aeronautics Commission will help in chartering the desired course for the Indian industry as well as other agencies involved in aerospace power.

There is also the issue of training, which I totally endorse because we may be able to build huge factories in India as part of Defence offset, but it will be difficult to fill the huge requirement of skilled manpower, unless we take proper steps in not only skill building but also in recurrent training to keep abreast with newer technology to be able to update this workforce.

However, I am certain that with concerted efforts by the Operators, Academia, Technologist and Industrialist together, India will be able to take the right steps to ensure that the future development of Aero Space Power is to her advantage. I once again thank the Air Marshal Malse family for enabling such yearly dialogue on important topics of national security. I also thank Air Marshal Kulkarni and CASS for inviting me to preside over this event.

Thank you ladies and gentlemen,

Jai Hind

CENTRE FOR ADVANCED STRATEGIC STUDIES
CASS PUBLICATIONS

Sl. No.	SEMINAR PROCEEDINGS	Date of Seminar
1.	"Defence and Industry"	17 May 93
2.	"Use of Force in Internal Peace Keeping"	04 Dec.93
3.	"The Emergence of China : Political, Economic and Military Implications for India"	22-23 Nov.94
4.	"First SLK Memorial Lecture" by Shri P.Chidambaram, Union Minister for Commerce.	05 Jun. 95
5.	"Human Rights : Law and Order in India"	30 Sep. 95
6.	"The Emerging Security Environment in South East Asia with Special Reference to Myanmar : Political, Economic and Military Implication for India"	02-03 Dec.95
7.	"India 2020 : An Agenda for the Nation" by Maj Gen (Retd) KS Pendse.	Feb. 96
8.	"India : The Nuclear Challenge" by Lt Gen (Retd) EA Vas, Maj Gen (Retd) KS Pendse, Dr. Col (Retd) AA Athale.	Mar. 96
9.	"Challenges to India's National Security And India's Defence Preparedness"	20-21 Apr. 96
10.	"Citizens Rights and Indian Democracy" "Second SLK Memorial Lecture" by Dr. P.C. Alexander, Governor of Maharashtra	20 Jul. 96
11.	"Challenges of Comprehensive Test Ban Treaty Implications for India"	28 Aug. 96
12.	"Regional Security Environment To The North-West of India With Special Reference To Afghanistan."	21-22 Mar. 97
13.	"Changing Scenario of The Constitutional Values" "Third SLK Memorial Lecture" by Justice AM Ahmadi, Former Chief Justice of India	02 Aug. 97
14.	"Information Warfare"	24 Sep. 97
15.	"Laws of War"	09 Jan. 98
16.	"Indian Ocean - The Challenges Ahead"	06-07 Mar. 98
17.	"The Changing Pattern of India's Relations with America" "Fourth SLK Memorial Lecture" by Dr.Abid Hussain, Vice Chairman, Rajiv	03 Jul. 98

Sl. No.	SEMINAR PROCEEDINGS	Date of Seminar
	Gandhi Institute of Contemporary Studies.	
18.	"Pokhran II and its Implications"	01 Sep. 98
19.	"Nuclear India And The World"	08 Sep. 98
20.	"The Challenge of Terrorism"	29 Oct. 98
21.	"Foreign Policy Imperatives For Nuclear India"	26-27 Feb. 99
22.	"On Building a Globally Competitive Indian Industry : The Role of Research & Technology"	22 Jul. 99
	"Fifth SLK Memorial Lecture" by Dr. R.A. Mashelkar Director General, Council of Scientific & Industrial Research,	
23.	"Challenges of J&K"	04 Feb. 00
24.	"Indo-Pak Relations : Challenges Ahead"	30-31 Mar. 00
25.	"Insurgency In India - Causes & Perspectives"	28 Dec. 00
26.	"Self Reliant Defence and Indian Industry" "SLK Memorial Lecture - 2000"	18 Jul. 00
	by Shri K. Subrahmanyam, Converner, NSAB	
27.	"Governance In India : Challenges Ahead"	25 Jan. 01
28.	"India and China by 2020 : Political, Economic Sociological and Military Perspectives"	14-15 Mar. 01
29.	"Global Terrorism And India's Response"	19-20 Mar.02
30.	"Globalization And Its Impact" "SLK Memorial Lecture - 2002"	24 Apr. 02
	by Dr. C. Rangarajan, Governor, Andhra Pradesh	
31.	"Governance In India" "Shri N.K. Firodia Memorial Seminar : 2002"	03 Oct.02
32.	"Globalisation And India"	19 Mar.03
33.	"Elections And Democracy in India" "Shri N.K. Firodia Memorial Seminar : 2004"	17 Feb.04
	by Mr. J.M. Lyngdoh, former Chief Election Commissioner, Justice B.P. Jeevan Reddy, former Justice of Supreme Court	
34.	"Comprehensive Security : Need of the Hour"	25-26 Feb.04
35.	"Ombudsman, Lokayuktas, Lokpals ; Concept and Working, with Special Reference to State of Maharashtra"	25 Mar.04

Sl. No.	SEMINAR PROCEEDINGS	Date of Seminar
36.	“Comprehensive Security II : Economic And Internal Security”	03 Mar.05
37.	“India And Its Neighbours : A Regional Security Perspective”	04 Jan.06
38.	“Probity And Propriety In Public Life” “Yashwantrao Chavan Memorial Seminar:2006” by Shri Milind Gadgil, Journalist.	03 Feb.06
39.	“Social Unrest in India : Challenges Ahead” “Yashwantrao Chavan Memorial Seminar:2007” by Dr.DN Dhanagare, former Vice Chancellor, Shivaji University, Kolhapur; Ambassador PV Joshi, IFS Addl.Secy., MEA and presently with Home Ministry for last two years	13 Mar.07
40.	“Emerging World Order And Sino Indian Relations”	21 Mar.07
41.	“Aerospace Power in a Changing National Security Environment” “Air Marshal YV Malse Memorial Lecture:2007” by Air Chief Marshal FH Major, PVSM, AVSM, SC, VSM, ADC, Chief of the Air Staff	28 Jul.07
42.	“Future Environment, Perceived Threat Preceptions And Imperatives in Response” “Brigadier NB Grant Memorial Lecture:2007” by Lt Gen N. Thamburaj, SM, G.O.C.in.C., HQ, SC	02 Dec.07
43.	“Indian Democracy : Its Strengths & Weaknesses” “Professor S.V. Kogekar Memorial Lecture” by Dr. Dileep Padgaonkar,	25 May,08
44.	“India's Strategic Environment And Its Implications for Military Modernisation” Air Marshal YV Malse Memorial Lecture by Dr. Bharat Karnad	08 Jul.08
45.	“Indo-US Relations : The Changing Perspective”	22 Oct.08
46.	“Challenges Before the Fifteenth Lok Sabha” “Professor S.V. Kogekar Memorial Lecture” by Dr. Madhav Godbole, former Home Secretary, Govt. of India	26 May,09

Sl. No.	SEMINAR PROCEEDINGS	Date of Seminar
47.	“Secularism in India : Meaning and Practice” “Yashwantrao Chavan Memorial Lecture” by Justice Narendra Chapalgaonkar	14 May,10
48.	“Right to Information : Reality and Rhetoric” “Professor S.V. Kogekar Memorial Lecture” by Mr. Wajahat Habibullaj, Chief Information Commissioner, Govt. of India	26 May,10
49.	“West Asia : A Factor in India's Security and Foreign Relations”	21 Apr.10
50.	“Essentials of an Aerospace Power : India Context” “Air Marshal YV Malse Memorial Lecture” by Air Marshal PK Barbora, PVSM, VM, ADC, Vice Chief of the Air Staff, IAF	09 Jul.10
51.	“Naxalism and Maoism and Indian Army”	26 Aug.10
52.	“Indo-Pak Relations and The USA”	17 Sep.10
53.	“The Kashmir Imbroglia”	29 Oct.10
54.	“Value System in the Armed Forces” “Brigadier NB Grant Memorial Lecture” By Lt Gen (Retd) Ashok Joshi, PVSM, AVSM	18 Dec.10
55.	“Poverty Alleviation in India : Challenges Ahead” “Yashwantrao Chavan Memorial Lecture” By Dr. YSP Thorat, Former Chairman, NABARD & Chief Executive Officer, Rajiv Gandhi Charitable Trust, New Delhi	13 Jan.11
56.	India and East Asia : Opportunities Ahead	23 Mar. 11
57.	Prof. S.V. Kogekar Memorial Lecture By Gopalswami “Free & Fair Election : Challanges Ahead”	26 May.11