

## Inaugural Address — 17th Annual Session of Aero Medical Society of India

ADMIRAL S. N. KOHLI, PVSM\*

**A**IR Vice Marshal AJIT NATH, Dr. Datey, General Ved Parkash, distinguished participants from abroad, ladies and gentlemen,

Before I go any further, I would like to express my thanks to Air Vice Marshal AJIT NATH for having asked me to be here with you this morning. I gladly accepted his invitation as it gave me an opportunity to meet the medical officers of the Air Force, civilian consultants to the Armed Forces and other distinguished scientists associated with Aviation Medicine.

I had heard glowing accounts of your Institute of Aviation Medicine and often wondered what was so special about it. My visit there yesterday has convinced me that your Institute is really all that it has been claimed to be, namely, a fine Research Institute with a dedicated and enthusiastic band of workers. It speaks volumes for the foresight and faith depicted by those few pioneers who started aviation medicine in India, way back in the fifties.

Many of you may not know that amongst those pioneers are none other than Air Vice Marshal AJIT NATH and his distinguished predecessor, Air Vice Marshal SHRINAGESH. Today aviation medicine in India, represented by your Aero-medical Society, enters the 22nd year of its existence and comes of age to join, on a footing of proud equality, other venerable institutions devoted to medical research in the field of aviation and more recently, outer space.

While collecting material for this address, I was struck by the fact that you doctors, worrying types that you are, had started to worry about the problems of aviation long before the aeroplane was actually invented. I was surprised to read that the first man to fly was a French apothecary, Pilatre de Rozier, who ascended in a balloon on the 15th of October 1783. The following year, on the 23rd of November, an American physician, Dr. John Jeffries, was the first one to start scientific studies of flight. He was also the author of the first book on aeronautics.

Although doctors were the pioneers in flying, unfortunately, it was not till late in World War I in 1919 when the aeroplane, used as a weapon of war, resulted in three times more crashes due to accidents than due to enemy action, that the possibility of doctors being of some help was considered by the Air Force authorities. As a result, consequent on the visit of an Air Force team who had devoted themselves to aviation medicine, there was a dramatic drop in the accident rate amongst allied fliers in France. From then on the medical branch of the Air Force came into its own and it was not long before medical institutions devoted to aviation medical research and flight safety were established in Western countries.

As you all know, we in India had a very rudimentary Air Force at the outbreak of World War II. However, the importance of the doctor to the Air Force was soon realised by Air Headquarters, and a small research cell known as the Aero-Medical Cell was established in Palam, I think, in the early

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fifties, by the then D.M.S (Air), Group Captain CHAKRAVARTI, later your DG AFMS. From this Cell has developed today your Institute of Aviation Medicine and the Aero Medical Society of India.

Man is a peculiar animal, never satisfied with what he has and always striving to attain the apparently impossible. This is well documented by the historical accounts of his constant attempts through the centuries to penetrate, survive and perform useful functions in regimes for which he is ill-adapted physiologically. Many aeons ago he learnt to walk in an erect position and to use the various raw materials provided by nature to his own benefit. Gradually his restlessness took him underwater where he learnt to dive, and as I have said, about 200 years ago, he learnt to fly. He is still not satisfied, and is now set to conquer outer space and having landed on the Moon, is trying to reach Mars!

This perpetual quest for the unknown has resulted in a phenomenal advance in technology, and with it an advance in the medical and biomedical sciences. We now have such exotic creatures known as medico-biological astro-scientists!

If we are to call forth the best there is in man and are to have pilots to fly the aeroplanes and have passengers to make use of them in civil aviation, it is a sine qua non that flying should not only be, but appear to be, safe and comfortable, for which it is necessary that there should be coordination between the administrators, the engineers and the doctors. It is necessary that the pilots be not only physically fit but also mentally alert because of the sophistication of instruments involved in flying.

It has also been found that besides the men who fly the planes, ground personnel responsible for flight control and aircraft maintenance, must be equally fit in all respects. Instances are on record where avoidable accidents have occurred due to flight control errors solely as a result of the human factor.

The rapid development of all kinds of flying, including the recent advances in vertical take off and landing techniques, perforce calls for research

and coordination of the many subjects which are relevant to flying, such as aircraft design, aerodynamics, fuel systems, control systems, not to mention, perhaps, one of the most important factors without which all these sophisticated developments come to nought, i.e. the human factor. It is with this that you doctors are basically most concerned.

This involvement of the doctor in aviation covers, as far as I know, every facet of medical science and needs the practical application of known facts combined with intelligent research into the unknown. It is only by complete integration of effort by research workers, aircraft designers, engineers and air doctors that flying efficiency and safety can improve.

From what I have just said, it is apparent that the doctors of the Air Force, have an onerous duty to perform. You have a vital role to play because of the rapid development in both military and civil aviation which is taking place in our country. I am happy to learn that our Air Force doctors have played their part in the field of aviation research and have helped in solving some of the problems of human engineering and aircraft design. I understand that you are currently involved, amongst other things, in developing flying clothing and safety aids for use by your pilots.

Last but not least, by these annual gatherings of your Society you have focussed attention on the importance of Aerospace medicine not only of your Air Force authorities but also of the Civil Aviation Department and all those involved in the Aviation Industry.

We in the Navy have been watching your progress with a great deal of interest as we also have problems with our Fleet Air Arm. Catapulting aircraft from carriers and landing them on a small, moving and unsteady airfield such as the aircraft carrier, requires special techniques and puts special physical and mental stresses on our pilots. Flying over wide expanses of the ocean, particularly at night, problems of aircraft ditching and survival at sea, underwater ejection, and a host of other problems are all peculiar to Naval aviation.

I am thankful to the Air Force for the great help they have given us in training not only our doctors in Aviation Medicine, but also in the indoctrination of our Naval aircrew in the medical problems of flying. I fully realise that although much has been done, much more remains to be done to improve the safety and flying efficiency of Naval pilots. These improvements are both in the field of engineering and of medicine.

With the increasing complexity of the Indian Navy, and the addition of the Submarine Arm, we are now becoming more and more concerned with the problems of the under-sea environment and the increased ambient pressures in such an environment. Improved breathing apparatus and protective clothing are enabling men to probe deeper into the ocean and remain underwater longer. Throughout the world there are many groups of men who spend much of their time underwater—such as Naval divers and frogmen, commercial divers working on salvage or exploiting the underwater resources like oil, minerals, and pearls.

Many more are there for pleasure or research—such as skin divers, underwater photographers, marine biologists or explorers. These activities present innumerable stresses on various body functions, and in our country the scientific studies in this field are still in a very rudimentary stage. I am therefore looking into the setting up of an organisation which will deal with the problems of submarine medicine, diving medicine, and environmental medicine on board surface ships as well as of Naval aviation.

Our naval doctors, like you in the Air Force, have an important role to play in this. As much of

the work involved is in the realms of physiology, bio-engineering, and such other subjects which have a common basis between our two Services, it is my earnest hope that the cooperation between us which has always been excellent, will be further strengthened in this field of specialised medical research peculiar to our Services.

So much for our current environment problems. Beyond the distant horizon lie still unknown challenges in the vast and complex field of space programmes, and the problems of our would-be astronauts and cosmonauts. This is only a vision yet, but the time must surely come when many of our medical researchers and scientists will become involved in the advanced work connected with weightlessness, claustrophobia, in-flight diet, and loneliness and fear of the world of acro-space.

I am glad to know from the programme of your annual meeting this year that you are going to discuss at length two important subjects which are not only of value to the Air Force but also to us in the Navy. I mention the Symposium on the Prevention of Heart Disease and the Symposium on Alcohol and Flying. Undoubtedly, your discussions will crystallise the attention of all concerned on these two important problems and I hope that it will provide means for us to formulate some measures to deal with them.

With these words, ladies and gentlemen, I wish you every success in your deliberations. I have no doubt that the facilities provided by your hosts will not fail to enable you to enjoy fully the proceedings of this meeting. And now I have great pleasure in inaugurating the 17th Annual Session of the Acro-Medical Society of India.