Magic Carpet

NEWS AND VIEWS

Member, Indian Association of Industrial Editors

VOL. 5. No. 11. THE STAFF MAGAZINE OF AIR-INDIA DECEMBER, 1961

HIGH STANDARD OF OPERATION IS OUR AIM

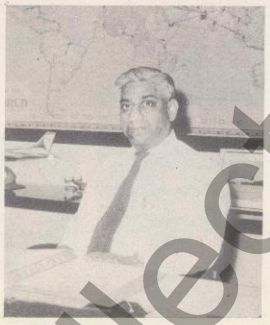
—Operations Manager

With the arrival of the fifth and sixth Boeing, Victor November Yankee (VT-DNY) and Victor November Zulu (VT-DNZ) by May 1962, AIR-INDIA will be an all-jet operator. The 1049's will be withdrawn from all routes and once again we shall standardise on one type – a modern, up-to-date Inter-continental Jet Airliner. Technically, this is a great step forward and, of course, a very necessary step if we are to operate successfully in the increasingly competitive international field.

Modern high-speed jet aircraft alone are not sufficient because almost all other airlines also have them. These have to be operated efficiently if we are to "deliver the goods." The air traveller of to-day is no novice; he is well-informed and knows exactly what he wants – what is more, he is in a position to choose.

The present-day passenger expects an airline to offer him, in addition to all the usual 'frills', an on time departure at a convenient time, a smooth clear-weather flight, comfort and personalised service and, of course, a smooth landing, on time, at the other end. He is no longer worried about safety or standard of operating techniques because he knows that these are taken care of by the training given and procedures set up by the airlines and other governmental agencies.

Since the acquisition of Boeings last year, our flight crews have received nearly 2,500 hours of Simulator training, over 1,350 hours of local flight training and about 3,000 hours of route checks, apart from several weeks of ground training. The cost of all this training is well over Rs. 2.5 crores. We believe that money spent on training is money well spent. No effort or expense has been, or will be spared to achieve high standards of proficiency and precision in



all aspects of flight operations. It is gratifying to note that several encouraging comments have been received on the operational standards of our crews. Judging from the performance so far, we can confidently say that we are holding our own against well-established international airlines.

How can we in the Operations help to sell the Airline? We can do a great deal because the flight crews, headed by the Commander, are the principal and important representatives of the Corporation; they have a vital role to play. What they do or don't do, during the flight makes a world of difference to the passengers who fly with us. True, one has to work hard to sell a ticket but that is not all. We have to 'nurse' the passenger all the way through so he will fly with us again.

Commencing from May 1962, our entire net-work, involving nearly 10 million miles and 21,000 jet hours of flying per year, will be flown by Boeing 707 aircraft. It is estimated that about 200,000 passengers will fly by our airline during 1962. Publicity, good or bad, really comes from these passengers. It is said that each passenger talks to at least ten others about his flight. In other words, about two million people will talk about us in 1962. For us in Flight Operations, therefore, there is much more at stake than mere profit or loss—the art of flying, a job well done and, above all, a reputation.

K. Vishvanath

17th Annual General Meeting of IATA in Sydney, Australia.

Sir Hudson Fysh, Chairman of Qantas and incoming President of IATA, receives the conference gavel from Mr. Tata, who was acting on behalf of the previous President during the opening session at the 17th annual general meeting of IATA, at the Chevron Hilton Hotel, Sydney.

The Magic Carpet
wishes
All Our Readers
A Merry X'Mas
and
A Prosperous New Year

A PAT AND A PARTY

AIR-INDIA Restaurant on the first floor of T.H.Q. turned into a small Staff-Sabha when 21 employees from our various Departments and Stations met at an informal gathering on the evening of 20th September, 1961.

At the party held in their honour, they got a pat on the back from their immediate superiors and officers of sections in which they work for improving their curricular qualifications.

Before congratulating them on behalf of the Management, on their performance at the examinations held during the academic year 1960-61, the results were read.

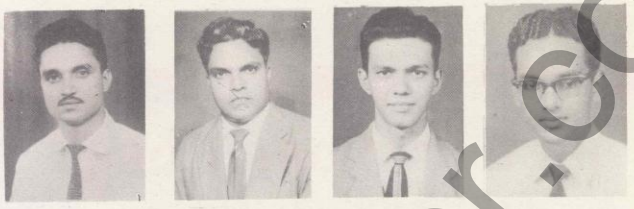
Perhaps the most important of them was a Peon from Calcutta, who had reported his passing the School Final Examination, but unfortunately, could not attend because of his mother's illness. This finalist was missed most.

Introducing the new graduates and diploma holders the Personnel Manager said that when six years ago, permissions were sought by staff to attend educational institutions to qualify for examinations, the Management had laid down certain conditions, which, in the context of today looked somewhat amusing.

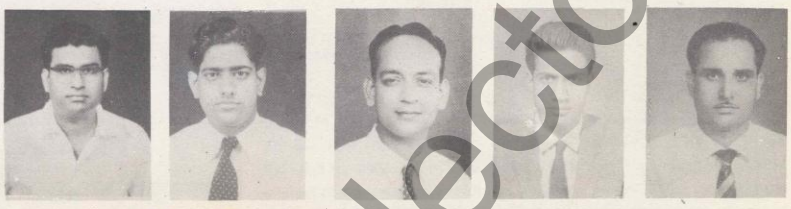
He said it was somewhat surprising that such permissions had not so far caused any inconvenience to the Sectional Heads who had apprehended trouble and they were now better supporters of staff who are anxious to improve their academic qualifications than the Personnel Department.

(*Contd. on page* 8)

DEGREE 1



(L. to R.) **S. V. Pinge**, M.A., Public Relations. **N. R. Kshatriya**, LL. B., Personnel. **H. D. Barucha**, LL.B., Accounts. **V. D. Moorthi**, LL. B., Operations.



(L. to R.) **N. N. Gajaria**, B. Com. Accounts. **K. K. Subramanian**, B. Com., Accounts. **K. Sampath**, B. Com. Accounts. **A. R. Balasubramanian**, B. Sc., Stores. **K. D. Sharma**, B. A. Engineering.

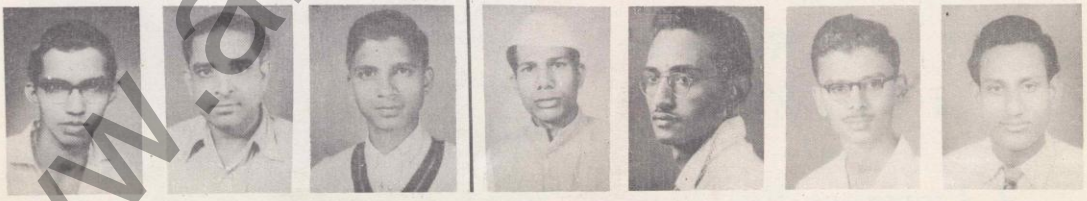
(L. to R.) **M. V. Bichu**, B. A., Stores. **B. A. Mahajan**, B. A., CHQ (Admin.) **S. H. Rege**, B. A., Accounts, **A. H. Shahiwalla**, B.A., Stores. **T. V. Ghurse**, B. A., Stores.

DIPLOMA 2

(L. to R.) **S. S. Sivaram**, (Accountancy), Accounts. **V. C. Patel**, (Accountancy), Accounts.

CERTIFICATE 3

(L. to R.) **S. B. Sawardekar**, (Inter Arts), & **S. M. Kardile**, (Inter Arts), Head Office. **V. L. Gosalia**, (Housing Manager-cum-Community Organisation), Personnel.



(L. to R.) **C. Deans**, (Aeronautical Engg.), Engineering. **S. Guruswamy**, (Business Management), Operations. **A. N. Ghorpade**, (Civil & Architectural Draughtmanship), Operations. **H. N. Khanderao**, (Tailoring Course), Engineering. **B. N. Jawdekar**, (Elem. Exam. in Drawing & Painting), Stores. **V. M. Vaidya**, (Elem. Exam. in Commercial Art), Stores. **D. Daw**, (School Final Exam.), Commercial (Calcutta.)

Photographed before the start of the main Planning Committee Meetings are (left to right) Mr. C. W. Nielson, Director of Commercial Services, QANTAS, Mr. W. Bray, General Planning Manager, BOAC, Mr. B. Bampfylde, General Manager–Eastern Routes, BOAC, and Mr. A. F. Dubash, Planning Controller Air-India.

Tripartite Planners Meet in London

THE Annual Planning Meeting of the pool partner airlines, A.I.I., B.O.A.C. and Qantas, took place in London in November. It lasted for nearly four weeks. During the course of the meeting, the Chief Executives of the three airlines also held three meetings to resolve problems of major policy.

Prior to the commencement of the meeting, considerable amount of statistical work was completed. The results of the current year's working were also reviewed. The estimates of the traffic available during the next year were discussed and jointly agreed. The revenue shares and the capacity responsibilities of individual partners for the year 1962-63 were then determined on the basis of the agreed pool formula. A complete pattern of joint operations was finally evolved to meet the traffic requirements.

The operating plan of Air-India provides for seven services a week India|UK|USA with a reduction in the Transatlantic frequencies to three or four during the winter months; two services India|Tokyo and one service India|Australia via Singapore and Darwin with Jakaria in the northbound direction. The service to Kuwait and a weekly terminating service to Singapore and another to Jakarta via Singapore, will be operated with Comet aircraft on wet lease basis because of unsuitability of Madras and Bangalore airfields. Only one cargo service a week will be operated between the partners with DC-7 aircraft of BOAC on the UK|India sector.

The plans envisage the partner airlines achieving an overall load factor of 56.2% on the routes between UK, India, Hong Kong and Australia. It is however hoped that higher load factors would be achieved.

AIR-INDIA AT INDUSTRIES FAIR IN DELHI

STRIKING and unique is our Pavilion at the Indian Industries Fair in New Delhi.

Designed to serve as a fully equipped Booking Office, having a Reservations and Information Counter with ticketing facilities, especially trained receptionists have been assigned to attend to visitors at the Counter.

The Air-India Pavilion has been designed by Architect Luc Durand. Its parabolic design is most attractively effective after sunset, when it is illuminated with lights.

The Pavilion, covering a ground area of approximately 2,500 square feet, prominently exhibits a unit of Boeing 707 seats alongside a 6-ft. cut-away model of Air-India's Boeing 707 Intercontinental Jet. Informative charts and a rotating photograph stand are also prominently displayed in the Pavilion.

Air-India presented an oil portrait of the late Air Marshal S. Mukherjee to the Indian Air Force on Nov. 7, 1961—the 1st death anniversary of Air-Marshal Mukherjee. Picture shows (l. to r.) Air Marshal A. M. Engineer, Chief of Air Staff, receiving the portrait on behalf of I. A. F. from Mr. T. K. Menon, Manager, Delhi.

Our G. M. Mr. B. R. Patel recently gave a cocktail party at Dorchester Hotel, London. Picture shows (l. to r.) Sir Basil Smallpeice, Managing Director, BOAC; Sir George Edwards, Executive Director, British Aircraft Corporation; the G. M. Mr. C. O. Turner, Chief Executive of Qantas, and Mr. Keith Granville, Chairman of BOAC Associated Companies Ltd.

Ground Job For Former Air Hostess

She was born on Christmas Eve and so they named her Noelle.

Noelle Anklesaria, aged 22, who joined us as Air Hostess in 1959, has now been appointed receptionist in our Park Avenue Office in New York City.

Even before joining Air-India, Noelle had travelled extensively in U.K. and the Continent.

After studying for a commercial course at Westminster College in London, Noelle joined well-known Dancer Ram Gopal and his troupe and toured the Continent for 6 months giving performances in leading world capitals. Noelle is an exponent of Manipuri and folk dancing.

Noelle later attended Poitier University in Vienne, France, where she studied French, which she now speaks fluentiy.

We wish Noelle all success in her new assignmen. on Park Avenue.

INSTALMENT–2

We continue the article entitled "The SST: Next Step to Instant Travel" by George A. W. Boehm, reproduced by permission of the Editor, "Fortune" magazine.

The SST: Next Step to Instant Travel

The task of designing the SST would be much simpler if engineers could draw on experience with a large supersonic military prototype. When they started planning today's jet airliners, they could refer to some 25,000 hours of flight records logged by comparable jet bombers. But to date only one sizable airplane, Convair's B-58 Air Force bomber, has ever flown supersonically, and its longest flight at mach-2 lasted just an hour. The B-58, however, can be useful to the SST program in teaching engineers much about the reliability of structures, navigation, traffic control, and other aspects of high-speed flight.

Man's total flying experience at mach-3 amounts to less than ten minutes accumulated in frantic dashes of the small X-15 rocket-powered plane. To be sure, engineers expect to work out many details of the SST by theory, laboratory experiments, and ground tests. Yet much of the design can hardly be tried and perfected without hundreds of hours of flight at cruising speed.

The designers of the SST cannot count on much help from the mach-3 B-70 intercontinental bomber, which is being developed by North American. Work on the B-70 began four years ago, but since then the contract has been cut back repeatedly—most recently in a budget reduction handed to Congress in April. It now seems conceivable that the SST will be ready before the B-70.

An efficient SST will actually be much more difficult to design than a military plane with the same cruising speed. Almost every detail of a military design is pointed toward a specific mission. It would not matter if a mach-3 bomber were noisy, uncomfortable, and hard to handle at low speed. But the SST must be designed to fit in almost unobstrusively with the rest of civil aviation. It must cruise efficiently at high altitude, yet hold at low speed near the ground. It must be powerful, yet not too noisy. It must be able to land safely and comfortably at commercial airports with whatever navigational aids and traffic controls are available.

NEEDED: A "RUBBER" AIRPLANE

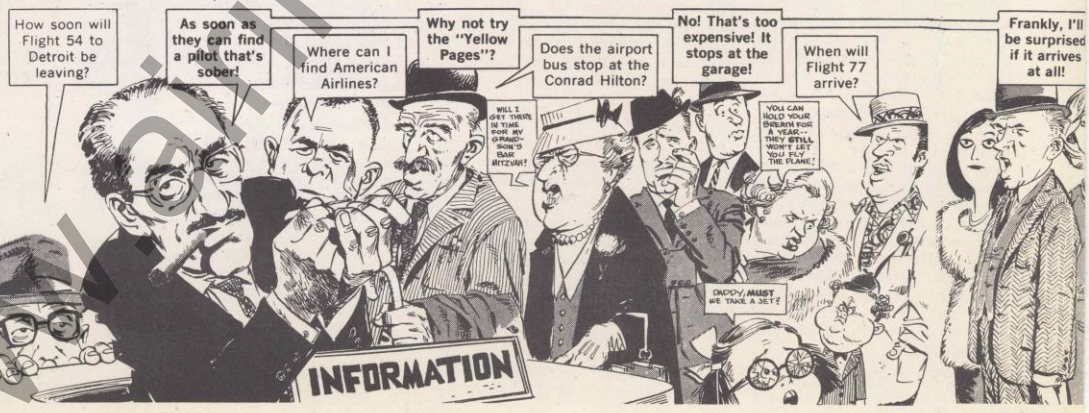
In other words, the SST will have to be two airplanes in one: a projectile-like craft that will plunge through the stratosphere when it is cruising and a sedate subsonic airliner when it lands and takes off. As one engineer despairingly put it: "We'll have to build a 'rubber' airplane."

Satisfying these somewhat conflicting requirements will call for more engineering work than has ever before been devoted to one commercial airplane. Because of the heat and stresses of mach-3 flight, few parts can be "taken from the shelf"; instead, most of the plane will have to be designed from scratch. Moreover, there will be innumerable engineering compromises at every stage. The airframe maker will have to tailor his design to match unknown engines, and at the same time the engine manufacturer will have to fit his engines to an airframe that is constantly undergoing changes. So much give and take will be necessary that not even a bountifully financed crash program could greatly shorten the development of the SST.

Even the shape of the SST will be a compromise. The wings will have to be fairly large and widespread to provide enough lift for take-off and landing. Yet their frontal area must be minimal so that the plane will slice cleanly through the air at cruising speed. The delta wing, with its sharply angled leading edge and large area, is pretty well suited to the whole speed range up to mach-3. Most designers, however, think that they will have to experiment with "variable geometry." That is to say, they want to explore ways in which the plane can be made to change shape in flight so that its aerodynamic characteristics are always suited to the particular speed at which it is travelling. Variable geometry in present-day planes takes the form of extendable wing flaps to increase lift at low speeds and retractable landing gear to

IF "STARS" HAD ORDINARY JOBS—

F'instance, what if GROUCHO had never joined his brothers in a comedy act? He might have



reduce air resistance when a plane is off the ground.

For the SST, however, more radical measures may be needed. One scheme is to hinge the wing tips so that they can be extended for extra lift or folded under for cruising. Another is to telescope the tips and slide them in and out. The most extreme idea is to abandon the delta wing in favor of one that is more or less conventionally shaped but pivoted near the fuselage. At low speed this wing would be pointed almost straight out like the wings of piston-engine aircraft; as the speed rises, it would be swept back more and more sharply. The problem will be to make trustworthy wing-moving machinery.

THE DANGER OF A BROKEN WINDOW

For the first time in aviation history, the construction of the fuselage is going to be as critical as that of a wing. At the cruising altitude of the SST—65,000 to 80,000 feet—atmospheric pressure is so low that the blood literally boils. Of course the cabin of the SST, like those of most transports flying today, will be pressurized so that the passengers can breathe as easily as they could in a mountain city—e.g., Denver. But if, for example, there were to be a break in the fuselage, the sudden drop in pressure might be catastrophic. If a window were to blow out, it might be possible to keep the pressure up to a point where passengers would be able to survive by opening wide the intakes that admit fresh air to the cabin. Passengers could breathe oxygen from masks until the plane descended to a safe altitude. But if the hole were so large that pressure could not be maintained, oxygen masks would do good, for oxygen could not be absorbed by the blood.

One way to eleminate the danger from a blowout would be to bundle up the passengers in pressurized suits. A more practicable step would be to make the windows very small, thus reducing the internal air pressure on each window and also making it easier to keep the cabin safely pressurized in the event of a blowout. Some SST designers advocate eliminating windows altogether. To make up for the loss of the view, it has been suggested that each passenger might be diverted with a television screen mounted on the rear of the seat just ahead of him. Between New York and Los Angeles he would just have time to see a full-length movie.

TIRED METAL

It should be possible to make sturdy wings and fuselages out of either titanium or stainless steel, quite likely in the honeycomb form. Some of the titanium and steel alloys on the market today will probably prove satisfactory. (In fact, Convair has already built more than 300 fighter planes with titanium rear ends.) Both metals retain their strength at temperatures well above 500°. The question is: how long will they stand up under mach-3 flying conditions? Engineers remember only too clearly Britain's Comet I, which in 1952 became the world's first jet airliner. It was involved in a series of disasters that killed eighty passengers. The reason for the Comet's failure was "fatigue." Any metal, when repeatedly flexed, tends to grow weak and suddenly rupture. In the case of the Comet, fatigue weakened areas of the aluminum fuselage around the windows, and the planes simply cracked in half.

No one yet knows how fatigue affects titanium and stainless steel at elevated temperatures. And the only way to find out is to try the metals under simulated flying conditions—i.e., put skin and wing sections in an oven, heat them to the temperatures they will have to endure, and flex them. Since the SST will be intended for a lifetime of some 30,000 flying hours and since there are fewer than 9,000 hours in a year, it will take at least three years of day-and-night testing to duplicate the fatigue stresses to which the metals will be subjected when the plane is actually operative. If fatigue should turn out to be a serious problem with metals, designers might try making some parts of the skin out of bonded glass fibers. Alternatively, a metal fuselage might be used and some airframe sections regularly replaced when the plane is overhauled.

Certain nonmetallic materials will be needed for sealants, lubricants, and hydraulic fluids, and it may be harder to find substances of this sort that can withstand the temperatures likely to build up in various parts of the SST. It may not be possible to use conventional hydrocarbons derived from petroleum. In parts that will grow especially hot, engineers may have to employ ceramics or compounds containing silicon and fluorine.

A plane flying three times as fast as today's jet airliners does not need three times as much engine power; a plane needs thrust mainly to accelerate and climb, not to maintain cruising speed. The 2,000-mile-an-hour plane will accelerate and climb faster than (but not three times as fast as) a subsonic jet. Nevertheless, the SST's engines may be huge and almost twice as powerful as any now in the air. Designers are not yet sure how many engines will be required—four, six, or possibly more, depending on their power and the weight of the plane.

SUPERSONIC ENGINES ALMOST READY

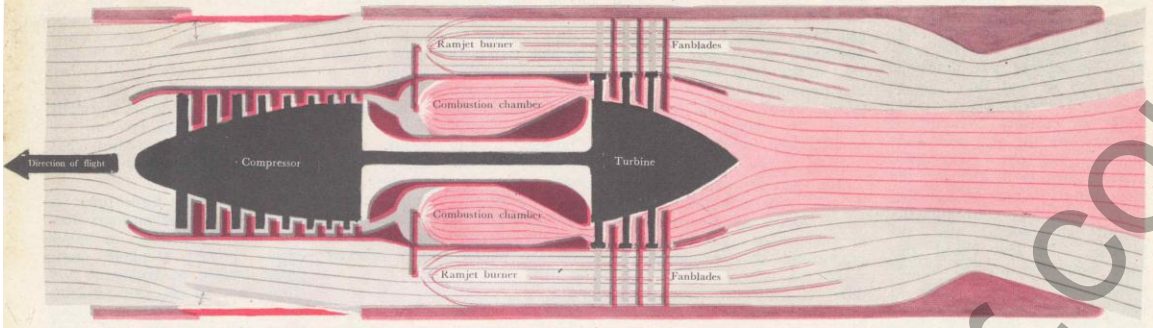
Two likely-looking engines are already almost fully developed: General Electric's J-93, meant for the B-70, and Pratt & Whitney's J-58, which has not been assigned to any specific plane. They are considerably longer than today's airliner engines, and the diameter of their inlet and exhaust tubes can be adjusted, like the retina of a camera, to regulate the flow of air over a wide speed range.

On test stands both have worked well with fuel little different from that now used by the airlines, but their power and efficiency will have to be stepped up somewhat for an SST. The standard military solution would be to add an afterburner, an extra combustion tube on the rear of the engine that extracts the last bit of power from the exhaust gases. But afterburners make a frightful noise. More likely, the engine will be modified by the addition of a huge fan that will surround the combustion chamber (see diagram on page 6). Such fans, now installed on some airliners, increase the thrust by moving a large volume of air. Still more thrust for mach-3 flight could be provided by an additional ramjet combustion chamber, though engineers are not sure this will be needed.

The SST's engines will not be so noisy as their power might suggest. The turbofan is inherently quiet, because the air moved by the fan emerges from the duct at relatively low speed, and the long inlets will to some

(*Continued on Page 6*)

Courtesy: Mad Magazine



Three engines in one is a design concept for propelling planes at speeds above 2,000 miles per hour. The core is a conventional turbojet engine in which air is compressed to burn fuel. The hot jet emerging from the rear provides thrust and also drives a turbine that turns the air compressor. The outside casing is a duct that channels extra air. This air is accelerated by rotating fan blades. Such turbofans are now being installed on some subsonic jets. By moving a relatively large volume of air at moderate speed, they augment the thrust of the turbojet without significantly increasing noise. The third element in the hybrid engine is a ramjet, which operates only at very high speeds. When the plane approaches cruising speed, the fan blades may idle and the entrance to the duct will be opened wide to admit additional air. Then the burners will be lit to heat the air passing through the duct and thus produce still greater thrust.

TREMENDOUS THRUST POWER OF ENGINE

(*Continued from Page 5*)

extent muffle the high-pitched compressor whine that is characteristic of jet engines. Inside the cabin, passengers will be cut off from the roar of the engines by the same insulation that helps keep the cabin cool. For people living in the immediate vicinity of airports, however, the SST is likely to be noisier than today's jet airliners. But because the plane has plenty of power in reserve, it will climb steeply, and there will be comparatively little engine noise a few miles from the runway.

BOOM!

Noise of an entirely different sort, however, may make the SST a nuisance, if not a downright menace. Any plane flying faster than sound releases a blanket of shock waves known as a "sonic boom." Such booms from supersonic fighters have frequently broken windows and cracked plaster in buildings below. In August, 1959, at the dedication of a new Ottawa airport terminal, an F-104 buzzing the ground at supersonic speed smashed virtually all the windows, twisted some steel structural parts, and all together caused about $300,000 of damage to the building it was saluting.

There is a popular misconception that the boom occurs only at the instant when an accelerating plane goes through the sound barrier. Actually, the phenomenon continues as long as the plane is flying supersonically. All along the line of flight it casts a shadow-like blanket of shock waves on the ground. The shadow, moving at supersonic speed over the ground, passes any given point in an instant, and thus sounds like a thunderclap.

The SST will produce a much more intense boom than any plane now flying. This is not because of its great speed; although the boom increases sharply as a plane accelerates from mach-1 to mach-1.3, it gets only slightly louder as speed increases above that level. But the boom's intensity is closely related to the size of the plane, and the SST will be at least twice as large as the next-biggest supersonic aircraft, the B-58.

According to one view, the SST will produce such a deafening boom that all ideas of building it should be abandoned forthwith. Bo Lundberg, a leading Swedish aeronautical engineer, says that if the SST were to be flown, "never before in history would so many have been disturbed so much by so few."

But few aeronautical scientists agree with him. Most of the engineers now working on the SST believe that the lofty cruising altitude of the plane will give the shock waves plenty of room to dissipate, and that people on the ground will hear a noise no more disturbing than the rumble of distant thunder. The solution to the sonic-boom problem, they say, is not to open the plane up at supersonic speeds until it is above 40,000 feet.

The FAA, in cooperation with the Air Force, is now trying to estimate just how much annoyance or damage might be caused by a high-flying SST. In areas over which supersonic fighters and B-58's are flying, scientists are measuring the intensity of the boom with instruments and also recording public complaints of noise. By adjusting the results of their inquiry to allow for the larger size of the SST, they hope to be able to calculate the physical and psychological effects of its boom.

There is some doubt whether the boom of an SST can be accurately predicted from tests of smaller planes. A group of Boeing engineers strongly supports a new theory which holds that the wings of the SST will be a powerful and hitherto unsuspected source of additional shock waves. Ordinarily, it is assumed that shock waves emanating from the under-surface of a plane's wings are relatively weak and can be ignored. But, Boeing engineers explain, the wings of the SST will be slanted upward when the plane is cruising so as to get maximum support from the thin stratospheric air. As they plow through the air, they will expose a broad surface and consequently produce shock waves of their own, which may be even more intense than those that come from the nose of the plane. Some recent tests indicate that the Boeing theory may be at least partially correct. Several Boeing engineers argue, therefore, that no matter how high it flies, the SST can be used only on overwater routes. This restriction would seriously limit the usefulness of the plane, and might make it wholly uneconomical for the airlines. Unless the physical theory of wing shock is definitely established, the sonic-boom question is likely to remain unsettled until the SST—or a comparable plane, like the B-70—actually flies.

UP IN A HURRY

But for the time being most engineers now working on the SST are sticking to the assumption that high altitude will solve the boom problem. They are planning a plane that will climb very steeply after take-off so as to reach as soon as possible the altitude where it can open up at cruising speed.

The tremendous power of its engines will enable the plane to take off from a landing strip no longer than those of today's international airports. Passengers may find all this power thrilling—or terrifying—in the initial stages of flight. They will be thrust firmly against the backs of their seats as the plane starts to climb at an angle of fifteen degrees—almost twice as steeply as a subsonic jet airliner. Within ten minutes or so the SST will reach an altitude of 40,000 feet; then it can accelerate past the speed of sound. About twenty minutes after take-off the plane will have reached cruise, at a speed of mach-3 and an altitude of 65,000 feet. From that point, passengers can relax, for the flight will seem no faster than any other. Riding its own shock waves—as a motorboat rides its bow wave—the SST will continue to climb slowly until it reaches a point about 200 miles from its destination. Then it will head down at an angle of about ten degrees, decelerating to mach-1 and below. It will land less than fifteen minutes later.

(*To be concluded*)

IN THE LAND OF KILTS, KASTLES AND KATTLE

by B. B. Patel

ARRIVING in London cold, wet, late October morning, with the temperature 40°, my hopes for a wonderful vacation were receding — but, not for long. The next evening I found myself on a coach to Edinburgh, chief city of the land of the kilt.

The coach journey from London to Edinburgh takes fifteen hours with appropriate halts on the way, and it is always more exciting than travelling by train —what is more, it costs less.

The very first thing a visitor notices on arriving in Edinburgh is the entire change of atmosphere. People are really friendly with a distinctive sense of humour. Besides, the Scots are renowned for their rich accent.

Edinburgh, the capital of Scotland, is glorious as well as gracious. Its history lives in the Castle, the Palace of Holyrood, and the incomparable Princes Street with its Scott Memorial. In comparison, the Champs Elysees of Paris pales into insignificance as a thoroughfare. One is always conscious of the Castle especially, set in all its majesty high above the town. The Edinburgh International Festival, held in the autumn, is truly 'international' in concept. Yet one is never far away from the most moving of all sights and sounds—the pipes and the drums.

The visitor now moves north to Perth, a distance of 1½ hours by a train which passes over the Forth Bridge, spanning the Firth of Forth. It is over a mile and a half in length, the three main spans consisting of double cantilevers, and at its highest point the bridge is 360 feet above the water. It is, indeed, a marvellous feat of engineering, considering the fact that it was constructed at the end of the nineteenth century.

Perth contrasts acutely with the hustle of Edinburgh. The bridges over the River Tay and the entrance to the river are some of the sights that hold one's attention. Coming back to Edinburgh I had to say 'au revoir' to this land of 'Kilts and Kastles' (if only I knew there were some more waiting for me on the way), yet it will be very difficult to resist the invitation of the Scottish song:

'Will ye no come back again?
Come back ye, Scotland awaits thee.'

A coach ride of about 5 hours brings one down to Newcastle on the way to York, a further travelling time of 4 hours. It was a Sunday morning when I ventured into the streets of this centuries old, historically famous, and beautiful city. The sun was shining brightly and the people cheerfully out walking in their Sunday best. Lovers arm-in-arm and children marching along the castle walls. In fact it was a typical English Sunday morning —as English as the English themselves.

Rising over the top of a hill is the Cliffords Tower (or the ruins of it) where, once upon a time, people were beheaded. Looking inside through the gaps in the walls gives one an eerie feeling of uneasiness. Quite in contrast is the Castle Museum, where relics more than eight centuries old have been preserved. One even finds here the cobbled city streets of an era long forgotten, yet preserved in its writing. Walking along the city walls gives one a panoramic picture of this city of spires, among which the York Minster is outstanding. There is also a railway museum to satisfy the curiosity of enthusiasts of the iron road.

The train journey from York to Cardiff takes 6½ hours, passing through Sheffield Chesterfield and Derby (Midlands) and farther on through Birmingham, Gloucester and Newport. One sees, on the way, miles and miles of the purest green coupled with the golden autumn hues. Again it is a scene of domesticity, signified by the colourful washing fluttering in the breeze, coupled with the serenity of nature as shown by the sheep and cattle grazing peacefully on the verdant pasture. It is a sight one does not readily forget and will yearn to see again.

People in Cardiff are again very friendly and the Welsh accent is very musical, with the rhythm of a waltz. Here one finds genuine warmth of friendship for the stranger, comparable only to the warmth of the fires burning brightly on the hearths on a wintry evening. The writer had an opportunity of enjoying wonderful Welsh hospitality in the home of a kindly Welsh family. Cardiff Castle with its vast grounds, the Welsh National Museum where the history of past greatness is preserved with tender care, and the vast new Empire Games swimming pool are some of the interesting sights.

Boarding a coach to Slough, I passed through Newport, Chepstow and Cheltenham, and further on to Reading. It was very interesting to study the names of the picturesque inns on the way, such as the Cock's Inn, and the Calcutta Inn—the latter confirming the fact that it's a small world.

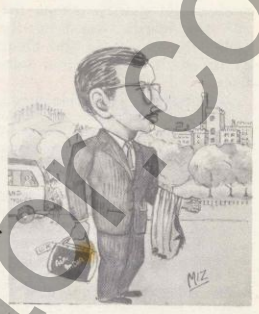
One must not forget one more castle—to wit, Windsor Castle. Its spacious grounds remind one of the grounds surrounding the Palais de Louvre in Paris. The imposing statue of Queen Victoria outside the castle looks down on the multitude of cars and people flowing by, as she surveys the modern architecture of buildings vying with the age old rock foundations of the castle.

Continuing towards Slough, one comes across Eton College, an institute renowned for its traditions, particularly the pedantic attire of the scholars, which distinguishes them from the common herd.

At last my wonderful vacation was over and I had to pinch myself to find out if I really was back in London. Frankly, I still cannot decide whether it was the Kilts, the Kastles or the Kattle that I enjoyed most, but the following words keep on ringing in my ears.

"Waal, laddie..coom doon again. The hills of Scotland await thee and so do the Kastles".

* * *



Mr. B. B. Patel

Our subject recently has been
On furlough from Accounts, — Machine —
Maybe of him you've not heard tell
Despite his name: it is PATEL
With subtle difference you'll agree
For his initials are "B. B."!
Whilst in these Isles, he blazed the trails
By coach, through England, Scotland, Wales
With canny Scot was much impressed
— I do believe he liked them best
The skirl of pipe and beat of drum
Was music to our erstwhile chum —
The Welsh he thought a matey lot
Despite the cunning ways they've got
He even praised their lilting tones
— He hasn't heard our Frederick's moans —
Those English, on the other hand
He thought them snooty, cold and bland
All swathed in protocollic aura
So baffling for the foreign tourer.
Thus, mind refreshed by pastures new
He yearns to share with me and you
His views on kastles, kilts and kattle
Plus chitter chat and tittle tattle.
So, fully genned on Taff and Mac,
Authority on Sassenach,
His idle jottings proudly proffers,
To swell the Magic Carpet's coffers.

—M1Z

Mrs. Nirmala Ramachandran, exponent of Bharata Natyam, and wife of Mr. S. Ramachandran, Madras Office, seen receiving one of the first copies of the book on Bharata Natyam which was recently brought out by the Madras Music Academy, from Mrs. Kamala Devi Chatophadyaya, wellknown poet and art critic.

Vocabulary Key To Jet Age

Shades Of Webster:

You've heard the rhythmical old ditty about ". . . the knee bone connected to the thigh bone, the thigh bone connected to the hip bone . . ."

In this day of jet-age vocabulary, if one attempted to write new lyrics to pertain to a modern jet giant such as the 707, the words would hardly come out as simple and clear as those of the original version:

"The turbojet connected to the engine pod, the engine pod connected to the wing strut, the strut then connected to the aeroelastic wing. . . . Now hear the words of the jet."

Words of this jet-age language have definitions Webster never dreamed of. Out of necessity, jet designers and engineers have had to build a new world of words to go along with the new age of flight. Imagine the difficulty an engineer might have, for example, trying to describe a landing or takeoff if words and phrases such as "spoilers, thrust, leading edge flaps, or water injection" had never been coined.

Hence a special vocabulary for this new era of travel. And herewith is a streamlined dictionary of some of the terms.

Swept Wing—A wing that slants backward from wingroot to wingtip, enabling it to cut the air more easily and approach closer to the speed of sound, while still being thick enough to have the necessary capacity for fuel.

* * *

Mach Number—Describes the relation of the speed of an object to the speed of sound. Mach 1. Thus Mach .90 is 90/100ths the speed of sound. Named for Austrian physicist Ernest Mach.

* * *

Stratosphere—The portion of the atmosphere seven miles above the earth, where atmospheric temperature remains relatively constant.

Troposphere—All the atmosphere below the stratosphere. A wide range of weather is present in the troposphere.

Spoilers—Hinged plates attached to the top of the jet airliner's wing and hydraulically raised and lowered. These plates help bank the plane when raised only on one side, act as brakes when raised on both sides at once. Raising the spoilers in landing places the full weight of the airplane on the wheels so that brakes can be used.

* * *

Pod—The part of a Boeing jet airliner containing the jet engine and accessories, suspended on struts forward and below the wing.

* * *

Shock Waves—Waves formed by the pile-up of air at the point where the air reaches the speed of sound in relation to the airplane. Sometimes these waves are visible on the wing as thin lines of light and dark which parallel the leading edge of the wing.

Thrust—Force produced by a jet engine, expressed in pounds. One pound of thrust equals one horsepower at 375 miles per hour at sea level.

* * *

Jet Engine—A precision engine which produces forward thrust by a reaction of a special mixture of fuel and compressed air against the engine. A toy balloon blown up and released is a rudimentary jet engine.

Courtesy: Boeing News.

A PAT AND A PARTY

(*Contd. from page 2*)

The Sectional Heads who followed in rotation had a word of praise for the boys and seemed more appreciative of the Management's policy in this matter than the boys themselves. Each one of them on the other hand whilst briefly introducing himself and his work explained why they were anxious to improve their qualifications before or after a hard day's work in their respective spheres at the cost of their leisure for which the city provided many temptations.

They were agreed that it was not so much the desire for promotions as for improving their intellectual standard by filling in gaps at the point of their school leaving and the innate quest of knowledge which they felt would widen their outlook and arm them with a new philosophy of life.

Prague's Ruzyne Airport was the venue of a fashion show recently held. A glamourously chic model obligingly poses by our aircraft for the Air-India cameraman.

A-I Crew tops "for friendliness" Says U. S. Journalist

"FOR friendliness, the Air-India plane crews take first prize among those of all the airlines we have travelled on so far on our trip", writes Publisher Robert D. Lusk in his *Daily Plainsman*.

Mr. Lusk and other editors, representing the National Editorial Association, were recently on a study mission. This is one of Mr. Lusk's reports on the conditions editors are finding on their travels.

"To be sure, we had more time to get acquainted with them.

We boarded an Air-India Super Constellation plane at New Delhi bound for Moscow. Air-India plans jet service on this run next year, but it is still prop this year.

The flight took a total of 13 hours plus two on the ground at Tashkent where we went through Russian Customs. After Tashkent, which was reached in a five-hour flight out of India and over the rugged Himalaya foothills in Pakistan and Afghanistan, many of the passengers had left and the plane was only about half full. It was then that things got real informal. It was like old times in the 30s on Hanford and Mid-Continent Airlines in South Dakota.

The crew came back and visited with the passengers. I was invited up to the cockpit to watch the sun setting straight ahead as we nosed west toward Moscow.

When the evening meal had been served, the crew showed us how to take the partitions from between the seats, so we could lie down, cover up with blankets and blankets and sleep.

There were a number of Russians on the plane, but, as usual, they didn't mingle with the others. Also, when in Russia there is a tendency among the outsiders, from wherever, to cling a bit to one another. So we got well acquainted with the Indian, English-speaking crew and the stewardess who was quitting her job in a month to marry and go to Akron, Ohio, to live.

Intourist assigned us to the Hotel Ukraine and as we were checking in, we were happy to see the whole Air-India crew arrive there also.

They stayed until late the next evening when they took off on their return trip to India. Meantime, we had "old friends" in Moscow—and that is comforting.

We shook hands all around as they left for their plane and everyone wished everyone else happy journeys."

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