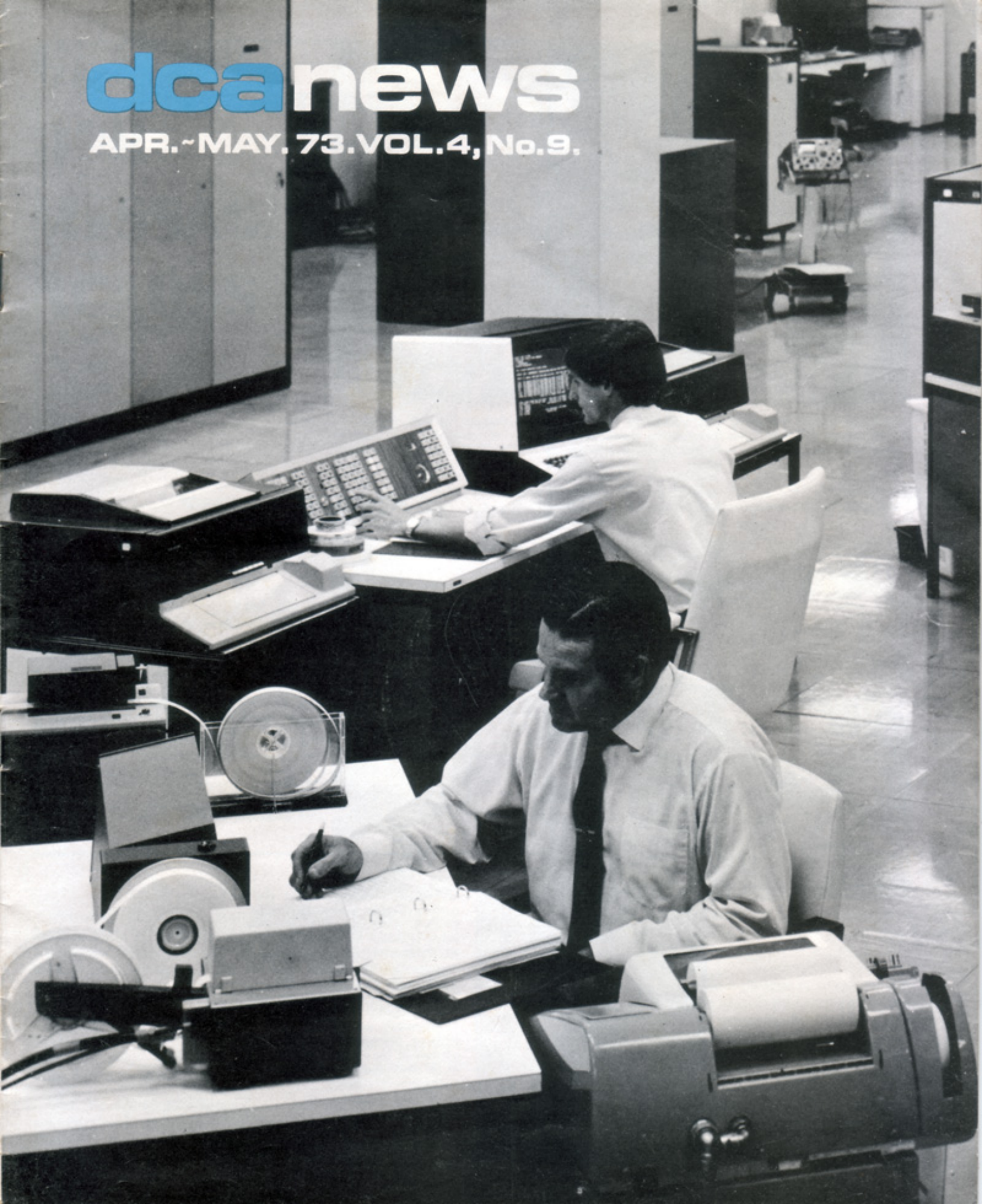
dcanews

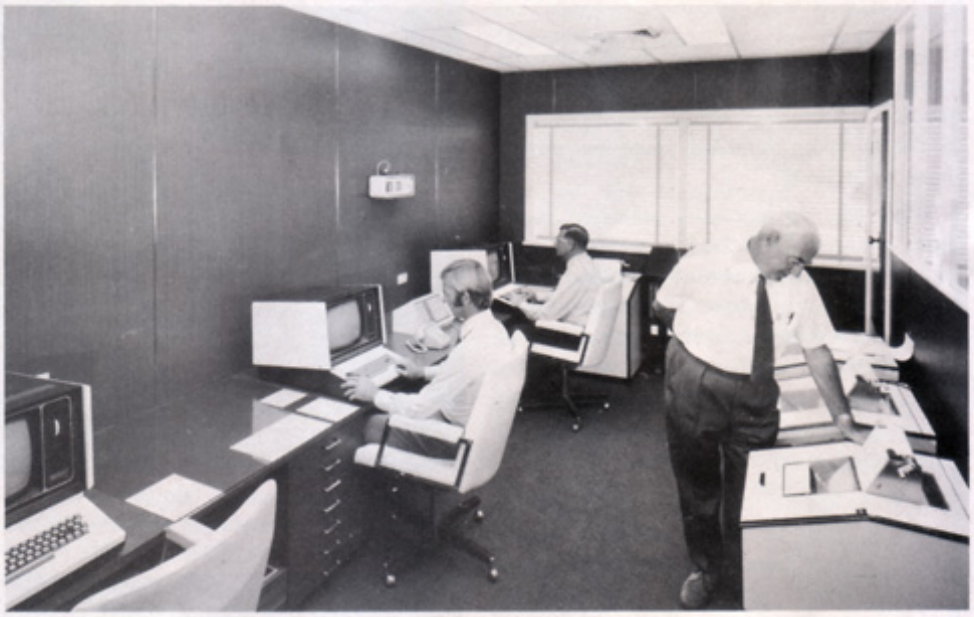
APR.~MAY. 73. VOL. 4, No. 9.



GETTING OUR MESSAGE ACROSS

Above: The old manually-operated message switching centre at Sydney Airport which was superseded on 5 April by the computerised automatic message switching centre. The present Watch Supervisor, Mr Jack Williams, saw the opening of this facility, then regarded as the 'last word' in teletype equipment, in 1954.

Below: The heart of the new automatic centre—the System Control Office. From left are Ben Engeman (Assistant System Controller), Frank Liddell (System Controller), and Brian Pyett (Watch Supervisor).



...In The Jet Age

For much of the past year there has been a room at Sydney Airport's new Operations Building which has differed sharply from all the rest.

Most areas in this building—which is rapidly assuming its role as the Department's busiest operations centre—are relatively quiet, and great pains have been taken to ensure that.

But this one room was noisy. It was crammed with more than 130 Siemens automatic teleprinter machines—and all stuttering away at top speed.

A few doors away was the Department's latest and most sophisticated piece of electronic equipment—a Ferranti Automatic Message Switching Centre—which was feeding messages to the machines at the rate of 14,000 per hour.

The Siemens teleprinters were used as 'test beds' in the Message Switching Centre's acceptance tests. Each teleprinter represented a separate DCA station.

The recent commissioning of the computer-based automatic message switching centre at Sydney puts DCA on the threshold of a new era in communications.

The Ferranti system is based on the latest 'state of the art' techniques and the Sydney centre is the first of three computerised message switching units to be commissioned. The others are being installed at Brisbane and Melbourne.

The three centres, with a total of seven computers, represent the first large scale application of computers for communications by DCA.

The major centres will be linked at a later date to the FLASH automatic equipments (see DCA News, Sept.-Oct. 1971) at smaller centres around Australia. DCA will then be able to control the flow of vital aeronautical information on a national basis.

Why is this complex and expensive equipment necessary? The answer is: because DCA handled more than seven million messages in 1970-71, and this number is growing each year. Such enormous traffic volumes are approaching the capacity of the manually operated message centres. Also, the speed of message transmission through the old centres is too slow for modern day communications.

The messages themselves, handled by the Department's aeronautical fixed telecommunications network, are vital to efficient and safe aircraft movement. Each aircraft arrival and departure at a major airport generates a spate of incoming and outgoing teleprinter messages—flight plans, departure advice, notams, weather forecasts—seven million each year.

As the number of aircraft movements increase, and as aircraft themselves become faster, the speed and reliability of the message detailing their movement must keep pace.

With the old manually operated ' torn tape ' system, DCA had to contend with an interrelated pattern of overload problems at various centres: too many messages, with limited control priorities, at the one time.

The new computer-based systems—the most advanced AFTN systems in the world—offer:-—

- a capacity of 22 000 messages an hour or half a million a day—four times our present requirement, and sufficient for requirements well into the foreseeable future.
- television type message input using keyboard displays. The operator is able to format the message and check and correct its content on the display screen before putting it into the system. Operators can also ' call up ' formats held on disc which enable them to prepare and correct messages quickly and efficiently.

Above: At the first trials of the system's Keyboard Display Unit in England in 1970 are, from left, Mr Pat Leehy (Senior Flight Service Supervisor), Mr Bill Maloney (Principal Engineer) and Mr Brian O'Grady (Senior Programmer).

Before commissioning, the system was ' de-bugged ' using a mock-up of controllers' positions (above) which fed messages into 130 teleprinters (below) at the rate of 14,000 per hour. The fault-free operation of the system since commissioning is largely due to this thorough testing.

- a facility which automatically 'interrupts' messages for those of a higher priority.

- automatic fault detection. Check routines and test messages are circulated continuously throughout the system at regular intervals.

- the inherent capability to handle high level aeronautical data capable of interpretation by airborne computers—air traffic control of the future.

Each centre itself comprises two Argus 500 computers—one to act as the 'master', the other as 'standby'. Only the 'master' transmits, but the 'standby' keeps in step, transaction by transaction, via a high speed link, and it automatically 'takes over' from the 'master', should this become necessary. This complete duplication of the system ensures the utmost reliability.

As well as operational and administrative traffic, the system is designed to handle bulk data traffic centered on the Department's large-scale data processing computer in Melbourne. This system provides a wide range of services to DCA and the aviation industry. These range from updating of flight crew licence records and distribution of operational documents, to updating the Department's telephone directory. To enable these services to be expanded, data collection outlets are being provided on the Ferranti system, for the transfer of bulk data to and from the computer in Melbourne.

This data facility is provided by the Ferranti system in such a way that it is given a lower priority than operational traffic. Hence it does not result in message delays but uses the excess capacity in the system.●