

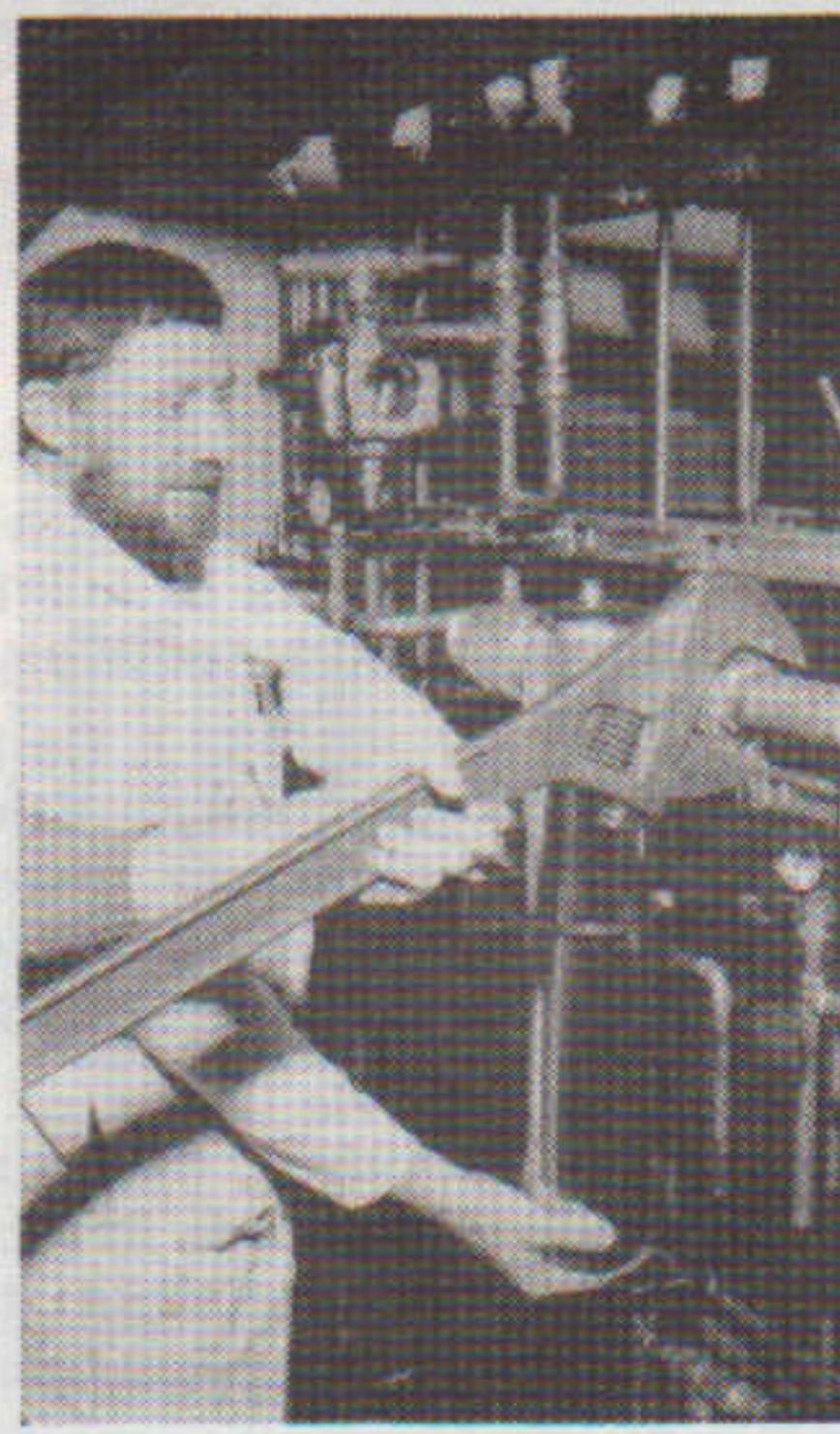
CHELMSFORD

NEWS AND VIEWS

Marconi
Radar Systems

ISSUE No 19

December 1986



INSIDE
Knick-knacks
in the palm
of their hands
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Golden Gate
to sweet
California
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WE ARE THE CHAMPIONS

Double glory for Marconi Radar

WHAT a triumph! For the first time in the history of the GEC National Young Employees Competition, one company has walked off with both the overall and the all-female team trophies. And that company is Marconi Radar.

The men beat 95 other teams to become the outright winners; the women not only won the all-female final, but at 38th, were higher in the overall placings than any other all-female team.

Make no mistake, this competition is not all beer and skittles. Industry does not sponsor events of this magnitude without good reason. The competitors are stretched almost to breaking point; enormous demands are made on their physical and mental stamina, their ingenuity and their ability to perform not just as outstanding individuals but as members of a team. The sort of people who measure up to these demands are the sort of people that industry can make use of!

Training for the competition is as tough or as soft as the team managers choose to make it. Peter Tickner and Andrea Peters saw to it that the Marconi Radar people had it tough: none went into the contest better prepared. The time and facilities made available for training is up to the company management, which, in Marconi



The triumphant teams with their managers, helpers and reserves. Front row, 1 to r. Rosemary Lewis, Tracy Belsham, Andrea Peters, Paula Bygrave, Kathryn Martin and Jane Farrance. Back row, 1 to r. Andrew Bundy, Andrew Ford, Richard Stiles, Mark Stenhouse, Peter Tickner, Gareth Jones, Martin Call and Aston Everett. The trophies were presented by Admiral Sir Lindsay Bryson KCB, chairman of Marconi Underwater Systems.

Radar, was right behind the teams. Now that the occasion is over and won, we are able to clad the bare bones, which were all it has been possible to report on in previous issues of *News and Views*.

In the first place, owing to a hold-up on the Severn Bridge, the teams and their supporters very nearly missed the mid-day drop-dead time for registering at the Royal Welsh Show Ground in Builth Wells.

It was then a matter of pitching almost immediately into the first activity — naviteering, which is a combination of navigation and orienteering. Using a map of the Forest of Tirabad, and finding 24 markers of varying degrees of difficulty, both teams scored maximum points. Finishing their first day on a high, they made their way to the Lakeside

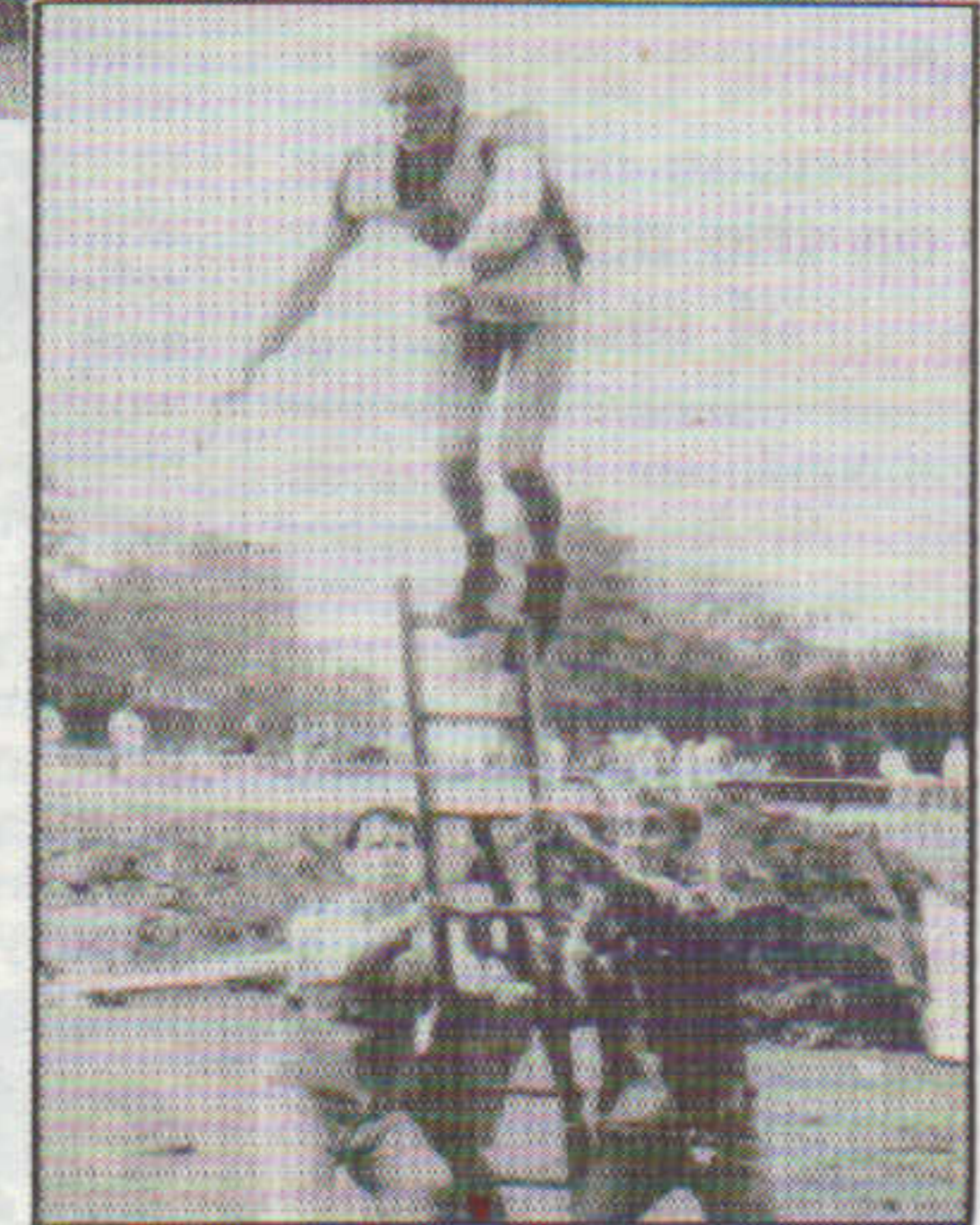
Caravan Park at Longorse, which was to be their home for the duration.

There was no hanging about on Saturday; up at 5.30 on a misty morning, breakfast at 6.15 and the first of a series of water-based activities at 7.30.

The tasks ranged from making and sailing a raft and retrieving buoys to crossing 'no go' areas, where one's feet must not touch even 'pretend' water, to shooting alien invaders. In this section, the men had greater success than the women, whose hearts sank with their bodies as they fell into the water at least three times and twice out of a wheelbarrow as they attempted to cross a river via a bridge that they'd constructed.

In the afternoon, after a rushed, badly-digested lunch on board a coach,

• continued on page 6



Having negotiated the 'no go' areas of a mine field, the teams had to get themselves and their equipment over a series of 'electric' fences without touching either the ground or the fence. Mark Stenhouse on the ladder, Gareth Jones on the left, Aston Everett on the right and partly concealed Richard Stiles picked up full marks on this exercise.

David Chenery



takes over as MD

DAVID CHENERY has returned to Marconi — where he began his business career — as managing director of Marconi Radar.

He succeeds Keith Chittenden who, after five years at Writtle Road, has been appointed marketing director of The Marconi Company, based at Stanmore.

On leaving Hull University in 1962, David Chenery joined Marconi Communication Systems in Chelmsford as an engineer, working on hf radio and tropospheric scatter communication systems before moving into marketing in 1968.

In 1971 he joined Racal Communications Limited and was appointed export director in 1974. He was promoted to commercial director in 1978 and was deeply involved in communication EW systems business over the next few years.

In 1980 he was appointed deputy managing director of Racal Communications and in 1983 he became managing director at Bracknell.

David Chenery paid tribute to his predecessor Keith Chittenden and, in wishing him good luck in his new role as marketing director at The Marconi Company headquarters, felt sure that Keith would continue to have a close interest in Marconi Radar's affairs.

David Chenery, 45, is married with two daughters and at present lives in Henley-on-Thames.



Barry Ellingham

Appointed Commercial Director

RICHARD BARRY ELLINGHAM, Marconi Radar's recently appointed commercial director, started his career in 1960 when he joined Pye Telecommunications in Cambridge. During his 16 years with the firm, he became involved in many aspects of business, including work study, estimating, contracts, accounts, etc. He finally became contracts advisor, dealing with the negotiation of contracts and legal agreements.

In 1970, he joined Marconi Space and Defence Systems in Portsmouth as divisional contracts manager,

responsible for agreeing prices and contracts with home and overseas buyers of military communications and torpedoes.

In 1977, Barry transferred to the company's Stanmore base as site contracts manager, covering electronic warfare, guided weapons and satellite ground terminals.

He returned to Portsmouth in 1980, this time as commercial manager, in which capacity he was responsible for contracts and purchasing relating to military com-

munications and satellite manufacture.

Following the division of Marconi Space and Defence Systems into four separate companies, Barry was appointed commercial director of the newly-formed Marconi Space Systems — a position he held until joining Marconi Radar.

His outside interests do not make too many physical demands. Apart from walking his daughter's Labrador while she is at university, he is content to read and listen to music.

OBITUARY

Sir Neil Sutherland



SIR (Frederick) Neil Sutherland, who died on November 4 aged 86, was a former chairman of The Marconi Company and an outstanding figure in the electronics world. He was a man of remarkable business acumen and scientific vision.

Marconi Radar has good reason to honour his memory. At the end of the Second World War it was widely believed that there would be little use for radar in peacetime. But Sir Neil, who became general manager of Marconi in 1948, proved the pundits to be wrong by selling civil and military radar systems to more than 50 countries.

In the 1950s, he was responsible for a giant project that covered the whole of the United Kingdom with a primary air defence radar system. It was the basis of our early-warning system against air attack and remained secret for 10 years.

During his 21 years at the helm, Marconi widened its activities to include complete systems for communications, radar, avionics, sound and television broadcasting, and it became a leading manufacturer of computers, microelectronics and specialized components.

Sir Neil served in the First World War as a pilot in the Royal Naval Air Service, then went up to Cambridge to read engineering.

In 1922, he joined the English Electric Company, working his apprenticeship on the shop floor, as there was no graduate entry in those days.

Three years later, he was posted to South America, where he eventually became chief engineer and general manager in Brazil.

In 1936, he transferred to South Africa as managing director of English Electric (South Africa).

His appointment to Marconi's Wireless Telegraph Company came two years after the company had joined English Electric. In 1958 he became managing director, and deputy chairman in 1962.

In 1965 he was appointed chairman of The Marconi Company and Marconi Instruments, and became a director of English Electric. He retired in 1969.

Sir Neil's first wife, Naruna d'Amorim, died in 1970, and his second wife, Gladys — widely known as 'Coopie' — died earlier this year. He is survived by his son from his first marriage.

480 years service with Marconi

ON November 28 1986 12 employees of MRSL each celebrated 40 years long service with the company, receiving cheques and certificates from David Chenery, managing director (standing centre).

Those honoured were: Peter Crossley, Section 285, team leader; Ronald E Doubleday, Section 498, TID security controller and chief of planning progress; Peter J Eves, Section 322, principal quality engineer; Nigel G Gower, Section 112, progress controller; Malcolm R Ketley, Section 308, senior designer; Peter W Oliver, Section 104, assistant chief estimator; John W Reeve, Section 076, senior planning engineer; Leslie F Saunders, Section 105, change control supervisor; James A Stewart, Section 236, assistant quality authority; John Richard Tonks, Section 481, foreman; Raymond C Willis, Section 260, project manager; John A C Woollard, Section 108, PCB artwork inspection supervisor.



ABCDEFGHIJKLMNOPQRSTUVWXYZ

O is for OTH (Over the Horizon)

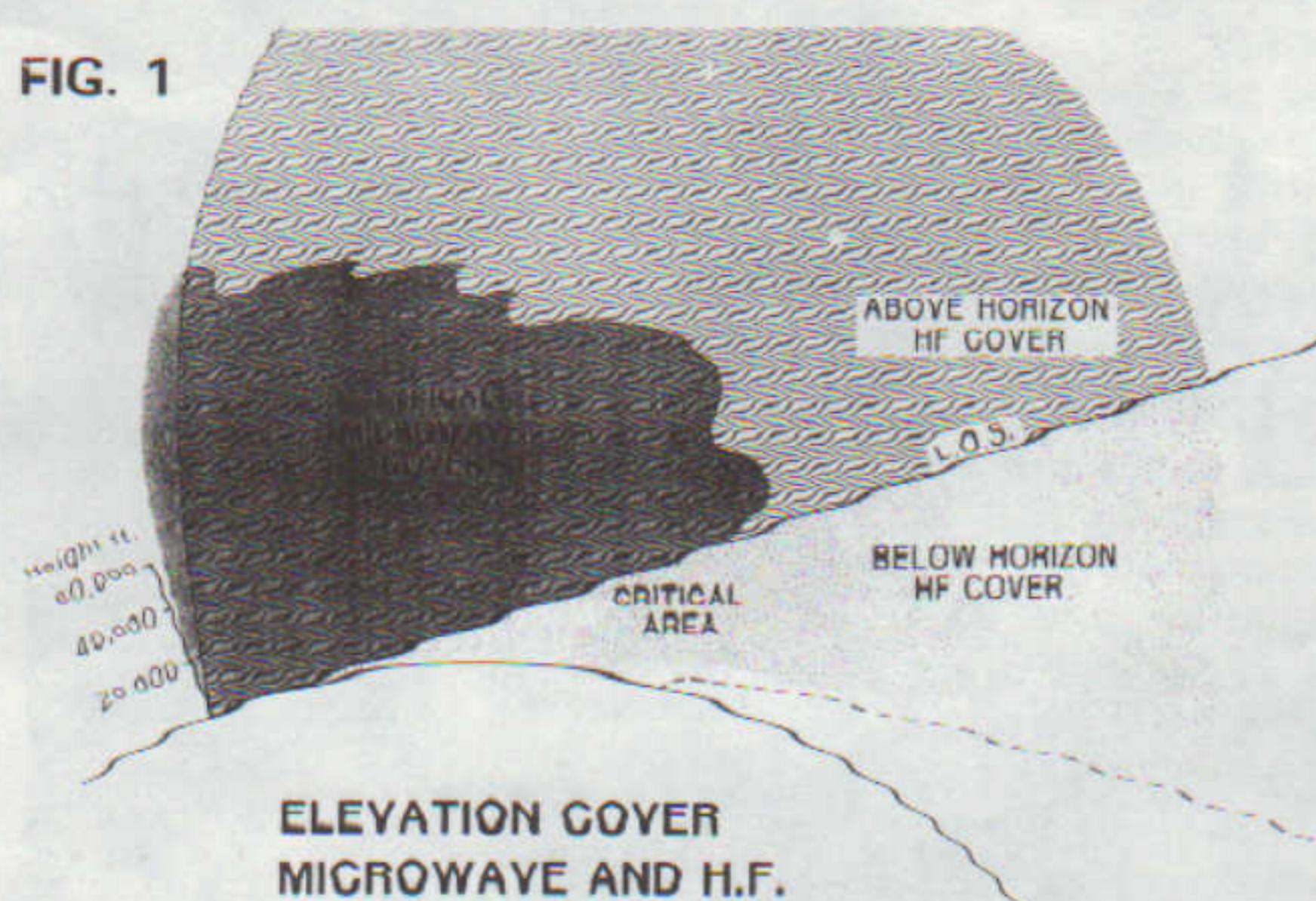
TWO facts of nature, that the surface of the earth is curved and that radio waves travel through space in straight lines, together limit the range of conventional radar to the line-of-sight to its target. Thus, targets such as high-flying aircraft can be seen by normal ground-based radars for several hundreds of miles but those at very low altitudes are invisible beyond the horizon — Fig 1.

A partial solution to the problem is to extend the effective horizon by elevating the radar as much as possible; likely methods include selection of high natural sites (e.g. cliff-tops, mountains), and the use of towers. More expensive and complicated means may be provided by aircraft and balloons but these have obvious disadvantages for continuous operation. In all the cases mentioned it is, of course, necessary to ensure that the radar is 'low-looking' (letter 'L' in this series) by appropriate choice of wavelength in relation to height above ground.

Now, although radio waves travelling in free space follow straight lines, it has been found possible, under controlled conditions, to launch them close to a conducting surface in such a way that they follow the contours of that surface. Salt water is a fair conductor and it has been found that a suitably polarized transmitting antenna, erected close to a beach, can send out radio waves which in effect cling to the surface of the sea and continue well beyond the horizon. Such waves, on meeting a ship or low-flying aircraft, are reflected back again and can be detected by a similar antenna.

Extensive trials with special radars using this principle have

FIG. 1



COLIN LATHAM continues his series on the alphabet of radar

been conducted by our company in the last few years, and there is now no doubt that such a system is viable as part of a total defence network. Excellent detections of low-level targets have been achieved far beyond the range of microwave radars.

I refer to microwaves deliberately because the essential phenomenon of 'sticking to the surface' demands a radio wavelength of some tens of metres, or frequencies well below 30 megahertz. Thus our OTH radar has to operate in what are normally communication wavebands, with resultant problems of frequency allocation and interference.

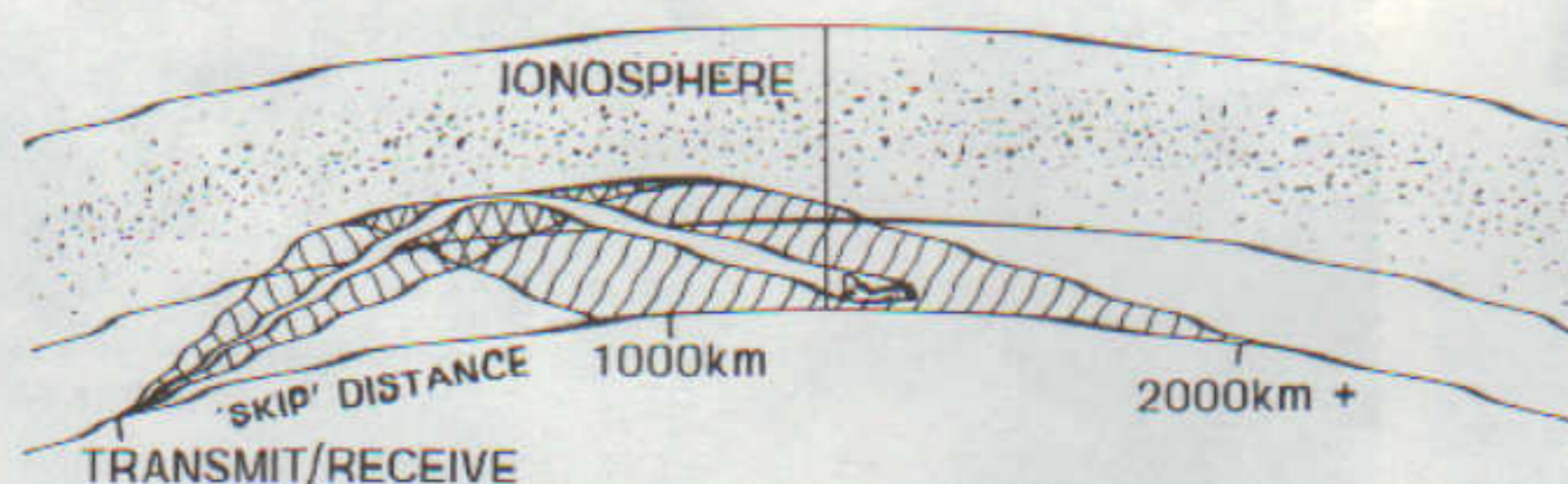
Noise, too, can be a problem, and here I am not referring to the inherent receiver noise that I mentioned under letter 'N' but to all sorts of external noise that can be picked up on these metric wavebands. The problems of

interference and noise are made even more severe by the willingness of such radio waves to travel very long distances around the earth by successive reflections between ground and ionosphere (in other words, normal long-range, short-wave transmission). This means that an OTH radar with a working range of, say, 100 miles, may have to contend with interference and noise from sources many thousands of miles away!

However, the picture is not entirely black, because recent

SKY WAVE BACK-SCATTER OTH

FIG. 2



advances in signal processing techniques make it much easier to sort out wanted and useful signals from masses of useless scrabble. For this solution to be applied successfully to OTH, computers are required with speeds and powers that were unthinkable only a few years ago. Such is the rate of advance in these fields that we can look with confidence to the increasing effectiveness and use of OTH in the future.

Many techniques are involved, including specially adapted communications transmitters and receivers, special communication-like antennas, fast signal processing and automatic channel selection. For all of this our company is particularly suited. We have not only our own OTH department in Marconi

Radar but also the backing of the Marconi Research Centre at Baddow and Marconi Communication Systems in Chelmsford.

This article describes what is known as a 'surface wave' radar because the transmitted wavefront 'clings' to the sea surface. Another form of OTH radar uses reflections from the ionosphere and is known as 'sky-wave' — Fig 2. This technique permits very long-range detection but suffers from huge range gaps due to the 'skip' distance, i.e. the distance from the transmitter to the area where the energy is returned to earth via the ionosphere. While this technique has other applications, it is of no value in filling the low-level range gap just over the horizon.

ON THE MOVE

THIS autumn's moves notified to the PR department are mainly at the top.

Following Keith Chittenden's new appointment at Stanmore, David Chenery takes control of Marconi Radar, and Barry Ellingham is appointed commercial director. More details and biographies of these two senior changes are published elsewhere in this issue.

At Gateshead, following the departure of Chris Matthews,

Bill Henderson has been appointed general manager with David Morrison as works manager and Steve Turner as manager Gateshead Division, both reporting to Bill Henderson.

In Data Systems Division, Peter Bain has been appointed manager of the Systems Engineering Department. He has appointed two new section leaders to join Geoff Brown; they are Garry Minors and

Steve Lello. Garry Minors also takes up the post of MATSI project manager and four new project posts have been created: Tim Twineham, software; Alistair Hill, hardware; Kevin Bishop, systems; and Richard Wilsher, management support. In the Software Engineering Department two new senior consultants have been appointed, Brian Hamling and John Coster.

Training in Naval Division

has been rationalised and the responsibility is shared three ways. Malcolm Austin will, in addition to his other tasks, look after all development engineering staff; Liz Arnold will take care of software training, as she already does for Airspace and Data Systems Divisions; and Keith Coleman will have training responsibility for all other Naval Division staff, in addition to his bid management tasks.

CALIFORNIA

By **BRIAN DYNEVOR**

'LOOK AT that sky — let's stop and watch the sun go down from the beach.'

Instant agreement from my companions. It had been a long day and the drive to the hotel — although not far — was just that bit too much for the moment.

Exit sign and a sharp right turn took us down to the beach. The sand stretched out before us for miles cushioning the road between Imperial Beach and Coronado from the rigours of the Pacific — which at that moment didn't have the strength to lick a fingertip. Every few yards — or so it seemed — were signs reading 'No Parking Here' with arrows pointing to the car park.

With no sign of life anywhere, and disregarding all the notices, I turned off the road and drove onto the beach.

Embarrassing. Within seconds a booming tannoy jerked me out of my seat. 'Do not park there — get back onto the road. The parking area is ahead of you'.

— where much of it still happens — and in case anyone forgets that, 20 foot letters high in the hills above Los Angeles remind you. Drives down Sunset and Santa Monica Boulevards, noise, palm trees and humanity; a nose into Beverley Hills and Mulholland Drive — to see where household names used to live and still occasionally do — are a must.

Of course, the homes are merely piles of expensive bricks, the stars flesh and blood — but blasé feelings don't get much of a look in at Grauman's (now Mann's) Chinese Theatre. (Does anyone else immediately couple 'Crossman and Paulin' every time they hear the name Mann? A long defunct brewer, as I recall — must have had a good advertising campaign because I don't think I ever had one of their points.) Anyway, back to the Chinese Theatre — to the hand and footprints.

Well, they're all there of course. Jolson and Swanson; The Marx Brothers and Bette Davis; Fred and Ginger; Joanne Woodward and Paul Newman (she demure in high heels — he without shoes and socks); a cast of Durante's nose. Clint Eastwood wrote 'You made my day' only two years ago which, if nothing else, proves he had to work and be successful before enjoying the dubious accolade of getting concrete under his nails.

We all have our favourites — the poignant signature of Judy Garland, imperishably Dorothy to three generations now. The imperious signature of Frank Sinatra who's never sung a bum note in his life — the only singer in Benny Green's 'first division'. And Humphrey Bogart. Cocking a snook at his screen reputation he wrote 'Sid, may you never die till I kill you'. Alistair Cooke has said of Bogart: 'I found him an original quite unlike any other human being I have ever known...' (I came to Casablanca for the waters: 'Mr Rick, zero are no waters in Casablanca?' 'I was misinformed!') Bogart is as potent now, 30 years after his death, as he ever was.

Evocations of movie ghosts are shattered at Universal Studios. Very much a working studio where many of the TV shows we see are filmed, all sense of mystery and wonder rapidly disappears on the guided tour. Film making is a business like any other — we all know that — and it is difficult not to be impressed at the cleverness of how the images we see on the screen got there.

But give me the finished product any time. Though I always knew it, I don't actually want to see the bike, with ET in the handlebar basket, a youngster in the saddle, set in front of a huge back projection screen. Much rather the vision of Elliott and ET flying over the LA suburbs. Having JAWS bare his teeth alongside one's 'train' gave rise to more giggles than shrieks — perhaps we're now all too familiar with great white sharks.

Suddenly though, the imagination was back in gear. A sight of the house built for Hitchcock's *Psycho*, quite alone with nothing within 20 yards, sent a chill through the bones: which probably confirms my preference for the finished product rather than knowledge of the artefact that goes into its making. Interesting.

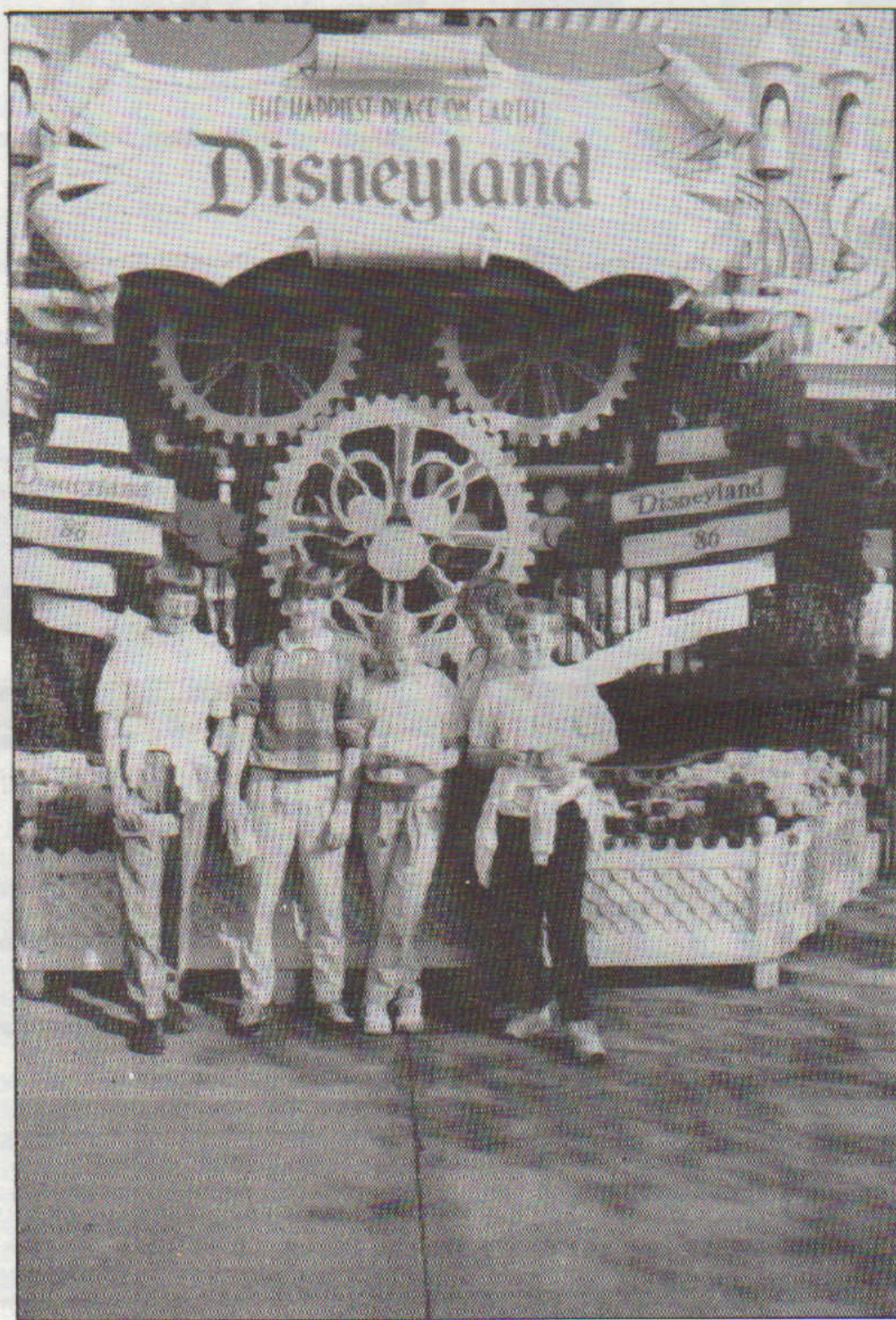
Walt's wonder

With four teenagers in the party, *Disneyland* was impossible to avoid — and Marilyn and I would have gone anyway. There's nothing really new to say about it. All you've heard is true — and your legs ache.

Much copied by the rash of 'Wonderlands' and theme parks, *Disneyland* remains the original and the best. A very reasonable entrance fee allows you to choose between upwards of 100 things to do.

If the occasional presentation is a touch sentimental here, slightly flashy there, it is more than compensated for remarkably 'heart in mouth' rides and side shows; imaginative futuristic attractions using amazing technology; a perfectionist attention to detail and a practised — but no less welcome — courtesy that used to be

BELOW: The entrance to Disneyland — Mark, Alaric, Paul (possibly), Marilyn and hamburger king James, looking forward to the experience.



Opening score

A quick look over my shoulder to find the lifeguard in a pick-up. An Omar Sharif fan perhaps — he'd come from nowhere. I waved compliance, cheeks burning. Putting the van into reverse, I tried to drive back onto the road. I tried, and tried. No dice: so jumped down to discover the back wheels stuck fast in the powdery sand.

I made a face at the lifeguard. He said — humour in his voice — that the Ranger would be back in half an hour and would tow us out.

It was a great sunset: we had ample time to observe it. Took about an hour — by which time we'd begun counting the stars against a pitch black sky. A passing motorist in a pick-up got us out eventually without much effort. As we shook hands, the Ranger appeared. A further gentle admonishment and a 'have a nice vacation' as I drove off into the darkness. I guess those signs meant what they said. The boys started keeping score that night — I won three-one eventually — but more of that later.

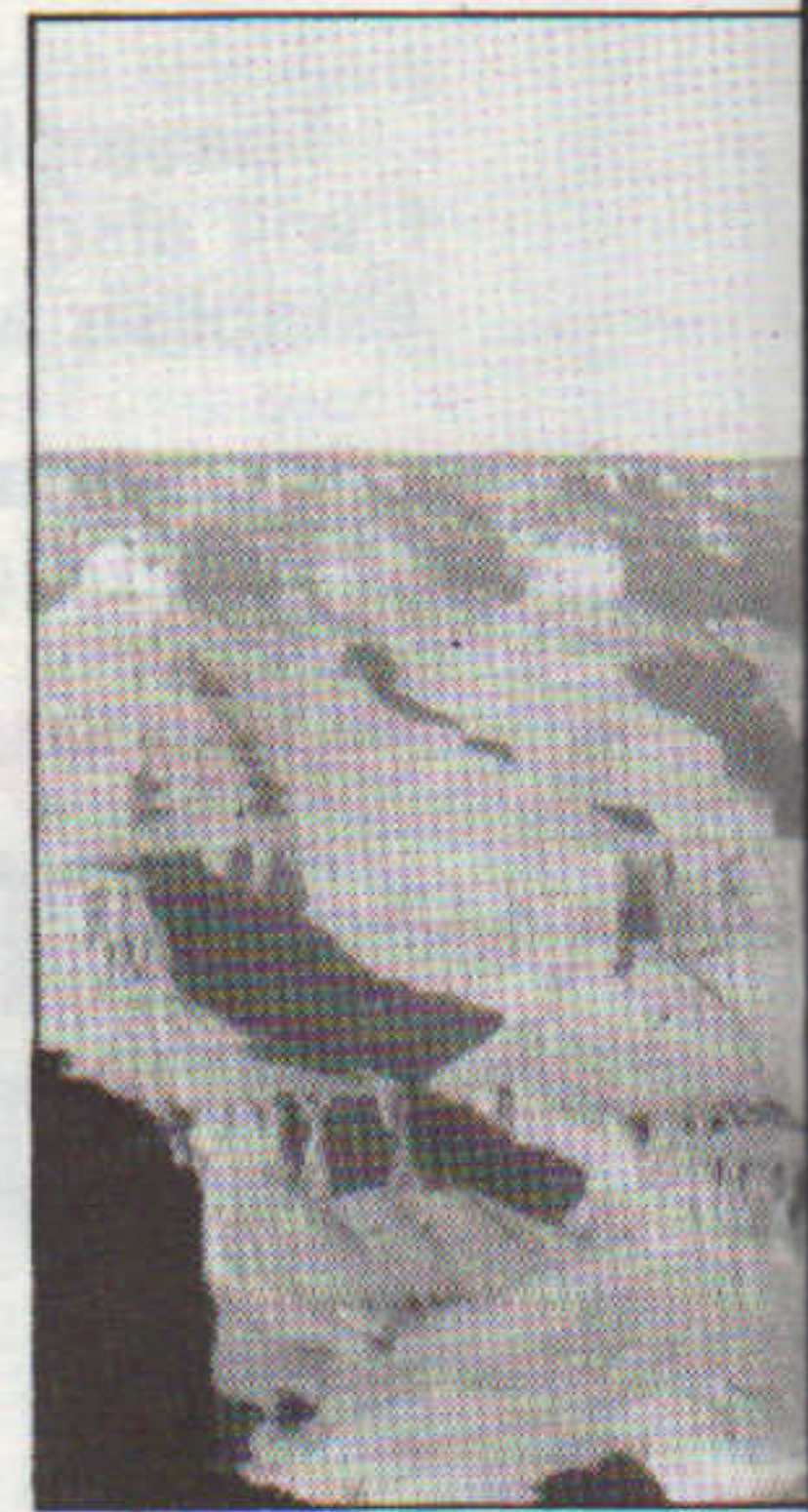
That was a few days into what Amex called the 'California Experience' a fly-drive concoction that took the traveller from San Diego to San Francisco, route-mapped with hotels at various points. Wife Marilyn, her three boys Mark, Paul and James, my son Alaric and I had arrived in Los Angeles a few days earlier. We were already seasoned US travellers — seasoned by blow-out breakfasts, strong purgative coffee, red eyes and aching limbs as we crammed all that we could into our sixteen days' stay.

Canton concrete

These days the film industry is a bit like a roving reporter — no fixed base but continuing to create magic wherever the chaps with the ideas can find the guys with the loot. But Hollywood is where it all began



JAWS — eyeing some savoury mortals, er morsels.



The Grand Canyon from the 'Olde Worlde'. There's too — but corn, like beauty, of the beholder — and this quite won over.

The 300,000

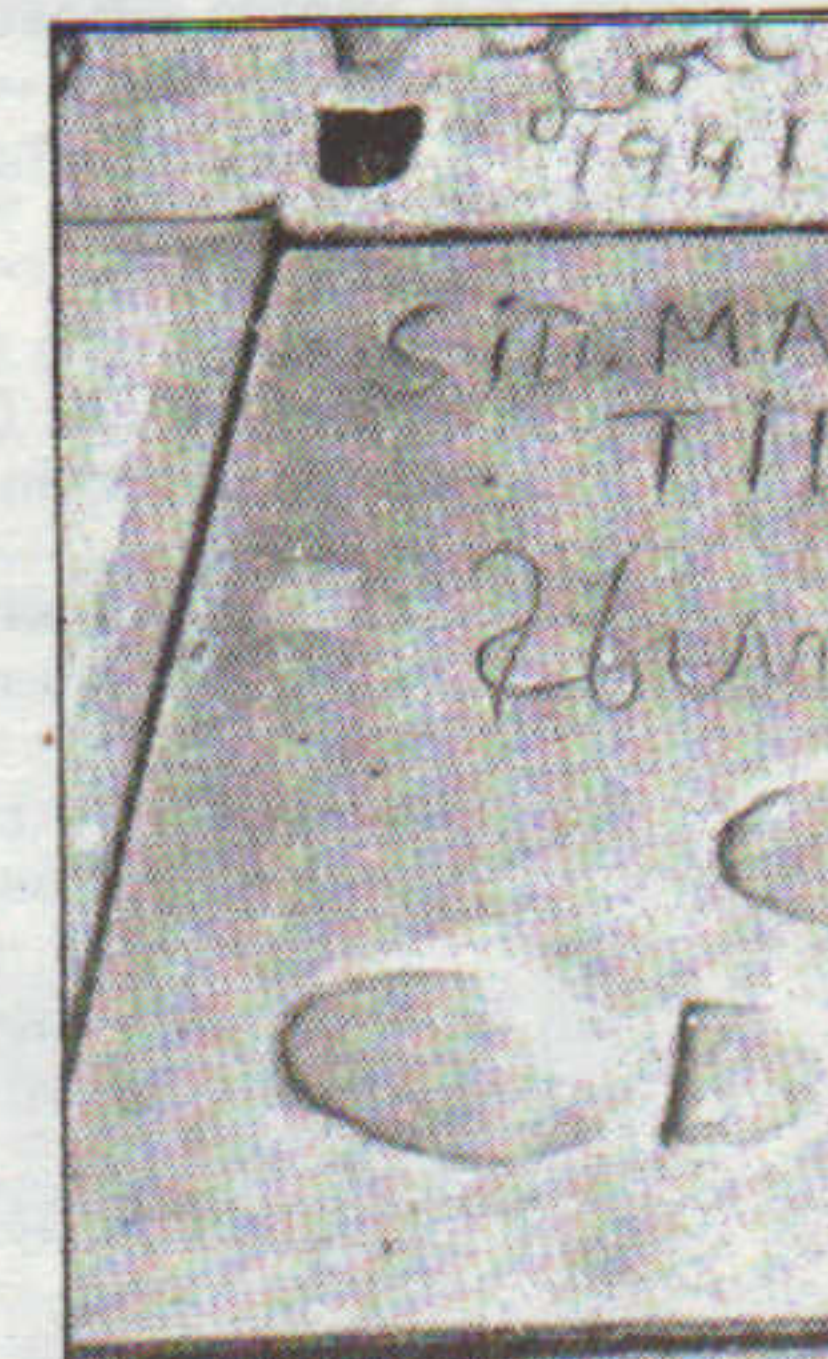
Much sucking of the nails back in the 60s when the new *Queen Mary* had been sent to the beach. After all she was the Britain's nautical heritage, a pile of 1930s art deco and the skills of the 300,000 men and women who built her hand in her construction. Citizens of Long Beach must much pride in her as every

The great liner, veteran of the Pacific crossings, the *Gray Ghost* years when Hitler's U-Boats sink her (but never even sighted) maculately preserved in a warehouse as a tourist attraction and hotel.

So cleverly has she been neither of her dual roles into other. The sightseer is able to look from top to bottom — from the deck to the engine room — to bridge — every aspect as it must have been when she set her maiden voyage. Dotted in the museum are displays and photographs of famous who sailed in her. Her time as a ship is also well documented with ample of what it must have been one of the 750,000 troops transported.

As for the hotel guests, the cabins are perfect — a time with discreet additions sent. (I was particularly pleased yet another piece of absolute formation. The guide book says 81,000 ton leviathan travelled one gallon of fuel. Still, kudos power.)

Literally a stone's throw from the geodesic dome houses Howard Hughes' *Spruce Goose*. The bashful wooden aircraft — the largest ever built — only flew once, for a military becoming part of aviation history. *Spruce Goose* would have required 100 troops or eight helicopters with a wingspan of 320ft dwarfs



The impressions made —

SWEET



the south rim.

s corn there is in the eye sceptic was

ational teeth s broke that old to Long epitome of prime exam- onment to who had a Well, the have had as ne else. 1001 Atlan- of the war s sought to d her) is im- dock — as l. n adapted, udes on the inspect her engine room gleaming as e made her table places of the rich cabins lov- a troopship realistic ex- been like to s she trans-

the 1st-class tarp back 50 from the pre- sored to learn y useless in- ways that the d 13 feet on knowledge is away, a vast rd Hughes' billionairc's st ever built nute, before istory. But, arried 750 rs and its 747. Still,

Hughes never stopped trying, and although he had no more luck when he became milliner to Jane Russell, his bizarre life is the stuff of legends.

Endangered species

Staying at Chula Vista a couple of days gave us the chance to explore *Sea World* and San Diego Zoo. A zoo is pretty much a zoo wherever one goes and to those who feel that wild animals have no place in cages or paddocks — or enclosed ranges — San Diego has a ready reply. It must be one of the best laid-out zoos in the world. While exploiting (in the best sense) humans' curiosity about animals they'd probably never see in the wild, it is obvious that the care, research and conservation programmes San Diego has spawned must be as comprehensive as any. Among other things, a 1979 zoological study suggested that 600,000 species of animals and plants could be extinct by the year 2000 and scientists at the zoo run thorough educational programmes to get the message across how endangered many species are.

Again, *Sea World* couples research and conservation with entertainment and education. The killer whales — indeed fierce hunters in the wild — have, like dolphins, a very complex social system; are highly intelligent, and — seemingly — have a real affection for the people they work with.

For me though, the most fascinating part of *Sea World* wasn't the whales or dolphins — or even the mock Antarctic environment where over 2000 penguins live in the conditions they would in the southern oceans. The sharks definitely have it. A huge glass tank enables you to watch their incessant movements back and forth — sleek, silent, deadly. We all spent a long time watching — fascinated.

Then, a night on 500-mile drive east to Phoenix. We'd decided to change our itinerary a bit and have a look at the Grand Canyon, so opted for a couple of days out of California.

Sprawls a lot Phoenix and, thinking we were lost after driving mile after mile through the suburbs, I pulled off into an office car park and drove straight over a

concrete 'berm' comprehensively splitting a tyre. Talk about an Englishman abroad — none of us could figure out the van's jack, the wheelnuts were on too tight — but a couple of phone calls, a breakdown van and we were on our way in an hour. The irony was that we weren't lost at all — within five minutes of getting going again, we were at the hotel. Two-nil to me.

Marilyn scores

Driving to the Canyon the next day we decided to lunch in Flagstaff. Marilyn was driving and as she pulled to the right to turn into the restaurant car park Mark, her eldest son, said 'Mum, you've just cut a white car up'. Pause. 'Mum, the white car is a police car'. Pause. 'Mum, he is following us in'. Well, he was six foot plus, with a howitzer on his hip.

Seeing the British driving licence, he politely asked what the procedure for turning off the road is in England. 'Look in the rear mirror, wing mirror, indicate and pull over if clear' says Marilyn. 'Same as here' he said — all the while filling out a ticket.

A dent in the budget I thought as he finished writing. Smiling, he handed the ticket to Marilyn telling her to either tear it up or keep it as a souvenir. 'Take care now'. She still has it of course, but I'm not allowed to use it in evidence. Two-one to me.

The Grand Canyon is quite indescribable — by me anyway. Photographs don't do it justice either. Its vastness — mile deep and nine miles across where we were — 200 miles long: the quite stunning beauty of its walls as they change colour with the rise and fall of the sun; its weird rock formations — no, go and see it if you ever get the chance — and listen to the quiet.

I felt at home there though — there's an S511 just five miles down the road.

Then from Phoenix to Modesto in northern California — a little matter of 750 miles across the Arizona and California deserts. Lots of cactus and Joshua trees and scrub — a forbidding but not unattractive landscape for mile after mile, hour after hour. We stopped at a place called Wilkieup — general store, restaurant and gas station — miles from anywhere. Snake on the menu and searing 94° heat (in late October).

Five thousand feet up in the Cathedral Range 90 miles east of Modesto, Yosemite — thanks to the great photographer Ansell Adams — is one of America's most familiar national parks. Over a period of 40-odd years Adams photographed Yosemite in all weathers at all times of the year — so though we'd never been there before it was as if we had.

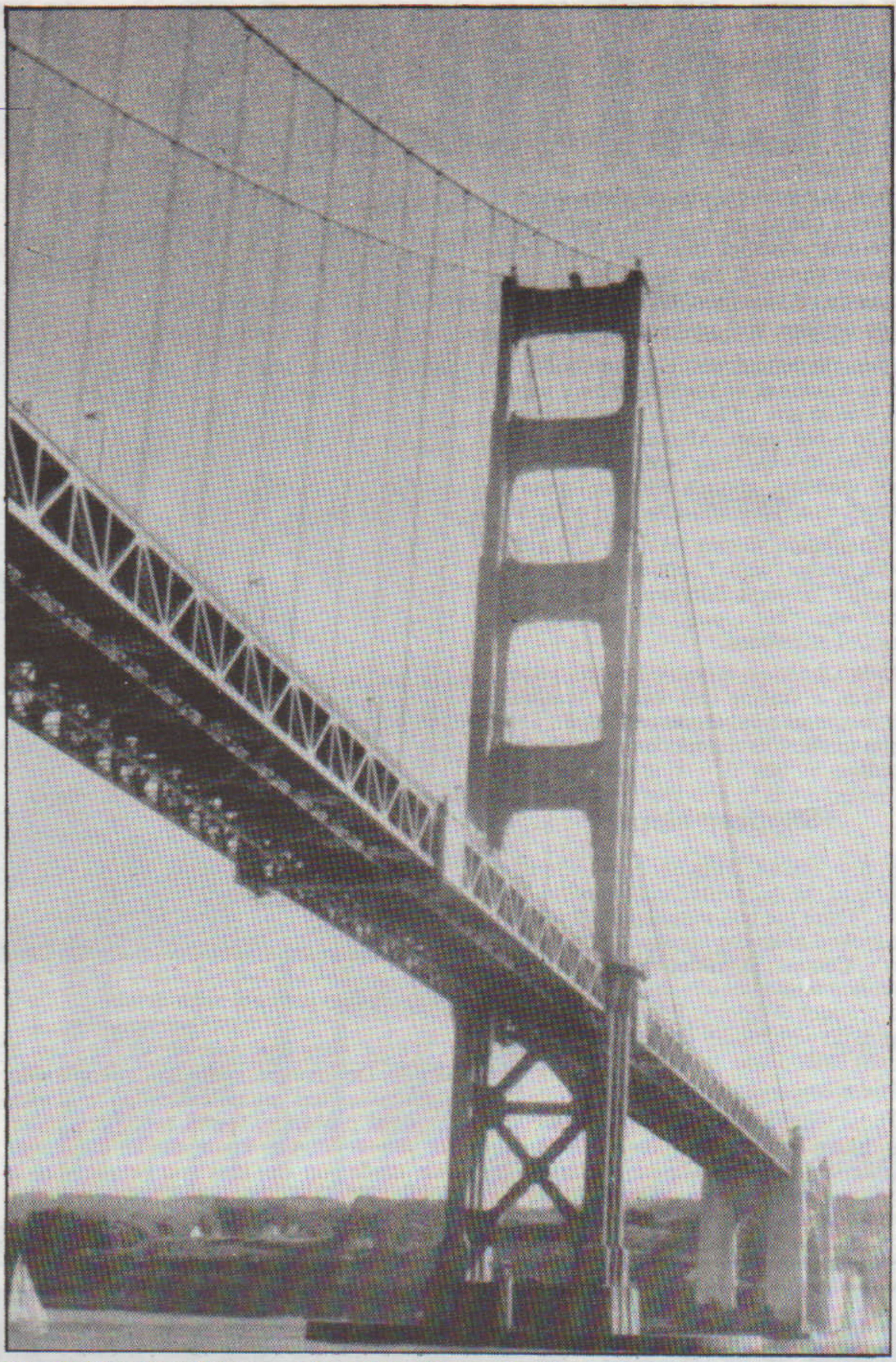
A tortuously winding mountain road — with quite enough hairpins, thanks — brings you into a lush 'Alpine' meadow traversed by the Merced River. At the far end of the valley, Yosemite village nestles under the 2000 foot sheer drop rock face of El Capitan and is the starting place for the adventurous who may walk, ride, climb, or ski over hundreds of square miles of beauty. Or like us, you could sit taking in the solitude, the hot sun and watch for wild life among the pines and California black oaks, leaves flamed in autumn colours.

Like the Grand Canyon, Yosemite is a place to spend a few days — not just the few hours which was all we had — and a trip to northern California must allow time to visit this breathtaking region.

Not far from Livermore on Route 580 the juxtaposition of the broad Sacramento and San Joaquin valleys forms a funnel between the mountain ranges, through which blows an almost perpetual wind. 'It's an ill wind...' for this constant airstream is harnessed by thousands of windmills — giant propellers, as far as the eye can see, looking like refugees from the pages of H.G. Wells. It's a very strange sight.

The City

We made 'the City' — as the natives call San Francisco — (they shudder at 'Frisco') on a glorious sunny afternoon coming in from Berkeley over the Oakland Bay



The Golden Gate Bridge — 'the prima donna of millions of amateur photographs.'

Bridge, at 8¼ miles one of the world's longest. 'Everyone's favorite city' say the car stickers — it's easy to see why.

Returning after more than 20 years I was reassured to find it hadn't changed that much except for some new skyscrapers. It still has 40 hills overlooking a stunningly beautiful harbour; still boasts thousands of crazy, colourful houses leaning sideways into gradients of one in 10; the cable cars still clank and screech up and down; nowhere will you eat better clam chowder. And the Golden Gate bridge still guards the harbour aloof, serene — the prima donna of millions of amateur photographs.

Cocooned in the benignity of San Francisco, the real world recedes — but the harshest reminder is just one-and-a-half miles away from Fisherman's Wharf. The 12-acre sandstone rock of Alcatraz Island — home for 30 years to America's most hardened criminals — is a national park and tourist attraction these days. But much of the place is as it was when the last prisoners left in 1963 and B and C blocks lack only the inhabitants. D block — the punishment block (various thoughts occur) is chilling. Here, recalcitrant inmates were often locked up for 24 hours in total darkness where they had to develop their 'straight-shot' technique for the 'nature' hole in the floor.

In all, Alcatraz only ever housed 250-300 inmates at a time (serving an average of eight years) and only 1500-odd were imprisoned there. But the roll-call of names — Al Capone, 'Machine Gun' Kelly, Robert Stroud (the 'Birdman' — who wasn't allowed to keep even one bird in Alcatraz whatever Hollywood suggests) — to name three, give the flavour of the 'household' names too hot for other prisons to hold.

Some side trips to the Monterey Peninsula south of the city — where the boys hoped to have their day made by meeting Carmel's new mayor but cheerfully settled for lunch at *The Hog's Breath*, Eastwood's restaurant; a drive into the car park at Pebble Beach Golf Club for which we were definitely not dressed to the 'manner required'; and standing dwarfed by the giant 250-foot redwoods north of the Golden Gate; all leave vivid memories — particularly the drive back from Carmel. That's when I made it three-one to me — pulled up by a San Jose policewoman as we hurried back to San Francisco. A gentle wiggling for 'lane-wandering' and that

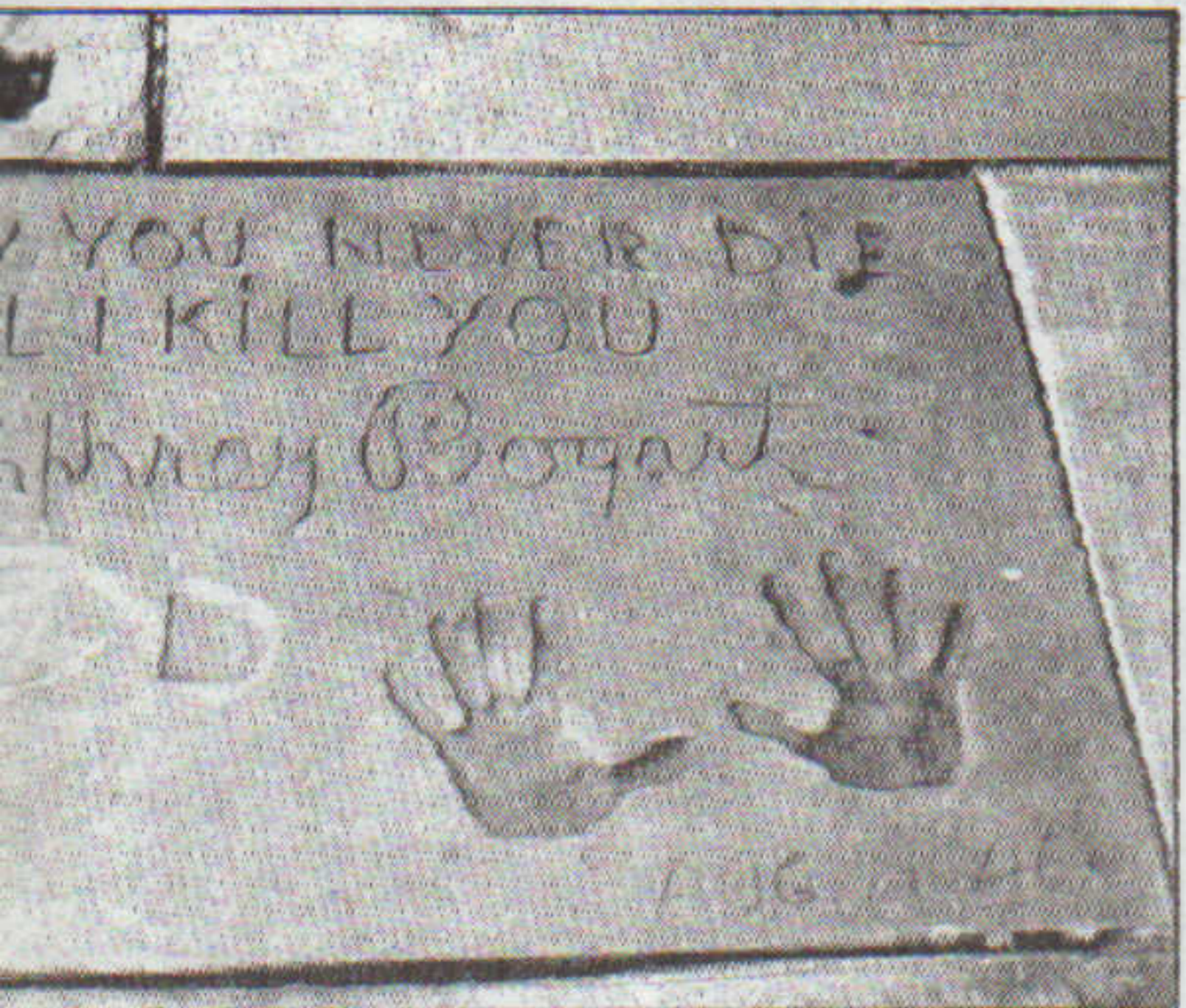
was that — the boys however insisting on recording all for posterity.

Of course, 16 days anywhere hardly allows for anything but impressions of a place. California has left many. It's big — 900 miles north to south — almost 400 at its widest. Crammed in (but not, there's so much room) are deserts, mountains, valleys, palm trees and pine trees — and miles and miles of sandy beaches — and where they aren't sandy, they're photographically rocky. The Pacific seems blue all the time (we had unbroken sunshine on every day but one) and it crashes ashore almost everywhere.

Even allowing that most people with whom we came into contact were in the tourist trade, the unremitting friendliness we experienced suggests that the *Olde Worlde* courtesy we were once famous for, went west with the pioneers. Poking fun at the 'have a nice day' rejoinder to practically everything we did, is churlish. Sincere or not, it's a lot better than a pinched mouth and a glassy stare. The 'English' interest was much in evidence. Many times we were asked what London was like; what we thought of California — and if being taken for Australians a couple of times said more for our allegiance to West Ham United than it did for their ear for accents, it also showed Californian's real interest in what our lives were like.

The affluence (we sank into a deep pile carpet in a small town pharmacy) and cleanliness (attendants, awaiting every crumb and armed with long-handled dustpans, are never more than six feet away at *Disneyland*) are all around you. Protection of the environment is a serious issue — taken seriously, from lead-free petrol to swingeing fines for littering the highway — suggesting that Californians are appreciative of their luck in living where they do. If James, the youngest, managed to eat hamburgers at each of the 40-odd meals (save two) we had, that's not to knock the food. It's cheap, varied — and there's lots of it.

'Holiday of a lifetime' — hackneyed expression, but that's exactly what it was. The jewel? San Francisco. Even if I forgot to photograph a cable car (ensuring I have an excuse to go back) the aplomb of the City's attitude to life summed up by a notice in a store window, says it all: 'In the future you may achieve everything you have always desired — then again, you may not.'



but never the films.

HEATHER'S IN THE MONEY

'YOU'LL never go out of your mind if you keep changing it.' That's a piece of homespun wisdom that has been passed down through the ages. If it's true, the sanity of Heather Bellamy, Marconi Radar cashier, will never be in question.

When she left school, Heather started to train as a nurse at St John's but, very regretfully, had to give up for health reasons after two-and-a-half years. After a while, she joined the family's building business, where she coped valiantly, though with no sense of vocation, as a typist and a handler of money.

'I finally left, vowing I'd never get involved with money again. I applied for a job with Marconi's Wireless Telegraph Company, as it then was. "No typing, no working with money," I stipulated.

'I was sent to an asbestos building, which had been a skating rink before Marconi's took it over as a valve and test depot. I was employed there as a clerk, looking after the records.'

Slippery slope

In due course, Heather was offered a transfer to the Accounts Department in New Street. There she was attached to the section that looked after the accounts of the company's Central Division, which provided spares and after-sales services for all the Marconi product divisions. 'I dealt with everything to do with money except actually handling the cash: I was already on the slippery slope!

'Those were the good old days: juniors did your filing, and if you worked well, the managers would show their appreciation by throwing a party or taking you out on the town for an evening. No one drove much, so



there was no problem with drinking.

'Those were the days when we had a Welfare Department, staffed with people who visited you when you were ill, helped you with personal problems, found accommodation for you — oh, you know, did all the things that made you feel that you belonged to a family. I'd have liked to join them, and I think my nursing experience would have

come in handy, but the Accounts Department wouldn't let me go.

'Talking of nursing, it's a funny thing, I can cope with any human sickness, but not with sick animals. I'm too fond of them, I suppose. That might seem to say something about my attitude to people, which could be misleading. I enjoy people enormously.'

Just over 20 years ago, there was a general

shake-up in the organization of the Accounts Department. Instead of occupying a central office in New Street, each member of the staff was sent to join the division for whose accounts he or she had been responsible. For Heather, this meant moving to Waterhouse Lane, where Central Division was based. It was at this point that she reneged totally on her vow never to handle money again.

'I took on cashiering as well as accounting, and look where it's led me: I'm surrounded with money! I've been with Marconi Radar since 1971. At first I worked on accounts, but that was only an interim step to tide me over until the cashier retired and I took over.

Balanced

'And now I'm on the verge of retirement myself — and dreading it. I've been wonderfully happy at Marconi's; it's been my life for 31 years. It fills my days from the time I start at 7.30 each morning until I get home to Woodham Mortimer in the evening. That's often quite late. The shutters come down here at 4 o'clock, but that's when my real work starts. I stay on until I've balanced the books, which show incomings and outgoings that can run into thousands of pounds a day.

'Although I work on my own, it's been a far from lonely life. I know pretty well everyone on site, and I'm afraid I'm going to miss them all sorely, especially, perhaps, Ivor Bendall and John Cottee with whom I've shared an office for so many years.'

So what of the future? Heather is determined to find another job, and if there's an interval to be filled she will doubtless indulge her passion for being on, in or near water, and her love of walking, accompanied by her much-loved dog, Duchess.

DOUBLE CHAMPIONS

● continued from page 1

the teams tackled the initiative exercises: build a scaffold bridge to span 20ft; make a rope bridge between two trees; retrieve a cannister while practising Arctic survival; yank golf balls out of a swinging bucket while you're clinging to a pole (tote that barge, lift that bale!) . . . is there no end to the torture? This time, the women amassed more points than the men.

By the time Sunday dawned, both teams were in high fettle and raring to launch themselves into the multi-activities. The eight 30-minute events included riding BMX bicycles over an obstacle course, short orienteering exercises, making a rope ladder using 12 different sorts of knot, tackling a physical obstacle course and carrying out mental exercises.

In the finals, for which both teams qualified and which took place on Sunday afternoon, the women had to make a ladder from scaffolding, cross two 'no go' areas, climb a menacing 12ft 8in wall, drag the scaffolding over the top, dismantle it the other side and, believe it or not, plaster a ceiling! The men in their final had a few more obstacles to overcome than the women. The results we know: total and glorious victory.

Peter Tickner reckons that one of the factors that helped the teams to reach the top was the party they threw each evening in the Lakeside Caravan Park restaurant. There they let down

their back hair, dressed up, played the fool and shook out all the tensions of the day.

None of the other 94 teams followed their example, and, far from relaxing, as the Marconi Radar contingent did, they became even more wound up than they already were, wondering what was going on.

And who are the men and women who so ably represented the company. In the men's corner, Aston Everett, accelerated mechanical apprentice, Airspace Control Division; Gareth Jones, final-year electronics engineering student, Loughborough University; Mark Stenhouse, accelerated mechanical apprentice, Inspection Department; Richard Stiles, Field Services Division and Andrew Ford (reserve), second-year business technician.

In the women's corner, Tracy Belsham, final-year electronic engineering student, Bristol University; Paula Bygrave, second-year H.Tec mechanical student, Purchasing Department; Kathryn Martin, second-year business studies student, Coventry Polytechnic (currently in Personnel and Training Department); Rosemary Lewis, first-year business studies student, Bath University and Jane Farrance (reserve), secretary to technical operations manager.

Apart from the two team managers, the teams were supported in Wales by David Candy, assistant commercial



director; Tom Smith, training manager, and his wife; Adrian Aphorp, electronic engineering student, Brunel University; Andrew Bundy, graphic designer in Public Relations Department, who acted as driver and photographer, and Martin Call, electronic engineering technician, who was reserve team manager.

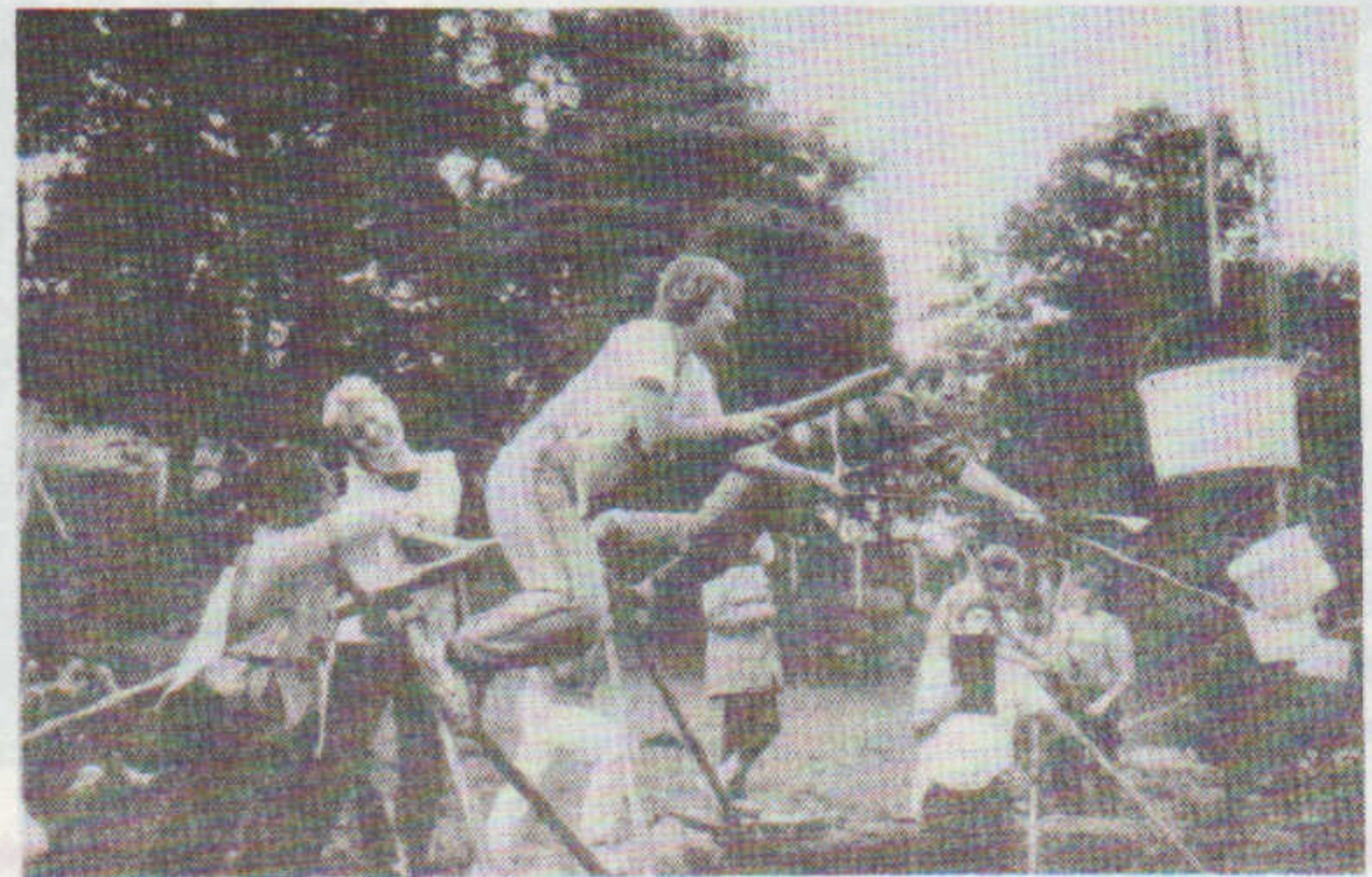
To have produced two winning teams is cause for double celebration. To have produced them in GEC's Centenary Year is to have achieved five-star status.

ABOVE: After bridging the river with a structure that would not have put Telford to shame, the team elected to submit Aston Everett to the indignity of being wheelbarrowed across by Mark Stenhouse.

BOTTOM LEFT: The Marconi Radar squad flash their Elton John specs and shake the dragons out of their blood at one of their evening parties.

BOTTOM CENTRE: There's a 10-metre wide 'pretend' ravine under the rope, which is strung between two trees. Members of the team had to swing themselves over and then get the log across. Left to right, Kathryn Martin, Tracy Belsham and Paula Bygrave.

BOTTOM RIGHT: Tracy Belsham fishes for golf balls while Kathryn Martin, left, and Rosemary Lewis keep the support structure steady.



Costs shock puts League future in jeopardy



THE Marconi Inter-departmental League faces future enormous cost increases and with this in mind, negotiations with MASC officials are about to take place.

It would be a great pity if, after 26 seasons, the competition came to an end for lack of money. There will be more

news after the committee has discussed the problem with the MASC.

The scene was set for Marconi Radar's team to visit the 2nd Frigate Squadron in Devonport in the return match for the Marconi Radar Challenge Trophy. However, arranging matches with Navy sides is always difficult and,

though not for want of trying on the land-lubbers' part, it proved impossible to meet the proposed November 8 date.

It was very disappointing, but it is hoped that the team will travel down west in the spring, when conditions will be better all round for both travel and playing. More about this later in the New Year.

Membership on the up and up



TONY BISHOP reports that during the season membership has gone from strength to strength, and although the fishing has been only fair, with several days of wet weather bringing the water levels up, it should be good for the next month, provided there aren't too many cold spells.

October saw two club competitions on the River Wid. On the 5th, the Anglers Tankard

was won by Barry Roper with 8lb 3¼oz, and on the 12th, the Donovan Shield was won by Pete Bird with 8lb 2oz. The Christmas Fare match is being held on Sunday December 21, and there will be the normal sumptuous array of prizes for the top 10 winners.

Finally, if you net a good size fish, get a bailiff to witness the catch, if possible a photograph, and give Tony a ring on 2517.

MARCONI'S ROLE IN ADVANCES IN RADAR

'IN the international radar community, British radar still has a vigour and a pulse', claimed Keith Chittenden, president of the Chelmsford Engineering Society, during his inaugural address at the Society's first meeting of the 1986/7 session.

He enlarged on the important developments in radar since the Second World War, and explained Marconi's role in these advances, paying particular attention to Martello, for which the company received a 1986 Queen's Award for Technological Achievement. Pictured left to right: Mrs Helen Robertson, Mrs Sylvia Chittenden, Keith Chittenden, Robbie Robertson (managing director, Marconi Communication Systems) and Fred Wearing, immediate past president of the Society and Keith Chittenden's father-in-law.



ANN'S A WINNER

FIRST name out of the hat in our Picture Poser competition was that of Ann Moon, Inspection, who wins the £15 for correctly identifying the picture — a cassette tape — in *News and Views* No. 18.

JUST FOR FUN



"We don't sing carols meter, people just pay us to shove off."



"The head of personnel ought to kiss her. He employed her!"

Stress can kill

STRESS can be a killer, and it's all too common for stressful situations to build up in the cut-and-thrust of today's working environment. So here are a few useful tips to help you guard against it, without actually going to sleep on the job.

- Don't sit around in your place of work during the lunch break. Eat your sandwiches and then take a brisk walk outside.
- Try to avoid routines; find new ways to do old things.
- Look for new ways to use your skills or seek training to broaden your professional expertise.
- Set up a support system with your colleagues; focus on mutual problem-solving rather than airing complaints.
- Plan your day efficiently to get through the work.
- Leave your work commitment behind you when you go home.
- Clear the paper work immediately instead of letting it build up.
- Give and seek positive feedback, so that if something goes wrong you don't feel as though you are in a vacuum.
- Build a good relationship with your boss. Understand the pressures that beset him/her, and help him/her to understand yours. Teach your boss to respect your priorities and workload and to keep assignments reasonable.
- Work out realistic dead-

lines on important projects. Be prepared to propose them yourself rather than have them imposed.

- Take a 'relaxation break'. Instead of a coffee break, close your door for five minutes each morning or afternoon, put your feet up and relax deeply, drumming up pleasant thoughts or images to refresh yourself.
- Limit interruptions. Try to put aside set periods for them and reserve the rest of the time for your own purposes.
- Do not put off doing a distasteful task; accept that a short-term stress is better than long-term anxiety or discomfort.
- Make a constructive 'worries list' and decide what you are going to do about them.
- Communicate assertively. Use 'I' statements and avoid blaming others.
- Learn to say 'No' when appropriate, without feeling guilty.
- Celebrate successes; reward yourself for a job well done or for an especially productive day.

IN SHORT . . .

- The smartest person we know is the one who asks our advice.
- Lots of people know a good thing the moment somebody else sees it first.
- Youth would be an ideal state if it came a little later in life.

MARCONI CHRISTIAN FELLOWSHIP

SEPTEMBER saw the 30th anniversary of the Marconi Christian Fellowship. It was formed at New Street in 1956, and since then has grown and spread, with now about ten groups within various Marconi establishments.

A celebration luncheon meeting in the YMCA marked the occasion, and some 150 people attended from Marconi sites in the Chelmsford area. The Mayor of Chelmsford, who was among the many

special guests, offered his congratulations to the Fellowship.

The speaker was Daniel Cozens, sparing a short time away from his task of leading 'Mission Chelmsford' — another important September event. He spoke about Jesus Christ — the One who should occupy first place in every person's life; and the remarkable results when He does.

With the flexi-time clock relentlessly flicking its way to

signal the end of the lunch break, the Marconi Radar contingent boarded its mini-bus back to Writtle Road, replete with an excellent buffet lunch — which included a large birthday cake — full of good will from meeting with other friends, and inspired by Daniel's message.

WENDY CARR



You are warmly invited to

the Industrial Carol Service, which will be held at lunch-time, 12.30 to 13.00, on Tuesday December 16 at St Mary's Church, Widford (by the Marconi Marine roundabout). We shall be joined by others from around the Widford Industrial Estate.



For further details of the regular Monday lunchtime meetings contact Doug Jones, ext. 2447.

IN THE PALM OF THEIR HANDS

IT HAS been said of Harrods that it will supply anything from a pin to an elephant: it could be said of the Marconi Radar Instrument Shop that it will make anything mechanical, from a tiny microwave component, to tolerances of two-thousandth of an inch, to a surveillance antenna the size of a rhinoceros.

'Instrument Shop' is something of a misnomer. The words are only

of historical significance and stem from the days, many years ago, when nearly all Marconi apprentices were classified as instrument makers, many of them branching out into other fields and graduating to senior positions in the firm after their five-year apprenticeship.

Since making Morse keys, which could truly be described as instruments, the instrument makers have broadened their work base. They became involved with making components for SWB 8 and SWB 11

transmitters, wartime naval and RAF equipment, UG undulators, TV cameras and the mechanical 'computers' of the *Blue Silk* and *Green Ginger* era. When Marconi's erstwhile Radar Division became the basis of the Marconi Radar Systems Company at the end of the 1960s, they provided vital mechanical components for GWS 25.

Typical

Now, typical of the jobs that are going through the hands of foreman Peter Parkhurst, leading hands Dave Smith, Mick Worby, Kris Davy and their 30-strong team are the general mechanical fitting and assembly of a wide range of microwave components for the ST 805; the mechanical assembly and fitting of various transmitters and associated frameworks, racks and cabinets; the assembly of squintless feeds on the *Martello* and 1022 antennas; the mechanical assembly and fitting of a range of trackers and associated turning mechanisms; and the fabrication of many different types of small-quantity items for which it is not practicable to 'tool up'.

Perhaps surprisingly, the Instrument Shop also makes nearly all the Marconi Radar labels, either by silk screening or engraving.

What type of person aspires to become an instrument maker? He is the chap who possesses a high degree of manual dexterity and a wish to create. After an apprenticeship that consists of work both in the Shop and at college, he emerges with a City and Guilds, HTC or HND under his belt.

Rewarding

One of the rewarding tasks of an apprentice is making models. These are of three-fold value: they give him the opportunity to exercise all the skills that he will need in his future career; they give him a sense of achievement in that he can see an end product of his own creating; they can be used by the company as exhibits and as unique gifts for VIPs.

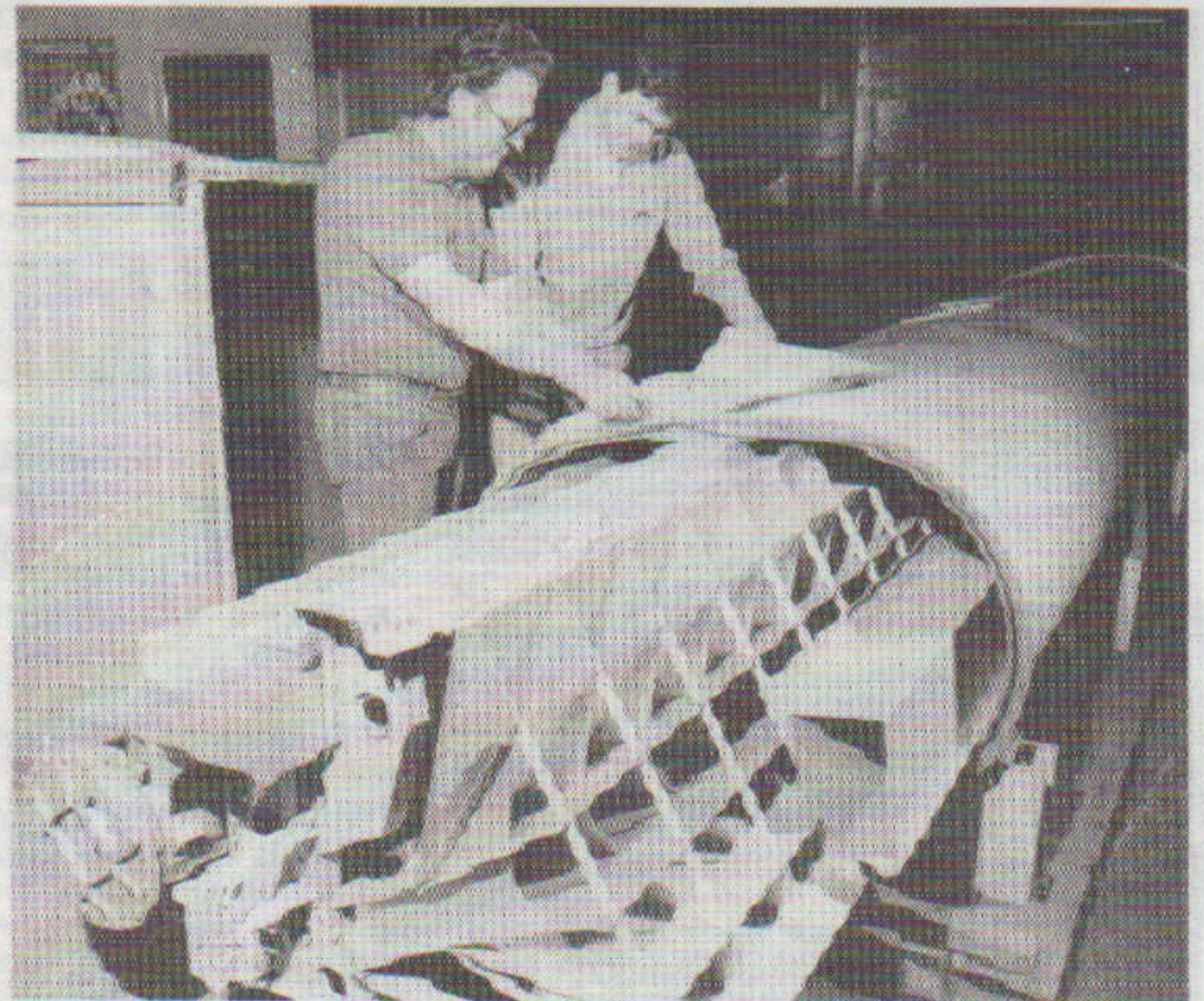
After his apprenticeship, the instrument maker may either branch out into the staff areas of the company or remain in the Instrument Shop, where he will employ all his carefully acquired expertise, which includes filing, marking out, brazing, joining, milling, turning and



Charles Rand, manager Fabricatio Division, and Peter Parkhurst, foreman Instrument Shop.



Leading hand Mick Worby and Duncan Haley use one of the Shop's giant knick-knacks to assemble a water control unit.



Ken Bailey, left, and Matt Ebbs with a 1037 surveillance radar that has been returned to the works for refurbishing.



Left to right: Tommy Taylor, Len Witchalls and Stuart Kempster in the clean room, where microwave components are assembled.



Leading hand Dave Smith (above) looks on as Mandy South produces the silk-screened label blanks for Robin Alden (below) who operates the computerised engraving machine.

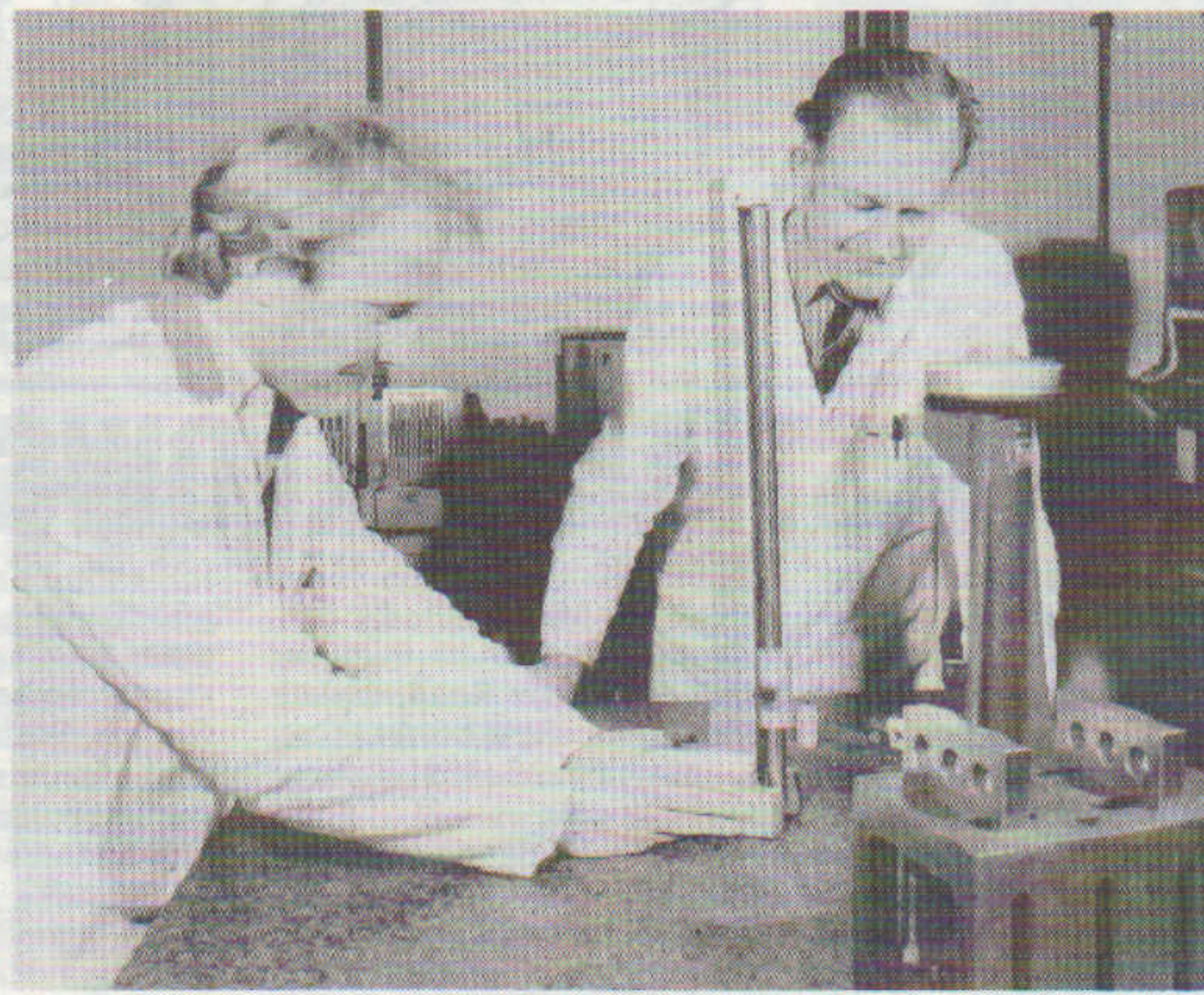
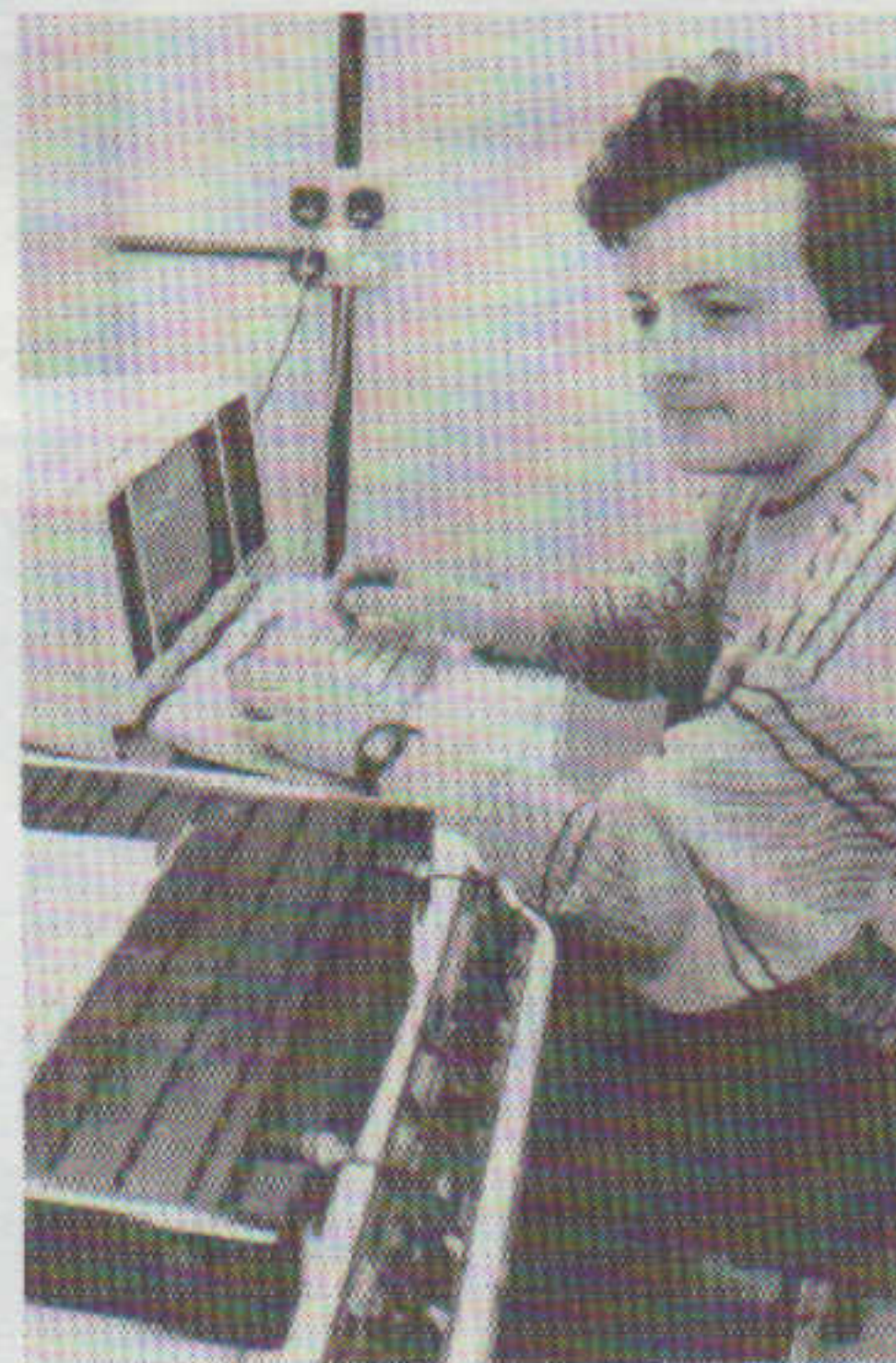
mechanical and microwave assembly.

In the old days, Marconi equipment was relatively simple. These days it is highly sophisticated. It is interesting to note that despite the change, the processes pursued by the instrument maker are more or less still the same.

Skills

First he is issued with a set of drawings, then he gets hold of the raw materials, and finally he applies his manual skill to producing the finished article. But now, the drawings are infinitely more complex, the materials far more wide-ranging — covering every kind of metal and all manner of adhesives — and the skills far more demanding.

Mostly the tools of the trade are conventional, which is why, in the absence of automation, the company relies on the dedication and experience of the craftsmen — it is a faith that is not misplaced.



Inspectors are vital members of the Instrument Shop team. Here, John Williams, Inspection Department supervisor, and Alan Waters set up some inspection equipment.

CHELMSFORD

NEWS AND VIEWS

Marconi

Next issue:

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