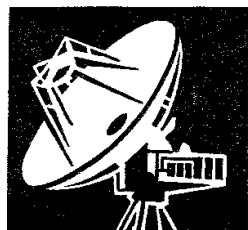


# RESEARCH LAB REPORTER



PRODUCED BY RESEARCH LABORATORIES, 59 LITTLE COLLINS STREET, MELBOURNE

RESEARCH LAB REPORTER

## IF EVERYONE

If everyone who drives a car could lie a month in bed  
With broken bones and stitched up wounds, or fractures of the head  
And there endure the agonies that many people do,  
They'd never need preach safety anymore to me and you.

If everyone could stand beside the bed of some close friend  
And hear the Doctor say "NO HOPE" before that fatal end  
And see him there unconscious, never knowing what took place,  
The laws and rules of traffic I'm sure we'd soon embrace.

If everyone could meet the wife and children left behind  
And step into the darkened home where once the sunlight shone  
And look upon the vacant chair where Daddy used to sit  
I'm sure some reckless driver would be forced to think a bit.

If everyone would realize pedestrians on the street,  
Had just as much the right of way as those upon the section  
And train their eyes for children who run recklessly at play  
This steady toll of human life would drop from day to day.

If everyone would check his car before he takes a trip  
For tyres worn, loose steering wheels and brakes that fail to grip  
And pay attention to his lights while driving roads at night  
Another score for safety, would be chalked up in the fight.

If everyone who drives a car would heed the danger signs,  
Placed by the highway engineers, who also marked the lines  
To keep the traffic in the lane and give it proper space  
The accidents we read about, would not have taken place.

And last if he who takes the wheel would say a little prayer  
And keep in mind those in the car are depending on his care  
And make a vow and pledge himself to never take a chance  
The great crusade for safety would then suddenly advance.

# Overseas Research

Bill Williamson took off early in September for a six weeks visit to U.K., U.S.A. and Germany. The objectives of Bill's visit were to investigate recent advances and trends of research and development in the field of solid state and quantum electronic devices for application in telecommunications.

In addition he attended two related international conferences: the "European Solid State Device Research Conference" in Lancaster, England and the "International Electron Device Meeting" in Washington, D.C., U.S.A.

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Also in September, Peter Duke proceeded overseas to investigate current studies and techniques related to human factors in telephony and the electro-acoustics and transmission characteristics of specialised telephone devices which present particular human factor problems. Peter's itinerary includes Japan, Sweden, The Netherlands, Canada, U.S.A., U.K. and Norway where he is representing the Department at an electro-acoustics meeting of the International Electrotechnical Commission.

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HEALTH

The following item is somewhat more lengthy than the usual ones which appear in the Reporter. However, it was considered that this topic is of extreme importance and we thank Harry Wragge for the following notes taken at a talk by the well known athlete Herb Elliott.

Mr. Elliott commenced his talk with the usual alarming statistics concerning the high proportion of the population who will suffer early heart disease problems. He pointed out that Australia has the fourth worst world average in this regard. There are a number of risk factors which can exert a considerable influence on the likelihood of contracting some form of heart disease. There is one important influence which is not under the control of the individual. This is the hereditary factor. Congenital heart conditions can be definitely passed on and there is little that can be done to influence this. However, there are five other risk factors which are under the control of the individual and which will exert a very profound influence on his probability of contracting premature cardio-vascular diseases.

Weight

This is one of the most important risk factors. Whether one's weight is satisfactory can be simply checked by reference to either one's wife or a mirror. The average person stops growing at the age of about 24. This cessation of growth can be detected when the sternum (i.e. the bone which joins the ribs together at the front of the rib-cage) hardens; during the growth period, it is quite flexible. After the cessation of growth, the daily calorie intake drops quite considerably. If excess calories are eaten, there is only one possibility and that is that you will get fat. One pound of body fat is equivalent to excess intake of approximately 3500 calories. One slice of bread and butter is equivalent to approximately 100 calories, consequently one extra slice of bread and butter eaten for 35 days will result in the gaining of one pound additional body weight. Taken throughout the year, this extra slice of bread and butter would accumulate to approximately 15 pounds or one stone. This indicates the fineness of the balance of calorie intake; approximate daily calorie requirements of an individual who sits at his desk for the majority of the day has an average daily intake requirement of about 2200 to 2300 calories per day.

The appropriate way to control this is not to embark on a crash diet but to systematically make small reductions in the high calorie content foods, e.g. one spoonful less of sugar, one less slice of bread, etc. A crash diet will make people discontented and will be discontinued at an early date followed by a reversion to the previous eating habits which will be followed by a replacement of the weight lost during the crash diet.

### Blood Pressure

This risk factor is closely associated with weight. An excess body weight of 30 pounds would involve an additional length of 25 miles in the blood vessels of the body, which inevitably places a heavier load on the heart and leads to a premature wear-out. A systematic exercise programme will develop the heart, which is merely a muscle, and lead to more powerful beating with a higher volume of blood being delivered per beat thus leading to a lower pulse rate and prolonging its life.

### Smoking

It was advocated that one should not be miserable and that the giving up of smoking completely would make one miserable. An intelligent approach to this is to smoke, but to smoke less and to study the nicotine and tar contents of the various brands of cigarettes published by the Anti-Cancer Council and to select the appropriate brands for smoking.

### Cholesterol and Triglycerides

This factor is definitely associated with early heart problems. Typical cholesterol levels in Japan and Italy are of the order of 120 to 150 compared with 200 to 230 in Australia; the relatively higher level in Australia is due to the high level of meat which is eaten. Cholesterol is not found in shell-fish etc.; lean steak contains approximately 50% of animal fat, even if the fat has been cut off. When selecting a diet, it is important to maintain a balanced approach rather than drastic overswings; if an over-reduction of carbohydrates is made and compensated by an increase in high cholesterol protein, there would probably be not very much overall

gain as it would merely involve swopping one evil for another. The interesting comment on the question of diet selection was made that "this matter of diet is simple but complicated".

### Exercise

One of the main drawbacks to exercise appears to be fear of what people might think about somebody who embarks on a get fit programme.

Golf was stated as being of little use for strengthening but is useful to burn calories. To be of benefit, exercise must raise the pulse rate to over 130 beats per minute, but heart rate should not be taken over 160 beats per minute; a figure of 200 is dangerous. There are a number of ways of increasing the pulse rate with exercise, such as skipping, running, jogging, swimming, etc. An exercise programme in which the exercise is taken until the heart beat reaches 130, followed by moderation, followed by another burst of exercise at a higher rate to raise the heart rate to 130 will increase the efficiency of the heart beat and the circulatory system. This increase of efficiency and strengthening the heart will only be achieved if the pulse rate is increased. Other exercises which do not increase the heart rate will merely increase strength but will not improve the heart and circulation system.

It is important not to get too heavily involved in competition either by yourself or with others in an exercise programme. This is one danger with squash, which has potential for being too competitive. One game of squash per week is definitely not for unfit men over 35.

Mr. Elliott concluded his address by commending a book by Dr. Cooper on the subject of "New Aerobics". (It may be noticed that some wives or sweethearts have a copy of Woman's World for 9th August, 1972, beside their beds. This has an excellent 16 page article entitled Aerobics for Women written by Dr. Cooper and his wife. It has a lot of general information on this subject which would probably make useful and interesting general reading).

It is ironical that the subscriber is suffering from a broken bone in his foot!

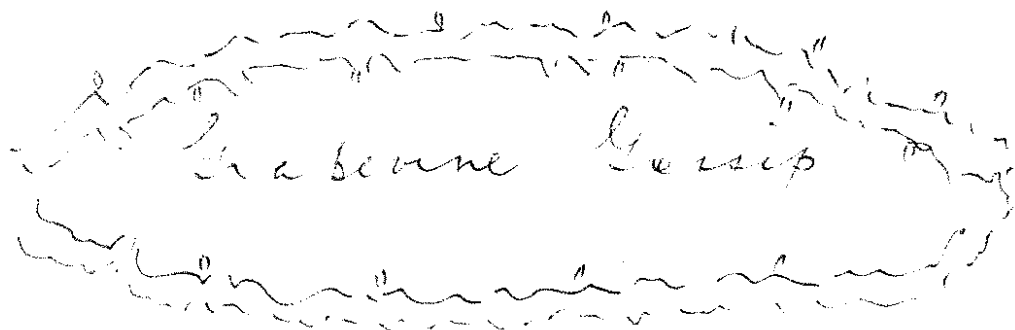
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John Hughes, Unguided Media is spending a whirlwind three weeks by travelling almost round the world stopping at many places such as New York, London, Paris and coming home via Hong Kong. Naturally his wife is accompanying him (she just happens to work for a well known airline).

\* \* \* \* \*

The third Research (now A.P.I.) car trial held on 10th September was an outstanding success. A beautiful spring day attracted a field of 18 vehicles which arrived at Yan Year reservoir prepared for the unknown. The trial covered about 120 miles of generally unsealed roads around the Flowerdale, Broadford forestry area and included seven control points. The finishing point was at Toorourong reservoir where a Bar-B-Q and general discussion was held. The final placings were: -

1st - Maurie Daly and Ray Proudlock (Toyota)	-16
2nd - Sean and Suzie Curlis (Hillman)	-20
3rd - Bob Backway and Carol Preece (Anglia)	-35
4th - Allan Dobby and Marg Howard (Capella)	-38

The wooden spoon went to Bob and Carmel Page with -95 points.

\* \* \* \* \*

Ray Proudlock and Maurie Daly are also proving themselves quite successful in finding hidden radio transmitters. These hunts are

organised by the VHF section of the Wireless Institute of Australia and the aim is to find transmitters which are hidden in the most inaccessible places, e.g. "in a lady's handbag in Smith Street Collingwood on a busy Friday night" or "in a culvert which drains into the Yarra river". Maximum location time is 10 - 15 minutes. Who would want to be a spy with these chaps on your .

\* \* \* \* \*

The tiger's roar is now only a little purr following the VFL Grand Final. Charlie Eyre and Kevin Curley are having a fit of the Blues. Kevin Bartlett has a fat lip (the bottom one) - he has been falling over it since the final siren.

\* \* \* \* \*

Danny Lebby Block F scored a direct hit on the way to work last month. On the way down from Kallista he hit a gravel patch and finished up in the forest. Result - one Datsun 1200 coupe completely written off, one wife and husband safe in wind and limb (both wearing seat belts).

\* \* \* \* \*

Congratulations to Karl Engelhardt, instrument maker, who recently became an Australian citizen and subsequently has been permanently appointed to the Department.

\* \* \* \* \*

Did you hear about the cunning member of the Labs who, unfortunately, spent a short period in hospital earlier this year? He claimed \$14 among his taxable deductions for "audio visual therapy equipment". Now he has to explain to the Taxation Commissioner that this represents two weeks hire of a TV Set.

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Peggy Bird, our typist-in-charge of outposted staff is a very proud and excited mother at the moment. Her younger daughter Katherine has won a part in the forthcoming ballet production of "Don Quixote".

\* \* \* \* \*

Good to see (Dr.) Laurie Mackechnie back from Notre Dame University where he was conferred with his Ph.D - Laurie's thesis was "Maximum Likelihood Receivers for Channels having Memory".

\* \* \* \* \*

The Grandfathers staff of office - the bronze walking stick - is at present being suitably engraved for Jim Frood whose son and daughter-in-law recently presented him with a granddaughter - Congratulations Jim!

\* \* \* \* \*

Rollo Brett received a letter late last month from Ross Pitkethly, who has wasted no time since his retirement on 16th August 1972 and at the time of writing was situated at Arkaroola in the Flinders Ranges. Ross had the following to say.

"My retirement gift binoculars have seen considerable use since we've been here, so I would like to reiterate my thanks to all my friends at Research for their generosity.

The surplus amount, handed over later by Les Murfett, enabled the purchase of an illuminated magnifier which will be just the thing to study any rocks we bring home. Both items will be lasting reminders of happy associations at the Labs.

The wild flowers here are somewhat of a disappointment compared with last year - no doubt the poor rainfall this year is responsible. However, it is delightfully warm and sunny making the trip worth while to thaw out the old bones. So far we have only found one of the many "water holes" with any water in it, but the birds are plentiful and rocks prolific.

Once again, my thanks to all."

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It was a very sad occasion early this month when many of the Labs staff attended the funeral of young Richard Brown who had left us in late August, having been promoted to the Ammunition Factory at Maribyrnong. Richard was killed driving home from work on his motor cycle. He leaves behind his lovely young wife Jenny who is expecting her first infant later this year.

I think our feature page of this issue should provide quite some food for thought as we have had about 14 members involved in accidents during the past year, three of which were fatal.

\* \* \* \* \*

## The Demand Cryptogram

Like all of us Peter Gerrand, Block C was delighted by Geoff Goode's word puzzle in the August issue of the Reporter. However he was a little disappointed in the marked preference shown towards the names of researchers from Blocks R and W. Therefore, to rectify this geographic imbalance Peter submits the following description of the Laboratories first imaginary Fancy Dress Ball, in which it is possible to identify, in groups of adjacent letters, the surnames of at least 29 other members of the Laboratories.

Naturally, Peter will present a 50 cent piece to the first person to submit to him the correct solution (particularly when we found out that he was the winner of the previous competition).

'This Fancy Dress Ball was an unexpurgated wow. By the time I arrived, three lithe beautiful Barbados singers, striking in aqua negliges and very little else, were pulsating to the beat of the Caribbean band, and the lead male singer, wearing what appeared to be a bejewelled rococo athletic support, was crooning a beguine to entice dancers on to the floor. Our keener perambulators were already there, and soon a polychromatic assortment of fancy-dressed researchers were jostling together in a kaleidoscopic bunfight.

First the aristocracy: for starters, the Empress Catherine the Great, the Archduke Ferdinand of Austria, a bored-looking Prince Boris of Bulgaria - and our own Lord Casey. "Le Roi est mort!" murmured the myopic Cardinal Richlieu, mistaking the condition of the regal ennui, to which the Pope tersely riposted "You incorrigible wise-acre!" A juggler, an insouciant courtesan and a few ragged vacation students completed the retinue of the European court.

The Ming dynasty was represented by a macro-otic Taiwanese - which was rather odd - and I espied Mark Anthony with a well

This 96 page quarto presentation of the conservationist case is illustrated with excellent photographs of the lake and very informative diagrams explaining the suggested engineering modifications. It is most illuminating to discover that 75% of the Huon-Serpentine impoundment, 15m below which will be Lake Pedder, will be 'dead water' unusable for power generation. Its only function is to give a gravitational head to avoid a pumped storage which is far less space-consuming. Functionally it could just as well be earth or rubbish.

Contact G. Goode, 1,007 Rathdowne Street, North Carlton,  
3054. (Tel. 387 1552).

\* \* \* \*

Mini-bike "GEMINI" 80cc - used only twice for demonstration purposes,  
\$250 O.N.O.

Contact Peter Quinn 630 7426.

\* \* \* \*

SABOT, mint condition, complete with sail, mast and rigging, \$120 O.N.O.

Contact Alan O'Rourke 630 7932.

\* \* \* \*

#### WANTED TO BUY

Live lizards - Blue tongues, stumpy tails, cunningham skinks and  
Gippsland water dragons.

Contact Neil Chandler 63 5260.

\* \* \* \*

ENGAGEMENTS

Block A ..... Lorraine Peoples to Chris Bell.

\* \* \* \* \*

Block S ..... Terry Baines to Russell Grattidge.

\* \* \* \* \*

Block T ..... Bob Horton to Alison Wood.

\* \* \* \* \*

Ex-Advanced Techniques (in U.S.A.) Mike Subocz to Norma Light.

\* \* \* \* \*

MARRIAGES

Block S ..... Christine Dudley to Colin Edgeley.

\* \* \* \* \*

Ex-Block A ..... Majella Laws to Peter Gleeson.

\* \* \* \* \*

BIRTHS

Block A ..... To Ted and Christine Kealy, a daughter,  
Monica Marie, sister for David.

\* \* \* \* \*

Block F ..... To Ross and Helena Kelso, a son Iain Matt

\* \* \* \* \*

Block T ..... To Boyd and Sue Rayment, a son, Brant.

\* \* \* \* \*

Block W ..... To Tom and Astrid Lindsay, a son Jasen  
Christian, brother for Birgitta.

\* \* \* \* \*

### NEWS ITEM

Don't forget to let the Editor know  
of interesting events happening in  
your Section. Jot the details down  
as soon as you learn about it and  
forward it to: -

The Editor,  
Research Lab. Reporter,  
Block A.

Welcome to the following new members of the Laboratories.

Phil Jackson	T.A.1
Sherryle Wickham	Assistant Grade 1
Elizabeth Oldham	L.O. 1
Peter Perichon	Bldg. Clerk Block F
David Adams	T.O. 1
Robert Ayre	Engineer Class 1
Judy Smyth	Assistant Grade 1
Rod Gray	Engineer Class 2
Pat Walsh	C.A. 3
Don Keogh	Physicist Class 1
Keith Jones	Assistant Grade 1

GOLF DAY

Ivanhoe Public Links

Saturday 28th October

Hitting off at 9.00 a.m.

Contact Alva Allen 630 7964

$$x^2 + y^2 = z^2$$

*Postwork*

*2/4 + 1/3 = 2*

*2*

*log 137*

*Puzzle*

1. The Reciprocal Pythagorean Equation

Find the smallest solution in integers for the equation

$$\frac{1}{x^2} + \frac{1}{y^2} = \frac{1}{z^2}$$

2. A Mathematical Impossibility

Prove that the product of four consecutive positive integers cannot be a perfect square.

3. A farmer used 139 yards of fencing to enclose a rectangular field and to construct a fence along one of the diagonals of length 41 yards. He then found that a neighbour had fenced a  $\frac{1}{3}$  larger rectangular area in the same manner with less fencing. If all dimensions are integral yards, what are the dimensions of the neighbour's field?

\* \* \* \* \*

A simple one with which to finish.

4. What letter follows OTTFSSSE ?

\* \* \* \* \*

### S T O P   P R E S S

Word has just reached us that Harro Brüggemann, Graeme Kidd, Laurie Mackechnie and Albert Seyler have been awarded the Norman Hayes Memorial Medal of the I.R.E.E. Aust. for 1972. The title of their paper was "An Experimental Adaptive Echo Cancellor for Long Distance Telephone Circuits".

This is the fourth time that this award has been won by members of the staff of the Laboratories. Consideration is being given to barring Albert Seyler from further attempts as he has been successful twice previously in 1959 and 1963.

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