

JULY/AUGUST 1976

3p

Harlequin

Leisure Magazine of the United Kingdom Atomic Energy Research Group and Associated Organisations



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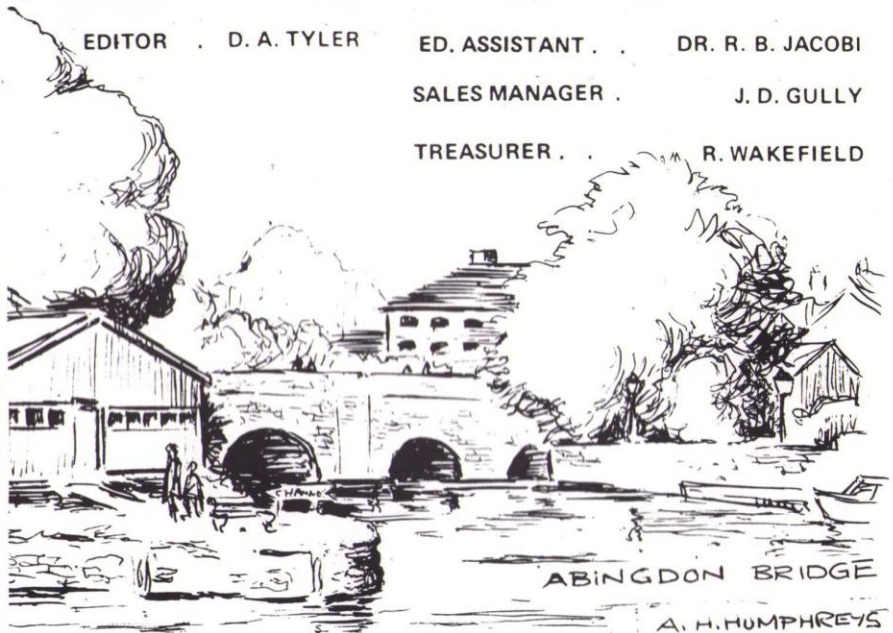
DR. R. B. JACOBI

SALES MANAGER .

J. D. GULLY

TREASURER .

R. WAKEFIELD



Vol. XXX No. 5 (121)

COVER PICTURE

The two-week old filly, as yet unnamed, beside mother, Paithe Jasmine, and another of the seven Palomino Arab horses of John Butterfield, Eng. Div., enjoying their pleasant surrounding at Brightwell-cum-Sotwell.

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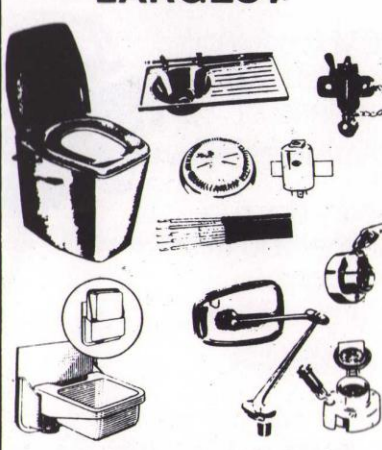
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BRANCH MANAGER
A.D. GARNETT

The Old Gaol in Abingdon

in its new guise as a leisure-centre, providing
a fine variety of sporting and arts facilities

In the early years of the nineteenth century Abingdon, then county town of Berkshire, built itself an impressive new county gaol. With its central octagon overlooking the three wings of cell-blocks it was a fine example of the early reform prisons and it's possible that the early plans were drawn up by the same man who remodelled Windsor Castle. In 1845 in the first of those familiar local government reshuffles, Reading took over as county town, the gaol's prisoners were moved and for the next 125-odd years the building was used for various commercial purposes.

In its splendid site beside the Thames and with its happy range of facilities the Gaol should do well, and the fine words of its new foundation stone sum up its intentions

'This building, where prisoners once lay fettered and in despair, now takes fresh life as a centre for the liberation of the human spirit'



Stage 2: Harwell bypass

THE GOOD NEWS...

The road is a trunk road scheme, paid for by the Department of the Environment and is the second phase of the Abingdon by-pass. It extends the present by-pass from Drayton to just south of Chilton, bringing badly needed relief from traffic to the village of Steventon and by-passing Rowstock cross roads and the Atomic Energy Research Establishment at Harwell.

The project is part of plans to improve the A34, because of its importance in the national strategic route system of motorways and trunk roads and as a link between the docks at Southampton and the industrial Midlands.

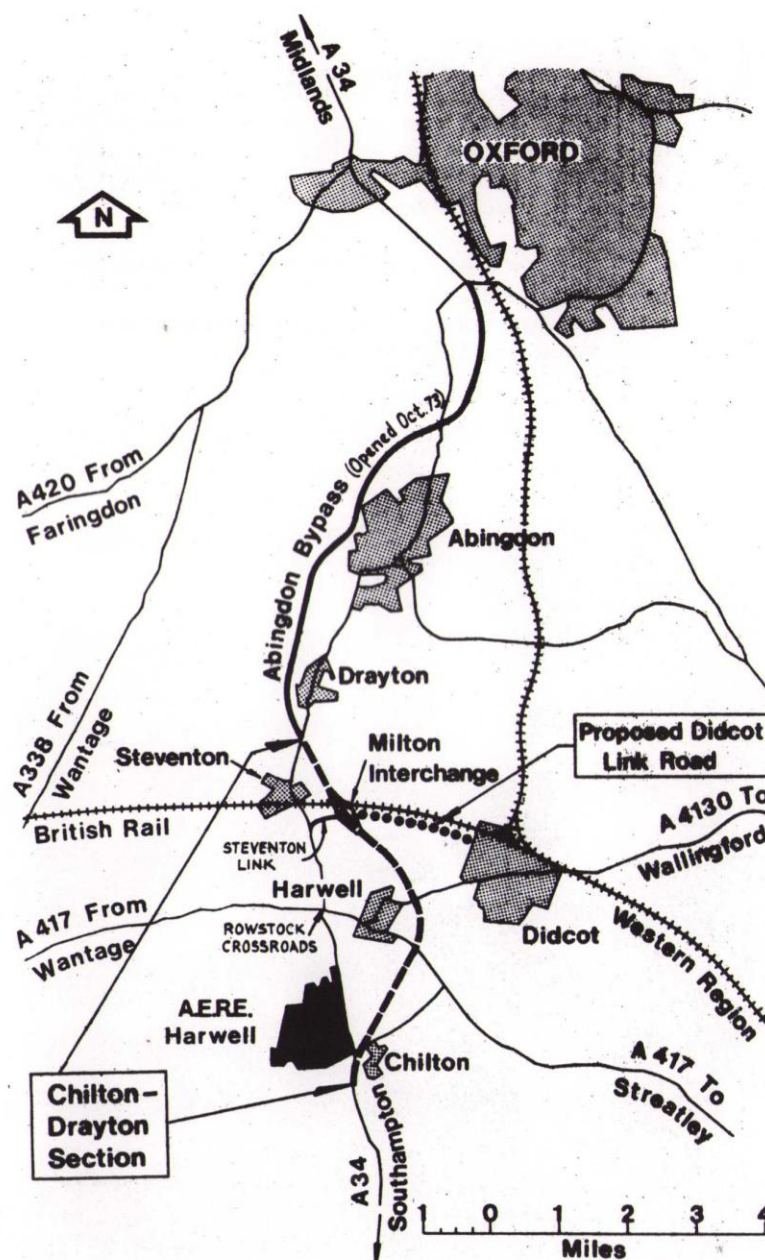
The road will have dual two-lane carriageways, each 24 feet wide with a central reservation, and will have a hot rolled asphalt surface. Nearly a million cubic metres of material will have to be moved from cuttings at Milton Heights and Hagbourne Hill to form embankments.

The new road will have two interchanges. At the northern end the present junction with the A34 will be closed and replaced by an interchange at Milton which will give access to the Steventon Hill link, which runs back to the existing A34 and to Potash Lane which gives direct access to Milton Depot. It will also allow the planned Milton Heights to Didcot link road to be built later.

At the southern end there is a smaller interchange near the village of Chilton.

There are 16 bridges to be built, seven of which will carry other roads or paths over the by-pass and nine of which carry the by-pass over roads and watercourses. One major bridge, over the London to Bristol rail line, has already been built. Work has also taken place in advance of the contract to divert water and gas mains, post office cables and electricity lines.

The preliminary design of the road and its route, which runs south from Milton, east of Harwell village and back to the A34 at Chilton, were planned and prepared by the former Berkshire County Council before re-organisation in 1974.



... AND THE BAD NEWS

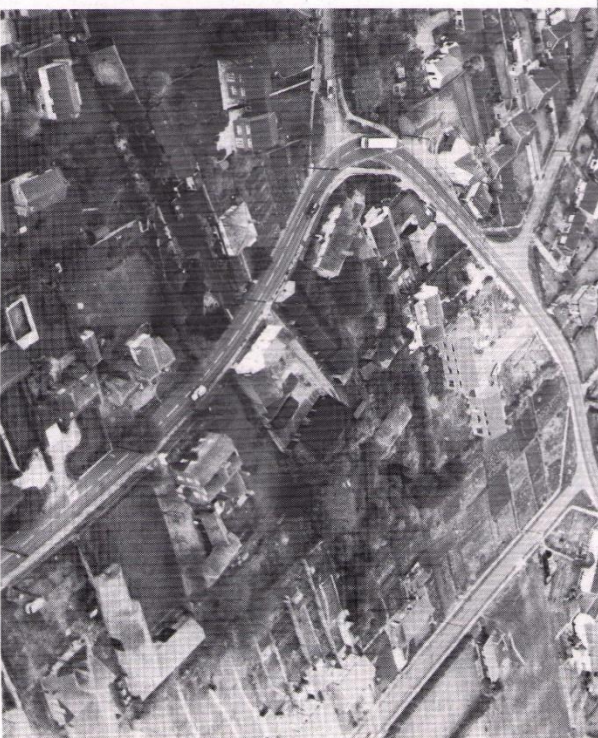
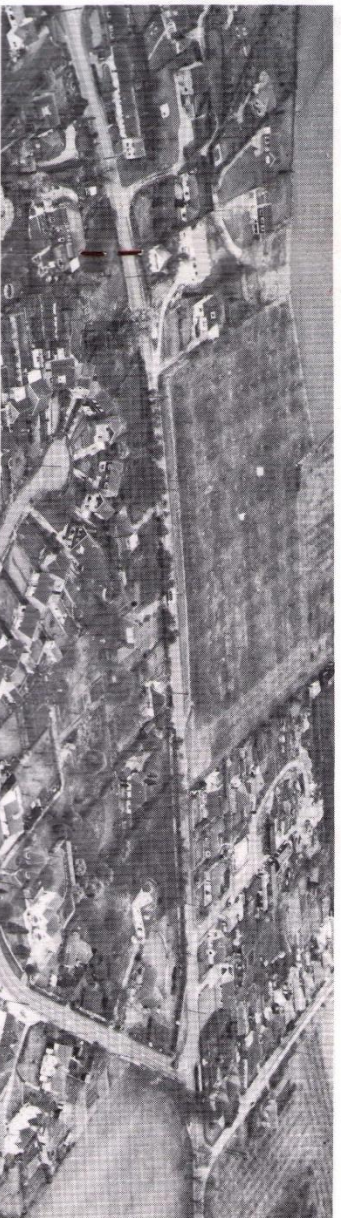
Traffic from Newbury and the south will be able to use the Chilton intersection to reach AERE, but it will not be possible for northbound traffic from AERE to join the new road at this point. Traffic from Abingdon to AERE will either have to go out to Marcham interchange, only to come off the new A34 at Steventon link, or go through Drayton and Steventon (with the present Drayton link closed) and then attempt to join the main traffic at Steventon link for the queue at Rowstock corner. In the evening this route would have to be reversed.

Due to the indefinite postponing of the Didcot-Milton Heights link road, traffic from Didcot going west to AERE or north to the A34 will still have to go via Harwell village. It will still have to negotiate there the narrow stretch of road in Burr Street which, due to listed buildings, cannot be widened, and where it is barely possible for two cars, let alone larger vehicles, to pass one another. At the end of ►

▲ this street the difficulty of getting round the 'White Hart' is seen in our left-hand photograph. It is also difficult for large vehicles to get round 'The Chequers' corner, seen in the right-hand photograph. The only way for traffic to avoid risking lives and shaking the foundations of the village is to travel by minor roads north to Abingdon, or south, via Hagbourne Hill, to Chilton.

A Milton-Didcot link road should have been built in conjunction with the new road, but a slip road where the new road crosses the Didcot-Harwell road (A4130) would not be too expensive, nor would others at Chilton to give access at Chilton to AERE in both directions.

PHOTOS BY **Aero and Industrial Photographic Services** 45 Mill Street Wantage



As things stand at present, traffic from the Midlands to Southampton will, of course, benefit and so will Stevenage, which some traffic will bypass. Didcot, on the other hand, with its population of 15,500, is left without access roads of reasonable standard, for Harwell village, which is more suited to horse-drawn traffic, it will be hell.

For AERE at out-muster time there will be some reduction in the northbound traffic which hinders access to the main road, but staff going north will still find congestion at Rowstock . . . But we of the NEW Harwell feel more for the OLD Harwell; it adds insult to their injury that the 'Harwell Bypass' is for them a by-pass in name only: Harwell village is being left as a needle's eye.

"Harlequin" believes that now is the time for more thought.

Traffic relief for Harwell

42 years' service

Although not joining the Authority staff until 1957, John Parker of Health Physics has, we believe, the longest record of service to the site itself.

From 1934-35, in his capacity of newsagent, he began by supplying daily newspapers to a small group of airmen centred in the middle of the present site who were manning an emergency landing ground for the R.A.F. He continued this service to the contractors who were building the aerodrome between June 1935 and February 1937, and then to the R.A.F. Between 1941 and 1945 he himself served in the R.A.F., but the service in his name continued and he himself was stationed on the site for six months during 1942.

At the end of the war, he resumed personal control of the business and, when the R.A.F. left, continued to serve the new arrivals of the Ministries of Supply and Works, who were later to be his colleagues.



John Parker's first mention in *Harlequin* was in 1952 as a result of the second CLERIHEW Competition. Professor Skinner had won the first Competition

with *It's hard to keep tabs on
Our staff of name Abson
For they will undoubtedly trouble you
There's W. and W. W.*

In the second competition there were entries such as

*Miss Croker
Is no joker
You ask her the time of the next train to Town
And she sells you a dozen Christmas Cards
for cash down*

and

*Those who abuse
The Editor of the "A.E.R.E. News"
Are slow to form queues
To step into his shoes.*

*We may not have made an atom bomb
Or have cause for aplomb
But this much is a cinch, sir,
We've made Chapman Pincher.*

There were quatrains about more illustrious people, such as "Oxford's river namesake" (Lord Cherwell), but better known and better loved was the man who rushed breathlessly from one gate of the establishment to another in his effort to be at each gate at the same time and to serve all with equal efficiency:—

*There ran
A man
Fire? Murder? Or something starker?
No, Parker.*

And as the site expanded and changed character over forty-two years, John Parker continued to serve it—until last month, that is, when he finally retired.

He was presented with a painting from the brush of local artist John Barber which he and his wife had selected, and also a card bearing 140 signatures of friends who had contributed to it.

As he looks after his garden at nearby East Hendred we say to him: "Keep hoeing, John, but enjoy your well-earned rest!"

BOOK REVIEW

NUCLEAR POWER

by WALTER C. PATTERSON

FIRST of all the reader should not be put off by the fact that Walter Patterson is the Energy Specialist of the Friends of the Earth Limited.

More than half of his book is straightforward unarguable facts: quite detailed descriptions of the different types of power reactor, a chapter on the nuclear fuel cycle and a succinct history of radioactivity from the discovery by Becquerel in 1896 up to the present.

All this is very well done and not over-simplified. In fact, I guess the book would be pretty heavy going for someone outside the industry or without a scientific or technical background.

I suspect that Mr. Patterson's intellectual honesty must often dismay his more extreme bed-fellows in the anti-nuclear camp.

This trait is at its strongest in public debate. On the platform at Barrow-in-Furness last December he admitted that he was not worried by the transport of spent nuclear fuel through Barrow. And at Church House, Westminster, in January this year he claimed that he was not so much anti-nuclear but pro other sources of power. (See quotes — right).

This honesty manifests itself again and again throughout the book, but he is less than fair in those chapters dealing with reactor incidents and, as he puts it, "Plutonium at Large".

Here whole pages go into italics — a useful signal that the writing itself has lapsed into a rather breathless style to try and put some drama into the incidents he describes.

He devotes three pages in this section to the fire in Pile One at Windscale that occurred in October, 1957.

This reviewer was one of several workers at Windscale drafted in, at the height of the 1957 incident, to get up on the charge platform of Pile One and push out burning fuel elements. I still do not see the affair as dramatically as those who have only read about it.

Here I would like to make a plea to journalists and others writing about the UK nuclear scene and Windscale in particular. Could we agree to a moratorium on the 1957 incident? After all, it happened nearly 20 years ago and the Windscale Piles were military devices producing plutonium for the weapons programme. Discussion of these reactors has practically no relevance to today's electricity producing power reactors.

But my most serious criticism is that nowhere in his book does the author get across the major indisputable fact about nuclear safety in the UK: not one case of death has been positively attributed to radiation associated with the British Nuclear power programme.

A Pelican original, price 80p.

QUOTE 1

I would like to see what I personally consider the disproportionate attention given to nuclear (power) slightly re-distributed.

QUOTE 2

I am often called anti-nuclear it is not so much for me that I am against nuclear activities as that I am for others which I prefer.

And in his description of accidents and near accidents in the USA he finds only three deaths — and those were of three servicemen on a military reactor who may or may not have been indulging in horseplay. All in all, not a bad record for a major energy industry.

But go out and buy Walt's book. It really is a worthwhile read and many of you will enjoy spotting the relatively few errors (e.g., the Windscale Reactors were NOT filled with concrete after the incident).

If there is a serious error it is probably that of omission: Why has Mr. Patterson failed to come up with a credible alternative to nuclear power. Could it be there isn't one?

BRIAN POTTS

FOCAL POINT

THEY are a busy lot, the anti-nuclear fraternity, beavering away trying to prove that nuclear power, with a better health and safety record than any other energy-producing industry, is unsafe and should be abandoned.

Perhaps that is why they haven't found time to explain the implications of the alternative energy scenario they advocate.

The lessons of the present economic crisis are apparently lost on them. Perhaps they need reminding.

The crisis we are all living through now started with energy. It began with soaring oil prices and with shortages from the Middle East.

The effect of this energy-induced crisis has been devastating, certainly for the 1.2 million people who are currently unemployed in the UK.

It has wreaked havoc with the UK's balance of payments, too, and helped bring the value of the £ down to less than two dollars.

None of this should have been a surprise to anyone. There is a well-defined link between energy supply and costs and standards of living.

It has been clearly demonstrated that in countries where there are poor energy supplies living standards are low.

In Pakistan, for instance, dry cow dung is the main source of energy. Pakistan is near the bottom of the living standards league, with a gross national product of only \$90 per head of population a year.

By contrast, America has an energy consumption 80 times higher than that of Pakistan. The US is at the top of the living standards league, with a gross national product of \$3,500 per head a year.

Maybe the US is

profligate with energy. Nobody would argue against the need for energy conservation world-wide. But the fact remains that the link between supply and living standards has been established.

Incidentally, isn't it conservation to burn uranium, for which there is no other use, rather than coal and oil, which have other important uses and which cannot be replaced?

The anti-nuclear fraternity do not seem very worried about living standards, or about the UK balance of payments, the £ or jobs, for that matter.

It seems that most of them want nothing less than a radical change in our present society.

Back to the land, they say. The small amount of power you need can be provided by fossil fuels, supplemented by wind-mills, the sun, water, earth movements and the like.

Strangely enough, fossil fuels are in favour with the so-called environmentalists in this country at the moment.

Strangely, because their counterparts in the US have been trying to halt the exploitation of coal reserves.

So far, the UK fraternity don't appear to have thought through the implications of the major shift from an industrialist to an agrarian society which their proposals imply. Or if they have, they're not talking about it.

A central issue, which they largely ignore, is that without nuclear power, an energy gap could be on us by 1990 — 14 years from now, according to the Department of Energy.

Not long for us to get back to the land or get used to reduced living standards, is it? Particularly if the rest of the world has not chosen to do without nuclear power.

And where is this land coming from for us all to

go back to? Will it be appropriated from the present owners? Will they be compensated? Where will the money be obtained for such a purpose with the economy in recession through energy shortages?

Is it not obvious that the price of fossil fuels will be forced up if the nuclear fuel component is withdrawn, reinforcing the economic decline to which the anti-nuclear fraternity wish to commit us? Is there some new economic law covering supply and demand we haven't heard about?

How will our present inadequate housing stock, which tends to be near the industrial centres, be replaced in time by rural homesteads?

Or do we all travel out to the land, using vehicles built with energy and powered by energy?

In short, will the fraternity please explain the effect their proposals would have on our present society? That question is relevant to public debate, surely? If people are to be saved from the risks the fraternity see in nuclear power, they have a right to know what they're being saved for.

The last few years have demonstrated that severe energy shortages can lead to a rapid deterioration in living standards — and these standards do have an impact on the quality of life for most people.

Worse than that, energy shortages could lead to social, economic and political turbulence, even wars. There were those who wanted a military intervention when Middle East oil supplies were cut back. Remember?

Over the last six months the nuclear industry has been questioned extensively. And those questions have been answered.

Is it too much to ask the anti-nuclear fraternity to answer a few queries for a change? Their view of our future society could be fascinating.

It could also be singularly unattractive, of course. Is that why they are keeping quiet about it?

The way the wind blows

THE ENVIRONMENTAL impact of using windmills to generate electricity would be considerable, says the Department of Energy, "particularly as a modern windmill has more in common with an electricity transmission tower than the picturesque, old-fashioned windmills.

"It has been estimated that windmills could provide no more than about one per cent of our current electricity demand, and so it is likely that they will continue to play a very minor role, being limited to remote sites and special circumstances." Moreover, the windmills — and there would have to be a lot of them — would cost perhaps 10 times as much as an equivalent central generating station.

"The output of a windmill varies as the cube of the wind speed, and so they are ideally used on exposed sites with consistently high winds.

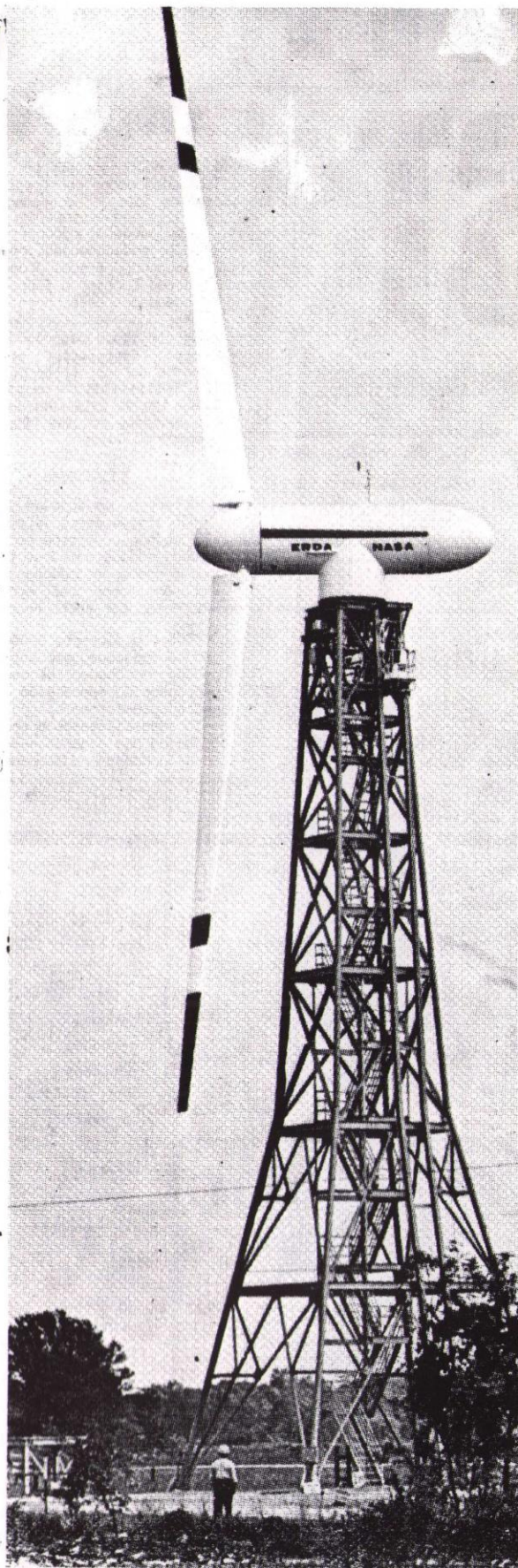
"The sensitivity to wind speed gives two major problems: Firstly, the output falls rapidly as the wind falls below design level; and secondly, the destructive forces become considerable when the speed exceeds the design level, unless expensive steps are taken to provide protection.

The largest windmill ever built had an output capacity of $1\frac{1}{2}$ megawatts. It ran for four years until a blade broke and was never rebuilt.

The largest windmill in existence is the 100 kilowatt model, being developed by NASA for the USA's Energy Research and Development Administration.

More than 10,000 mills like the one in our picture would be required to equal the output capacity of a nuclear power station the size of Wylfa, though the number of units generated by all these windmills would be less than the single nuclear station because of the variability of the wind.

First issued as a Supplement to BNFL NEWS



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ACTUAL AND EXPECTED DEATHS UKAEA AND BNFL MALE EMPLOYEES
AND PENSIONERS 1962/1974

"No field of human activity is devoid of risk" said Sir John Hill at the Fourth Cockcroft Memorial Lecture. During his speech 'Nuclear Power Comes of Age', Sir John made particular reference to the nuclear industry's safety record.

"This safety record reflects the care we take" he declared. Studies had shown that our accident figures were below the national average for a manufacturing industry. Radiation injuries amounted to four cases of skin burns on the hands, only one requiring significant medical attention.

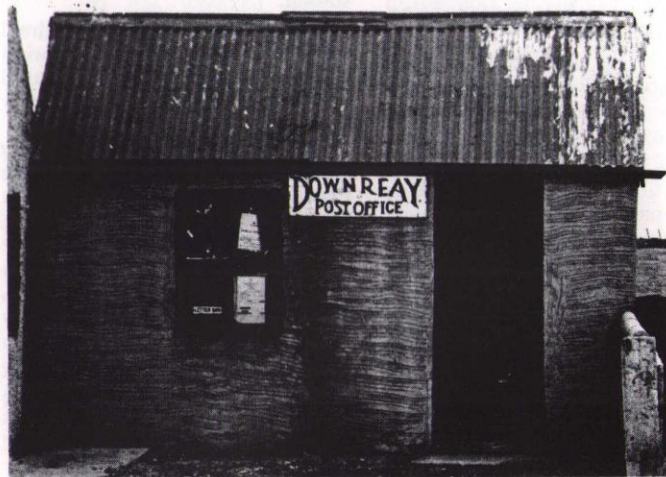
Since 1962 and up to 1974 (350,000 man years) four fatal accidents had occurred inside our establishments, two falls, one asphyxiation and one electrocution. There had been a much larger number of non-fatal injuries which in some cases had also been tragedies. These figures should be compared with sixty-six off-duty employees who had been killed outside our establishments during the same period.

"For every cause of death, with the exception of road deaths, atomic energy workers had a lower death rate than the population at large," said the chairman.

Cause of Death	Total		Ratio Actual/ Expected
	Actual Deaths	Expected Deaths	
ALL CAUSES	2730	3652	.75
ALL NEOPLASMS	730	858	.85
Leukaemia	11	23	.48
Circulatory system			
other than blood	26	34	.76
Bone cancer	4	4.2	.95
Lung cancer	291	406	.72
CIRCULATORY SYSTEM	1497	1651	.91
Coronaries	1066	1181	.90
Strokes	219	309	.71
RESPIRATORY SYSTEM	173	437	.40
DIGESTIVE SYSTEM	65	90	.72
REPRODUCTIVE & EXCRETORY SYSTEMS	26	47	.55
ACCIDENTS, VIOLENCE	153	197	.78
Road Traffic	71	68	1.04

This is extracted from a more detailed table published in 'ATOM'

The path to
progress
lies not
in seeing
the new as
necessarily
better,
but in
avoiding
too great
a love of
the old,
a love
which may
be based
merely on
nostalgia
for our
lost
youth.



★ Tiny Downreay Post Office (note different spelling) sandwiched between the U.K. Atomic Energy Establishment and a Naval radio station.

Built on the site of an old naval airfield, Dounreay Fast Reactor was constructed between 1955 and 1958, and in 1962 the first domestic electricity generated by a fast reactor was fed into the National Grid. Nearby consumers were shepherds, crofters and fishermen and the supply was limited to 3 megawatts. But by the end of 1971 more than 300,000,000 units of electricity generated by this plant had been sold to the North of Scotland Electricity Board.

Dounreay employs some two thousand people working round the clock 365 days a year, and has been responsible for the increase in population of nearby Thurso from three to nine thousand. To help in the housing of this added workforce, the Atomic Energy Authority has built more than a thousand new houses, and this little fishing port has benefited by the provision of new schools, a technical college and a swimming pool.

Fitness is one of the most misused words in the English language. When the average person says he feels 'fit', he may mean anything from a vague feeling of well-being as he takes a deep breath of fresh air by an open window, to a sensation of comfort while taking severe exercise which would make an untrained man stiff for a week. The Sports Council uses the term 'physical fitness' to mean the capacity to enjoy moderate endurance activity, such as walking, cycling or jogging, appropriate to the person's age, without discomfort either during or after the exercise.

Everyday fitness

and health



Physical effort is essential to the acquisition of fitness; there is no easy way. Machines said to provide a short-cut to fitness by electrical stimulation or vibration of muscles should be viewed with suspicion. There is no substitute for working the muscles voluntarily.

Exercise helps to prolong youth by increasing and maintaining fitness. It prevents 'middle-age spread' with its limitations and discomforts and keeps open the options in work and play.

Fitness gives a sense of well-being and the confidence that exercise can be taken in comfort and safety. The purpose of fitness is to add more life to years, not just years to life.

* Capacities have to be stretched if they are to be extended. Strength, mobility and the functioning of heart and lungs can only be increased by greater than normal use.



Why Exercise?

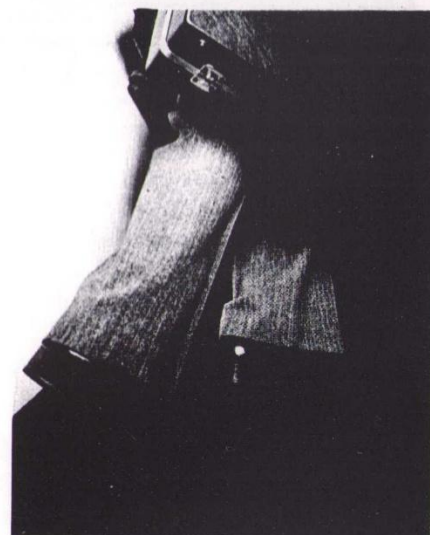
The body deteriorates if you do not use it. Inactivity, obesity, diabetes, high blood pressure and cigarette smoking all contribute to the growing incidence of heart disease in our modern society.

Precautionary measures?

If you are over 35 and under 50 years of age and you have not taken exercise since you left school, you can start to exercise gradually but if you are worried about exercise symptoms consult your doctor.

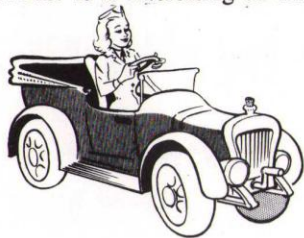
If you are over 50 years of age you should seek medical advice before starting a fitness scheme. You cannot harm yourself by walking too much and you may be able later to start more energetic activities such as running. Isometric exercise, as in 'press-ups' and weight lifting, should be avoided.

Select varied physical activities which you can enjoy without discomfort and in which you can progressively increase your effort. You can take a considerable amount of exercise unobtrusively by walking or cycling.



HORSE v CAR

Even the least observant of us will have noticed that over the last 50 years the horse has been ousted by the automobile. It is interesting to compare car and quadruped.



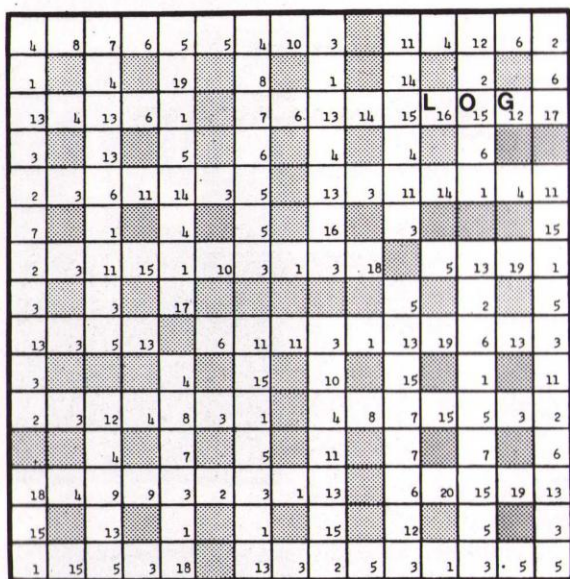
Performance Rating

Poor = 0
Fair = 1
Good = 2
Outstanding = 3



THIS crossword puzzle has only one clue—the word that is already printed in it.

SOLUTION IN NEXT ISSUE.



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COST

H C

2 0 An economy horse is infinitely cheaper and superior to the economy car, which tends to be three-wheeled and powered by a motor-mower engine. £2,000 horses tend to be the four-legged equivalent of a Lotus or BRM.

JONES VALUE

1 0 A £400 horse can provide far more snob value for money than any E Type or DB5. Not only that, it does not suffer from built-in dating. Rare is the person who keeps his car as long as a horse.

ROADWORTHINESS 2 0 Both horse and car are sold in drive away condition. But no licence, aftersales service, or driving test is required for the horse.

ACCELERATION

0 0 Equal.

BRAKING

1 0 The horse can halt almost within its own length, even at max. speed, although this may mean the parting of mount and rider. It can also spot danger, often before the owner.

MAX. SPEED

0 3 Car overwhelmingly superior.

GEARING

0 0 The equine gearbox has 4 forward speeds known as Walk, Trot, Canter, and Gallop in addition to reverse. Overdrive is also provided.

CAPACITY

0 1 The horse can carry as much as a car, but this impairs its performance.

FUEL/ECONOMY

1 0 Operating costs per mile are roughly the same. But the exhaust from a horse is a valuable by-product. It can also find fuel for itself, if necessary.

VERSATILITY

3 0 The horse can substitute for anything from a tractor to a water-mill, in any conditions from 6 ft. of water to near vertical slopes, an ordinary economy horse too.

MAINTENANCE

0 3 Car wins hands down.

REPAIRS

0 1 Crashed horse sometimes takes a long time to repair.

PASS. COMFORT

0 3 Although the exercise would do many a lot of good, only the leather-jacketed fraternity would be at home on a horse.

PASS. SAFETY

3 0 You can drink AND drive on a horse—if the horse knows the way home.

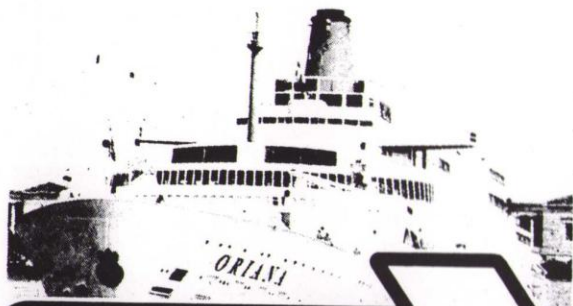
DO IT YOURSELF

2 0 All that is necessary are TWO horses, differing in certain fundamental respects. . . .

Horse wins. But illogical modern man, constricted by time, comfort and speed, has forgotten his 4-footed friend, the noblest of animals.

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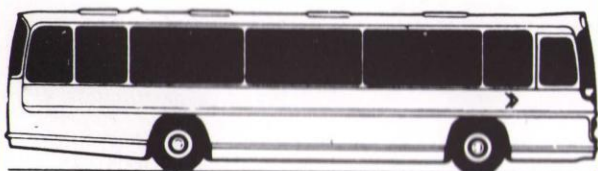
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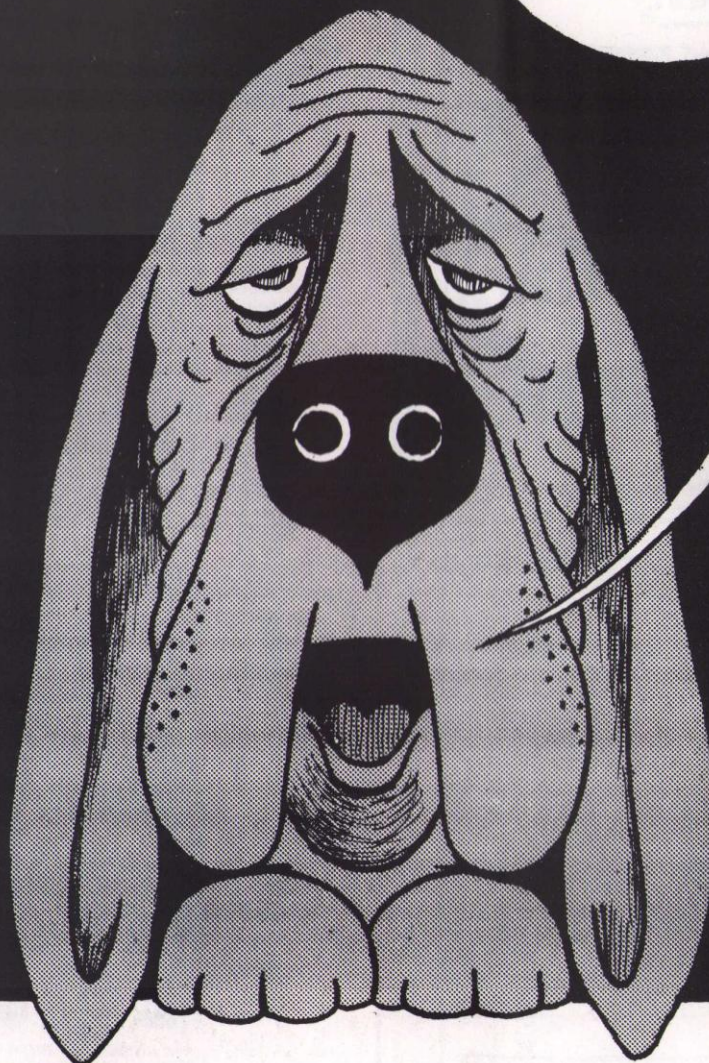
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