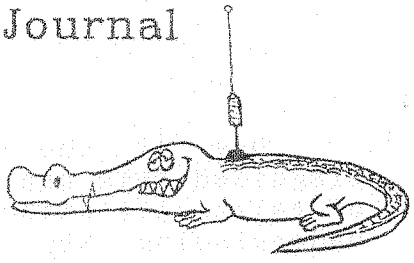
JEREMY

JEREMY : The Physics Society Journal



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CONTENTS

EDITORIAL

Welcome to a slightly belated 4th issue of Jeremy. The intention was originally to publish six issues this year, but it seems only five will actually hit the streets. Oh well.....

The contributions to this journal in terms of entries to the quotes competition has been outstanding. In other areas, with the great exception of a certain postgrad, who has contributed a lot of this issue, there have been almost NO contributions since the last JEREMY was been published. More specifically, there haven't been keep any articles submitted, either (with the same exception as already mentioned). **COME ON.** This year has seen spaceships of all shapes and sizes blow up, Halley's Comet, the accident at Chernobyl - the Sunday Telegraph even reported the 'face on Mars' - doesn't anyone have an opinion? There haven't even been any letters to the editor, calling us pinko Russian sympathisers, or reactionary conservative bastards. Is anyone alive out there?

Looking ahead this term, the Physics Society has a number of good lunchtime talks lined up, including Robin Williams from the ABC Science Unit. Just look on your noticeboards and blackboards for details. Also coming up is the final physics party for the year, at which the judging of the quotes competition will be held. Again, keep your eyes on the usual spaces for details.

Anyway, now the boring bit is over and you can get on and read the rest of JEREMY. Hopefully, it's reasonably enjoyable.

The following article refers to the report of a breakthrough in science discovered by two cancer researchers at the Royal Prince Alfred Hospital, on the western side of the campus. This was reported in the August 5 edition of the University News.

The Reid-Barsamian Theory

One of the sadder aspects of studying physics is seeing the misguided folk who think that they have disproved Einstein's theory of relativity without first understanding the theory or the results underpinning it; or who think that they have found a low level energy field. Steeped in mysticism, confusion and post-hoc logic, these theories usually die a natural death in the ego press. During the university break, however, one of these emerged in our own University of Sydney News. It was proposed by Drs Reid and Barsamian of the Obstetrics and Gynaecology (!) unit at RPAH, egged on by a Mr Robert Pope, the artist-in-residence (!!!) at the unit. The subsequent media coverage was a bizzare spectacle of misguided and often irresponsible reporting, culminating with Dr Reid and Mr Pope's appearance on Willesee, where their hybris got away from them and they claimed to have experimental evidence of God!

The theory itself arose out of misunderstanding the nature of an experimental control, believing it to be an energy field detector rather than a fault detector for their techniques. Their misunderstanding caused them to claim a low-level energy field, which causes cancer, transmits the effects of drugs to untreated bacteria, in control experiments; affects crystal growth; causes images of bacteria to be transmitted to polymer coated microscope slides; and whose effect is independent of separation of source and subject! They even provided a microphotograph of a so-called bacterial image. This looked more like a splodge where some solvent had remained in the polymer during the coating process, which then picked up the stain used.

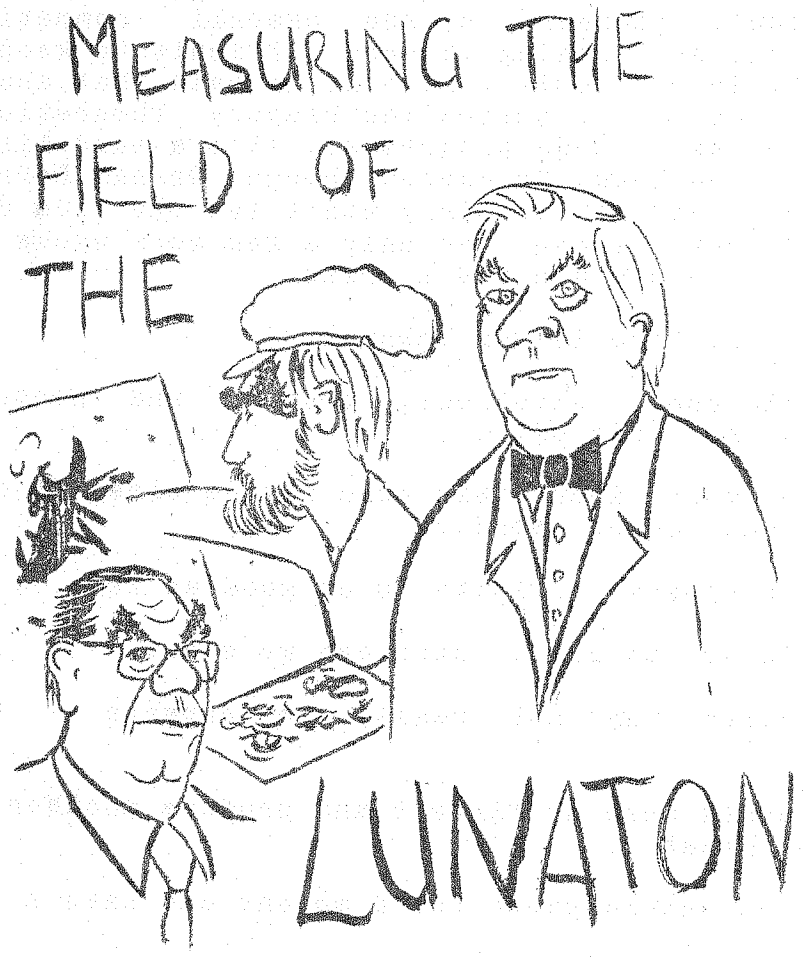
Just imagine what the world would be like if it were true though. It has some very interesting implications. Just think! All the CIA would have to do is to get an agent into the Kremlin, and have him smoke a few jays. The USSR would be putty in their hands! No need for massive immunisation campaigns. Just kill a petri dish full of microbes and all others of that species die in one foul swoop. No need to be afraid of needles in hospital either, when the drug can be given to a rabbit in the room next door and the patient still gets the effects. And as for mettallurgy! Hell, who needs BHP? Two piles of scrap-iron, the Reid-Barsamian field and BOOM! A monocrystalline bridge with no dislocations! Perhaps sunspots are really just images of bacteria on the sun caused by an outbreak of the 'flu in Marrickville!

Unfortunately, the Reid-Barsamian field, having its effect independent of distance, and in so complicated a manner, is not likely to be renormalisable, and would have inherernt self-energy. Far from being a creation forte, it would be a prevention of creation force! Oh well, thems the breaks, as they say.

The whole sorry episode should never have been allowed to happen. It has obscured any good science they may ahve done, and made a laughing stock of our institution. The moral is obvious. Put

not your trust in the scientific judgement of your artist-in-residence and remember why you do a controlled experiment in the first place.

Kevin Moore



' When a white robed scientist, momentarily looking away from his microscope or cyclotron, makes some pronouncement for the general public, he may not be understood, but at least he is certain to be believed...Thus the world is divided into scientists, who practice the art of infallibility, and non-scientists, sometimes contemptuously called 'laymen', who are taken in by it.'

Anthony Standen
from Science is a Sacred Cow

The Quotes Competition

This year's competition is nearly over, with the judging of the winners to be held at the next physics party, midway through this term. The selection of quotes in this issue contains some leftovers from first term that haven't been published yet and a whole lot of new quotes from Ian Johnston, Max Brennan and Bob Hewitt. Max, the leader of the 'Anyhow, Have a Winfield' Plasma Physics Team , has clearly boosted his team's chances in the overall competition. Other departments though, are finding it very difficult to keep up with this kind of effort. In particular, it must be said that,apart from Uncle Bob, the performance of the Australian Playboy Theoretical Team has declined as the season has progressed. It's a hard life up there on the fourth floor, you know. Be warned though. Graham Derrick makes a comeback this term, and he certainly won't let the side down.

Don't forget, there are only a few more weeks to go, so GET YOUR ENTRIES IN. It could win you a prize.

As promised, here is Max Brennan.

Let's talk about electrons, protons and neutrons - those things we can grab hold of...

We know more about this than anyone else. It doesn't mean a lot, but at least we're ahead...

For our purposes, infinity is as good as zero...

From this we can say... what can we say...

The experts may not really be experts - they may be chemists...

If I could snap my fingers and produce another tokamak, that would be just great...

Perhaps we should pause for a moment and have a little fun...

I save time if I cheat...

The capacitance still only comes out to be 10 puff...

If I charge up these little characters here - woho!...

Do they jiggle around? They did a little bit. They're not supposed to!...

How the hell do you guess the solution if you don't know it...

Physics is basically a cultural activity...

The experiment's done with cat's fur or whoever's fur it is...

How does that duster over there know that there is a duster over here with a charge on it...

And here is Ian Johnston

It's called 'atomic physics' for no particularly good reason..

Quantum mechanics is based on a tablet of stone which says that 'this simply cannot happen'..

I'm only doing this intellectual wanking for a simple reason..

I suppose I should have used the Lorentz transformation; waffle, waffle, waffle, bugger, bugger, bugger; factor of a half..

I've got three hours. I could give you three hours of Clebsch - Gordon or a buuger argument. Which one do you want ?..

What can we say about that? Sweet Fanny Adams actually..

Where have we got to? My God! We're still talking about electrostatic repulsion..

If you're going to worry about the order, then you'd better bloody well better do the whole thing relativistically..

I'm buggered if I'm going to spend time proving these results..

Last but not least... Uncle Bob

Lets just assume that F's small enough to be true...

This has been inflicted on us by experimentalists...

If we don't talk about them in the first place then it's rather meaningless to say they exist...

It's quite a devious demonstration, this one...

It's well, ah...the wrong answer to what's happenning...

They have little doo-dads on the wing...

I'd better put this down before I belt someone with it...

Today I'm a beaurocrat - I'm trying to sort people into boxes...

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and the rest....
In particular, -1 is irrelevant...Graham Derrick

This is a highly illegal type of wavefunction...Graham Derrick

Astronomers are strange people...Don Melrose

You'd expect L to be quantised because everything else is...Neil Cramer

...cute little things aren't they? It's amazing that quantum mechanics can be reduced to such a simple thing... Neil Cramer

It sees a dirty big positive charge so it experiences a really attractive force...Neil Cramer

$\int u_{kl}^*(r)\ H\ u_{kl}(r)\ dr$, this is terrific, wait for it, equals $E_k \delta_{kl}$ ...Neil Cramer

You have to be a little careful about who's doing work on whom...Bill Tango

It was uplifting, Harry!...Michael Large

The answers simple - you just stand there and do nothing...Harry Messel

This is a typical Halliday + Resnick problem - totally unrelated to reality...Dick Collins

Maybe (a) is slightly adulterated garbage...Dick Collins

Second year students are lucky if they realise that they're 10 orders of magnitude out...Michelle Storey

This one was found in the log book of a first year student

' Goddam uncertainties make me sick
so fudging the data does the trick
My results are a mess
but I couldn't care less
as long as I get my fifth tick. '

THE KIT KAT QUOTE RATE

The competition for this prestigious event is certainly becoming heated as the year progresses. Remember, the quote rate is calculated as follows

QUOTE RATE = (quotes published/lectures given) x 100

The surprise of recent weeks has been the performance of the Plasma Team. Max Brennan has joined the leaders, with the professor having the best quote rate seen for many a long season. Wisely, Max has retired for the season, and will be giving no more lectures. Can he retain his lead until the competition closes in a few weeks time, or will Graham Derrick finish the season with a flourish and overtake him. Will Ian Johnston's good form continue? Only time will tell.

At the close of second term, the standings in the quote rate were

Max Brennan	77
Graham Derrick	61
Ian Johnston	60
Dick Collins	57
Laurie Peak	55
Bob Hewitt	50

TALKSTALKS **TALKS** TALKSTALKSTALKS

Don't forget – lunchtime lectures have started again.

Coming up next:

Wednesday 17th September: Ian Johnston with UFOs, or, Close Encounters with Closed Minds

Wednesday 24th September: Emeritus Prof. Charles Birch on Science & Religion in the Post-Modern World

Wednesday 1st October: Dick Collins with Energy from the Sun: It lights up your life

FIVE GET INTO TROUBLE --- part 4

In the last exciting episode of this tale, Julian and Dick, having discovered that someone is secretly distilling whiskey in the Plasma Department, become trapped in the basement, amongst many empty bottles of whiskey. Anne and George tried to find Uncle Brian McInnes to help them search for the boys. They find themselves, however, mistaken for first year students, and locked in the first year laboratory.

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The boys sat for a short time in the dim, gloomy room, not knowing what to do next. The door was locked. They were trapped.

'Perhaps we'd better search the room.' Julian decided. 'We might find another door somewhere'

Dick agreed. So in the dim light, stumbling over empty whisky bottles, they felt their way around the walls.

'Hey ! I've found something.' Julian cried. 'Come over here and have a look at this.'

Julian had found a low, narrow door in the back corner of the room. Gingerly he turned the handle, and to his surprise, the door opened easily. It led into a dark narrow passage, that vanished into darkness a short distance away.

'It's so dark,' Julian worried,'I don't think we can go down there safely.' To his amazement, Dick produced a torch. 'Where did you get that ?' he asked.

'Ever since that episode in the caves under Kirrin Island, I always carry a torch.' his brother replied.

'Well done Dick!' Julian said and the two brothers ventured doen the passageway. It seem to lead forever. Julian noticed that although there were not many stairs, the passage always led up. They had been walking for an hour when they came to another low door, identical to the one they had entered. They had climbed so high that Julian wasn't sure they wouldn't find clouds, or even heaven on the other side of the door. Carefully, they opened it. They weren't in heaven, Julian realized with relief. There was a sign saying 'SOLAR PHYSICS'.

They closed the door behind them and peeped out of the small room they had entered into a corridor. Almost instantly, a voice boomed out,

'What are you two doing up here ?'

They were confronted with an incredibly tall man, who stared at them intently through a pair of powerful glasses.

'Good afternoon, sir,'Julian began.'I'm Julian and this is my brother, Dick. We are visiting Brian McInnes, and we've discovered something terribly important.'

'Yes, it's like that, isn't it.' the tall man began enthusiastically. 'I remember when I was your age - thinking everything I discovered was of world-shattering importance. That's why I like physics. It gives you a terrific feeling deep inside, doesn't it.'

The boys glanced at each other. They had no idea what the man was talking about.

'Excuse me, sir-'Julian asked.'What's your name ?'

'I'm Dick Collins,' the man said.'I'm the professor up here.'

Another strange professor ! Julian sighed. Were they all like this!

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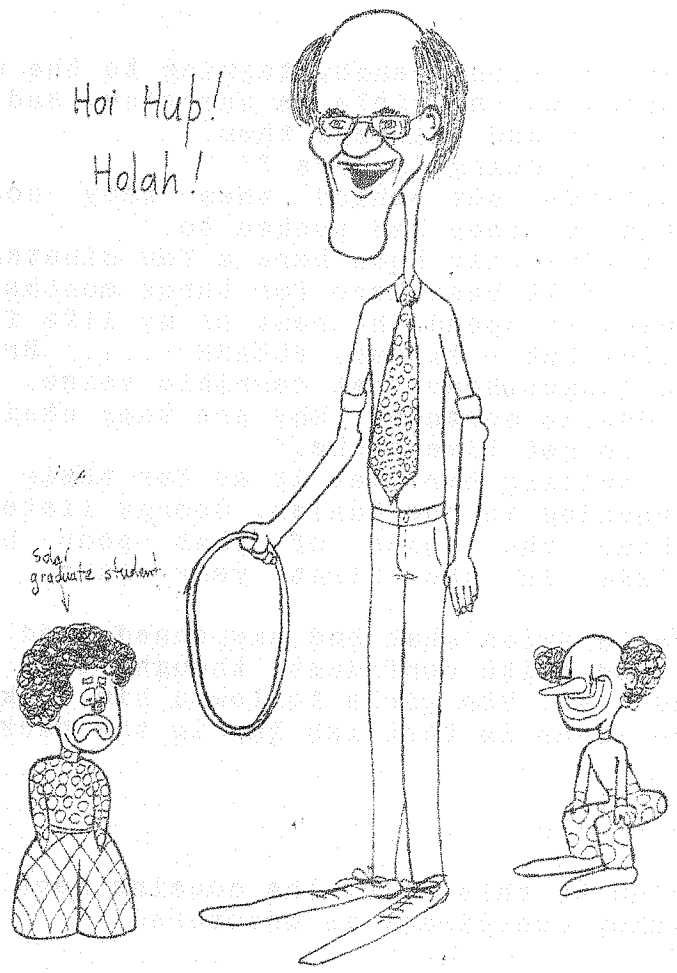
The girls stared around the lab. What were they to do ! Anne turned to the bench and studied the mass of wires strewn over it. She had no idea what to do.

'I want to know where Timmy is', George said in anguish.'I'm sure he must be in trouble or he would be here with me.'

'Never mind Timmy, George', Anne replied. 'What about us ? If we don't get out of here, we won't be able to look for Julian, Dick, or Timmy.' She looked doubtfully at the depressed faces of the two students opposite her. It didn't seem as though it would be better to ask anyone else in the lab, though. The entire room was full of gloomy, depressed, bored faces.

'Excuse me, can you help us please ?' she asked politely.'We want to get out of here as quickly as possible.'



Meet the Staff
No. 84
Professor Dick Collins

'Don't we all,' said the boy. 'You should complain! We've been here for three months. You have to get your five ticks or they won't let you out.' He rubbed at his leg where the chain was, and his voice became more desperate.'We've been here for twelve weeks

and I still don't know what a percentage error is or -.'

He broke down and began to sob uncontrollably. The girl next to him started to comfort him and gave Anne and George an annoyed glance. The two cousins looked at each other in horror. Were they stuck here forever?

'Perhaps we should ask one of those young men and women wandering about.' George suggested.

'You mean the demonstrators, the ones with the small whips?' asked the girl opposite. Her friend seemed to have quietened down. 'They're no help at all. I aked one of them for help about six weeks ago and all I got was a load of unintelligible rubbish about capacitors and resistors. And all the time he kept cracking that whip. I'm sure they don't know any more than they we do.' As if to confirm her story, a demonstrator, talking to another student, began cracking his whip and yelling

'Where are your bloody uncertainties!!! I don't know what I'm going to do with you students!!' CRACK!!! CRACK!!!

Anne turned away, all hope fading, and so she was startled when George shouted

'Uncle Brian ! Help us !'

Her uncle was standing at the front bench, talking to the man who had chained them up. He looked at the girls in surprise, and to their relief, immediately came over and unlocked them.

'Goodness me. Whatever are you doing in here ?'

He quickly bustled them outside, but behind them they could hear the hysterical voice of the boy they had spoken to.

'What's happenning - they've only been here a few minutes - and haven't got any ticks at all - WE'VE been here for three months - it's not fair - OH GOD, I don't want to spend the rest of my life in a physics lab - to die in a physics lab - Please, PLEASE -....' Brian closed the door and they could no longer hear that terrible voice.

'What is that in there?' George demanded. Why are they chained up like that? Why do they have to get five ticks.'

Her uncle cut her off, telling her that it as for their own good, and they had to be grounded in the basics. George listened quietly but she could still hear the voice of that poor boy, destined to spend his whole life in the first year labs. She shuddered.

The girls explained to Uncle Brian what had happenned, and how they had lost the boys. He seemed quite confident, though, that it would be no trouble to find them. The girls followed him back to the Physics building, but the scene in that lab lay in the back of their minds.

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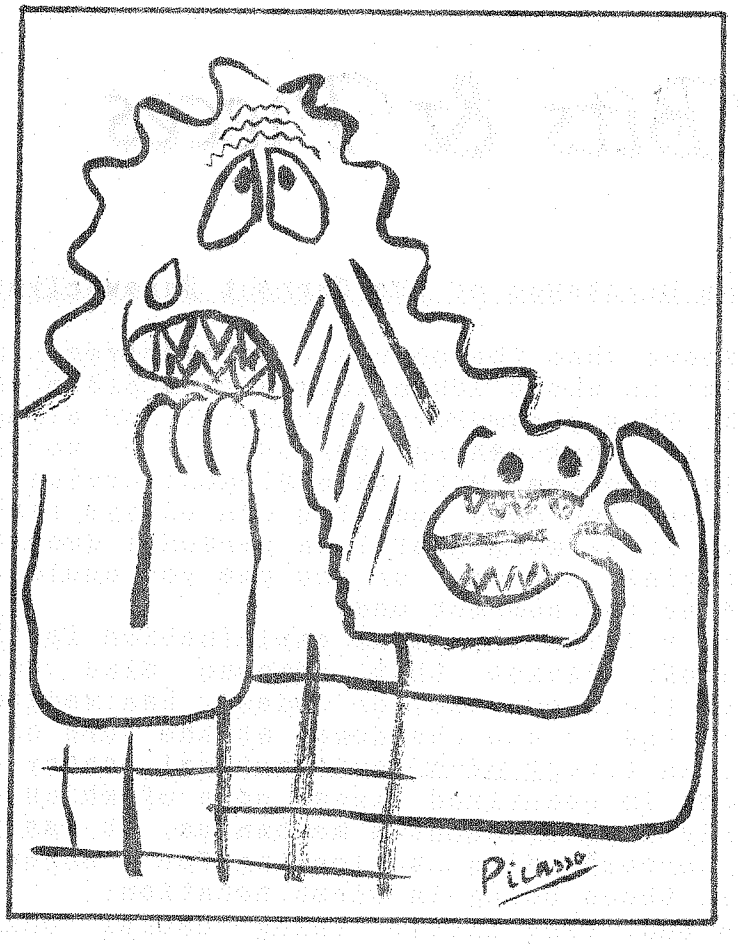
In the thrilling conclusion to this tale, the cousins meet up again and the root of the whiskey conspiracy is uncovered.



The School of Physics' Picasso **THE WEEPING CROCODILE** has been stolen by a group calling themselves the Alligator Cultural Terrorists. A note was left demanding increased funding for the crocodilean arts and an immediate ban on the import of Gucci accessories. Anyone with any information which could lead to its recovery should contact Harry Messel (awed whisperings in the halls of Physics) via the Physics Society.

THE GREAT NAME COMPETITION

Finally, there have been some reasonably original ideas for the name of this magazine. Of course, it's too late to change the name now anyway, at least for this year, but at least someone out there is thinking. Before going any further, it must be pointed out that Alison Chapman did not, as reporteed in the last issue, propose 'Bohrdom' as a name. In fact it was Stephanie Bowen. If I were Stephanie though, I would keep quiet about it. David Mau thinks that a good name for the journal would be 'The Daily Planck' or 'Vector, Victoria' or 'Ζουχς' - the last being the only five letters of the Greek alphabet that he knows of which do not represent physical quantities. David, unfortunately, will be very disappointed to find out that if he does physics long enough, he will encounter them all, even the first one , which happens to be a capital . Even allowing for this, you have to admit that the names aren't a patch on 'Jeremy'. Still, at least he tried.

Bits & Pieces

On the Existence of the Correct Screwdriver

Everyone knows what the correct screwdriver is. It is the screwdriver which is about 300mm long with a blade about 7mm wide and 0.7mm thick. This screwdriver is useful for almost any purpose, from screwing in most general purpose screws to wedging the door open. The only problem with this elegant device is that you can never find one when you need one. You can always find the one that is so small that it is more useful as personal decoration than as a device for driving screws, or the one you could always use as a crowbar, but never the correct one.

Why is this so? The classical explaination is that it is such an incredibly useful device that someone else has borrowed it indefinately for their own use, or indeed, has wedged the door open with it. This theory was abandoned at the turn of the century as being cynical, in favour of a semiclassical theory which said that screwdrivers come in quantized sizes, none of which are useful.

In the early days of quantum mechanics, it was postulated that the operator corresponding to looking for a screwdriver had only two eigenstates, these being in Dirac notation:

tiepin$\rangle$ = that tiny little thing useful only as personal decoration

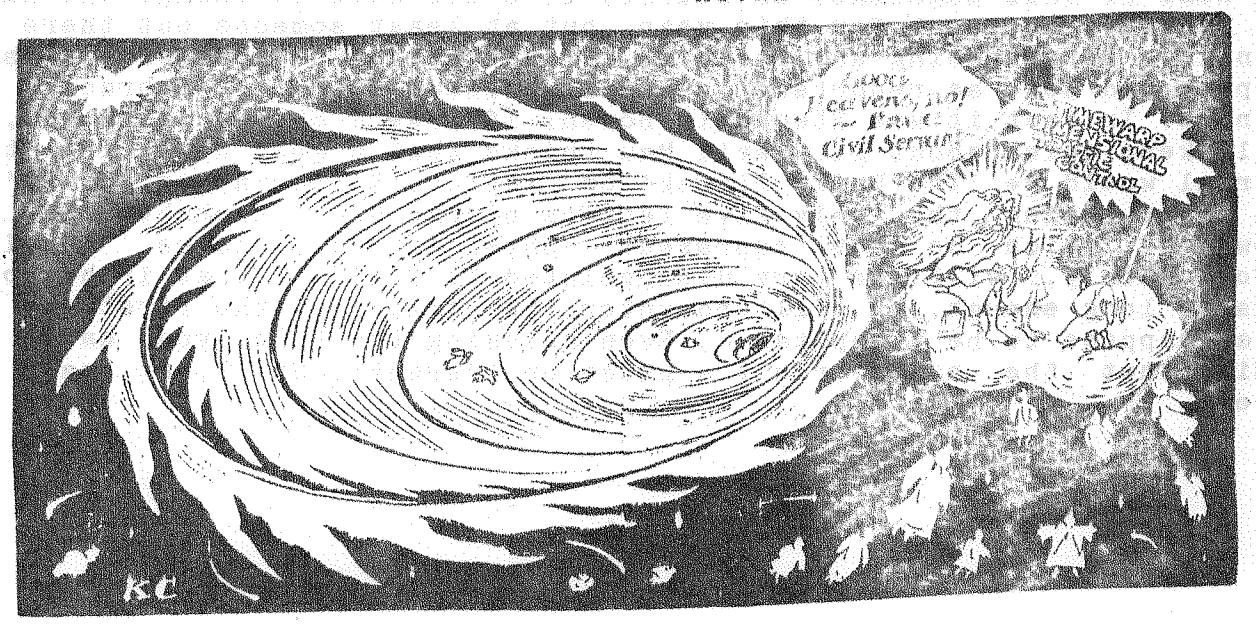
crowbar$\rangle$ = the monster driver that takes two to lift it.

In the late sixties and early seventies, a theory was proposed that screwdrivers conform to the SCREWU(2) class of gauge theories, in which the correct screwdriver was a necessary intermediate particle in spanner decay.

Recent experiments at CERN on the spanner-antispanner collider have detected screwdrivers of the correct size with a lifetime of $1.93\ 10^{-12}$ seconds, decaying into a tiepin$\rangle$ or a crowbar$\rangle$ and a screwino, one of silly, short, fat screwdrivers which are very good for butchering the slots in screws, but well nigh useless for anything else.

What this means is that you CAN find the correct screwdriver, but you've got to be quick.

Kevin Moore



PhySoc SPORTS REPORT

by Darren Kelly

The inaugural PhySoc Undergraduate vs Staff softball game was recently played and has raised some important questions.

Why did the ball seem to follow Eugene Senata around the field, no matter which position we put him in? And how did he manage to catch the ball with his eyes closed and arms extended towards Mecca?

How much did Pof. Melrose pay Sean Amy to record the final score as 19-11 in favour of the staff?

Why was the average age of the staff lower than that of the undergrads?

Why were the bases brought closer together when Kevin Moore batted?

Why was Jeremy Rutherford not playing?

Why was the participant to spectator ratio $3\pi^2$:1? And who was the irrational member of staff whose presence explains this ratio?

Was Dave green? (or was that just grass procured during tackling of undergrads to home base?)

Why did the Staff never explain the 15 Amp power lead connecting their bat to the Tokamak?

Why did such an unco collection of students bother to gather anyway?

And yet our honour is not so crushed that we will not accept a future challenge? Prof. R.E.Collins has suggested a sump oil sculling contest. However, given the performance of some of the postgrads at recent parties, it is clear that the students would have an unfair advantage. So we've settled on :

SUMMER SOCCOR (in spring)

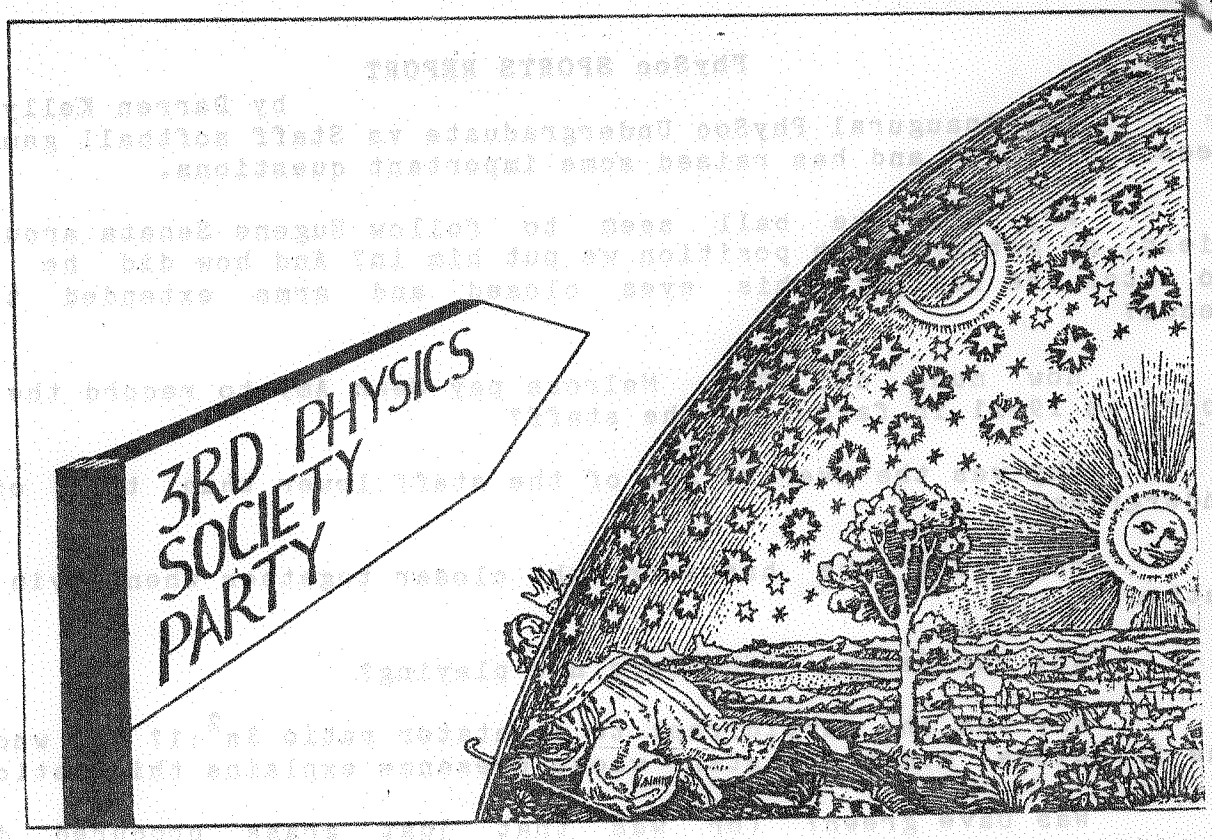
STAFF + POSTGRADS vs STUDENTS

THE SQUARE..(in front of physics building)

3 PM TUESDAY 16th SEPTEMBER

Staff -- see Dave Green (solar)
Students -- see Darren Kelly (IID)

We look forward to good participation, by guys, girls and engineers -- spectators as well as players.



On **FRIDAY** the **19TH** of September, the final physics party of the by year will be held.

The place is **THE SOLAR ROOF** at the eastern end of the building. To get there, just walk up the stairs opposite LT8. Just walk up and up and up....

The time is **5-00 pm.**

The highlight of this party will be the judging of the

QUOTES COMPETITION

and the awarding of prizes to the person who was actually quoted **as well** as the person who **sent the quote in.** If the person who wins the prize is not there at the party, he or she will simply not receive the prize, which includes a PhySoc-Jeremy T-shirt, worth 10 bucks.

Also at the party will be the presentation of the

KIT KAT QUOTE RATE

So don't miss out. Be at the solar roof at 5pm on Friday the 19th. There'll be beer, wine and orange juice along with various things to eat.

Members 50 cents Non-members 100 cents