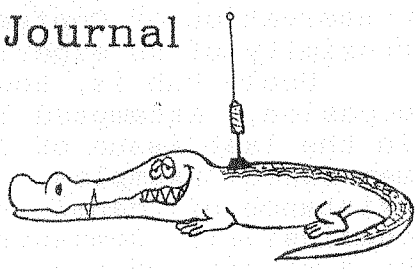
JEREMY

JEREMY : The Physics Society Journal



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EDITORIAL

Welcome to the third issue of **JEREMY**! This is the first of two issues we hope to produce this term - the editors' theses not withstanding. The contributions we have received for **JEREMY** are very encouraging, both in quality and number, however, we still need more! The number of entries received from most Years for the Quotes Competition has been good, the exception being Third Year, from whom we have, in all, received only three quotes.

The Society's Lunch Time Talks have proved quite popular and are continuing this term. A second Party is also being held this term (see back page). The response to our last party was encouraging, so this term we want to see a lot of new faces there, instead of the old drunken ones we have become used to.

The only really disappointing response we have had, is to the Great Magazine Name Change Competition. Now either everyone out there really likes the name **JEREMY**, or else you're all so stupid you can't think of a better one! The only two entries we have had are; Bill Watson of Physics I, who suggests we rename the "transmogrified phys-soc-rag" DIAMOND, after Isaac Newton's dog, as Bill reasons "it is better to be a loved animal than a vegetable humanoid", and Alison Chapman of Physics I who has proposed (she says she was forced to) BOHRDOM.

First we must state in Alison's defence that she has been a prolific - though usually indecipherable - contributor to the Quotes Competition. Nevertheless, BOHRDOM does not really express the sort of meaning we want to get across in our title. It's about as subtle as a Besa-Brick dropped from a great height - not particularly what we were after.

And as for Bill's suggestion... It would have been bad enough to suggest that we name the magazine after Isaac Newton - the man who recently won The Whimpiest Sap of the 17th Century award. True, he was brilliant - but a drip nonetheless. But to actually suggest we name the magazine after HIS DOG!

If Bill truly believes that Jeremy Rutherford is a real person, then maybe Physics isn't the career for him. Or perhaps he just wanted to show us that he could spell 'transmogrified'.

So come on! We want some original, inventive, humorous, subtle and meaningful suggestions - or else you'll be stuck with **JEREMY**.

UNCLE BOB HEWITT AND THE PAULI EFFECT

Uncle Bob is Australia's greatest living example of the Pauli Effect. This is a peculiar quantum phenomenon arising from the law of Conservation of Confusion, whereby any theoretical physicist in the proximity of an experiment causes its immediate and final collapse.

Uncle Bob is, however, not a man easily cowed, and has, on occasion, attempted lecture demonstrations. The cartoon which appeared in the last issue of J.Phys.Soc. (Moore 1986) shows one of the more memorable examples, when he completely failed to demonstrate the existence of canal rays. He thus remains the only physicist to conclusively demonstrate the existence of N-rays. On another occasion he demonstrated a heat engine which completely failed to work and on yet another occasion, he didn't get any heat from a bar radiator - at least not until he called an attendant, moved to the other side of the lecture theatre and showed the class Black-body radiation on a video.

Uncle Bob has his office directly above the Third Year laboratory and regularly demonstrates in the Physics ILS measurement lab. All students in these courses are therefore warned to shield their experiments from this effect. A three metre thick lead wall should be sufficient.

Uncle Bob, however, is nothing compared with the man who lends the effect his name. The effect was so strong in Wolfgang Pauli that on one occasion, the failure of an experiment at the University of Gottingen was correlated with a train carrying Pauli from Zurich to Copenhagen being stopped at Gottingen station for five minutes (Gamow 1962).

The theory of the Pauli effect is simple enough. In the course of their work, theoretical physicists do not usually come into contact with the real world, and the nature of their work makes them less confused. The law of conservation of confusion means that this confusion must go somewhere, and Heisenberg's confusion principle states that while it may remain close to them in the form of a field of virtual confusions, it had better go somewhere else damned soon.

Most theoretical physicists emit this potential confusion by giving undergraduate lecture courses, where a quantum of confusion is transferred to the class by means of the intermediate lecture blackboard. This is why you can understand Laurie Peak and Dick Collins, but not Don Melrose, Neil Cramer, Ian Basset or Graham Derrick.

For some theoreticians though, this is a forbidden transition and they cannot lose their confusion in this way - so they are trapped in a highly confused state until they come into contact with actual experimental apparatus, transferring a resonance particle in a high state of confusion to the apparatus, which subsequently undergoes catastrophic decay. This is the interaction by which Uncle Bob and Wolfgang Pauli lose their virtual confusion fields.

In fact, documents recently made available under the Freedom of Information Act in the United States show that it was proposed to put a number of theoretical physicists in a resonant confusion cavity, and set them to work, creating a population inversion in the confusion states which could be released by tossing a toy gyroscope into the resonant cavity. The incoherence beam thus produced would bring down any missile the Russians care to send over. Experiments were tried along these lines, but one produced the Carslaw Building, and the rest didn't work so the project was abandoned.

Gamow, G. 1962 Biography of Physics, pp246-247.
Moore, K. 1986 J.Phys.Soc. 1,19.

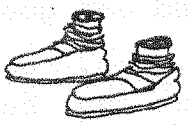
POST SCRIPT

'Uncle Bob' Hewitt has recently completed a conference tour of the USSR, where he was warmly received. Reports from Russian correspondents state that the scientific community in the USSR was astounded by the strength of his Pauli field - the strongest ever recorded in that country. When a paper was presented suggesting the existence of time advanced confusons - and proposing "that foreign Pauli" as the cause of certain recent major equipment failures, a minor diplomatic crisis loomed. Quick action by Foreign Minister Bill 'Butterflies' Hayden, however, smoothed ruffled Russian feathers and 'Uncle Bob' was hastened safely back home.

...oooOooo...

In our last issue, many people noticed our picture of Leon Poladian had no feet. We most sincerely apologise - we're actually surprised that anyone noticed the difference.So in order to rectify this lack ...

Meet the Postgrads - Number 2
Leon's Feet



NOTE :- Our regular column 'Nobel Prizes in the School of Physics' will not be appearing in this issue.

The Quotes Competition

With the beginning of the second term, the Quotes Competition has entered an interesting phase. In this issue, Laurie Peak makes his long awaited entry into the competition, the result of a flurry of activity towards the end of first term. Dick Collins has also continued the brilliant performance which rocketed him into the competition in his season's debut last issue.

Apart from these bursts of activity by such seasoned veterans, most of the lecturers which have dominated the competition so far have finished their innings, packing away their bat and pads. Others (the second term lecturers) now have the opportunity to leave their marks on the competition.

Some, such as Graham Derrick and Ian Johnston, will make comebacks in third term allowing them to improve their positions. Others will not be so lucky.

And so the competition marches on! Although not published in this issue, entries have already been received from Rod Cross's second year class. Rod is clearly continuing Ian Falconer's and Brian James' work of the first term, and doing a sterling job for the Plasma team. Ian Basset and Neil Cramer, meanwhile, have taken their marks for the Theoretical Department - though the brilliant opening stand of Melrose and Derrick will be a hard act to follow. We have even had an entry from our first astronomer - Bill Tango.

Clearly the competition is entering a new and exciting phase, and we can only hope that the rest of the season is as dramatic and engrossing a spectacle as it promises to be.

Don't forget to look out for those quotes - we ALWAYS need more! Entries for the Quotes Competition can be left in the Physics Society mailbox, opposite LT8.

Laurie Peak is an old hand at this game, and the editorial staff have been awaiting his first entries with bated breath. We haven't been disappointed.

"If you have got a hangover, blurred vision, etc. you will certainly get a value greater than ħ."

"That means most of your brain is empty space. Let's hope that doesn't mean there's no activity."

"Mother Nature knows all this (she's read the books) and has adjusted all hydrogen atoms to have this radius."

"The electron sits here, without a surfboard ..."

"Don't tear your hair out and go into a collapsed state when you see an exam."

"An operator is something that operates."

"You didn't know electrons were blue, did you?"

"The train is travelling at, say, half the speed of light. It can't be in Sydney, it must be somewhere else."

"The nucleus is a fascinating place to work."

"You could use your left foot rule."

Ian Johnston is a member of staff well known for his cutting invective, discerning mind and good taste ...

"Computer Science is a kind of intellectual masturbation. It's great fun, but it doesn't get you anywhere."

Dick Collins : Why does that happen Ian?
Ian Johnston : Aaaaahhhhhh ..... angular momentum?

Bill Tango is the first astronomer to be published in Jeremy - come on guys! Doesn't anyone else up there say anything funny?

integrate and differentiate them as you like without explaining how."

"This is an overall macroscopic characteristic".

Even Kevin Moore has had a quote entered - our first tutor.

"You get careless when you get old*"

We end the Physics quotes for this issue with the work of Dick Collins - a man whose grasp of the ridiculous has made him a legend in his own tenure.

"A lift driver accelerates it downwards to accelerate faster than g, since he wants to kill his boss ..."

"This is one of your typical destructive experiments."

"I can launch my cat with no angular velocity. I can hold him up by the legs and let him go."

"I'm going to go into intergalactic space - we've done a lot of that this term."

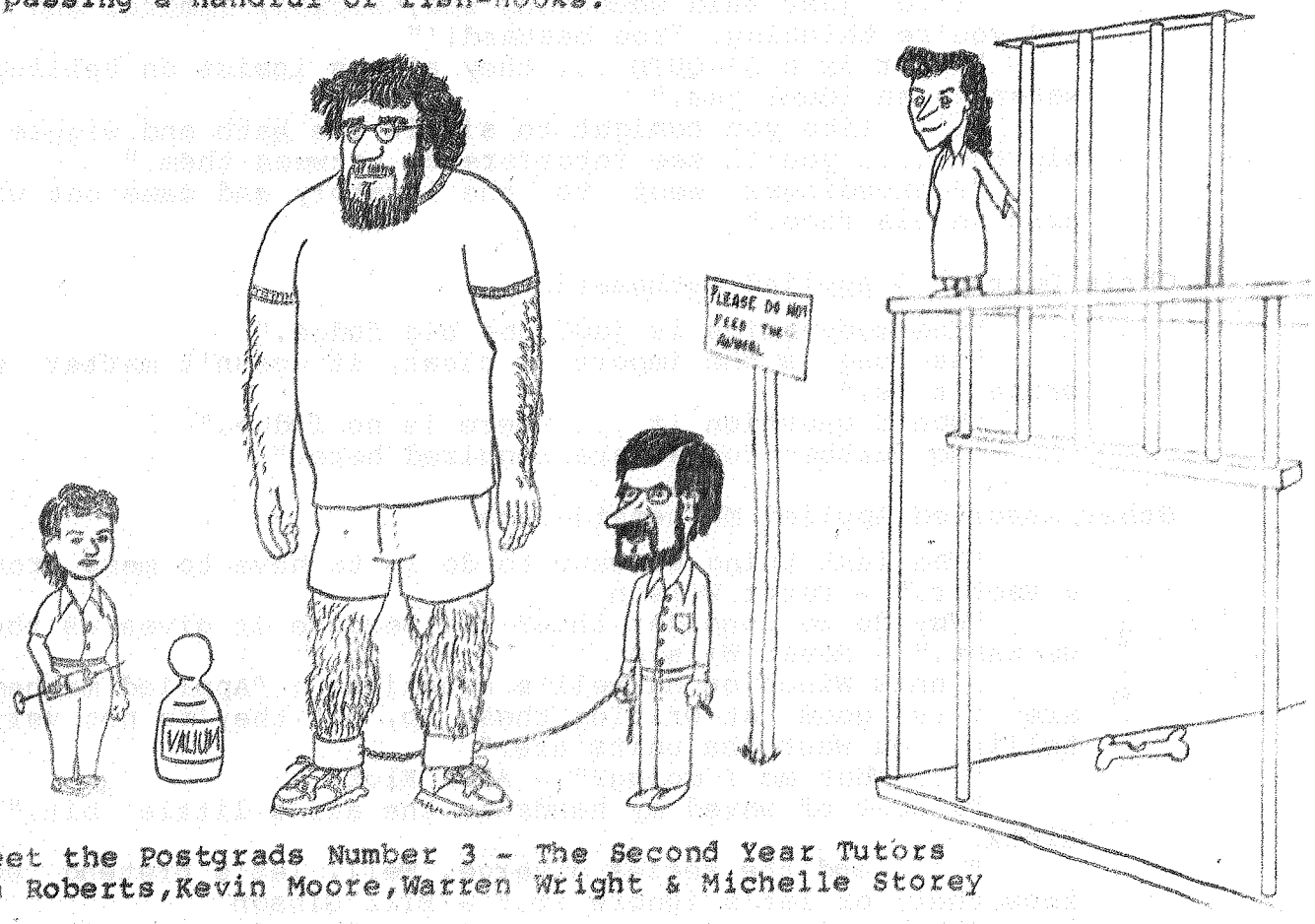
"We can do other interesting experiments associated with this beaker before we proceed to destroy it."

"You've got pretty well constant .... no .... It's a crummy experiment. I guess you've also got to have a good imagination. Trust me. It's a subtlety we don't wish to get involved in."

"We'll sit here and scratch ourselves while that occurs ..."

"Graduate students are the cheapest form of servo-mechanism ever devised."

Dick Collins on physics lecturers : "We talk as though we're passing a handful of fish-hooks."



Meet the Postgrads Number 3 - The Second Year Tutors
Ann Roberts, Kevin Moore, Warren Wright & Michelle Storey

*Recent radio-carbon dating tests of Kevin have, in fact, shown him to be at least 23×10^3 years old - far older than the 4000 year figure determined from previous ring counts. Certain creationists have heaped scorn on the proposal that Kevin existed long before the earth was created - those of us who know him, however, do not find anything hard to believe in this.

'foreign Quotes

We have received a large number of quotes from foreigners - you know, poor deluded individuals who chose the wrong career and decided to become Pure Mathematicians or - even worse - Chemists. Despite this (or perhaps because of it) they have been known to emit some amazing quotes.

Phil Kirkpatrick - Pure Maths,

"Bob! You're turning me on and off!"
"Everything on the blackboard is false."
"Margeret Thatcher might say 'Rejoice! Rejoice!' because we've almost proved it."
"I have a predeliction for proof by contradiction."

Associate Professor Gilbert - Chemitry,

"Le Chatelier's Principle basically says that 'Nature is a bastard'."
"If wild orgies keep on occuring at the back, just on the morals of the situation, I'll have to throw people out."
"If you've done well enough in the HSC to get into this course, ie essentially a positive IQ, then you should have no problem in the exams."
"I've just said something bad, wicked, immoral and wrong ... and you're thinking, 'You bastard!'"
"Water is a LI-QUID ... they always insist on telling me that water is an ideal gas."
"I'd like you tonight to sit in the bath and wiggle your two big toes ... you'll see interference between them."
"Schroedinger went to the lavatory and came out with a big grin on his face."

Chris Durrant - Applied Mathematics

"Thermodynamics is just one big fudge."
"As long as the import is clear, it doesn't matter what you write it as."
"Don't question it ... there is no fudge."
"No further fudges are required here."

Other Assorted Applied Mathematicians

"The last thing we want to do is to have to mess around with a vector." - Peter Wilson
"Why do we consider this? ... Becouse it gives us the result we want." - Peter Wilson
Dennis Winch on Maxwell's equations : "Applied mathematicians are very good at writing these up, but they're not very good at telling you what the units are."
"... What am I doing?" - Alex Klotz
"I sort of waved my hands in the air a little bit." - Alex Klotz
" ... and the series diverge. Well, let's pretend we didn't know that, or let's ignore it." - Bill Gibson
"Then we're going to get quite a lot of garbage here ... " - Bill Gibson
"NOBODY understands complex numbers." - Dennis Winch
"And what was I raving about? .. Ah yes." - Dennis Winch
"You've got to become used to wandering about in the complex plane." - Bill Gibson
"So when somebody blows his nose, the system will remain stable." - David Rees

FIVE GET INTO TROUBLE
Part III

In the last episode the children visited the Plasma Physics Department, and Julian and Dick discovered that someone was secretly running a whiskey still. This week, the boys find themselves in trouble, while George and Anne become trapped in the First Year laboratories.

Julian and Dick stared at the cases of empty bottles. Whoever was responsible for the still was clearly making a great deal of whiskey. The question was; who was drinking it all?

Suddenly, they heard voices approaching and quickly hid themselves in a cupboard. The conversation rapidly became clear as the voices neared.

"... so you see, we use the Tokomak as a still - drink some of it ourselves - slip a few bottles to the postgrad students to keep them quiet, and Bob's your uncle!"

The two men had entered the room. The man speaking opened a bottle already full, and offered his companion a sample.

Once he had finished coughing, his friend gasped weakly, "Not bad - not bad at all ..."

In a few moments, having recovered further, he added, "... but what about the academic staff - don't they realise what's going on?"

"The academic staff!!", the other man laughed. "Don't be silly - they don't know how the Tokomak works. We just tell them that the extra pipes are an air cooling pumping conditioner widget for the capacitor bank interchange control. They can't tell the difference."

"But wouldn't you keep having to come down here to turn it on all the time?", his friend asked. "That would look a bit suspicious."

"Oh no", the first man answered, "we have a tap upstairs that does that - we just tell them that the tap turns on the plasma feedback control circuitry, so they turn on the still, every morning, before they use the Tokomak, for us!"

"But haven't any of them ever caught on? I mean, you've been running this for years."

"Yes" the first man admitted. "Several years back one of them did - but we gave him an extra bottle every few weeks and that satisfied him ... Hey what's that noise?"

From far away came a voice calling the boy's names! Julian and Dick glanced at each other, but couldn't call back. What could they do! Meanwhile the discussion had continued.

"And the post-graduate students - none of them find this a bit ... well ... unethical?"

"The postgrads !!", the man exclaimed. "They drink more of this than everyone else put together! No...no... we've got this all worked out just fine."

"But anyway", he added, moving to the door, "I have to get back to work."

As the men left, the boys heard a key turning in the lock on the door. They were trapped!

Rushing to the door, they heard the voices fading into the distance.

"Have you tasted the gin they're making up in the Solar department? It's not too bad at all .... "

The girls waited for quite a long time for the boys to return, but they were becoming more and more concerned. George wanted to dash off after them.

"Oh Anne! You're such a worrier. I'm sure if we just go down those stairs, we'll find them. They can't have gone far.

"No George", Anne replied firmly. "What if we become lost too. I think we should seek help."

Finally George agreed, but insisted that they at least go to the bottom of the stairs and look. They peered into the gloom, and George shouted the boys' names. There was no answer. The two girls agreed that they shouldn't go any further. As they climbed the stairs, they saw Max Brennan pass the top of the staircase, muttering under his breath.

"I don't know what's wrong with young people today ... How does the pink light appear? ... what a silly question."

The girls paused, until they could no longer hear him.

"I don't think we should approach him, do you Anne?" George asked.

"No!" Anne agreed. "Let's find Uncle Brian."

They set off, and were out of the building before they realised that that they didn't know where he was. Excusing herself politely, Anne asked a stranger, who replied that he didn't know, but added, "Ask Professor Melrose - that's him coming down here now."

The girls turned and saw a small wiry man running towards them, jogging at about 200 km/h. They stopped him, with some difficulty. He was very red in the face, had a bandage and knee supports on both legs, and looked as if he was about to die.

Despite this he told them in a quite normal voice, that Brian would be in the First Year laboratories that afternoon. This said, he set off again, quickly accelerating to 200km/h.

"I wonder if all the professors in this place are as strange as the one's we've met", Anne thought to herself, but George was already racing over to the Carslaw Building. Anne quickly followed here. She noticed though, the number of joggers, young and old, who passed her heading towards the Physics Building. Like Professor Melrose, they all looked as if they were about to die and ran at 200 km/h

"Roll up, Roll up, Roll up!"

They soon found the First Year laboratories, high up on the 4th floor, (they later learned that this was to make suicides quick and clean) and going to the nearest door peered in. The girls couldn't believe their eyes.

The lab consisted of four long tables, which went lengthways down the room. On each table was a frightening assortment of equipment; one

up at the top of a what looked like a guillotine with water gushing out all over the place - despite the frantic efforts of students to stop it.

This however was not the worst of it. The students themselves were seated along each bench, leg irons holding them to their positions. A fierce man cracking a long whip stood at the front of the lab.

"Hurry up students", he called. "You must have finished this section by five o'clock."

Strolling around the room were four younger looking people - each one cracking his or her own short whip. Although most of what they said was unintelligible, every now and then one of them would shout out at some poor student.

"UNCERTAINTIES!! UNCERTAINTIES!! You haven't put them in!" Crack!

"Where did you get that Liquid Paper from!!" Crack!

"It's just not good enough." Crack! "DO IT AGAIN!!"

Anne started to tremble. Then the man at the front of the room spotted the girls peering around the door. He raced over and grabbed them both by the wrists.

"Come on you two. You should have started the experiment by now."

Not listening to their protests, he forced them to sit down at a vacant spot on one of the benches, and quickly locked them in by the ankles.

"Now hurry up. You've got to have 5 ticks by 5 o'clock!"

The girls stared at each other in shock. What were they to do?

End of Part III

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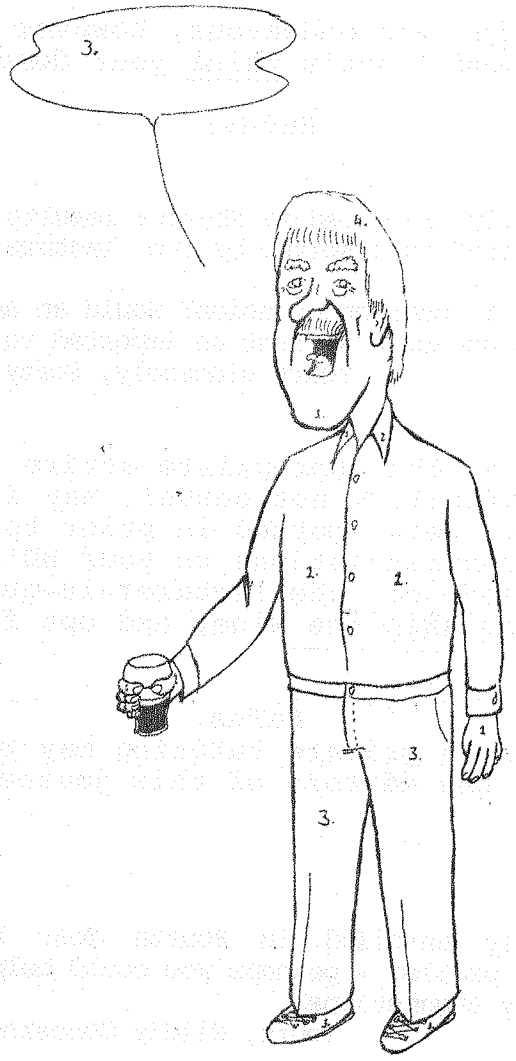


COLOUR IN

DR. GARRETT

1 POMMY PINK
2. LIGHT PINK
3. PASTEL BLUE
4. PALE YELLOW

DEAR RUFUS

If you have a problem, Rufus can help you. Please direct any correspondence to 'Rufus', c/o Physics Society mailbox, opposite LT8.

Specialising in etiquette and personal problems of discerning Physicists.

Dear Rufus,

I need help urgently. I am desperately in love with my Physics demonstrator. However he doesn't notice me. How can I gain his attention and favours.

Yours Infatuatedly, U.T.F.

Dear U.T.F.,

You really have a problem, I can suggest the following courses of action which MAY achieve the required results :

1) Stop using deodorant and/or toothpaste,

2) Don't forget to use error bars on ALL your graphs, and try putting the date on every page,

3) Attention can be gained by damaging the most expensive looking piece of apparatus on your bench - in a wilful manner. WARNING:This is a last resort measure only.

4) Find out about his thesis and cultivate an interest in this field - have 4 or 5 relevant questions ready to ask your demonstrator.

I wish you luck in you endeavour, however I have examined the class lists in question, and I don't <u>think</u> your demonstrator is gay.

Rufus.

Dear Rufus,

I have recently received my Physics results for Lent Term. I got 13% and have been invited to a soiree by the lecturer in charge to discuss this result.

What should one wear to such an occasion? Would an Australian wine be adequate, or does such an occasion warrant an imported variety?

Yours sincerely, Forty-Inch Bust.

Dear Forty,

It is clear that the appropriate attire for such an occasion is not too formal, but definitely not casual. May I suggest the leopard skin ensemble that you were spotted in prior to the Science results publication last year. (Congratulations on your HD's).

After an examination of the lecturer-in-question's waste paper basket I would suggest you skip the wine, and opt for a case or two of "Bailey's Irish Cream".

Rufus.

P.S. It is obvious that some private tutoring may be of advantage - I can be contacted through the editors of this journal.

Dear Rufus,

I am currently enrolled in Fourth Year Physics and have recently noticed a small problem - perhaps you could help? I do not have a project topic as yet. Any suggestions?

Yours, Mildly Concerned.

Dear M.C.,

At this stage of the year I would not be overly concerned - it only takes 10 to 15 minutes to photocopy a project. A fully

completed project thesis can be obtained through this journal on a variety of "original" topics at competitive prices.

I reiterate, don't be concerned or worried in the least. In late September contact the Editor for a full catalogue and price list of available projects. Naturally, quality of work will be correlated with price.

Rufus, B.Sc.Hons. (Class 1)

P.S. A selection of Ph.D. theses are also available.

...oooOooo...

Bits and Pieces

Heaven is hotter than Hell - Applied Optics II, A14 (1972)

The temperature of Heaven can be rather accurately computed from available data. Our authority is the Bible: Isaiah 30:26 read, 'Moreover the light of the Moon shall be as the light of the Sun and the light of the Sun shall be sevenfold, as the light of sevendays.' Thus Heaven receives from the Moon as much radiation as we do from the Sun and in addition seven times seven (forty-nine) time as much as the Earth does from the Sun. The light we receive from the Moon is a ten-thousandth of the light we receive from the Sun, so we can ignore that. With these data we can compute the temperature of Heaven. The radiation falling on Heaven will heat it to the point where heat lost by radiation is just equal to the heat received by radiation.

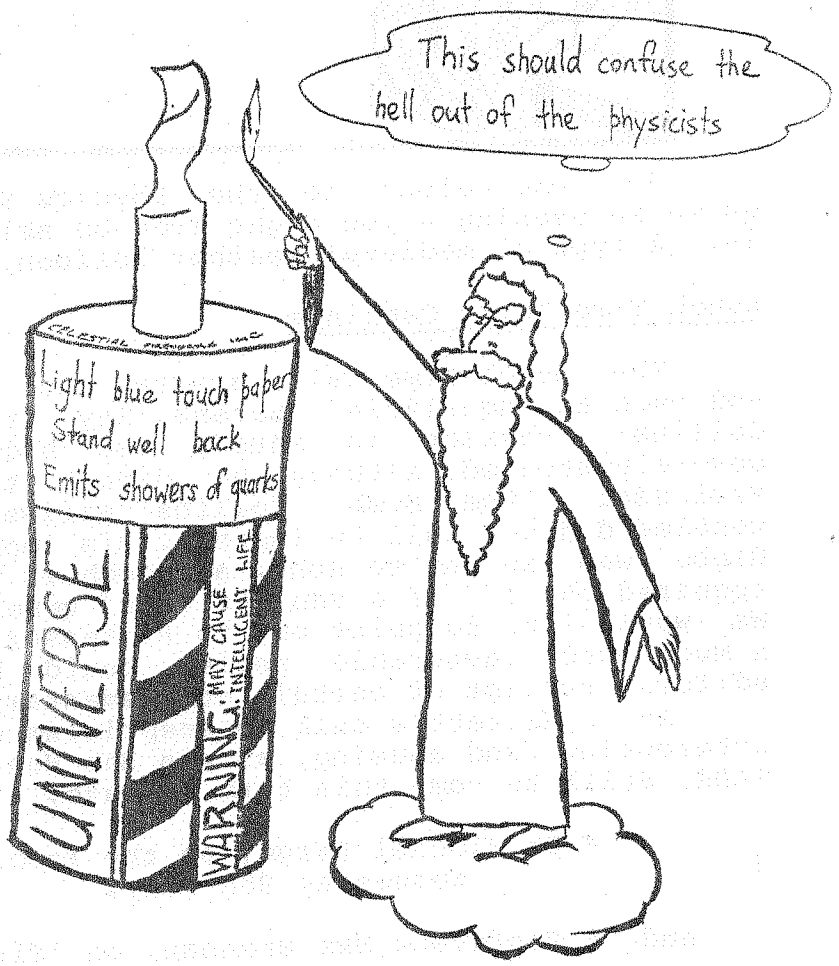
In other words, Heaven loses fifty times as much heat as the Earth by radiation. Using the Stefan-Boltzman fourth-power law for radiation,

$$\{H/E\}^4 = 50,$$

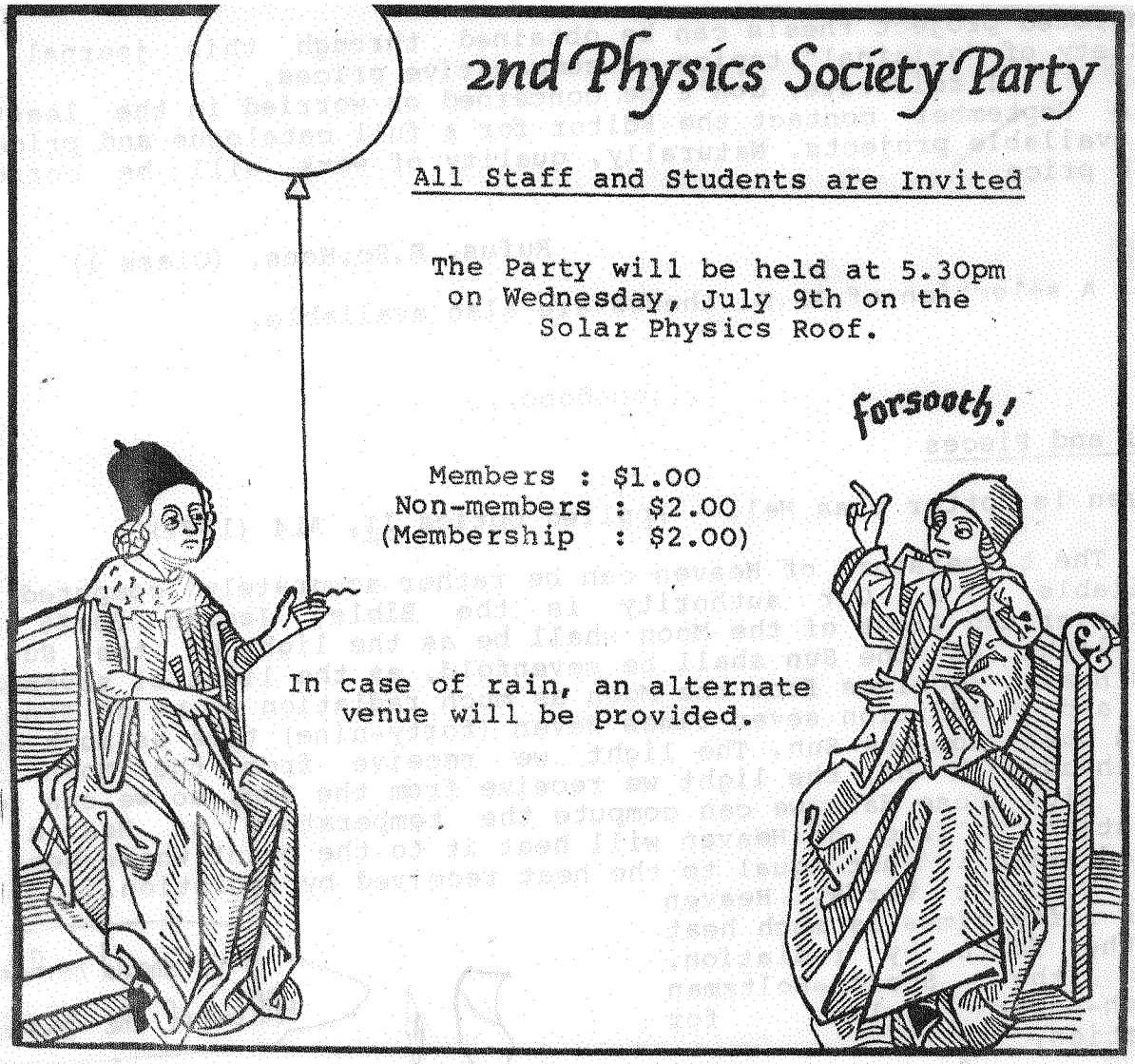
where E is the absolute temperature of the Earth - 300K. This gives H as 798K (525C).

The exact temperature of Hell cannot be computed but it must be less the 444.6C, the temperature at which brimstone, or sulphur, changes from a liquid to gas. Revelation 21:8: 'But the fearful, and unbelieving ... shall have their part in the lake which burneth with fire and brimstone.' A lake of molten brimstone means that its temperature must be below the boiling point, which is 444.6C. (Above this it would be a vapour, not a lake.)

We have, then, temperature of Heaven 525C. Temperature of Hell, less than 445C. Therefore, Heaven is hotter than Hell.



The 'Big Bunger' theory



So come along to the Physics Society party. It promises to be quite an evening - you might even be able to find out what a 'forsooth' is. (A type of medieval weather balloon, perhaps?)

Lunch Time Talks Continue

The Lunch Time Talks started last term, have continued this term, and been an unqualified success. Any student who did not see Dick Collins' "Physics is Phun", has had his or her scientific growth severely stunted. Although he didn't tell us what a forsooth is, Professor 'Atom Bomb' Collins' series of bangs, smashes, screams and wobbles did not fail to impress. His impression of the Greater Crested Glebe was second to none, although it was a bit disappointing that he required the aid of a Van der Graaf generator to achieve this effect. We would like to point out to Professor Collins at this juncture, that a much more favourable review could have been engendered by the editors' receipt of certain complementary lamingtons.

Anton Garrett's talk on scepticism was also well attended and very interesting and amusing, as was Bob Hunter's presentation on behalf of SANA. Still to come this term we have;

* Dr Michael Large, on the fascinating MOST.
Wednesday 9th July.

and * Professor Max Brennan, on 'Fission, Fusion and the AAEC'
Wednesday 23rd July.

All talks are held at 1pm, in Physics Lecture Theatre 8, and are totally free. Anyone is welcome to attend.