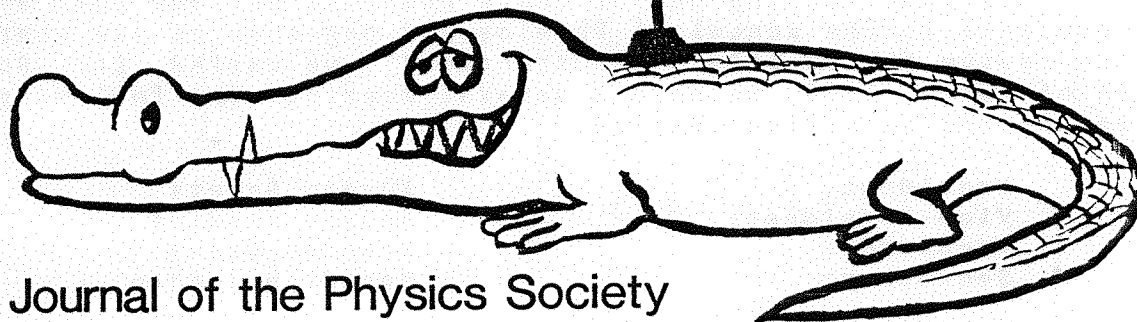


JEREMY



The Journal of the Physics Society

Vol.2 No.1

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As you can see, JEREMY and the Physics Society have survived into a second year. A special welcome goes out to all those first year students who are reading this magazine for the first time, and who might be wondering what it is, and indeed, what PhySoc is. To put it simply, the Physics Society is a club of people, mainly students, who have something to do with physics. Its membership is open to just about anyone. What it does is to fund and organise student activities such as sports games, lunchtime talks, this magazine and, of course, PARTIES. For a fuller guide to our activities, see the report inside on last year's events. Also, the first year people may find that they don't understand many of the puns and jokes in this issue. Don't be discouraged though, as by the time you've been here a few months, most of it will make a lot more sense.

Hopefully, this year will see even more activities get off the ground, and even better parties. The first of these parties is the **BLACK HOLE PARTY** on Friday, the 13th of February. Lunchtime talks are being arranged and as you can see, the first issue of JEREMY is out for the year. So a good start has already been made.

One thing that everyone should remember is that this magazine runs on contributions from the staff and students, so if anyone has anything they think might be of interest, drop it into the PhySoc letterbox opposite Lecture Theatre 8 in the physics building.

As the term hasn't really started yet, there isn't much else to say, except to advise you not to forget the **BLACK HOLE PARTY** on Friday the 13th. Judging from last year's parties, it is something that you can't afford to miss.

PRESIDENT'S REPORT - 1986

The Sydney University Physics Society has had a mixed history; at times it has thrived, and sometimes it has been, to all intents and purposes, dead.

It was during one of these comatose periods that a number of us students in the School of Physics got together to see what we could do to revive the society. "Resurrection", we called it. So on the 12th of March, 1986, we held a general meeting. The following students were elected as office bearers:

President:	Eugene Seneta
Vice-President:	Andrew Jenkins
Treasurer:	Brendan Casey
Secretary:	Meredith Jordan
Representatives:	1st Yr : Stephanie Bowen 2nd Yr : Shaun Amy 3rd Yr : Danny Madigan 4th Yr : Helen Johnston Postgrad : Leon Poladian
JEREMY Editors:	Christopher Tinney Mark Bowden
Other committee members:	Patrick Manning Alison Chapman Darren Kelly Simon Hunt Nick Cerneaz

Much to everyone's surprise, the society got off to a flying start, and has kept the momentum ever since. What follows is a summary of our activities in 1986.

Society Journal: Known to one and all as JEREMY for reasons I won't go into, our journal has proved to be extraordinarily popular. In 1986, we printed a total of five issues, and issued them free to students and staff. Articles took the form of serials, a very successful quotes competition, assorted doggerel, anti-ratbag articles, cartoons and other contributions.

Lunchtime talks: The Physics Society traditionally holds talks during Wednesday lunchtimes in Physics Lecture Theatre 8. All talks are given free by staff or, occasionally, by outsiders to the school. During 1986, a wide assortment of talks were given, ranging from "Bell's Theorem; Or How to Stop Worrying about the Universe Being Conscious" to "The Star Wars Program: Should Physicist's Participate?" They were generally very well received. Those who gave talks put in a lot of time and effort to prepare them, considering they weren't paid to do it. A list of all 1986 talks can be found in issue no. five of JEREMY for last year. To all those who gave talks, thank you.

Parties: Three parties were held during the year, one every term, either on the Sloar Physics roof or in the staff tea room. By and large, they were subdued affairs, except for the last, which was a memorable occasion (the presentation of prizes for the quotes competition) and well worth the entrance fee. All parties were generally subsidized by the Student Union.

Sport: Two sporting events were held last year, a softball match and a soccer match. In the softball match, the students gave the staff a good run for their money, but lost despite extensive cheating. The soccer game was also lost, possibly because it was more difficult to cheat. Everyone had a good time at these matches. If anyone can think of something the staff are not any good at, please let us know...

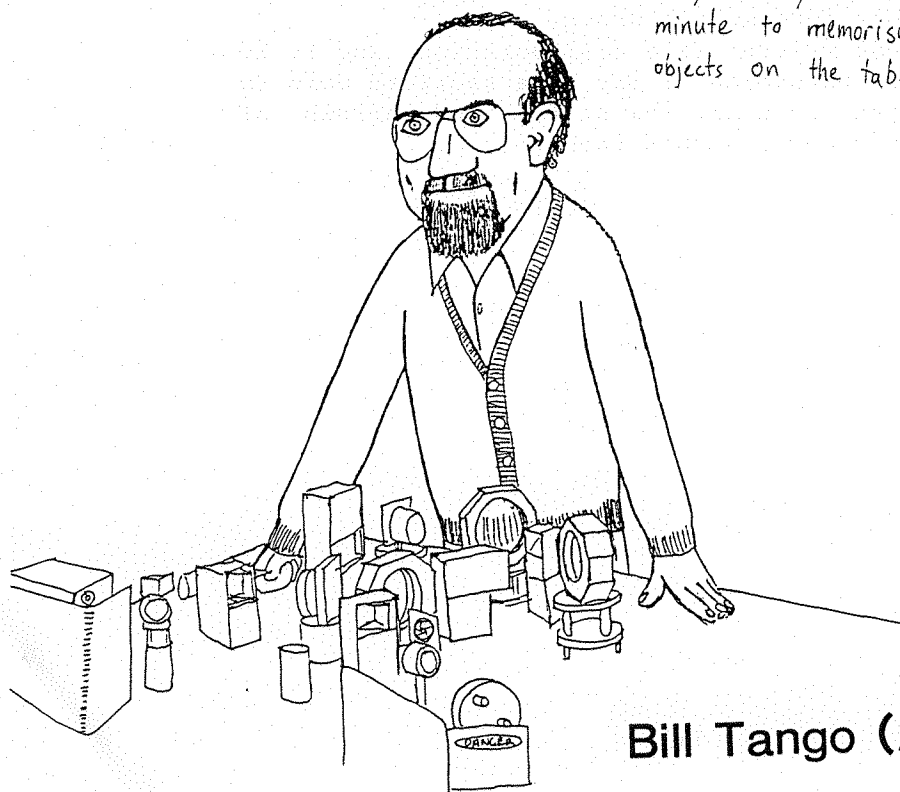
Excursions: In early 1986, a trip was planned to see Halley's Comet. Unfortunately it never got off the ground; we had trouble getting cheap transport, trouble getting a good telescope, trouble raising enthusiasm for the trip. A more successful excursion was one to the Lucas Heights nuclear reactor. We may try for a more detailed tour there in 1987.

Other activities: The society has produced T-shirts with the Society's crocodile logo. Unfortunately, these are a little big for the average person, but are reputed to shrink in the wash. We have donated one to Robyn Williams, of Science Show fame, as a token of appreciation for a talk he gave us during the year. Membership cards are printed for all Society members, who receive a discount at parties. Several competitions were held; the aforementioned quotes competition being one, a journal name competition being the other. The former thrived, the latter fizzled.

The society has, largely to the enthusiasm of all its members, had an amazing recovery in 1986. We all fully intend to keep the patient healthy and growing in 1987. To all those who have put in the hard work to get the society where it is, my heartfelt thanks.

Eugene B. Seneta
(President)

Okay, now you have one
minute to memorise the
objects on the table...



Bill Tango (Astronomy)

TROUBLE IN PARADISE : BARSAMIAN OPTS OUT

The following article refers to the continuing saga of the Reid-Barsamian experiments - where two scientists from the RPAH claimed, in the University News, to have discovered a new low-energy force.

There is trouble in the paradise of Obstetrics and Gynecology. Late last year, as the followers of the Reid-Barsamian bunfight will be interested to hear, Dr Barsamian tried to opt out of the whole affair. He wrote a letter to the NEWS, which appeared too late in the year for JEREMY, saying in part, "I am thankful that the material referring only to my work was written exactly as I said it, without exaggeration" [my emphasis]. He later suggests we reread the original article in this light, and says "I do not take any responsibility for the rest of the article which did not refer to my words" [my emphasis again].

Removing the three pages for which he takes no responsibility leaves two paragraphs. They contain the only possibly useful result in the entire article; that the dielectric constant of mouse skin changes after exposure to ultraviolet radiation, and the claim of a new "Aether vortex" theory of a "low energy electromagnetic field." I disbelieve this interpretation as I do not see that a change in the dielectric constant of a mouse requires an Aether, the evidence against which is compelling.

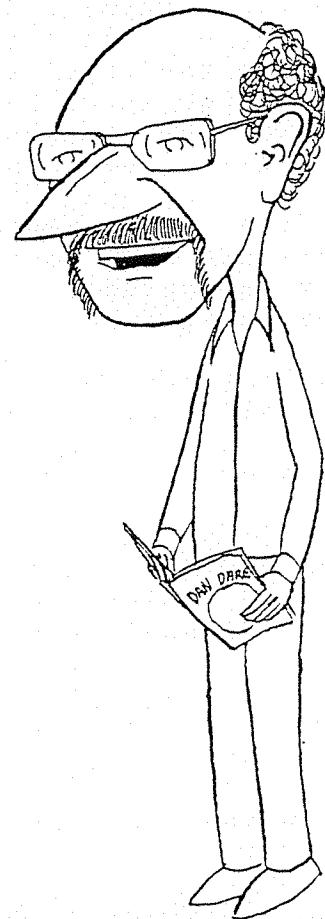
His previously published work (Phys. Lett. 107A,414-418,1985) contains a similar result with a somewhat more prosaic explanation accompanying it. I also doubt this one, but at least it makes no appeal to obsolete ideas. Having also read some of Dr Reid's work (Aust. J. Med.Lab.Science 7,30-35,1986; App.Phys.Comm. 4(2-3)217-239, 1984), I am inclined to the view that the bulk of the garbage in the original article is due to Dr Reid. It should be noted that although it is Reid who describes it as an "Aether Vortex" theory, surely he can't have gotten something this fundamental wrong.

The original article was written as a collaboration, and it is difficult to separate out pure Barsamian. I may have ascribed more to him, or less, than he would like. Such are the slings and arrows of having allowed your name to be used in such a fashion.

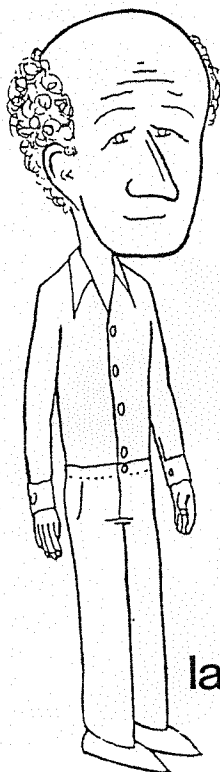
Kevin Moore



LIKE ALL SCIENTISTS, THIS ONE WAS VERY ABSENT-MINDED



Ferg Brand (Plasma Physics)



Ian Basset (Theoretical Physics)

The Quotes Competition

It is time to declare this year's Quotes Competition off and running. For anyone who needs an explanation, the Quotes Competition is simply a competition where students send in quotable quotes from lecturers, tutors, lab demonstrators, anyone. The best quotes are published in JEREMY and at the end of the year, at the third term party, the best of these quotes are voted on, to decide the "QUOTE OF THE YEAR". Below are a selection of the best quote's of recent years, while on the next page are the first entries in this year's competition. These quotes are actually from the end of last year, but were entered too late for the 1986 competition. So, to be fair, these are allowed in this year's competition. All entries are to be either sent to the Physics Society (c/o School Of Physics) in the internal mail system, or just dropped in the PhySoc letterbox opposite Lecture Theatre 8 in the Physics Building.

The "QUOTE OF THE YEAR" wins a prize for the person who was quoted AND the person who sent the entry in. So start listening to your lecturers - even the dumbest could win you a prize.

Here are some quotes of yesteryear. As you will see, some of the people are from outside the school of physics, but this is perfectly acceptable. They aren't in the competition - but we will print any thing funny.

Going to lectures in mathematics is no use at all - John McMullen

First we prove the proof - Terry Gagen

Then you wouldn't have a problem : in fact, you wouldn't even have an equation - Michael Yerbury

Mention of elliptic functions raises strong emotions in many people - Dennis Winch

I got it wrong the same way twice - Andrew Parle

I thought I brought my hypersurface with me - Brian McInnes

There is a rather amusing result which turns out to be useless in most applications - Don Melrose

Obviously,

$$K_e = \langle K \rangle - 3\epsilon f_2 \delta K^2 / \langle 3K + 4 \rangle + 9\delta K^2 [f_1 f_2 (f_2 - f_1) \delta \lambda + 2\delta \lambda A] / \langle 3K + 4 \rangle^2 \\ - 27\delta K^2 [\delta \lambda^2 f_1 f_2 (f_2 - f_1)^2 + 4\delta \lambda \delta \lambda (f_2 - f_1) A - 4\delta \lambda^2 C \langle 3K + 4 \rangle / \langle 3K + 4 \rangle^2 \\ + 4\delta \lambda^2 B \langle 3K + 4 \rangle / \langle 3K + 4 \rangle^2] / \langle 3K + 4 \rangle^2,$$

and

$$H_e = \langle 4 \rangle - 6f_1 f_2 \delta \lambda^2 \langle 4 + 2 \rangle / \langle 5 \rangle \langle 4 \rangle \langle 3K + 4 \rangle + 6f_1 f_2 \delta \lambda^2 \Gamma / \langle 5 \rangle \langle 4 \rangle \langle 3K + 4 \rangle \\ - 18\delta \lambda^2 \delta \lambda^2 [2f_1 f_2^2 + (f_2 - f_1)(3A - f_1 f_2 (f_2 - f_1))] / \langle 5 \rangle \langle 3K + 4 \rangle^3 \\ + 24\delta \lambda^2 \delta \lambda [(f_2 - f_1)A - 3B + \gamma(3C_1 - (f_2 - f_1)A)] / \langle 5 \rangle \langle 4 \rangle \langle 3K + 4 \rangle^2 \\ + \delta \lambda^2 [8\gamma^2(3E - C) - 8\gamma^2(6\gamma + 3D_1 - 2C - 8) + 4\gamma(5B + 6C + C)] \\ - 13B - 9(f_2 - f_1)A - 2(f_1^2 f_2^2) / \langle 5 \rangle \langle 4 \rangle^3$$

where

$$A = \sum_{k \neq 0} \sum_{m \neq 0, \frac{1}{2}} \frac{(k, m)^2}{k^2 m^2} \omega(-k) \omega(k-m) \omega(m),$$

$$B = \sum_{k \neq 0} \sum_{m \neq 0, \frac{1}{2}} \sum_{n \neq 0, \frac{1}{2}} \frac{(k, m, n)^2}{k^2 m^2 n^2} \omega(k-m) \omega(m-n) \omega(n-k)$$

$$C = \sum_{k \neq 0} \sum_{m \neq 0, \frac{1}{2}} \sum_{n \neq 0, \frac{1}{2}} \frac{(k, m, n)^2}{k^2 m^2 n^2} \omega(k-m) \omega(m-n) \omega(n-k)$$

and

$$A_1 = \sum_{k \neq 0} \sum_{m \neq 0, \frac{1}{2}} \frac{(m, k)^2}{m^2 k^2} \omega(m) \omega(k-m) \omega(-k)$$

$$C_1 = \sum_{k \neq 0} \sum_{m \neq 0, \frac{1}{2}} \sum_{n \neq 0, \frac{1}{2}} \frac{(m, k, n)^2}{m^2 k^2 n^2} \omega(m) \omega(k-m) \omega(-n)$$

$$D = \sum_{k \neq 0} \sum_{m \neq 0, \frac{1}{2}} \sum_{n \neq 0, \frac{1}{2}} \frac{(k, m, n)^2}{m^2 k^2 n^2} \omega(m) \omega(k-m) \omega(-n)$$

$$D_1 = \sum_{k \neq 0} \sum_{m \neq 0, \frac{1}{2}} \sum_{n \neq 0, \frac{1}{2}} \frac{(m, k, n)^2}{m^2 k^2 n^2} \omega(m) \omega(k-m) \omega(-n)$$

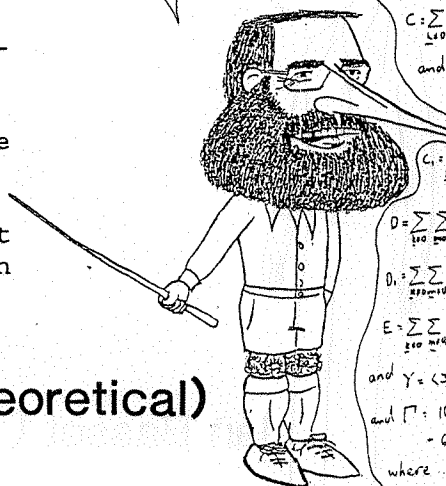
$$E = \sum_{k \neq 0} \sum_{m \neq 0, \frac{1}{2}} \sum_{n \neq 0, \frac{1}{2}} \frac{(k, m, n)^2}{m^2 k^2 n^2} \omega(m) \omega(k-m) \omega(n-k)$$

$$\text{and } \gamma = \langle 3K + 4 \rangle / \langle 3K + 4 \rangle$$

$$\text{and } \Gamma = 10\langle 4 \rangle^2 (f_2 - f_1) \delta K + \delta \lambda [5\langle 4 \rangle \langle 3K + 4 \rangle (f_2 - f_1) \\ - \langle 6K + 2 \rangle^2 (f_2 - f_1) + \langle 3K + 4 \rangle^2 (\gamma_1 - f_1)]$$

where

Ross McPhedran (Theoretical)



Here are the first entries in the 1987 competition.

This is one of the most variable constants of all time - Dick Hunstead

This lecture is becoming more profound than is appropriate at this time of the morning - Dick Hunstead

Suppose we have an ensemble of universes - Dick Hunstead

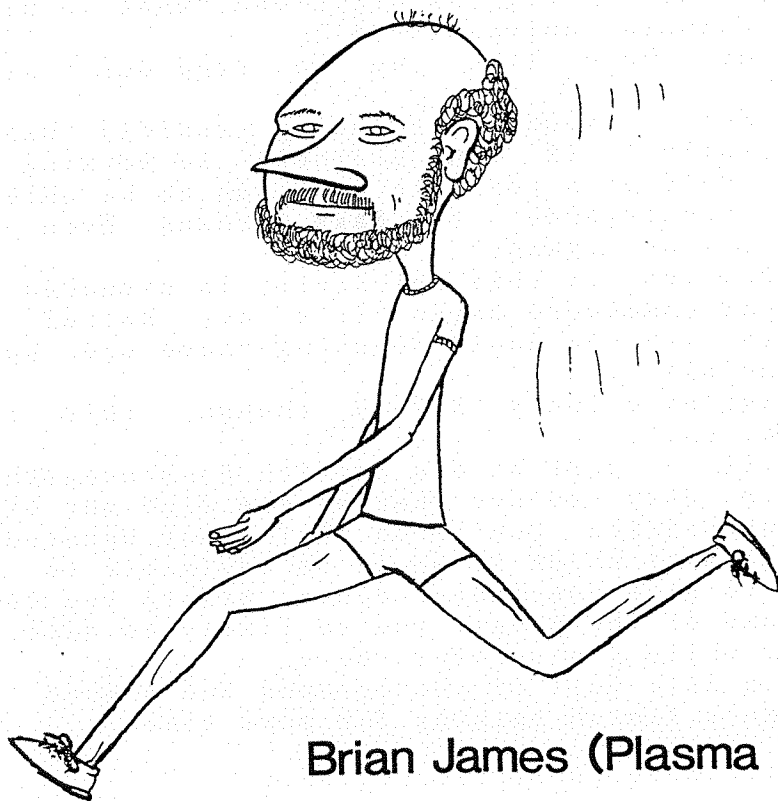
The following are a collection of quotes from a recent scientific conference.. Though they don't count in the competition, they are worth printing for their own sake.

This is very convenient...Well, very convenient is a slight exaggeration - actually it's a bloody nuisance.

The mathematicians stop here and say "Let's go home."

The first thing to do is to solve the equations. We can find out later if these solutions really exist.

...which is very interesting - for theoretical physicists anyway.



Brian James (Plasma Physics)

BIGGLES IN AUSTRALIA



When Biggles, in answer to a call on the intercom, entered the office of his chief, Air Commodore Raymond of the Special Air Section at Scotland Yard, he was greeted with a smile which he knew from experience was not prompted entirely by humour.

"I'm not much for betting, sir, but I'd risk a small wager that what you're going to tell me isn't really funny," he observed as he pulled up a chair.

"That would depend on how you looked at it," answered the Air Commodore drily. "Serious matters can sometimes provoke an ironical smile. Take a look at this. I thought you would like to see it." He pushed across the desk a picture which had obviously been cut from a newspaper.

The picture showed a group of men standing in a cluttered room. They were dirty, unshaven and, Biggles thought, looked generally disreputable.

"Recognise anyone?" asked the Air Commodore whimsically.

"Of course," replied Biggles. "Our old friend, Erich von Stalhein, no less. Where was this taken?"

"You're looking at the Nuclear Physics Department at a university in Sydney, Australia," the Air Commodore answered.

"A university in Australia!" Biggles exclaimed. "What in blazes is von Stalhein doing in a colonial university?"

"That's exactly what we'd like you to find out," stated Raymond.

Biggles was silent for a moment, thinking rapidly. "Wait a moment," he said thoughtfully, "if von Stalhein is working in a Nuclear Physics department, he'd be a terrific position to be able to pass on secrets to his old friends - the East Germans. Even so, I don't see where I come in. I'm an airman."

"The School of Physics at this university is situated near several large ovals," the Air Commodore began. "It's our belief that von Stalhein and any others with him could be using these open spaces for midnight helicopter landings."

"I see," replied Biggles quietly. "Surely, though, this is a job for the Australians, not us."

"Australia is still a part of the British Commonwealth. As such, I think it is our duty to see what we can find out before informing the Australian authorities. You'll be flying out Wednesday," the Air Commodore told Biggles. "I think it would be advisable to take out your own aeroplanes, to give you independence. Before you leave, I'll give you the gen on some of the people you're likely to meet. You may have to tread carefully while you're over there."

Raymond pulled out a file full of photographs and showed them to Biggles. The two men didn't finish talking for some time.

Biggles walked into his own section and spoke briskly to several men waiting there.

"Algy, get the Otter ready for a long trip. Bertie, you prepare the Halifax. We're flying to Australia on Wednesday morning."

"Australia!" exclaimed Ginger excitedly.

"Oh, I say," remarked Bertie. "This should be fun."

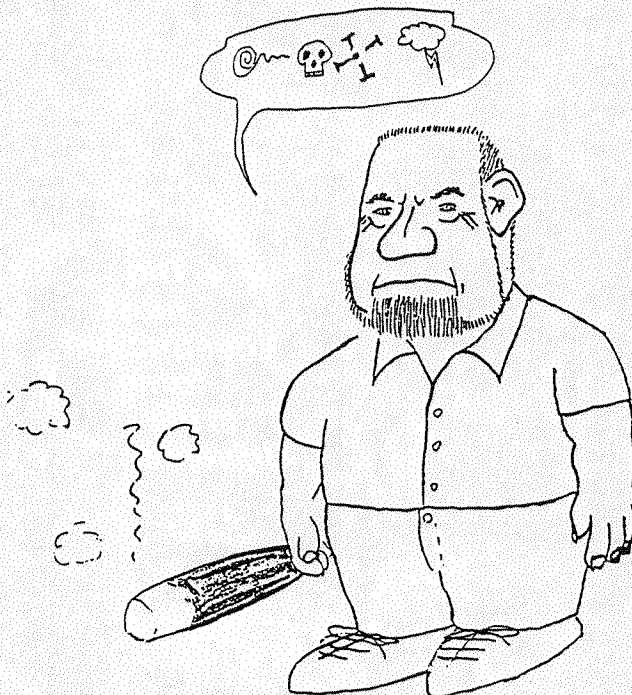
"As a matter of fact," said Biggles firmly, "it's very, very serious." He quickly outlined to his colleagues the information he had been given. He then produced the file of photographs and passed the top one around.

"This is a photo of Harry Messel," he began. "He is the head of the School of Physics, which is where we'll be basing our operations. He's quite prominent amongst the Australian scientists, and according to our information, has a reasonably volatile personality. He would probably be quite upset if he discovered we were nosing around in his territory. He often, however, leads expeditions into tropical Australia, and if we're lucky, he won't be there."

"If my memory serves me correctly," interrupted Algy, "There are large deposits of uranium in Northern Australia."

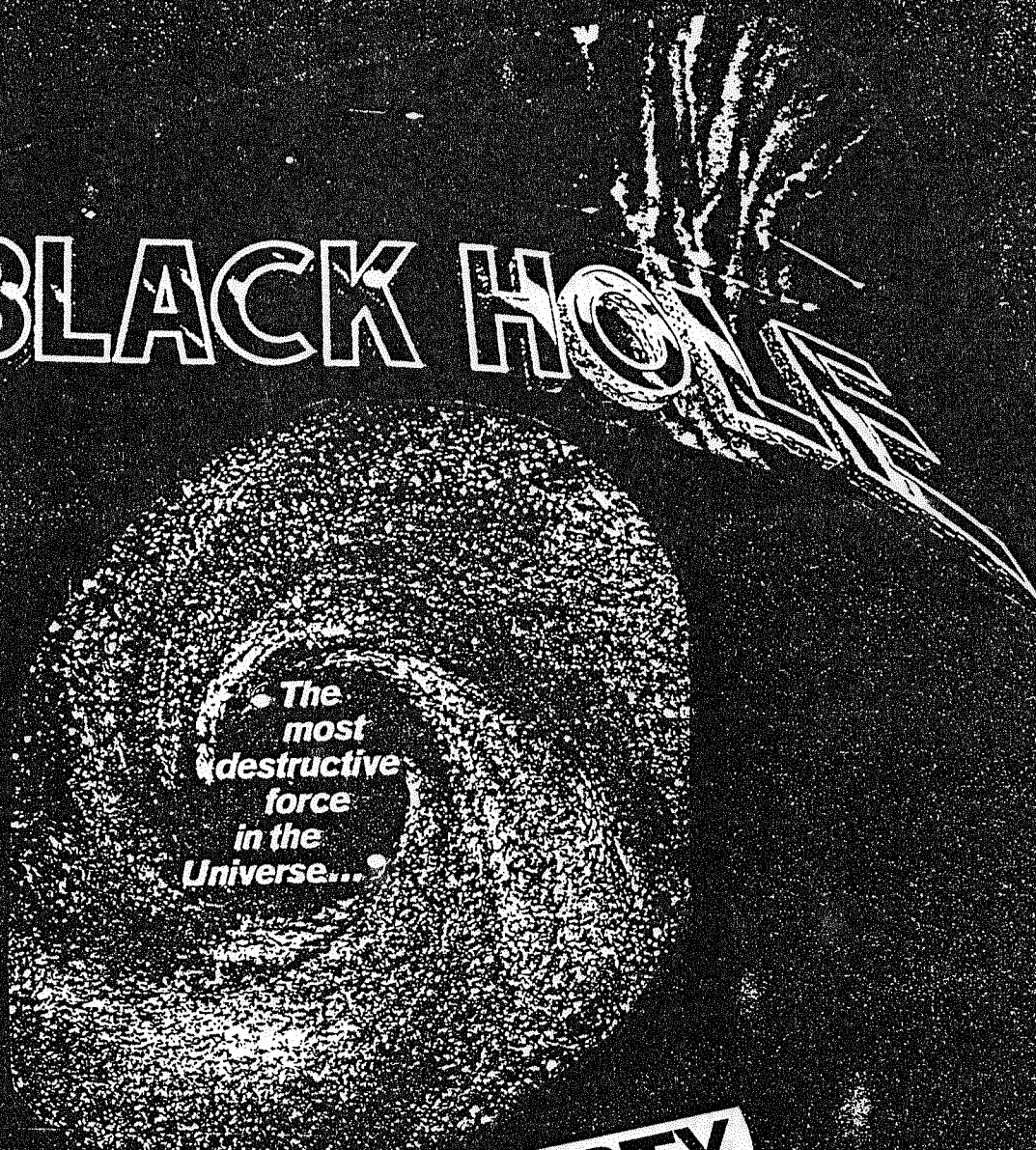
"Good thinking, Algy," said Biggles seriously. "We'll have to keep that in mind. Perhaps this Messel fellow does have something to do with this whole nasty business. Anyway, we'll find out more in Australia. We're unlikely to get much rest once we're away, so I'd advise you all to get as much blanket drill between now and Wednesday as possible."

The air detective strode from the room, leaving the others to wonder about the fierce unfriendly continent which was their destination. One by one, they took Biggles advice and moved off to bed.



What is Biggles arch enemy doing in an Australian university? Is there anything sinister behind Harry Messel's trips to the tropics? Will anyone suspect Biggles and his colleagues? Dont miss the next exciting instalment of this gripping tale!!!

THE BLACK HOLE



• The
most
destructive
force
in the
Universe... •

BLACK HOLE PARTY

FRIDAY THE 13TH OF MARCH 5 PM

ON THE SOLAR ROOF

- up the stairs opposite LT8 in the PHYSICS building -

PhySoc members free non members \$2