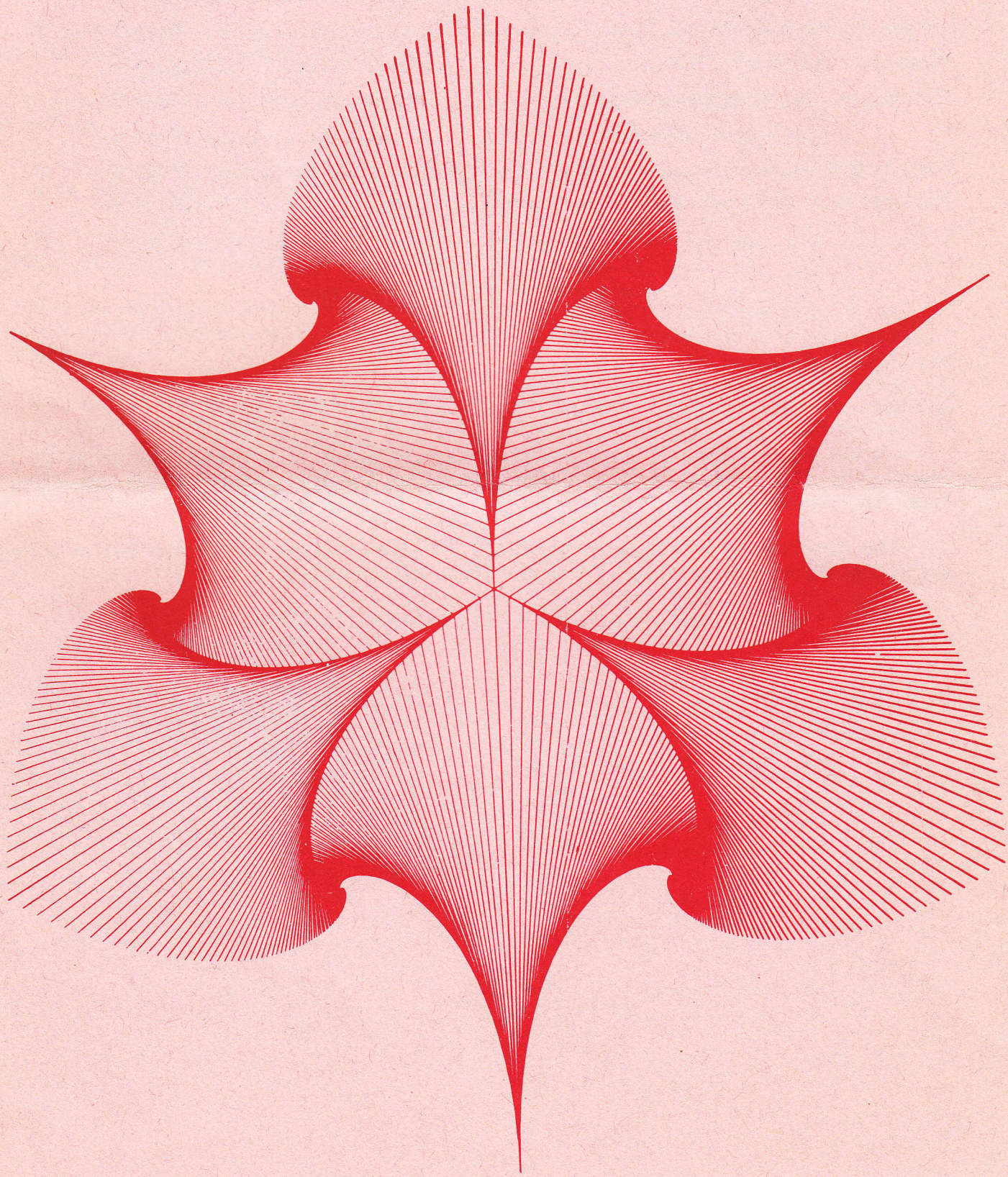


Jane Gibson 50

SCIENCE BULLETIN



THE SCIENCE BULLETIN

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THE BULLETIN STANDING COMMITTEE

Mr. Lachlan Peter
Mr. Peter Ashenden
Mr. Peter Leibich

It has been brought to our attention that the Bulletin Standing Committee is starting to ~~PETER (????)~~ out as Peter Crisp from the Bulletin Committee has withdrawn from University.

The Committee would like to thank all those who helped to put the Bulletin together and those who helped collate it and all those people who dare read it.

NOTE - The cover is dedicated to our beloved president.

EDITORIAL

Well yet another Bulletin chews its way into your every day traumatic routines. We are using new material in this edition as we feel that if we use the same crossword, some people may already know the answers.

The annual Dinner was held last Friday and it was its usual success. A report will hopefully be forthcoming in the next edition of this ever so popular publication.

The previous Function by the Association was the Annual Reorientation camp, a report of which is contained within this issue.

One date to remember for the future is the A.G.M. on September 20th in South Dining Room.

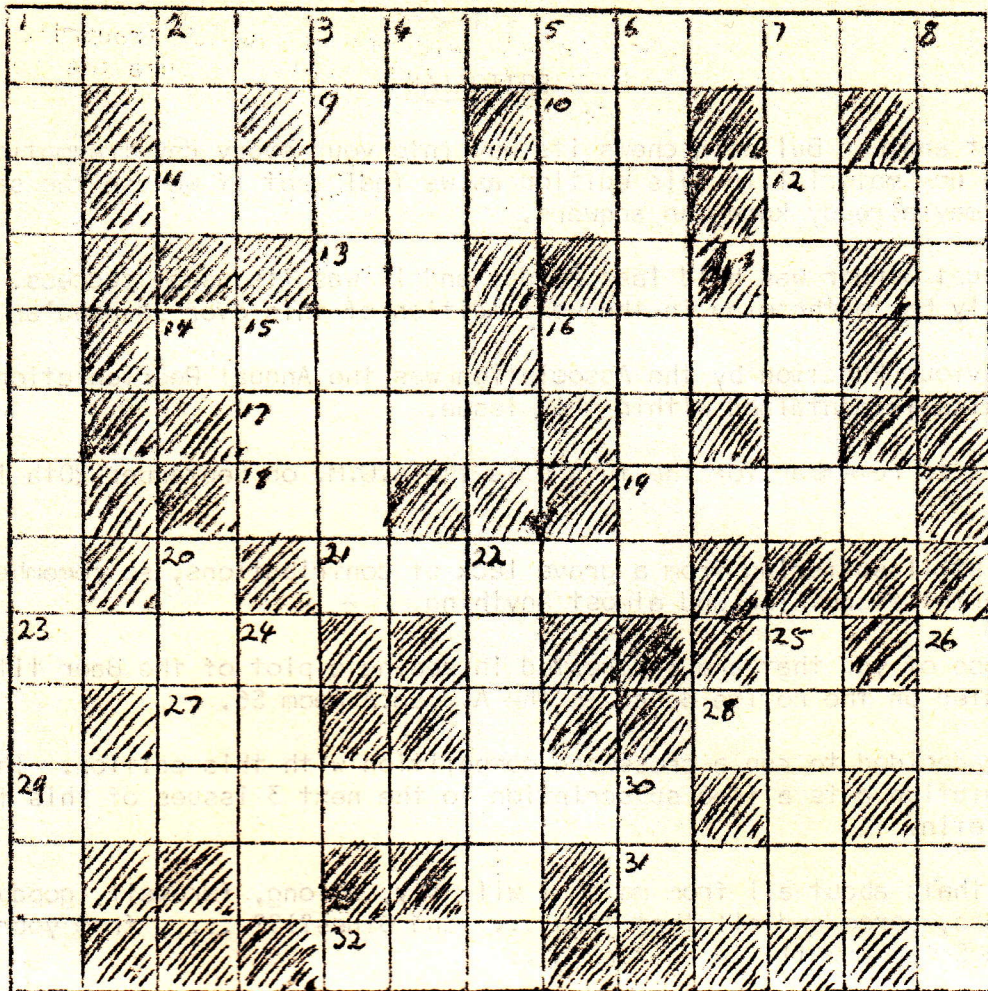
We are still suffering from a grave lack of contributions, so remember we are willing to print everything and almost anything.

For those of you that are interested in seeing a plot of the Baer tit function it has been posted on the notice Board in the A.U.Sc.A Room S6.

We have decided to run a crossword competition with this edition. The first incorrect solution gets a free subscription to the next 3 Issues of this fantabulous Science Bulletin.

Anyway thats about all from me so I will say, solong, farewell, goodbye, see you latter, cheers, ooroo and all that jazz.... (and Blues?)?? from your favourite disreputable Science Bulletin Editor

L. Peter



CLUES

ACROSS

- 1) Instrument which selects discrete wavelengths of light.
- 9) Male second person pronoun.
- 10) If you see a -F-, ring Edinburgh Air Base.
- 11) The lie of the land.
- 12) Hand attire.
- 13) Not off.
- 14) Half.
- 16) Male Pig.
- 17) Weight to one side.
- 18) -T-, unit of energy.
- 19) Fish.
- 21) Sierra _____ Mountains.
- 23) What one does in the Bistro.
- 27) Student Counsellor (or our next GG).
- 28) Greek letter.
- 29) Type of number which the square root of -1 is.
- 31) Fleshy fruit.
- 32) To utter.

DOWN

- 1) Cell organelle.
- 2) Egg of a louse.
- 3) Transition metal of the first row
- 4) Rupture.
- 5) French yes.
- 6) Indian Ichneumon noted for killing venomous snakes.
- 7) Eighteenth century vehicle, often used by the French aristocracy.
- 8) Vital component of an automobile distributor.
- 15) The outgoing tide.
- 20) 1/16 of one rupee.
- 22) Binary.
- 24) Ova.
- 25) Mode of movement, characteristic of albatrosses.
- 26) Halfman, half beast, (Greek mythology, and not a hobbit)
- 30) Ytterbium.

The Editor
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 Dear Editor
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	M	O	R	A	L	S		I	E			
S	A	T	A	N		T			R	O	B	
L				D	R	I	P				R	
E	G	G				O	R	G	A	N	I	C
E	R	R		A		N	O				G	
P	O	O	D	L	E		T	R	U	T	H	
	U	P		L		G	O			A	T	E
	P	E	N	S	I	O	N		S	N		G

The Editour,
 Science Bulletin',
 Union Buildings,
UNIVERSITY OF ADELAIDE.

Dear Editour,

My worst fears were confirmed by the recent appearance of the SCIENCE BULLETIN. I had a premonition that the Zoology II exam had not been subject to the sought of title security needed: that its contents, in fact, might in sum weigh be available to students before the due date. It was lucky therefore that I substituted the alternative exam that students actually had before them in June.

Rest assured that I will preserve the 'leaked' alternative exam for use at some future date.

Yours faithfully,

W.D. Williams, D.Sc., etc.,
 Professor and Chairperson.

P.S. If you feel that some of my spelling is rather odd, man, you should have seen some of the Zool II answers!!

FINANCIAL STATEMENT

RECEIPTS AND PAYMENTS 1977/78

Functions Account

Opening Balance		\$ 338.44
Add Receipts		
O' Camps	\$1,981.00	
Re-O' Camps	290.90	
Sherry Party	50.00	
Winery Tour	86.00	
BBQ	135.00	
Interest (ANZ)	14.72	\$2,557.62
		<hr/>
Less Payments		\$2,896.06
O' Camp	\$1,758.64	
Re-O' Camp	270.25	
Sherry Party	110.94	
Winery Tour	80.00	
BBQ	194.62	
Seminar	53.82	
Faarcing	35.76	\$2,504.03
		<hr/>
Closing Function Account Balance (as per Bank Statement)		\$ 392.03
		<hr/> <hr/>

General Account

Opening Balance		\$ 380.68
Add Receipts		
Membership	\$ 165.90	
Interest	126.26	
Sale of "Lower Level"	1,741.00	
Loan Repayment (Deposit)	40.00	\$2,073.16
		<hr/>
Less Payments		\$2,453.84
Stationery	\$ 88.59	
A.G. Meeting	39.86	
T-Shirts	18.86	
Loan Repayment (Deposit)	40.00	
Transfer to Trust Account	1,741.00	\$1,928.31
		<hr/>
Closing General Account Balance		\$ 525.53
		<hr/> <hr/>

Magazine Account

Opening and Closing Balance		\$ 85.30
		<hr/> <hr/>

Buletin Account

Opening Balance	\$ 67.77	
Less Payments		
Sundries	2.25	\$ 65.52
		<hr/> <hr/>

I have examined the books of account (Receipts and Payments) as presented for the year 1977/78. In my opinion, the statements as detailed above reflect the true position of the Science Association in relation to their Functions Account, General Account, Magazine Account and Bulletin Account.

A separate audited statement detailing the investments and assets of the Adelaide University Science Association cannot be made because this information has not been presented for audit. This information was asked for in 1977.

David Muir
Hon. Auditor
 25th July, 1978.

A DECADE AND A HALF OF ROCKET RESEARCH AT THE UNIVERSITY OF ADELAIDE

B.H. HORTON, DEPARTMENT OF PHYSICS, UNIVERSITY OF ADELAIDE.

(First printed in The Australian Physicist, August 1977)

PART II

In January 1967 the Adelaide group became involved in a project of great interest. As part of a co-operative programme with the United States, a Redstone launch vehicle was made available for the launch of an Australian Satellite. Although the time scale was short for such a project, all concerned were eager to attempt the task. Weapons Research Establishment were to produce the satellite structure, power supplies and telemetry systems while the experiments were the joint responsibility of Adelaide University Space Group and Flight Projects Group of W.R.E. The experiments to be flown included thermal monitoring of space craft environment, a magnetometer aspect detector, a telescope sensitive to geocoronal Lyman α radiation and X-ray and ultra violet detectors to measure atmospheric densities at satellite sunset and sunrise. Cost and time limitations precluded the use of solar panels for power supplies so that the vehicle had a planned active life of some four days. Structural tests for vibration, acceleration and aerial patterns were carried out at W.R.E. while thermal and vacuum environment testing was carried out in the space environment chamber at Adelaide Physics Department. Telemetry compatibility with the NASA data net was proven by transporting the space craft to the Orrrall Valley Tracking Station in the A.C.T. prior to transporting it to Woomera for launch.

The space craft consisted of a protective nose cone within which instrumentation was housed plus the third stage motor which was made to remain attached after injecting the payload into orbit. Two sets of detectors were mounted viewing along and normal to the cone axis. An angular momentum converter was included such that the axial rotation, supplied for stability at launch, would be converted to rotation about an axis normal to both the cone axis and the boresight on the side viewing experiments. The spin plane had to include the sun direction such that the sun was viewed by both the "forward" and "side" viewing detectors. It was with some satisfaction that the spin modulation reports coming in from the world wide tracking stations during the first orbit showed the expected change in angular velocity and later data analysis showed that both sets of solar detectors viewed the sun while the Lyman α telescope looked at such an angle that the sun was well out of the field of view. The amazing amount of information coming from satellite experiments was soon made apparent. Some results obtained were published (Lockey et al., 1969), (Carver et al., 1973) while a number of results were presented in Lockey (1972). The WRESAT project was extremely successful and appears to hold the world record for a scientific satellite for short preparation time, covering a period of less than eleven months from conception to orbit. A lot of the drive behind the project came from Bryan Rofe of Flight Projects Group at W.R.E. Bryan had left W.R.E. for Antarctic Division by 1970 and it was with a considerable sense of loss that the space group heard of the death of this active and dedicated leader of Australian rocket research in August 1971.

Another co-operative programme, this time involving photometric detectors rather than X-ray equipment, was entered into with the Southwest Centre for Advanced Studies at Dallas, Texas, U.S.A. The project, titled Modular Auroral Probe, was conceived to study the particle energy and distribution and the intensity of radiation at a number of regions of the spectrum during intense auroral activity. The instrumentation was to be flown on Nike Apache rockets launched from Fort Churchill, Manitoba, Canada, these vehicles being recoverable and thus allowing refurbishing and further flight of equipment. The space group accepted responsibility for the radiation photometers involving two of 557.7 nm (OI) 486.1 nm (Hg) or 391.4 nm (N_2^+) in the visible region, these being interchangeable, and ion chambers operating in the gas gain region to study 120.0 nm (NI), 121.6 nm (HL α), 130.4 + 135.6 (OI) as well as that portion of the LBH N_2 bands in this region. A number of firings took place in this programme with some problems, such as a descending payload falling through ice and being lost, but some success was achieved and reported (O'Connor, 1973).

.....cont/d.....

Other groups were employing ion chambers for the investigation of oxygen densities and in 1971 the space group became involved in a co-operative programme with the United Kingdom Meteorological Office, sharing a payload on a U.K. S.R.C. Skylark. Despite earlier contacts by Professor McCracken this was the first payload of UV absorption instrumentation to be successfully integrated by mail and telex and saw the start of attempts to increase the number of atmospheric parameters measured at the same time. In this payload X-ray and UV solar intensities were measured together with three air glow lines of interest in photochemistry of oxygen. This experience of integrating a payload by telex and letter, though finally successful, coupled with a failure to integrate a package on an I.S.R.O. rocket at Thumba, India at about the same time, resulted in a decision to send an experimenter to the site for integration where possible. Two further international co-operative programmes were entered into on this basis. Space in a second U.K. S.R.C. Skylark was made available to the group. This experiment package saw extension of the measurements made to cover not only solar radiation and air glow resulting from interaction between sunlight and the atmosphere but also the energy spectrum of non thermal electrons at the altitudes involved. One experimenter, A. Davis, spent a short time at BAC in Bristol and MSSL in Surrey, England, integrating the Adelaide instrumentation into the second round. Much information and many contacts with those involved in the Skylark resulted from this co-operative exercise. This resulted in a successful flight from Woomera - delayed somewhat, but not by the Adelaide experimenters. The hospitality shown to our experimenter was gladly repaid when U.K. experimenters, in need of help in ground preparation while in Australia, were given access to our laboratories and equipment in the Physics Department at Adelaide.

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This article will be continued in the next issue.

REPORT ON A.U.Sc.A RE-ORIENTATION CAMP

23-26 JUNE, 1978.

We the cooks on the above camp would like to present the following report in relation to the Re-orientation Camp.

We think Rob Marlin should be congratulated on his excellent choice of campsite and Cooks. Also for the organisation before, during, and after the camp, as no mishaps occurred all week-end. His foresight in relation to the amount of food, amount of firewood, and the resident masseur were appreciated, especially by the cooks.

The quality of the food purchased was excellent; with quantity being well in excess of Lachlan Peter's stomach.

One of the highlights of the camp was Rob Trengove's 21st Birthday. Messrs Sobels, Dundon, and Elliot (among others); should be congratulated on the fine production of "ROB TRENGOVE --- THIS IS YOUR LIFE." It went over extremely well, with even Rob enjoying most of it.

The events following this event will no doubt appear in the Morals Officers Report. Cynthia had her ears on at the camp; if nothing else.

Apart from the Chef's, the Camp Director, and a few others, most people managed to get their necessary, NO SLEEP for the night. Lights went out at 11.00 p.m. as camp rules stated they must, but what went on from there, no-body knows, except that it was still happening when lights came on again next morning.

The midnight Bushwaks (sorry - Bushwalks.) were also enjoyed by most people who took part in them. Apart from a few diverging moments in the moonlight, these were well run and good fun. However we do feel that pulling people out of bed to increase the numbers is a bit unjust.

Another highlight of the camp was the Saturday Afternoon Talk Session, followed by the film "SILENT MOVIE" on Saturday night. Unfortunately, only two of the Three or Four speakers due to talk on Saturday afternoon, managed to find or arrive at the campsite; however most people became more enlightened on the McKinnon Parade Fitness Centre, and the Welfare Service provided by the University.

In closing, we would like to thank all those who assisted the Chef's in the Kitchen. One incident must be mentioned; namely Jane Gibson's prowess at CREAMING the apple crumble mixture. Sandra Muirhead receives our Back-Felt thanks for reviving our sore Muscles, caused through those arduous hours of cooking in the Kitchen.

Finally, Dean Manning; the Campsite Manager, receives our thanks for his helpfulness at all hours of the Day and Night.

SIMON MADDOCKS.
SANDY DOUGLAS.

.....

HAVE YOU A SPACE AGE MIND

ANSWERS TO QUIZ FROM LAST EDITION

- | | | |
|------|-------|-------|
| 1. C | 10. D | 18. D |
| 2. A | 11. B | 19. B |
| 3. A | 12. D | 20. D |
| 4. C | 13. C | 21. B |
| 5. C | 14. D | 22. D |
| 6. A | 15. C | 23. C |
| 7. C | 16. B | 24. D |
| 8. A | 17. B | 25. A |
| 9. A | | |