

# **BiSON** Birmingham Solar-Oscillations Network

TECHNICAL REPORT NO. 226

## **Progress Report on the Construction of the South African Dome — 1989 November/December**

Colin Davidson and Hugh K. Williams

*The University of Birmingham, Edgbaston, Birmingham B15 2TT*

2004 March 25

This technical report series is published by:



**THE UNIVERSITY  
OF BIRMINGHAM**

### **High-Resolution Optical-Spectroscopy Group**

---

School of Physics and Astronomy  
The University of Birmingham  
Edgbaston, Birmingham B15 2TT, United Kingdom  
Telephone: +44-121-414-4551 FAX: +44-121-414-1438



REPORT ON DOME PROGRESS S.A. NOV/DEC 89

H.K. Williams, C. Davidson

Monday 20th November

Visited observatory in Capetown. Then into city to purchase adhesive, nylon pipe etc. Started to Sutherland lunch time, arrived just in time for dinner.

Tuesday 21st November

Checked dome building, very impressive, hate to admit it but George was right, makes Birmingham dome look very shoddy indeed and they had to bring everything 250 miles. After much thought I decided the best line of action was to dismantle mount. Managed to get it into position without damage. Began reassembly.

Wednesday 22nd November

Finish mount, then fitted encoder mounts to dome drive and shutter. Decided best place for relay panel and benches was west and north walls as will be evident when looking at plan.

First problem, floor is solid, no access for umbilical cables. Cut 50mm holes in convenient places and stripped terminal boxes from umbilical. On reflection if the same dome plan is used would be better to make umbilical on site.

Thursday 23rd November

Completed as much wiring as possible, short of fittings so will have to wait until Monday for truck from Capetown.

Friday 24th November

Tried shutter, works! Move to installing rain and wind detector, found out in process of sorting these out I'd forgotten to pack limit switches for blind, still had to forget something I suppose.

Saturday 25th November

Fitted cams and flags for dome and blind, few other bits and pieces and general tidy up.

Asked Egon/Mike to put hand rail on stairs and grab rail at top.

Sunday 26th November

Checked out work so far everything seems OK. Made new cam for blind down limit/flag. Decided to leave dec. box mods till later just in case.

Monday 27th November

Finish and fitted blind to cams. Switches arrive p.m. from Capetown. All work OK.

Tuesday 28th November

Mil 10 sockets from Clive arrive, lucky two trips from Capetown this week. Took window out. By god its draughty.

Wednesday 29th November

Fitted socket on mount and test. Problems. After checking all the wiring a dozen times found fault on our test switch box.

Having problem with blind limit (ash). The switch is much too strong.

Thursday 30th November

It looks as if Ash have relocated switch to operate in the middle of the blind, which flexes too much to allow correct operation. Decided to take it to bits.

Friday 1st December

Took limit switch apart, tried new springs, no good. After making new springs, removing locking cams finally managed to get it working quite well. Fitted it, works well only now blind flag is in wrong position, tried swearing but still no good. Oh well back to the workshop.

Saturday 2nd December

Fitted U.P/S. Now more problems. With the relay panel and U.P.S. plugged into mains, earth leakage trip keeps dropping out.

The only way I could get it to work is by wiring relay panel to raw mains bypassing earth leakage. Spoke to William Koort, he said it was OK to do it, but may be difficult to get electrician from Cape, so I will have to do it myself, they will send up the necessary parts on Monday together with the tube and fittings to make the work benches. I have ordered some chairs etc maybe they will arrive on some truck. The way I'm going it will be "Pickford".

Sunday 3rd December

I've decided to have a rest today, took some photos in the morning and caught up with this fairy story.

Monday 4th December

Started wiring mods on dome, when transport arrives from C.T. I can complete.  
C.T. transport arrived late evening, nothing on for us except 2 chairs and a stool.

Tuesday 5th December

The materials for benches has not been received in Cape. They will be despatched from Durban to Cape sometime Thursday/Friday. Completed wiring mods.

Wednesday 6th December

Insulation partly done, run out of adhesive, Cape will send some on Friday.

Start clean up. Review Committee arriving here on Friday and Professor Feast has asked us to show them the dome etc. and explain what the purpose is.

Thursday 7th December

Still problems on U.P.S. spoke to Clive, decided to alter RL5 to change status. Completed wiring, everything now works correctly.

Some work still to be completed on dome, eg. water outlet time service etc. benches, but M. Fouche, W. Koorts have assured me they will be installed before GRI's arrival.

Friday 8th December

Clean up completed, floors polished etc. Await arrival of review committee. They arrived late afternoon, no adhesive so will have to ask M. Fouche to complete.

Saturday 9th December

Met some members of committee over breakfast, they asked all kinds of questions on what were trying to do, I think I managed a reasonable account of our aims, I'll leave the real talking to an expert named GRI.

Off to the shops, we've decided to have a "Braai" to thank the technical staff for all their help.

Sunday 10th December

Drove to Touwsriver to meet Digby Ellis and get adhesive to complete insulation. Had "Braai" enjoyed by all.

Monday 11th December

Insulation to complete. Plan to travel back to Cape on Tuesday after breakfast.

Tuesday 12th December

All completed, remove top dec. plate. Travel back to Capetown.

## Notes and Recommendation

- 1) Umbilical should be completed on site if same format for dome is used
- 2) Mount should still be sent in the assembled state, it's better to strip down as is necessary.
- 3) Insulation should be fitted before mount is put in place but after wind & rain detector if possible.
- 4) Lams for dome should be modified. Power off should be long cam not single plate.
- 5) Umbilical holder on mount should be made larger and stronger to accommodate all extra cables.
- 6) The initial installation should also include Servo Computer etc to test mount & dome under controlled conditions.
- 7) Try to ensure all equipment required is packed because  
ie. Limit switches  
Cable trays (for umbilical support) .      obscure  
Saddles  
Aux sockets  
Cable flex & fittings etc .