

February 28th, 1986

**Minutes of on-line working group meeting**

**Saclay , January 8th , 1986**

J.F.Renardy

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**List of participants**

CERN	: J.Steinberger	
Clermont-Ferrand	: M.Bardadin,	R.Chadelas
	B.Michel,	D.Pallin
Copenhagen	: H.Bertelsen,	G.Petersen
	B.Madsen	
Ecole Polytechnique:	J.Bourotte,	J.M.Chevalier
	G.Fouque,	M.Haguenaer
	L.Marckmann,	H.Videau
	I.Videau,	H.Yoshida
Glasgow	: I.Hughes,	D.Martin
	C.Raine,	K.Smith
Marseille	: Y.Gally	
Orsay	: G.de Bouard,	A.Cordier
	O.Callot,	A.Ducorps
	J.F.Grivaz,	J.Lefrancois
	G.Raso,	J.J.Veillet
RAL	: D.Botterill,	M.Edwards
	P.R.Norton,	J.C.Thompson
Saclay	: B.Bloch-Devaux,	D.Lloyd-Owen
	J.Rander,	J.F.Renardy
	J.P.Schuller	
Wisconsin	: H.J.Trost	

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**1 - Report from Working groups by I.Videau****a) Data-Flow**

This group was very active. The first phase of its work was a definition of requirements (ALEPH note #115). The second phase, the specification was completed at its last meeting. Now the third phase, implementation is starting. This phase will need some reorganisation of the working group. The main tasks are:

Further studies, for clarifications and decisions on the few points left open in the specification document.

Follow up of the detailed design of the DAQ hardware. This will ensure that modules build by the various sub-detectors are compatible, and that the specifications are interpreted in a consistent way by the hardware manufacturers.

Coordination with the DAQ software. The DAQ software must take advantage of the facilities described in the requirement document. The hardware specifications were designed rather independently of the DAQ software. It is now time for a more cooperative effort.

**b) Fastbus data base**

This is a joint project between OC/RA, DELPHI and ALEPH. ALEPH is represented by R.McClatchey, and O.Callot represents EMCAL. The working group will design a system for representing Fastbus informations (Module description, system configuration and DAQ partitions) in an Oracle data base. These informations will be used in initialisation and test of the Fastbus system. The aim being a completely automatic system driven by the data in the data base.

**2 - Test beam operations in summer 86.****a) Test area status by M.Haquenauer.**

The test area is being modified for accomodating the large modules and their support. The magnet will be used to produce gamma beam. A new enclosure will contain all the gas systems. The hadron calorimeter will

be located behind the electromagnetic calorimeter (the minimum gap being about 1 meter). The Cerenkov counters will be included in the trigger. There will remain some installation work to be done in the coming months:

Mounting of the support.

Installation of cables (and cable rail).

Mounting of Saclay chambers (and test).

Installation of the gas system for the calorimeter. It will allow for running either with Ar-Ethane or with Xe-CO<sub>2</sub>.

Procurement of a cooling system for front-end electronics. Orsay will choose the system, then CERN will take care of its installation and operation.

b) DAQ status by J.Bourotte.

The work on DAQ is progressing both on short term products (i.e. menu package) to be used in the test beam this summer, and on long term objectives. The menu package was described. The tape format was discussed. There are many questions: what will be the final ALEPH tape format? when shall we switch from the current one to this final one? shall we define an intermediate format?...

c) Slow control status by P.Payre (replaced by I.Videau).

The gas manipulation system for the summer test will be the final one. The software is ready, no problems are foreseen except the graphic representation still waiting for a display.

The gas monitoring and the survey of the module status is working, the corresponding data will be transmitted to VXALBM through a dedicated port.

The high voltage control will be ready, three utinet units will be available soon.

Nobody from EMCAL was at the last slow control meeting at CERN. We use a common hardware for slow control (based on utinet), but CERN and Marseille have some differences in software philosophy. A group of CERN people (J.Harvey, T.Charity and J.M.Maugain) will visit Marseille to try to reach common views.

d) Monitoring programs.

M.P.J.Landon from Royal Holloway College agreed to convert the old monitoring programs to the new DAQ. He needs input from EMCAL on modifications, improvements or deletions wished by the on-shift physicists. He will then produce a description of the new monitoring programs. The following points were discussed:

Replace scalers histograms with tables.

For pads sums, define a simple way to choose the usefull pads in a large calorimeter module.

Implement a dual monitoring for events and for pedestal (which will be taken simultaneously).

Improve the automatic centering, and permits the change of binning at the histogram presenter level.

Make provision to use the hardware zero supression, anyway a scheme for recording only significant towers on tape must be forseen.

### **3 - Next meeting**

The Glasgow meeting will be the last one before the summer tests. The agenda will contains reports from all people responsible for the test beam (M.Haguenauer, J.Bourotte, P.Payre and L.Murrough). Status reports are also expected from Cosmic tests and from the ROC. The need for an extra meeting at CERN, just before the summer test will also be discussed.

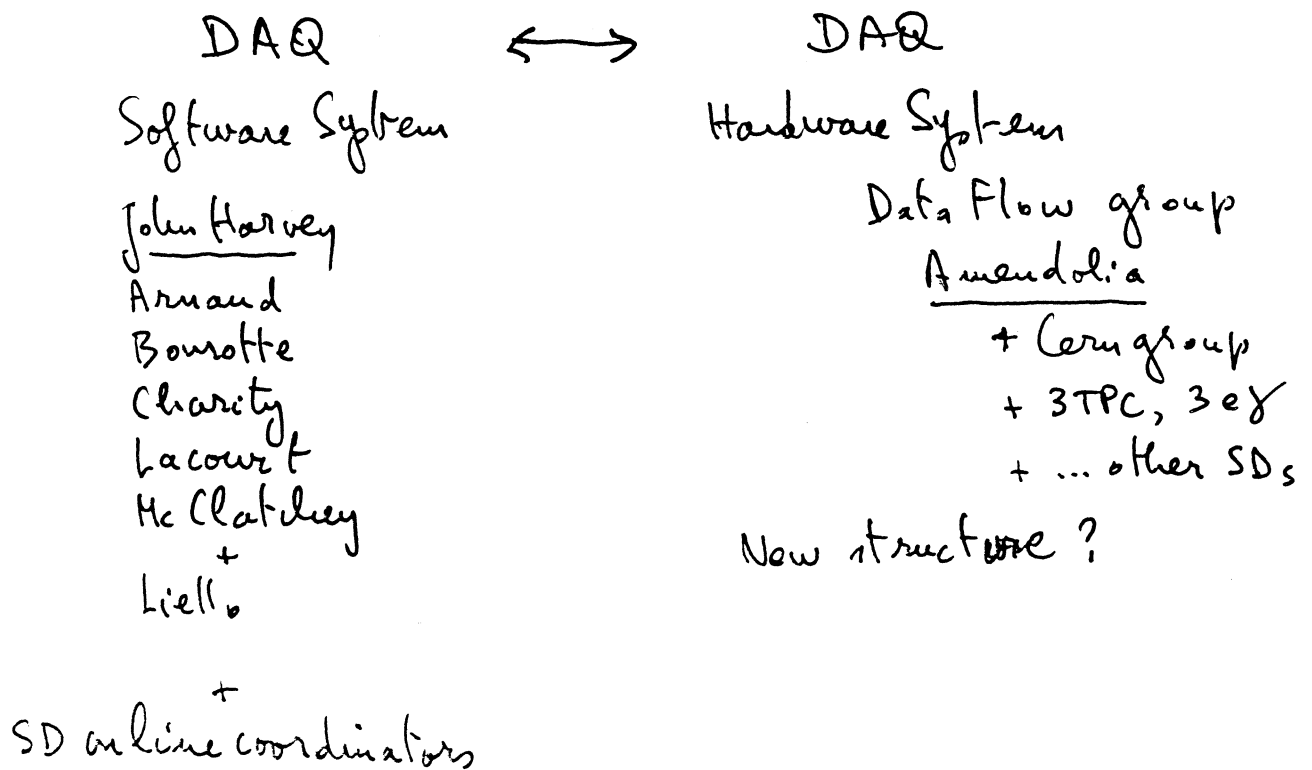
# DATA FLOW W. G.

(very active!)

1<sup>st</sup> Stage : Data Acquisition (hardware)  
Requirements → ALEPH note # 115

2<sup>nd</sup> Stage : Data Acquisition Hardware Functional  
Specifications → DATAQ note 85-21  
9 november 85

How should this group now proceed?



## Tasks :

- ( - Further studies → addenda to the doc. )
- Detailed design of the DAQ hardware  
( Host Interfacing ... )
- Status reports from the SDs
- Strong interaction with Software DAQ w.g.  
( Requirements, coordination ... )

FASTBUS DATA BASE W.G.

( OC - Aelyph - Delphi Collaboration )

Richard Mc Clatchey

FCAL - Olivier Callof

Fastbus modules description (General)

System description

Initialisation

Configure system

Initialise modules

System diagnostics

FBS TEST



Working session

17 dec. 85

next one ?

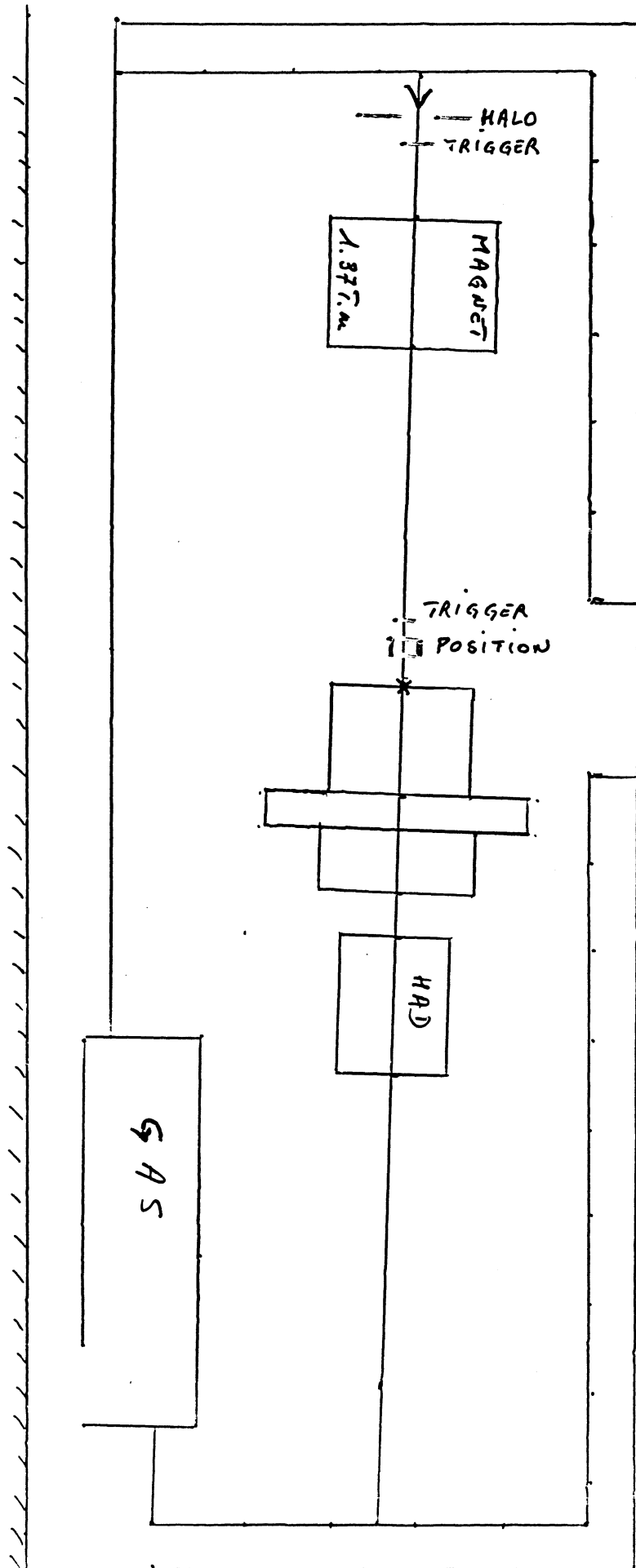
## New Facility

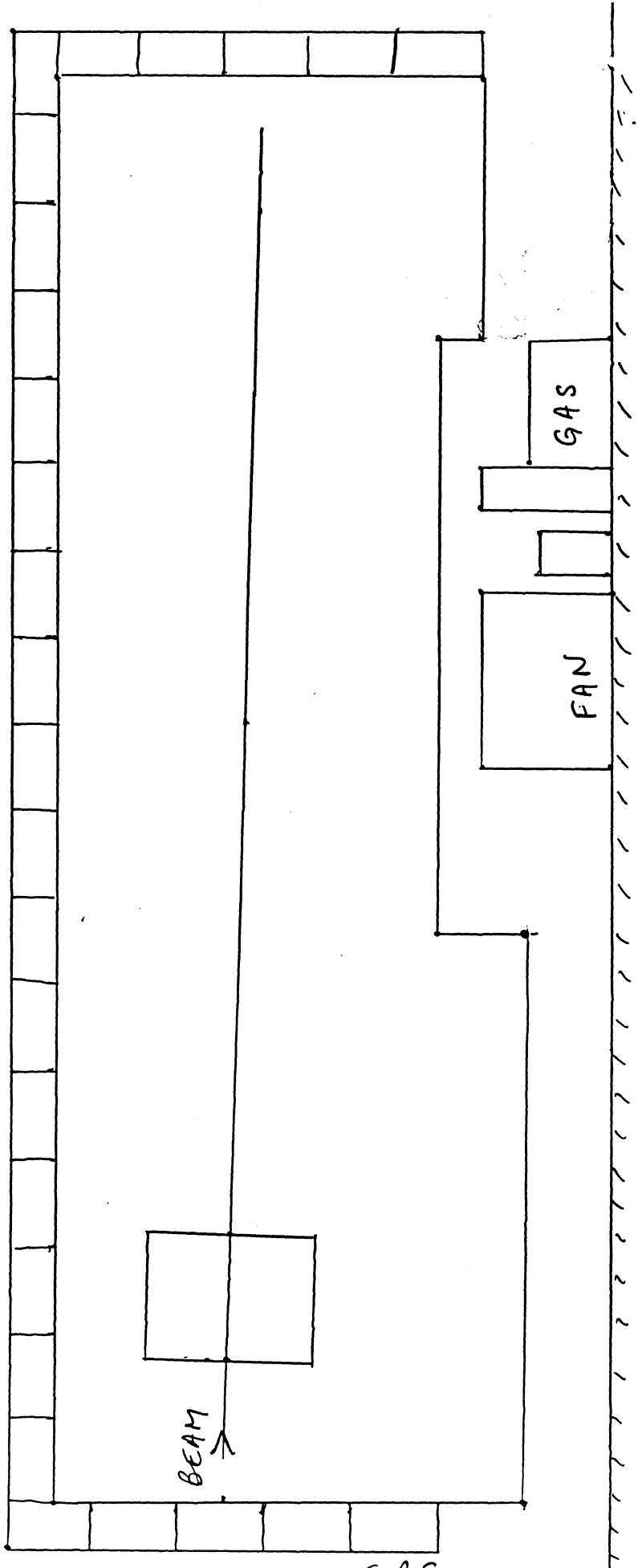
- Study  $e/\gamma$  separation using the existing magnet (1.37 T.m)
- Correlation with hadronic calorimeter.
- Test in the final configuration (cable length 30 m)
- Reduce pile-up and increase trigger effic. by getting  $c$  signal into the trigger.

## To be done

- Mount the support RAL → 31/1
- Install cable rail  
cables Orsay  
Flexwell from C  
Saclay chambers → 31/3  
(efficiency)
- Gas system. R. Gregoire + Naville.
- Water cooling for electronics.







# SLOW CONTROL AT THE TEST BEAM NEXT SUMMER

- (A) Gas manipulation  
wait for Grégoire but will  
manage with any system,  
except possibly for graphic  
representation (depends on how  
many "items" Grégoire will have)  
probably some semi-graphical  
VT-100 representation
- (B) Survey OK will run on the  
VXALBM (Test-beam VAX) and will  
be a first version of the final  
system  
Needs: Decnet on VXALBM  
Dedicated port on "
- (C) Partitioning not well understood yet

# ONLINE SOFTWARE GROUP

work done during these last 2 months

overall design, data flow, frame work  
for a run controller

John

data base and related questions, now  
working with Steve Fisher on modelling  
of fastbus system using entity relational  
model

Richard

design and implementation of communication  
protocol micro / VAX for slow control

Tim

writing new menu package  
including parameters page

André  
Christian

switchers / scheduler

Jean

LONG TERM WORK

SHORT TERM WORK

# SWITCHERS/SCHEDULER

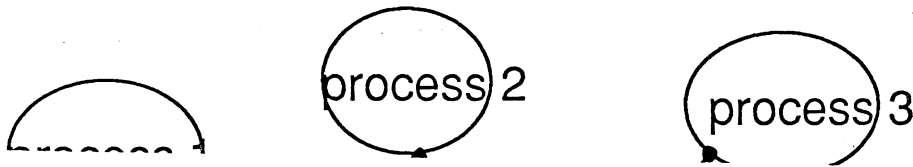
PURPOSE: Control of processes belonging to DAQ system from one or several consoles.

DEFINITIONS: SWITCHER- Local process connected to ONE terminal, allowing to switch operator access from one to another process.

*(mem package is a part of this process)*

SCHEDULER- Unique process (one per VAX) responsible for creation  
deletion  
inter-communication  
of/between processes

*{ update D.B.  
related to all  
processes belonging  
to DAQ system*



## REQUIREMENTS

Visualisation of several processes at the same time on the same screen

Avoid loose of unused space on screen

Minimization of real interrupts to processes  
ie we can have a look on all the menus contents without interrupting the processes.

Information of each terminal of changes in processes state

Allow access of the terminal by standard write and read fortran calls

Possibility to take specific action without following a tree structure

Memorisation of the last action taken in a process

Display of asynchronous messages without corruption of the screen.

## TOOLS

VAX VMS System

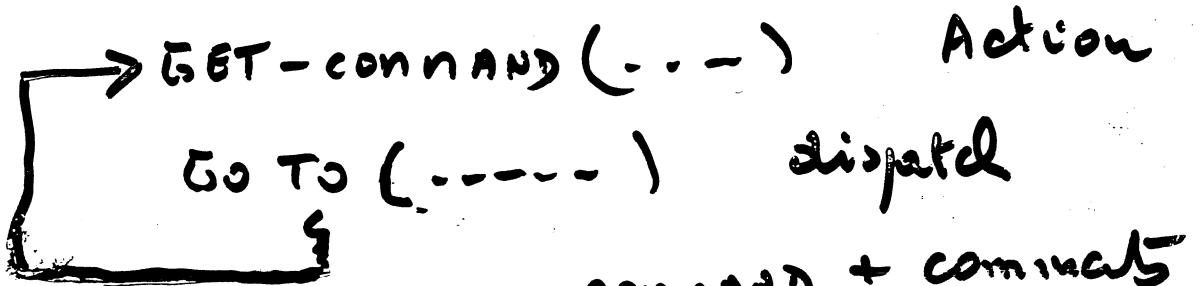
# Menu Package

How we have used SMS

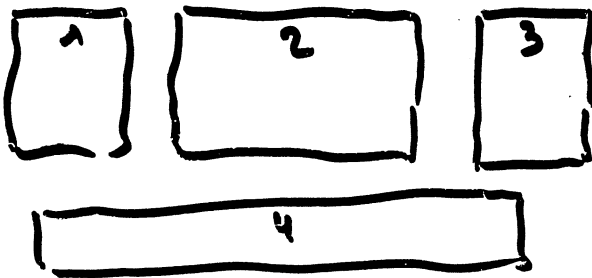
\* calling sequence like ZCEDEX

create - Menu  
create - Menu  
create - Menu

Define Tree



COMMAND in a Menu is a collection of commands.  
Menu create windows on the screen  
window is a collection of menu

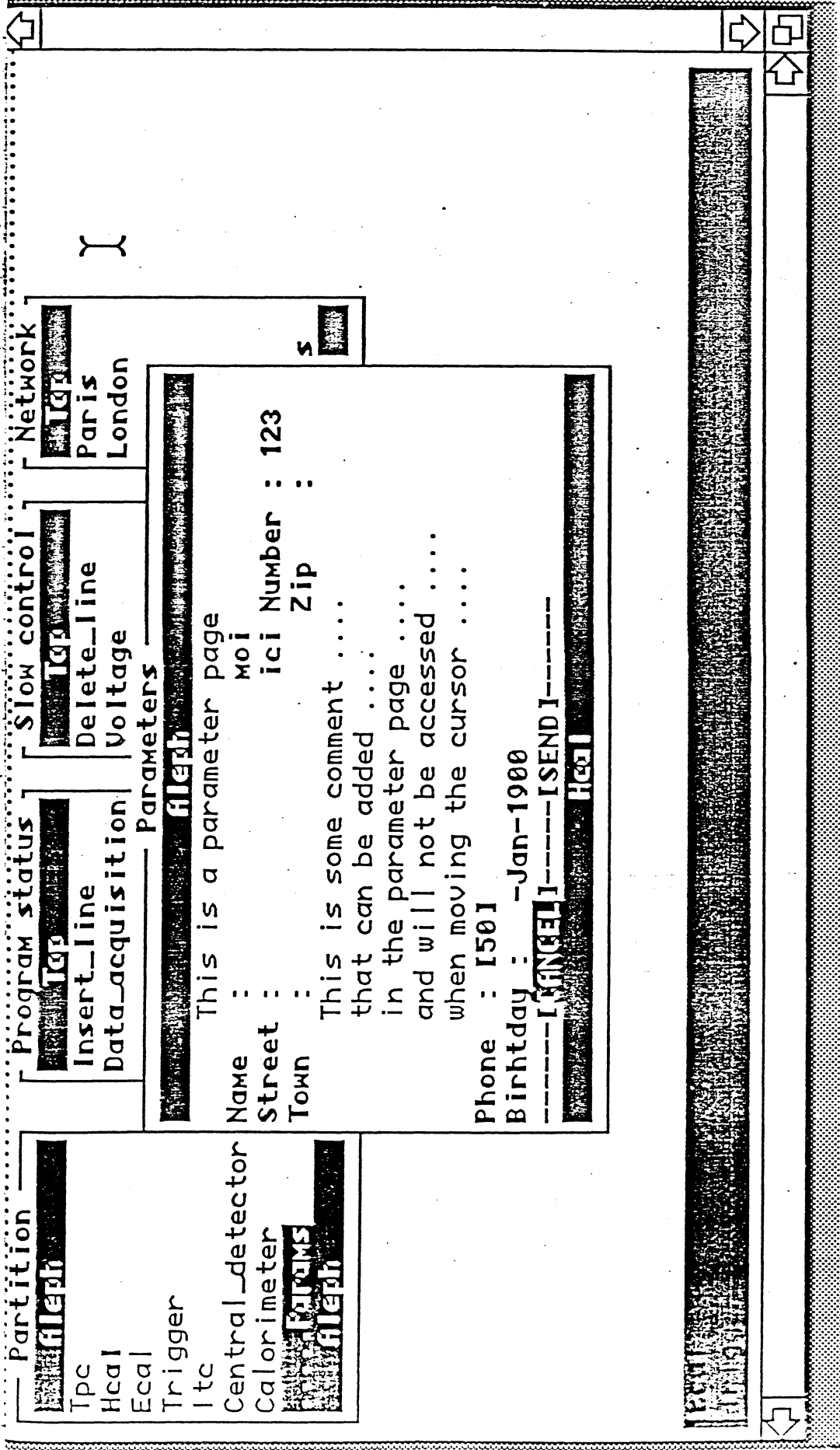


Look AT A TREE

A menu will go in a window

Modifications:  
Insert command  
Delete command  
change command  
get command

\* ARROWS look at a terminal in a Menu to create window  
up DOWN  
Right Left



Partition

- Ipc
- Heal
- Ecal
- Trigger
- Itc
- Central\_detector
- Calorimeter

Program status

- Insert\_line
- Data\_acquisition
- Parameters

Slow control

- Delete\_line
- Voltage

Network

- Paris
- London

Parameters

This is a parameter page

Name :  
 Street :  
 Town :

Name :  
 Street :  
 Town :

ici Number : 123  
 Zip :

This is some comment ....  
 that can be added ....  
 in the parameter page ....  
 and will not be accessed ....  
 when moving the cursor ....

Phone : 1501  
 Birhtday : -Jan-1900  
 -----[CANCEL]-----[SEND]-----

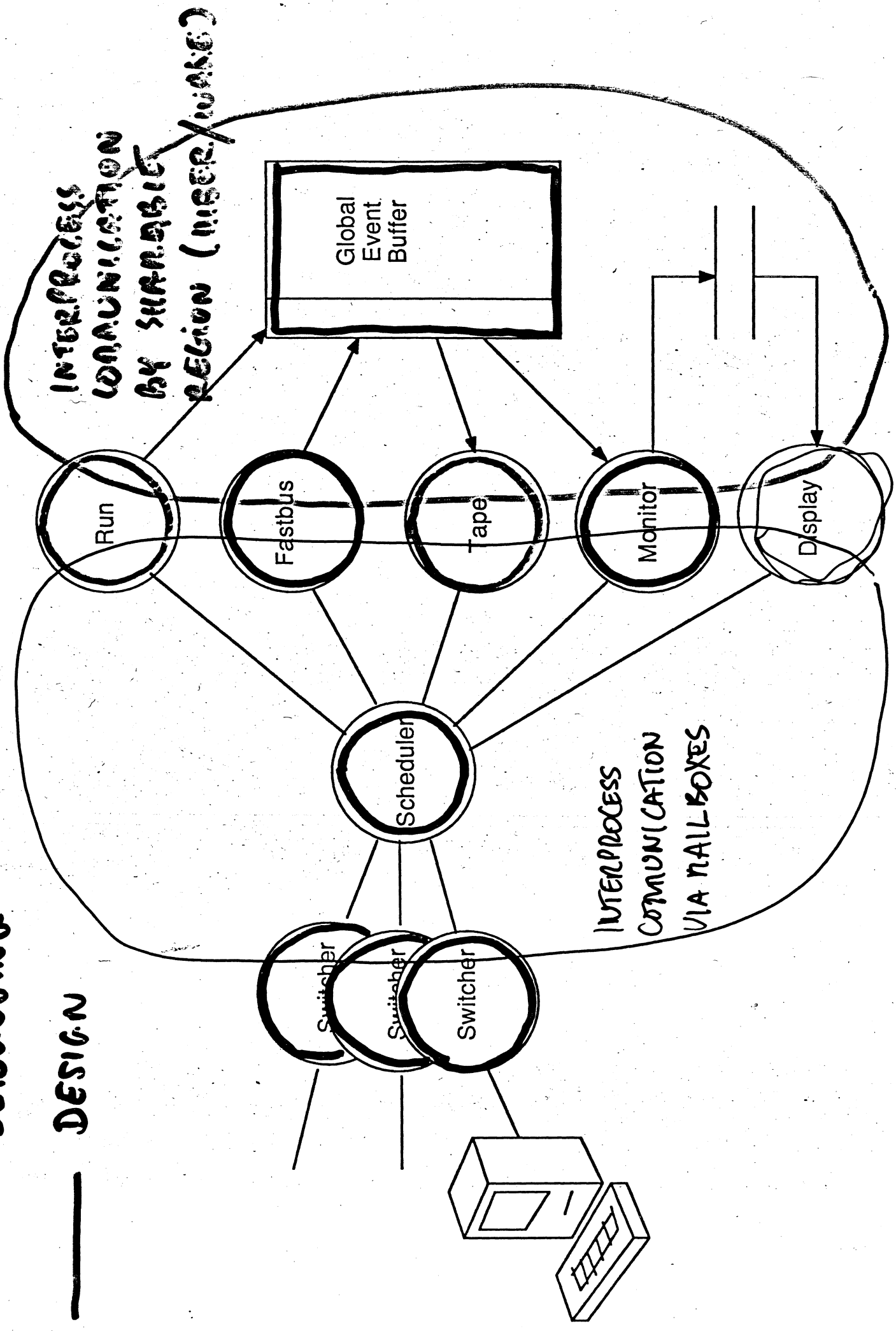
Heal





— DEBUGGING

— DESIGN



SCALERS

histograms

not very readable!

better present a table with

# triggers

$\vec{c}_1$ ,  $\vec{c}_2$ ,

hodoscopes, etc.

BEAM SPECTRO info.

histograms

same comment

SACLAY CHAMBER(S) STATUS

BEAM SPECTROMETER Profile

SACLAY CHAMBER (S) - - -

CALORIMETER / PADS

- Define rectangle for sums



Trigger signal

- Total sum ? ~~SUPPRESS!~~

- ZOOM + FIT (Gaussian)

- Automatic centering (Speed!!!)  
Yes, but do it more cleverly!

CALORIMETER / WIRES

- Longitudinal Profile

- Total Sum

Even / Odd planes

PEDESTAL TREATMENT  $\left\{ \begin{array}{l} \text{non zero difference} \\ \text{zero suppression} \end{array} \right.$

SUM OF ADC response according to Front End card.

Prepare Notice (J.B. + M.L.) and distribute before Glasgow meeting

# ECAL ON LINE MEETINGS

Glasgow 9 April 1986 14:00

- Point 2 of to-day's agenda should be there.

Reports requested from

Maurice H., Jean B. (or C. Arnaud),

Patrice P., Murrrough L.

- Reports from the (cosmic) test satins

- ROC Working group meeting  
8 April 1986

All in  
Glasgow

Shall we have another ECAL on-line meeting before the tests?

Possibility during the Aleph week

in May → Monday 12 May at 9:30 ?