

Prof John Dowell FRS: the 'H1' Years

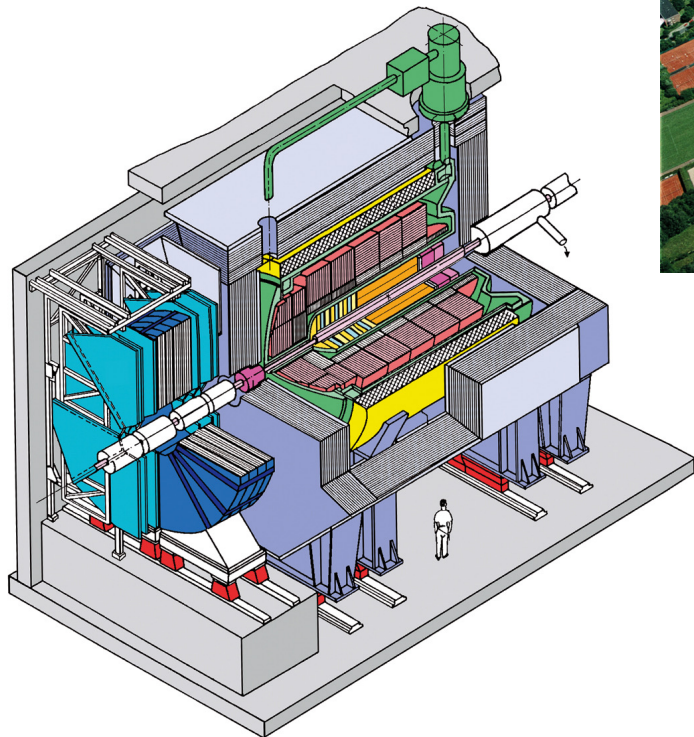


**Paul Newman (University of Birmingham)
John's 90th birthday celebration, Fri 10 January 2025**

A brief personal introduction

- I arrived as a PhD student in 1992 wanting to work on LEP ... but so did all the other PhD students
- I was `persuaded' to work on the lesser-known new H1 experiment that was about to start taking data... including an 'invitation' to visit the Head of Group's office in the East Building to talk with John (the Particle Physics group leader at the time).
- From that moment on, John has always been immensely supportive of me and interested in what I've been doing
- John always engaged strongly with PhD students, often visiting our office in Nuffield, sharing news he shouldn't have done, even inviting us to parties at his house and letting us loose on his wine cellar.

H1 at HERA, DESY, Hamburg



... so far still the only collider of electron and proton beams ever ($\sqrt{s_{ep}} \sim 300 \text{ GeV}$)

**(Data taking
1992-2007)**

What was John really doing at this time?

H1 overlapped heavily with committee work and preparations for LHC....

1990: Direct involvement in ATLAS collaboration (Dave's talk)

Selected Committee Contributions

1981-85: Chair of UK Particle Physics Committee

1982-90: Member of CERN Scientific Policy Committee

1987-90: Member of LEP experiments committee

1990-93: Member of (R) European Committee for Future Accelerators

1991-96: Member of LHC Experimental Requirements Committee

1992-96: Member of DESY Extended Scientific Council

1993-96: Chair of LEP experiments committee

1993-94: Member of PPARC Particle Physics Committee

1994-97: Member of PPARC Council

1993-98: Member of UK Committee on CERN

1999-2000: Member of PPARC long term science review panel

Despite this busy profile, John always maintained his interest and a direct involvement, continuing to fulfil his (night!)-shift responsibilities right up to his retirement

John around the start of this period

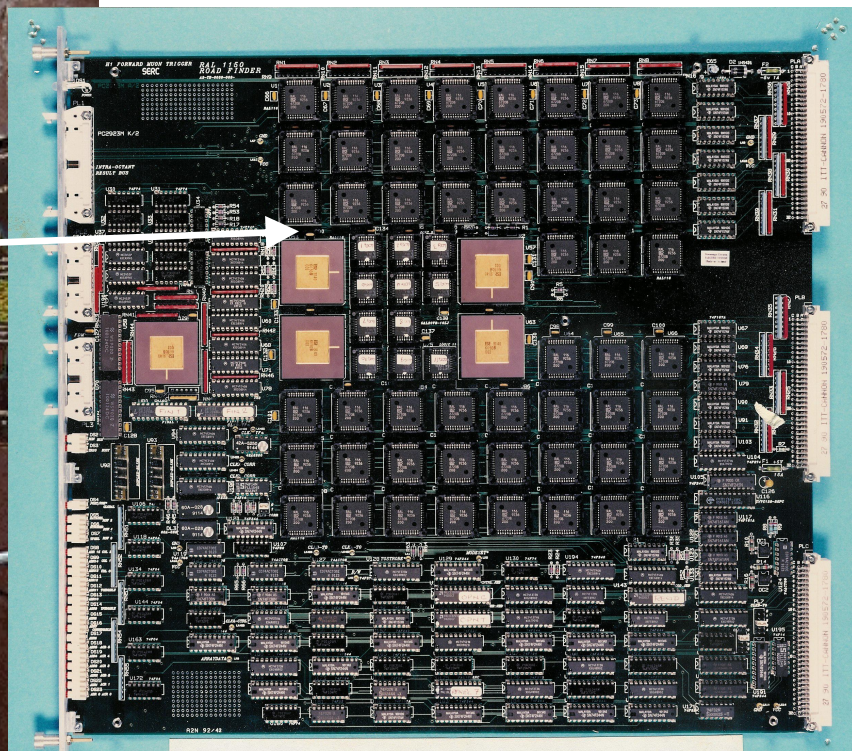
From Derek Colley's
retirement symposium:
(December 1990)



Birmingham joins H1 (Dec 1989)



Main responsibility:
1st Level trigger for
Forward Muon Detector
(largely built in
Birmingham)



H1 Forward Muon Trigger: Road-Finder Module (RAL 1150)
54 T-Zero ASICs and 5 Track-Finder ASICs

Principle of the H1 Forward Muon Trigger



ELSEVIER

Nuclear Instruments and Methods in Physics Research A 364 (1995) 456-472

**NUCLEAR
INSTRUMENTS
& METHODS
IN PHYSICS
RESEARCH**
Section A

A pipelined first-level trigger for the H1 forward-muon spectrometer

T. Ahmed ^a, J.D. Dowell ^a, N. Ellis ^a, J. Garvey ^a, P. Jovanovic ^a, P. Newman ^a,
G. Noyes ^a, W. Stokes ^a, J.P. Sutton ^a, L. Jönsson ^b, B. Lundberg ^b, E. Eisenhandler ^{c,*},
B. Claxton ^d, J. Dowdell ^d, M. French ^d, S. Jaroslowski ^d, M. Prydderch ^d

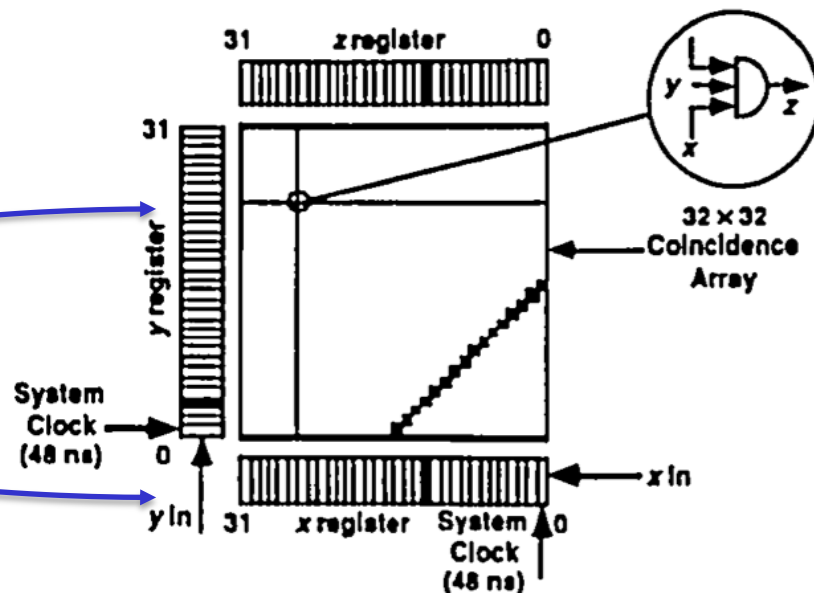
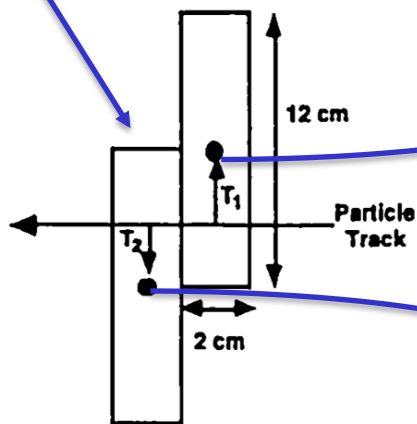
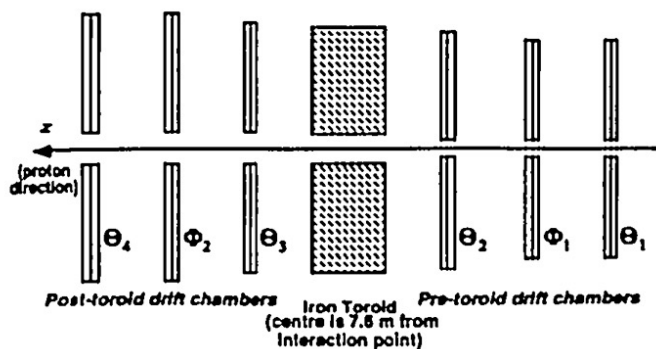
^a University of Birmingham, Birmingham, UK

^b University of Lund, Lund, Sweden

^c Queen Mary & Westfield College, University of London, London, UK

^d Rutherford Appleton Laboratory, Chilton, Didcot, Oxon, UK

Received 11 January 1995



- User-programmable acceptable correlations for each 96ns bunch crossing
- Implemented in a series of ASICs → precursor for eg ATLAS L1Calo

John's (last?) Coding Job

- John wrote an analytical standalone simulation that generated large numbers of muons, modelled their passage through H1 and found the most likely correlations between their positions in the muon chambers, thereby defining the ASIC 'loads'

- Taking over this code was my first task as a PhD student (I didn't change it much!)

John's ongoing involvement:

- Advisory role in the Forward Muon Trigger ("*where are the muons?*")
- Contributing to the specification of the SPACAL calorimeter upgrade
- Supporting our involvement in the FPGA-based 'Fast Track Trigger' upgrade

```
      SUBROUTINE FMTANY
C
*****
* GENERATING CODE FOR THE TRACK FINDER LOADS IN NORMAL LUMINOSITY *
* RUNNING. *
C SIMPLE ANALYTIC GENERATION INCLUDING IN THIS VERSION:-
*       GAUSSIAN MULTIPLE SCATTERING IN H1 AND TOROID
*       MAGNETIC DEFLECTION FOR BOTH SIGNS IN THE TOROID
*       GAUSSIAN SMEARING OF THE VERTEX
*       ONLY COUNT A TRACK IF IT GOES THROUGH ALL 4
*       PLANES, OR JUST COUNT IT PRE-TOROID IF IT GOES
*       THROUGH BOTH PR-TOROID PLANES.
*
* VARY MOMENTUM THRESHOLDS etc BY ADJUSTING THE PARAMETERS BELOW
*
* ORIGINAL JOB BY JDD
* 1994 CHANGES PRN
* 22/5/95 PRN : ARTIFICIALLY FILL THE PARTS OF THE PRE-TOROID
*              TRACK-FINDERS TO BE USED FOR THE DIFFRACTIVE
*              VETO AS WAS USED IN LAST YEAR'S DIFF VERSION
*              OTHERWISE THIS IS THE SLIGHTLY MORE SOPHISTICATED
*              AND THEREFORE BUG-RIDDEN LU94TWO VERSION
*****
C VALUES TO BE INPUT BY THE USER
*
* MAXIMUM THETA TO BE CONSIDERED IN RADIANS
*   PARAMETER (THETAMAX=0.5)
* NUMBER OF THETA VALUES TO BE TAKEN IN THE RANGE 0 TO THETAMAX
*   PARAMETER (ITHVALS=2500)
* NUMBER OF TRACKS TO BE GENERATED AT EACH VALUE OF THETA
*   PARAMETER (ITRAX=1000)
*   PARAMETER (ITRAX=100)
* GENERATING POINT FOR THE MULTIPLE SCATTERING DUE TO H1 IN cm
*   PARAMETER (ZSCAT=371.)
* GENERATING POINT FOR BENDING AND SCATTERING IN THE TOROID
*   PARAMETER (ZBEND=790.)
* MINIMUM MOMENTUM FOR WHICH THE LOAD IS DESIGNED
*   PARAMETER (PMOMIN=7.5)
* SIGMA OF VERTEX SMEARING IN cm
*   PARAMETER (ZVSIGMA=20.)
* NUMBER OF INTERACTION LENGTHS IN H1 FROM VERTEX TO END OF IRON
*   PARAMETER (H1LEN=119.)
* NUMBER OF INTERACTION LENGTHS IN THE IRON TOROID
*   PARAMETER (TORLEN=74.)
* DRIFT VELOCITY IN cm/microsec
*   DATA DRIFTVEL / 4.77 /
* LOCATIONS OF THE 4 THETA PLANES IN cm FROM THE VERTEX
*   DIMENSION ZPL(4)
*   DATA ZPL/647.,712.,868.,933./
* PROPORTION OF HITS IN AN ARRAY REQUIRED TO SET A BIT
*   DATA PROZANT / 0.0001 /
*
*****
```


H1 Collaboration Meeting in Birmingham

H1 Collaboration meeting in Birmingham

September 10-14, 2001

- [Physics Plenary Agenda](#) (no talks linked)
- [Photos](#) by Hans Henschel



Organising Com'tee: John Dowell, Carrie Goodwin, Paul Newman, Eram Rizvi

Agenda for the H1 Collaboration Meeting 10 to 14 September 2001 in Birmingham

Mon Sep 10

14:00 - 17:00	Watson B	<u>HAQ Meeting</u>	S. Maxfield
14:00 - 17:00	Watson C	<u>DIFF Meeting</u>	S. Levonian
15:00 - 17:00	Poynting Small Phys.	VFPS and Fwd. Detect.	R. Roosen
17:00	Poynting Q12	<u>Executive Committee</u>	E Elsen

Parallel Sessions

Tue Sep 11

9:00	Watson A	Plenary Sessions	
9:05		Welcoming Address	Prof Mike Cruise
9:10		Announcements	
9:55		Report of the Spokesman (40+5)	E Elsen
10:45		Report of the Technical Coordinator (45+5)	D Pitzl
11:00		Trigger Issues	HC Schultz-Coulon
		<u>Trigger - Plenary</u>	HC Schultz-Coulon
	Lunch		
14:00 - 16:00	Watson C	ELAN Meeting	M. Klein
14:00	Watson A	Detector Control & Monitoring (20+5)	S Karstensen
14:30	Watson A	<u>Software Plenary</u>	R. Gerhards
17:00	Bridge Study Room	<u>Collaboration Board</u>	E Elsen
18:30		<i>Reception</i>	

Plenary Sessions

Excursion

Sep 12

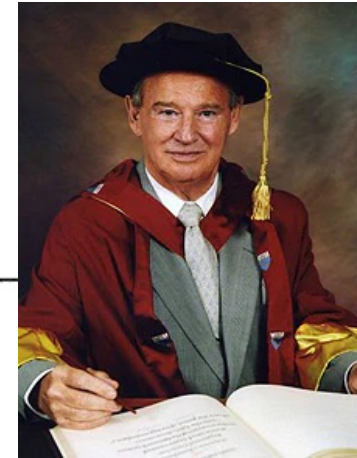
Thu Sep 13

9:00	Watson A	Plenary Sessions	
9:05		Announcement	
		<u>Physics Plenary</u>	P Schleper
	Lunch		
14:00		<u>Physics Plenary</u>	P Schleper
18:00	Bridge Study Room	<u>Collaboration Board</u>	E Elsen
19:30		<i>Collaboration Dinner</i>	

Fri Sep 14

9:00	Watson A	Plenary Sessions	
		<u>Physics Plenary</u>	P Schleper
	Lunch		
14:00		<u>Physics Plenary</u>	P Schleper
16: 00	END OF MEETING		

Agenda for the H1 Collaboration Meeting 10 to 14 September 2001 in Birmingham



Mon Sep 10

14:00 - 17:00 Watson B
14:00 - 17:00 Watson C
15:00 - 17:00 Poynting Small Phys.
17:00 Poynting Q12

Parallel Sessions

HAQ Meeting
DIFF Meeting
VFPS and Fwd. Detect.
Executive Committee

S. Maxfield
S. Levonian
R. Roosen
E Elsen

Tue Sep 11

9:00 Watson A
9:05
9:10
9:55
10:45
11:00

Lunch
14:00 - 16:00 Watson C
14:00 Watson A
14:30 Watson A
17:00 Bridge Study Room
18:30

Plenary Sessions

Welcoming Address
Announcements
Report of the Spokesman (40+5)
Report of the Technical Coordinator (45+5)
Trigger Issues
Trigger - Plenary

ELAN Meeting
Detector Control & Monitoring (20+5)
Software Plenary
Collaboration Board
Reception

Excellent dinner in the Noble Room, including inspiring after-dinner speech from VC, Maxwell Irvine

Sep 12

Thu Sep 13
9:00 Watson A
9:05

Lunch

14:00
18:00 Bridge Study Room
19:30

Excursion

Plenary Sessions

Announcement
Physics Plenary

P Schleper

Physics Plenary

P Schleper

Collaboration Board

E Elsen

Collaboration Dinner

Fri Sep 14

9:00 Watson A

Lunch

14:00
16: 00 END OF METING

Plenary Sessions

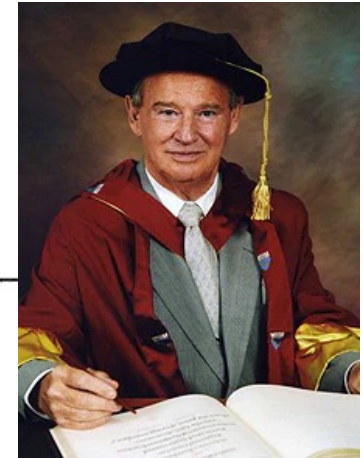
Physics Plenary

P Schleper

Physics Plenary

P Schleper

Agenda for the H1 Collaboration Meeting 10 to 14 September 2001 in Birmingham



Mon Sep 10
14:00 - 17:00 Watson B
14:00 - 17:00 Watson C
15:00 - 17:00 Poynting Small Phys.
17:00 Poynting Q12

Parallel Sessions
HAQ Meeting
DIFF Meeting
VFPS and Fwd. Detect.
Executive Committee

S. Maxfield
S. Levonian
R. Roosen
E. Elsen

Tue Sep 11 Watson A
9:00
9:05
9:10
9:55
10:45
11:00

Lunch
14:00 - 16:00 Watson C
14:00 Watson A
14:30 Watson A
17:00 Bridge Study Room
18:30

Plenary Sessions
Welcoming Address
Announcements
Report of the Spokesman (40+5)
Report of the Technical Coordinator (45+5)
Trigger Issues
Trigger - Plenary

ELAN Meeting
Detector Control & Monitoring (20+5)
Software Plenary
Collaboration Board
Reception

Excellent dinner in the Noble Room, including inspiring after-dinner speech from VC, Maxwell Irvine

Wed Sep 12

Thu Sep 13 Watson A
9:00
9:05

Lunch
14:00
18:00 Bridge Study Room
19:30

Excursion

Plenary Sessions
Announcement
Physics Plenary

Physics Plenary
Collaboration Board
Collaboration Dinner

Fri Sep 14 Watson A
9:00

Lunch
14:00
16: 00 END OF MEETING

Plenary Sessions
Physics Plenary

Physics Plenary



13.46 UK time, as the trigger plenary overran horribly ...

Agenda for the H1 Collaboration Meeting 10 to 14 September 2001 in Birmingham

Mon Sep 10		Parallel Sessions	
14:00 - 17:00	Watson B	<u>HAQ Meeting</u>	S. Maxfield
14:00 - 17:00	Watson C	<u>DIFF Meeting</u>	S. Levonian
15:00 - 17:00	Poynting Small Phys.	VFPS and Fwd. Detect.	R. Roosen
17:00	Poynting Q12	<u>Executive Committee</u>	E Elsen
Tue Sep 11		Plenary Sessions	
9:00	Watson A	Welcoming Address	Prof Mike Cruise
9:05		Announcements	
9:10		Report of the Spokesman (40+5)	E Elsen
9:55		Report of the Technical Coordinator (45+5)	D Pitzl
10:45		<u>Trigger Issues</u>	HC Schultz-Coulon
11:00		<u>Trigger - Plenary</u>	HC Schultz-Coulon
	Lunch		
14:00 - 16:00	Watson C	ELAN Meeting	M. Klein
14:00	Watson A	Detector Control & Monitoring (20+5)	S Karstensen
14:30	Watson A	<u>Software Plenary</u>	R. Gerhards
17:00	Bridge Study Room	<u>Collaboration Board</u>	E Elsen
18:30		<i>Reception</i>	
Sep 12		Excursion	
Thu Sep 13		Plenary Sessions	
9:00	Watson A	Announcement	
9:05		<u>Physics Plenary</u>	P Schleper
	Lunch		
14:00		<u>Physics Plenary</u>	P Schleper
18:00	Bridge Study Room	<u>Collaboration Board</u>	E Elsen
19:30		<i>Collaboration Dinner</i>	
Fri Sep 14		Plenary Sessions	
9:00	Watson A	<u>Physics Plenary</u>	P Schleper
	Lunch		
14:00		<u>Physics Plenary</u>	P Schleper
16: 00	END OF METING		

13.46 UK time, as the trigger plenary overran horribly ...

Agenda for the H1 Collaboration Meeting 10 to 14 September 2001 in Birmingham

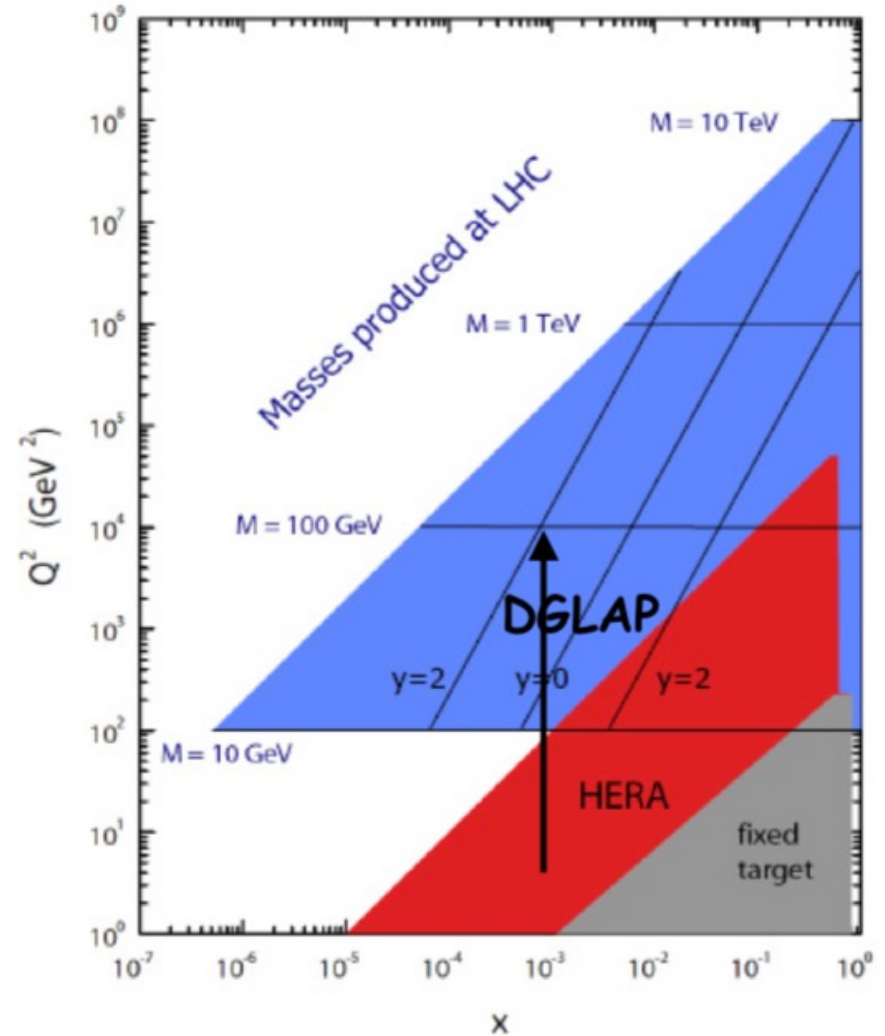
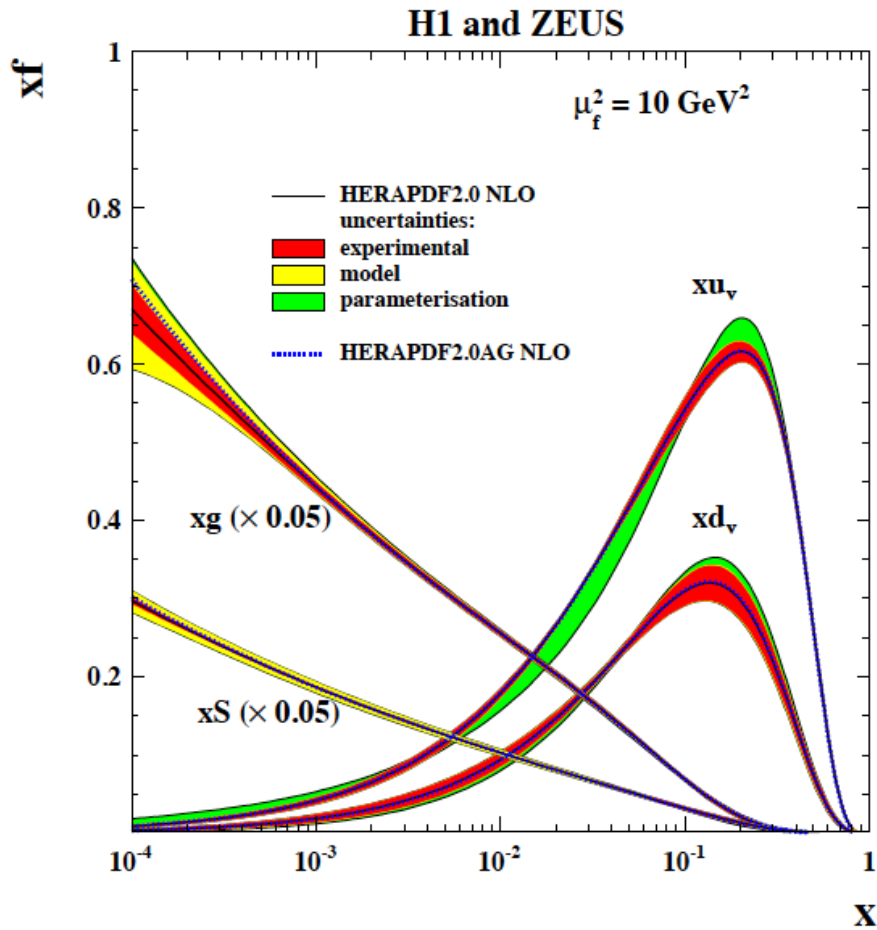
Mon Sep 10		Parallel Sessions
14:00 - 17:00	Watson B	<u>HAQ Meeting</u>
14:00 - 17:00	Watson C	<u>DIFF Meeting</u>
15:00 - 17:00	Poynting Small Phys.	VFPS and Fwd. Detect.
17:00	Poynting Q12	<u>Executive Committee</u>
Tue Sep 11	Watson A	Plenary Sessions
9:00		Welcoming Address
9:05		Announcements
9:10		Report of the Spokesman (40+5)
9:55		Report of the Technical Coordinator (45+5)
10:45		<u>Trigger Issues</u>
11:00		<u>Trigger - Plenary</u>
	Lunch	
14:00 - 16:00	Watson C	ELAN Meeting
14:00	Watson A	Detector Control & Monitoring (20+5)
14:30	Watson A	<u>Software Plenary</u>
17:00	Bridge Study Room	<u>Collaboration Board</u>
18:30		<i>Reception</i>
Sep 12		Excursion
Thu Sep 13	Watson A	Plenary Sessions
9:00		Announcement
9:05		<u>Physics Plenary</u>
	Lunch	
14:00		<u>Physics Plenary</u>
18:00	Bridge Study Room	<u>Collaboration Board</u>
19:30		<i>Collaboration Dinner</i>
Fri Sep 14	Watson A	Plenary Sessions
9:00		<u>Physics Plenary</u>
	Lunch	
14:00		<u>Physics Plenary</u>
16: 00	END OF MEETING	



D Schläpfer

- Air travel suspended:
- Would 150+ international scientists be stranded in Birmingham?
- At least nobody had come from the USA!...

The Lasting Legacy of H1



... precision mapping of the quark and gluon structure of the proton, corresponding to the initial state of LHC collisions

Dowell-Fest, July 2002

Experimental particle physicist Dowell retires

About 80 people attended a half-day meeting at the University of Birmingham, UK, on 3 July to mark the retirement of John Dowell.

Speakers were Malcolm Derrick from the Argonne National Laboratory, Chris Damerell from the Rutherford Appleton Laboratory, John Garvey from Birmingham, Carlo Rubbia from CERN, Peter Kalmus from Queen Mary University of London, and Nick Ellis from CERN. Their talks charted most of Dowell's career in experimental particle physics. In 1955, Dowell was a research student on the Birmingham 1 GeV proton synchrotron. He went on to work at NIMROD – the 7 GeV accelerator at the Rutherford Laboratory – before moving to the OMEGA spectrometer and then the UA1 experiment at CERN. At present he is a member of the H1 collaboration at DESY in Hamburg, and the ATLAS experiment at CERN.

Our understanding of particle physics has increased enormously during Dowell's career,



John Dowell retired in July.

going from a study of proton-proton elastic scattering at 1 GeV, through hadron spectroscopy, to a deep understanding of interactions at the quark level. One outstanding highlight was the discovery of the W and Z

bosons produced in proton-antiproton collisions at 540 GeV and observed by the UA1 experiment. For his contribution to this discovery Dowell was elected a fellow of the Royal Society in 1986.

Dowell has also made a significant contribution to determining the direction of particle physics research in the UK and in CERN. He was chairman of the UK Particle Physics Committee from 1981 to 1985, a period which overlapped with the Kendrew Committee set up to evaluate the quality and level of UK involvement in particle physics. He was co-spokesperson for the UA1 experiment from 1985 to 1988, chairman of the LEP Committee from 1993 to 1996 and chairman of the ATLAS Collaboration Board from 1996 to 1997. As an *ex officio* member of CERN's Scientific Policy Committee from 1993 to 1996 he was at the heart of European debate on the direction of particle-physics research.

Dowell-Fest, July 2002 (John's retirement)

Programme

- 1.30 Welcome
- 1.45 Early days in Birmingham
- 2:15 The NIMROD Era
- 2:45 Tea
- 3:15 The UA1 Experiment
- 3:45 Early CERN and UA1
- 4.15 ATLAS and the future
- 4.45 Buffet reception in the Bridge Study Room
- 6.30

John Garvey
Malcolm Derrick
[Chris Damerell](#)

Carlo Rubbia
Peter Kalmus
[Nick Ellis](#)

- John Garvey - jg@hep.ph.bham.ac.uk
- Peter Watkins - pmw@hep.ph.bham.ac.uk



With another Nobel Laureate ...



SPC visit tour on 18 September 2001
together with Nobel Laureate Martinus Veltman listening
to the deputy LHC division leader Tom Taylor

[Thanks to Peter Jenni]

John and (most of) his group in 2002



Since Retirement

- John has continued to take a strong interest in the group since his retirement, attending most of our seminars, always being positive and encouraging, and often giving wise advice



... first group meeting post-COVID (October 2021)
... does this man ever change?...



Congratulations John
... and here's to
many more years