IPPOG's 25th Anniversary

Chris Llewellyn Smith

Oxford Physics, DG of CERN 1994-1998

- My own early interest in outreach – the scene in 1984
- The scene in 1997 – setting up IPPOG
- LHC and CERN enters public consciousness
- Role of outreach in the future

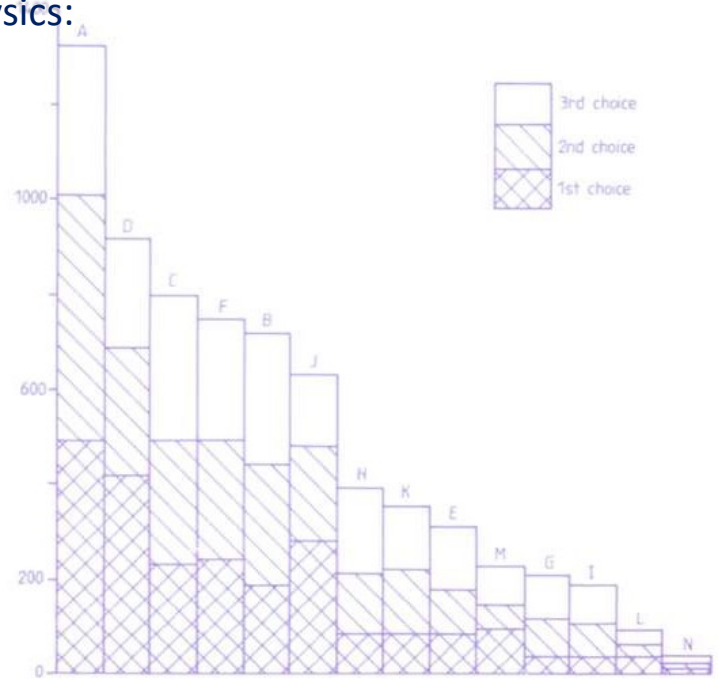
In the 1970s I started to give talks on particle physics for schools and for the public – detected a lot of interest

1984 – **important year for the LHC**: 1st major study of physics in Lausanne - I presented the case to a packed CERN auditorium

During the Lausanne meeting I was informed that the UK was setting up a review of UK participation in CERN, and reluctantly agreed to be the group's scientific advisor.

Part of the case for particle physics rests on public interest. With exceptions (Frank Close,…), we were not doing a good job in explaining what we were doing with tax payers money. This kick-started a lot of particle physics outreach in the UK.

It was argued that particle physics plays an important role in interesting young people into science. Pater Kalmus conducted a survey of 1st year UK physics undergraduates .The 2354 (80%) who responded listed factors that had attracted them to physics:



A Relativity and gravitation
B Quantum theory, other theoretical physics
C Elementary particles
D Astronomy, astrophysics, cosmology, space research
F The nucleus, nuclear energy
H Optics
I Atoms, molecules, chemical physics
J Electronics
K Computing

Conclusion: young people who are just embarking on a physics degree course at university were influenced more by the fundamental aspects of physics than by its applications, and were stimulated mainly by their teachers and classes, by non-textbooks, TV and magazines

Might be interesting to repeat such a survey today

In the 1990s I often met people who had not heard of CERN - unthinkable today (discuss what changed later)

Experience of what did attract publicity surprising: top hit while I was DG was the production of a few atoms of anti-hydrogen

1997 – don't remember what triggered me to think of establishing IPPOG, but the context was

- Approval of the LHC in December 1994 for construction as a 'missing magnet machine' in two stages, on the condition that any contributions from Non-Members would be used 'to speed up and improve the project, not to allow reductions in the Members' contributions'
- Negotiation of contributions from the USA, Japan, Russia, India and Canada that were enough to allow single stage construction
- Summer 1997 bombshell when Germany (suffering financial impact of unification) asked for a 10% reduction in its contribution – and the UK insisted that any reduction had to be for all Members

As a result I was i) pre-occupied, and ii) very conscious of the fragility of support for particle physics in some countries

From Minutes of the first meeting of IPPOG 19/9/97

The Director General, Chris Llewellyn Smith, welcomed the participants and gave a brief introduction to the background leading to the creation of the network. He stated that the particle physics community has a moral obligation to inform the public on its activities and having a well informed public is essential in view of the public's influence on the politicians who provide the funding for research. He stressed the importance of sharing experiences among countries in view of the need to optimise the use of resources. He illustrated this by pointing out that the community cannot compete with NASA in investment in public information systems (e.g. 23 people on Hubble Space Telescope public communications alone!) and therefore we must be selective. It was important to decide: (1) whom are we trying to reach and (2) what are we trying to achieve.

As to who should be carrying out public communications, he considered that it had to be primarily the responsibility of Member State scientists given:

(a) that they are based in the Member States, and also larger in number compared to scientists at CERN (6500 CERN physicist users and only some 200 research physicists at CERN),

(b) reaching the general public certainly needs the local language; there are 16 Member State languages and CERN cannot easily cover the entire range.

He pointed out how CERN could help by playing a coordinating role but stressed that this was a particle physics community responsibility. He reviewed potential areas of interest including, ensuring graphics and text are transferred from national pamphlets to all member states (e.g. the PPARC pamphlet on LHC), the Vienna virtual reality project, LHC PR on CD-Rom, sharing experience with exhibitions, sharing resources, providing supporting material for talks.

He emphasized the importance of being selective on future actions, and collective decision making, pointing out that informing school children is a good long range investment while teachers can amplify the effect. He indicated that if good projects were identified he would try to obtain the appropriate funding. He concluded by announcing that Frank Close has agreed to act as the coordinator of the network and will be at CERN in AS Division for one year from December 1, 1997.

The LHC and CERN entered public consciousness as a result of

- The work of IPOGG, and CERN's communications team

- CERN's decision to invite the press to witness the LHC being switched on

  and the efforts of a few people who tried to stop it happening as they thought it would destabilise the vacuum

THE Sun

September 1,2008

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End of the world due in nine days

By PAUL SUTHERLAND
Sun Spaceman

Published: 01 Sep 2008

ADD YOUR COMMENTS

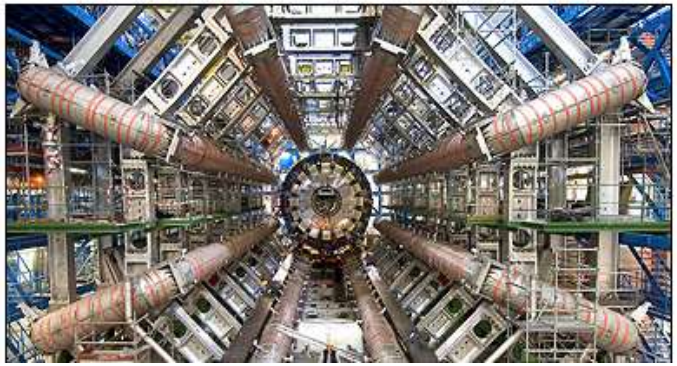
SCIENTISTS are trying to stop the most powerful experiment ever – saying the black holes it will create could destroy the world.

Dubbed by some the Doomsday test, it will be carried out next week in the Large Hadron Collider (LHC), located 300ft underground near the French-Swiss border.

The machine is 17 miles long and cost £4.4billion to create.

When its switch is pulled on September 10, this atom-smasher will become a virtual time machine, revealing what happened when the universe came into existence 14 billion years ago.

New particles of matter are expected to be discovered, new dimensions found beyond the four known, as scientists re-create conditions in the first **BILLIONTHS** of a second after the Big Bang.



Don't panic, there's time to try out every position in the Kama Sutra

WITH just nine days to go until the end of the world, here's what you could get up to before it's too late ...

1. Eat 27 Big Mac meals. Who's counting the calories?

2. Visit all seven continents.

3. Try out all 64 Kama Sutra positions.

4. Watch the entire box sets of Lost, Heroes and Prison Break.

5. Cruise the River Nile.

6. Drive to Switzerland for a ringside seat of doomsday.

7. Complete Super Mario: The Lost Levels.

8. Catch England's World Cup qualifiers against Andorra on Saturday and – if we're still alive – England v Croatia on September 10 If we lose, it'll feel like the end of the world anyway!

9. Cancel the milk and papers.


10 September 2008

The LHC entered Popular Culture:

But unfortunately (before any collisions) an electrical fault 9 days later had catastrophic knock-on effects. Repairs and improvements took until November 2009, when the LHC re-started

- **Looking backwards: approval of the LHC depended on**
  - Robust scientific case (exploration of large new domain, with good reasons to expect discoveries)
  - Uniqueness
  - Unanimous support of world particle physics community
  - Technical success of CERN
  - No budget bump (imposed)

  Public support played no role

- **Looking ahead: approval of future major projects will require**
  - Robust scientific case
  - Major discoveries at the LHC
  - Unanimous support of world particle physics community
  - Continued technical success
  - 'Reasonable' budget envelop

  Public support will be a necessary but not sufficient condition