NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCE

and

DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH

Joint Consultative Panel on Nuclear Research

A G E N D A

for the Second Meeting to be held at University College, Gower Street, London, W.C.1. on Tuesday, 24th October, 1961, at 11.15. a.m.

1. C.E.R.N.'s Future Long-Term Scientific Programme

The following papers are enclosed:

(a) Long-Term Accelerator Programme for C.E.R.N. (CERN/SPC/125)

(b) Storage Rings for the C.E.R.N. Proton Synchrotron (CERN/SPC/126)

(c) Recent Developments Affecting the Long-Term Programme of C.E.R.N. (CERN/SPC/131)

(d) Conference on Theoretical Aspects of Very-High Energy Phenomena (CERN/SPC/134 and Addendum) - (to follow)

2. Any other business.

J. A. V. WILLIS

I. A. LEARMOUTH

Joint Secretaries

N.B.

(1) A short meeting of the N.I.R.N.S. Physics Committee will precede the Joint Consultative Panel meeting. Papers for this meeting will be circulated by N.I.R.N.S.

(2) Luncheon will be arranged at University College.

Department of Scientific and Industrial Research.
6th October, 1961

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NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCE

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DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH

Joint Consultative Panel on Nuclear Research

1. The meeting on Tuesday 24th October will be held in the Council Room at University College, London. Members should enquire for directions at the Porter's Lodge at the main entrance in Gower Street.

2. The following list of speakers has been arranged for the meeting:

1. Sir John Cockcroft (Chairman of the Panel and U.K.Delegate to CERN)
2. Sir Harry Melville (Secretary of D.S.I.R. and U.K.Delegate to CERN)
3. Dr. M. G. N. Hine (Directorate Member for Applied Physics, CERN)
4. Professor G. Bernadini (Directorate Member for Research CERN)
5. Dr. J. B. Adams *
6. Mr. L. B. Mullett *
7. Dr. T. G. Pickavance (Director of the National Institute for Research in Nuclear Science)

Luncheon, followed by a general discussion to be opened by:

8. Professor C. F. Powell .
9. Professor C. C. Butler (Chairman of the CERN Panel)
10. Professor A. Salam.

* Dr. Adams and Mr. Mullett will report on various discussions held recently in the U.S.A.

J. A. V. WILLIS
I. A. LEARMOUTH
Joint Secretaries

Department of Scientific and Industrial Research
19th October, 1961.

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IN CONFIDENCE Unconfirmed Minutes

DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH

and

NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCE

Joint Consultative Panel for Nuclear Research

Minutes of the Second Meeting held at University College, London, on Tuesday, 24th October, 1961

PRESENT:

Sir John Cockcroft (Chairman)
Dr. J.B. Adams
Dr. A. Ashmore
Dr. E. Bretscher
Professor E.H.S. Burhop
Professor C.C. Butler
Professor J.M. Cassels
Professor P.I. Dee
Dr. R.J. Eden
Professor B.H. Flowers
Professor J.C. Gunn
Professor J. Hamilton
Professor A.W. Merrison
Professor P.B. Moon
Mr. L.B. Mullett
Professor E.B. Paul
Dr. T.G. Pickavance
Professor C.F. Powell
Professor G.D. Rochester
Professor A. Salam
Sir George Thomson
Professor D.H. Wilkinson

Sir Harry Melville
Dr. W.L. Francis
Mr. L.S. Smith
Mr. G. Hubbard
Mr. I.A. Learmouth (Joint Secretary)
Mr. K. Wheatley

Mr. W. Walkinshaw
Dr. J.A.V. Willis (Joint Secretary)
Mr. M. Marshall King

Apologies for absence were received from Professor W.E. Burcham, Professor N. Feather, Professor Sir Harrie Massey, Professor R.E. Peierls and Dr. G.H. Stafford.

1. Statements

(a) The Chairman said that the future of the Joint Consultative Panel was being discussed by D.S.I.R. and N.I.R.N.S. since the present appointments all expired on 31st December, 1961. An announcement would be made as soon as possible.

(b) The Chairman expressed the appreciation of D.S.I.R., N.I.R.N.S. and the Panel for the arrangements which University College, London, had made for the meeting.

2. CERN's Future Long-Term Scientific Programme

The Panel's discussion is recorded in the attached Appendix. (This is a slightly edited version of a verbatim transcript of the meeting.)

The discussion can be summarised as follows:

1. Professor Weisskopf stated that a rich field of experimentation in high energy nuclear physics had been made possible by the successful operation of the proton synchrotron. It was important to exploit this new field to the full and it was therefore necessary and important to make the maximum use of existing facilities and to improve them. There should be a reasonable annual increase in the CERN budget for the next few years to enable the machine to be fully used.

2. One of the limiting factors in the full exploitation of the proton synchrotron is the intensity of the protons now available and therefore effort should be devoted to an improvement of the intensity. It appeared that it should be possible to achieve at least a factor of 10 improvement on the present intensity but a limitation is likely to be the radioactivity induced in the target and in the vacuum chamber and effort will therefore be required to minimise the exposure of personnel.

3. The development of storage rings has not met with a great deal of enthusiasm from experimental physicists owing to the limited number of experiments which seem likely to be carried out with them. CERN wished however to continue their studies on storage rings and Professor Weisskopf felt that the experimental possibilities might turn out, in the event, to be considerably wider than could be foreseen at present; it was not unusual for novel experimental techniques to stem from, and follow after, novel apparatus.

4. There was general agreement that increasing the energy beyond 25 GeV was more important than increasing the intensity at the existing energy. This was likely to be particularly important because the production of secondary particles increases more than proporti nately with energy.

5. Attention was focused on machines ranging in energy from 300 GeV to 1000 GeV. A 300 GeV machine might cost seven hundred million Swiss francs or thereabouts and a 1000 GeV machine much more. A 1000 GeV machine might be the subject of intercontinental cooperation; it was likely to be outside the scope of Europe acting alone.

6. The time taken to get a new machine into operation was envisaged as about a three-year period of study and negotiation followed by a 7-10 year period of construction. If, therefore, Europe envisages having a machine in the 300 GeV energy region in the early 1970's, studies should start now. There was general support for CERN embarking on this study, taking advantage of similar work in the U.S.A.

7. It was thought that the Member States of CERN should be asked to consider the desirability of nominating the Director General of CERN as their spokesman in any discussion on the intercontinental accelerator project. The Member States should also be invited to cooperate with CERN in surveying national high energy physics programmes with a view to improving the coordination and harmonization of their work.

8. It was agreed that vigorous activity in nuclear physics depends on a proper balance of effort between large national and international facilities on the one

hand and Universities on the other. Without the expensive major establishments such as CERN and NIRNS, nuclear physics could not hold its place as a major British scientific activity, but the health and well-being of these establishments depended on the liveliness and high standards of the University departments producing research staff.

9. It was not possible to predict at the present time the possibility of increasing the U.K. contribution to CERN by a factor of 3 to 4. The present financial climate was not favourable.

10. The Panel agreed that it was important to produce a document setting out the continued importance of researches in high energy physics. This was particularly important in view of the likely strong competition for resources between different fields of "expensive science" in the future. It was agreed to make the point that nuclear physics was a field in which the U.K. could compete very effectively with the United States and Russia whereas we were unlikely to be able to do so in the field of space research. Professor Powell and Professor Wilkinson were asked to collaborate in producing this document.

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