

57 24
MC 0572
Box 6-09 Folder 71

[IUPAP]
ICFA

INTERNATIONAL COMMITTEE ON FUTURE ACCELERATORS

[1976-1977]

ok

PRESENT STATUS OF MACHINES

MACHINES	PARTICLES ^a (ENERGY)	END OF STUDIES	DECISION TIME	OPERATION TIME
TRISTAN ⁷ (I)	p (70) e (17)			
LEP	e^+e^- (70-100) ^p	78		
"SPS"	\bar{p} (270) e^- (25)	78	77-78	
PETRA "PETRA"	e^+e^- (19) p (200)	75	75	78
PEP	e^+e^- (19)	75	75	79
ISA	pp (200x200) (400x400)	77 78	77-78 /	84
Tevatron ⁸	p (1000) \bar{p} (1000) pp (250x1000)	77 77 78	77-80 77-80 77-80	79-80 80-81 80-81
VEPP	e^+e^- (4.5 → 7)	74	74	79
UNK	p (70 → 200 → 3000)	79-80	80-81	

7 Janvier 1977

550 32 50

245/CV/6/1/T7

Professor A. LOGUNOV
Vice Président de l'Académie des
Sciences des U.S.S.R
Leninsky Prostect 14
A 83 MOSCOU

Dear Professor Logunov,

Following the decision taken in the IUPAP meeting in Tbilissi, I have spent a lot of efforts to set up the ICFA Committee. I met more problems than expected, but to day I think that all difficulties might be over.

The enclosed text which defines the role of the Committee has been modified and is now probably acceptable by all the members of the IUPAP Commission.

The last question deals with the composition of the Committee. The IUPAP Commission has agreed in the Tbilissi meeting on an equal representation of USSR + DUBNA, USA and Western Europe (2/2/2). Since I understood that three representatives would be more adequate for USSR-DUBNA, I proposed an increased number of participants with the distribution (3/3/3), which respects the equality between the 3 main regions. I cannot change today this equality to the extent that it would constitute a distorted picture of the acutal distribution of high energy physics.

I think it would be wise to have at least one ICFA meeting before the Hamburg Conference. So I would like to ask your agreement on the present proposal and the names of three representatives. I am sending a similar letter to Professors Van Hove, Goldwasser and Yamaguchi to ask them the names of the representatives of the others regions. I shall suggest a place and a date for the first ICFA meeting as soon as I get all the answers back.

.../...

A new discussion on the region representation might take place in the next IUPAP meeting in Hamburg, but I think it would be harmful for the future inter regional collaboration not to have one meeting before the Hamburg Conference, even in a tentative composition.

Sincerely yours.

Bernard P. GREGORY

Copy to Professor Soloviev

Bernard,
Dear ~~Bernard~~

Professor B. P. Gregory
Delegation Generale a la Recherche
Scientifique et Technique
35 Rue St. Dominique
75700 Paris

I had several telephone conversations with Bob Wilson, Ned Goldwasser and André Roussel about the next steps regarding ICFA. The results are these:

- (1) The Americans don't care ~~with~~ as to the number of Russians; they might well have one more representative, making them equal to the American contingent with an additional Dubna man.
- (2) We are rather disappointed and annoyed by the failure of ^{having} ~~convoking~~ any ICFA-meeting a year after Serpukhov. You will get a letter to this effect signed by Wilson Lederman and me. (the three USA-delegates)
- (3) We ~~can~~ Nothing can be done before the IUPAP meeting in Hamburg.

We therefore suggest that a definite decision
 should be taken about membership and date (if possible) of the
~~next~~ ^{first} ICFA meeting should be taken at Hamburg.

We suggest that you urge Lopunov to send
 a delegate to Hamburg for this purpose. But
 even if no Russian is in Hamburg, a decision
 about membership and date (e.g. before Jan 1.)
 should be taken and measures adopted to make

it work. If no Russian can come, you could find out by phone
~~as to whether~~ ~~to what~~ numbers the Russians would ^{accept.} ~~agree~~

I hope that the Europeans agree
 with this procedure. It would be desirable
 that Rousset or you ^{find this out and} get their agreement and
 not ~~another~~ an American.

I hope that you find this procedure
 acceptable. I can be reached best at most evenings
 (past 5^h PM) or around 9 AM at my home in
 Leiden (70) 15 43 25. My office address
 is Instituut-Lorentz, Nieuwe Steeg 18. Leiden.
~~Best~~ regards! Very best regards!

UNIVERSITY OF TOKYO
3-1 HONGO 7-CHOME
BUNKYO-KU, TOKYO (POSTAL CODE 113)

DEPARTMENT OF PHYSICS
FACULTY OF SCIENCE

TELEPHONE (TOKYO 03) 812-2111
CABLE TOKUNIV RIGAKU

May 3, 1977

Professor L. Lederman
Physics Department
Columbia University
New York, N.Y. 10027
U. S. A.

Dear Leon,

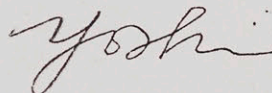
I heard that you gave an interesting talk on VBA at the accelerator conference in Chicago. I like to have a copy of your talk if available.

I guess that you must be a member of ICFA from U.S.A.. I shall also be a member if IUPAP agrees. I heard a rumour that ICFA may have a meeting in this summer. Do you know anything on such a possibility? I like to hear from you all about ICFA, I am quite isolated from "outside" since Serpukhov/Moskow (if some should be treated as confidential, you can trust me of course). Also I wonder how you and Viki are doing for ICFA, though I know our (and perhaps international) proverb: the more haste, the less speed.

It is quite interesting that the European LEAP, the post PETRA project, may grow into an intercontinental one: what would be a relation between the future (?) ICFA and a super European LEAP? Or what kinds of impetus to ICFA will be given by this super LEAP? It seems to be a time for us to "work" !?

I hope to hear from you soon.

Yours Sincerely,

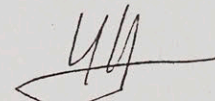


Yoshio Yamaguchi

P.S. I send this letter to Columbia, Fermi Lab, and CERN.

YY/ni

The Original was sent to Columbia



Columbia University

DEPARTMENT OF PHYSICS

NEVIS LABORATORIES

P.O. Box 137
Irvington, N.Y. 10533
914 LY 1-8100

May 19, 1977

Prof. V. Weisskopf
Lorentz Instituut
Nieuwsteeg 18
Leiden, Netherlands

Dear Viki,

It is now clear that the Serpukhov meeting made a serious error in turning the future of VBA over to IUPAP. The result has been unimaginably sluggish even when there are essentially no issues. I learned from Van Hove that Gregory's negotiations with the Russians were complicated by much "higher" level French-USSR problems but that he nevertheless assumed that the USSR demand for an extra delegate to the VBA panel was a real issue. Having read Ned's 10 May letter only three times, I begin to suspect that Gregory had no grounds for this. I told Van Hove that most of us don't care about an additional USSR or Dubna delegate and are more anxious to get down to the scientific level - the sooner the better. Van Hove thought this was an important point that should be made known. To make progress I suggest that Viki be authorized (say by the lack of protest telexed within 24 hours) to telephone or telex Van Hove, Logunov and Yamaguchi, proposing an organizational meeting of the VBA panel in CERN. A choice of dates, e.g. August 1, September 1, could be given. Gregory/Rousset should then be invited. We could then decide whether to remain with IUPAP or use some other framework. If we can't even assemble the VBA working groups within 15 months of the Serpukhov meeting, perhaps it is a hopeless case.

Sincerely,



Leon M. Lederman

copies to: M. Bardon, V. Weisskopf, F. Low, R. Wilson,
E. Goldwasser, S. Drell

FICHE D'ACHEMINEMENT - ROUTE SLIP

A :

TO :

V. Weisskopf

Veillez/Please



Donner suite/Take action



Noter/Note



Approuver/Approve



Payer/Pay



Commenter/Comment



Classer/File



Signer/Sign



Retourner/Return



SIS/RD/53

De :

From:

P. Kalle-Venane

No. Tel.

Date

18/7



Fermilab

Fermi National Accelerator Laboratory
P.O. Box 500 • Batavia, Illinois • 60510

Directors Office

July 1, 1977

MEMBERS OF IUPAP COMMISSION
ON PARTICLES AND FIELDS & Dr. A. Rousset

Dear Colleagues:

The 1977 meeting of the IUPAP Commission on Particles and Fields will be held in Hamburg, Germany on August 30. That will be the next to last day of the 1977 International Symposium on Lepton and Photon Interactions at High Energies. We plan to convene for lunch and to meet that afternoon for as long as necessary. I shall get word, via the conference message system, to each of you regarding the details of the meeting as soon as I know them. In the meantime, would you each please let me know whether or not you intend to participate in the meeting.

I am enclosing a tentative agenda for the meeting. I would be glad to receive suggestions for changes or additions, by mail, prior to the start of our meeting. Otherwise, a discussion of the agenda will be the first order of business when we meet.

One recent development concerns the International Committee on Future Accelerators (ICFA). At Tbilisi we set up a mechanism to establish that committee. Last autumn we were informed that authorities in the USSR were not satisfied with the representation which had been adopted by the Commission at Tbilisi. It was suggested that the representation of the USSR and Dubna should be increased. Professor Gregory's first suggestion was to maintain the balance among western Europe, eastern Europe and the USA by changing the representation from the agreed upon 2-2-2 by 50% to 3-3-3. That would have provided for 2 representatives from the USSR and one from Dubna member states.

Francis Low, the other Commission member from the United States, and I found this proposed change disturbing, because we felt that the Commission had acted in Tbilisi with full representation of all concerned. It is our opinion that the Commission, as well as the ICFA group which it proposes to sponsor, cannot act effectively unless they are ready to adhere to decisions which are duly made at official

meetings. We therefore would have favored initially convening ICFA before the end of 1976, as we had agreed, with the representation adopted in Tbilisi. Members would have been free to attend or not attend as they chose.

In spite of that preference, I informed Professor Gregory that if he found that the 3-3-3 level of representation would solve the impasse which he believed to exist, I would be quite ready to accept that, but I suggested that the Commission, as a whole, be given a chance to ratify the change.

More recently, it has been indicated that the USSR authorities would accept membership proposal only if it assigned one more member to the Eastern European group than to the Western European and the U.S. groups. It is now my understanding that a meeting of ICFA has been called, to convene in Hamburg the day before the meeting of the IUPAP Commission. The representation will be USSR 3, Dubna 1, USA 3, Western Europe 3, Japan 1, and the Chairman of the IUPAP Commission, ex officio. I have asked that this representation be clearly stated to be tentative, pending subsequent deliberations of the Commission at its meeting the next day.

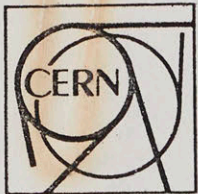
I am enclosing a proposed agenda for our meeting in Hamburg. The agenda itself will be the first topic for our discussion. However, I am receptive to any suggestions which I may receive before the time of our meeting and will place them on the list of items to be discussed at that time.

Sincerely,

Edwin L. Goldwasser

Edwin L. Goldwasser

Enclosure



ORGANISATION EUROPÉENNE POUR LA RECHERCHE NUCLÉAIRE
EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

SIÈGE: GENÈVE, SUISSE

Adresse postale / Postal address:

CERN
CH 1211 GENÈVE 23
SUISSE / SWITZERLAND

Votre référence
Your reference

Notre référence
Our reference DGR/714-77

RECEIVED

FEB 3 1977

DIRECTORS OFFICE

FERMILAB

Dr. Edwin L. Goldwasser
Directors Office
Fermi National Accelerator Laboratory
P.O. Box 500

BATAVIA, Illinois 60510

Geneva, 28 January, 1977

Dear Ned,

Thank you for your letter of 10 January and for your kind words on the start up of the SPS physics programme. We all keep fingers crossed in expectation of what will be the crop of the first year of experiments.

It is very good that you bring up the question of mutual information on our research programmes. We have greatly profited from the regular reports which Vanna Cocconi sent us since she and Giuseppe are in Chicago. She could perhaps also gather the main news of your next PAC meeting in March. Regarding your PAC Summer Meeting, we welcome very much your proposal to have Maurice Jacob attend as he did last year. I checked with him and he will be happy to go.

Now that the SPS is on the air, you may wish to follow our programme more closely as it develops in the coming months. I can see that it would not be easy for you to send a representative at each meeting of our SPS Committee. I would be glad to hear your thoughts about possible other arrangements for the westward flow of information across the Atlantic.

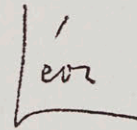
I myself was sorry to be tied up too much last fall to make the second American trip I had foreseen for 1976. I shall be in the US toward the end of March, however, and I would like very much to visit you again. The dates which would fit best in my schedule are 28 and 29 March. Could you let me know whether this would be acceptable to you?

I was very interested in the comments at the end of your letter concerning my remarks on future accelerator problems, which I made in a lecture at Erice and which were reproduced in a recent issue of CERN Courier.

What you say concerning the role of ICFA is entirely correct, of course. But in addition to this official role, and on more pragmatic level, I would expect that ICFA will give welcome opportunities to exchange informal views on future steps in the various regions. We have learnt this lesson in the last 15 years with ECFA, where indeed the significance of the Committee for European countries often went well beyond its original terms of reference.

With kind regards, also to Bob Wilson,

Yours sincerely,

A handwritten signature in black ink, appearing to read 'L. Van Hove', with a stylized flourish at the end.

L. Van Hove



Fermilab

Fermi National Accelerator Laboratory
P.O. Box 500 • Batavia, Illinois • 60510

Directors Office

January 10, 1977

Dr. Leon Van Hove
Research Director General
CERN
1211 Geneva 23
Switzerland

Dear Leon:

Much has happened at CERN since last we met. Congratulations on your tremendous progress and welcome to the exciting and puzzling new world in which we have been trying to find our way! Although a few years ago some fearful European physicists were worried about what there would be left for CERN to do when the SPS was completed, it must now be clear to everyone that there is plenty to keep all of us busy for some time to come.

I am writing, in part, to be sure that you are as informed as you would like to be about future meetings we have planned regarding the discussion and consideration of our research program. We had previously agreed that both laboratories would welcome a representative from the other at any such meetings. Last summer we were very pleased to have had Maurice Jacob with us at our extended PAC meeting. I think he learned a lot, and he was also helpful to us. The next meeting of our PAC was in November, and there was no CERN representative present. The highlights of that meeting were described in my article in the November issue of NALREP. The next scheduled meeting we shall have with our full PAC is on March 10-11. I don't know whether or not you will wish to be represented at that time, but the main results of the meeting will again be reported in NALREP.

The most important planning meeting we have each year is our summer meeting with our PAC. This year it will be June 18-24. That meeting, annually, is the one at which it is probably most useful for you to have a representative. Maurice was so interested in the proceedings last year, and we were so pleased with his participation, that I thought I would let you know that we would be most pleased to have him again if that would fit in with your plans and his.

On another subject, I read with interest the recent article in the CERN Courier containing your comments made in Erice in November. One point that I would like to emphasize

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is that in the IUPAP discussions the establishment of ICFA was motivated entirely by the long-range prospect of a VBA and by the need for short-range activity oriented toward that goal. The involvement of ICFA in shorter range, inter-regional activities was seen principally as a stimulator of meetings of the type which have previously been held in a more or less haphazard fashion. I have in mind meetings of the kind which were held in CERN in 1968, in Tbilisi in 1969, in Morges in 1971, in New Orleans in 1975. In this respect I agree completely with the way you expressed the principal responsibility of ICFA, to "sponsor discussion studies". However it was understood that, in the main, such studies would be focused on problems relating to the VBA.

Sincerely,

Hed

Edwin L. Goldwasser

Telegram to E. L. Goldwasser from A. Rousset

Date: October 6, 1976

Following many suggestions from IUPAP members Professor Gregory accepts to introduce changes in the first version of the Tbilisi conclusions. Is the following text acceptable to you? If yes, we shall try to negotiate it with Professor Soloviev.

Conclusions of the IUPAP Meeting Held in Tbilisi on the 20th of July 1976

In the conclusion of the Serpukhov meeting the study group recommended to the IUPAP Division of Particles and Fields to initiate activities of international coordination and collaboration on the future high energy facilities including regional and international accelerators. It suggested to appoint a subcommittee with the purpose of organizing working groups and future meetings.

The IUPAP group accepts the Serpukhov study group proposal and shall create the ICFA Committee (International Committee for Future Accelerators).

The aims of the committee should be:

- organize subcommittee*
- To ~~study~~ the justification of an international super-high-energy accelerator complex (V.B.A.) and to elaborate the framework of its construction and use
 - To examine future plans of regional facilities and to give advice on joint studies and use
 - 11 members will constitute the ICFA committee:

3 members from the U.S.A.

3 members from CERN member states

3 members from USSR and Dubna JINR member states

1 member from Japan

the chairman of the IUPAP Division of Particles and Fields as a representant of all other countries.

The members of this committee shall be nominated by the relevant authorities from the states or the regions, and appointed by the IUPAP committee. *see letter*

The ICFA committee will choose its chairman among its members. The ICFA committee will report on its activities at the annual international conference on high energy physics.

The chairman of the IUPAP Division of Particles and Fields will send a letter to Professors Drell, Logunov, Nishikawa and Van Hove and ask them to take the necessary steps with their relevant authorities in order to nominate the members of the ICFA committee.

MEMORANDUM REGARDING THE PRESENT V.B.A. SITUATION

V.F. Weisskopf - June 1977

One year has passed since the Serpukhov discussions. Although the IUPAP meeting in Tbilisi in August 1976 has formally accepted the recommendations of Serpukhov and asked the Chairman B. Gregory to form a Study Group, this group has not yet been established. The reasons for this delay are, partly, dissatisfaction of the Russians with the number of Sowjet members in the Group, partly a lack of enthusiasm in Europe. It is hoped that this will be remedied at the next IUPAP meeting in Hamburg in August 1977. The Americans are pressing strongly for quick formation of the Study Group and would be ready to add one Russian more to the group if necessary.

In the meantime the three regions have become more definitive in regard to their own future regional plans for the next 10 years (that is, before the envisaged start of design of the V.B.A.). The USA proposes to increase the energy of the Fermi-Lab. accelerator to 1000 GeV and to construct "ISABELLE", that is a colliding beam facility with 300 or 400 GeV in each beam. (Neither of these proposals have yet been approved by the Government). The Europeans are studying the possibility of construction of an electron-positron colliding beam facility of about 70 GeV in each beam as the next European step. No Government approval has yet been given.

The Sowjet Physicists are proposing a large increase of the Serpukhov accelerator to 2000-3000 GeV, with possible electron-proton collision facilities. It is not clear how far the Government will support these plans.

The Physicists in all three regions are still convinced of the necessity to plan for accelerators of still higher energies (V.B.A.) as the next step to be taken in 10 or 15 years from now. The only way to do this is international construction by all three regions

with participation of Japan and perhaps other industrialized regions (India, South-America).

I believe that the lack of enthusiasm and the slowness of the IUPAP procedures are caused by the fear of many physicists in all three regions, that public knowledge of the VBA-plans may discourage governments to approve the plans for the next decade. Those, who press for discussions of the VBA hold the opinion that the governments would be more inclined to support further regional developments, if they know that it will lead eventually to true international cooperation. Clearly an international laboratory would have political significance beyond the scientific values.

So far the location of the planned international laboratory was not discussed at any of these meetings. Nevertheless, it is almost evident that it must be at a central location for the three regions; that means Europe. Also, it must be in a neutral country, preferably with highly developed industries. Obviously, Austria would be a most suitable candidate.

REPORT BY THE EUROPEAN DELEGATION TO THE VBA-DISCUSSIONS
IN SERPUKHOV MAY 17 - 25, 1976

The European delegation to the Serpukhov meeting was designated by the SPC on February 26, 1976 as consisting of U. Amaldi and K. Johnsen from CERN, D. Husmann from Bonn, D.B. Thomas from Rutherford Laboratory, A. Rousset from Paris and G. von Dardel, chairman of ECFA.

The report of the study group with conclusions and recommendations are contained in the document ECFA/RC/76/6, distributed to the SPC on June 15. In the following we give our comments and clarifications to this document.

1. The review of the physics needs which was made in the course of the meeting showed that there is a clear case for new accelerators and high energy physics facilities, some of which are well beyond the range of regional capabilities. This clear scientific motivation for an interregionally constructed accelerator complex (VBA), as the only way to allow physics to proceed beyond the stage of regional facilities, was very clearly expressed at Serpukhov, as in New Orleans 1975.

2. At the same time it was recognised that the preparations for a VBA project are necessarily difficult and time consuming and demand much more frequent and more informal discussions than has been the case up to now. In view of these very positive considerations to prepare for a future VBA complex, it was decided to ask IUPAP to sponsor such frequent and informal discussions. With the present chairman of the Particle of Fields Division of IUPAP, Professor Gregory, in charge of the setting up of the proposed sub-committee to organize and follow up continuously the studies, it will be possible to take more official steps at the proper time, once the informal discussions have matured into more concrete plans and methods for how to establish a VBA project.

We feel that it is extremely important both for the prospects of success of these discussions and for the future development of a balanced High Energy Research activity in Europe, that Europe is properly represented and takes an active part in the proposed IUPAP sub-committee, and that close relations be maintained between this group and the European high energy physics community, CERN, SPC, the member states authorities and ECFA.

3. The final report "recommends that these discussions begin in the near future leading to the start of the design of the VBA in about 10 years". This statement, which implies a somewhat long time scale, came out as a compromise between two different attitudes expressed at the meeting. However, it has the merit of containing for the first time a date that also implies that there are no more than about 10 years to create the next generation of regional facilities, if so required and justified by physics. We consider that this time should be fully used by the European physics community in particular to develop new techniques, such as high field superconductors and superconducting RF cavities, on which the success and the scale of the VBA will depend.

We consider also that the generation of regional projects discussed in part of the Serpukhov discussions, seen against this time scale, need not delay the VBA project but will provide a more balanced spectrum of high energy facilities. There was a strong opinion expressed, in particular by the European delegation, that duplication should be avoided within the total programme. The main responsibility for this will fall on the regions, but international discussions may guide the selection of projects. International collaboration within these regional projects will be valuable for the preparations for the VBA and give the experience necessary for the proper conduct of the VBA project.

Conclusion. There will certainly be problems involved in creating an international VBA project and one may have to accept a fairly long time lag between now and its realization. However, the problems can be solved, and Europe may play a rôle in shortening the time scale to a minimum. In conclusion, we would express our strong support of the recommendation of the study group to proceed towards a VBA project as soon as possible.

MINISTERE DE L'INDUSTRIE
ET DE LA RECHERCHE

DELEGATION GENERALE
A LA RECHERCHE SCIENTIFIQUE
ET TECHNIQUE

Paris, le 11 Janvier 1977

35, rue Saint-Dominique - 75700
Téléphone :

550 32 50

Télex D.G.R.S.T. 204 643 F

N° 249/CV/11/1/77

à rappeler

Professor WEISSKOPF
Dép. Phys. Théor.
MASSACHUSETTS Inst. of Tech.
CAMBRIDGE MA 02139
U.S.A

Cher Professeur Weisskopf,

Je suis profondément désolé que la mise sur pied du Comité ICFA soit aussi difficile. Après de nombreuses remarques, critiques et suggestions, le texte qui définit le rôle du Comité ICFA est probablement acceptable par les membres de la Commission IUPAP.

La difficulté majeure est celle de la composition du Comité. Soloviev insiste pour que la représentation russe soit celle des Etats Unis et qu'il y ait en plus un représentant des pays de l'Est.

Comme je vous l'ai dit au téléphone, Grégory n'a pas été d'accord sur un texte de lettre que je lui avait préparé pour Soloviev. Il a préféré écrire directement à Logunov en précipitant un peu la procédure convenue à la réunion de Tbilissi. Comme vous le voyez dans la copie de la lettre, il met clairement Monsieur Logunov devant la responsabilité de faire échouer une première réunion du Comité ICFA avant la conférence de Hambourg. Nous avons aussi écrit à Yamaguchi, Van Hove et Goldwasser pour leur demander les noms des représentants des autres régions.

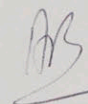
Je ne suis pas trop optimiste.

Il y a d'ailleurs bien d'autres domaines dans lesquels les problèmes de collaboration internationale sont tout aussi difficiles. En ce moment les Européens, et la France a une bonne part de la responsabilité,

.../...

perdent beaucoup de temp pour décider la construction du grand Tokomak européen, JET. Il faut vraiment avoir une foi inébranlable pour penser que tout cela finira par s'arranger.

Bien amicalement.



A. ROUSSET

10 August 1976

Professor Chang Wen-Yu
Institute for High Energy Physics
Academia Sinica
P.O. Box 918
PEKING

Dear Professor Chang,

First let me tell you how deeply we felt with your people when we heard about the earthquake and the terrible toll in human lives and destruction. But we know that the Chinese people will be able to repair the damage in the shortest possible time and they will overcome all difficulties.

I was very pleased by the successful visit of the eight Chinese physicists at CERN. Everybody here liked them very much and the collaboration was on the best terms. I hope that they liked it too and that they could see and learn what they wanted to see and learn. I also hope that this is the beginning of a long series of visits and common work between CERN and the Chinese high-energy physicists. I also look forward to similar visits in the USA. You certainly know that the Fermi Lab. in Batavia, SLAC at Stanford, and the Brookhaven Laboratory would be ready any time to receive Chinese teams.

I want to let you know what has happened recently in the negotiations for a very big, internationally constructed, accelerator (VBA). As you remember, there was a meeting in New Orleans, USA, in March 1975, which was attended by Europeans, Americans, Russians and Japanese, in which it was recognized that such an international accelerator will be necessary in the future, and that a further meeting should be held in 1976 in Serpukhov. This meeting indeed took place in May 1976. I enclose a report of the results of that meeting, and I marked the important parts with red pencil. You will see in this document that it was proposed that the IUPAP division of particles and fields appoint a subcommittee for the purpose of promoting international collaboration. The subcommittee should have three tasks :

- 1) To co-ordinate design and construction of new regional facilities.
- 2) To encourage and support joint utilization of regional facilities by the world community.
- 3) To organize studies leading to the next generation of superhigh energy facilities and to the start of the design of international projects in about 10 years.

When the IUPAP division met at the Rochester Conference in Tbilisi in July 1976, it appointed such a subcommittee. The present chairman of the division is Bernard Gregory. He asked the four groups : USA, Europe, USSR, and Japan to propose two members each for that subcommittee (Japan will have only one). There will be also a representative for the countries without accelerators. A. Rousset (the team-leader who discovered neutral currents) will be the secretary. The subcommittee will start working at the end of this year and will probably organize working groups to study problems related with its purposes.

I would like to add a special remark here : the choice of IUPAP as the organizer of this subcommittee was made on the basis that IUPAP is the only existing international organization which deals with high energy physics. We regret, of course, that China is not yet member of IUPAP, and I would like to assure you that there was not the slightest intention to keep China away from these international collaborations. I remember the remark of Chou-Peng Yuan to me in Peking that the problem of Taiwan will no longer exist in five years and that there will be no obstacle for China to join IUPAP. Since the large international plans cannot start before about 10 years, I believe that the choice of IUPAP will not keep China away from collaborating, if China chooses to do so.

Let me make a few personal comments. As you see from the report, the construction of an international facility is really a second step. The first steps in the coming ten years are still regional facilities. Table I, on p.14, gives a number of examples, of which only few will be realized. Pep and Petra are already under construction, the doubler at Fermilab will certainly be built. I am very doubtful, however, as to POPAE and ISABELLE.

Recently, both in Europe and in USA, enthusiasm is growing for a larger e^+e^- colliding beam facility of 60-100 GeV per beam, and also for $\bar{p}p$ colliding beams within the ring of SPS at CERN or at Fermilab. One would use the electron cooling method developed by Budker in Novosibirsk, which now seems to work well.

The Russian physicists are planning to enlarge Serpukhov and use their present machine as an injector to a 1500 to 2500 GeV accelerator. Perhaps they will also build an electron ring to collide with that new machine in order to get e-p collisions. It is not yet clear to what extent the Soviet government will support their plans. It certainly will be an slow development.

I get the impression that the Russians are not very enthusiastic about participating in a very big international facility. It was very hard to convince them to put the time limit of ten years for the beginning of design into the report.

There are some people, myself and Gregory are among them, who think that USA and Europe should build together an electron-positron colliding beam facility in Europe. This could then be a beginning of an international laboratory, at which - later on - other accelerators could be added, for example a 10-20 TeV proton accelerator. It would be a good beginning of an international project to which, later, other regions could join. Possibly also China could participate at some time in the future. But, I am sure, that China will first concentrate on its own programme. My hope is that, at a later time, China will join in some great international ventures.

With very best regards to all our friends, I remain,

Yours sincerely,

V.F. Weisskopf

June 7, 1976

Dr. Leon Van Hove
CERN
1211 Geneva 23
SWITZERLAND

Dear Leon:

Here are my personal impressions of the Serpukhov-Moscow Conference. You probably have read the Report which the others have brought back. Let me describe the situation shortly. Two periods have been considered. The first period is for 10-15 years from now, the second is the period afterwards. In the first period further so-called regional machines will be constructed. Examples of regional machines are ISABELLE, POPAE, the Russian program called UNK, which includes some kind of stationary target proton accelerator up to 2000 GeV. They also plan to build an e-p electron-proton facility together with this in something they call the first stage, and a second stage which may or may not ever be arrived at, would be a colliding beam facility with the energy they have at the stationary machine. And also European programs such as the LSR and LEP.

Essentially the conference has come to the following conclusions. Firstly, there should be some coordination of regional programs in the next 10-15 years. It is not quite sure what is meant by this -- it should not be a strict distribution of different machines to different regions, but a kind of constant consultation in the planning and construction, with mutual advice and perhaps help. Clearly, neither the Americans nor the Russians, and for that matter certainly also not the Europeans, would like to be bound by a commitment to build "that" machine so that another region could build "this" machine.

Secondly, the Report recommends a broadening and amplification of international exploitation of present and future regional machines. I know you are somewhat skeptical of this point but it is certainly desirable to do so and our experience in the USA, in particular at the FERMILAB, was not so bad.

There are certain signs which, if they will be realized, would be a turn to the better. We were told that beginning with July 1 the Russian physicists who work abroad will get a permanent visa so that they can come and go for meetings and experiments whenever they want. If this is realized it certainly would be proof that they seriously try to improve the situation.

June 7, 1976

You know my general attitude toward collaboration with the Russians. I am fully aware that it is not easy and that physics could probably be done faster without that collaboration, but I do firmly believe that it is part of the purpose of CERN to establish good relations among the physics community including the East. We must not forget either that our good relations with satellite countries such as Poland are to some extent based on reasonably good relations with the Soviet Union. If these relations would appreciably deteriorate, I do not think that we can continue having good collaboration with Poland either. I do think that an international organization like CERN has the duty to do more than just physics. After all, one of the achievements of CERN was to be a leader in the unification of Europe.

The third recommendation is the preparation of Period II when High Energy Physics will require facilities so large that they could be constructed only on a truly international basis, that is the famous VBA. During the discussions, the Russians expressed some doubt as to the wisdom of pressing this point, since it would make it difficult for them to get money for their UNK project. The same kind of fears probably also exist in Europe and to some extent in America. Once I had an occasion to ride alone in a car with Logunov and he asked me point blank why it is that I and my American colleagues are pressing so hard for the VBA in 10-15 years... wouldn't that interfere with getting the money for our regional projects such as ISABELLE or POPAE? I answered quite frankly we don't think so -- on the contrary, our Government is rather dissatisfied that we are asking for more and more expensive national projects and it hopes that there will be an end to this. The international machine after ISABELLE or POPAE would be such an end; it corresponds to the presently acknowledged political aims of scientific and cultural collaboration with the Soviet Union. So I told Logunov that we think the discussion of the possibility and our working toward an international machine might help us in getting the next regional program, quite apart from the intrinsic value for peace and human understanding of such an international venture. After several lengthy discussions, we agreed that a present (say, for the next five years) there should be a gentle approach only toward the VBA with certain studies made, and further meetings of the kind we had at Serpukhov. The result of our negotiations you will find in the Report and the formulation was agreed by everybody concerned.

I should say a few words about the Russian regional program. It seems that they expect indeed reasonably soon an approval of a sum of roughly 200 to 300 M rubles, and they would then adjust their plans to what can be done with this sum. They are thinking of starting the program not earlier than 1980.

June 7, 1976

You have certainly seen the proposal of the meeting, to ask the IUPAP Division of Particles and Fields to appoint a sub-committee with the task of continuing these efforts. It should organize a meeting of the Serpukhov kind perhaps within a year or year and a half and, if the members feel that way, also organize smaller study groups to clear up problems that may come up in connection with the three points, namely, coordination of efforts, international exploitation of present and future machines, and then finally the "gentle" approach towards the VBA.

Altogether I was pleased with the reaction of the Russians to these discussions. They were rather reasonable and pleasant, they behaved in Western style (perhaps with the exception of Logunov who sometimes fell into arguing about little details of formulation, but these moments did not last too long).

I heard from Yarba and Lanus about the difficulties of collaboration with CERN. Probably Ugo Amaldi will have told you already details about these conversations. I evidently kept myself away from the actual discussion of the details but I do have the impression that the Russians are quite unhappy about it.

Finally, I want to draw your attention upon how thoroughly, in my opinion, Western Europe and the U.S.A. have messed up the possibilities of a rational development in what I have called the Period I. I am referring to the unfortunate duplication PEP-PETRA. Imagine, for example, two scenarios which could have been realized, say, a year ago: One is that SLAC would go ahead with PEP, and that Europe would have waited a few years, and then would have united the efforts of EPIC, PETRA and FRASCATI and would construct a 60-60 e^+e^- colliding beam (LEP), a most worthwhile undertaking after the completion of SPS. Then USA would have built a p-p facility (with e-p option) of the type ISABELLE or POPAE. Physics would have had both, (p-p) and LEP.

The other scenario would be that, after the start of PETRA, SLAC would have waited a few years, and then would ask for a large piece of money to build a 60-60 e^+e^- facility by giving up ISABELLE-POPAE and leaving the p-p exploitation (and e-p option) to Europe (LSR). But the eagerness to exploit the J/ψ victories (which may not be repeated in the PEP-PETRA region) has led SLAC and DESY into this silly duplication of efforts.

Now the situation is rather difficult. Most probably, USA will approve ISABELLE or POPAE before 1980, which would put Europe in an awkward position. In Europe, no new projects can be expected before 1980, and the only choice left would be LEP (60-60 GeV); a rather awkward step after having built a (20-20) facility in Hamburg. Of course, it is possible that ISABELLE or POPAE will not be funded, so that Europe could go ahead with LSR. But this would happen only if strong anti-high energy trends occur in USA. They would by necessity influence European decisions too, so that I doubt that course of events.

June 7, 1976

It seems to me that the Russians have been wisest (or better least unwise) in their choice for Period I. They did coordinate their plans with Western plans. Their choice of a 2 TeV proton accelerator with e-p-option is at least a small step into a region that will not easily be preempted by other regions. FERMILAB will get only 1000 TeV, and with not much intensity. Of course, we don't know whether the Soviets can do it in a reasonable time scale (that is within Period I) and whether they really get enough money for that energy. When I consider the situation, I cannot help thinking that American and European short sightedness in the PEP-PETRA scramble has made a reasonable development in Europe for Period I rather difficult. With (p-p) probably preempted by USA, it would be hard to convince the European governments to spend money on a second e^+e^- facility.

I conclude from this that Europe would gain most from an early VBA project. After all, if it is ever realized, it would have to be in Europe. There comes the time -- and for Europe, the time may be now -- that new High Energy facilities will require a special political attraction, such as East-West collaboration. Sure enough, the East-West relations are a little cooler today, but I am convinced that this is a temporary effect, and the political value of East-West collaboration will be high on a long-term basis. Afteraall, anything worse than a temporary cooling is bound to lead to a final catastrophe.

I therefore believe that the realization of a VBA project is in Europe's interest and I find it curious that the push towards this aim is so much weaker in Europe than in the USA and even in the Soviet Union.

With best regards,

Sincerely yours,

Victor F. Weisskopf

VFW:dle



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Fermi National Accelerator Laboratory
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Directors Office

January 10, 1977

Professor B. P. Gregory
Delegation Generale a la Recherche
Scientifique et Technique
DGRST
35, Rue Saint Dominique
75700 Paris, France

Dear Professor Gregory:

I have recently learned from Sid Drell that he has still not received the request that would set in motion the establishment of ICFA. The continued delay may be due to problems concerning USSR and Dubna representation on the new committee. I wrote to you briefly on that matter on December 3. Let me now state my position more strongly.

The record of the Tbilisi meeting of the IUPAP Commission on Particles and Fields shows that a decision was made at that time to set up a new committee, ICFA, with representation of 2-2-2-1-1 for eastern Europe, western Europe, USA, and other countries. I strongly advise that we proceed to set up the committee in precisely that manner. If the Russians designated at the Tbilisi meeting are unable or unwilling to name two (2) representatives to fill that quota, I suggest that the Committee nevertheless be established and proceed to meet without those representatives. I suggest that the Russians be notified of our intentions including the fact that an effort will be made to convene the Committee for its first meeting before summer, whether or not all designated slots have been filled. They should also be notified that there will be an opportunity at the IUPAP Commission meeting, presumably later this summer, to review the progress of ICFA and to discuss any changes in procedures or in representation which they, or anyone else, might wish to recommend.

I would now like to try, once more, to get an opinion from you regarding the main subject I addressed in my letter of November 23. Since writing that letter I have received a great deal more material expressing the concerns and criticisms of U.S. participants in the Tbilisi Conference.

As you might suppose, both ERDA and NSF require that each physicist traveling to a foreign conference submit a trip report. Most physicists limit that report to a description

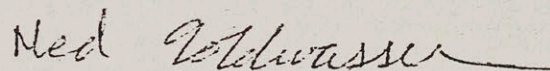
of their scientific communications, exchanges and visits. Following the Tbilisi meeting, it is apparent that feelings were so strong about the handling (or mishandling) of the planning of the conference and of the arrangements for participants that many people digressed, in their trip reports, and addressed themselves to those subjects. These references were so frequent that the NSF and ERDA representatives, who are responsible digesting those reports, each sent me a collection of excerpts which they thought should be of interest to the IUPAP Commission. I am enclosing a large fraction, but not all of what they sent to me.

In my letter of November 23 I enclosed a draft letter which I might send to all members of our Commission. At that time my letter was to be based only on copies of the four letters which I had then received. Now those four letters could be augmented by the additional excerpts that I am enclosing herewith.

I know that your new responsibilities, even more than your old ones, must preoccupy you. Nevertheless, I am determined that we should not let either the issue of ICFA or that of USSR management of conferences go unresolved, by default. If you have good reason not to take action, I would like to be informed and to understand what it is we are doing or not doing and why. If I do not hear from you earlier, I shall try to reach you by telephone during the last week of January.

In closing I would like to emphasize that I stand ready to do whatever I can to relieve you of some of the work that is entailed in implementing these IUPAP Commission decisions. In my letter of September 2 I enclosed a draft letter that might be used, with modifications reflecting interim negotiations, to get ICFA on the way. Similarly, in my letter of November I enclosed a draft of a letter which might be used to place the USSR conference problems before the members of the Commission. If there is anything further I can do, please let me know.

Sincerely,



Edwin L. Goldwasser

Enclosures

bcc: Francis Low, with enclosures
Sidney Dress, without enclosures
Victor Weisskopf, without enclosures

May 23, 1977.

----- 071-131725

Professor Dr. V.F. Weisskopf

Professor B.P. Gregory
Délégation Générale à la Recherche
Scientifique et Technique
35, Rue St. Dominique
75700 PARIS
France

Dear Bernhard,

I had several telephone conversations with Bob Wilson, Ned Goldwasser and Améré Rousset about the next steps regarding ICFA. The results are these:

- (1) The Americans don't care as to the number of Russians; they might well have one more representative, making them equal to the American contingent with an additional Dubma man.
- (2) We are rather disappointed and annoyed by the failure of having any ICFA-meeting a year after Serpukhov. You will get a letter to this effect signed by Wilson, Lederman and me (the three USA-delegates).
- (3) Nothing can be done before the IUPAP meeting in Hamburg. We therefore suggest that a definite decision about membership and date (if possible) of the first ICFA meeting should be taken at Hamburg. We suggest that you urge Logunov to send a delegate to Hamburg for this purpose. But even if no Russian is in Hamburg, a decision about membership and date (e.g. before June 1) should be taken and measures adopted to make it work. If no Russian can come, you could find out by phone what number the Russians would accept.

I hope that the Europeans agree with this procedure. It would be desirable that Rousset or you find this out and get their agreement and not an American.

I hope that you find this procedure acceptable. I can be reached best at most evenings (past 5 h. PM or around 9 AM at my home in Leiden (71) 154325. My office address is Instituut-Lorentz, Nieuwsteeg 18, Leiden.

Very best regards!



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Directors Office

May 10, 1977

Professor B. P. Gregory
Delegation Generale a la Recherche
Scientifique et Technique
DGRST
35, Rue Saint Dominique
75700 Paris, France

Dear Professor Gregory:

Norman Ramsey has just returned from CERN and has indicated to me that you are awaiting some kind of word from me which might unblock the present stalemate in establishing the ICFA Committee and in scheduling its first meeting. This came as a surprise to me, because I have received no such information from you. I believe that the last word I have received from Rousset indicated that you were on your way to the Soviet Union and that you had hopes of resolving the impasse during that trip. I have heard no subsequent report on the outcome of your efforts.

It is quite true that I might have some reluctance to accept one or another proposal regarding international representation on the ICFA Committee. As of now, however, negotiations are being guided by information which you received after the Commission's Tbilisi meeting and by your interpretations and reactions to that information. In my letter of January 19, I indicated my own readiness to accept the revised representation, 3-3-3-1-1 which had been proposed by you. I did, at the same time, indicate my own opinion that a better way to proceed would be exactly in accordance with the agreement we had formally reached in Tbilisi with the understanding that the Eastern Europeans would be informed that all questions of representation could be reopened at the 1977 meeting of the Commission and perhaps revised at that time. It was further my realization that under those conditions the Eastern Europeans might choose not to participate in ICFA, pending resolution of the representation problem. I was ready to take that risk, feeling that not to do so would be setting a precedent under which formal actions taken by the IUPAP Commission or by the new Committee would always be tentative, subject to unilateral afterthoughts, and therefore of very little significance.

bcc: N. Ramsey

Although the above describes my own personal preference, I also indicated to you in my telex to A. Rousset on October 8, 1976 that if you had a solution in hand, involving a change in the agreed upon representations, I would be willing to go along with those changes. I did raise the question of whether, in fact, the Commission, as a whole, could be expected to go along with such a change without taking a mail poll. It was your judgment, as I remember it, expressed in your letter of January 6, that the relationship between representations of various "delegations" should not be significantly changed. I don't believe that such a possibility was ever explicitly placed before me or before other members of the Commission. I therefore do not believe that I have ever turned down such a possibility, although there may, indeed, be serious objection to it.

Again, speaking for myself, I would be quite ready to consider unilateral increased representation for Eastern European countries, but I feel that such a possibility should be considered only in response to a specific request by them for a reconsideration of the problem, and preferably only at the next meeting of the IUPAP Commission. Nevertheless, although that is my immediate reaction, if I were to be presented with a concrete proposal, I would certainly give it further serious consideration and would discuss it with others whom I feel I represent. Until now, I have not felt that any such proposal had been made. Please let me know if I have misunderstood some communication from you.

Sincerely,

Edwin L. Goldwasser

Edwin L. Goldwasser

cc: F. Low
V. Weisskopf
R. Wilson
L. Lederman
S. Drell

May 24, 1977

Professor Bernard P. Gregory
Delegation Generale a la Recherche
Scientifique et Technique
DGRST
35, Rue Saint Dominique
75700 Paris, France

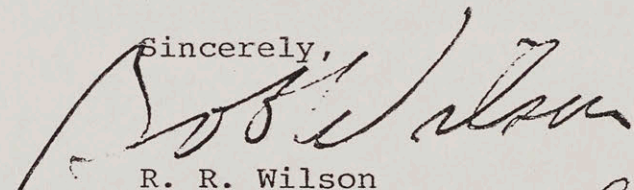
Dear Bernard:

It has been a year since the accord of New Orleans was formalized at Moscow. Many of us in the United States are disappointed that the recommended "ICFA" has not yet been established. Delay will be wasteful of mutual economic and scientific resources - even worse, the momentum of the New Orleans initiative toward world cooperation in high energy physics might be lost.

May we urge you to move rapidly and forcibly toward taking the next step. We do not regard any particular East-West balance as having much significance because the contribution of the group will of necessity be almost entirely intellectual in nature.

It is urgent that the whole matter be formalized at the IUPAP meeting in Hamburg.

Sincerely,



R. R. Wilson
signed for all three
V. F. Weisskopf
after reading his letter
L. M. Lederman
to Fern and Viki

RRW:jw

cc: A. Logunov
Y. Yamaguchi
L. Van Hove
F. Low



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Directors Office

May 25, 1977

Professor Leon M. Lederman
Department of Physics
Columbia University
New York, New York 10027

Dear Leon:

Thanks for the copy of your May 19 letter to lots of people. I was interested, though not completely surprised, by some of the new information contained in your communique. I'd like to take this opportunity to clarify my own position, since you only read my 10 May letter three times. It is not identical to yours, by reason of my IUPAP responsibility. Nevertheless, I do not think we differ significantly, in principle.

I, like you, am not deeply concerned about the possibility of an additional USSR or Dubna representative on the ICFA Committee which we are trying to establish. Had your panel suggested some magical formula of representation for Eastern Europe, Western Europe, Other Countries and the USA, the IUPAP Commission would certainly have given it serious consideration and quite likely would have adopted it. As it was, we did consider the representation question, at considerable length, at our Tbilisi meeting. We discussed big committees versus small committees, and we discussed apportionment of representatives from different regions of the world. We came to a decision, two for the U.S., two for Eastern Europe, two for Western Europe, one for Japan (an "Other Country") and the Chairman of the IUPAP Commission on Particles and Fields, ex officio, representing all other "Other Countries".

Now, whether or not the formula which the Commission voted is the best formula in the world, I do not know, and, in a certain sense, I do not much care. However it does seem important to me, both for the IUPAP Commission and for the future effectiveness of ICFA, that when the appointed representatives of the participants meet, they should have the authority to decide certain kinds of things. Furthermore, if they do reach a decision, they should stick by that decision at least until there is some formal procedure through which the decision can be reconsidered. If there is not such a modus operandi, I doubt that anything you discuss or decide on ICFA or anything we discuss or decide on IUPAP will have much significance in the future.

As you well know, at New Orleans it was not a trivial matter to put the concept of the VBA on the tracks and to start some activity toward the planning of such a possibility. You, Viki, Bob Wilson and Bernard Gregory, all played important parts in getting the idea accepted. The initiative that was taken in New Orleans led to your subsequent meetings at CERN and at Serpukhov, and they, in turn, led to the suggestion of IUPAP sponsorship.

I disagree that the Serpukhov meeting made a serious error in turning toward IUPAP for VBA sponsorship. The VBA activity needs, I believe, some kind of recognized sponsorship in order to command the attention of the various national authorities whose support and approval will be required, all along the way. Although IUPAP may be imperfect, who's perfect? The fact is that the members of the IUPAP Commission were enthusiastic about the sponsorship of the ICFA Committee and, as I saw it, tried to push it along on its way in exactly the spirit that you, its mentors, intended.

There has never been any official Russian communication, that I know of, indicating an unwillingness to go along with the decisions that were reached at the IUPAP Commission meeting in Tbilisi. I had even taken the precaution, at the Tbilisi meeting, of having present a large representation of the USSR high energy physics hierarchy so that we could have the participation of a more authoritative group than represented by the two USSR IUPAP representatives. Why Gregory chose to be so strongly influenced by what I gather were informal communications from individual Russians, I still do not know. Your answer may be the right one.

It is now the beginning of June, and the IUPAP Commission meets again in August. It seems to me that the Commission meeting in Hamburg is our best bet and your best bet to keep the planning of the VBA in an active status. At that meeting the Commission can either stand behind its previous assignment of representations or can establish new ones. In either case, I shall certainly move to have an ICFA meeting called for early next fall. Although your group might arrange to meet before that, as suggested in your letter, and outside the ken of IUPAP, I don't believe that in the present circumstances such a meeting would carry much weight. For example, I think there would be much less incentive for the Eastern Europeans to participate in such a rump session than there would be for them to participate in a meeting which stemmed from the inexorable progression from the New Orleans initiative through the IUPAP Commission actions.

Sincerely,

Ned
Edwin L. Goldwasser

cc: M. Bardon, V. Weisskopf, F. Low, R. Wilson, S. Drell



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Directors Office

January 24, 1977

Professor Victor Weisskopf
Department of Physics
Massachusetts Institute of Technology
Cambridge, Massachusetts 02139

Dear Viki:

The enclosed correspondence speaks for itself. Bernard Gregory has apparently found some kind of a resolution to the problem of representation on ICFA. I enclose a copy of his letter to me which crossed my letter to him, - of which I sent you a copy. I am also enclosing my response to him and my letter to Sid Drell. I am sure that you will agree that it makes life much simpler to have one person holding the responsibility.

Warm regards,

A handwritten signature in blue ink that reads "Edwin".

Edwin L. Goldwasser

Enclosures



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Directors Office

January 24, 1977

Professor Sidney Drell
Stanford Linear Accelerator Center
P.O. Box 4349
Stanford, California 94305

Dear Sid:

Concerning our recent telephone conversation I am enclosing a copy of a letter I recently received from Bernard Gregory. For your information, I also am enclosing my response.

I have been in touch with Francis Low, and he agrees with me that it would be in accordance with the procedures adopted at the IUPAP Commission meeting for you to take the sole responsibility for providing the names of three physicists to serve as U.S. representatives on the new Committee.

I have not yet been able to reach Viki Weisskopf, but I am writing him informing him of: a) the letter from Gregory and b) the fact that I have asked you to name the three candidates. I am sure that he will go along with that decision, particularly since he was at the Tbilisi meeting and is therefore aware of the fact that the IUPAP Commission intended it to be that way. I am also sure that any of us would be available if you wished to consult with us and, at the same time, that none of us would feel slighted if you did not.

I hope that you will be able to give me three names within the next few weeks.

Sincerely,

A handwritten signature in cursive script that reads "Ned".

Edwin L. Goldwasser

Enclosures



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Directors Office

January 19, 1977

Viki
253-4887

Professor B. P. Gregory
Delegation Generale a la Recherche
Scientifique et Technique
DGRST
35, Rue Saint Dominique
75700 Paris, France

Dear Professor Gregory:

Our letters have once again crossed in the mail. Of course I am willing to accept your 3/3/3 proposal as a substitute for the previously agreed 2/2/2 representation. I assume that there is still to be one representative from Japan. I further assume that there will be one more position on the Committee to be filled, ex officio, by the Chairman of the IUPAP Commission on Particles and Fields. That would be you for the remainder of your term and then would presumably become a USSR representative for the following three year period. It is my understanding that once the ICFA Committee is established, the members will choose their own chairman.

In accordance with your instructions I am having conversations with Professors Drell, Weisskopf and Low concerning the selection of three U.S. members of the ICFA Committee.

I am somewhat concerned about the change from 2/2/2 to 3/3/3 without obtaining explicit Commission approval. The question of the size of the Committee was discussed at Tbilisi and a conscious decision was made to keep the Committee small. I note that you have revised the conclusions of the IUPAP meeting of 20 July 1976 to correspond to the eleven member ICFA apportionment which you are now proposing. In my judgment, it would be better to leave the conclusions of the IUPAP meeting as they have already been stated and circulated to members of the Commission. The change from 2-2-2-1-1 to 3-3-3-1-1 should be attached as an addendum representing a modification which you found necessary to adopt in attempting to carry out the recommendations of the Commission.

Sincerely,

Edwin L. Goldwasser

Edwin L. Goldwasser

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ET DE LA RECHERCHE

DELEGATION GENERALE
A LA RECHERCHE SCIENTIFIQUE
ET TECHNIQUE

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Paris, le 6 Janvier 1977

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Téléphone :

550 32 50

Télex D.G.R.S.T. 204 643 F

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JAN 14 1977

DIRECTORS OFFICE
FERMILAB

Monsieur le Professeur GOLDWASSER
Fermi National Accelerator Laboratory
P.O Box 500
BATAVIA ILLINOIS 60510
U.S.A

Dear Professor Golwasser,

The setting up of the ICFA Committee give us some problems, but today I hope that the difficulties might be over.

The enclosed text wich defines the role to the Committee has been modified and is now probably acceptable by all-the members of the IUPAP Commission.

The last question deals with the composition of the Committee. We agreed in the Tbilissi on an equal representation of USSR + DUBNA and Western Europe (2/2/2). Since I understood that three representatives would be more adequate for USSR-DUBNA, I proposed an increased number of participants with the distribution (3/3/3), which respects the equality between the 3 main regions. I cannot change today this equality to the extent that it would constitute a distorted picture of the actual distribution of highenergy physics.

I think it would be wise to have at least one ICFA meeting before the Hamburg Conference. I have sended a letter to Professor Logunov asking his agreement on the 3/3/3 distribution and the names of the USSR-DUBNA representatives. I am writing also to Professors Van Hove and Yamaguchi. I would like to get your agreement and the three names of USA representatives.

.../...

I think that it will be more convenient for you than for me to have the necessary contacts with Professors Drell, Weisskopf and the american members of the IUPAP Commission. I shall suggest a place and a date for the first ICFA meeting as soon as I get all the answers back.

Sincerely yours,

Bernard P. Gregory
Bernard P. GREGORY

CONCLUSIONS OF THE IUPAP MEETING
HELD IN TBILISSI ON THE 20TH JULY 1976

IN THE CONCLUSIONS OF THE SERPUKHOV MEETING (MAY 76) THE STUDY GROUP RECOMMEND TO THE IUPAP DIVISION OF PARTICULES AND FIELDS TO INITIATE ACTIVITIES OF INTERNATIONAL COORDINATION AND COLLABORATION ON THE FUTURE HIGH ENERGY FACILITIES INCLUDING REGIONAL AND INTERNATIONAL ACCELERATORS. IT SUGGESTED TO APPOINT A SUB COMMITTEE WITH THE PURPOSE OF ORGANIZING WORKING GROUPS AND FUTURES MEETINGS.

THE IUPAP GROUP ACCEPTS THE SERPUKHOV STUDY GROUP PROPOSAL AND SHALL CREATE THE ICFA COMMITTEE (INTERNATIONAL COMMITTEE FOR FUTURE ACCELERATORS).

THE AIMS OF THIS COMMITTEE SHOULD BE :

- TO ORGANIZE WORKSHOPS FOR THE STUDY OF PROBLEMS RELATED TO AN INTERNATIONAL SUPER HIGH ENERGY ACCELERATOR COMPLEX (V.B.A) AND TO ELABORATE THE FRAMEWORK OF ITS CONSTRUCTION AND ITS USE.
- TO ORGANISE MEETINGS FOR THE EXCHANGE OF INFORMATION ON FUTURE PLANS OF REGIONAL FACILITIES AND FOR THE FORMULATION OF ADVICES ON JOINT STUDIES AND USES.

11 MEMBERS WILL CONSTITUTE THE ICFA COMMITTEE :

- 3 MEMBERS FROM THE USA
- 3 MEMBERS FROM CERN MEMBER STATE
- 3 MEMBERS FROM USSR AND DUBNA JINR MEMBER STATES
- 1 MEMBER FROM JAPAN
- THE CHAIRMAN OF THE IUPAP DIVISION OF PARTICULES AND FIELDS AS THE REPRESENTANT OF ALL THE OTHER COUNTRIES.

THE MEMBERS OF THIS COMMITTEE SHALL BE NOMINATED BY THE RELEVANT AUTHORITIES FROM THE STATES OR THE REGIONS AND APPOINTED BY THE IUPAP COMMITTEE.

THE ICFA COMMITTEE WILL CHOOSE ITS CHAIRMAN AMONG ITS MEMBERS
THE ICFA COMMITTEE WILL REPORT ON ITS ACTIVITIES AT THE ANNUAL

INTERNATIONAL CONFERENCE ON HIGH ENERGY PHYSICS



Fermilab

Fermi National Accelerator Laboratory
P.O. Box 500 • Batavia, Illinois • 60510

Directors Office

September 28, 1977

*Viki
I hope this is what
you have in mind
for any further suggestions?
about people Bob*

Dear Colleagues:

According to the enclosed minutes of the first ICFA meeting, I have been "nominated to send proposals on terms of reference, working methods, topics, agendas and memberships to B. Gregory before 31 October." Especially with regard to these first steps, we should proceed circumspectly (gasp) and cautiously (ugh!). If we as American physicists are not in accord on a national basis, we will not likely reach international accord.

Many of us will be together at Fermilab for the Ben Lee Memorial Conference October 20-22. Will you please come to an informal caucus at Fermilab in the Comitium at 2:00 p.m. on October 20, at which time the whole matter can be discussed. A list of the other people I have asked is at the bottom of this letter, and I would appreciate suggestions that would insure a good representation at the caucus.

For what it is worth, let me add a few very personal views which might help focus some of your thinking. I see two altogether different activities: (a) the organization of "workshops for the study of problems related to an international super high energy accelerator complex (V.B.A.) and to elaborate the framework of its construction and its use."; and (b) the organization of "meetings for the exchange of information on future plans of regional facilities and for the formulation of advice on joint studies and uses." I think we could organize the group to do (b) now, i.e., director-appointed people, etc. Their first step might be to organize a Morges-like meeting involving a larger group. Any collaboration that results should be on a purely voluntary basis, but more collaborations might result because of better communication and attention. The VBA is a different matter.

I do not see the necessity of identifying a separate group for activity (a) at this time. Rather, I see ad hoc groups forming and being blessed by ICFA to hold meetings. Thus, as the minutes indicate, I have suggested that a meeting on "Technical possibilities and limitations of accelerators and detectors" be held at Fermilab in mid '78.

I would hope to appoint an organizing committee for that meeting which then might be approved by ICFA.

Well, this is the sort of thing to be explored at the caucus. Hope to see you there.

Sincerely,



R. R. Wilson

Weisskopf/Lederman
Vineyard and/or designate
Panofsky and/or designate
Wilson/Goldwasser
Drell and/or designate
Division of Particles and Fields - Trilling and/or designate
DOE - Kane and/or designate,
NSF - Bardon and/or designate
Chairman, Fermilab Users' Executive Committee - L. Leipuner
Chairman, BNL Hedge Executive Committee - C. Baltay

MINUTES OF THE FIRST ICFA MEETING

Hamburg 29.08.1977

Participants : J. ADAMS, V. DJELLEPOV, B. GREGORY, LANIUS,
L. LEDERMANN, K. MYZNIKOV, W. PAUL, Y. VON DARDEL,
V. WEISSKOPF, R. WILSON, Y. YARBA, Y. YAMAGUCHI,
(+ A. ROUSSET).

1°/ Election of the ICFA Chairmann : B. GREGORY.

A. ROUSSET will assist him in his task.

2°/ B. GREGORY reads the instructions coming from the IUPAP
Commission on the main aims of the ICFA Committee :

" to organize workshops for the study of problems
related to an international super highenergy accelerator
complex (U.B.A.) and to elaborate the framework of
its construction and its use.

To organize meetings for the exchange of information
on future plans of regional facilities and for the
formulation of advices on joint studies and uses."

The ICFA members propose to interpret these
instructions following the more delaited recommendations from the
1976 Serpukhov study group (annex I) and ask the Chairmann to
report on this point to the IUPAP Commission.

.../...

3°/ Review of the status of the machines, planned or in construction.

Table I

MACHINES	PARTICLES (Energy)	END OF STUDIES	DECISION TIME	OPERATION TIME
TRISTAN I	p (70) e (17)			
LEP	e ⁺ e ⁻ (70-100)	78		
SPS	\bar{p} (270) e ⁻ (25)	78	77-78	
PETRA	e ⁺ e ⁻ (19) p (200)	75	75	78
PEP	e ⁺ e ⁻ (19)	75	75	79
ISA	pp (200x200)	77	77-78	84
TEVATRON	p (1000)	77	77-80	79-80
	\bar{p} (1000)	77	77-80	80-81
	pp (250x1000)	78	77-80	80-81
VEPP	e ⁺ e ⁻ (4.5-7)	74	74	79
UNK	p 70-200-3000	79-80	80-81	

It appears clearly that since a year ago some steps forward have been taken towards positive decisions for ISABELLE and UNK.

4°/ According to the recommendation 1 and 2 from the Serpukov working group (76), it was decided to create a "regional facilities collaboration study group" (group 1). It will cover all problems of collaboration on design, construction on use of all accelerators. The group 1 will be chaired by one member of the ICFA committee. Its composition will include members nominated by the directors of accelerators laboratories. The setting up procedure is described in 6.

5°/ According to the recommendation 4 from the Serpukov working group, it was decided to create a "superhigh energy facilities study group" (group 2). It will cover all scientific, technical and organizational problems of superhigh energy accelerator (VBA).

An important point which arose in the discussion was an analysis of the various limitations of the construction of very high energy machines. It was decided to hold a seminar on "technical possibilities and limitations of accelerators and detectors" at Fermi-Lab in the middle of 78.

6°/ In order to set up the two study groups 3 members of the ICFA committee (J. ADAMS, R. WILSON, V. YARBA) were nominated to send proposal on terms of reference, working methods, topics, agendas and memberships to B. GREGORY before 31 october. A final decision will be taken by exchange of telex, or in a meeting in january 78 at CERN (27-28 january).

7°/ A ICFA meeting will be held during the next International Conference on Elementary Particles at Tokyo (24-30 August 78). A report on the ICFA activity will be made at this Conference.

ANNEX :

I. Recommendations of the Serpukov working group (76)

II. The IUPAP Commission, in its meeting at Hamburg 30 october 77, appoints the following members of the ICFA Committee (J. ADAMS, V. DJELLEPOV, B. GREGORY, LANIUS, L. LEDERMANN, K. MYZNIKOV, W. PAUL, Y. VON DARDEL, V. WEISSKOPF, R. WILSON, V. YARBA, Y. YAMAGUCHI).

ANNEX I

R E C O M M A N D A T I O N S

(Serpukhov - May 76)

1/ Efforts should be made to coordinate the design and construction of new regional facilities. Consultations and exchange of experiences should be encouraged in order to optimize the diversity of facilities and to enhance the efficiency of construction and operation. The study group also recommends joint studies of new technology (e.g. superconductivity, new detectors and other experimental apparatus) and joint design and/or construction of components of regional projects.

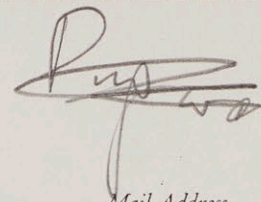
2/ Joint utilization of regional facilities by scientists of different regions should be organized on the basis of present and future arrangements or agreements. The general availability of regional installations is essential to enable scientists of different regions to take advantage of facilities with the complementary research potentialities.

3/ International collaboration should provide for studies leading towards the realization of a next generation of superhigh energy facilities, following the regional projects referred to above (examples are given in Table II). It is expected that these facilities will be so large that their realization will be possible only by pooling the resources of all regions concerned into common international projects.

Creation of a superhigh energy accelerator complex (VBA) involves especially complicated scientific, technical and organizational problems. These will require several years of continuing studies and discussions. The Study Group recommends that these discussions begin in the near future leading to the start of the design of the VBA in about 10 years.

4/ In view of the need for these extensions of international collaboration, the Study Group suggests to the IUPAP Division of Particles and Fields to initiate these activities in an appropriate form, for example, by appointing a sub-committee for the purpose of organizing working groups and future meetings such as the present one.

STANFORD UNIVERSITY



STANFORD LINEAR ACCELERATOR CENTER

Mail Address
SLAC, P. O. Box 4349
Stanford, California 94305

September 30, 1977

TO: HEPAP

J. Ballam	J. E. Leiss
D. A. Bromley	B. McDaniel
D. O. Caldwell	J. H. Peoples
R. E. Diebold	N. P. Samios
V. Fitch	J. Sullivan
H. J. Frisch	G. H. Trilling
T. D. Lee	V. F. Weisskopf

FROM: S. Drell *S. Drell*

SUBJECT: ICFA

Following the HEPAP meeting, I have talked with Ned Goldwasser and Francis Low, the U.S. IUPAP commissioners; and Bob Wilson and Viki Weisskopf of the VBA committee; and have tried on a number of occasions to get back to Leon Lederman, but without success. This is a report to you on my present understanding of ICFA (International Collaboration on Future Accelerators).

Some of our concerns about the ICFA committee charging off in new directions are shared by IUPAP members I talked with. The IUPAP charge to ICFA is:

- (a) to organize workshops on the VBA and to elaborate on possible forms of collaboration and cooperation in this venture.
- (b) to organize meetings for the exchange of information on future plans for regional facilities, and for the formulation of advice on ongoing studies, and for arrangements for users from other regions.

Loosely interpreted, this means a way of regularizing meetings for possible future collaborations and plans such as were held at Morge and at New Orleans two years ago. The concern we had at HEPAP was that the ICFA group was talking about organizing now joint utilization of regional facilities as opposed to organizing meetings to discuss plans for future collaborations; that this meant on their part organizing arrangements for cooperative utilization at current facilities such as PEP and ISABELLE; that they were extending broadly beyond their envisaged charge when created and were now involved in activities which would impact on the management and operation of the current U.S. program with possible effects on ISABELLE at this time. The statements in the report by Leon Lederman and Viki Weisskopf dated August 29, 1977 (enclosed) as well as Leon's presentation to us seem to be broader in their

implications, particularly vis-a-vis our ongoing plans and programs. I refer in particular to point 2 at the top of page 2 of Viki's memo.

As a result of the discussions at HEPAP I talked with the named gentlemen above and have been led to believe that in fact the actual plan of the ICFA group is considerably less sweeping than we sensed at HEPAP. What in fact is now planned is that an informal caucus is being convened by R². Wilson during the Ben Lee Conference at Fermilab, October 20-22, to find out what people think and to consider what first steps should be taken in accord with points (a) and (b) of the charge to ICFA as given above. This meeting will involve laboratory directors, Washington representatives from ERDA and NSF and HEPAP, via me and/or other designated representatives, and also representatives of the Division of Particles and Fields of the APS. All this is in preparation for a meeting at CERN in January 1978 where hopefully some decisions will be made as to how to proceed in accord with points (a) and (b).

What this all adds up to is still a certain amount of confusion on my part, but an appreciation that our concerns are shared and will be addressed at the informal caucus at Fermilab. I believe it would be of utmost importance to have several HEPAP members at this conference which, unless there is a change in my own schedule of commitments out here, will be impossible for me to attend. I would like to designate Bob Diebold and Nick Samios to attend for HEPAP at a minimum and hopefully Val Fitch in addition. I will then turn to these gentlemen, hopefully, for a subpanel to address a whole spectrum of issues of international collaboration including foreign travel policy as well as to assess the impact of ICFA activities.

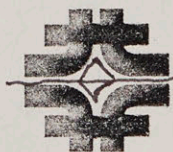
When formal letters and documents arrive, I will be in touch with you so that we can share all of this information. This is just a progress report on where things stand as of this weekend.

SDD:br

Enclosure

cc J. Kane
W. Wallenmeyer
E. Coleman
M. Bardon

P. S. - Also enclosed is the letter from Wilson announcing the meeting, together with the ICFA minutes which just arrived.



Fermilab

November 7, 1977

BOB WILSON

Dear Bob:

I am writing to you, at your invitation, as a participant in the ICFA-stimulated informal meeting which you organized a few weeks ago. As you know, it is difficult for me to separate my interest as an IUPAP Commission member from my interest as individual physicist. Nevertheless, I don't see those two interests as being in any particular conflict.

I was disappointed, as you laid out the ground rules for the discussion, that you seemed to denigrate the activities directly associated with the VBA while emphasizing the potential activities associated with regional planning and cooperation. My own priorities are exactly the reverse, and there is no question in my mind but what the IUPAP Commission's priorities are exactly the reverse. In fact I doubt, from the Commission's discussions, that its members would ever have agreed to sponsor an ICFA whose main purpose was to organize and implement relatively narrow bi-laboratory and bi-regional or even multi-regional coordination of present programs and plans. It is not that such a goal is not commendable. It is simply that the Commission members did not feel that it was desirable for the Commission to sponsor such an activity. They did, however, and I do think it worthwhile to regularize meetings for exchange of such information, on a world-wide basis, and to sponsor meetings designed toward that end.

I do have and they did have a great deal of enthusiasm for the idealistic goal of a future world laboratory. Although I recognize that the achievement of even preliminary steps in that direction is a long way off, I believe that many of the problems are so complicated that it is going to take something of the order of ten years to learn how to approach them, leave alone solve them. It was the initiative and the enthusiasm that you and Leon and a few others displayed at New Orleans which led the way toward some serious thinking about a VBA. Those kinds of thoughts have been entertained by some of us for many years. The New Orleans meeting and its sequels seemed to establish a basis for feeling our way gently into some of the economic-political as well as the technical-scientific problems which surround a possible VBA

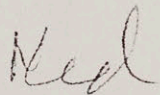
project. The overriding force which might get such conversations started and which might keep them on the right track would be the fact that the project toward which they were aimed was one which was too large to be undertaken on anything but a world basis.

I felt that at the recent informal meeting both you and Viki were so strong in stating that it was much too early for a VBA that many of the participants got the impression that it was much too early to be thinking, in any way, about a VBA. I agree with the former but do not agree with the latter. I am sure that most members of the IUPAP Commission feel the same way.

With regard to the other possible ICFA-sponsored activity, I thought there was more emphasis than necessary on small differences of opinion at our informal meeting. On the other hand, it may be that some superficially small differences are really more important than they seem. In particular, as I indicated on Viki's draft letter that he sent to you, if what he has in mind is an action committee which meets twice a year and works hard between times, I would be opposed. I think the impact of the existence of such a group would much more likely be negative than positive on the progress of high energy physics and facilities. On the other hand, if the meetings about which we are all talking occur with the frequency of about once every two years, the group would certainly not be an action group in the sense that it might be within the first context. However, such a group could very effectively engage in a thorough information exchange, involving exactly the right people. Superposed on top of that information exchange, because of the confluence of those particular people in one place at one time, there would also be a fertile field for the sowing of seeds of a variety of international arrangements, agreements and cooperation. That, in my mind would be a very constructive set of meetings to initiate.

Those are my thoughts.

Sincerely,



Edwin L. Goldwasser

cc: V. Weisskopf
L. Lederman

HARVARD UNIVERSITY

DEPARTMENT OF PHYSICS

LYMAN LABORATORY OF PHYSICS
CAMBRIDGE, MASSACHUSETTS 02138

November 29, 1977

Professor R. R. Wilson
Fermi National Accelerator Laboratory
P.O. Box 500
Batavia, Illinois 60510

Dear Bob:

This is in reply to your request for comments on the draft of your letter to Bernard Gregory. I thank you and Vicki for giving me this opportunity. My views are colored by my experience on the JCC-FPM dealing with US-USSR collaborative efforts.

The VBA idea which you started in New Orleans, as I remember it, is vital for the long range future of our field and I very much like the approach suggested in your letter - with one exception. This concerns the possibility of early discussion of "politico-managerial questions." As a scientist, I feel that this is likely to lead into a morass from which the only escape will be the enthusiasm for a well defined VBA. Thus it seems to me better to venture into this topic only when the escape route becomes somewhat apparent. Perhaps wiser heads feel that it will be so difficult to convince the various authorities to take a positive approach to a world VBA that it is best to start involving them and wearing them down as soon as possible. I would have to accept such advice, but with reluctance.

Concerning the proposed study group on "regional facilities collaboration", I share the apparently widespread worry concerning the role of this group. It can do some good, but it can also do a lot of harm. Most of the good would come from the exchange of information, most of the harm could come from advice which was not asked, particularly if given on the basis of the time and restricted personnel at one meeting. With this in mind, I would remove the specific mention of "discussions of advisability of duplications" in (B) in paragraph 4, on page 2. This paragraph might read instead "(B) Information about planned new facilities; scope, schedules, experimental equipment and availability for collaborations". I really would need to be convinced of the advisability of leaving in the original phrasing.

In carrying out their tasks, the American delegations will want to keep in close touch with the U.S. high energy physics community. In addition to reports at conferences and meetings, the following seems desirable: (1) Before each meeting, a letter to all groups requesting advice and comments on items already on the agenda and others that may come up; (2) Transmittal to these groups of minutes of meetings, major reports produced for the meetings and, when useful, a personal report by the chairman.

I hope this is of some help. With warm personal regards,

Sincerely,

K

Karl Strauch

mr

KS/mr

cc V. Weisskopf

1. fold wasser replacing Gregory IUPAC pres. ?
2. If yes → member but not president.
Wilson ?
3. Program

Consultation between the exist. labs
ICFA members + Directions of labs (+ ?)

Systematic mutual info. or bilateral
collaborations

Examination of proposals Examples: Superc. magnets

Ways of Datum. Use ^{of req.} accelerators ~~by groups~~ ^{outside}

Approval of specific meetings
org. committees
of working groups
of composition

2. long-term problems

Physics

Technology

Politics

Final Approval of Fermi lab Conference
(Time, organ. committee.

every thing else afterwards

M^r J. Sourdille

(Washington 12/5-6/77)

Modifications of this draft were suggested at the meeting at bottom of page 2 and top of page 3 to emphasize that collaborations are started by interested scientists (as a general rule), and then assisted by committees such as the one proposed. I do not have exact wording.

K.S.

12/28/77

November 22, 1977

Draft Copy

Professor B. P. Gregory
Delegation Generale a la Recherche
Scientifique et Technique
DGRST
35, Rue Saint Dominique
75700 Paris, France

Dear Bernard:

You have asked me to send proposals on terms of reference, working methods, topics, agendas and memberships in respect to two bodies: 1) a study group on superhigh-energy facilities, and 2) a study group on regional facilities collaboration.

We have now had a number of discussions with representative groups of high-energy physicists. These discussions revealed a certain divergence of opinion as might be expected, and this letter is written in a spirit of trying to reflect those concerns while at the same time expressing the profound belief in and commitment to international collaboration on the part of my American colleagues.

Starting with the first item, essentially everyone was convinced of the importance of the VBA idea and the eventual necessity of a world collaboration for the future of high energy physics. My own commitment and that of many of my colleagues is primarily to this, largely because we see the necessity for sharing the cost that will make the eventual instruments available for our investigation of inner space, but also because we value the beneficent social consequences that world collaboration can bring, and because we have the hope and determination that it can and will contribute to peace.

Of great importance for the success of the endeavor is that the goals of the world collaboration be scientifically sound and lie well beyond the capability of any one nation, or even of a few. In view of the initiatives presently being pursued on a national basis, such as ISABELLE or the UNK project in the USSR, it would appear that the time scale for an international VBA is such that a specific working group for a particular VBA is not yet advisable. Instead we should be exploring physics requirements, accelerator alternatives and limitations, and politico-managerial questions.

As a first VBA initiative, under ICFA, I propose to organize the meeting at Fermilab during 1978 which we discussed at the ICFA meeting in Hamburg, namely, a meeting to explore possibilities and limitations of particle accelerators and detectors. I would hope to appoint an international organizing committee for that meeting which might be approved rather soon by ICFA.

Another possible meeting, in which I know Leon Lederman has an interest, might probe economic, social, and political problems that must be solved in establishing a world laboratory. More important yet is the overriding question of scientific desirability and necessity. That is the business of the whole physics community, and that is what our international elementary particle conferences are partly about. Nevertheless, some specific meeting will be organized, I suggest at CERN, to consider long range scientific questions. It would be desirable if some of these meetings could be held in time for a public report to be made to the particle physics community and to IUPAP at one of their next international meetings, for example at the one to be held next year in Japan.

Let me emphasize that the responsibility for these ad hoc VBA meetings should be that of ICFA itself and not as yet of any particular sub-group of ICFA.

Turning to the second item, ^{which} we found to be more controversial, I believe that if we are circumspect we can proceed cautiously to appoint a specific study group consistent with the IUPAP Commission's charge to "hold meetings for the exchange of information on future plans of regional facilities and for the formulation of advice on joint studies and uses." The study group of 20 to 30 people which might meet about once a year could consider such topics as: (A) Information about existing research facilities, their improvement programs, and additions of detection devices. (B) Information about planned new facilities; scope, schedules, ~~and~~ experimental equipment. ~~Discussions of availability of facilities and~~ ~~availability of different facilities.~~ (C) Information about expected technical difficulties, the types of necessary development to overcome them; possible manpower problems, and discussions of possible interregional collaboration to solve some of these difficulties. (D) Information about the degree of international exploitation of existing facilities, discussions of possible means of improving it. (E) Discussion of international exploitation of future regional facilities, in particular of the problems that may arise from the fact that some of those facilities will be available only in one region.

→ for collaborations.

It is the general consensus within the U.S. community, that this study group and ICFA itself should only have advisory function in the sense of drawing attention to shortcomings and anticipating problems and difficulties. It should restrict itself to general aspects and should not consider the details of research and planning. Decisions and their implementation should remain in the hands of regional authority and laboratory directorates; the flexibility of individual laboratories should be protected. The primary purpose of this study group should be to draw attention to the growing needs of the international community caused by the unavoidable trend towards the availability of important facilities in only one region of the world.

It would be quite possible to comply now with your request to provide a list of American candidates for the study group. It would consist of the three laboratory directors of Brookhaven, SLAC AND Fermilab, plus the chairman of the Executive Committee of the Division of Particle Physics of the APS, plus the chairman of HEPAP (or their designates where appropriate). However, I assume that there will be similar reservations about the function of the study group by the other members of ICFA, and that we will want to discuss this at the meeting in Geneva in January. A draft charge should be drawn up at that meeting so that further discussion could occur, looking toward a final charge and commissioning of the actual study group early in 1978.

Sincerely,

R. R. Wilson



Fermilab

Fermi National Accelerator Laboratory
P.O. Box 500 • Batavia, Illinois • 60510

Directors Office

October 25, 1977

Dr. Robert Diebold
Argonne National Laboratory

Dr. George Trilling
Lawrence Berkeley Laboratory

Dr. Val L. Fitch
Princeton University

Dear Colleagues:

I have been informed that you may share some kind of a HEPAP responsibility to identify international conferences which are of major interest to high energy physicists in CY 1978, and further to identify an approximate number of participants which might be justified for each of those conferences.

In my capacity as a member of the IUPAP Commission on Particles and Fields, I am aware of one IUPAP sponsored conference during the coming calendar year. It is the XIX International Conference on High Energy Physics scheduled to be held in Tokyo around the end of August. In accordance with tradition, the Japanese organizers have allotted 160 slots to the United States for that conference. My own experience gleaned from the London Conference in 1974 and the Tbilisi Conference in 1976 leads me to believe that 160 is a minimal number.

These conferences have, over the years, taken on a position of unique importance, not just for the reporting, but for the doing of high energy physics. It is partially because of the prestige of the conference that many physicists time their work and their analysis of that work so as to make a significant report on that occasion. Because many of the most important and timely reports are known to be forthcoming at that time, others of the most active theorists, as well as experimenters, consider it extremely important to participate in the conference not only so that they can hear the latest results but also so they can participate in the discussion of those results and experiments. The conference has thus become a place where the reports of results and the discussion of work in progress are so timely and so unique that the planning of new work and new programs is strongly influenced by the exchanges, formal and informal, which occur on those occasions.

Furthermore, as a result of the complete and unique coverage at these conferences, representatives of smaller institutions, which maintain an activity in high energy physics but which may not be at the forefront at this time, feel that they must have a presence at these conferences in order to keep informed and to maintain the viability of their research group or physics department in this field.

In spite of funding advantages in other regions of the world, the United States still maintains a preeminent position in this kind of research. The 1972 conference in this series was held at Fermilab. U.S. participation at that time was at a level of about 400 people, and it was my experience, as Chairman of the Organizing Committee, that we were justifiably petitioned for invitations by many physicists beyond the 400 allowed. The quota of 160 which we apply when the conference is not in the United States places tremendous pressure on the whole system. Within that limit, it is difficult to implement both functions of the conference, - the reporting of important new results stemming from the most competent and active people in the U.S., and the representation of interested and involved groups or universities which play an important role in the education of young physicists and which therefore need to have some faculty participation at an event of significant information exchange, such as this one.

I give all these arguments, not because you don't know them already, but because it may become your job to carry such arguments to others who will make decisions about U.S. participation. I am working on ways of reducing the cost of participation in the Tokyo Conference. So far, I have been told, informally, that transportation costs may be as low as \$800, roundtrip, on the average. Although that is a lot of money, it is not significantly more than the cost of travel to conferences in western Europe has been in the recent past.

The total cost for Americans participating, at the projected level, in the Tokyo Conference would be about \$200,000. I believe that this represents about 1/10 of 1% of the annual investment in high energy physics. All other foreign travel integrated over all other conferences, group meetings, etc., is probably not the equal of what is involved in this particular conference. Thus what we are talking about, in toto, is probably less than 2/10 of 1% of the cost of the high energy physics program.

High energy physics research has been designated, in many international documents, as a particular area in which international collaboration is possible and in which it should be

fostered. In fact, high energy physics is probably the area in which such substantive collaboration is being implemented with the greatest success. The implementation of an effective physics program and the development of better international communication and cooperation both argue for the encouragement and expansion of international exchanges. Recent ERDA practices have tended to discourage such exchanges.

It seems to me that institutions should be able to reach their own decisions, within their existing operating budgets, as to how much participation they can support. I feel it would be most unfortunate if U.S. participation in the Tokyo Conference were cut down substantially below the present quota level because of some special restrictions on foreign travel imposed in Washington. In fact, such special restrictions seem to me to be contrary to the spirit of certain provisions in the Helsinki Agreement to which we subscribe. For your information, I am enclosing a copy of a letter I recently wrote to Jim Kane on that subject.

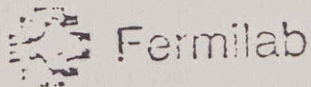
Sincerely,

Med

Edwin L. Goldwasser

Enclosure

cc: Francis Low
Marcel Bardon
Bill Wallenmeyer ✓



Fermi National Accelerator Laboratory
P.O. Box 500 • Batavia, Illinois • 60510

Directors Office

October 6, 1977

Dr. James S. Kane
Director, Division of Physical Research
Department of Energy
Washington, D.C. 20545

Dear Jim:

I have recently been asked to provide, for the possible use of Arthur Goldberg at Belgrade, comments concerning the impact of the Helsinki Agreement on international activities with which I am familiar. I have had much to say about deficiencies in the USSR's implementation of programs of collaboration and exchange. I have also explicitly been asked about possible shortcomings of our own. Since, in that regard, I have commented on policies and practices which were those of ERDA and which perhaps may become those of DOE, I am enclosing that portion of my letter herewith, for your information and possible use. I shall also send you, separately, a copy of my entire, overly long document, since other parts may be of interest to you in connection with your responsibilities to the JCC-FPM.

Sincerely,

A handwritten signature in cursive script that reads "Ned Goldwasser".

Edwin L. Goldwasser

Enclosure

bcc: W.K.K. Panofsky
W. Wallenmeyer
C. Dickens

3. On the U.S. side, I have been disappointed to find that there is an apparent communications gap between that part of our government which is responsible for the negotiation, for example, of the Helsinki Agreement, and that part which is responsible for agency programs within which programs, related to the implementation of the provisions of the Helsinki Agreement, are carried out. For example there seems to be a tendency to impose a "tit-for-tat" practice with regard to the issuance of visas. Thus delivery of U.S. visas to visitors from the USSR is often delayed until the last minute, - in part, as far as I can determine, because that is what "they" do to "us". I have received numerous complaints from distinguished Russian scientists visiting the United States indicating that their visas have not been released by the U.S. authorities until the last minute or even until immediately thereafter. In my view, this is an area in which we should unilaterally behave just as we define proper behavior in the Helsinki Agreement, regardless of what the Russians do.

In another way, I find that policies which have been applied by at least one U.S. agency do not appear to be consistent with the spirit of the Helsinki Agreement's provisions on science and education.

In the Helsinki Agreement the signatory nations "express their intention to remove obstacles to such cooperation, in particular through, - the improvement of opportunities for the exchange and dissemination of scientific and technological information". They further assert that "The participating states intend to facilitate wider travel by their citizens for personal or professional reasons".

In spite of these provisions of the Helsinki Agreement, special constraints have been imposed, within the past two years, by at least one U.S. agency, attempting to place tighter restrictions on travel by scientists and therefore upon international communications in science. Were the restrictions solely motivated by financial considerations, they might be understood. However, special restrictions are placed on travel, independent of the availability of funds. In some cases policies formulated for other purposes have been extended in their application so that travel by scientists to international conferences would be discouraged rather than encouraged, even if the individual scientist were willing to pay the cost of the travel. (See Enclosure A.) Such practices are hardly consistent with the spirit of the Helsinki Agreement.

MINUTES OF THE FIRST ICFA MEETING

Hamburg 29.08.1977

Participants : J. ADAMS, V. DJELLEPOV, B. GREGORY, V. LANIUS,
L. LEDERMANN, K. MYZNIKOV, W. PAUL, Y. VON DARDEL,
V. WEISSKOPF, R. WILSON, Y. YARBA, Y. YAMAGUCHI,
(+ A. ROUSSET).

1°/ Election of the ICFA Chairmann : B. GREGORY.

A. ROUSSET will assist him in his task.

2°/ B. GREGORY reads the instructions coming from the IUPAP
Commission on the main aims of the ICFA Committee :

" to organize workshops for the study of problems
related to an international super highenergy accelerator
complex (U.B.A.) and to elaborate the framework of
its construction and its use.

To organize meetings for the exchange of information
on future plans of regional facilities and for the
formulation of advices on joint studies and uses."

The ICFA members propose to interpret these
instructions following the more delaited recommendations from the
1976 Serpukhov study group (annex I) and ask the Chairmann to
report on this point to the IUPAP Commission.

.../...

3°/ Review of the status of the machines, planned or in construction.

Table I

MACHINES	PARTICLES (Energy)	END OF STUDIES	DECISION TIME	OPERATION TIME
TRISTAN I	p(70→200) e(15~17) e ⁺ e ⁻ (15~17)	79	80-81	
LEP	e ⁺ e ⁻ (70-100)	78		
SPS	p̄ (270) e ⁻ (25)	78	77-78	
PETRA	e ⁺ e ⁻ (19) p (200)	75	75	78
PEP	e ⁺ e ⁻ (19)	75	75	79
ISA	pp (200x200)	77	77-78	84
TEVATRON	p (1000) p̄ (1000) pp (250x1000)	77 77 78	77-80 77-80 77-80	79-80 80-81 80-81
VEPP	e ⁺ e ⁻ (4.5-7)	74	74	79
UNK	p 70-200-3000	79-80	80-81	

.../...

It appears clearly that since a year ago some steps forward have been taken towards positive decisions for ISABELLE and UNK.

4°/ According to the recommendation 1 and 2 from the Serpukov working group (76), it was decided to create a "regional facilities collaboration study group" (group 1). It will cover all problems of collaboration on design, construction on use of all accelerators. The group 1 will be chaired by one member of the ICFA committee. Its composition will include members nominated by the directors of accelerators laboratories. The setting up procedure is described in 6.

5°/ According to the recommendation 4 from the Serpukov working group, it was decided to create a "superhigh energy facilities study group" (group 2). It will cover all scientific, technical and organizational problems of superhigh energy accelerator (VBA).

An important point which arose in the discussion was an analysis of the various limitations of the construction of very high energy machines. It was decided to hold a seminar on "technical possibilities and limitations of accelerators and detectors" at Fermi-Lab in the middle of 78.

6°/ In order to set up the two study groups 3 members of the ICFA committee (J. ADAMS, R. WILSON, V. YARBA) were nominated to send proposal on terms of reference, working methods, topics, agendas and memberships to B. GREGORY before 31 october. A final decision will be taken by exchange of telex, or in a meeting in january 78 at CERN (27-28 january).

7°/ A ICFA meeting will be held during the next International Conference on Elementary Particles at Tokyo (24-30 August 78). A report on the ICFA activity will be made at this Conference.

ANNEX :

I. Recommendations of the Serpukov working group (76)

II. The IUPAP Commission, in its meeting at Hamburg 30 october 77, appoints the following members of the ICFA Committee (J. ADAMS, V. DJELLEPOV, B. GREGORY, LANIUS, L. LEDERMANN, K. MYZNIKOV, W. PAUL, Y. VON DARDEL, V. WEISSKOPF, R. WILSON, V. YARBA, Y. YAMAGUCHI).

ANNEX I

R E C O M M A N D A T I O N S

1/ Efforts should be made to coordinate the design and construction of new regional facilities. Consultations and exchange of experiences should be encouraged in order to optimize the diversity of facilities and to enhance the efficiency of construction and operation. The study group also recommends joint studies of new technology (e.g. superconductivity, new detectors and other experimental apparatus) and joint design and/or construction of components of regional projects.

2/ Joint utilization of regional facilities by scientists of different regions should be organized on the basis of present and future arrangements or agreements. The general availability of regional installations is essential to enable scientists of different regions to take advantage of facilities with the complementary research potentialities.

3/ International collaboration should provide for studies leading towards the realization of a next generation of superhigh energy facilities, following the regional projects referred to above (examples are given in Table II). It is expected that these facilities will be so large that their realization will be possible only by pooling the resources of all regions concerned into common international projects.

Creation of a superhigh energy accelerator complex (VBA) involves especially complicated scientific, technical and organizational problems. These will require several years of continuing studies and discussions. The Study Group recommends that these discussions begin in the near future leading to the start of the design of the VBA in about 10 years.

4/ In view of the need for these extensions of international collaboration, the Study Group suggests to the IUPAP Division of Particles and Fields to initiate these activities in an appropriate form, for example, by appointing a sub-committee for the purpose of organizing working groups and future meetings such as the present one.

UNIVERSITY OF WASHINGTON

SEATTLE, WASHINGTON 98195

October 9, 1973

Department of Physics

Dr. W. W. Havens, Jr.
Division of Physical Sciences
National Research Council
2101 Constitution Avenue
Washington, D. C. 20418

Dear Dr. Havens:

By now you must have heard that the Soviets did exclude Mark Azbel, Alexander Voronel and Moshe Gitterman from the IUPAP International Conference on Magnetism in Moscow. You stated in your letter of July 30, 1973 to me that IUPAP has no grounds for intervening in this case and cited the rules for the so-called "free exchange of scientists" claiming that this applies only to scientists outside of the host country. Recently I was able to obtain a copy of the Resolution on the Free Circulation of Scientists of ICSU which explicitly contradicts your statement by clearly stating that "refusal of permission to participate in an appropriate scientific meeting organized by the ICSU family in the country of the scientist in question" is against the Resolution. This statement and others related to the rights of scientists to attend conferences sponsored by a member of the ICSU family in the country of the scientist in question is given in the "Resolution on the Free Circulation of Scientists" of the XIV General Assembly. I enclose copies of the pertinent statements.

In view of this new information I am confused and perturbed by your letter to me of July 30. I would greatly appreciate your clarification of this situation.

Sincerely yours,

E. A. Stern
Professor of Physics

EAS/JM

Encl.

c.c.	R. F. Bacher	H. Callen
	G. Rado	E. Callen
	S. C. Brown	H. Ehrenreich
	F. Seitz	E. O. Kane
	M. Fiske	M. Tinkham
	R. Smoluchowski	R. Levine
	V. Weisskopf	

INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS

RESOLUTION ON THE FREE CIRCULATION OF SCIENTISTS

The XIVth General Assembly

A. Recapitulates that the terms of reference of the Standing Committee on the Free Circulation of Scientists, as defined by the 10 General Assembly, are:

to assist the Executive Board to find solutions to various problems associated with the implementation of the resolution, according to which the declaration of "political nondiscrimination", adopted by the 8 General Assembly, is reaffirmed, and moreover, as resolved by the 10 General Assembly,

- in holding ICSU meetings and meetings of ICSU scientific and special committees, the Council shall take all measures within its power to ensure the fundamental right of participation, without any political discrimination, of the representatives of every member of ICSU concerned and of invited observers;
- this policy be adopted also by the Unions adhering to ICSU for all their activities;
- the ICSU National Members be invited to follow this policy.

Noting with satisfaction that ICSU, in executing its declared policy of supporting free international collaboration among scientists, has been successful in most cases;

Observes, however, with regret, that scientists are still today sometimes not allowed freely to attend the appropriate scientific meetings organized by the ICSU family either abroad or in their home countries;

Notes that the obstacles encountered in recent years have fallen into the following categories:

- i) the refusal of a visa to enter a certain country, or fatal delays in granting visas;

ii) refusal of permission to participate in an appropriate scientific meeting organized by the ICSU family in the country of the scientist in question;

iii) refusal of permission to travel to scientific meetings organized by the ICSU family and held outside the country, and/or excessive payment required for the permission to travel out of the country to such meetings.

Fearing that the difficulties encountered by scientists from some countries, in gaining permission to travel freely to scientific meetings of the ICSU family in other countries or to participate in such appropriate meetings in their own country, might endanger the global character of ICSU and the Unions;

Decides to remind the affiliated Unions and other organs of ICSU of their obligation to bring all instances in which the free circulation of scientists has been restricted to the notice of the ICSU Standing Committee on the Free Circulation of Scientists;

Recommends that when consideration is being given to the selection of a place for an ICSU meeting the Standing Committee on the Free Circulation of Scientists shall, on request, provide summary information in its possession on previous cases of restriction relative to the proposed place of meeting.

B. Observes that recently considerable communication has been received by the Standing Committee on the difficulties encountered by some scientists wishing to migrate from their country;

Further observes that this form of "brain drain", that is, the migration of talent from developing countries to the industrialized ones, is of great concern to the developing as well as to developed countries, as illustrated among others by resolution 1.243 of the General Conference of UNESCO at its 16 session, in 1970;

Observing, moreover, that the prevention of migration of scientists from a country is an internal political question, outside the terms of reference of ICSU, but nevertheless a serious challenge to the world scientific community;

Notes that this problem does not fall within the mandate of the Standing Committee on the Free Circulation of Scientists;

Decides to ask the Executive Board to study how ICSU should approach this new problem, namely the factual impossibility of migrating from a country, and to report to the 15 General Assembly.

INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS

RESOLUTION ON THE NONPOLITICAL TRADITION OF ICSU

The International Council of Scientific Unions (ICSU) with its component Unions and committees, exists to promote active cooperation in scientific matters between scientists from all parts of the world, regardless of the political structure of their governments. To this end, there is a well-established agreement that scientific meetings shall not be disturbed by political statements or by any activities of a political nature. It is upon this understanding that ICSU has been able to exert considerable influence in order to ensure the free movement of bona fide scientists to attend scientific meetings anywhere in the world.

The Executive Committee of ICSU, unanimously, wishes to emphasize the importance of this agreement on the exclusion of politics and draws attention to the need of observing it at all times.

October 19, 1973

Professor E. A. Stern
Department of Physics
University of Washington
Seattle, Washington 98195

Dear Professor Stern:

I have received your letter to Dr. Havens in regard to the events at the IUPAP International Conference on Magnetism in Moscow. I am replying to you since I am a vice-president of IUPAP and because I was present at the meeting in Budapest on September 29th when these questions were discussed.

The members of the Committee and myself have known about the facts right from the beginning, and the issue was brought to a discussion. The discussion was rather frank and direct. The Russian representative was Professor Vul, a nuclear physicist who, by the way, is of Jewish origin.

The final result of these discussions may not completely satisfy you, nor do they satisfy me; but I believe it was all we could do under the present circumstances. Let me explain.

Unfortunately the question of participation of scientists of the host countries at conferences has only been mentioned in the Preamble of the Resolution on the Free Circulation of Scientists of ICSU. Neither is there any statement or resolution of IUPAP in which these matters are mentioned. The reasons for this indirectness are clear. The Russian members of the different conferences would not have accepted any clear declaration. It was therefore not possible to openly censor the Russian behavior on the basis that they have broken any regulations. However we made it abundantly clear to the Russian representative Vul that the events at the Magnetism Conference and other similar events are strongly against the spirit of IUPAP. We also made it clear that further instances of this kind will make it impossible to schedule further IUPAP conferences in the Soviet Union. I am sure that Professor Vul will report these informal discussions to his government.

If we had pressed for more, IUPAP would have fallen apart since the Russians and the other Eastern countries would have left the Committee. Some people would have thought it worthwhile to bring it to such an explosion but the majority of the Committee did not feel so.

.....T.

October 19, 1973

This was a report of what happened. Let me now add a personal note. Of course I also feel that the exclusion of those Soviet scientists from the meeting was an inadmissible action. However it is only a small part of what is actually going on in the process of persecution of these individuals. As you know, any Russian physicist who applies for immigration to Israel is deprived of his job and is no longer considered as part of the scientific community in his country. The exclusion from this meeting was therefore only a small part of the actions taken against these people. It makes therefore little sense in my opinion to make too much of a fuss about that one particular incident without talking about the rest. In our informal conversations with the Russian delegation we did talk also about the rest.

In the end all these problems turn into one question. Should you press things very far and risk breaking relations with the Soviet Union or should you use the tenuous bonds that still exist, in order to improve the situation as much as you can, which means accepting some flagrant restrictions of scientific freedom. I wish I knew the answer.

With best regards,

Sincerely yours,

Victor F. Weisskopf

VFW:dle

*copies to W. Havens
R. Bacher
L. Kerwin*

STANFORD UNIVERSITY

STANFORD LINEAR ACCELERATOR CENTER

Mail Address
SLAC, P. O. Box 4349
Stanford, California 94305

June 15, 1976

Professor V. F. Weisskopf
Room 6-303
Department of Physics
Massachusetts Institute of Technology
Cambridge, Massachusetts 02139

Dear Viki:

Thanks for your memo on USSR conversations. I would like to add one I had with Gribov, which is, I think, relevant. First off, he described a situation which was developing shortly before we arrived. It seems Oleg Kancheli (the USSR equivalent of Al Mueller) submitted his doctorate thesis to the Academy. This degree is, as best I understand, in some way equivalent to a German or Swedish doctor's degree. It is given at the "tenure" level of seniority, the thesis comprising a large body of research over a period of several years. Kancheli's thesis was reviewed by a committee of experts (including Ter Martirosyan) and was accepted very positively. It then went to a review committee of the Academy, where approval is generally routine. However, the committee, which was recently reconstituted with Bogoliubov people in control (Soloviev as chairman) rejected the thesis on the grounds that it "was not relevant or applicable to present-day scientific problems." This thesis included what we know as Mueller-Regge diagrams for inclusive processes as well as the Abramovskii-Gribov-Kancheli cutting rules, which are the basis of the modern Reggeistic approach to particle-nucleus scattering (e. g. the analyses of Koplik and Mueller). Gribov felt it was the strongest thesis submitted in a decade. There ensued an Academy-wide uproar, which was to culminate in protests at a section meeting of the Academy held while we were in Moscow. However, the decision was reversed before that meeting was held — although some protest was still raised during the meeting. Gribov, by the way, explicitly asked that I not spread this story around widely. Kancheli himself probably doesn't know what went on.

I also asked Gribov the situation regarding his trips abroad. He said his Harvard visit was not permitted because he was to go alone, not with a delegation. An effort was made to get him to CERN within some delegation, and this was rejected because less than a year had transpired since his previous application to go abroad. Evidently it is Leningrad authorities that are the roadblock, and Gribov indicated that strong high-level pressure from the Academy ought to do some good. I expect this is all better understood by you than I, but add it here just for the record. He also suggested someone invite Lipatov for a few months — he might have a better chance. Lipatov is a very good young theorist — a very strong diagram calculator, a la T. T. Wu.

Page 2
June 15, 1976

I had a good visit at ITEP and Leningrad after the VBA meeting. It turned out that Okun had been on the same track as I (but with respect to UNK futurism)—cosmic rays, Drell Yan, pp vs. e^+e^- , etc., with identical conclusions. Physics really is apolitical and universal. There evidently had been quite a bit of internal discussion on USSR futurism with some push for e^+e^- from ITEP types (and no doubt Alikhanian and perhaps Budker). But there wasn't enough clout, and in any case there did seem to be general agreement on the USSR program. Also our theorist friends (Okun, Ioffe, Gribov) were without question enthusiastic about VBA.

One final note: compared to previous visits, I was kept on a very short leash at ITEP. I checked this impression with Gribov, who agreed: he noted that, while external pressure had increased, it had the effect of bringing the physics community closer together. In Leningrad, the situation remained much looser and relaxed — just like previous visits.

Thanks again for inviting me along. It was, at least, a good education for me. Maybe something will come of it someday.

Best regards,


J. Bjorken

sj

STANFORD UNIVERSITY

STANFORD LINEAR ACCELERATOR CENTER

Mail Address

SLAC, P. O. Box 4349
Stanford, California 94305

June 7, 1976

Academician G. I. Budker
Director, Institute of Nuclear Physics
U.S.S.R. Academy of Sciences
Siberian Division
Novosibirsk, 90, U.S.S.R.

Dear Andrei:

I hear from Mark Barton that he had a very successful and productive visit with you and he gave me news of much of the technical work he had seen. I am also pleased that Ed Ginzton is planning to visit with you, and I am including with this letter some of the latest storage ring material from SLAC. Some of this you may have already obtained but there are some other items which are completely new. In particular there is the preprint describing the new discoveries from SPEAR about the "charmed" meson states which are believed to be bound states of ordinary and charmed quarks. In addition there are some recent technical notes relating to the work now progressing at PEP. May I say again that nothing would please us more than to see you or any member of your technical staff at Stanford, and I am willing to do anything possible from this end to expedite such a visit, including very extensive participation by your people in the work of PEP. It might be useful for you to explore with Ed in some detail what the most useful steps would be for us to initiate.

I am extremely sorry that the plans for a meeting at Novosibirsk to discuss the future physics program of VEPP-4 did not materialize. Apparently during the formal negotiations on the subject involving ERDA, the U.S. participants did not feel sufficiently informed about the technical status of VEPP-4 to include the Novosibirsk study in the list of collaborative prospects. What is most important, if I were to take initiatives to reinstate plans for such a proposed study from this end, would be to be more continuously informed about the status and prospects for particle physics experiments of the VEPP-4 program. As you realize, the preparation of experiments on a future installation requires a great deal of thought. Therefore a decision on the part of the experimenters to commit their time and effort on a prospective experiment on VEPP-4 is in competition with work they might be doing otherwise on local facilities.

Academician G. I. Budker

-2-

June 7, 1976

As you know, and as is confirmed by the enclosed material, life here has been very exciting as far as storage ring physics is concerned, and it would only be possible to persuade the most active and able experimenters to participate in a planning conference for work at Novosibirsk if the technical context for VEPP-4 is quite clear and reasonably predictable. Again, I think this is a matter on which you may wish to have some discussions with Ed Ginzton. We are very good friends and his counsel would be most valuable to both of us.

I hope we will meet again soon and I am sorry that I had to miss the Serpukhov meeting.

With best personal regards
to you and your family,



W. K. H. Panofsky
Director

VBA/CMS / 1

CERN-SD Note N° 1

11 May, 1976

SUMMARY OF THE 1974 CERN STUDY
ON THE USE OF A 10 TEV PROTON ACCELERATOR
AND OF ELECTRON-PROTON COLLIDING BEAMS

W. Willis

This study was concerned with the physics program for a proton accelerator in the energy range from 5 to 10 TeV, and for colliding beams of 20 GeV electrons with 400 GeV protons. Issues involving the accelerators were not discussed in detail, but in a 1975 study led by G. Fischer, the detailed interactions between the design of experiments and the interaction regions were investigated for the e-p project. Here we summarize the salient points which were brought out on both projects.

A discussion of the physics of hadron interactions emphasized the role of the logarithm of the CMS energy in determining the character of the hadron dynamics. In an attempt to compare the power of the 10 TeV accelerator and 400 GeV storage rings for this kind of study, the results from the ISR were examined to see which of them could have been obtained with the 200-400 GeV accelerators. The result of this comparison is generally favorable to the accelerators, considering especially the greater flexibility of the experimental designs. The exceptions, of course, are those phenomena which possess a sharp energy threshold, and perhaps the study of large transverse momentum phenomena, where there is a rapid increase in rate with energy. This study was performed before the new particles were discovered : it would now be easier to establish the credibility of very high thresholds in hadron physics, such as those associated with an extended series of types of quarks, for example.

The study of experiments on hadron interactions brought out some general features which are likely to survive the changes in fashions. It seems likely that at a 10 TeV acceleration, one will definitely renounce the attempt to use constrained kinematics to analyze reactions, except for a few special reactions like elastic scattering. As a consequence, beams with relatively large momentum spread, say a few per cent, will be acceptable. This means that beams built with the same magnetic components in use at the present accelerators, but with longer drift paths, will provide fluxes per unit primary at least as large as those currently available. For small momentum transfer secondaries, similar considerations imply that the presently used experimental magnets would

be adequate with longer drift distances. In fact, we anticipate that detections with substantially improved space resolution will be available, allowing drift paths to remain relatively small, so that the solid angle coverage in the CMS for magnetic analysis will actually increase.

For very large momentum transfers, another approach is needed, and there will surely be a trend to take advantage of the fact that the relative accuracy of energy measurements in total absorption counters increases with energy. Much of the interest may centre on hadron jets where it is of interest to study the momentum carried by a group of particles, and the absorption counter technique is particularly appropriate. At these very high energies the jets are expected to become better defined and can be recognized with less complete coverage of solid angle.

It will still be of interest to identify the masses of individual particles, and our study noted that transition radiation and synchrotron radiation detectors for the identification of the particles with energies of more than 100 GeV can be more compact than present detectors for the region 20-100 GeV. Some designs for complete experiments utilizing these detectors were described. In another note, I have set forth the status and future prospects, while in still another, G. Charpak describes the future availability of large area drift chambers with very high precision.

We anticipate that neutrino physics may be one of the most important programs at this accelerator, and the requirements of this program determine the specification of the machine. For example, all the members of the group felt that a new accelerator with an energy below 5 TeV would not be a wise step, and 10 TeV would be strongly recommended, to obtain the approximately 100 GeV in the CMS necessary to elucidate the features of the weak interactions. One cannot specify the energy exactly, because the Fermi motion of the nucleons in the target nucleus can move thresholds substantially below the free proton value. We present calculations of the W production cross-section as a function of neutrino energy up to 10 TeV. If the W decay to leptons has an appreciable branching ratio, we find that

the experiment to measure its production by neutrinos is straight forward. We considered also the design of the neutrino beam and did not find any serious difficulties. It may be noted that the W may still be found in this experiment even if it decays only to hadron, while this is very difficult in colliding beam experiments.

We also considered secondary beams of e , μ and γ . The energies reached are such that interference between electromagnetic and weak interactions is large in inelastic eN and μN scattering, and the experiments seem relatively easy. Also, in these reactions, we would like to have enough energy to separate, in rapidity space, the hadrons resulting from target fragmentation, virtual photon fragmentation, and "hole" fragmentation, requiring about 10 units of rapidity. This is just in the range of a 10 TeV machine.

Also, the great energy available make very interesting experiments on π -e K-e and hyperon-e scattering possible. For example, a 6 TeV pion beam hitting a stationary electron target is equivalent to firing the SLAC electron beam (20 GeV) on a pion target ! Virtual photon interactions using the "generalized Primakoff effect" also seemed interesting.

We considered e-p colliding beams in two versions :

- 1) Add an e^- ring to an upgraded ISR, with 12 GeV electrons and 140 GeV protons, giving 2 GeV in the CMS.
- 2) Add a 25 GeV e^- ring to a 400 GeV proton storage ring, giving 200 GeV in the CMS.

Given that the main goal was to observe the effects of the weak interactions in these collisions, we found that the first option was apt to prove marginal in the chances of achieving this goal. The second option should provide, according to present ideas, enough rate and signal to background margin to ensure success. The further study by E. Fischer et al, showed that the problem of the interaction of the synchrotron

radiation with the apparatus and the proton beam, through serious, can be overcome by a very careful design of the interaction region and the experiments. The experiments on the inelastic electron scattering and neutrino production were considered in most detail. Experiments on photoproduction by tagged virtual photons were also considered, and seem quite feasible.