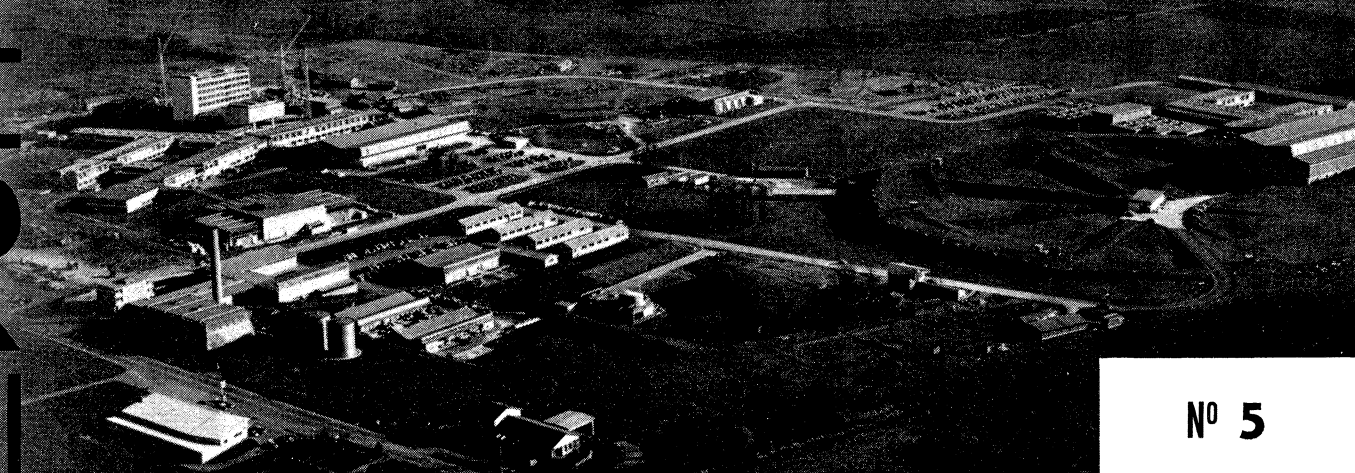


CERN COURIER



PUBLISHED MONTHLY FOR CERN STAFF MEMBERS
by the European Organization for Nuclear Research

N° 5

December 1959

A Message from the Director-General

At the close of 1959, a year which, as a result of CERN's achievements, will stand out in the history of science, I am happy to send my best wishes for Christmas and the New Year to you and your families. At the request of the President of the CERN Council, I should also like to convey to you on his behalf the congratulations of the Council and its thanks for the excellent work you have accomplished.

It was thanks to the efforts and loyal cooperation of all its staff that CERN succeeded in bringing its proton synchrotron into operation. The whole world of science has paid tribute to the joint scientific effort which made this achievement possible.

We now have to remain in the forefront of scientific progress. To do this we must preserve the team spirit which is typical of our Organization, and keep up our efforts to ensure the full success of our joint venture.

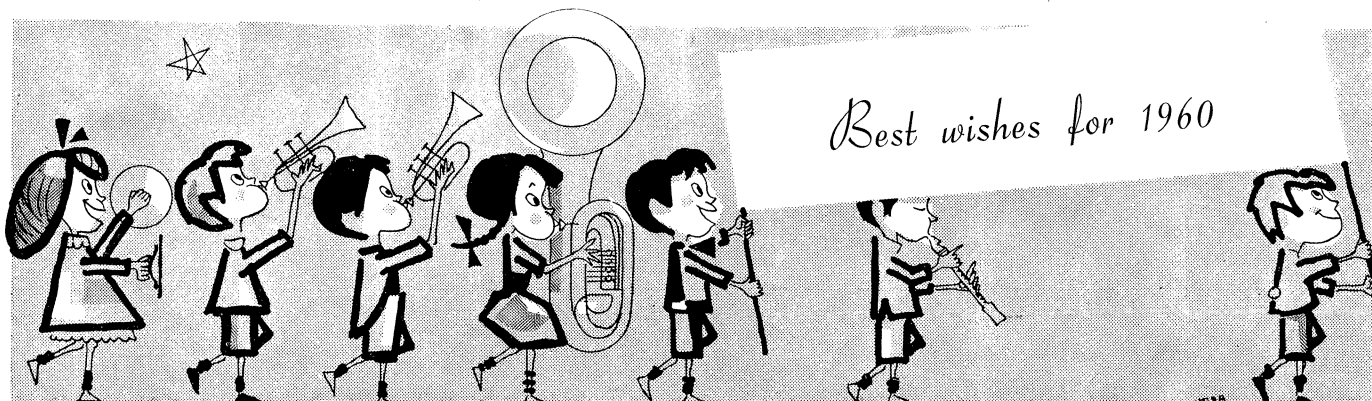
A happy Christmas and New Year to you all!

Last month at CERN

Hardly had the **proton synchrotron** reached an energy of 24 thousand million electronvolt, as planned, when particles were accelerated to a kinetic energy of **28 GeV** during tests on 8 December. This figure was obtained by increasing to 14 500 gauss the magnetic field holding the protons on their orbit. For the first time, the poleface windings for correcting were used; they correct saturation effects in the magnets, which perturb the magnetic field at such high levels.

At 28 GeV, the particles can however only be accelerated every five second, instead of the three second cycle which is possible at 24 GeV. The particle current could not be accurately determined. It is estimated at a maximum of

(continued on page 6)



THE COUNCIL of CERN and ITS COMMITTEES

The European Organization for Nuclear Research, according to Article IV of its Convention, consists of a Council and a Director assisted by a staff.

Each of the thirteen Member States of the European Organization for Nuclear Research is entitled to vote in the *Council*, where it is represented by two delegates. The officers of the Council are its President and two Vice-Presidents, whose term of office is one year and who may not be re-elected more than twice in succession.

The Council meets twice a year and is composed of 26 delegates, who may be assisted by advisors. However, a *Committee of Council* meets at shorter intervals to deal with urgent problems. The Committee of Council consists of eight members who automatically include the President and the Vice-Presidents of the Council, the Chairman of the Scientific Policy Committee and the Chairman of the Finance Committee.

The *Finance Committee* consists of a Chairman and at least one representative of each Member State. It deals with questions relating to the budget, salaries, major contracts, etc...

The *Scientific Policy Committee* is the main scientific body, its members being chosen not according to nationality but solely on account of their special qualifications.



The participants in the 14th Session of the Council

A list of the representatives of the Member States of the European Organization for Nuclear Research who met at Geneva on 2 December will certainly be of interest to the nationals of the thirteen countries working side by side at CERN. It is given below for information.

President : Mr. F. de Rose (France).

Member States

Austria

Belgium

Denmark

France

German Federal

Republic

Greece

Italy

Netherlands

Norway

Sweden

Switzerland

United Kingdom

Yugoslavia

Delegates

Mr. W. Goertz

Prof. P. Urban

Mr. J. Willems

Prof. J. Cnops

Prof. J. K. Bøggild

Mr. O. Obling

Prof. F. Perrin

Prof. W. Kopfermann

Dr. A. Hocker

Prof. T. G. Kouyoumzelis

Mr. A. Vlachos

Mr. A. Berio

Prof. E. Amaldi

Mr. J. H. Bannier

Prof. J. de Boer

Prof. J. Holtsmark

Mr. J. Cappelen

Prof. I. Waller

Dr. G. Funke

Prof. P. Scherrer

Mr. A. de Senarclens

Sir Harry Melville

Mr. H. L. Verry

Prof. I. Supek

Mr. D. Baum

Advisers

Mr. E. M. Schmidt

Mr. F. Neumann

Prof. W. Jentschke

Mr. J. Tsambiras

Miss A. Baroni

Prof. P. M. Endt

Mr. C.E.I.M. Hoogeweegen

Prof. H. Wergeland

Mr. S. Campiche

Mr. S. H. Smith

Mr. B. Komatina

At the end of the meeting, the Council proceeded with the usual elections and re-elections. These resulted in the following list of Officers of the Council and its Committees and of members of the Committee of Council, Scientific Policy Committee for 1960 :

Officers of the Council

President :

Mr. François de Rose (France)

Vice-Presidents :

Prof. W. Heisenberg (German Federal Republic)

Mr. J. Willems (Belgium)

Committee of Council

Chairman :

Mr. F. de Rose (France)

in his capacity as President of the Council

Members :

Prof. W. Heisenberg (German Federal Republic)

Mr. J. Willems (Belgium)

in their capacity as Vice-Presidents of the Council

Mr. J. H. Bannier (Netherlands)

in his capacity as Chairman of the Finance Committee

Prof. E. Amaldi (Italy)

in his capacity as Chairman of the Scientific

Policy Committee

Sir H. Melville (United Kingdom)

Prof. B. Trumpy (Norway)

Prof. P. Urban (Austria)

Scientific Policy Committee

Chairman :

Prof. E. Amaldi (Italy)

Vice-Chairman :

Prof. L. Leprince-Ringuet (France)

Members :

Prof. C. F. Powell (United Kingdom)

Prof. N. Bohr (Denmark)

Sir John Cockcroft (United Kingdom)

Prof. W. Heisenberg (German Federal Republic)

Prof. C. Møller (Denmark)

Prof. F. Perrin (France)

Finance Committee

Chairman :

Mr. J. H. Bannier (Netherlands)

Members :

One delegate for each Member State

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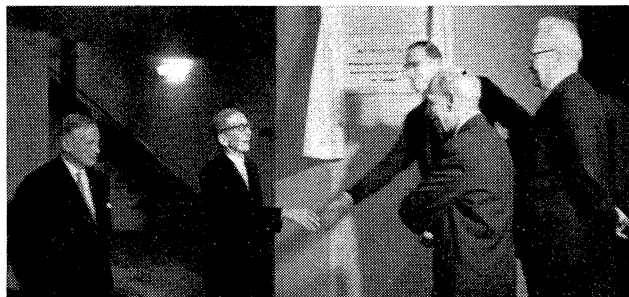
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Inauguration at CERN



The Council Chamber was formally inaugurated on the evening of 1 December, the day before the 14th Session of the CERN Council.

Just over a year ago, the Swiss Confederation decided to grant CERN the funds needed to finish the staff canteen and the Council Chamber.

CERN showed its gratitude for this generous gesture by putting up a plaque in the hall of the Administration Building, commemorating the Swiss contribution to the completion of the installations. The official unveiling of this plaque took place on the evening of 1 December. After a short speech by Mr. F. de Rose, President of the CERN Council, several Swiss officials, some members of the Council and some senior members of the Organization took part in the ceremony in the Council Chamber, where the first meeting of the 14th session took place.

There, Mr. de Rose welcomed his guests.

"Mr. de Rahm", he said, addressing the Head of the International Organizations Division of the Federal Political Department at Bern, "you symbolize for us the hospitality of a country which is host to a great number of international bodies, and I ask you to convey to your authorities our thanks and our gratitude". He then praised Mr. A. de Senarclens, one of the two delegates of Switzerland to the CERN Council, a fitting successor to Mr. Albert Picot, "thanks to whose energy we are now in Geneva".

"I also have pleasure in welcoming the representatives of the Geneva authorities, Mr. J. Treina, President of the Conseil d'Etat, and Mr. J. Dutoit. Mr. Dutoit is the Conseiller d'Etat in charge of the Public Works Department", continued Mr. de Rose, "a Department which is well known to CERN as it is at present installing outside mains to supply us with water and electricity".

After having jokingly referred to the work in progress on the road from Meyrin to CERN, this road which "leads the pilgrims of knowledge to the European Mecca of Science", Mr. de Rose turned to Mr. Blanchard and Mr. Robert representing the International Labour Office, to thank them for the hospitality offered to CERN over the last seven years for its Council meetings.

Mr. Roderick, Deputy Director of the Natural Sciences Department of UNESCO, was asked to remind his Organization "that it should always feel on home ground at CERN, since Professor Auger and Mr. Mussard were among the first to have faith in the success of the Organization".

Mr. de Rose then finished by expressing his appreciation to the

The members of the CERN Council attended the unveiling of the plaque commemorating the grant made by the Swiss Confederation to CERN. The photo at the top of the page shows the plaque just after it had been unveiled by Mr. F. de Rose in the presence of Professor C. J. Bakker, Mr. A. Picot, Mr J. de Rham and Mr. J. Treina.



architect for achieving a result which met the requirements of both scientists and administrators.

Professor C. J. Bakker, Director-General of CERN, joined Mr. de Rose in "expressing, on behalf of the whole CERN staff, our deep gratitude to the Swiss Authorities".

Pointing out that CERN has progressively developed and is now one of the largest international organizations in Geneva, Professor Bakker said how glad he was that the Council of the Organization could henceforward hold its meetings on its own site at Meyrin.

"It is a long time since CERN's small staff was split up between the Institute of Physics of the University and the barracks on the edge of Cointrin Airport", he recalled.

"We now have plenty of buildings on our own site. Our machines are completed and in operation. The first of them, the synchro-cyclotron, has already enabled us to carry out an important scientific programme. When it produced a 24 thousand million electronvolt proton beam, the second became Europe's giant tool for exploring the internal structure of matter".

"But", concluded Professor Bakker, "these successes have not altered the pioneer spirit of the early years, which will continue to be CERN's driving-force in the future".

Mr. de Rham, representing the Swiss Confederation, expressed the thanks of the Federal Authorities for the kind words addressed to Switzerland. "The gesture made by the Confederation", he said, "was a very small one, but it was symbolic. The fact that the Swiss Finance Department decided to make a gift, a very rare occurrence indeed, means that the financial affairs of CERN were considered to be ably and carefully managed". Then, mentioning the recent success obtained with the proton synchrotron, Mr. de Rham observed that this "proved that the countries of Europe still had surprises in store for other nations".

After this initial meeting of the CERN Council, those present attended a reception in the lounge of the new canteen.



On 2 December was held the 14th

There were 22 items on the agenda of the Council which held its fourteenth session on 2 December. These 22 items were to be the subject of an eight hours discussion in which 38 delegates and advisers took part, as well as the 12 CERN staff members present in an official capacity.

First of all the President of the Council, Mr. F. de Rose, expressed his satisfaction and his surprise at the fact that the most powerful accelerator in the world had operated at full energy several months earlier than planned. Readers of the "CERN COURIER" will find in this issue a statement drawn up for them by the President of the

Council, giving a summary of the announcements which he made after the opening of the meeting.

Sir Harry Melville, United Kingdom representative, spoke next. "I was very pleased", he said, "to learn not only that you had reached the energy expected, but also that the beam current had reached a very high intensity". He then added, with regard to the financial aspects of the construction: "Accelerator construction often involves expenditure exceeding budget forecasts. In the present case, I would call the proton synchrotron a success both from a scientific and a financial point of view. The money spent in constructing your machine has been well spent.

Finally I should like to point out that the success of the proton synchrotron is not due to the efforts of one team alone but also to the whole of CERN. The construction, commissioning and exploitation of the small machine — the synchro-cyclotron — was a good start for the Organization and paved the way for the success which we are celebrating today."

Professor Francis Perrin in his turn congratulated the PS team and its leader, of course, but also the entire CERN team and its Director, for bringing the big machine into service in record time. "I have been asked", he said, "to convey to you the congratulations of the French Delegation and those of the Saclay Centre which, up to last week, possessed the largest accelerator in Western Europe. We were sure", he

added, "that maximum energy would be reached, but it was most unexpected to see that the proton current reached ten times the anticipated intensity! This is of major importance for the experiments which will be undertaken next year".

Mr. A. Vlachos, speaking on behalf of Greece, said: "In this moment of triumph, Greece, country of Democritus, also wishes to pay tribute to this achievement which was the point of European co-operation and solidarity. My Government", he added, "wishes me to convey its most sincere congratulations to CERN, which has won a leading position for Europe in the field of scientific research".

Professor E. Amaldi spoke on behalf of the Italian Delegation. He ended his speech by observing: "After this technical and financial success and this triumph of organization, let us look towards a future full of promise. In the field of high energy particles, the data given by cosmic rays are very scanty. The world is now awaiting the information that will become available when CERN starts on the experimental programme with this unique machine".

"In adding my congratulations to those of my colleagues", said Mr W. Goertz, the Austrian Delegate, "I cannot help expressing the satisfaction of my country in having joined CERN at such an opportune moment".

Professor W. Jentschke, a member of the German Delegation, is in charge of the construction of a 6 GeV electron synchrotron at Hamburg. Therefore it was as an expert that, in addition to his congratulations, he expressed his appreciation of: "...the great success obtained in spite of the infinite number of difficulties involved. We in Germany would be happy, he concluded, if we could achieve such a rapid and complete success with the machine we are constructing".

The Director-General of CERN, Professor C. J. Bakker and Mr. J. B. Adams, Director of the Proton Synchrotron Division, then said a few words of thanks.

"The success which we are celebrating today", said Professor Bakker, "is also due to the excellent relations between the high authori-

A Statement from the President of the Council...

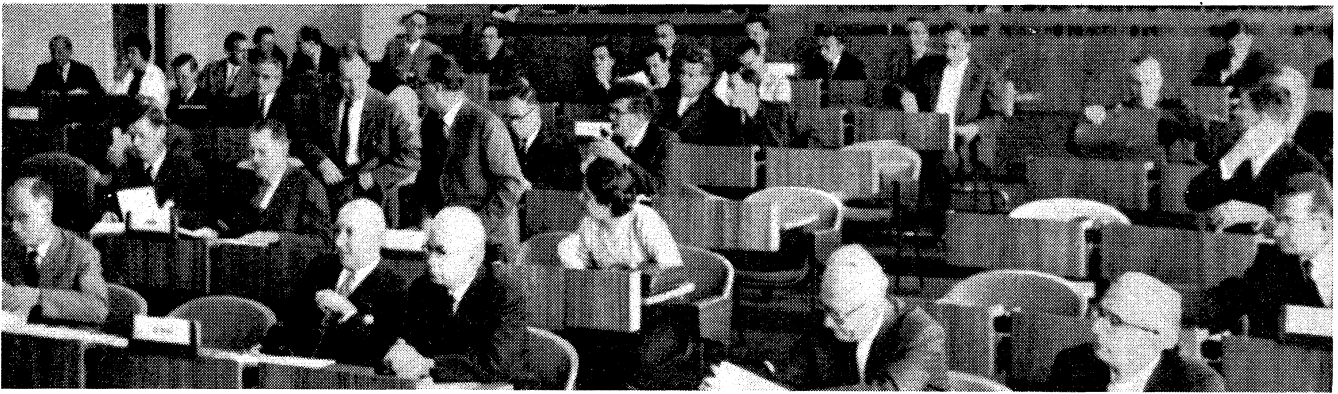
"There are several million reasons why this machine might not work..." I remember Mr. Adams saying these words last June. Luckily there were several very good reasons why it should work and the foremost of these were that Mr. Adams was responsible for its construction, that he combined to the highest degree the qualities of a physicist, an engineer and a leader, and that he had inspired his magnificent team with his own faith and enthusiasm.

The commissioning of a particle accelerator is generally characterized by long periods of uncertainty. Here everything went smoothly. Your machine passed 10 GeV—an energy which no other accelerator had ever exceeded—as if this plunge into the unknown had involved no difficulties.

I would like to pay tribute once more to the whole PS team, but we must not forget that the PS is also the result of the work done by the whole of CERN under the leadership of its Director-General. What is more, I would add that the most powerful accelerator in the world has been constructed thanks to the efforts of all the countries who have provided the men and the financial support necessary to accomplish such a task. Moreover, the significance of what happened on the 24 November goes far beyond the field of scientific research.

The success of the PS, which is a success for all the members of the Organization, makes CERN one of the leading centres of European culture. In the modern world, science contributes increasingly to the shaping of our civilization. The event we are celebrating shows the part that our continent should continue to play in the development of this civilization which owes so many of its features to Europe."

F. de Rose



Session of the Council of CERN

ties of our Organization — the Council, the Committee of Council, the Finance Committee and the Scientific Policy Committee — and the staff of CERN. I have always been surprised at the remarkable understanding you show of our difficulties; therefore it is only right for me to thank you now in the name of all my colleagues for the help you have given us and which was the very foundation for our success”.

“On behalf of the PS Division” added J. B. Adams, “I should like to thank you for your congratulations. It seems to be a good opportunity to give you some of the history of the development of our machine”.

He then gave the Council a summary of the testing of the proton synchrotron, which was similar to that published in the last issue of the “CERN COURRIER”.

“It must be remembered” he continued, “that the PS Senior Staff were assembled here thanks to the drive of O. Dahl and the energy of F. Goward. O. Dahl has since returned to Norway and F. Goward has passed away, but the work which they began continues. The machine could never have been finished without my assistants who have come from all over Europe. They have refused to let me mention their names but that does not prevent me from saying I do not believe I’ll ever work with a better team.”

After expressing his gratitude for the confidence shown by the Council in his Group, J. B. Adams concluded with a remark on the varied nationalities of the three hundred or so members of his Division. “I have never encountered any difficulties that can be ascribed to the mixture of nationalities”, he said, “but only human difficulties that beset any large group in any country. I hope”, he observed in conclusion, “that this spirit will continue when the machine becomes an instrument of research”.

Six Months Work in the Division

Before proceeding to discuss the 22 items on the agenda, the Council was extremely pleased to note that Professor C. J. Bakker had agreed

to continue in office for a further period of five years.

The progress report of the Director-General and the Divisional Directors for the period from May to October 1959 appears in the document CERN/319 which has been distributed to all Council Members. As this report was written before the 24 November — the date on which a full energy beam was obtained in the proton synchrotron — the first paragraph of the introduction says: “It may be expected that within a year CERN will have available one of the best, if not the best, accelerators in the world.”

“That forecast did not make sufficient allowance for the know-how of the PS team” said the Director-General. “From now on we possess the biggest accelerator in the world and last night an experimental group exposed photographic emulsions to particles accelerated by the proton synchrotron.”

“However the machine is still in the hands of its constructors even though these may, from time to time, already be able to hand it over to the researchers. From the experience gained when bringing the 600 MeV synchro-cyclotron into operation, I would not expect the proton synchrotron to be available for full time experimental research for at least 6 months.”

The Director-General then reviewed the big international conference on accelerators which was reported in this paper(*). He outlined the policy of each of the Divisions and ended with an account of the work of the Public Information Office.

During the period under review the increased interest shown in CERN by both the gener-

al public and the experts can be gauged from the following figures: 1700 visitors, at least 330 newspaper articles and by a dozen radio, television or film stories. Finally “dignus est intrare” “CERN COURIER”, started in August for the staff of the Organization, has since doubled its circulation to meet the demand from outside.

The Proton Synchrotron Division

Report CERN/319 already mentioned gives a brief picture of the Division’s work in 1959. It reviews the installation of the machine and its entry into service, the Accelerator Research Group, the activities of the groups responsible for the magnet, radio-frequency, the injection system and electrical engineering, as well as the vacuum system, targets and the work of the drawing offices.

The Survey Group has continued to observe the deformations of the sub-soil and to correct the position of the magnet blocks.

...and of the Chairman of the Scientific Policy Committee

The fact that the CERN proton synchrotron has started to produce protons of about 25 GeV of such a high intensity and so soon after the first tests, represents one of the greatest successes ever obtained in the construction of high energy accelerators.

This result is due to the ability and endurance of the whole PS Division and above all to John Adams, who, endowed with outstanding scientific and technical ability and human qualities, has led his colleagues since the early days of this great enterprise.

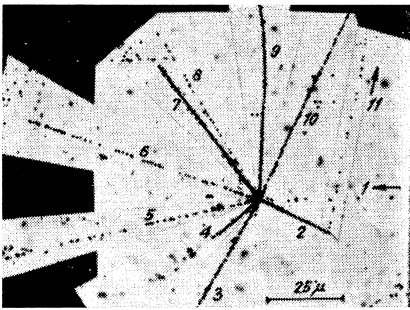
CERN was established some six years ago so that the European countries, who because of the war, were a long way behind other countries in scientific research in the field of high energy physics, could once more play a leading role.

The gap has now been closed. The main goal of CERN has been reached, since European scientists now have this new and unique instrument—the proton synchrotron.

The coming months and years are certain to yield great results, because an almost unexplored field of research is now open to investigation.

Prof E. Amaldi

(* See “CERN COURIER” N° 2, September 1959.



One of the first photographs of typical events taken at the beginning of December on the proton synchrotron and exhibited at the entrance to the Council Chamber. It was taken during the work outlined in "Last Month at CERN" by W. M. Gibson's Nuclear Emulsion Group; a work which especially concerned W. O. Lock, M. A. Roberts, R. Sterchi and G. Vanderhaeghe. This picture shows a "star" produced by the decay of a nucleus of the photographic emulsion after collision with a high energy particle (trace 1) from the proton synchrotron. One of the particles emitted (trace 2) was unstable and its decay produces a fast, charged particle (trace 11).

The design and construction of the new propane and hydrogen bubble chambers are progressing at a satisfactory rate. The 30 cm hydrogen chamber is being successfully tested and used as a research tool. Finally the development of the beam ejection system, the beam transport system, the experimental halls and the system for separating the particles, each form the subject of a separate chapter.

None of these items were discussed in detail during the Council session, as the oral report of the Director of the Division very appropriately concentrated on the commissioning of the accelerator.

Synchro-Cyclotron Division

Professor Bernardini said he was at the disposal of the Council to give further details concerning his Division and remarked: Today belongs to the PS and I do not intend to say very much about the contents of my written report. The SC Division", he continued, "is responsible for experiments with counters, cloud chambers and emulsions on the PS." Speaking of the SC physicists he then said: "... they are relying on the members of the PS to help them to get the most out of this marvellous instrument and to avoid mistakes—which are always possible with a new machine".

"I will end by quoting a remark which I read a few days ago in a local newspaper: the writer said that, the PS, this splendid achievement which restores Europe to her rightful scientific position, has only cost each of its citizens the price of a few cigarettes."

The Progress Report of the SC Division provides information about a complete experimental programme: 13 CERN research groups and 6 visiting teams (*) have worked on the beams produced by the 600 MeV synchro-cyclotron. It may be thought that there are too many teams for optimum utilization of the machine. However, when research with the SC began, it seemed advisable to have a large number of groups in order to train the teams in preparation for future work on the PS.

(*) From Utrecht, Harwell/University College London, Harwell, Fribourg, Padua ber 1959.



The Yugoslav Delegation at the 14th Council, consisting of Professor I. Supek, Mr. D. Baum and Mr. Komatina.

Two of the division's groups have devoted all their time to the preparation of experiments with the PS. Many groups have now finished their experiments and are also taking part in the assembly of experimental equipment round the PS. Thus only four CERN groups will continue to work with the SC and it will be possible to allot a larger proportion of machine time to visiting teams. Generally speaking, the time requested still exceeds time available even though the machine is working three shifts per day, six days a week. The report mentions the main projects which have been completed, or are being carried out or planned by the SC electronics section, and stresses the part it played in installing the signal-cable system for experiments with the PS.

The review of SC activities ended with a few remarks about the shut-down of the accelerator (*) and its operation and development.

(*) See CERN COURIER No 3, October 1959.

Last month at CERN

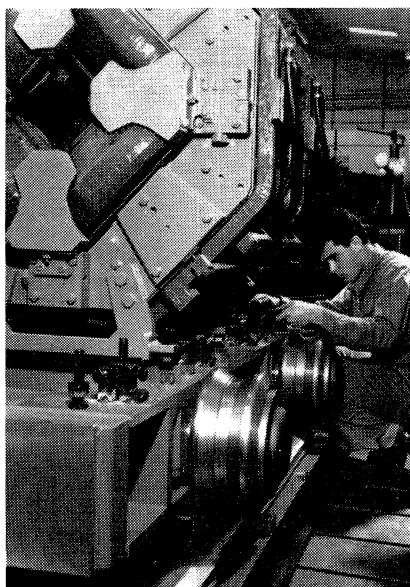
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7×10^9 (7 thousand million) protons per pulse. The figure hoped for is 10^{11} with the present equipment.

The proton synchrotron stopped working on 11 December and will start up again on 4 January. This shut-down will provide an opportunity for carrying out adjustments and changes ranging from inspection of the alternator to maintenance of the 500 kV column where the protons receive their initial acceleration. When the machine is started up again in January, the first real nuclear physics experiment will take place.

In this connection, mention must be made of the work done with the proton synchrotron on 1 and 10 December by the CERN "Nuclear Emulsions" Group. Photographic plates were placed against the vacuum chamber in the vicinity of the future beam ejection area, and used to determine the number of particles scattered and emitted when the beam passed through the target intersecting

its trajectory. In addition, the high energy particles ejected were observed from angles varying from 20° to 60° (photo above). For instance, an emulsion placed at a distance of 1 metre from the target at an angle of 60° to the beam at 22 GEV, recorded 3×10^9 parti-



Eleven focusing lenses, like the one being assembled here in the main workshop by R. Matty, will be mounted on rails between the synchro-cyclotron and the neutron room.

cles per square centimetre per pulse. Finally, in another survey the number of particles crossing the anti-radiation shielding wall were counted.

This preliminary work may prove very useful in the future when more sophisticated experiments are undertaken. Like the work of the Health Physics Group mentioned below, it was carried out at the request of the Proton Synchrotron Security Section who wished to have a general idea of the radiation in the vicinity of the machine.

At the same time, the Health Physics Group of the Scientific and Technical Services Division, measured radiation doses inside and outside the big accelerator. Very sensitive apparatus was used, including ionization chambers for high energy radiation. All the measurements showed the effectiveness of the shielding surrounding the machine.

In the Synchro-cyclotron Division, the machine is being modified according to schedule. In particular the new meson extraction window has been installed in the vacuum tank, the lead safety curtain has been put in place and the rails for the lenses focusing the meson beams towards the Neutron Experimental Room have been laid.

Scientific and Technical Services Division

"The main activity of the Division, said Dr L. Kowarski, its Director, is to seek ways of dealing with the mass of data supplied by the accelerators". The most modern means of dealing with the information provided by the accelerators and their associated instrumentation is the electronic computer. CERN owns such an instrument. However, an estimate of future needs shows that the existing "Mercury" computer will be overloaded from 1961 onwards. A meeting of European users of "Mercury" computers was held at CERN in May to study future requirements and the various ways in which CERN's computing facilities could be extended. In addition, it has recently become evident that the present computer is not suitable for the use of certain programming methods which have just been introduced into physics research.

The "IEP", instruments for the evaluation of photographs, form the link between the bubble chambers and the electronic computers. CERN has constructed several IEP prototypes based on ideas developed at Berkeley and modified to suit its own needs and techniques. "To judge from comparisons made in September at the Conference on High Energy Accelerators and Instrumentation, we are holding our own in this field", added Dr Kowarski.

The Health Physics Section has continued to work smoothly. One

The Civil Engineering work of the Site and Buildings Division consisted mainly of the erection of a concrete apron for storage, beside the French frontier behind the Car Club emplacement, and the commission of the old canteen into a small workshop for the Bubble Chamber Group.

A 30 m³ emergency reservoir installed near the water reservoir has been connected up to the water mains. In the event of an electricity cut, it will enable the water supply to be maintained during the 30 second needed for the diesel-electric emergency group to come into operation. Finally, the bridge joining the Administration Building to the Library will probably be "open to traffic" at the end of April 1960.

The 14th Session of the Council was held early in December; its proceedings are reported elsewhere in this issue.

Another important event for some 470 of our children was the arrival at CERN, on December 13, of Father Christmas who dropped from the skies to the delight of all those gathered round the courtyard of the Administration Building.

Ed.

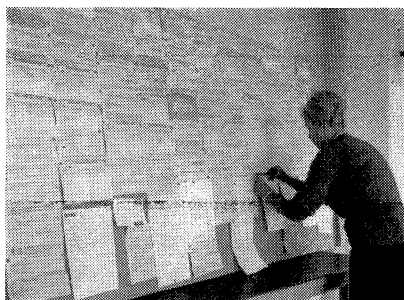
of its functions deserving special mention is that of "adapting existing regulations for the protection of workers against the unknown types of radiation which will be produced by the 25 GeV accelerator".

The Scientific Information Service has continued to provide library and publishing facilities and to exchange information with other research centres. The Proceedings of the September Conference are now printed and available.

Theoretical Study Division

"In theoretical physics it is still rather difficult to find gifted physicists", said Professor Fierz in his introduction.

Some of the many studies undertaken by members of the Division

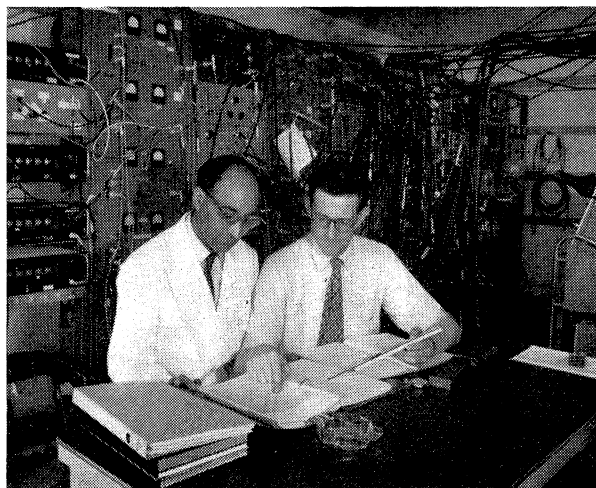


About 100 telegrams of congratulation from all over the world hailed the success of the proton synchrotron and were exhibited at the entrance to the Council Chamber by Brigitte Laurent.

were mentioned. Considerable work has been done in the field of moderate energy, on the behaviour of strongly interacting particles.

The computation of the multiplicity and of the energy distribution of particles produced by high energy collisions is practically completed.

The Main Workshop of the Site and Buildings Division worked for all Divisions of the Organization in 1959. P. Gerdil is seen here milling a part for the hydrogen bubble chamber.



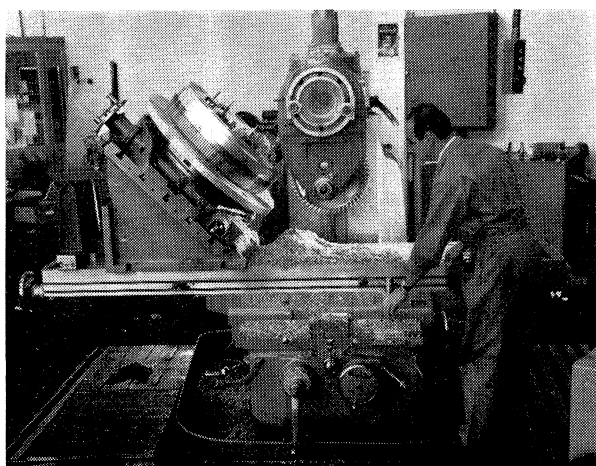
The report of the Synchro-cyclotron Division mentions the groups of visiting scientists who have worked on the machine in 1959. Dr. Hanna, who is seen here with Mr. Ghani, a scientist from Pakistan, was a member of the Harwell team. The photo was taken in the synchro-cyclotron counter room.

A theory has been elaborated whereby all elementary particles might have their source in a small number of fields, three for example. An analysis of experimental results which might help to discover the mass of mu mesons has also been made in the Theoretical Study Division. "We are always glad to receive visitors and specialists from all countries, who are experts in different theoretical fields. The advantages resulting from such cooperation are considerable", said Professor Fierz finishing his last report to the CERN Council. Next April he will take up the Chair of Physics at the E.T.H. in Zürich. (*)

Site and Buildings Division

The old building programme has given way to the "new programme" under which the SB Division is in charge of planning and construction of the technical installations. The

(*) See CERN COURIER No 4, November 1959.



new programme mainly concerns the east experimental area, the new south generator building, the bubble chamber test buildings, the extension of the PS laboratory the new PS workshop and a laboratory for the study of new accelerators.

Mr. Charles Mallet, Director of the Division, gave interesting figures about the general activities of his department. Thus, the consumption of electric power from 1 January 1959 to 30 September 1959 reached 11 670 000 kWh, instead of 6 670 000 kWh for the corresponding period in 1958, and the maximum demand reached 6 200 kW instead of 3 000 kW in 1958.

The Main Workshop continued to work for all Divisions. The facilities available have recently been increased by the addition of plating, pickling and heat treatment workshops.

Among other activities the Transport Section has handled heavy equipment for all divisions.

As regards the Fire and Site Security Services, they dealt with 125 cases, which luckily were not very serious.

Professor W. Jenischke, Adviser to the German Delegation in the Council, in conversation with Professor P. Scherrer, Head of the Swiss Delegation.



The Administration Division

In his brief report Mr. S. A. ff Dakin, Director of the Division, said how happy the members of the Division had been to move into permanent offices. Their convenience and the relief from the over-crowded and rather sordid conditions of the barracks in which the Administration had lived since the very beginning of CERN, has had an obvious effect on staff morale. Mr. Dakin also pointed out the difficult position of the Translation Section owing to the ever-increasing demand on their services by all divisions of the Organization.

The activities of the Finance Office covered the preparation of the budget, problems related to financial resources, social insurance, auditing the accounts of the Ford Foundation, ordinary accounting and internal auditing.

In 1959 the Personnel Office had to carry out the most extensive recruiting programme in the history of CERN. Of the 3382 applicants, 792 were interviewed and 224 new members were recruited, bringing the staff total to 884 on 15 November, 1959.

The Purchasing Office will have placed about 15 000 orders and contracts in 1959, about 15 per cent more than in 1958. CERN will probably be placing its 50 000th order at the beginning of 1960.

Council Discussions

With the commissioning of the 25 GeV proton synchrotron, CERN enters a new phase of its research activities. If full use is to be made of the proton synchrotron, complicated experimental equipment will have

to be provided and certain ancillary buildings constructed.

In the budget estimates for 1960, S.Fr. 38 500 000 will be devoted to capital expenditure, 15 million of which will be for new buildings and installations and 18 million for experimental equipment. The balance of S.Fr. 26 500 000 will be for staff and running expenses.

The total budget thus reaches a ceiling of S.Fr. 65 500 000 for 1960, compared with S.Fr. 55 200 000 in 1959.

Approval of the S.fr. 65 million ceiling was followed by a discussion in which several speakers, including the Director-General, pointed out how precarious the position was because no reserve existed for new work or developments.

After it had approved the modifications to be made in the remuneration of CERN fellows, the Council then considered the extension of electronic computing facilities in the Organization.

"The processing of information appears to be of growing importance in the use of modern accelerators" said Dr L. Kowarski. It seemed that if CERN wished to keep its leading

Mr. W. Goertz, Professor P. Urban and Mr. E.M. Schmid, who represented Austria at the CERN Council.



CERN IN THE NEWS

Since the last appearance of this feature, CERN has continued to help newsmen by supplying them with material for news articles, illustrated, radio or TV stories.

- The newspaper **Svenska Dagbladet** published an interview with the Swedish Delegates to the Conference on Accelerators which was held at CERN in September. On the 25th of the same month Margareta Burki Romdahl interviewed G. von Dardel, O. Fredriksson and G. Tibell, all three at CERN, for a broadcast report for the Swedish Radio.
- On 18 September, J. B. Adams was interviewed about big particle accelerators on the overseas programme of the Swiss Radio.
- The 26 September issue of **Nature** published a review of the "Present status of CERN".
- On 28 September at Radio Geneva, J. R. MacCabe was interviewed by Laurent Bernard about the Conference on Accelerators.
- The April-June 1959 issue of **Energia Nuclear**, the quarterly review of the Spanish Association for Nuclear Energy, published a description of CERN by M. Eduard Fueter, scientific correspondent of **Stiftung pro Helvetia**.
- **Engineering** for 20 November included an article "Pocket Accelerators for High Energies" by B. G. Bodroghy who visited CERN on 19 October and was particularly interested in the PS Accelerators Research Group.
- In its October-November issue a London magazine, **Research**, described some features of the proton synchrotron which was then being tested.
- Mr. Albert Picot, formerly Conseiller d'Etat of Geneva, due to whose efforts CERN was installed at Meyrin, published a very detailed article entitled "Geneva and CERN" in the **Journal de Genève** for 11 November.
- On 1 December the Tél-journal of the Swiss French Television gave a programme about CERN in general and the first meeting of the 14th Council Session held that evening. On 6 December French Swiss and Ticino Television gave a weekly news summary which again included items about the European Organization for Nuclear Research.
- The announcement that maximum energy had been obtained with the CERN proton synchrotron gave rise to comment throughout the world. On 18 December, at the time of writing 143 newspaper cuttings announce-

position it would need a very fast machine. This, Dr Kowarski pointed out, ruled out the possibility of simply extending the existing installations. On the other hand a large American company made a gesture in view of the standing of CERN as intellectual centre and agreed to put a 704 computer at the disposal of CERN and various European universities, who should be allowed to use it. This could be hired at a rate comparable to those granted by the company to universities, under its educational aid programme.

After some discussion this proposal was adopted by the Council as "an unavoidable necessity compelling the selection by CERN of a tried machine without any commitment for the future".

The proton synchrotron inaugural ceremony will take place on 5 February 1960. A great many scientific and political personalities will attend this ceremony at which Professor Niels Bohr has been invited formally to open the proton synchrotron.

Proposals concerning national participation in research at CERN were examined and approved. They most-

ly related to the general principles which should guide the Administration of CERN in the future about the part to be played by the teams of physicists from the Member States in the Organization's programme of research work.

ly related to the general principles which should guide the Administration of CERN in the future about the part to be played by the teams of physicists from the Member States in the Organization's programme of research work.

The arrangements planned for the use at CERN of the **French propane bubble chamber** were adopted after some discussion. The 1 metre chamber which is now under construction will be tested with the 3 GeV "Saturne" accelerator at Saclay. CERN will thus have before June 1960 a large experimental instrument besides its own chamber.

The Council was to approve the policy for **indefinite appointments** which may be granted to certain staff members.

International scientific co-operation was also on the agenda. In the interests of science it is proposed to develop international co-operation in the sphere of high energy accelerators.

After some discussion, it was decided that CERN would continue to sponsor work on **fusion** problems for one more year.

The financial participation of the 13 Member States was modified owing to the accession of Austria to the Organization and changes in national income, which is used as a basis for accessing the contributions of the Member States. The meeting decided, by 12 votes in favour and 1 abstention, that contributions should be as shown in the Table, where percentages for 1958 are given in brackets.

Austria	1.93 %	(—)
Belgium	4.15	(4.89 %)
Denmark	1.99	(2.23)
France	21.22	(22.26)
German Fed. Rep.	19.52	(18.27)
Greece	1.17	(1.08)
Italy	10.09	(10.61)
Netherlands	3.85	(3.78)
Norway	1.61	(1.72)
Sweden	4.23	(4.85)
Switzerland	3.29	(3.48)
United Kingdom	25.00	(25.00)
Yugoslavia	1.95	(1.83)
	100 %	(100 %)

The last three items examined by the Council were the calendar of the Council sessions and meetings of its committees for 1960, the confirmation of the appointment of the Director of the SB Division and the election of the officers and committee members of the Council.

After this, the session was closed at 6.10 p.m., on 2 December.

A view of the Council Chamber on 2 December showing the Netherlands and Swiss Delegations.



ing the event had been received at CERN. This minimum figure only represents the articles spotted by CERN's press cutting agency. Scarcely any magazine articles are included in this total. Among the best articles which appeared on this occasion was that by Bernard Beguin in the **Journal de Genève** of 30 November, those which appeared in the **Times** on 26 and 28 November and that featured in **Le Monde** on 29 November, when Nicolas Vichenev published an interview with Professor Leprince-Ringuet.

● The article on the pneumatic platform developed at CERN, which appeared in the "CERN COURIER" in September, led to several requests for further information. These all came from technical publications, except for one which shows the interest taken in the method by the British Admiralty.

Finally the members of CERN have published several articles, mostly scientific. Here is a list of articles of which the "CERN COURIER" has been notified.

● G Kuhn (Proton Synchrotron) has written for **Il Rostro** of Milan, a "Manuale dei transistori, proprietà, applicazioni, schemi". This book is in the CERN library.

● The **Physical Review** of 1 June 1959 published a communication from B. d'Espagnat and J. Prentki (Theoretical Study) on the "Up-down asymmetries of sigma and lambda decays". In the same review, dated 15 June, there appeared "Fixed Angle Disper-

sion Relations for Nucleon-Nucleon Scattering" by M. Cini, S. Fubini (Theoretical Study) and A. Stanghellini.

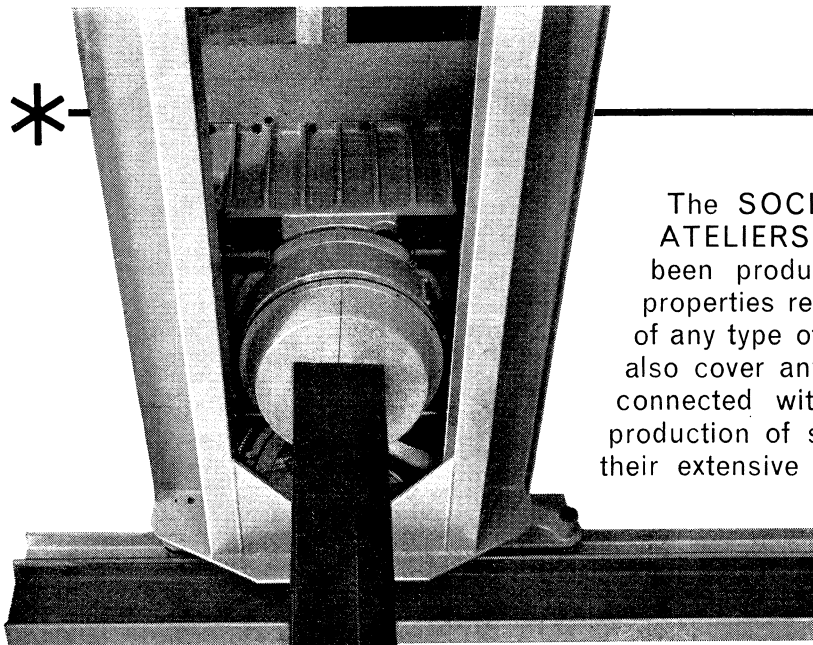
● In the September issue of **Progress of Physics**, Yoshio Yamaguchi publishes a study of the "Possibility of Super-Weak Interactions and the Stability of Matter".

● P. Germain, Ch. Schmelzer, W. Schnell and A. Susini (Synchro-cyclotron) publish in the September 1959 issue of the *Annales de l'Association Internationale pour le calcul analogique* a report entitled "A Special Function Generator: the Frequency Programming System for the 25 GeV Proton Synchrotron".

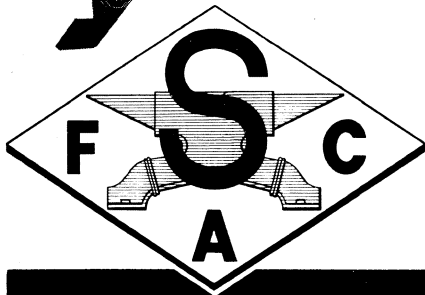
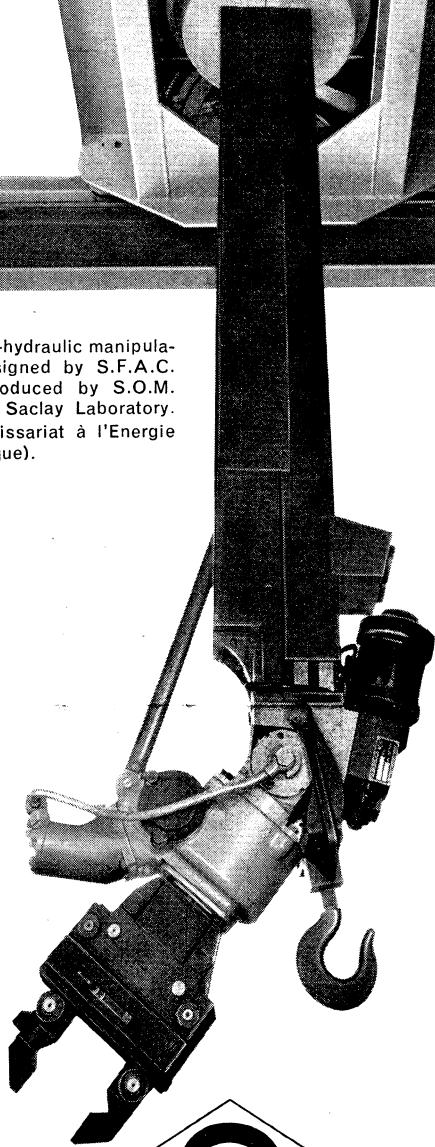
● The September issue of the magazine *Scientia* included an article by G. Petrucci (Proton Synchrotron) entitled "Il CERN Organizzazione Europea per le ricerche nucleari".

● R. Hagedorn (Theoretical Study) submitted an article to **Il Nuovo Cimento** on "A new derivation of the statistical theory of particle production with numerical results for p-p collisions at 25 GeV".

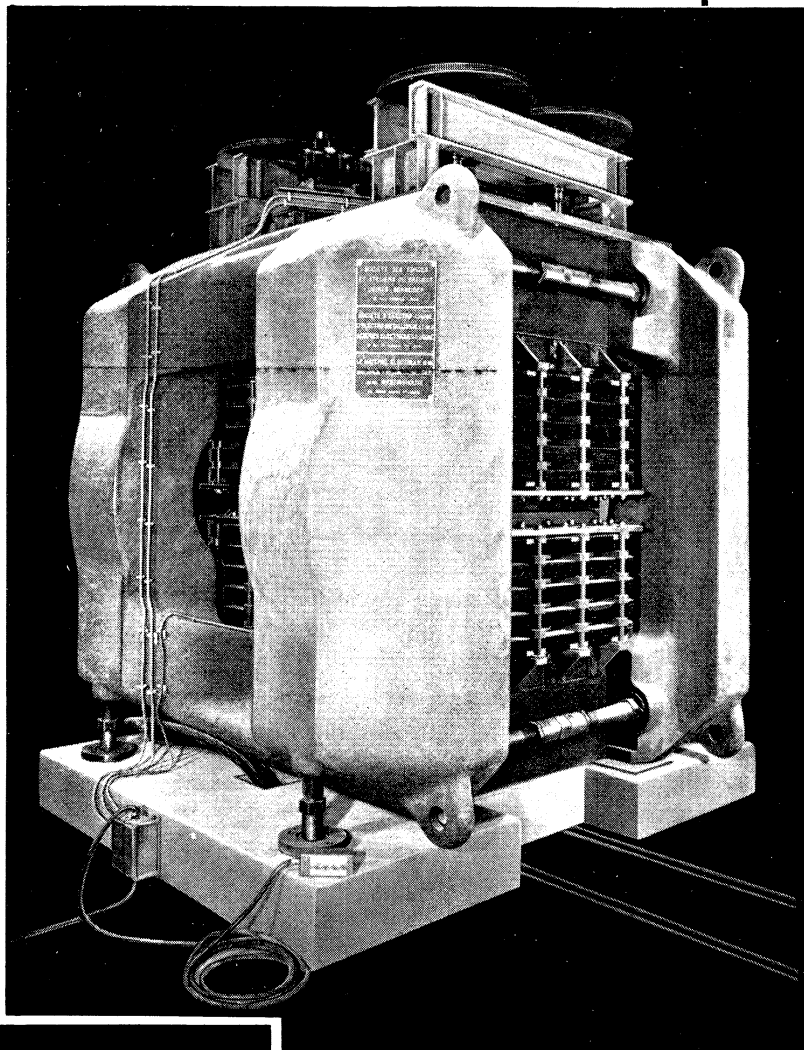
● **Nuclear Instruments and Methods** 4 (1959) published a study by J. G. Linhart and A. Schoch (Proton Synchrotron) on the "Relativistic Electron Beam Devices for Fusion", while No. 5 (1959) of the same magazine featured "A Synchro-cyclotron Pulse Simulator for Testing Electronic Circuits" by T. Fazzini, G. Fidecaro and H. Paul (Synchro-cyclotron).



* Electro-hydraulic manipulator designed by S.F.A.C. and produced by S.O.M. for the Saclay Laboratory. (Commissariat à l'Energie Atomique).



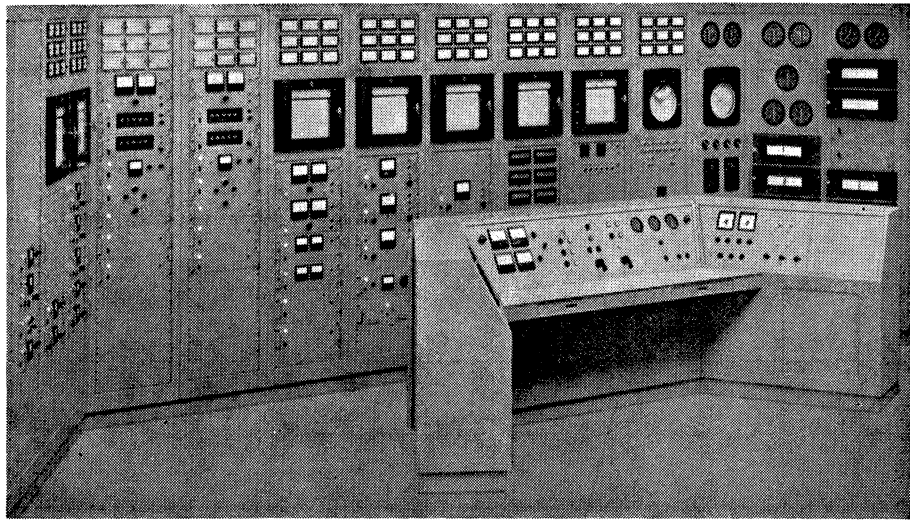
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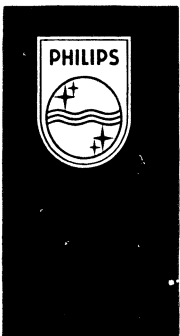
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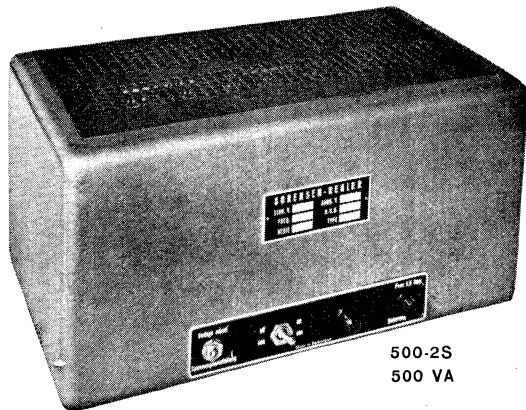
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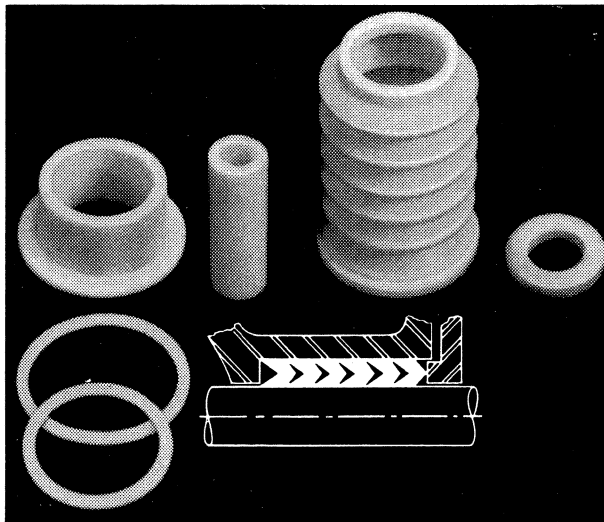
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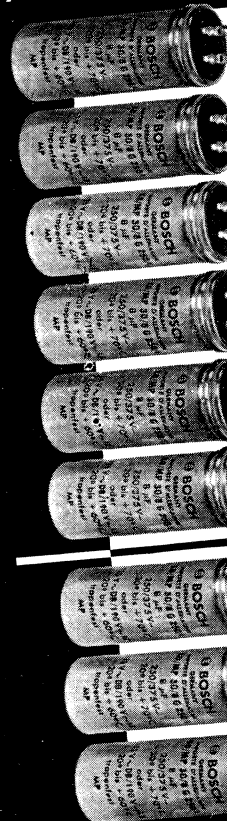


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