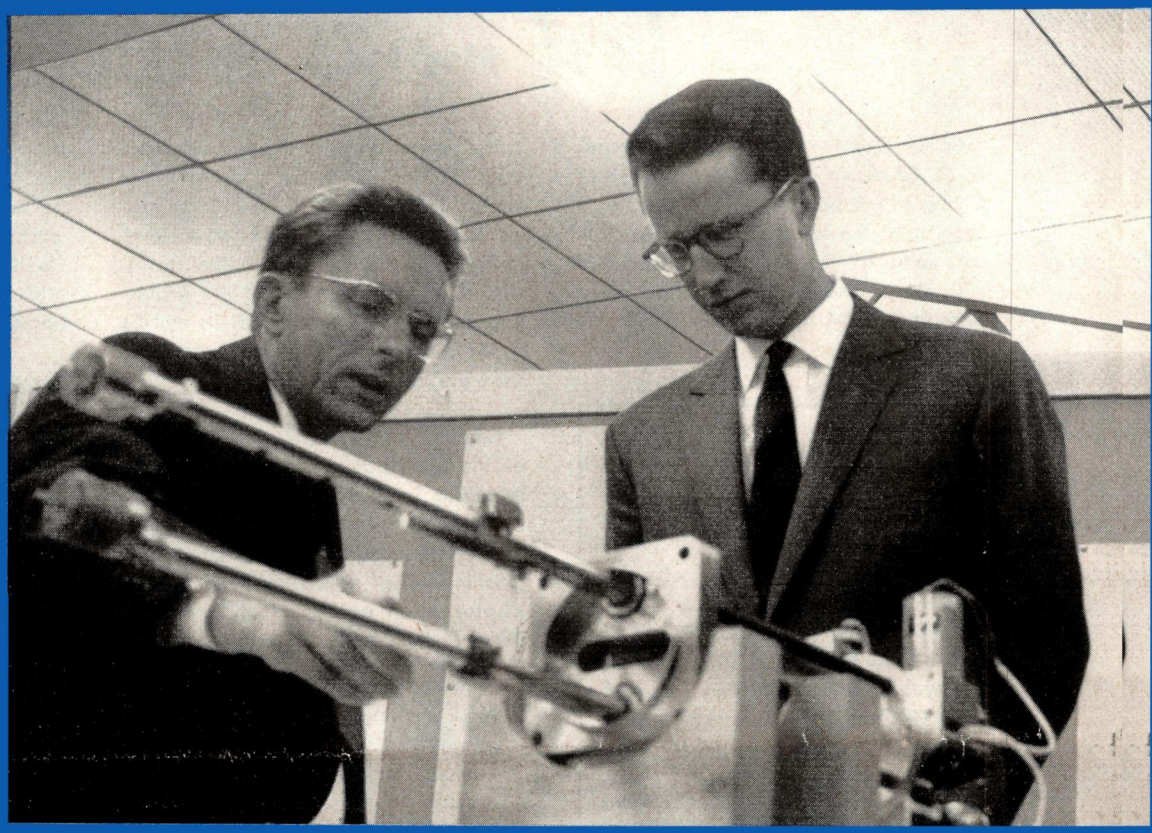
CERN COURIER



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VOL. 2

June 1962

EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

The European Organization for Nuclear Research (CERN) came into being in 1954 as a co-operative enterprise among European governments in order to regain a first-rank position in nuclear science. At present it is supported by 14 Member States, with contributions according to their national revenues: Austria (1.87%), Belgium (4.02), Denmark (1.93), Federal Republic of Germany (18.92), France (20.57), Greece (1.12), Italy (9.78), Netherlands (3.73), Norway (1.56), Spain (4.16), Sweden (4.10), Switzerland (3.19), United Kingdom (24.40), Yugoslavia (0.65).
The budget for 1962 is 78 million Swiss francs.

The character and aims of the Organization are defined in its Convention as follows:

'The Organization shall provide for collaboration among European States in nuclear research of a pure scientific and fundamental character, and in research essentially related thereto. The Organization shall have no concern with work for military requirements and the results of its experimental and theoretical work shall be published or otherwise made generally available.'

Last month at CERN

On 24 May the **King of the Belgians,** H. M. Baudouin I, paid a private visit to CERN, where he spent about $2^1/_2$ hours looking at the two particle accelerators and some of the equipment associated with them. The visit is reported more fully on pp. 4-6 of this issue.

Contents

The cover photograph, taken in the proton-synchrotron control room on 24 May, shows P. Germain explaining the principles of operation of a target assembly to H. M. Baudouin I. A report of the King of the Belgian's visit to CERN begins on page 4.

Photo credits: photos 3-11 inc. on pp. 4-6 by G. Klemm, all others by CERN/PIO.

Drawings for 'Job evaluation' by M. Bron.

CERN COURIER

is published monthly in English and in French. It is distributed free of charge to CERN employees, and others interested in the construction and use of particle accelerators or in the progress of nuclear physics in general.

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The **proton-synchrotron** was shut down from 7 May to 5 June, primarily to enable the beams in the North experimental hall to be changed and to carry out work on the East junction that necessitated removal of some of the protective earth shield. Further details will be given in an article to appear in the next issue of CERN COURIER.

Coming into force at the beginning of the shutdown, new **radiation-safety measures** have been instituted for the PS ring, to control hazards due to radioactivity induced by operation of the machine. The regulations, which are displayed on notices at all entrances, stipulate that inside the ring area :

1. Film badges must be worn.
2. No smoking, food or drink is allowed.
3. Notices and barriers must not be moved.
4. Nothing which has been inside the ring during operation may be removed until its radioactivity has been checked by the Health Physics duty technician.

Written permission is required for any work within the limits of the ring foundation beam (magnet units, cavities, vacuum chamber, etc.), or in other areas indicated by special notices. This written permission consists of a pass form, on which brief details of the proposed work must be given, signed by the Health Physics duty technician, who adds any special instructions that may be necessary.

Similar procedures were already in operation at the synchro-cyclotron. The regulations apply, of course, to the staff of outside contractors, and to visitors, as well as to CERN staff.

Once again we regret to have to report the death of a CERN member. **Maurice Fillion,** who was killed in a mountain accident on 26 May, had been with us only since 1 March, when he joined the General Services group as a Supernumerary, though he had previously been on the site for about a year with one of the CERN contractors.

The sympathy of all those who knew him is offered to his wife and two daughters.

The issue of *Physics Letters* for 1 June included the results of another muon experiment carried out with the **synchro-cyclotron.**

Entitled **'Scattering of mu-mesons by carbon',** the paper gives data showing that such scattering is just what one would expect if the muon was no more than a heavy electron. The experiment, though using a completely different approach, thus confirms the conclusions of the earlier (g-2) experiment.

Also published on 1 June, in *Il Nuovo Cimento,* was a comprehensive paper, signed by 20 members of CERN, the Istituto di Fisica dell'Università — Pisa, or the Istituto di Fisica dell'Università — Trieste, detailing the work done at CERN on the **production of hyperons and kaons** by the interaction of 16 GeV/c negative pions and protons.

The experiment used the **32-cm hydrogen bubble chamber** in a high-energy pion beam from the **proton synchrotron,** and some 60 000 pictures, each with an average of 8 tracks, were obtained. After preliminary scanning, analysis was carried out, with the **leps** (Instrument for the evaluation of photographs) of the Data Handling Division. The results, it is stated, were not what would be expected from the 'statistical theory' of such interactions.

continued on p. 9

S.A.ff. DAKIN

Directorate Member for Administration

Unexpectedly, though it is not so surprising on consideration, CERN's Directorate Member for Administration, and Leader of its General Administration Division, began his professional life as a physicist.

Born in England in 1909, Samuel Arthur ffrench Dakin (ffrench is an ancient family name, retaining its medieval spelling) was educated at Bradford Grammar School and then at Corpus Christi College, University of Cambridge. There he took the Natural Sciences Tripos with Honours in Physics, and claims the distinction of having been lectured to by Rutherford, discoverer of the nucleus and pioneer of nuclear physics. One of his supervisors was P.M.S. Blackett, who at that time was intensely interested in the possibility of the existence of a positive electron.

In 1931 he entered the Patent Office and worked there until the middle of 1939. Then, with war fast approaching, he was transferred to the Board of Trade emergency organization, and later to the Raw Materials division of the Ministry of Supply.

With the return of more normal conditions he became a member of the General Division of the Board of Trade, with the job of 'looking after the scientific and technical interests' of the Board. This occupied him, from 1947 to 1954, largely in the fields of management, standardization and research. He was a member of the Council of the British Institute of Management and of the British Standards Institution. He was also Board of Trade Assessor on the Advisory Council to the Department of Scientific and Industrial Research, and on the Industrial Grants Committee. Among his tasks during this time were the setting up of the National Research Development Corporation, which finances the development of promising new inventions in the United Kingdom, and the administering of 'Conditional Aid', assistance granted to the United Kingdom by the U.S. Government with the primary aim of increasing productivity.

On a more European scale, he was a founder member of the Scientific and Technical Committee of the Organization for European Economic Co-operation (OEEC), forerunner of the productivity and research sections of the present Organization for Economic Co-operation and Development (OECD).

The Standards Department of the Board of Trade (controlling weights and measures) was also under his charge. From 1949 to 1951 he served as the Board of Trade member on the Departemental Committee on Weights and Measures Legislation, and wrote the chapter in the final report recommending the adoption of the metric system. One of his memories of this time is the appalling difficulty that most Government legislators had in grasping even elementary scientific principles.

Mr. Dakin's association with CERN began in 1954, when he was released from his post for a year to become interim Director of the newly formed Administration Division, intended to centralize the finance, personnel and purchasing services, as well as external relations, and so on. Under his leadership the provisional Staff Regulations and Rules were established, salary scales and methods of recruiting staff defined, general conditions of contract for regulating supplies drawn up, and many other things accomplished to transform the former Interim Organization into the permanent laboratory it had by then become.

In due course, he returned to England and the Board of Trade, where he spent the next three years dealing with the cotton industry, except for a short period with a branch of the Commercial Relations and Treaties Department. However, in 1958 the post of Director of Administration at CERN became vacant again, the man selected for the appointment was S.A.ff. Dakin, and he came back to Geneva.

When the internal structure of CERN was reorganized at the beginning of 1961, Mr. Dakin became one of the four (now three) members of the Directorate, formed to assist the Director-General in the management of the laboratory and general scientific and technical matters. As Member for Administration, his responsibilities include all matters affecting the budget, personnel, contracts and general administration. At the same time, he is Leader of the General Administration Division, responsible for Administrative Services, Personnel Services, Public Information, Purchasing, and the Translation and Minutes Service. Recently General Services, which include security, cleaning, maintenance of the grounds, etc., have been transferred to the Administration Division from Site and Buildings Division.

The Scientific Conference Secretariat also comes under Mr. Dakin's jurisdiction, while as Directorate Member for Administration he is responsible for CERN's external relations on a diplomatic level ●

JOB EVALUATION

Equal pay for equal work

During the past ten months, all divisions of CERN have been visited in turn by members of Personnel Services who were out to do a 'Job Survey'. Since very little information has been given until now about the purpose of these surveys it is their intention in this article to make known some details about the exercise.

WHAT IS BEING DONE ?

With the growth of CERN it became necessary to work out a system of gradings — this was done in 1959 — and a method for finding out which grades to assign to which jobs. We believe that we have found such a method in **'Job Evaluation'.**

While it cannot and does not pretend to be an exact system of measurement, Job Evaluation is an orderly approach, based on judgement, to determine the relative values of various jobs. It is not a study of individuals — although it is through the individual that the approach is made — but **a study of the various jobs within the Organization.**

... does not pretend to be an exact system of measurement

WHY IS IT BEING DONE ?

The purpose of our present exercise, and of its future repetitions is, among other things, to attempt to establish fair relationships among the jobs within CERN, and to ensure both 'Equal pay for equal work' and differences in grades where these are based on differences in duties and responsibilities.

WHAT IS IT NOT ?

From what has been said so far it becomes clear that Job Evaluation is concerned with grades and not with the salaries attached to the different grades, nor with the individual's personal situation which, at CERN, is taken into account by various allowances and differentials. Our system of assigning grades does not alter CERN's efforts to pay competitive salaries — it complements it so as to achieve maximum staff satisfaction.

HOW IS IT BEING DONE ?

Before a grade is assigned to a post it is necessary to know what the job is and to analyse its contents. This is why many individual staff members and their supervisors are being consulted as to what the assigned duties are. We then write a **'Job Description'.**

This description obviously cannot contain all the details of the job ; it therefore limits itself to listing duties which :

1. recur regularly ;
2. take up a reasonable amount of time ;
3. require special knowledge or ability.

... require special knowledge or ability

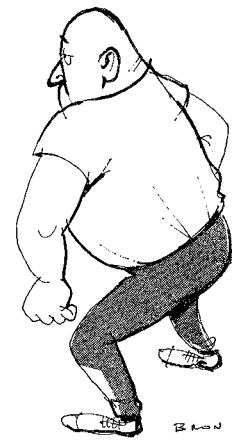
COMPARING JOBS

Once we know what is done, why it is done and by what means, the job under review is compared with other jobs in CERN. We have already established a number of standard job descriptions **('Evaluation Guides')** covering similar jobs inside or outside CERN, which serve to facilitate this task. In order to make this comparison as precise as possible, each job reviewed is studied on the basis of **'Evaluation Factors'.** Because there is a wide variety of jobs in CERN, the factors are different for different types of work.

EVALUATION FACTORS

For predominantly **'manual' jobs,** the following factors are taken into consideration :

1. Experience and training: the knowledge and skill necessary for the satisfactory performance of the duties relating to the post.
2. Physical demand : the physical effort which the staff member will be required to make in his work.



Physical demand

3. Mental application : the degree of attention required from the workman in the discharge of his duties.
4. Responsibility for equipment and for the safety of others.
5. Working conditions, which include such elements as noise, odours, temperature, etc., making the work more or less tiring or involving more or less hazard.

The evaluation of **'workshop supervisory' jobs** is based on these three elements :

1. The difficulty of the work done in the workshop : since the grade of a workman depends on the degree of work difficulty, his grading will be one of the elements for evaluating the supervisor's job.
2. The number of trades represented in the workshop.
3. The number of workmen and/or teams supervised.

Predominantly **'non-manual' jobs** are evaluated according to the following factors :

1. Nature and variety of the work : varied work involving certain difficulties should be better paid than simple routine work.
2. Nature of available guide lines for the performance of work : it is clear that an activity where the guide lines are well established involves less responsibility than one for which only very general instructions are given.
3. Nature of supervisory control exercised over the work : all other things being equal, a job which is subject to constant supervision is inferior to that of someone working more independently.

. . . subject to constant supervision

4. Originality : certain jobs call for originality and new ideas from their holders, and this of course is taken into account when making the evaluation.
5. Work relationships : these are professional contacts between one staff member and others, or with bodies outside CERN. These relationships, which may involve committal of CERN to certain action or policy, of course must have a bearing on the job grade.
6. Nature and scope of decisions taken and recommendations made by the staff member : this is self explanatory.
7. Supervision of other people's work : normally the supervisor is better paid than those who are supervised.

. . . certain jobs call for originality

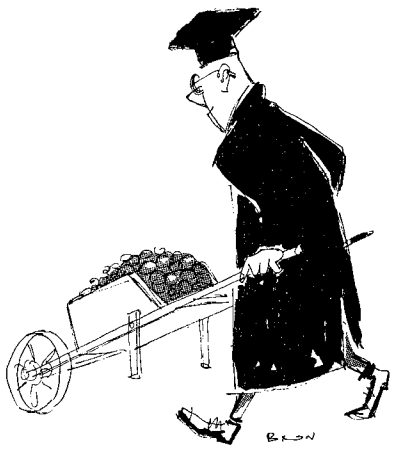
'Research' jobs. We are still at the discussion stage as to what factors could best be used in evaluating the jobs of physicists and engineers on research assignments.

EXCLUSIONS

The above factors in evaluation are usually accepted as reasonable. On the other hand, there are some factors which are often considered to have an influence on the grade, whereas reflection shows that this should not be so. Among the latter the most typical are :

1. Seniority. Often a staff member thinks that he should be promoted because he has been in the same grade for several years. If his duties have not changed, if his work is the same, and if we want to abide by the principle of equal pay for equal work, there is no reason to change his grade. It is to reward long and satisfactory service that there are salary steps within each grade.
2. Age. One often hears : 'X is so much older than the rest of the group'. However, if X is doing the same work as his younger colleagues he cannot be promoted merely for reasons of age.
3. Quality and quantity of work. Of two people with the same functions, one may work very well and the other less well. Nevertheless, they have the same grade because the job is the same. However, there are rewards for outstanding staff members — Exceptional Performance Awards — and sanctions against poor performers, such as witholding the Annual Increment.
4. Special qualifications. The principle of equal pay for equal work means that staff members are graded for what they do and not for what they are capable of doing. Therefore, if a person is 'overqualified' for his job, raising him one or two grades (which would arouse the indignation of his colleagues, and justifiably so) would be no solution ; he should be found another post more in keeping with his qualifications.

Seniority



. . . for what they do and not for what they are capable of doing

We have thus briefly outlined what enters and what does not enter into the evaluation of a job. We have seen that job evaluation can ensure that staff members with equivalent responsibilities and doing work involving comparable difficulties have comparable grades. There is nothing mysterious about Job Evaluation ; it has only one purpose : to assign grades in fairness. If this result is achieved, if everyone knows why and how his grade was determined, the essential source of labour conflicts is eliminated and everyone can concentrate on his work, for his own benefit and that of CERN ●

Royal Interest in CERN

On Thursday 24 May CERN was honoured by the visit of H. M. Baudouin I, King of the Belgians. Since this was a private occasion, rather than an official visit, not many people had more than a few hours notice, and the King was able to see the Laboratory in its normal working state.

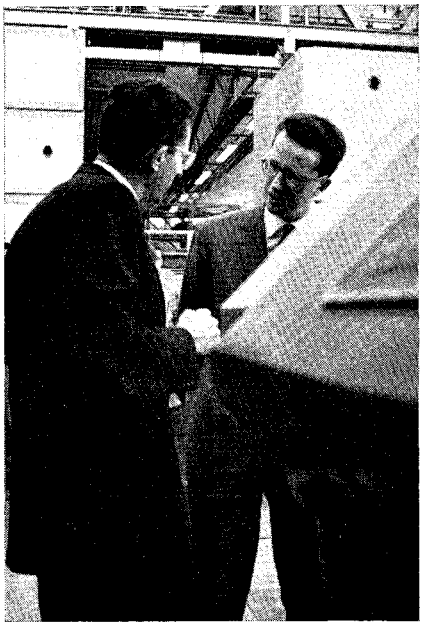
King Baudouin arrived at Cointrin airport just before mid-day, and was welcomed by Mr. Jean Willems, President of the CERN Council, and Mr. André Ruffieux, Conseiller d'État of the Republic and Canton of Geneva. Also present were Mr. R. Aman, Ministre du Protocole of the Swiss Confederation, Mr. E. Lotz, Belgian Consul General, and Mr. J. P. Galland, Chancelier d'État of Geneva.

From the airport the King, who was accompanied by Lt. Col. de Saint-Hubert, Officier d'Ordonnance, was driven to the Hôtel des Bergues, where a lunch in his honour had been arranged by the President of the Council. The guests included Prof. Weisskopf (Director-General of CERN) with Prof. G. Bernardini, Dr. M. G. N. Hine and Mr. S. A. ff. Dakin (Members of the Directorate), Prof. E. Amaldi and Dr. J. H. Bannier (Vice-presidents of the Council), Prof. G. Funke (President of the Finance Committee), Prof. P. Capron (Belgian delegate on the Finance Committee), and four Belgian members of the senior staff : Léon Van Hove, Pierre Germain, Yves Goldschmidt-Clermont and André Verheyden.

The visit to CERN began at the entrance to the proton-synchrotron (PS) building, at 3 p.m., where the King, accompanied by Mr. Willems and Lt. Col. de Saint-Hubert, was officially welcomed by Professor Weisskopf. Also there were M. G. N. Hine (Directorate Member for Applied Physics), L. Van Hove (Leader of the Theory Division) and R. Anthoine (Head of Public Information), who were to guide the party on

1

On the gallery of the PS South hall, King Baudouin verifies a point with P. Germain . . .



2

. . . and on the floor, discusses with him the functions of a quadrupole magnet.

3

With F. Pénet, the King inspects photos from the 81-cm hydrogen bubble chamber (l. to r. in the background : P. Germain, J. Willems, Lt. Col. de Saint-Hubert, M. G. N. Hine).

Outside the SC Machine h the King's dosimeter, just (in white coat), to ensure at zero . . .

Visit of H.M. Baudoin I, King of the Belgians, on 24 May

its tour of the Laboratory, and P. Germain (Leader of the PS Machine Division).

First stop was the PS control room, where P. Germain described the operation of the machine and explained the workings of one of the target heads normally used for the production of external secondary particles from the internal proton beam. Here too, to conform to the radiation-safety regulations, the King and all the other visitors were issued with their 'film badges', which would give a record of any small amounts of nuclear radiation that might be encountered. Passing from the control room to the adjoining counting rooms, the King was able to see some of the highly complex electronic equipment used for obtaining and recording experimental results from arrays of particle counters, and afterwards to get a general view of the South experimental hall from the gallery. The party then descended for a closer look at some of the electronic detection apparatus on the floor of the hall, and to see the various items of equipment needed to construct secondary-particle beams — magnets, lenses, and the 10-m electrostatic separator in the antiproton beam.

Following the direction of this beam, their route took them to the Saclay 81-cm hydrogen bubble chamber, the operation of which was explained by F. Pénet. The King also saw some photographs of particle tracks made with this apparatus, including the now famous one proving the existence of the anti-xi-minus particle; some time was spent in discussing with F. Pénet and M. G. N. Hine the meaning of the various traces and the utilization of the pictures, of which over 100 000 per week can be obtained.

From near the end of an experiment, back to the beginning: the King was next shown the 500-kV Cockcroft-Walton accelerator and the ion source for producing protons, situated in their Faraday cage at the near end of the linac. Since the visit took place during the shut-down period of the machine, this was easy to arrange, and the party then went to have a look at the ring itself. Time allowed only a small part of its 630-metre circumference to be covered, but the King was visibly impressed by what he could see: a few of the 100 guiding magnets, the small size of the evacuated tube in which the protons are accelerated, the inflector system for guiding the particles from the linac into the ring, and one of the sixteen radio-frequency accelerating cavities. After crossing the ring, the party walked along one of the radial tunnels to see the radiofrequency control room in the centre.

The next stop on the visit was the East experimental area, where the sun obligingly shone for a few minutes while the plans for increasing the experimental usefulness of the PS were described. Prof. Ch. Peyrou (Leader of the Track Chambers Division) then led the way to the East bubble-chamber building to explain the design of the two hydrogen bubble chambers now under construction there — the 2-metre one designed at CERN and the 1.5-metre British National Chamber.

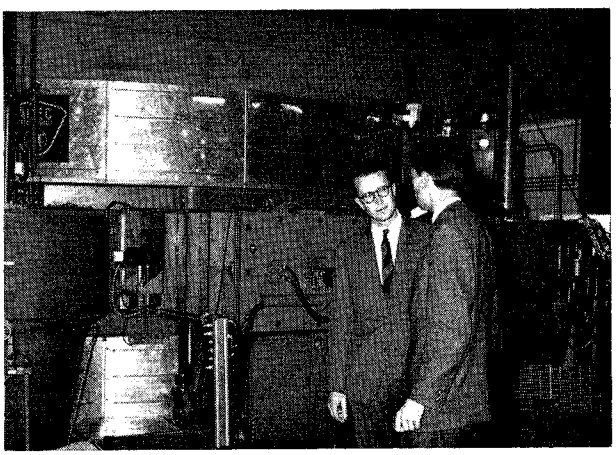
Throughout the visit there was a tendency for little knots of people to gather at a discrete distance, and one or two who came closer found themselves honoured — and sometimes rather embarassed — by a handshake and brief conversation. None were more surprised, though, than the workmen from outside contractors who became involved in the visit in the East building, and 24 May will certainly be a day to remember for the three Belgians from ACEC, their work on the 2-m chamber temporarily interrupted, who found themselves talking to their King.

Leaving the vastness of the PS and its accoutrements for the more acceptable size of the synchro-cyclotron, the King was met at the outer entrance to the 'proton room' by P. Lapostolle (Director of the MSC Division).

4

ll, P. Lapostolle checks
eceived from R. Deltenre
that it is correctly set

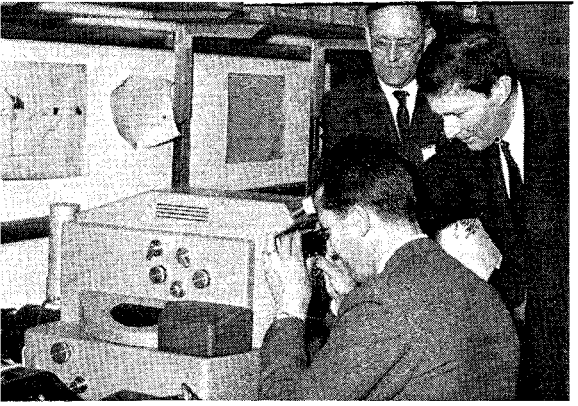
5



. . . and inside, they discuss the machine, the coils for which were manufactured in Belgium.

6

Explaining the operation of his experiment in one of the SC counting rooms, L. Dick makes a quick check of the oscilloscope trace before letting the King see for himself. Behind is L. Feuvrais.

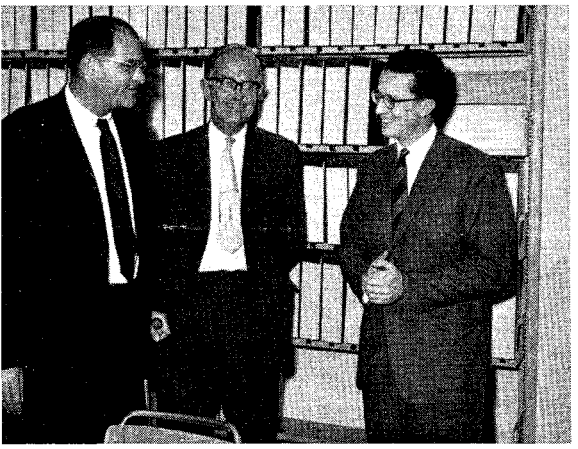


This time a microscope: G. Vanderhaeghe assists with the adjustment, while M. G. N. Hine looks on. King Baudouin examines the tracks of elementary particles in a photographic emulsion.

7

From 'DD' to 'ADM'. Entering the Administration Building with the King can be seen, left to right, M. G. N. Hine, J. Willems, L. Van Hove, and R. Anthoine, with other members of the party less visible.

8



In the Pauli Library, Professor Weisskopf and S. A. ff. Dakin hear some impressions of the tour . . .

9

. . . and the King then meets the Belgian members of CERN: extreme left, A. Verheyden, then to the right J. Dewin, V. van den Berghe, F. Revelard, F. Spyse (half hidden), E. Alleyn, F. Derome, J. Berbiers, J. Halon, G. Vanderhaeghe.

10

Final surprise: after signing the visitors' book King Baudouin is presented with a set of photographs of CERN, including some taken during his visit. Mr. J. Willems looks on as Mme S. Tissot and R. Anthoine open the folder.

After viewing the experimental equipment set up for the proton beam, the party passed to the 200-ton sliding concrete door that normally bars the way to the machine hall itself. For the moment the accelerator was stopped, permitting them to go inside, but not before the King, like all those with him, had received a pocket dosimeter and deposited his wrist watch outside — the first (supplementing the film badge) to record immediately any radiation that he might receive from residual radioactivity in the machine, the second because the accelerator's powerful electromagnet could not conveniently be switched off.

After a brief look at the cyclotron, the party handed in their dosimeters for checking (nothing worth recording), retrieved their watches from under the watchful eye of the security police, and entered the 'neutron room', where L. Dick explained the purpose of the experiment that had had to be interrupted for a while. Then, after passing through the control room, where they saw that the beam was again on the target, they were shown the electronic scalers and other apparatus concerned with the experiment in the counting room.

A short visit was then made to the Emulsion Group, where G. Vanderhaeghe gave an account of the technique and the King was able to see for himself the tracks left by high-energy particles in one of the special nuclear photographic emulsions.

Going on from microscopes to microprojectors, the King then visited the Data Handling Division. Here he met Y. Goldschmidt-Clermont again, and the Division Leader, L. Kowarski, and was introduced to the mysteries of the Iep (instrument for the evaluation of photographs) as well as to the more simple, but still impressive, scanning table.

To complete his brief, though comprehensive, look at the life of CERN, the King spent a few minutes at the back of the main auditorium during the Thursday-afternoon Seminar, listening to D. Amati talking on 'properties of high-energy collisions'.

Finally he was met again by Professor Weisskopf and S. A. ff. Dakin (Directorate Member for Administration) in the Pauli Library, where he signed the visitors' book. Here also the formal presentation was made of the 49 Belgians at present on the CERN staff, some of whom he had already talked with en route.

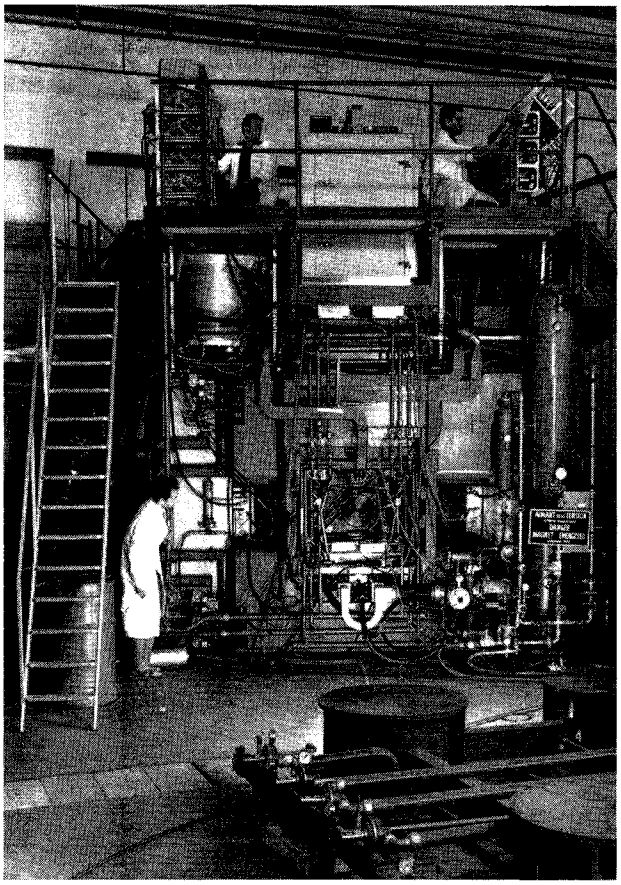
Soon after 5.30 p.m. the visit was over and King Baudouin left again for the Airport, where he was seen off for Belgium by the President of the Council ●

Last month at CERN (cont.)

Prof. **Anthony Turkevich,** one of CERN's Visiting Scientists sponsored by the U.S. National Science Foundation, travelled to Washington at the end of April to receive an **E. O. Lawrence Memorial Award** for 1962. These Awards, established in 1959, are given annually by the U.S. Atomic Energy Commission to five people of age 45 or less, in recognition of 'meritorious contributions to the development, use, or control of atomic energy'. Each award consists of a medal, citation, and cheque.

The award was made to Prof. Turkevich, who comes from the University of Chicago, 'for outstanding contributions to radiochemistry in activation analysis, to analysis of intranuclear cascades, and to the utilization of radiochemical techniques throughout atomic energy'. The other recipients this year were : A. A. Benson, R. P. Feynman, H. Goldstein, and H. F. York.

In preparation for the 21st Session of Council, held on 13 June, the **Committee of Council** met on 23 May and the **Finance Committee** on 24 May ●



The CERN/ETH Cloud Chamber is now steadily accumulating photographs (one every five minutes during operating periods) for the study of the decay of K^0_2 particles. At the controls in this picture, are A. Dalluge (left) **and G. Chil, while R. Pegaitaz makes an inspection below. In the foreground is the air platform which is placed underneath to 'float' the chamber during final alignment.**

Dr. Hartland Snyder

At the end of last month the very sad news reached us that Dr. Hartland Snyder had died. To us in CERN, Snyder's name is for ever tied to the discovery of the alternating-gradient focusing principle. He shared the honour of this discovery with his colleagues Dr. E.D. Courant and Dr. M.S. Livingston, and with Dr. N.C. Christofilos. Everybody knows what this has meant to CERN. We can only remind ourselves that we were planning a 10-GeV weak-focused synchrotron, a machine at least as expensive and more difficult to make than the PS, when in 1952 we learnt about the elegant new ideas from Brookhaven. This changed the CERN plans entirely, and perhaps also the CERN spirit, as we got a very much more exciting project to concentrate on.

Snyder's role in this development can hardly be overestimated. Not only did he take part in the discovery of the new principle, but he followed it up continously with enthusiasm, optimism and new ideas, while attached to the AGS project in Brookhaven during its entire period of construction.

He also coloured other projects. He spent considerable time and effort on the electron-synchrotron project at Cambridge, Mass., and when he died he was at the centre of the planning of much larger synchrotrons at Berkeley, where he was a visitor on leave from Brookhaven. We in CERN were hoping to see him here in a few weeks time, and we have learned from Fritz Grütter how much he was looking forward to his visit, which he had not been able to make before.

Although Snyder's main contributions lie in the field of accelerator physics he had in fact, as a theoretical physicist, a much wider field of interest and ability, and influenced in a wide sense the physics programmes in the laboratories to which he was attached.

Snyder died young, he was only 49, and untimely. We still expected great contributions from him. There is hardly a day that his name does not come up in some connexion or other. 'Snyder said so and so' is a very common phrase. His statements were sometimes controversial, but always to the point and always inspiring. Our Organization and many of its staff have lost a good friend.

K. Johnsen

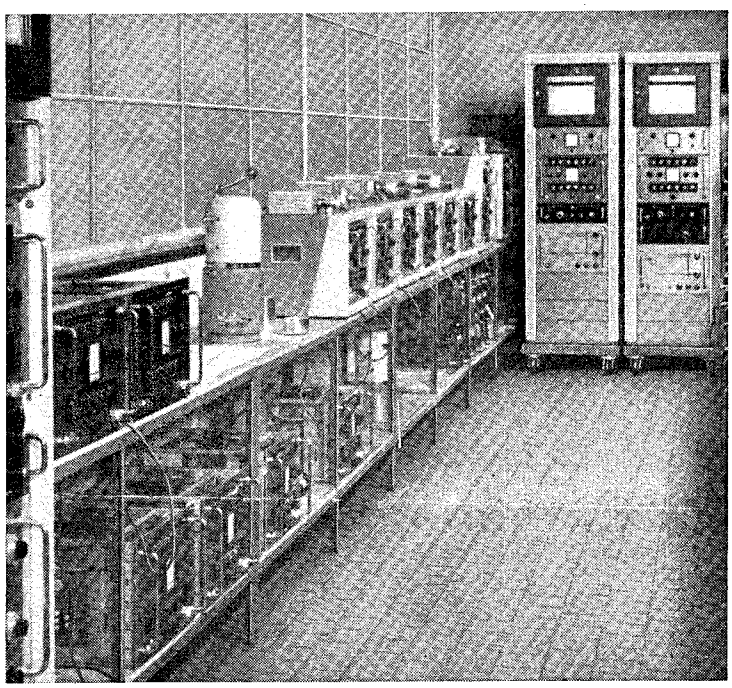
ACEC

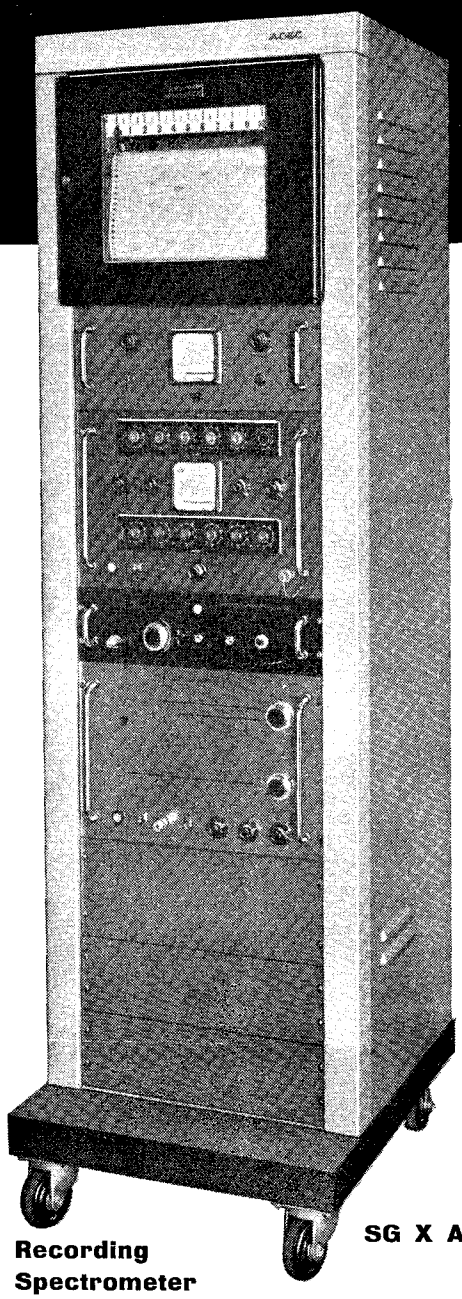
NUCLEAR EQUIPMENT

A complete range of nuclear instrumentation from control reactor equipment

to high precision standard laboratory instruments

200 hours testing before delivery assure the perfect reliability of ACEC instruments





SG X A2

Recording Spectrometer

- Input resolution time lower than 0,6 Microsecond makes possible spectrum recording at counting rate up to 100.000 counts/sec.
- Gain of 1.000.000 with PAL 300 preamplifier and ALA 100 linear amplifier pulse analyser, allows the use of semi-conductor nuclear detectors and X-ray proportional counter in the range of 1-10kV energy.
- Gain stability better than 0,1 % a day.
- Automatic scaler DM 160 for accurate quantitative analysis by counting ; high voltage supply incorporated and stabilized at + 0,1‰
- Precision large range linear ratemeter for counting rate measurements up to 100.000 counts/sec.
- Motorized helipot potentiometers with three speeds selected by means of a gear drive accessible from the front panel.

and also :

- Automatic counting systems including a "unique universal" sample changer for ordinary and well crystals, printing timer.
- Linear, logarithmic recording gamma and X-ray spectrometer, stepwise scanning spectrometer.
- Typical instrumentation for each radioisotope application in clinical medecine.
- Explosion proof gamma density gauge and other equipment for industrial applications.
- Complete monitoring installations for reactor and radiochemical laboratories.
- Nuclear control systems for reactors.

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