People and things

At a special ceremony at Brookhaven to honour his distinguished career in physics, Maurice Goldhaber (right), receives a Festschrift from Gerald Feinberg of Columbia University.

(Photo Brookhaven)

New CERN Directorate Members

At a recent CERN Council meeting, Director General designate Herwig Schopper announced further nominations for the CERN Directorate. Erwin Gabathuler, now Leader of CERN's Experimental Physics Division, becomes Director of Research from 1 January 1981. Also appointed Director of Research is Robert Klapisch, now Director of Research at the French Centre National de la Recherche Scientifique, who takes office on 1 July 1981. Director of Administration from 1 February 1981 is Rudolf Heyn, presently Director, Physical and Life Sciences, Netherlands Ministry of Education and Science. Earlier this year, Giorgio Brianti was named as Technical Director, and Emilio Picasso as eventual LEP Project Leader.

Festschrift for Maurice Goldhaber

Over 300 of Maurice Goldhaber's friends and colleagues from around the world gathered at Brookhaven on 3 October to celebrate the presentation of a Festschrift honouring his distinguished career in physics. Sheldon Glashow of Harvard, Sir Denys Wilkinson of Sussex, Martin Deutsch of MIT, and Robert Marshak of VPI spoke at the afternoon symposium on a broad range of topics which reflected the remarkable span of Goldhaber's scientific accomplishments. Following a reception and dinner, George H. Vineyard, Director of Brookhaven National Laboratory, and Gerald F. Tape, President of Associated Universities Inc. (AUI, which operates the Brookhaven Laboratory), shared their reminiscences with the guests.

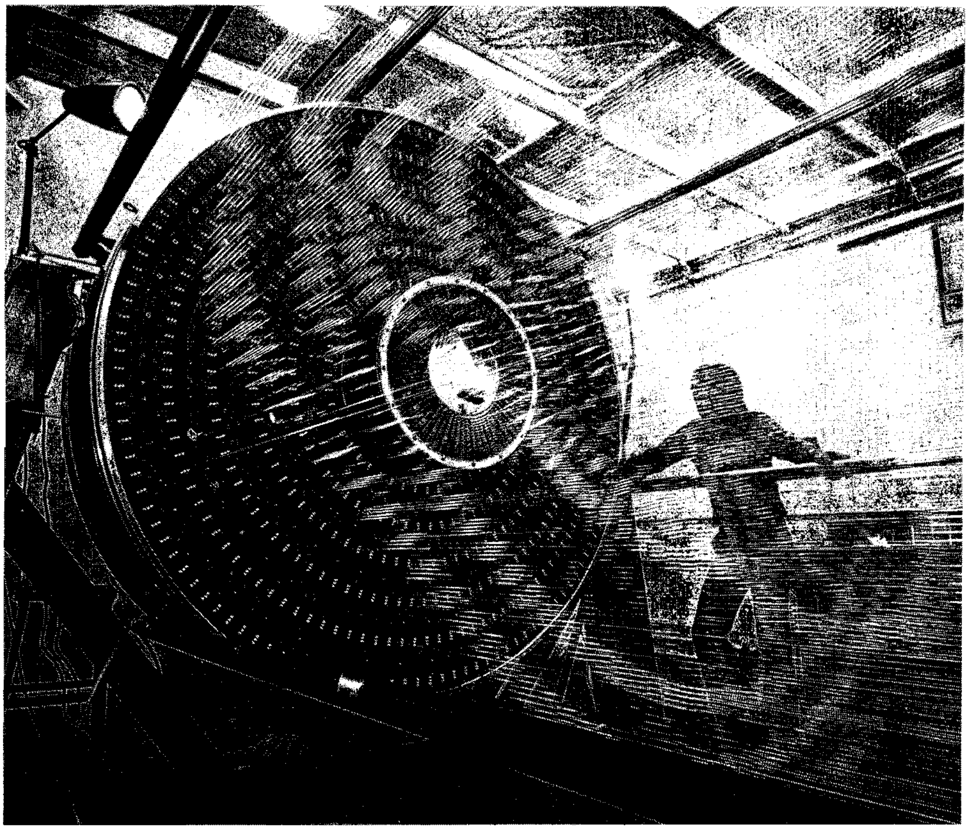
The climax of the evening was a Festschrift presentation by Gerald Feinberg of Columbia University. The articles deal with many areas of physics, including nuclear, particle, and atomic physics, as well as applications of nuclear techniques to medicine. The authors are well-known physicists, including such luminaries as Edward Teller, and Nobel Prizewinners T. D. Lee, C. N. Yang, and Rosalyn Yalow.

Maurice Goldhaber was appointed AUI Distinguished Scientist in 1973, after serving as Brookhaven's Director since 1961. He came to the Laboratory in 1950 as a Senior Scientist, following 12 years at the University of Illinois. Born in Austria, he received his Ph.D. from Cambridge University where he worked with Sir James Chadwick and R. H. Fowler at the Cavendish Laboratory. Dr. Goldhaber has been an adjunct Professor at the Institute for Theoretical Physics, SUNY, Stony Brook, since 1965. He is currently Vice-President Elect of the American Physical Society and will assume the presidency of the Society in 1982.

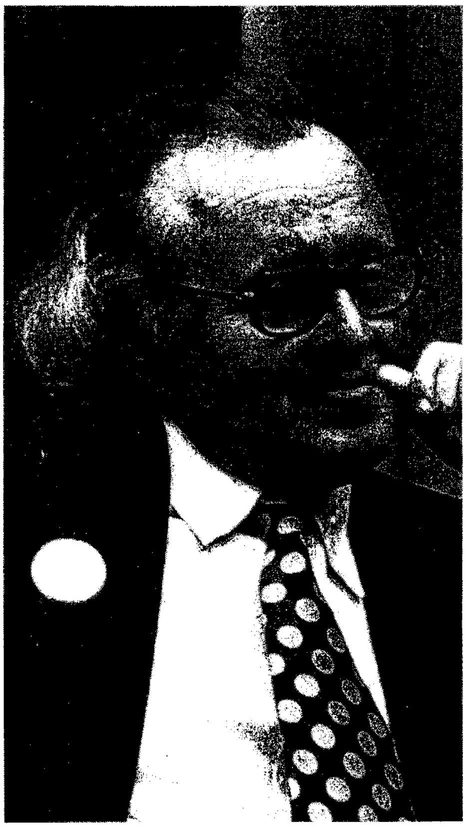
His main research contributions are in the fields of nuclear physics and fundamental particles, and cover experiment, systematics, technique and theory. He has participated in many discoveries, including the nuclear photo-effect, the role of spin in nuclear reactions, slow neutrons (interactions and neutron detectors), the first observations of nuclear disintegrations in photographic emulsions, classification of nuclear isomers, the giant dipole resonance, the helicity of the neutrino, and the suggestion of a hydrogen-neon filling for bubble chambers. Dr. Goldhaber is now engaged in a large-scale search for proton decay with physicists at the University of California at Irvine, and the University of Michigan.

Construction of the drift chamber for the new Mark III detector for the SPEAR ring at SLAC. Mark III will take over the pit vacated by its predecessor, Mark II, after its move from SPEAR to the big PEP ring.

(Photo Joe Faust)



Veniamin Sidorov



The fiftieth birthday of Veniamin Sidorov was celebrated on 19 October. One of the pupils and colleagues of Gersh Budker, Veniamin Sidorov has contributed greatly to the construction of the first colliding beam accelerators at the Novosibirsk Institute of Nuclear Physics and to the experiments carried out with them. His name is associated with pioneer work on quantum electrodynamics tests and on the investigation of vector mesons with colliding beams. He has also led experiments which resulted in the first observation of two-photon production of electron-positron pairs, the discovery of an anomalously high cross-section for electron-positron annihilation into hadrons, a high accuracy test of the equality of electron and positron magnetic moments, a high precision measurement of phi, psi and psi prime meson masses, etc. He has actively participated in the strengthening of Novosibirsk collaboration with CERN, SLAC and other physics centres. All his friends add their warm congratulations and best wishes.

Gerald Tape is retiring as President of Associated Universities Incorporated which operates the Brookhaven Laboratory. He has been associated with the Laboratory throughout its history. He will be succeeded by Robert Hughes.

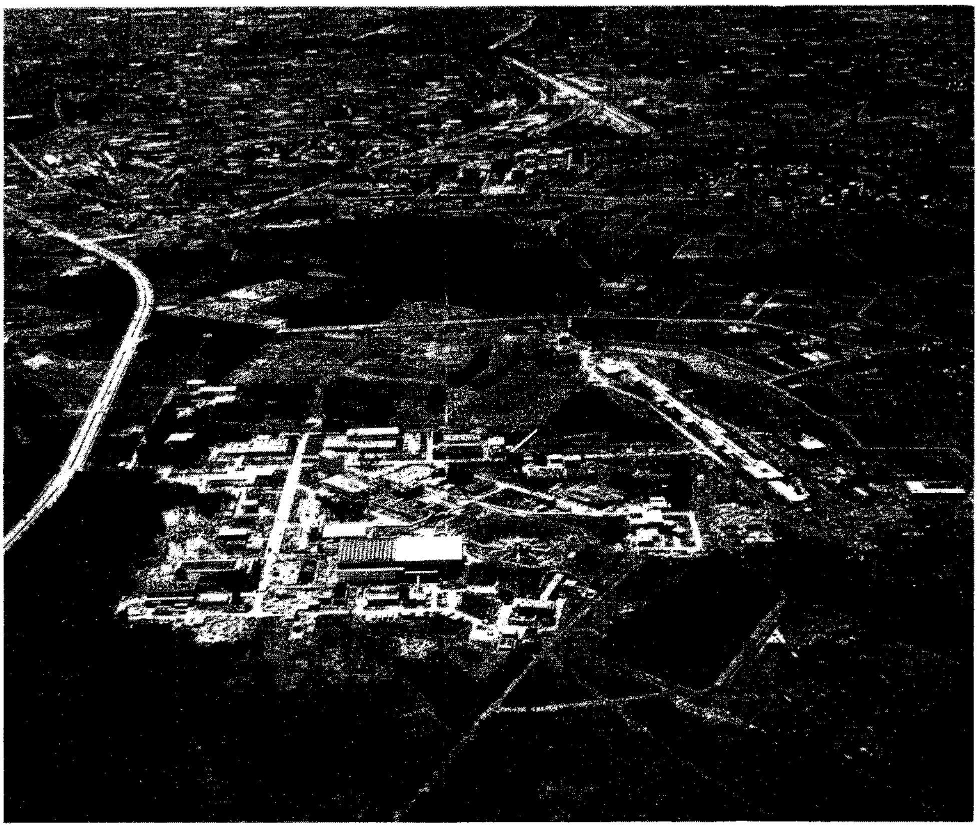
The Canadian Association of Physicists' medal for Achievement in Physics was awarded this year to Bernie Margolis of McGill University, Montreal. He has made important contributions to the theory of coherent and incoherent particle production, to the understanding of the role of vector dominance in photoproduction experiments on nuclear targets and to the statistical bootstrap approach to multiparticle production experiments. In addition he has been a leader in the formation and growth of the particle physics programme in Canada and was the first chairman of the Institute of Particle Physics (IPP).

From field theory to molecular biology

One of the recipients of this year's Nobel Awards, along with particle physicists James Cronin and Val Fitch (see page 391), is Harvard molecular biologist Walter Gilbert. He shares the Chemistry Prize with Frederick Sanger and Paul Berg for work on the chemistry of nucleic acids. Before turning to this line of research, Walter Gilbert was an elementary particle field theorist, and hidden deep in the physics literature can be found among other

A recent aerial view of the Japanese KEK Laboratory. A new feature is the 450 m-long 2.5 GeV electron linac for the Photon Factory, visible on the right. Construction is proceeding according to schedule.

(Photo KEK)



things the Deser-Gilbert-Sudarshan representation as a reminder of those days.

More on the free quark search

While the indirect evidence for quarks accumulates steadily, direct evidence for the existence of free quarks is still scanty. In our report of the recent Madison High Energy Physics Conference (September issue, page 242), we mentioned the searches for free quarks in matter being carried out at Stanford by the group led by William Fairbank, and Genoa by Giacomo Morpurgo. While the Stanford experiment (using niobium) has provided repeated evidence for fractional charges in multiples of one-third of the electronic charge, the Genoa study did not observe any free quark in 3.4 mg of iron, a quantity of matter three times as large as that explored at Stanford.

Morpurgo and his collaborator, M. Marinelli, have observed a continuous distribution of apparent fractional charges, which they could show was due to the effect of a magneto-electric force acting on the levitated balls used in the experiments. Morpurgo points out that such an effect cannot explain the Stanford results, which so far always indicate charges of one-third, rather than a continuous distribution.

Microprocessor Conference

From 4-6 May 1981 a Topical Conference on the Application of Microprocessors to High Energy Physics will be held at CERN. Its aim is to survey the use of programmable devices, especially microprocessors, which enhance the quality and integrity of recorded data from present and future high energy physics experiments, including triggering, event filtering, data compaction, equipment calibration and monitoring. Further information can be obtained from Mrs. Terry Jones, CERN 1211 Geneva 23, Switzerland. The deadline for the submission of abstracts is 31 December.

ZING bows out

The ZING-P' pulsed neutron facility at Argonne was closed down in August. It has done some important pioneering work for the coming first generation of accelerators as neutron sources. It will be succeeded by the Intense Pulsed Neutron Source (IPNS-1) which is scheduled to come into action at Argonne in April 1981.

HERA meeting

After the meeting at the Max Planck Institute in Munich on 24 and 25 October, there was no doubt that the high energy physics community fully supports ECFA's recommendation that two big accelerators should be constructed in Europe (see July/August issue, page 192). Besides LEP (which has priority), the necessity of an electron-proton machine, sited at DESY, was stressed by the 180 participants. In an eloquent introduction, Haim Harari explained the need for electron-proton experiments to complement electron-positron and proton-antiproton studies. Active collaboration was assured by many Laboratories. Saclay is already participating in the construction of prototype superconducting magnets which could be used for HERA. A technical proposal meeting at DESY is scheduled for 2 and 3 December.

At the Munich meeting on the proposed HERA electron-proton machine for DESY: Haim Harari 'conducting' a talk on the need for electron-proton experiments.

(Photo Horst Laskus, MPI Munich)

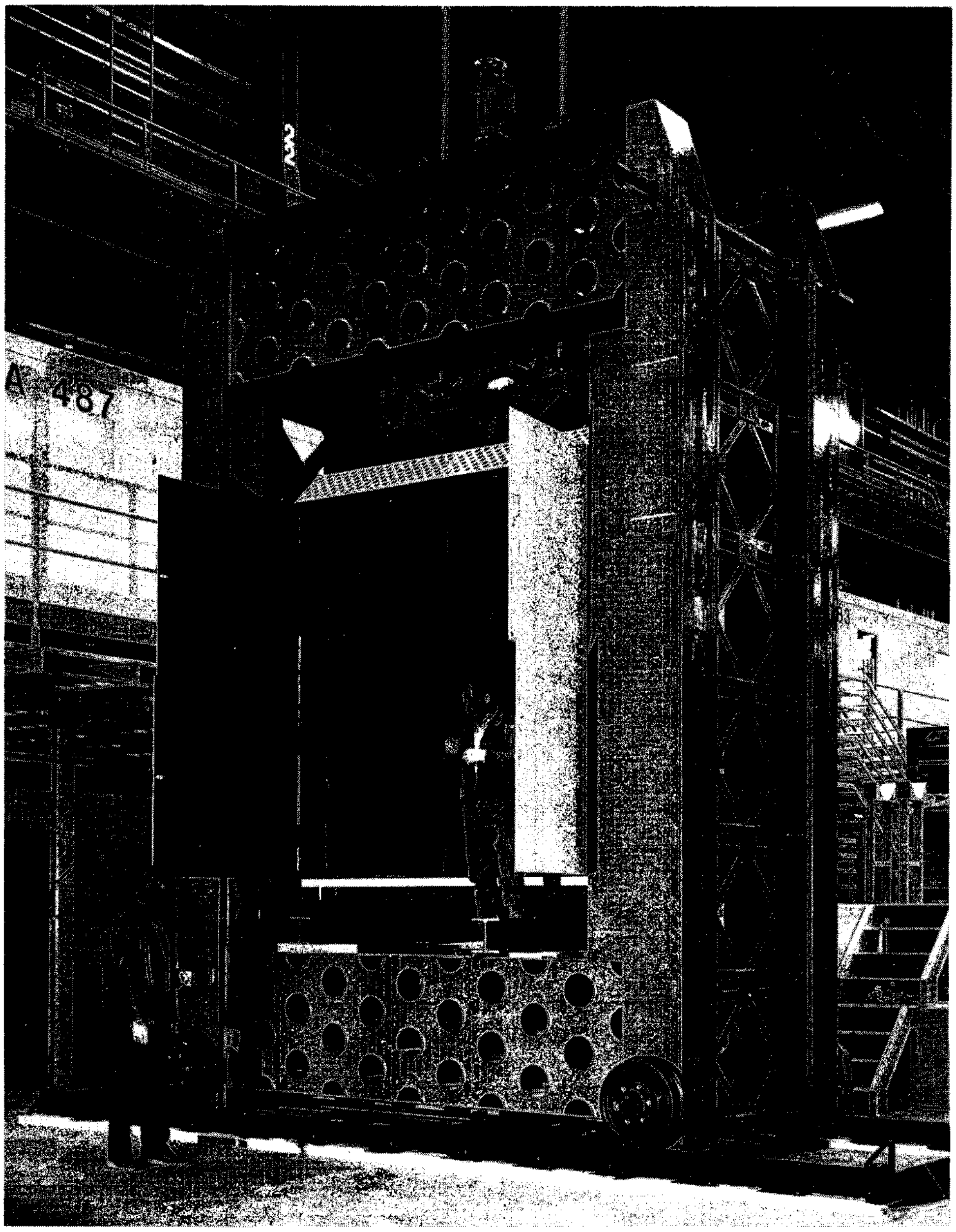
First electron cooling at Fermilab

On 17 October, for the first time at Fermilab, a 'hot' proton beam was cooled by a beam of electrons. The experiment was carried out at a proton energy of 115 MeV, the highest energy electron cooling achieved anywhere, and is a significant achievement on the way to the storage of antiprotons and proton-antiproton colliding beams.

The 115 MeV protons were cooled using a 62 keV electron beam, operating from 2 to 5 A. After optimization, in several seconds the proton beam was cooled by a factor of 50 in momentum spread, and a factor of five in transverse size. The cooled proton beam has been rapidly accelerated and decelerated without loss across the cooling ring aperture. This is essential if successive cycles of antiproton production are to be accumulated in the Fermilab antiproton source.

The 200 MeV cooling ring, located just west of the Booster, has two long straight sections – the east one containing equipment used principally for stochastic cooling, and the west one containing the electron beam for electron cooling.

The colliding beam development programme involves a Fermilab/Berkeley/Argonne/Wisconsin/Novosibirsk collaboration. Electron cooling was first demonstrated experimentally at Novosibirsk in 1976, and was studied in the energy range 1.5 to 100 MeV, with a current of up to one ampere. Then about a year ago, electron cooling was

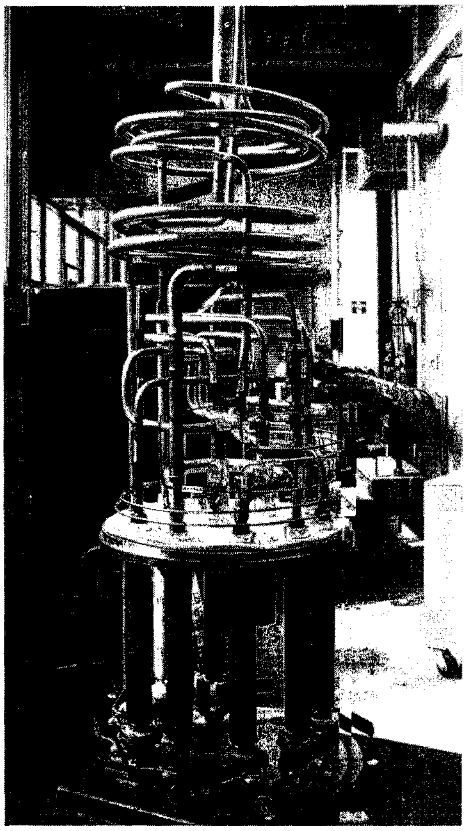


Recently arrived in the North Experimental Area of the CERN SPS is the 31–ton GAMS electromagnetic shower counter built at Serpukhov for an experiment by a Soviet/Belgian/French collaboration.

(Photo CERN 543.10.1980)

Inside of the valve box for a Fermilab satellite refrigerator, looking like the work of a bugle maker gone mad. Complex plumbing connects a satellite refrigerator into the main ring.

(Photo Fermilab)



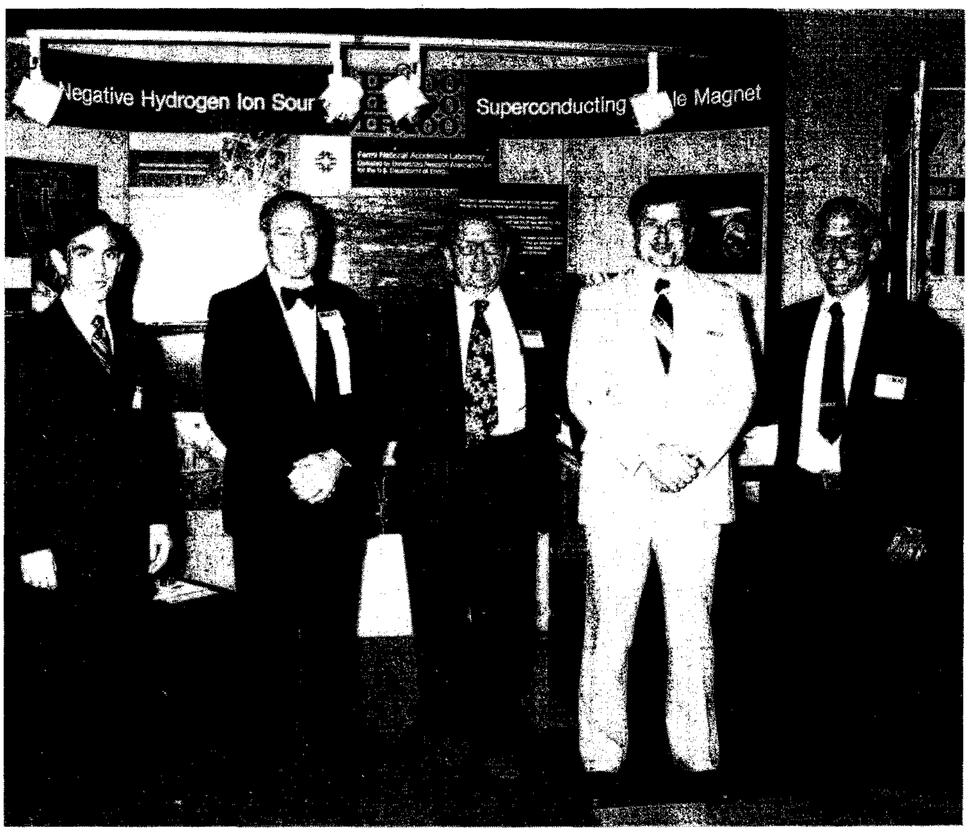
achieved at CERN at a proton energy of 50 MeV (see October 1979 issue, page 309).

The Fermilab system has higher energy and a greater electron current capability (up to 7 A). In achieving cooling under these new conditions, new space charge problems were encountered that were not seen in the earlier experiments.

Keeping cool

In September, two more significant milestones were passed at Fermilab in providing the massive liquid helium temperature refrigeration for the Energy Doubler/Saver. The heart of the cryogenic system is a central helium liquefier, operated for the first time on 18 April, together with 24 1000 W satellite refrigerators positioned every 300 m around the ring.

Last month the fourth and final A-sector satellite was moved into position. The 11 m-long horizontal exchangers are adjacent to the refrigerator building. An important simulation test was also carried out using a 300 m section of the helium transfer line which will carry liquid helium from the Central Helium Liquefier to the satellites. The most recent test used a satellite refrigerator at A-1 operating as a helium liquefier supplying 100 l/hour of liquid helium through the 300 m transfer line to the A-2 satellite refrigerator. This was operating in the final satellite mode with its load of 40 superconducting magnets in the main ring tunnel. The successful test simulated the running conditions of the Tevatron.



Fermilab's energy saver dipole magnet and negative hydrogen ion source have been recognized by the magazine 'Industrial Research and Development' as among the 100 most important worldwide technological achievements in 1979, thus qualifying for the I-R 100 Award. Seen here at the presentation ceremony at Chicago's Museum of Science and Industry are, left to right, Chuck Schmidt, Russ Huson, Hank Hinterberger, Karl Koepke and Chuck Marofske.

(Photo Fermilab)

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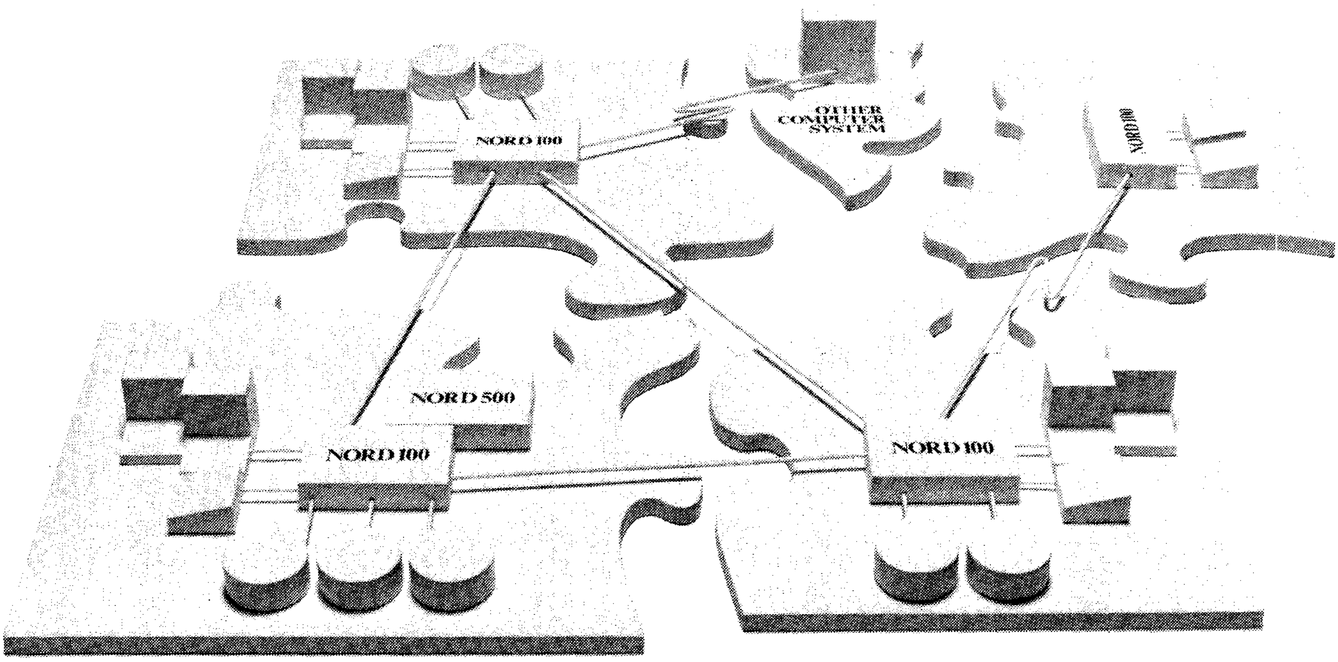

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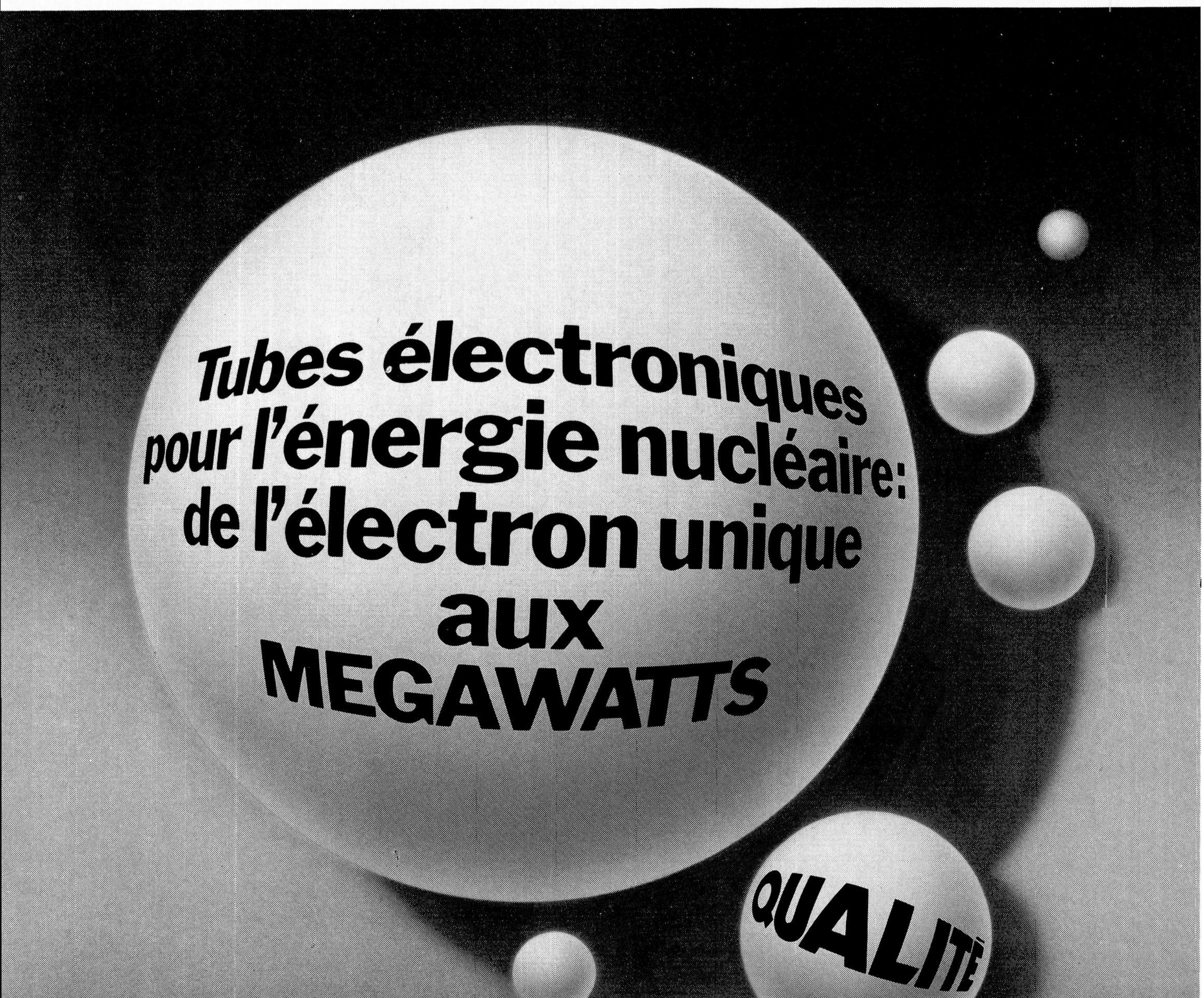
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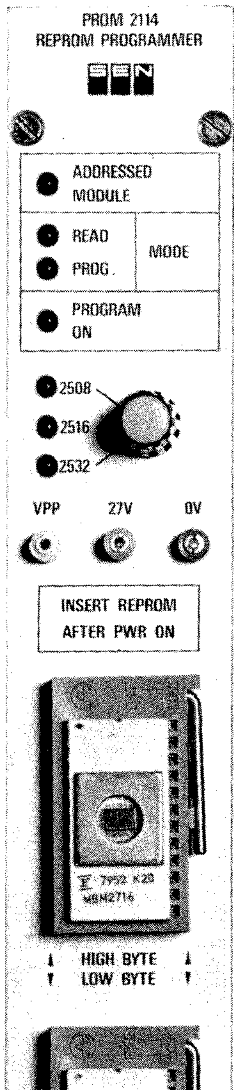

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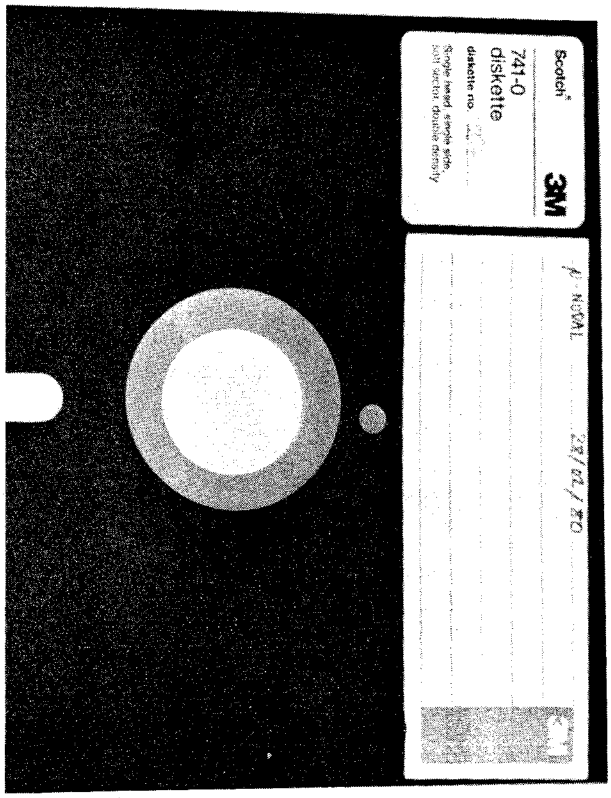

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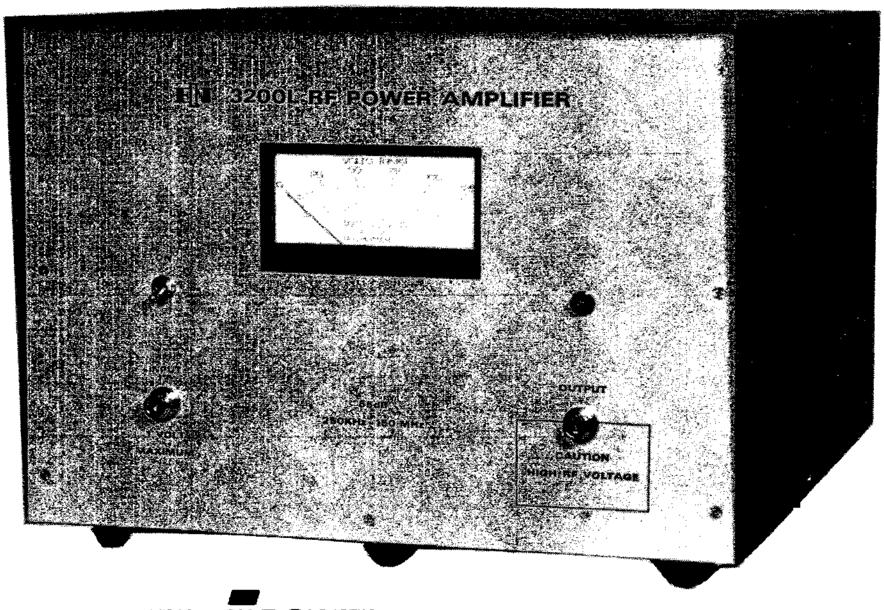

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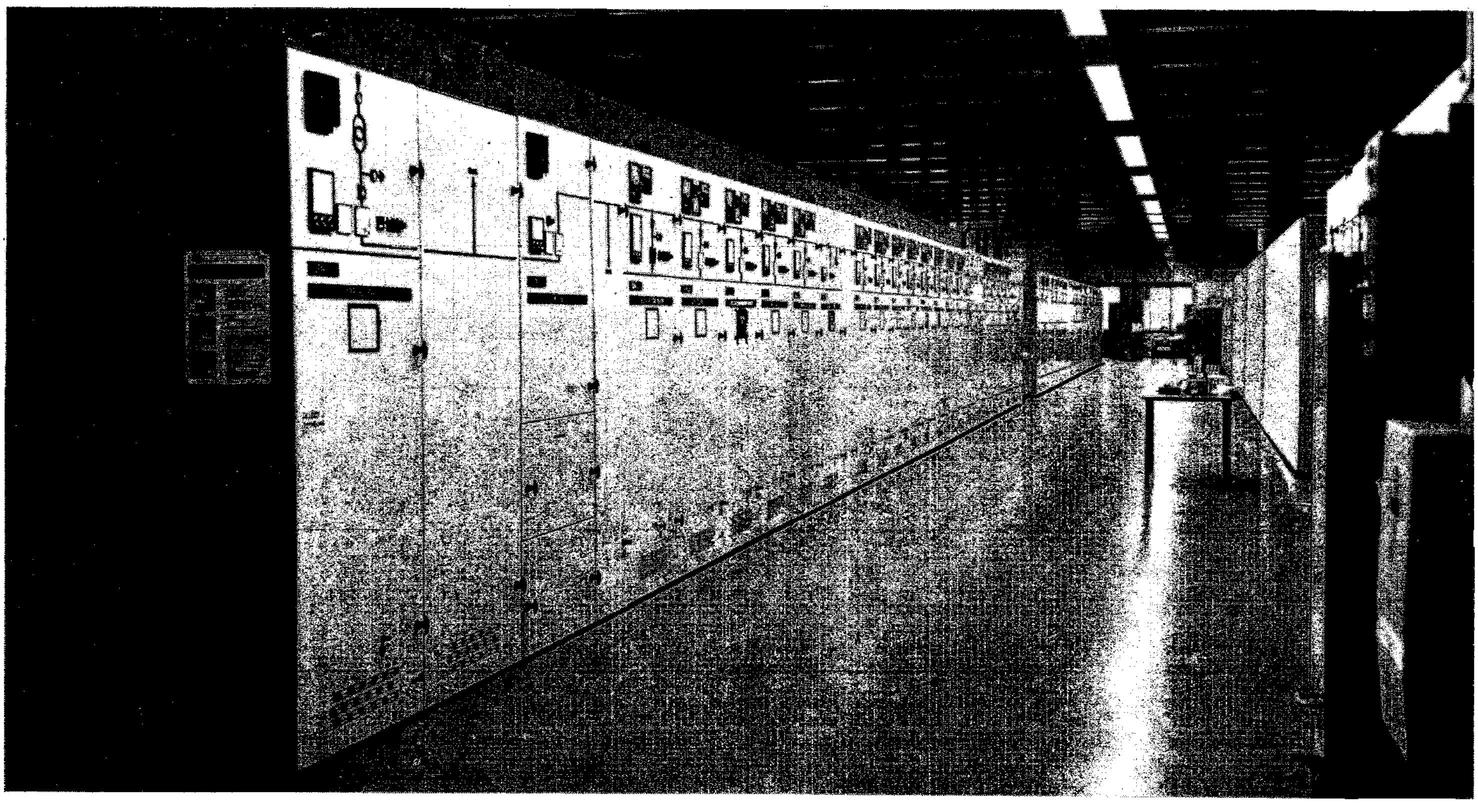

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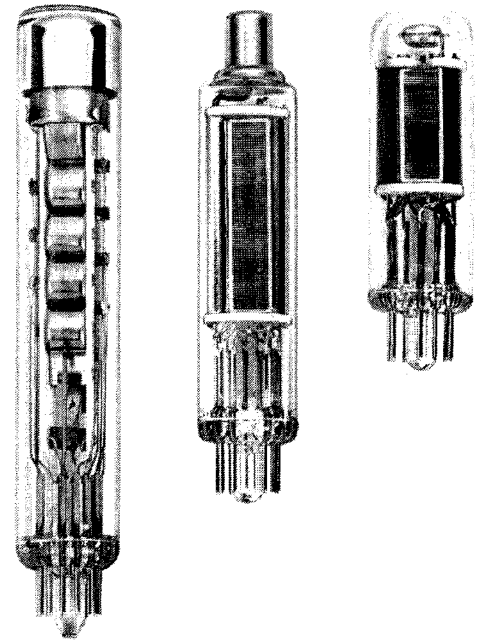

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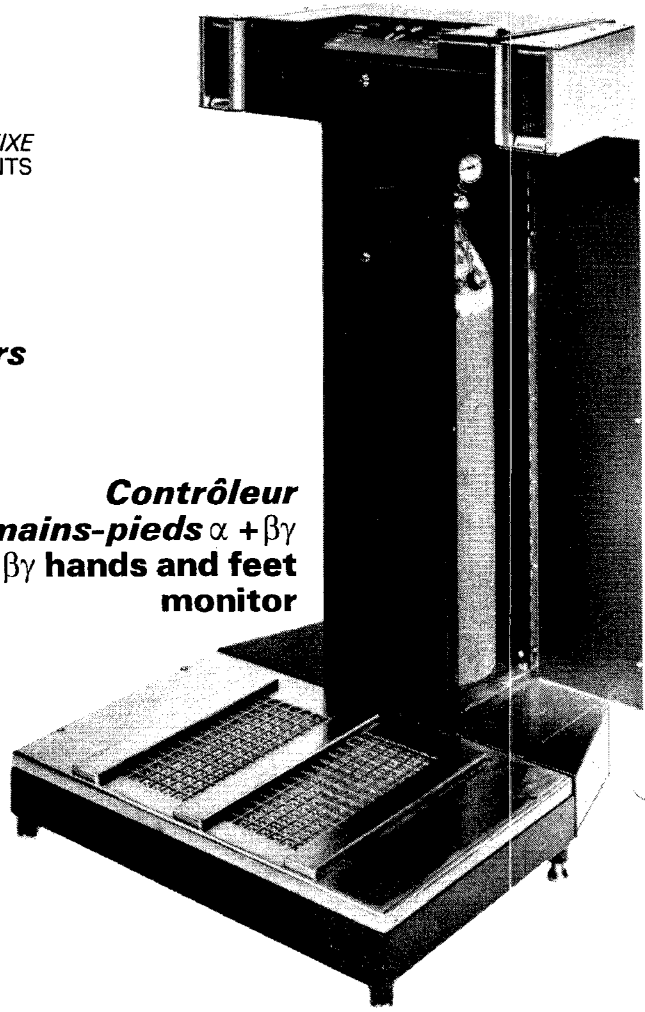

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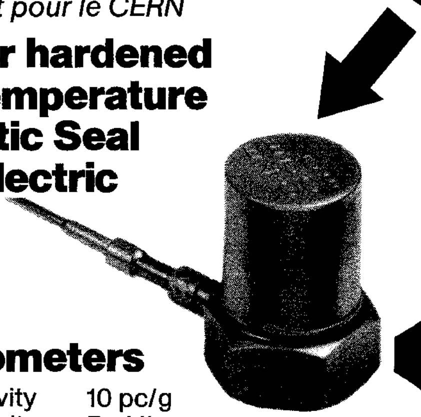

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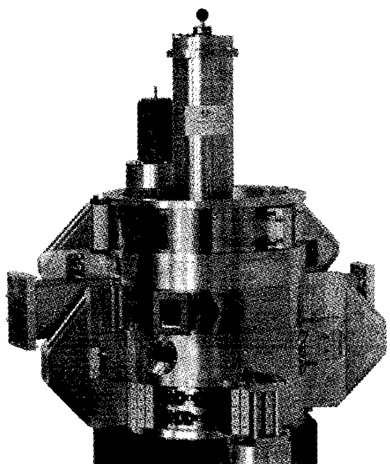

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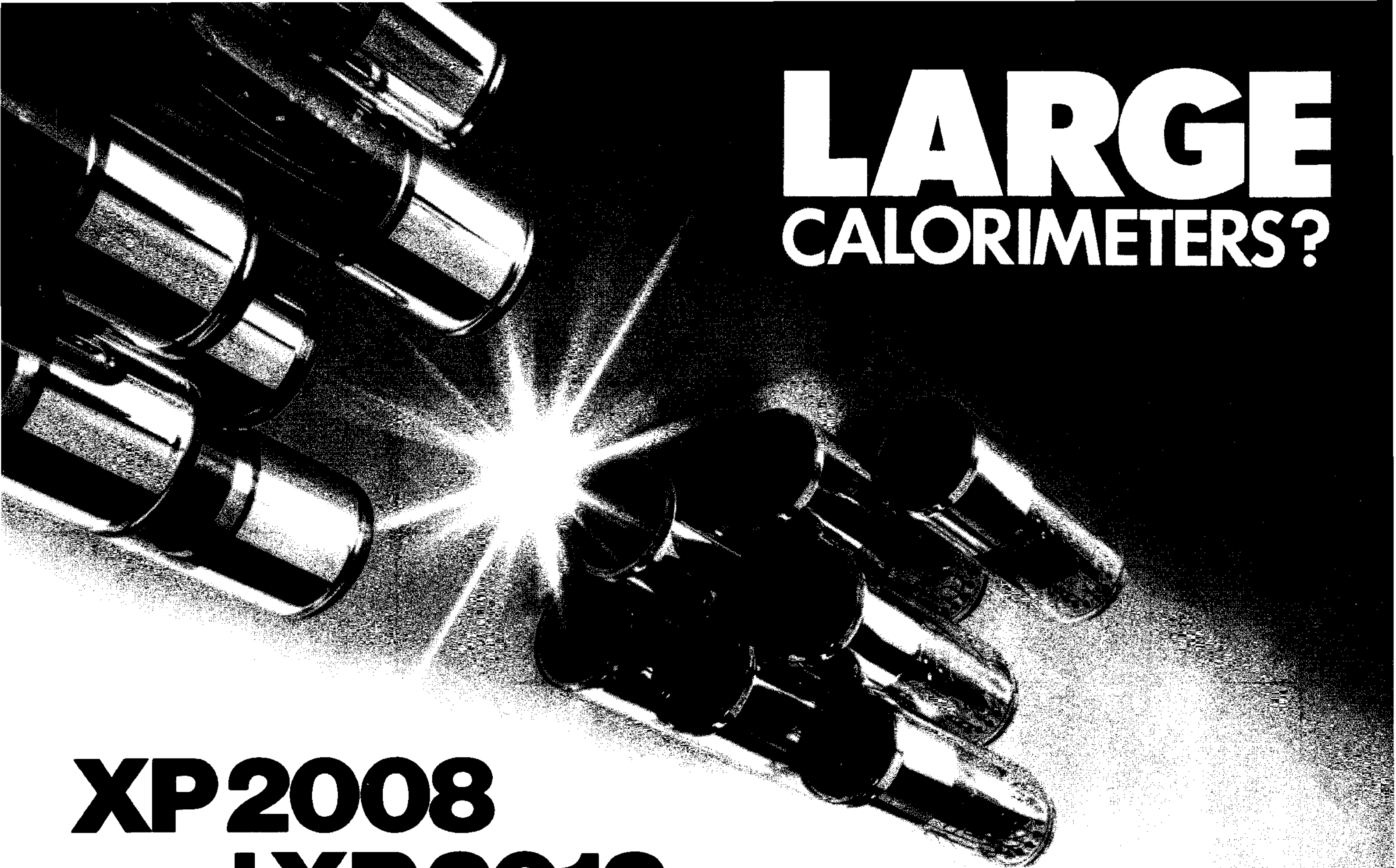

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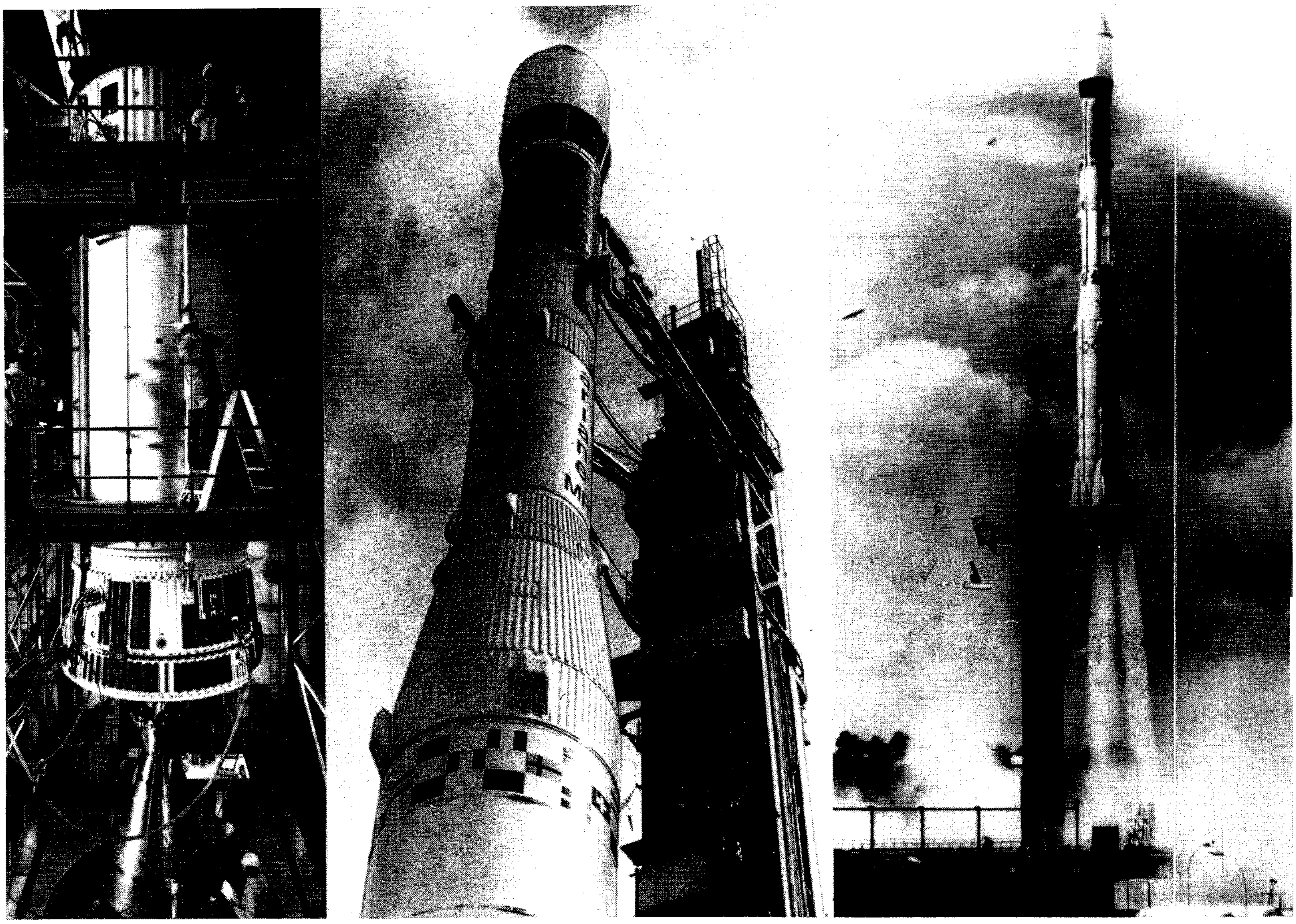
Gases and cryogenics at work



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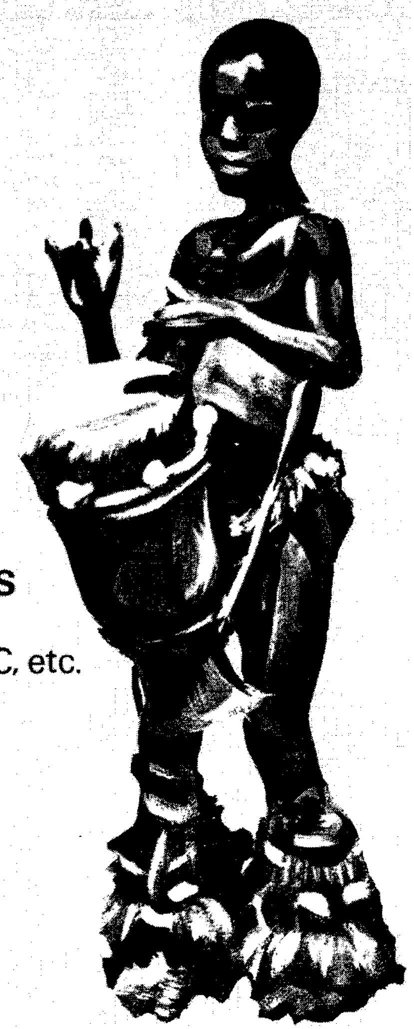

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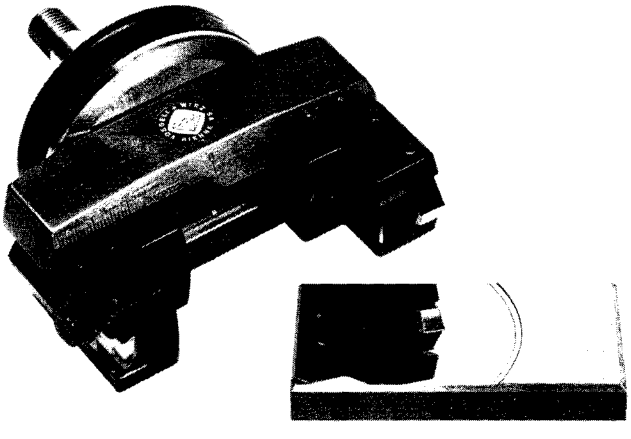

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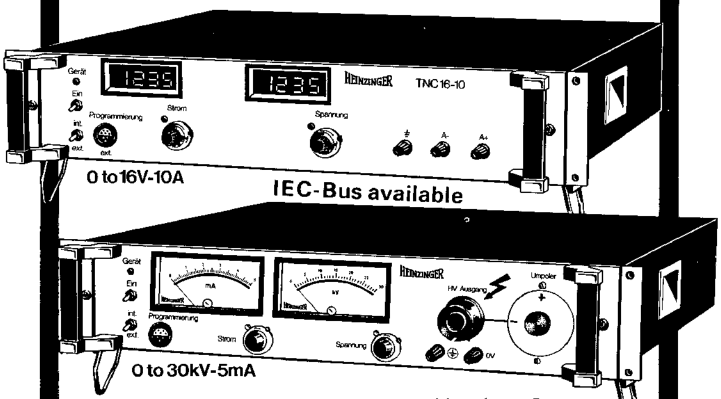

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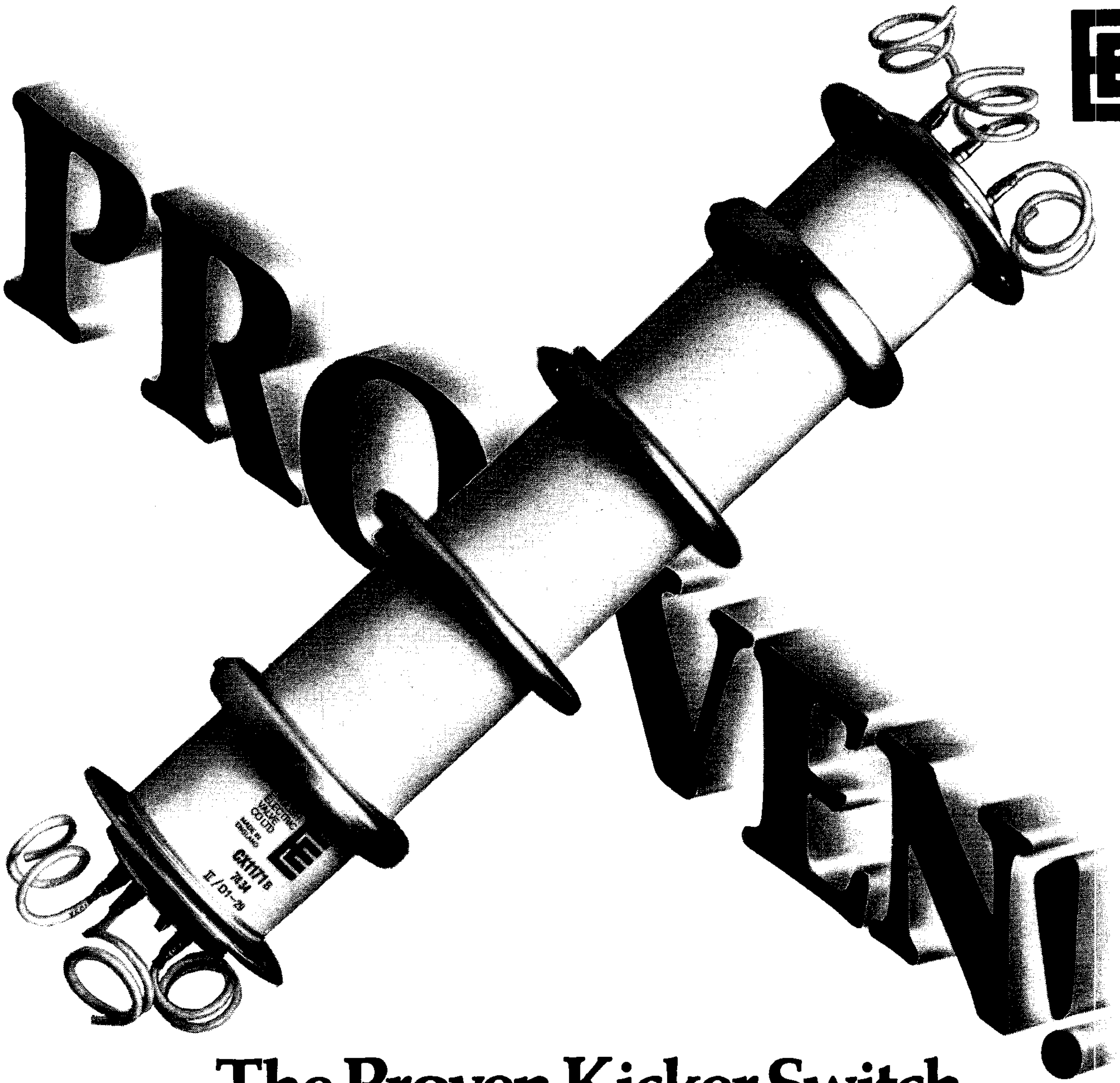

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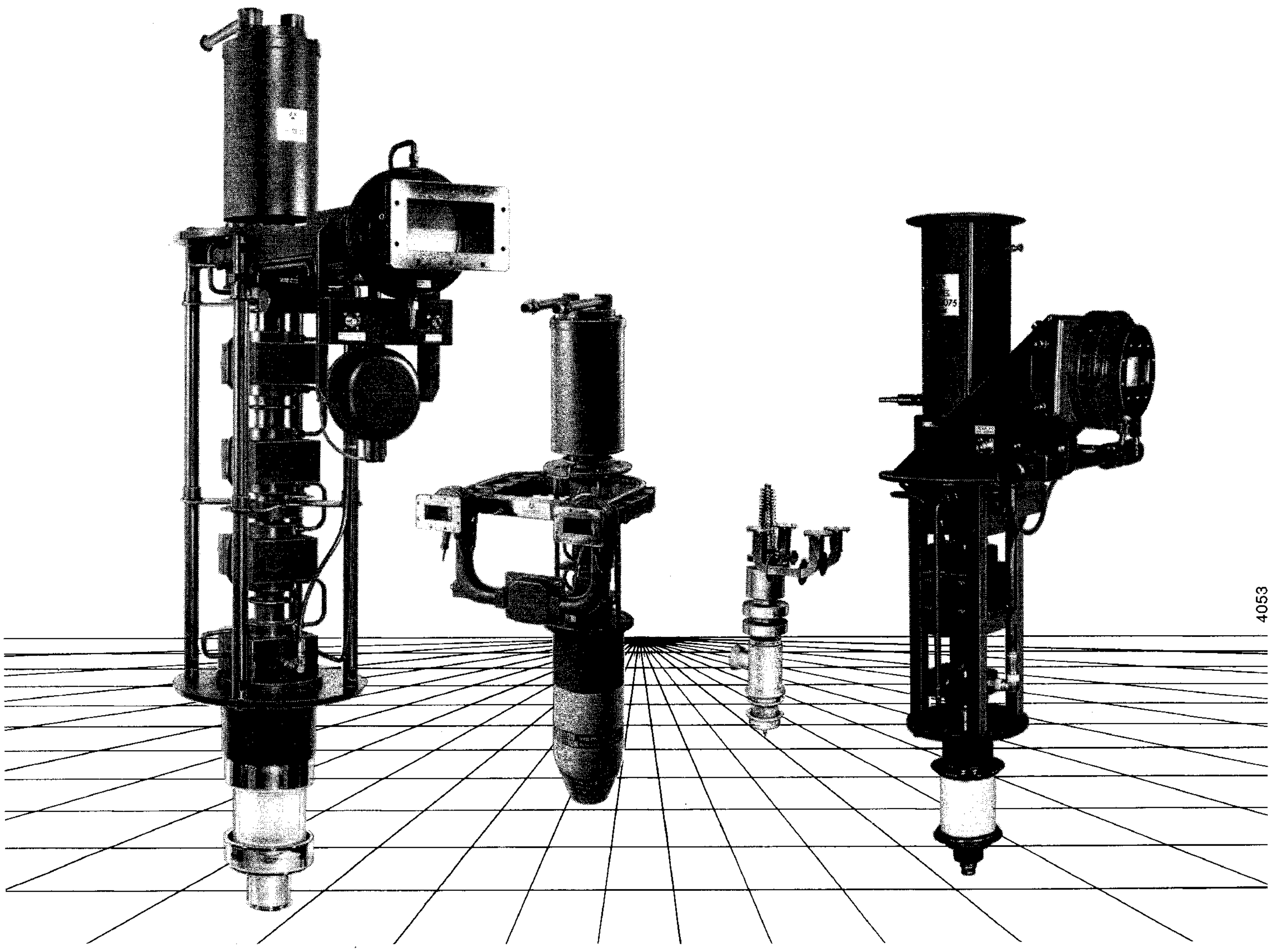

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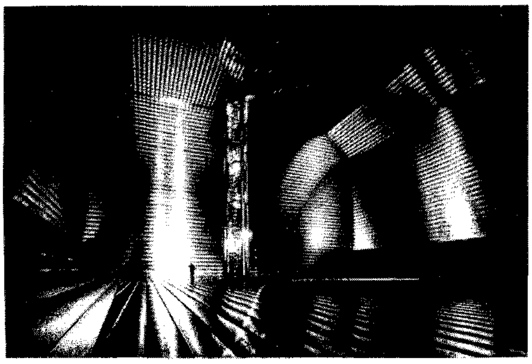


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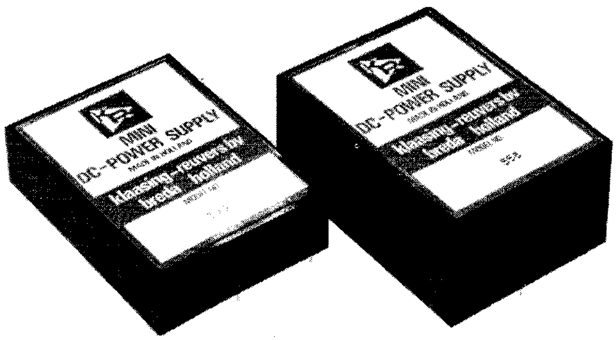

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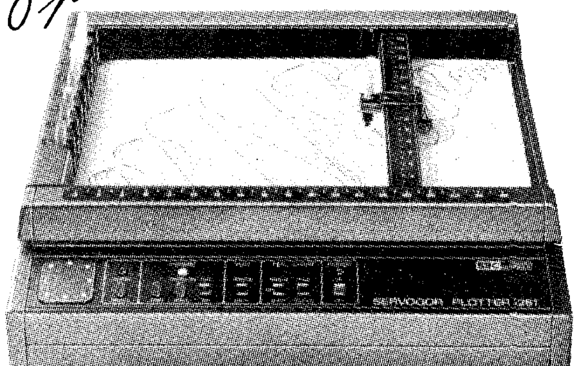

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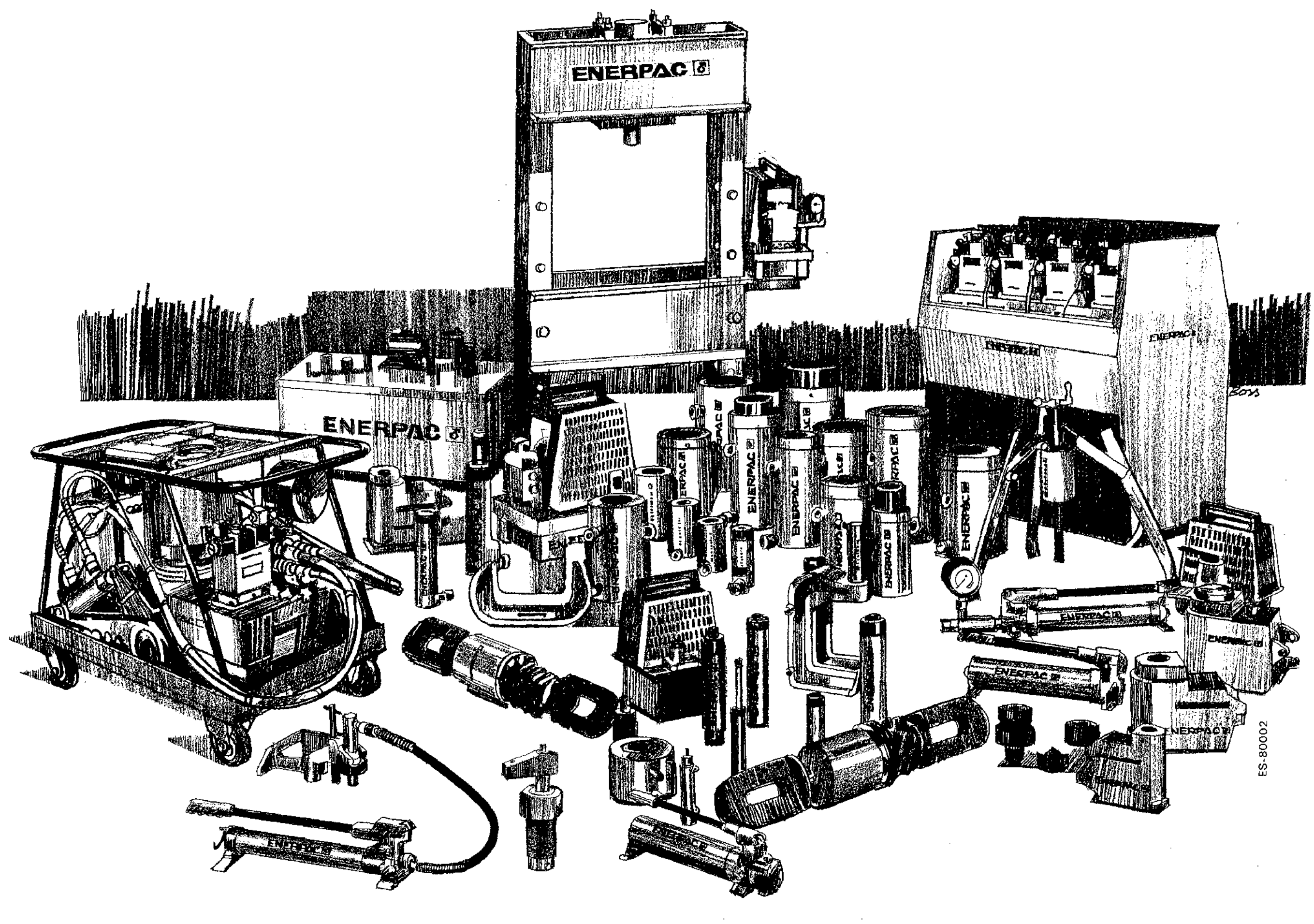

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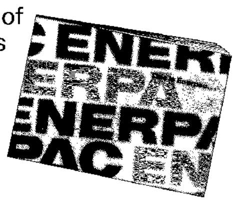

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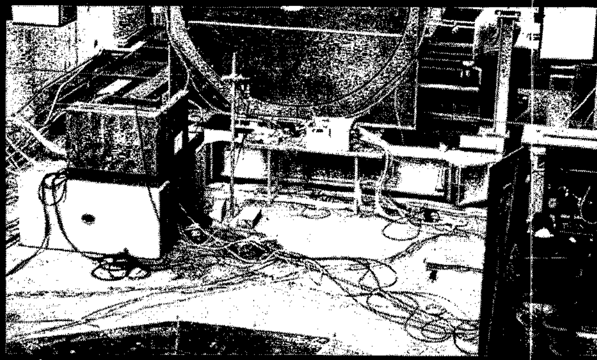

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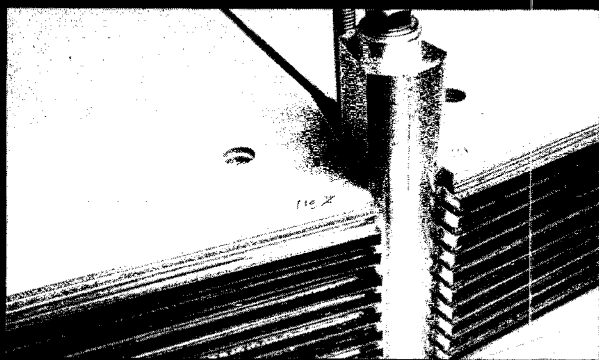

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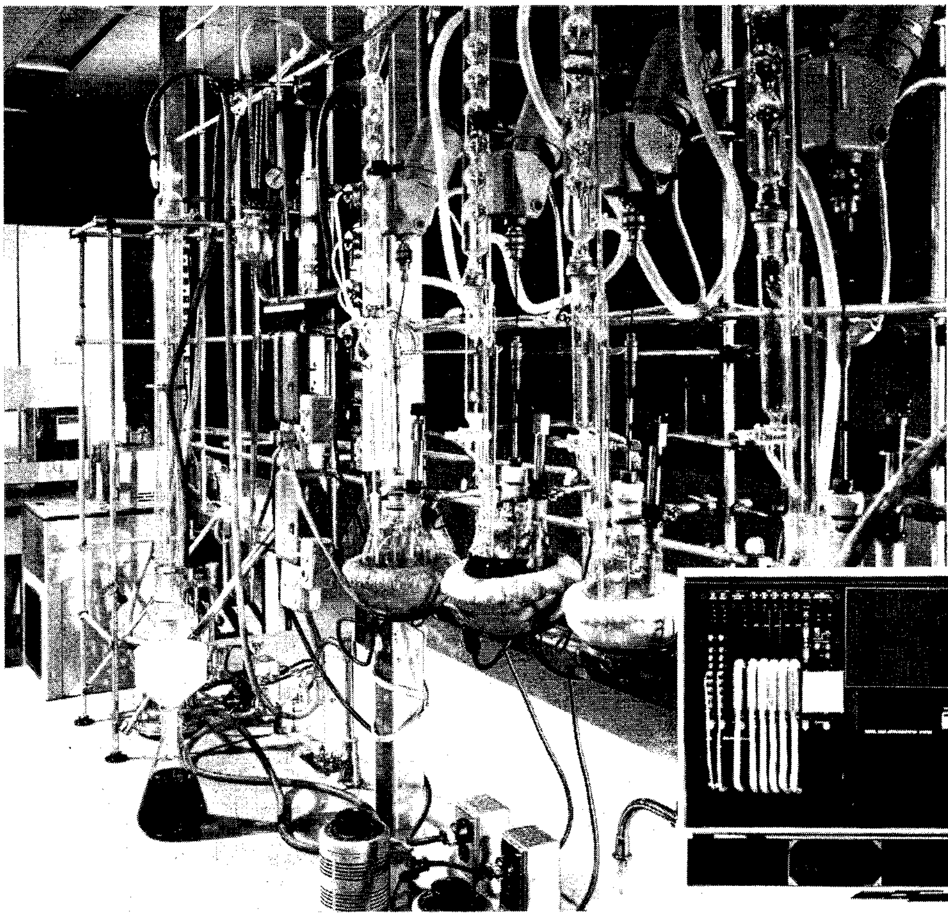

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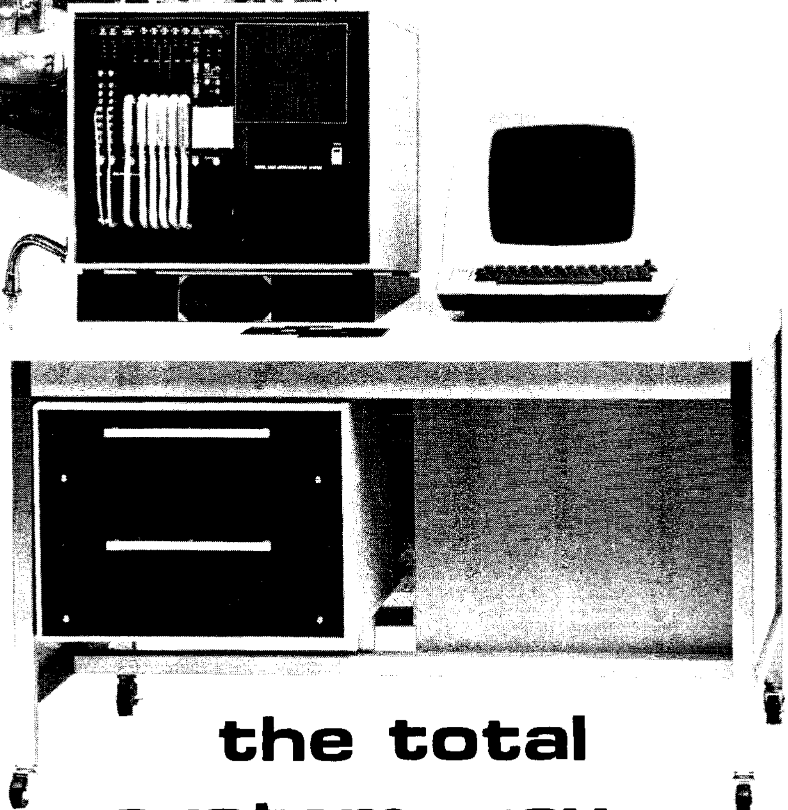

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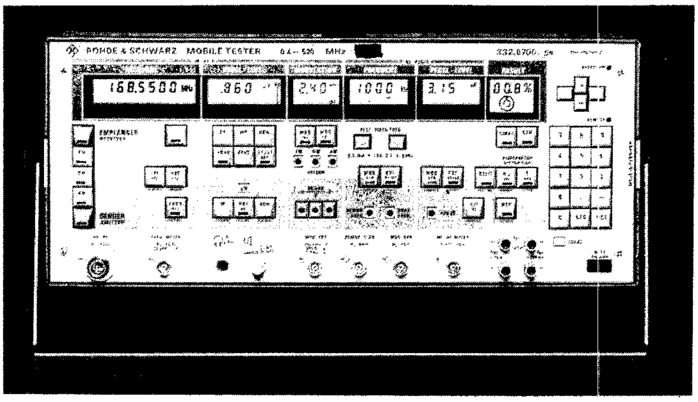

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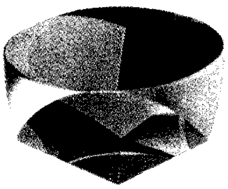

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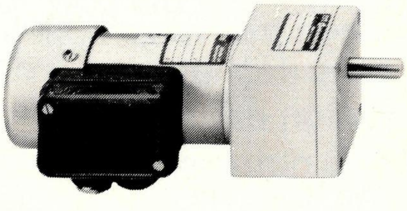

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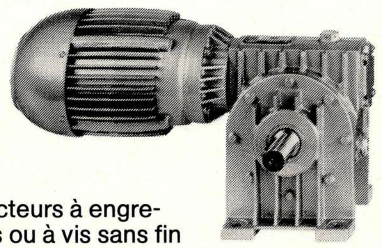

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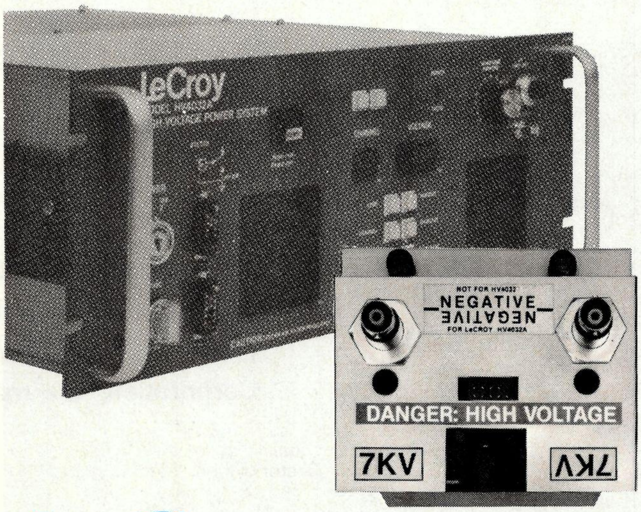

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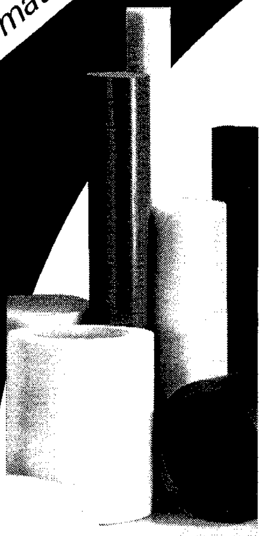

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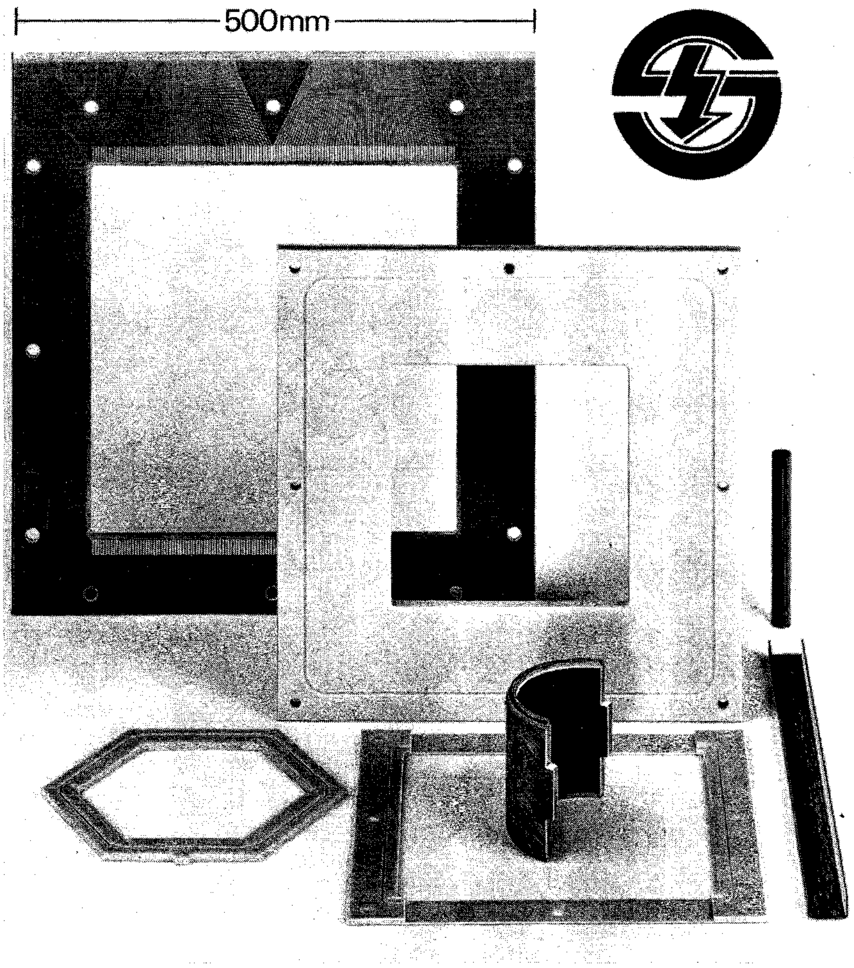

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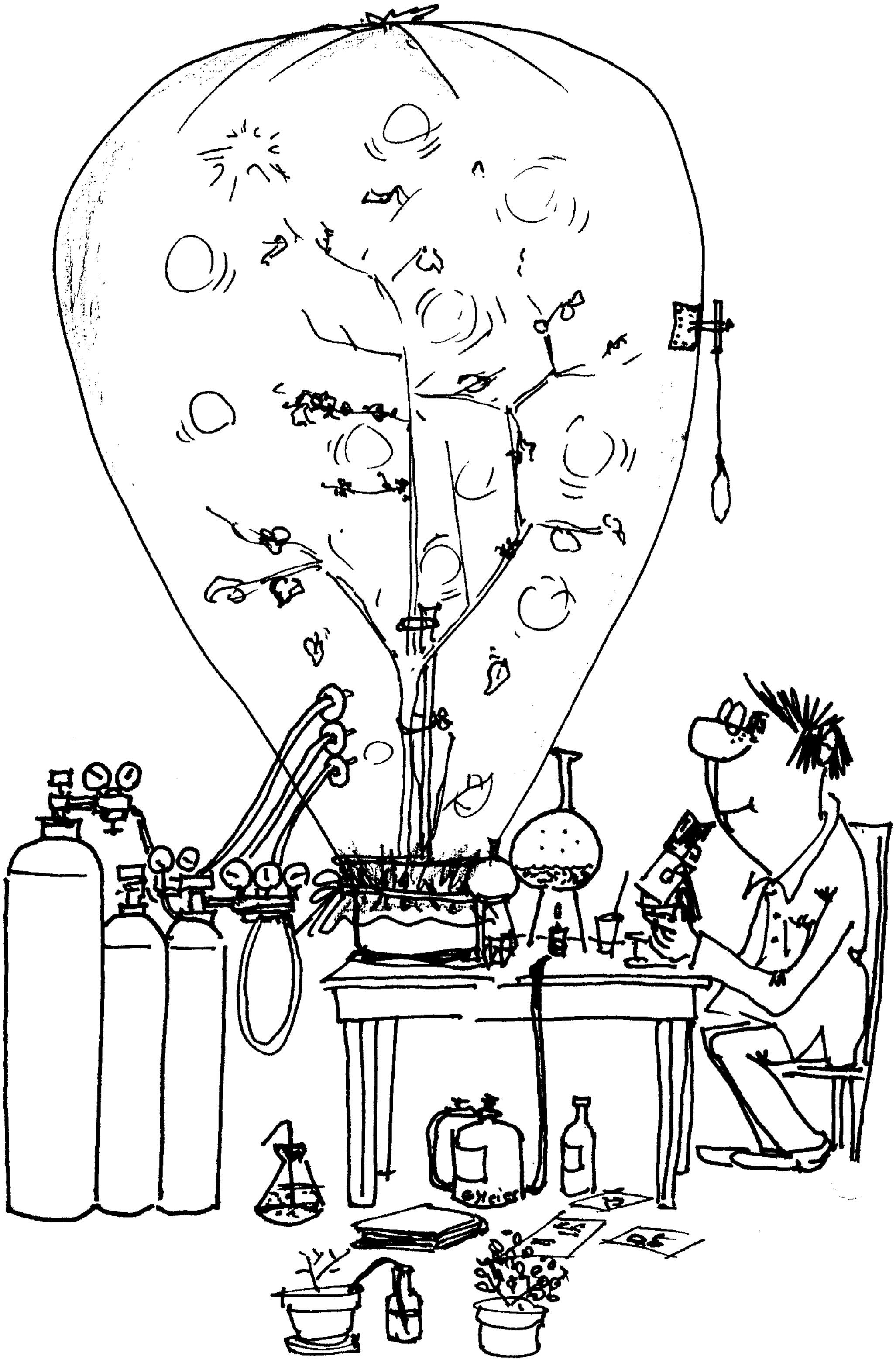
7401 State Road, Philadelphia, Pa. 19136 U.S.A.
Phone: (215) 624-6600 Telex: 834364 Janney Cyl. PHA.

Gaz techniques
Gaz purs
Gaz ultra-purs
Gaz spéciaux
Mélanges de gaz

Technical Gases
High Purity Gases
Ultra High Purity Gases
Special Gases
Mixed Gases

Technische Gase
Reine Gase
Hochreine Gase
Spezialgase
Gasgemische



$Al(C_5H_5)_3$	C_3H_6	Kr
Ar	C_3H_8	NH_3
AsH_3	C_4H_6	NO
BCl_3	C_4H_8	NO_2
BF_3	C_4H_{10}	N_2
B_2H_6	C_4H_{14}	N_2O
CF_4	C_4H_{16}	N_2O_4
CH_4	C_5H_{12}	Ne
$(CN)_2$	C_6H_{14}	O_2
CO	C_7H_{16}	PF_5
$COCl_2$	ClF_3	PH_3
COS	Cl_2	SF_6
CO_2	D_2	SO_2
C_2H_2	GeH_4	SeH_2
C_2H_4	HBr	SiH_2Cl_2
C_2H_4O	HCl	SiH_4
C_2H_6	H_2	Xe
C_3H_4	H_2S	$Zn(C_2H_5)_2$
	He	etc.

Equipements pour la mise en œuvre de gaz
Equipements cryotechniques

Equipments for manifold installations and low pressure gas handling
Cryogenic equipments

Gasversorgungsanlagen und Armaturen
Kryotechnische Apparate

Documentation ☐ required / désiré / erwünscht
Visit(e)/Besuch ☐

Name/Nom ______________________

Firma/Ets. ______________________

Tel. ______________________

Adresse ______________________

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Carbagas

Division Scientifique
Bern 031 53 22 22 / Zürich 01 44 24 11 / Genève 022 29 61 66