

People and things

It is easy to invent logical and consistent naming schemes, however it is unpleasant and confusing to have to learn lots of new names. Thus having considered schemes of various degrees of radicalism (and having exposed part of the physics community to them) the Particle Data Group now ends up with a set of new names. The exception is the celebrated J/ψ , which has such a monstrous name that nearly everybody wants to keep it!

Under the new meson scheme, the quantum numbers (spin, parity, isospin, etc.) and the quark content define the names. The spin is indicated by subscript, except for the spin zero, negative parity (pseudoscalar) and spin one, negative parity (vector) particles, where the subscript is omitted.

For mesons which are not bound states of quarks and anti-quarks (such as 'glueballs'), the quantum numbers (when non-exotic) determine their names, just as for quark-antiquark bound states. This seems appropriate since such states will be difficult to distinguish from quark-antiquark ones and will likely mix with them.

A difficulty arises with related isospin singlet particles (eta and eta prime, omega and phi, f and f prime). For the lightest such states, the existing conventions will be followed. Primes are being reserved for use in these cases, so the old habit of using primes to denote radial excitations has been dropped.

Many familiar names stay – pi, eta, rho, omega, eta prime, phi, J/ψ , chi, upsilon, etc. Some names undergo minor changes: $A_2(1320)$ for example, becoming $a_2(1320)$, while others get a complete face-

lift, $S^*(975)$ becoming $f'_0(975)$.

For mesons containing strange and other heavy quarks, the heavier of the two quarks provides the label – K for a strange quark, D for a charmed quark, B for beauty and T for top. A letter subscript is added for the lighter quark, unless it is 'up' or 'down'. Thus the F (charm/strange) meson becomes D_s . Another subscript gives the spin (again omitted for pseudoscalar and vector mesons). Finally a superscript asterisk is added for states with 'normal' spin-parity assignments from a quark model picture (zero plus, one minus, two plus, etc.). Thus the names K, K^* , D, D^* and B do not change, but $K^*(1430)$ becomes $K_2^*(1430)$, $L(1770)$ becomes $K_2(1770)$, etc.

The new scheme admittedly can lead to cumbersome notations, but not for states that are likely to be common. To facilitate the transition, the Particle Data Group will use both the old and the new meson labelling schemes for a few editions of the Review of Particle Properties.

From Matts Roos

On people

Ian Butterworth, presently Research Director at CERN, has been appointed Principal of Queen Mary College, London, from 1 August 1986.

Gustav-Adolf Voss, leading figure on the world particle accelerator scene and Vice Chairman of the DESY Directorate since 1973, has been awarded the German Federal Service Cross (Bundesverdienstkreuz) 1st Class. The award comes in recognition of his work in developing and constructing storage rings, in particular the PETRA electron-positron collider at DESY, and for his contributions to accelerator physics and technology. At present Gus Voss is responsible for the civil engineering and for the 30 GeV electron storage ring of the new HERA proton-electron collider now under construction at DESY. He is also a member of the Working Group on the scientific and technological



CERN Research Director Ian Butterworth, soon to become Principal of London's Queen Mary College.

Hans Hoffmann – from UA1 at CERN to the DESY Directorate.



long-term future of CERN, chaired by Carlo Rubbia, and is chairman of CERN's LEP Machine Advisory Committee.

On 1 September Hans Falk Hoffmann took over from Wolfram Schoett (who returned to the Federal Ministry of Research and Developments BMFT, Bonn) as one of the five members of the Directorate of the DESY Laboratory in Hamburg and as leader of DESY's Z-Division (Central Data Handling, Developments and Operations).

Hans Hoffmann is well known at CERN, where for several years he played a key role as technical coordinator for the big UA1 experiment, and has served as Secretary of the LEP Experiments Committee. He is however no stranger to DESY, where he had worked with the 'Bonanza' Group at the DORIS electron-positron ring.

Input from ECFA

The European Committee for Future Accelerators (ECFA) meets in plenary session twice a year. At the meeting at CERN earlier this year, ECFA Chairman Jean Sacton described the trend towards even greater internationalization of particle physics research and how arrangements have been completed to allow the exchange of observers between meetings of Plenary ECFA and the US High Energy Physics Advisory Panel (HEPAP).

The ECFA Chairman had attended a recent meeting of HEPAP in Washington, at which the programmes of all the major high energy physics Laboratories had been discussed, and he had the unusual experience of appearing before a hearing of the US House of Representatives' Committee on

Science and Technology accompanied by representatives of CERN and DESY. After brief presentations on ECFA, and the European US and Japanese programmes, there had been a lively discussion, mainly directed towards the possibilities for interregional collaboration.

ECFA was delighted to learn of Portugal's impending membership of CERN, and was encouraged by the measures being taken to expand that country's activities in particle physics (see September issue, page 263).

A decision had been taken previously to form an ECFA committee, chaired by G. Coignet of LAPP, Anecy, to study the work on new techniques for particle acceleration and to act as a forum for the exchange of ideas. It is hoped that the Committee will include laser and plasma experts as well as accelerator physicists.

One of ECFA's main preoccupations was the Kendrew Report in the UK, and the resolution appearing on page 376 was passed unanimously.

ECFA's sub-group V on links and networks has a long record of effective contributions to its credit, and its present chairman, J. Hut-ton of Rutherford Appleton summarized the results of its latest initiative – a European Networkshop held in Luxembourg in May. For the first time, it included experts from national PTTs and from other scientific disciplines. The principal outcome was the decision to set up working groups to study topics in more detail – message handling, X25 protocols, file transfer and full screen editing, for example. The participants also hope that they have added a new acronym to our vocabulary –

RARE (Reseau Académique pour la Recherche Européenne) – a newly-formed association to oversee this activity.

The plenary ECFA meeting closed with a brief account by the Chairman of the first meeting of the Working Group on the Scientific and Technological Long-term future of CERN, chaired by Carlo Rubbia (see July/August issue, page 241). The Group has set up three sub-groups to examine (a) hadron collider and electron-proton options for the LEP tunnel; (b) large linear colliders and new techniques for particle acceleration; and (c) physics and instrumentation.

From ECFA Secretary Derek Imrie

ESO/CERN Symposium on Cosmology, Astronomy and Fundamental Physics

After the success of the ESO (European Southern Observatory)/CERN Symposium on Cosmology, Astronomy and Fundamental Physics, held at CERN in November 1983, the second Symposium is to be held at ESO, Garching bei München, West Germany, from 17 to 21 March next year.

The advertised aim of the Symposium is to establish the status of knowledge and provide a forum for discussion among people from different disciplines. Thus equal time will be devoted to formal presentations and to general discussion on each topic, with roughly equal numbers of participants (limited to about 150 overall) from the astrophysics and particle physics sectors.

The list of confirmed speakers already includes 1984 Physics Nobel Prizewinners Carlo Rubbia (Ex-

perimental Status and Prospects of Particle Physics) and Simon van der Meer (Prospects for Future High Energy Accelerators), and 1983 prizewinners W. Fowler (Age of the Observable Universe in Inflationary Cosmology) and S. Chandrasekhar (Possible Astrophysical Implications of Singularities in General Relativity). Other topics include 'dark matter', superdense matter, high energy gamma sources, cosmic background radiation, neutrinos, galaxy clustering...

Those with a definite interest in participating would write to one or other of the Chairmen of the Scientific Organizing Committee before 15 December: G. Setti, ESO, Karl-Schwarzschild-Strasse 2, D-8046 Garching bei München, West Germany, or L. Van Hove, CERN, TH Division, 1211 Geneva 23, Switzerland.

On 3 September Queen Beatrix of the Netherlands, accompanied by Prince Claus, visited CERN. Here CERN Director General Herwig Schopper supplies the necessary introduction as Queen Beatrix meets Dutch accelerator physicist Simon van der Meer (back to camera), who shared the 1984 Nobel Physics Prize with Carlo Rubbia.

(Photo CERN 39.9.85)



International cooperation in science

'All honour to science which explores the Universe and solves its mysteries. All honour to it as it examines the constitution of life. All honour to it as it elucidates the working of the mind-body organism. All honour to it as it seeks to alleviate pain. All honour to it as it enlarges the providence of the earth and all honour to it as it ensures better communications between human beings and societies.'

With these words, UN Secretary General Javier Pérez de Cuellar opened the Conference on South-South and South-North Cooperation in Sciences, held at the International Centre for Theoretical Physics (ICTP), Trieste, Italy. The Conference brought together 234

In September A. M. Petrossyants, Chairman of the USSR State Committee for the Utilization of Atomic Energy passed through CERN. He is seen here (with cap) at the An-necy/Belgium/Los Alamos/Serpukhov experiment which is covered by the CERN/ USSR agreement on collaboration in particle physics.

(Photo CERN 207.9.85)

delegates from 63 countries, with the objectives of identifying science projects in which cooperation is potentially profitable, to examine possibilities of financial support, and to strengthen international ties.

Speakers included ICTP Director and President of the Third World Academy of Sciences Abdus Salam, Director General of the International Atomic Energy Agency Hans Blix, UNESCO Assistant Director General I. Kaddoura, A. R. Khane as Secretary General of the United Nations Industrial Development Organization, Sir John Kendrew as President of the International Council of Scientific Unions, and Fermin A. Bernasconi as Director General of the Intergovernmental Bureau for Informatics.



University College London Department of Physics and Astronomy

Applications are invited for the post of physicist/programmer in the UCL Experimental High Energy Physics Group. The work would initially be divided approximately equally between:-

- i) preparation for the OPAL experiment at the LEP collider (hardware and Monte Carlo work, in particular), and
- ii) programming work for the group as a whole, as a member of the software team.

The software team has two other experienced physicist/programmers, a graduate programmer and a junior programmer. They provide support for all of the group's activities including proton decay (IMB), fixed target (WA75, WA78, NA34), neutrino bubble chamber (NA31), OPAL at LEP and ZEUS at HERA (if approved). Equipment includes a VAX 11/750, a GEC 4085 which acts as a workstation for the RAL mainframes, a Megatek graphics engine, PDP11s and various microprocessors.

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Applications and nominations should be sent, by December 10, 1985 to: T.L. Trueman, Chairman, Search Committee, Brookhaven National Laboratory, Associated Universities, Inc., Upton, NY 11973

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Applications, which must include a complete curriculum vitae, should be addressed to the King and be sent together with relevant certificates and one copy of a list of publications to **Det matematisk-naturvitenskapelige fakultet, Postboks 25, 5014 Bergen-Universitetet, within 25.11.85.**

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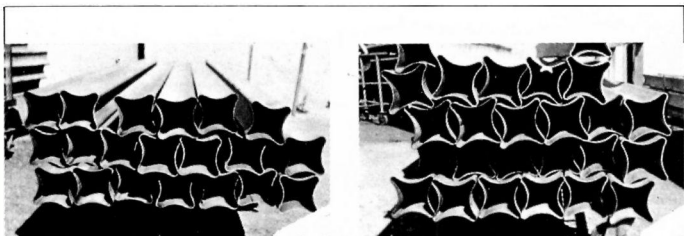
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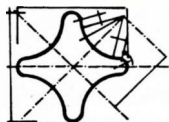
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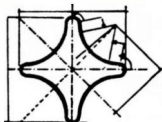
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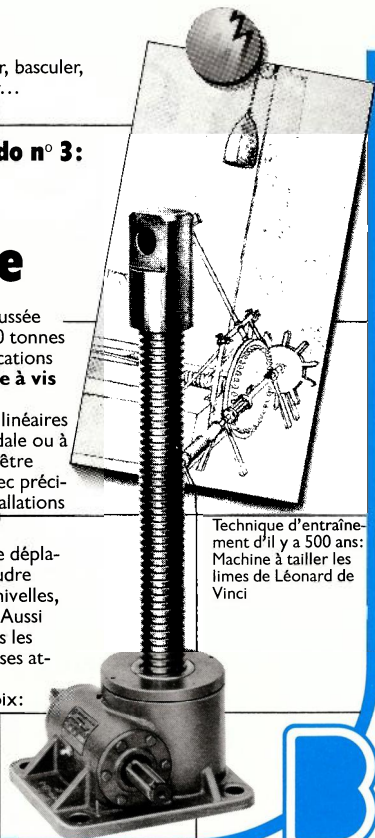
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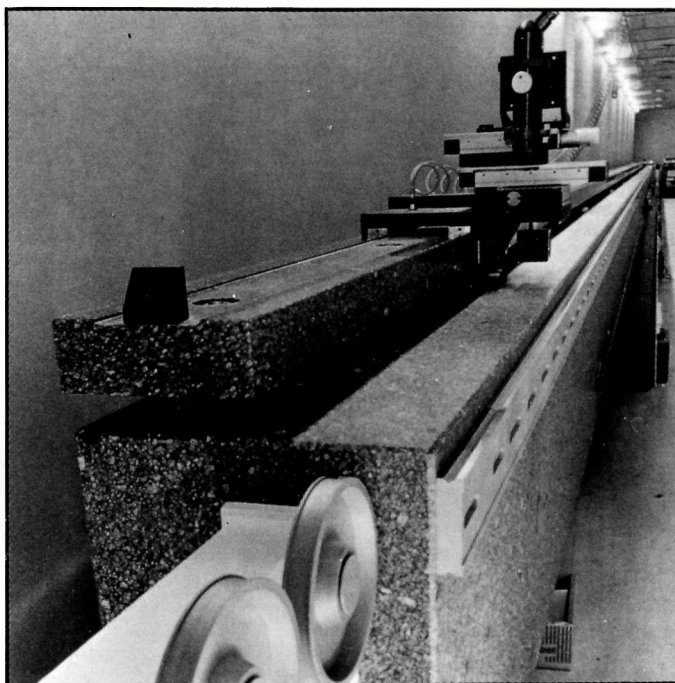
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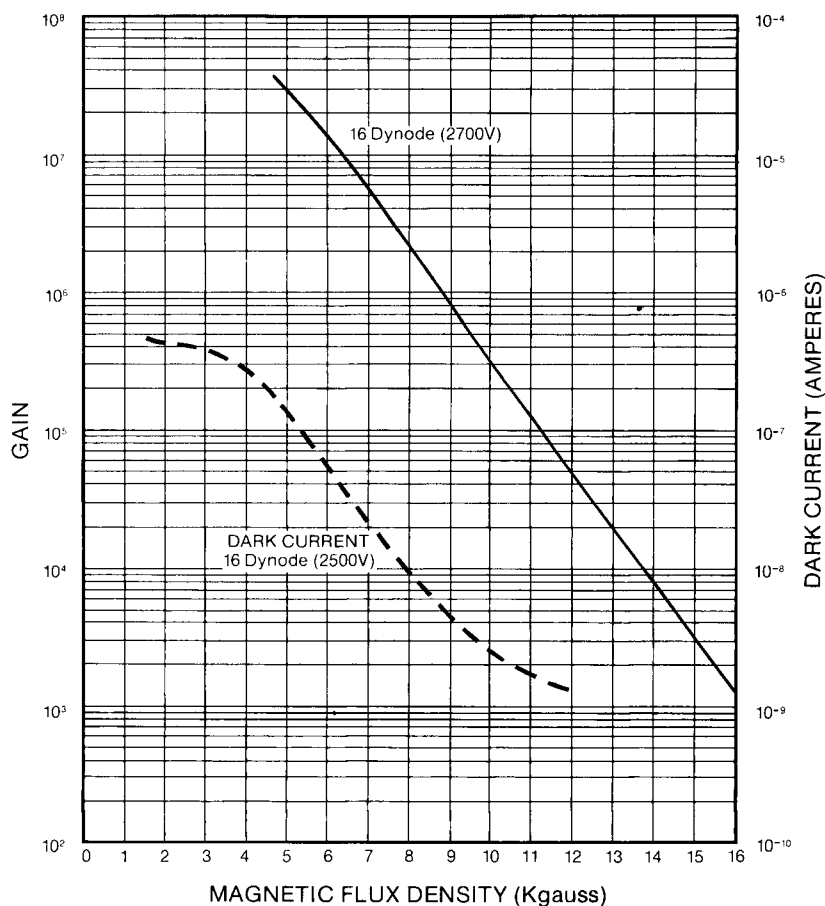
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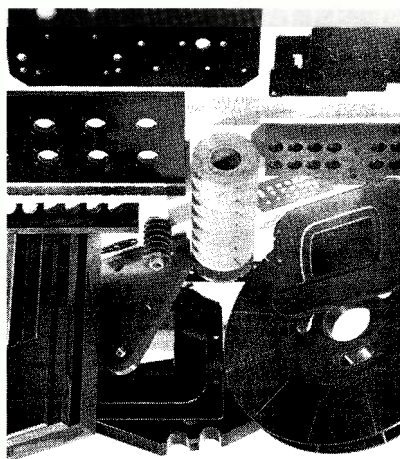
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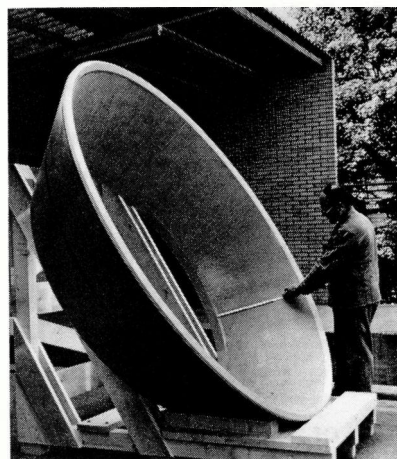
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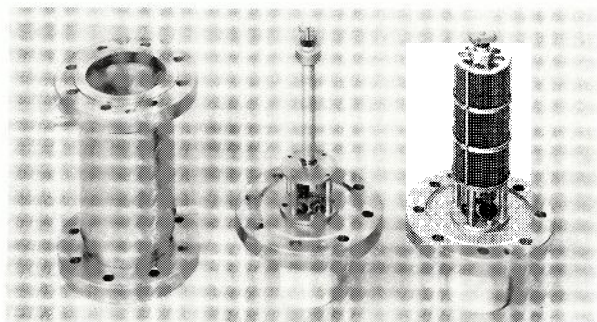


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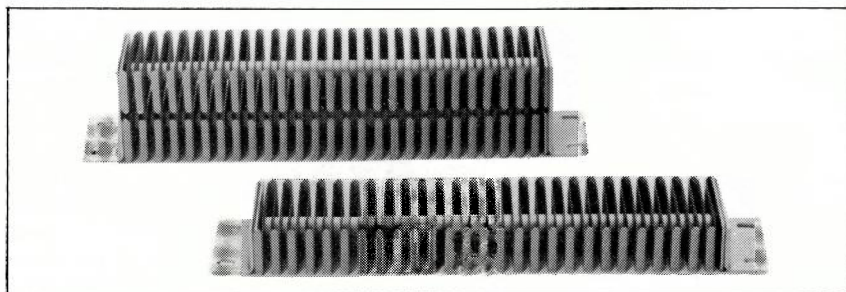


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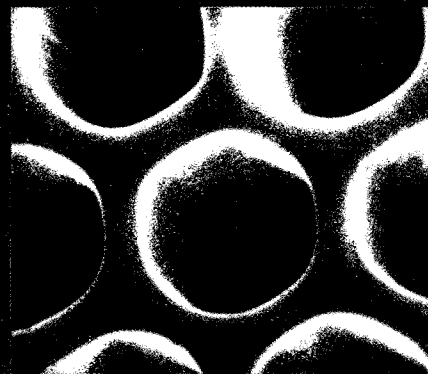
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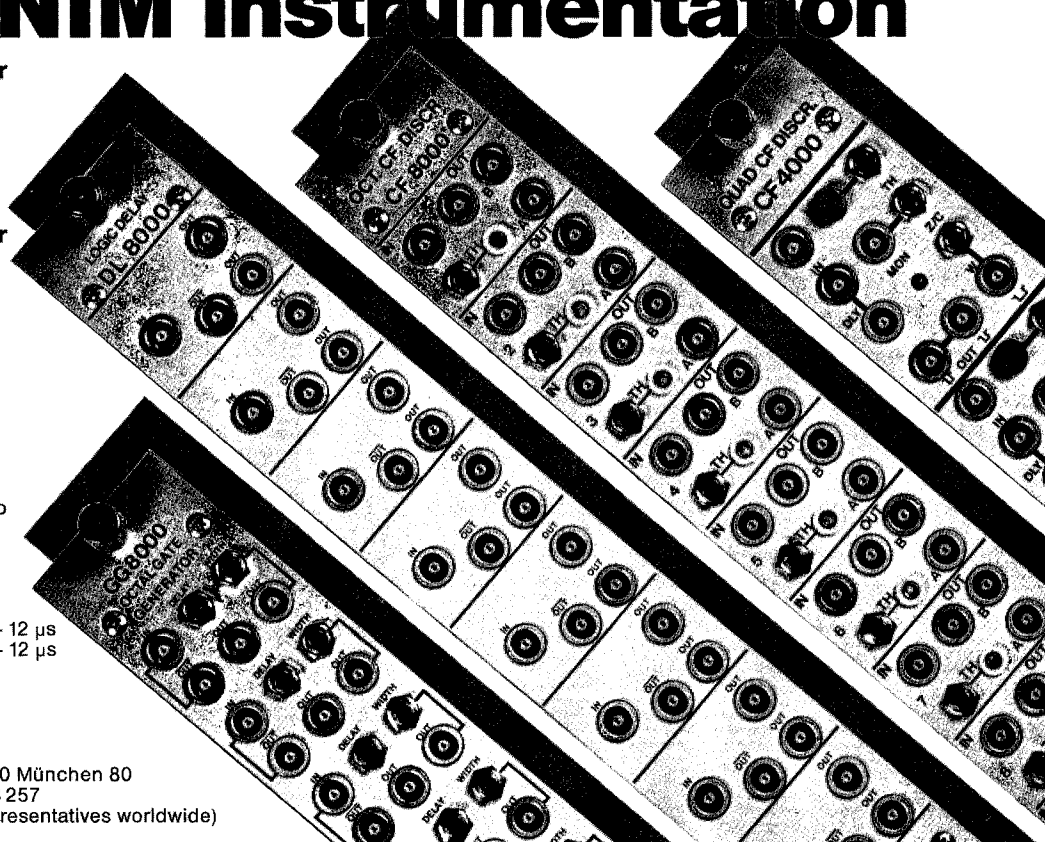
For more information:

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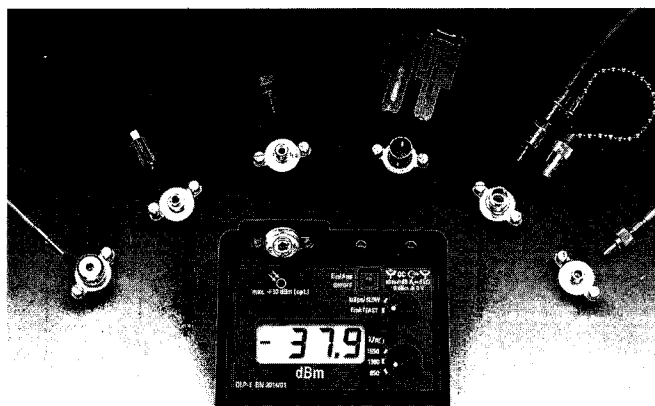
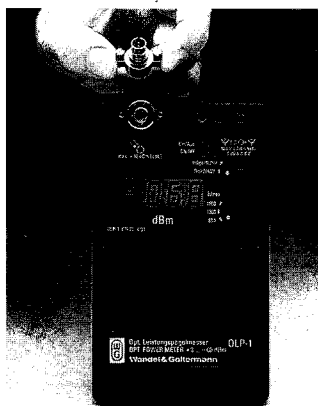
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The practical optical level meter ★ no connector problems ★ covers all wavelengths and fibre types



ensure long, trouble-free operation. Why not get to know more about the OLP-1? It can be used for servicing, in the lab. Mains or battery operation.

Fill in the coupon for your copy of the detailed colour brochure and make light work of your problems.

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Can't find the right connector? No such problems with the OLP-1 Optical Level Meter. There's an adaptor for practically every type of connector, even one for bare fibres!

Can't match the fibre type? Then try the OLP-1. Matches to all standard graded-index-, monomode- and step-index fibres with core diameter $\leq 200 \mu\text{m}$; without the need for

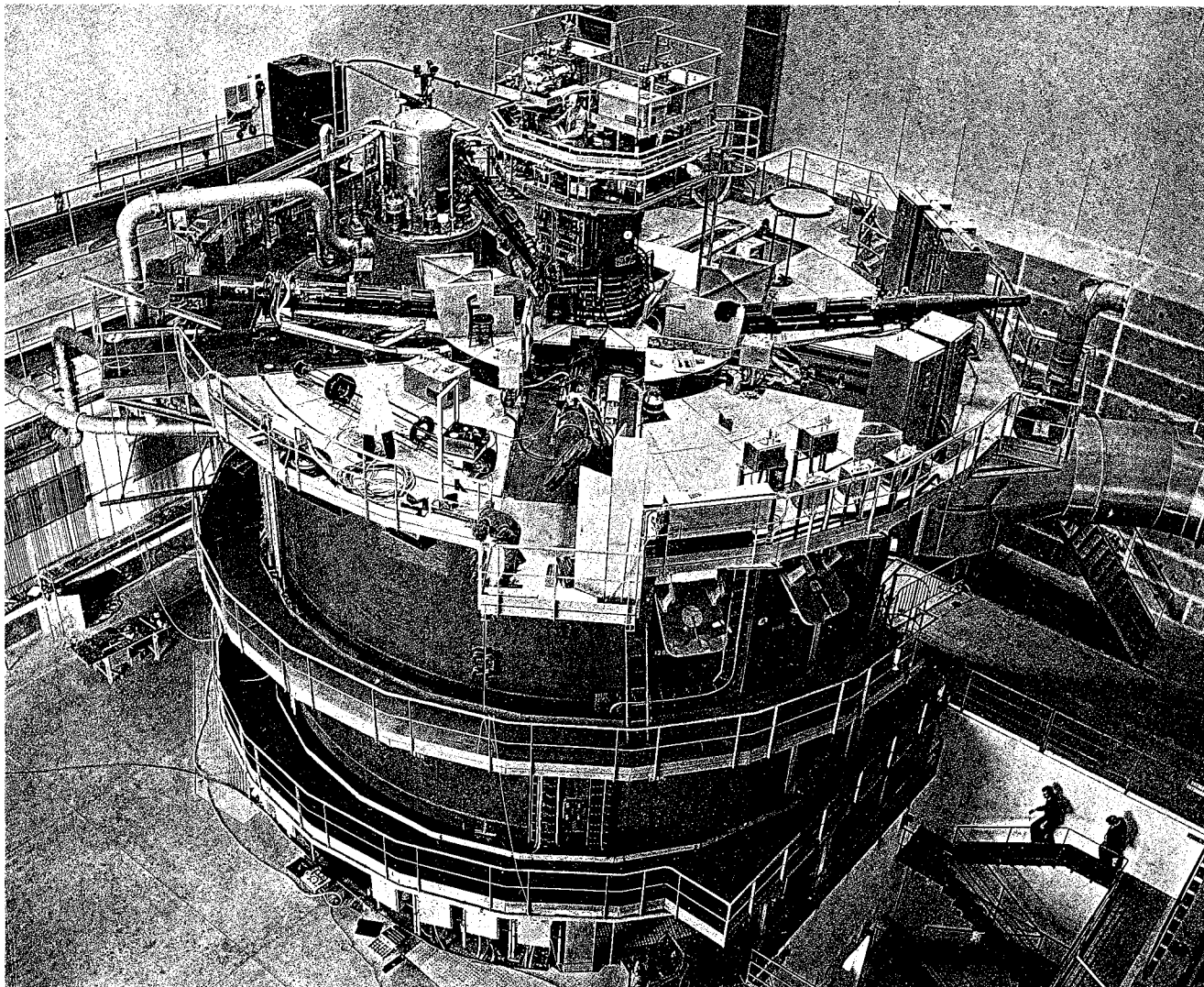
switching, adapting or recalibration.

Got to change detectors? Not with the OLP-1. Just turn the switch to measure at 850 or 1300 or 1550 nm.

Difficult to use? The OLP-1 couldn't be simpler to operate: connect up, switch on, and read off the result. Display reads from -60 (-50) dB to +3 dB in one continuous range.

Accuracy is ensured by thermal compensation. No need to wait for things to settle down if the temperature changes!

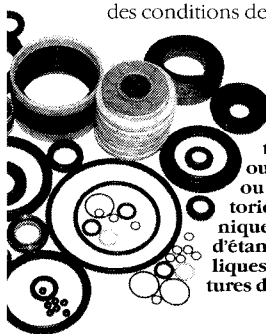
On the move? As you'd expect, the OLP-1 can be used with dry batteries or a Nicad rechargeable battery; if you need to make long-term measurements there's also a mains adapter/charger. Battery check and auto-off circuits



CERN Genève: BEBC. Grande chambre à bulles européenne. Dimensions du corps de la chambre: 3 m de hauteur, 3,7 m de diamètre intérieur, 39 000 litres de capacité.

Le plus petit de nos joints tient au moins 50 ans... et le plus grand résiste à un dosage d'irradiation 166 666 fois supérieur à ce qu'un être humain peut supporter.

Au CERN, à Genève, on accélère des particules à charge électrique jusqu'à la vitesse de la lumière. On ne peut le faire que dans des conditions de vide poussé. Les joints



Joints d'étanchéité normalisés ou sur mesure, en caoutchouc, en matière plastique, textiles ou métalliques, à l'amiante ou sans amiante, etc. Joints toriques. Garnitures mécaniques FLEXIBOX. Bagues d'étanchéité. Joints hydrauliques et pneumatiques. Garnitures de presse-étoupe.

d'étanchéité de 7 m de circonférence dont sont dotées les chambres doivent donc présenter une précision et une qualité de surface élevées. Afin qu'ils puissent résister à un dosage d'irradiation à haute charge énergétique représentant 166 666 fois ce qu'un être humain peut supporter, nous avons conçu, chez Maag Technic, un mélange de caoutchouc tout à fait particulier.

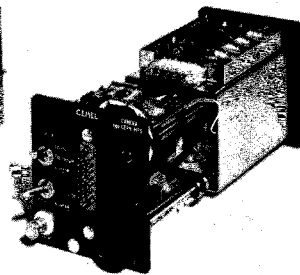
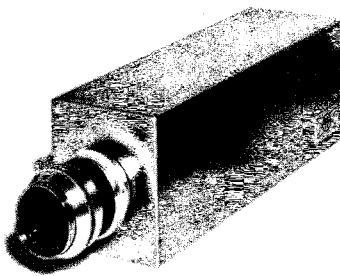
Bien sûr, nous n'avons pas à résoudre des problèmes aussi arduos tous les jours. Parfois, il s'agit -simplement- de minuscules joints d'étanchéité destinés à des arroseurs anti-incendie. Quoi qu'il en soit, chaque joint doit répondre à des impératifs plus ou moins grands. Vous en

trouvez chez nous un vaste assortiment. En plus, vous pouvez compter, sans aucune contrainte matérielle, sur nos conseils fondés sur des années d'expérience portant sur tout le spectre de la technique.

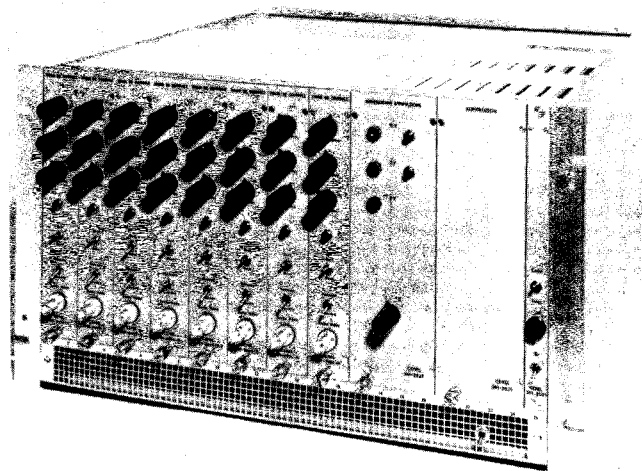
Maag Technic se fait fort de résoudre vos problèmes de joints d'étanchéité.



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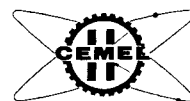
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KSC was the first to develop a complete family of products to implement the standardized CAMAC serial highway system. We also pioneered the development of microprocessor-based controllers to provide intelligent distributed control. Today, our line of serial highway products - including drivers, crate controllers, and fiber optic adapters - is unequaled by any other manufacturer. As needs arise, KSC is there to meet them with innovative new products.

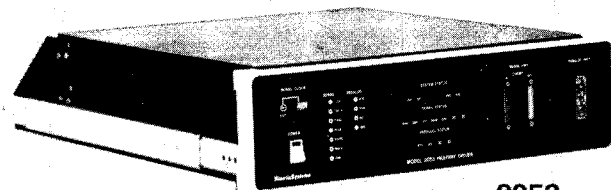
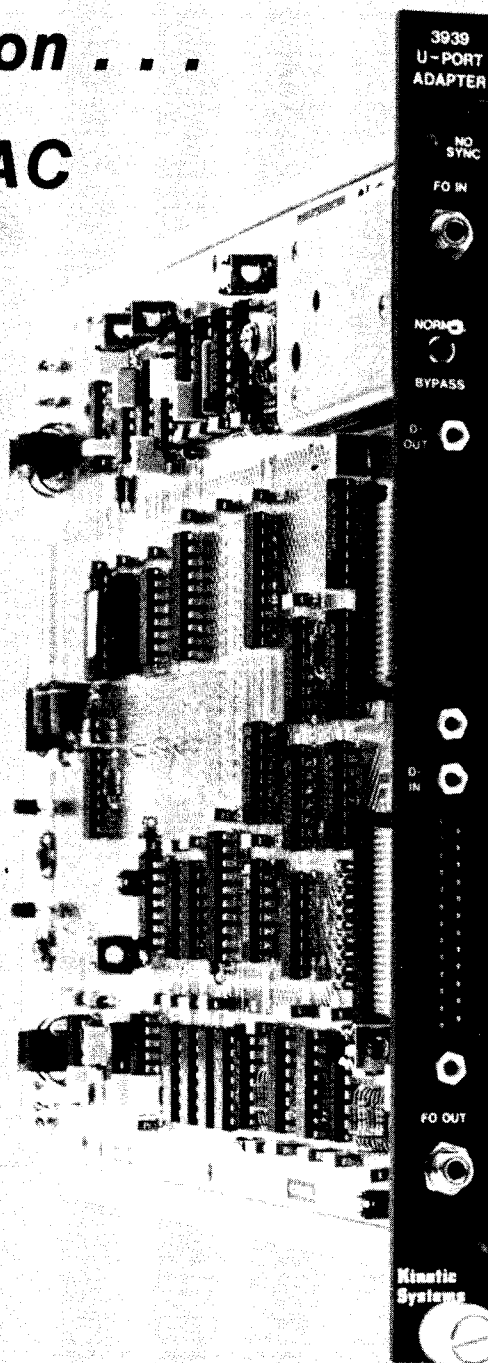
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When your application requires the extremely high data throughput offered by the CAMAC serial highway in *byte-serial* mode, choose our new **3939 U-Port Adapter** module. It offers byte-serial operation over a single optical fiber.

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- ★ Bypass operation and external battery backup input
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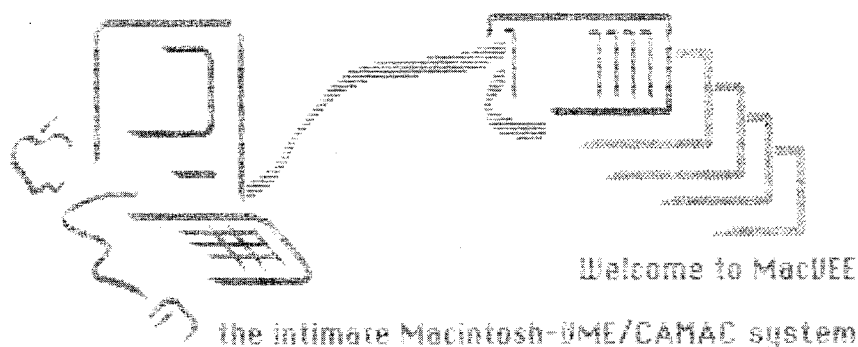
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A MacVEE system consists of an Apple Macintosh computer, equipped with a special interface which allows it direct memory-mapped access to single or multiple VME or CAMAC crates interconnected by a ribbon-cable bus. The bus is driven by an electronics plinth called MacPlinth, which attaches to Macintosh and becomes an integral part of the computer.

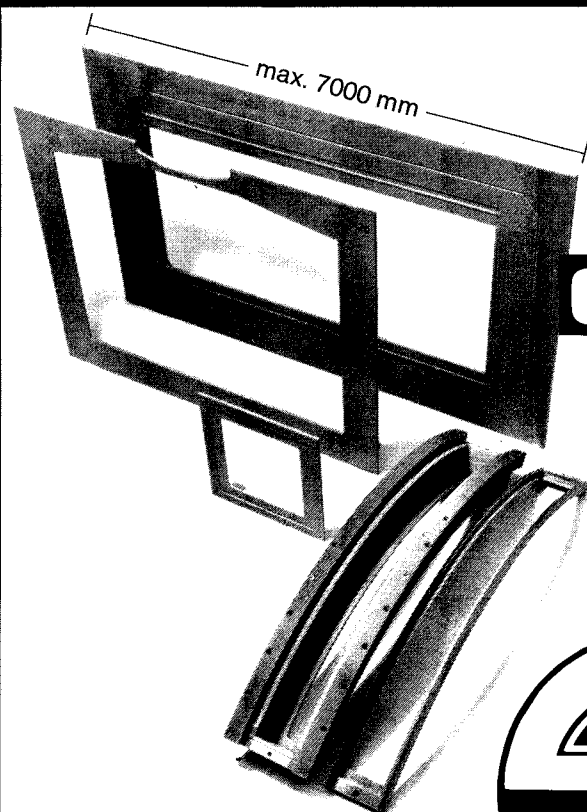
The total external address space accessed via MacPlinth is over 100 Mbytes, in up to 8 VME crates, or up to 7 VME crates and up to 8 CAMAC crates, in any mix. In a VME system, Mac can execute programs in VME RAM or EPROM, and programs resident in one crate can access facilities in any of the others.

The marriage of a mass-produced personal computer with the versatile industry-standard VMEbus and CAMAC systems creates a cost-effective solution to many laboratory small system requirements. MacVEE provides an intimate Macintosh-VME link which integrates these systems to a high degree.

The system was initially developed by S. Cittolin and B.G. Taylor with the support of C. Rubbia for the CERN UA1 experiment, and it is now manufactured by Siemens-Albis SA. CERN is not responsible for the quality or technical performance of the equipment supplied.

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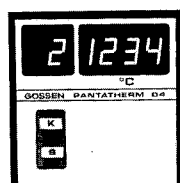


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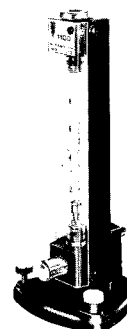
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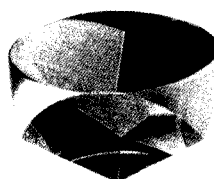
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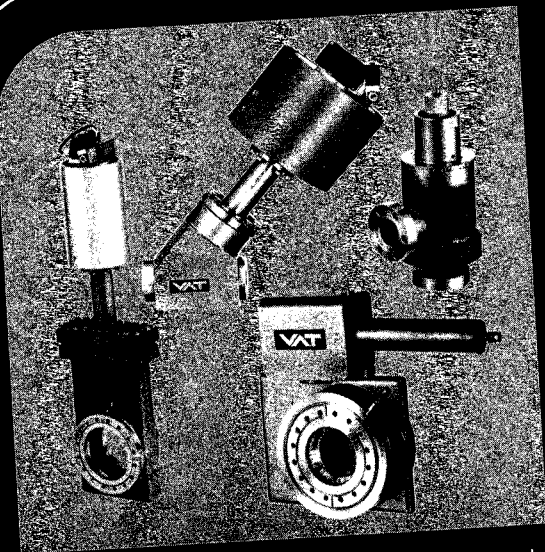
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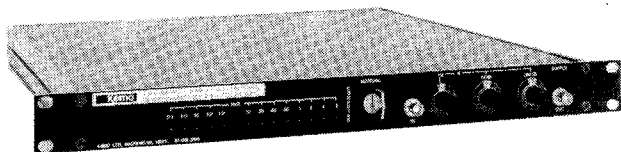
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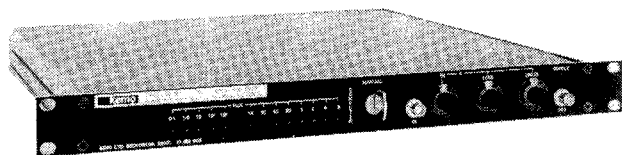
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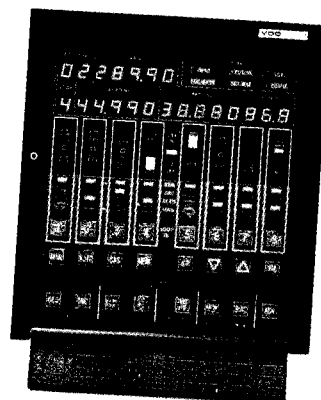
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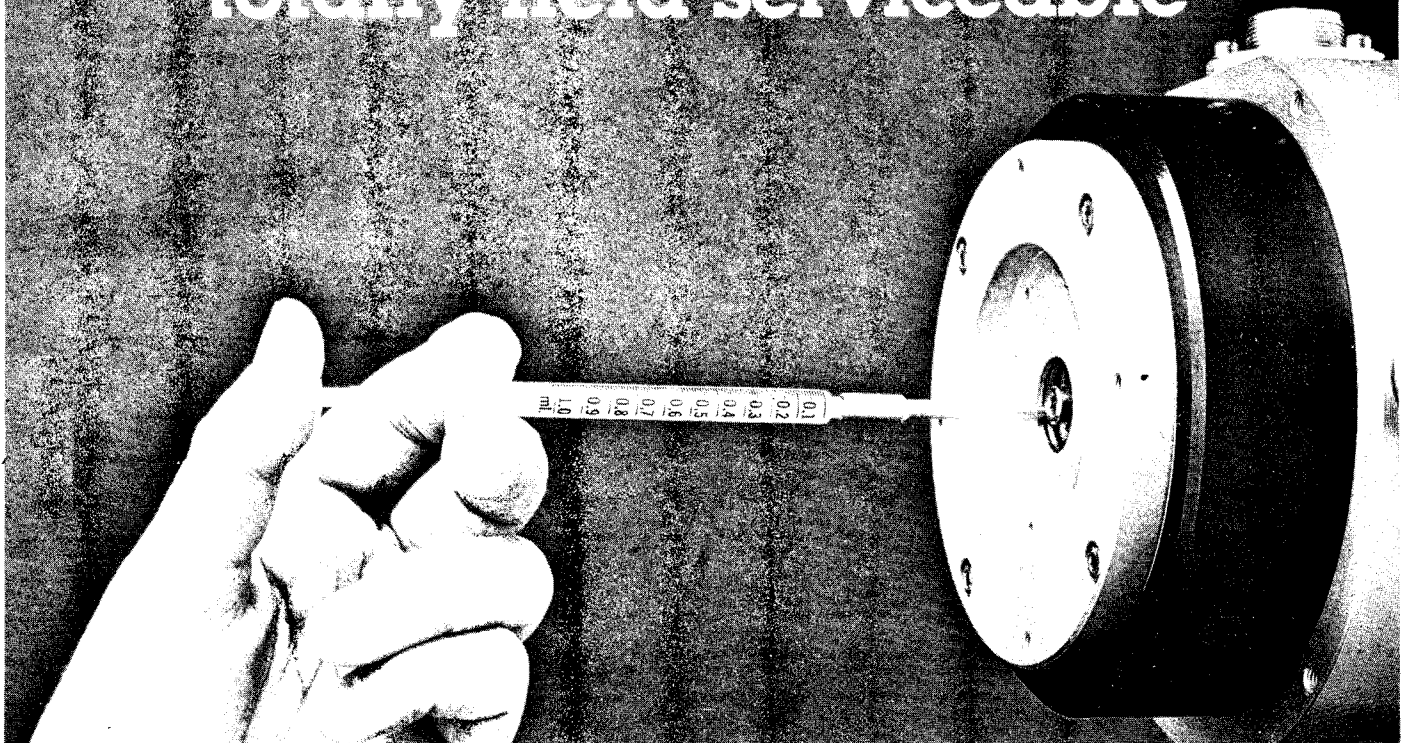
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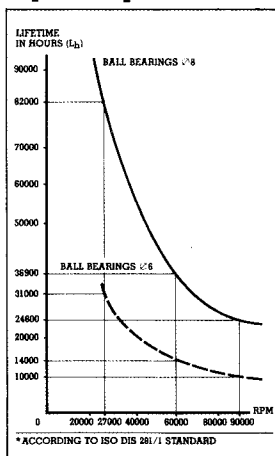
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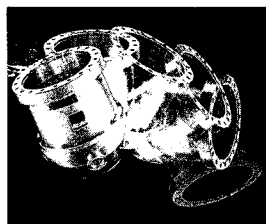


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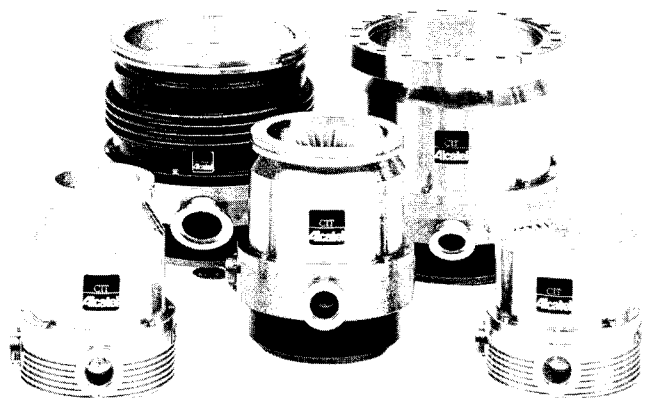
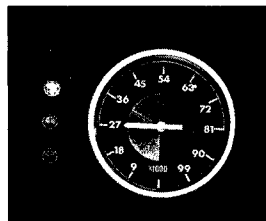
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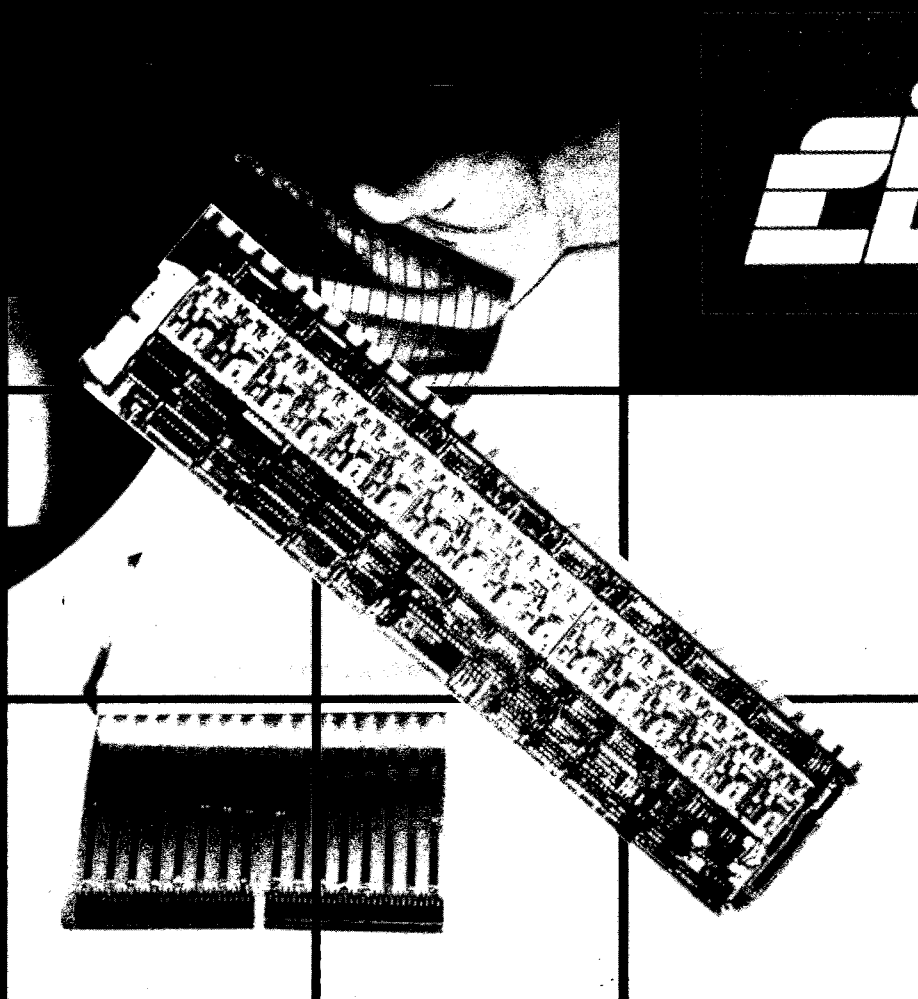
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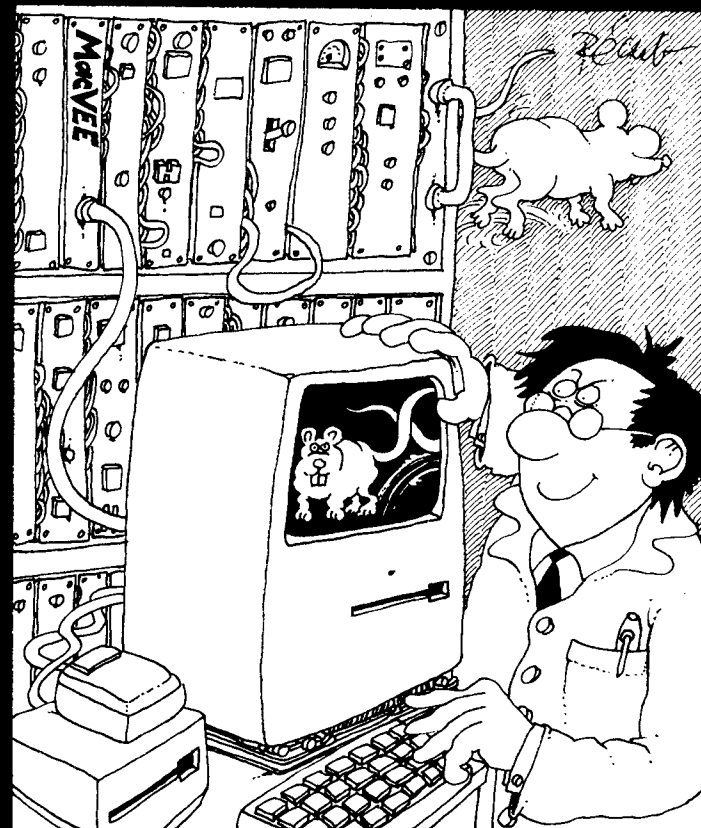
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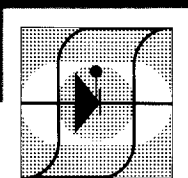
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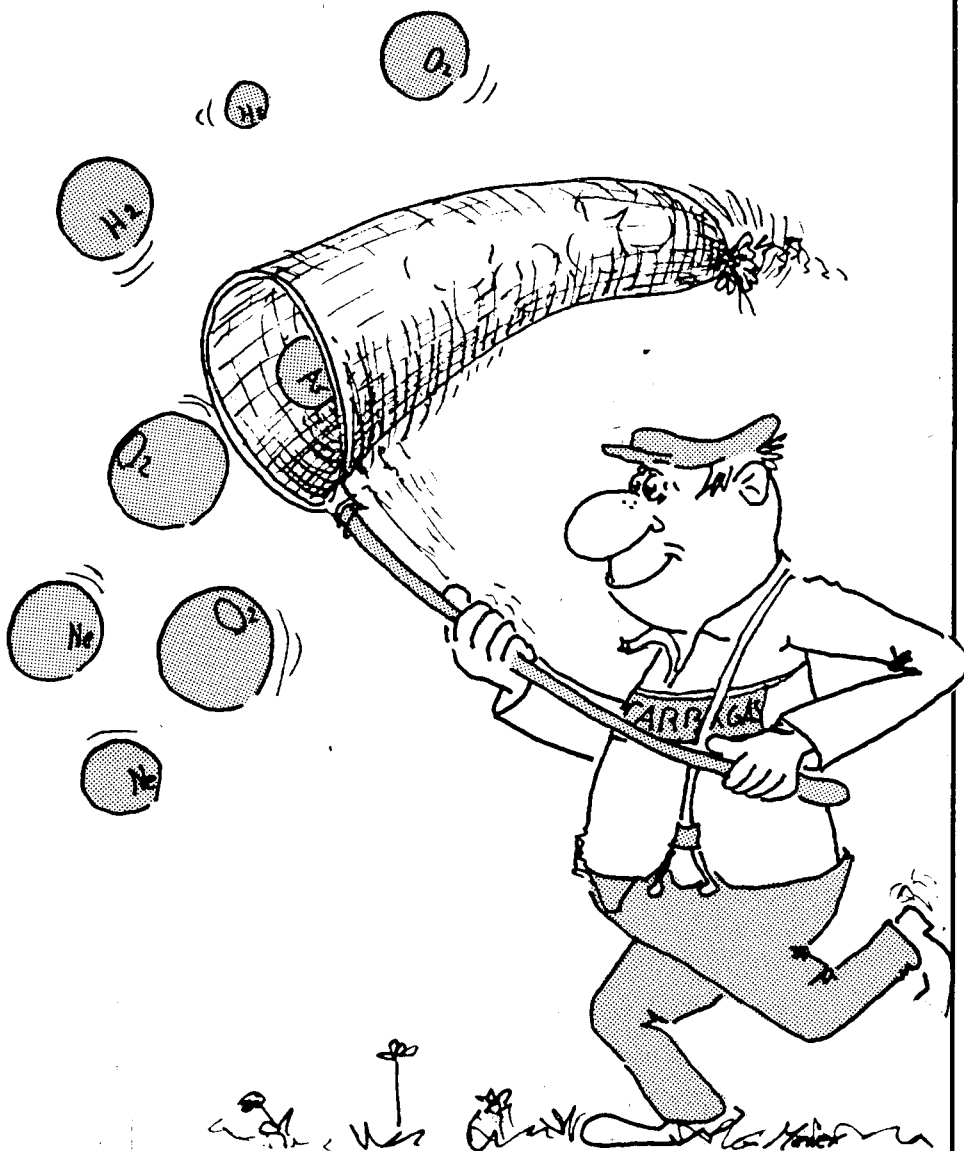
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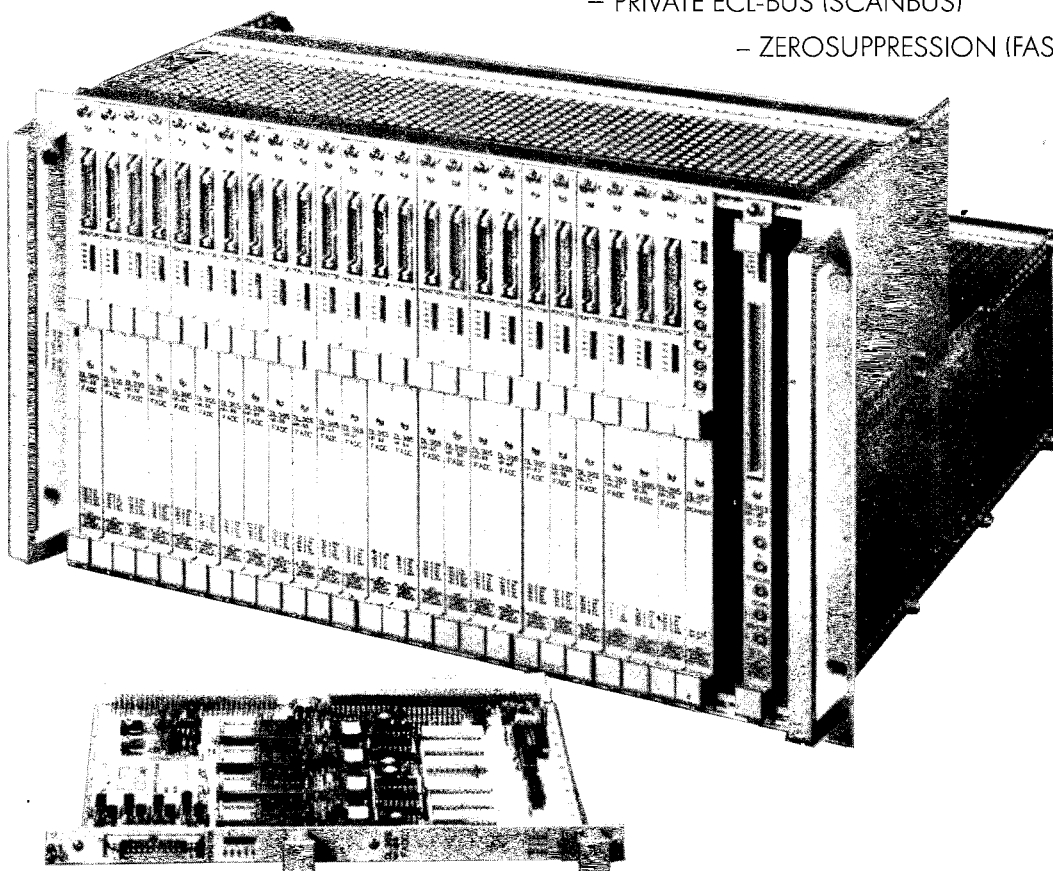
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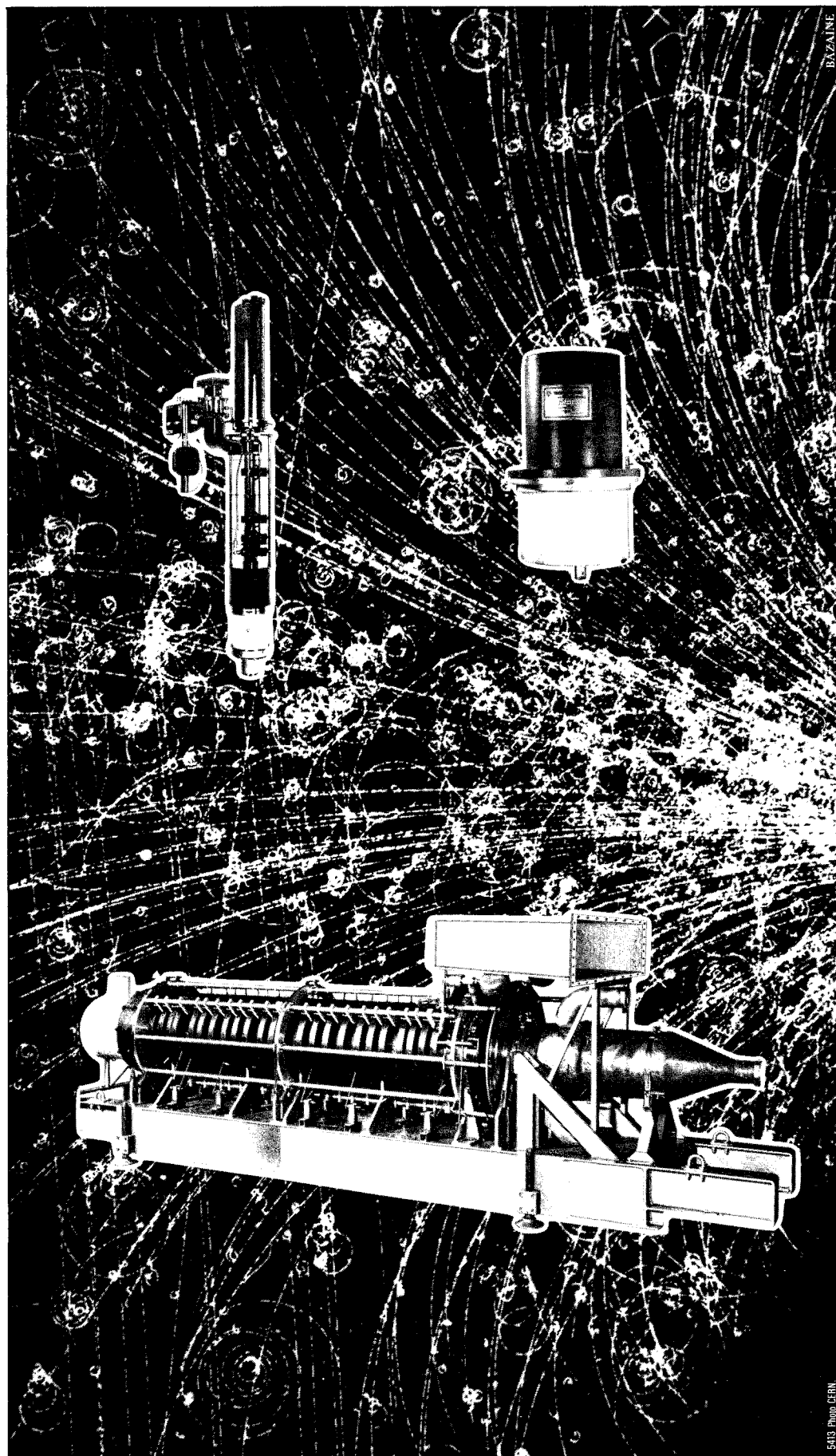
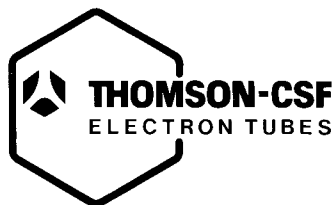
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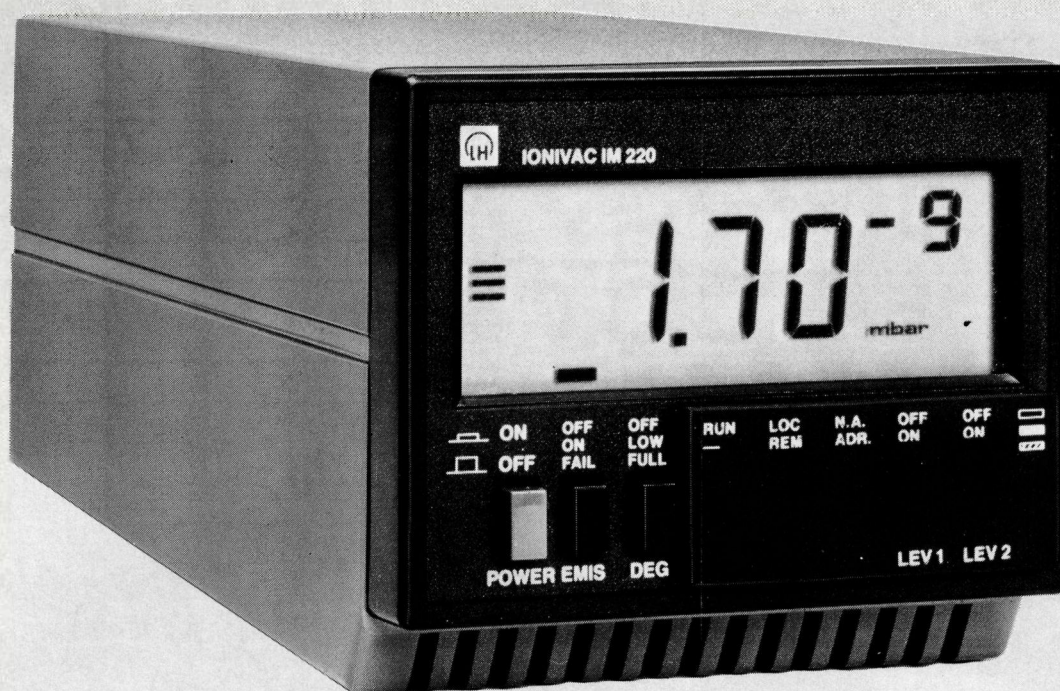
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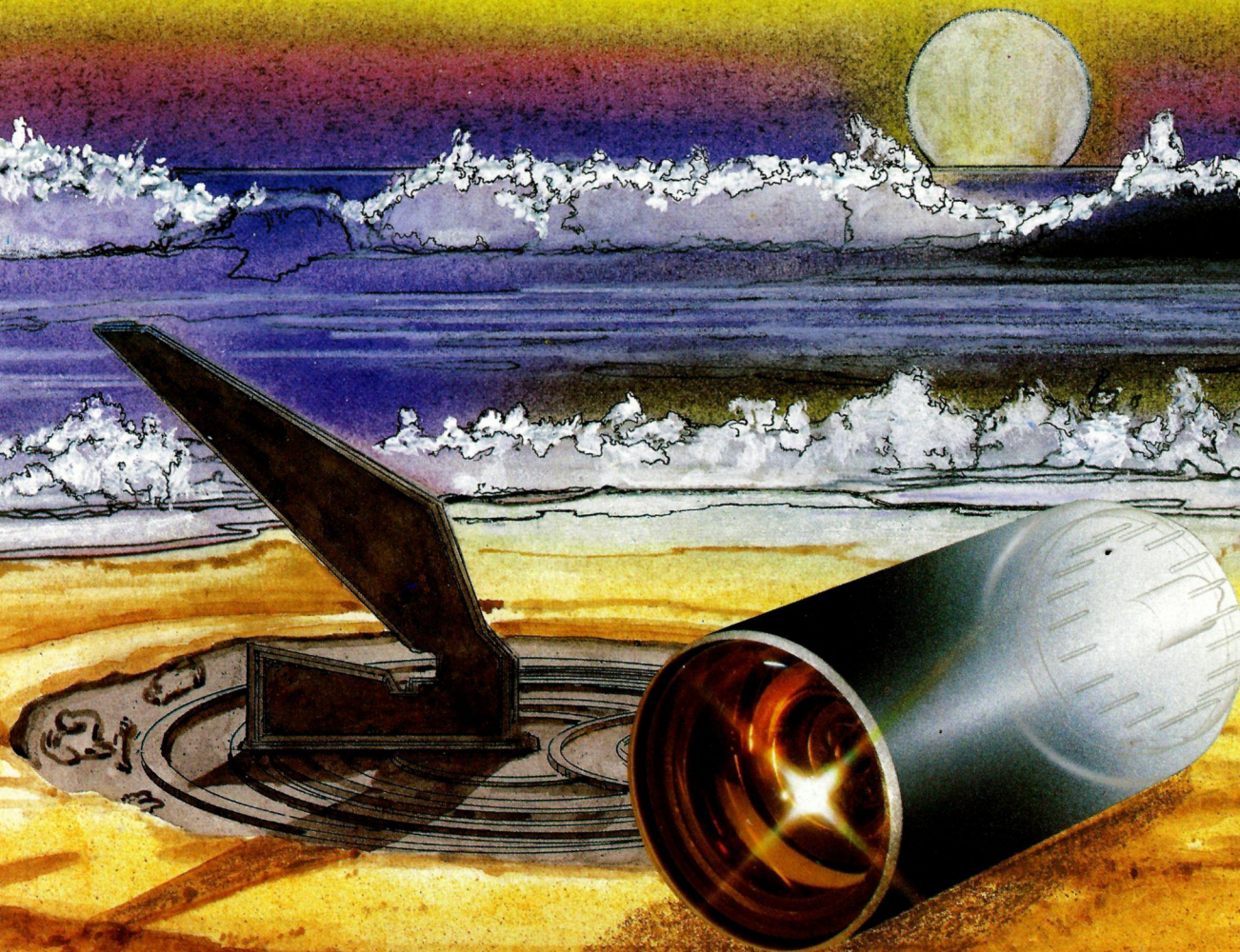
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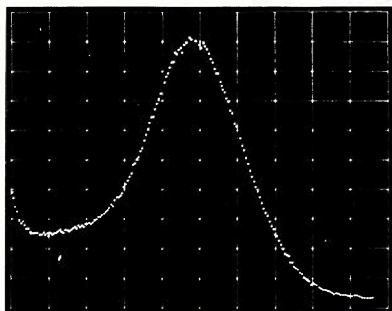


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