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## NEWS

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### SAFETY NOTICE LETHAL VOLTAGES PRODUCED ON IMPROPERLY GROUNDED VACUUM SYSTEMS

The conventional ionization gauge can be operated at pressures in which currents flow in the common ground connection between the gauge controller chassis and the vacuum chamber. If this common ground is missing, or unable to support the current, lethal voltages can then be produced between the gauge controller chassis and the vacuum chamber. If only the vacuum chamber is not grounded, these dangerous voltages can appear between the vacuum chamber and ground. For example, when measuring pressures near 0.1 PA ( $10^{-3}$  Torr), we observed a floating chamber voltage up to about 160 volts relative to ground, with current capacity of several milliamperes, depending upon the system, tube and controller design. *Fibrillation of the human heart could then be caused by ground to chamber contact.* When degassing tubes by electron bombardment, the floating chamber

voltage may be as high as 900 V relative to ground, and instantaneous currents up to 10 amperes have been measured to ground. *These conditions could cost lives!*

A local gauge pressure in the 0.1 PA ( $10^{-3}$  Torr) range, or greater, will plasma couple the metal parts of the vacuum chamber to the voltage present on the grid of the gauge tube. The chamber potential is typically about 40 V less positive than the grid. We have only observed this phenomenon when a filament was operating. Thus, all ionization gauges, but especially those with electron bombardment degas operation are to be considered potentially dangerous *unless the controller and the vacuum chamber have a common ground.*

Please check your ground systems carefully, lives could depend on your care. Please care,—[Charles Morrison]

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### ALGA TO END MALNUTRITION

... "One approach toward eliminating malnutrition is to grow *Spirulina* [a blue-green alga] in recycled village wastes. Villages could become self-sufficient by growing the *Spirulina* themselves and recycling waste in a digester to provide the raw material for its production. . . . When dried, [powdered] *Spirulina* contains about 65% high quality assimilable protein and compares very favorably with egg protein. . . . It can be mixed into bread, cakes, chapatis, noodles,

beers, other beverages, milk, yogurt, and sauces [and] is readily accepted if it is hidden. . . ."

[(Ripley D. Fox (Laboratoire de La Roquette, France) in *Futurist* 19(1):30-5, Feb 85) Reproduced with permission from Press Digest, *Current Contents*®, No. 9, March 4, 1985, p. 14. (Published by the Institute for Scientific Information®, Philadelphia, PA, USA.)]

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### REVOLUTION IN TELECOMMUNICATIONS

Charles Hughes, a British inventor who devised an inexpensive, general purpose, silicon chip for use in integrated circuits, recently received the Martlesham Medal from Britain's Secretary of State for Trade and Industry, Norman Tebbit.

This award is given annually to employees of British Telecom who have made outstanding personal contri-

butions to science and technology in telecommunications and have enhanced national prestige by increasing benefits to customers or providing significant help to industry. The medal is named after British Telecom's prestigious research establishment in eastern England. (BIS, British High Commission, Chanakyapuri, New Delhi 110 021)

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## PARENTS WHO WORRY LESS WORK MORE

... "Not every company has the time, interest, or resources to get into the child-care business. Still, a recent study by the Natl. Employer Supported Child Care Project, in Pasadena, Calif., revealed that the number of companies with child-care programs had increased by almost 400% from 1978 to 1982. The study refers to a poll of corporate human resources executives, 67% of whom reported that their companies expected to provide child-care benefits within five years. Prohibitive up-front and operating costs, coupled with a fair amount of red tape, are what discourage most smaller companies . . . from setting up their own centers. But current federal tax laws make some type of employer-supported day care—

such as information and referral services, voucher programs, or flexible benefits—a reasonable goal for many companies. Child-care expenditures, including referral contracts and subsidies to parents and providers, as well as the cost of operating a center, are all tax-deductible. Under a Dependent Care Assistance Program, employers may also offer child care as a tax-free benefit to their employees."

[(Donna Fenn in *Inc.* 7(1):48-54, Jan 85) Reproduced with permission from Press Digest, *Current Contents*®, No. 9, March 4, 1985, p. 15. (Published by the Institute for Scientific Information®, Philadelphia, PA, USA.)]

## MAKING A MUSEUM MODERN

... "In addition to the steady renovation of its 40 permanent-exhibition halls, the [American Museum of Natural History in New York City] now presents a new temporary exhibit about eight times a year. . . . Its education department (20 full-time professionals, plus part-timers and volunteers) puts on numerous annual events ranging from the Margaret Mead Film Festival . . . to Identification Day, when anyone can bring an object found in the attic or on the beach and discuss it with one of the museum's curators. Every weekend afternoon from October through July, there are ethnic-music, dance, and crafts

demonstrations at the Leonhardt People Ctr.; adult lectures and performances draw more than 50,000 people a year; 50,000 kids come to the museum's classes, and 100,000 more tour the institution with school groups. The education department [also plans] activities geared to the African-American and Caribbean communities and to senior adults. . . ."

[(Katharine Davis Fishman in *New York* 14 Jan 85, p. 34-42) Reproduced with permission from Press Digest, *Current Contents*®, No. 9, March 4, 1985, p. 16. (Published by the Institute for Scientific Information®, Philadelphia, PA, USA.)]

## IMAGE ANALYSER FOR MATERIALS LABORATORIES

An image analyser which does not require its operator to be a computer expert and which is designed specifically for the routine materials laboratory has been developed by a British company. It is believed to be the only one available that is specifically programmed to undertake the four routine functions: grain size, area fractions, particle counting and linear measurement.

The central processor features an alphanumeric printer, LED display and keyboard. The whole is controlled by a microprocessor providing 20k non-volatile memory for instant use. For standard tests the printer provides the basic and derived data. A notable

feature is a shading corrector, particularly useful in overcoming individual sample and illumination variations which can cause problems with images of low contrast.

The high-sensitivity camera can be attached to any type of microscope. For analysing very intricate low-contrast images it may be useful to use the optional resolution scanner, but rarely is this necessary.

(Metallurgical Services Laboratories, Ltd, Reliant Works, Betchworth, Surrey, England RH3 7HW, BIS, British High Commission, Chanakyapuri, New Delhi 110021)

## BEFORE CURRENT CONTENTS: NATURAE NOVITATES

... *Naturae novitates*, published in Berlin from 1879 to 1944, was "an important current awareness journal that listed new literature in 'general natural sciences,' zoology, anthropology, botany, paleontology, geology, mathematics, astronomy, physics, and chemistry. . . . The serial was designed 'to offer a complete and speedy information about the modern Natural History Publications of European and Foreign Countries' and 'to keep the scientific worker continuously informed of the ever increasing output of

literary material.' Coverage of the literature was especially strong through 1914 . . . and it was worldwide, truly international, but with emphasis on middle and western Europe."

[(Rudolf Schmid (U. California, Berkeley) in *Taxon* 33(4):636-54, Nov 84) Reproduced with permission from Press Digest, Current Contents<sup>®</sup>, No. 10, March 11, 1985, p. 12. (Published by the Institute for Scientific Information<sup>®</sup>, Philadelphia, PA, USA.)]

## ARE THERE ANY VOLCANOES ON VENUS?

The Soviet scientists have completed studies of hot spots detected by spacecraft on the surface of Venus which is closest to the Earth and most mysterious planet. According to these scientists, these hot spots can be active volcanoes.

Explorations of Venus by Venera-15 and Venera-16 have been going on for more than 18 months now. Recently, a working meeting was held at a tracking station which receives radio signals from Venus; it summed up the results of this long work. Researchers have compiled a thermal chart virtually of the entire northern hemisphere of the planet, showing vast areas covered with lava. But the most sensational thing, according to researchers, are hot spots, with temperatures reaching about 700°C.

This is the first evidence that there can be volcanoes

on Venus, though such a possibility was predicted theoretically long ago. In the opinion of many scientists, the thermal flow from the planet's interior is approximately the same as on the Earth.

It is realised that it is extremely important to study Venusian volcanism not only for its own sake but for understanding the development of the neighbouring planets. As for Venus, it is important now to clear up the following question: are those formations ancient, which is true of many volcanoes on the Earth, or young? For this purpose, it is necessary to analyse thoroughly the snapshots of 120 million square kilometres of the planet's northern hemisphere, which were received during more than 300 communication sessions. (*Soviet features*, Vol. XXIV, No. 48, 29 March 1985.)