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Low-Activity Sample Reject in New TRI-CARB SPECTROMETERS

The ability of new Tri-Carb Spectrometers to automatically bypass samples with little or no radioactivity can save hours of valuable counting time. This ability finds application in two commonly-encountered counting situations:

1. Identifying and counting only those chromatographic samples which contain material of interest while bypassing those which have little or no activity. Since a typical chromatographic analysis (see curve below) may be represented by several hundred cuts, of which only a few will contain radioactivity, savings in counting time are substantial.

2. Separating samples of low activity from those containing higher levels to ensure allocation of optimum counting time for each. For example: most of the samples from an experiment may require a 10 minute count to achieve the desired statistical accuracy, but a few low-activity samples need a 100 minute count to achieve the same statistics. These low-activity samples can be screened out (and identified) during the short counts on the majority, and then grouped together for automatic counting to the desired statistical accuracy. Again, important savings in counting time are achieved.

Low-activity Sample Reject increases the utility of new Tri-Carb Spectrometers because it places more instrument counting hours at the disposal of the researcher. It is just one of the many significant new features now available in 3000 and 4000 Series Tri-Carb Spectrometers. Ask your Packard Sales Engineer for complete details, or write for Bulletin 1030.

Typical chromatogram showing radioactivity peaks. Note that of the 200 fractions collected, only about 36 contain radioactive material and require precise counting.
The film that spoils fastest

In November, the International Conference on the Radioactive Pollution of Gaseous Media met at the Centre d’Energie Nucleaire at Saclay, outside of Paris. One gaseous medium that interests everybody is the one we all like to breathe and take walks in. Nobody is in favor of polluting it.

At Saclay an American, a friend of ours, spoke of the need for a simple way to monitor radioactive noble gases from reactors. (Particulate, chemically reactive, condensable, and scrubbable radioactive effluvia being easier to remove, the noble gases may become the limiting factor in the economics of nuclear sanitation.) He offered a suggestion for monitoring the environment around the stacks: film badges loaded with EASTMAN Personal Monitoring Film, Type 3, can reliably record 10 mr, including the normal natural background of about 8 mr per month.

Though obviously the film itself starts out with low background, the story about it winds up with some background which our friend, who is not a Kodak salesman but a professor at a school of public health, quite properly ignored. He did say that the smallest dose that personal badges usually measure reliably was about 30 mr but did not give the reason why it is no better than that; word has not gotten around as much as it should have that personal badges ought always to be loaded with EASTMAN Personal Monitoring Film, Type 3, simply because there isn’t any other monitoring film that sensitive to ionizing radiation.

For the details on desiccation, or the names of outfits that can do it for you, ask Eastman Kodak Company, Special Sensitized Products Division, Rochester, N. Y. 14650.

Man is a symbol-using animal

As far as we are concerned, the eyes have it. The eye is the gateway to the soul. When a blind man says “I see,” he means “I understand.” Literal seeing is preferred by billions to figurative seeing. Therefore where understanding is required, as in science and engineering, means are ever sought to use photography to best advantage.

Of course, photography covers more than the photographing of objects. Often it is very desirable to photograph symbols such, for example, as are drawn in some fashion or other by electronic pencil. To do such photography more than a manual, casual basis we furnish a 16mm and 35mm film long known to those skilled in the art as LINAGRAPh Pan Film. Time has pleased us enough to tell you instead of having you tell us.

The old LINAGRAph Pan emulsion couldn’t stand more than 90°F processing temperature. To be in the swim today, one processes film almost as hot as one launders shirts. Minutes shrink to seconds (but the shirts hardly shrink at all any more). Now KODAK LINAGRAph Pan Film carries the legend “Improved for High-Speed Processing.” It can stand 130°F.

We don’t merely guarantee that the emulsion will not turn to beef bouillon at 130°F. We tell you the photographic quality will be as good and better than when you carefully maintained 68°F, as you were taught in youth, when there was plenty of time.

Arrangements to shoot the new KODAK LINAGRAph Pan Film to you are made through Photorecording Methods Division, Eastman Kodak Company, Rochester, N. Y. For 16mm, we can also furnish a processing machine that delivers in 2 minutes, dry to dry. For 35mm, there is still a little challenge left in designing 130°F processing gear instead of the easy way, where you simply make out a $12,500 equipment-purchase requisition.

These are steroids but believed physiologically inert and thus different from very similar configurations of C, H, and O atoms in which very slight variations distinguish male from female and health from disease. To a small subset of the scientific community, these diagrams tell all, without need for stuttering non-words never intended to be framed by human lips. To that subset and that alone is newly offered any of these compounds under the indicated EASTMAN Organic Chemical number at the indicated price from Distillation Products Industries, Rochester, N. Y. 14603 (Division of Eastman Kodak Company). Other stuff in this advertisement may bore that subset stiff. There are other subsets, however.

Prices subject to change without notice.

14 FEBRUARY 1964
high lead content of rocks and soils and the incidence of multiple sclerosis in 24 areas of England.

W. H. Allaway (U.S. Department of Agriculture) reported on a recent discovery that a deficiency of selenium (less than 0.1 part per million in the dry weight of forage) causes white muscle disease in lambs and calves. Areas of selenium deficiency and toxicity are being mapped by animal nutritionists. A possible connection with the incidence of muscular dystrophy in humans is being investigated by at least one government agency.

The deficiency problems in Florida that are related to the availability of iron, copper, molybdenum, and cobalt to plants and the effect of these elements on nitrate and potassium content were described by H. C. Harris (agronomist, University of Florida). Such areas in Florida have been related to salt sickness in cattle and to anemia and bone deformation in children. This situation is being alleviated by adding minor elements to the soil.

Trace-element studies in New Zealand in areas of marked difference in the incidence of dental caries were described by F. L. Losee (U.S. Navy). Areas with soils that have a high pH and CaCO$_3$ content produce vegetables with more molybdenum and less manganese, and there is a lower incidence of dental caries. This work was corroborated by W. B. Healey (New Zealand) who described recent experiments in feeding molybdenum and manganese to twin lambs.

Hans T. Shacklette (U.S. Geological Survey) showed that the difference in iodine content in plants is an inherent characteristic of the taxonomic group. A given species thus has a characteristic range within which a secondary relation with the environment can occur. The iodine content ranged from 2.7 parts per million dry weight in deciduous trees to 1435 parts per million in brown algae. The iodine content of Spanish moss, an air plant (described by Shacklette), and the differences in humans (described by R. L. Voight, U.S. Public Health Service) indicate that both animals and plants absorb considerable amounts of iodine from the atmosphere.

Maps of the United States that showed areas of trace-element deficiency and excess and also of disease incidence pointed up the geographic, geologic, and soil relationships and suggested the need for compiling maps that would indicate the distribution of trace elements in ground water, geologic strata, soils, and plants.

J. E. Banta (U.S. Public Health Service) discussed the problems of an epidemiologist in correlating trace-element differences with evolutionary chronic diseases, in defining the population at risk, and in defining the particular geochemical unit related to the disease pattern. He made a strong plea for cooperation between the geochemist, geologist, and epidemiologist.

Several participants proposed the establishment of a trace-element institute or repository for trace-element information accumulated by workers in many fields. This proposal was considered premature at this time. A tentative decision was made to continue the group under the auspices of the Geochemical Society and the Geological Society of America, but to meet with other health groups and scientific societies in alternate years. Those who are interested in receiving notices of publication of the papers or in participating in further group activity are invited to contact any member of the committee. Members of the committee include Helen L. Cannon, U.S. Geological Survey, Denver, Colorado; Homer K. Hall, U.S. Public Health Service, Columbia, Missouri; Harry V. Warren, University of British Columbia, Vancouver; Michael Fleischer, U.S. Geological Survey, Washington, D.C.; and John Fortescue, Canadian Geological Survey, Ottawa, Ontario.

HELEN L. CANNON
U.S. Geological Survey,
Denver, Colorado

Forthcoming Events

February


19-5. Pan American Medical Assoc., 39th congr., the Americas, during a cruise aboard the S.S. Independence. (J. J. Eller, 745 Fifth Ave., New York, N.Y.)


23-28. Otorhinolaryngology and Bronchoesophagology. 9th Pan American congr., Bogota, Colombia. (C. M. Norris, 3401 N. Broad St., Philadelphia, Pa.)


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27-28. Cellular Basis for the Action of Cardiac Drugs, Philadelphia, Pa. (Heart Assoc. of Southeastern Pa., 318 S. 19 St., Philadelphia 3)
27-29. American Acad. of Forensic Sciences, Chicago, Ill. (W. J. R. Camp, 1853 W. Polk St., Chicago 12)

March

2-4. Fundamental Cancer Research, 18th annual symp., Houston, Tex. (R. J. Shalek, Dept. of Physics, Univ. of Texas, Houston)
4-6. Thermal Radiation of Solids, symp., San Francisco, Calif. (W. D. Harris, Engineering and Sciences Extension, Univ. of California, Berkeley 4)
5-6. Theoretical and Applied Mechanics, southeastern meeting, Atlanta, Ga. (Dept. of Short Courses and Conferences, Georgia Inst. of Technology, Atlanta)
5-7. Macromolecular Colloquium, Freiburg im Breisgau, Germany. (Institut für Makromolekulate Chemie, Univ. Freiburg, Stefan-Meier-Str. 31, 78 Freiburg im Breisgau)
5-7. Pacific Sociological Assoc., Coro-

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14 FEBRUARY 1964
DETECTION STRATEGY

**Problem:** An enemy equips innocent-looking merchant ships with nuclear-armed rockets and stations them at off-shore launch positions, preparing for a coordinated attack on the United States. What system can detect such a move in time to take action yet does not create intolerable numbers of false alarms?

This is an example of the challenging tasks assigned to the Center for Naval Analyses of The Franklin Institute.

In examining this threat, CNA analysts evaluated the relative contributions of patrol reports, intelligence sources, and other alarm system components. Their report showed the various degrees of detection sensitivity which could be attained, and the likelihood of false alarms, with alternative systems. It also suggested guide lines for further work.

**CAREER OPPORTUNITIES** with CNA are now available for Operations Analysts, Mathematicians, Physicists, and Engineers. For additional information, write:

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Honeywell Strobonar for Photomicrography

The new Honeywell Model 52A Strobonar Electronic Flash Unit is a versatile and economical light source for all types of photomicrography, black and white or color. Concentric with the electronic flash tube is an incandescent light with which the unit is positioned for correct light reflection. Users report intensity of flash is excellent even at maximum magnification. Absence of heat protects specimens from physical change and warping.

A universal bracket fits the unit for many assignments in both laboratory and field. The 52A can be flashed by any camera synchronized for electronic flash. Specify: Model 52A Strobonar Electronic Flash; 110V-AC, 90 Watts; 16 ft. cord; 3 lbs.; 8" x 4½" x 5½".

For illustrated folder on the 52A Strobonar Electronic Flash, please write: David Moore, Mail Station 209, Honeywell, Denver Division, Denver 10, Colorado.
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- L-Cys-S\(^{35}\)
- L-Glu-C\(^{14}\)
- L-GluNH\(_2\)-C\(^{14}\)
- GSH-S\(^{35}\)

- L-Glu-C\(^{14}\) & H\(^{3}\)
- L-Asp-C\(^{14}\) & H\(^{3}\)
- L-Cys-S\(^{35}\) & H\(^{3}\)
- L-Glu-C\(^{14}\) & H\(^{3}\)
- L-GluNH\(_2\)-C\(^{14}\) & H\(^{3}\)
- GSH-S\(^{35}\) & H\(^{3}\)

- S\(^{35}\)
- C\(^{14}\)
- H\(^{3}\)
- N\(^{15}\)

*Inquiries Invited*