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TECH-PEN'S clear, brilliant ink will not wash or wear off with the usual handling. It is resistant to autoclaving, acids, alkalies and to most laboratory reagents, yet if desired, it is easily removed with common solvents.

Temperature has little or no effect on the Tech-Pen markings. The RED resists temperatures up to 1000° C, while YELLOW, BLUE, GREEN, ORANGE, BLACK and WHITE are unaffected by temperatures up to 500° C. Sufficient ink is supplied with each pen for making 25,000 characters.

Please specify color wanted when ordering.

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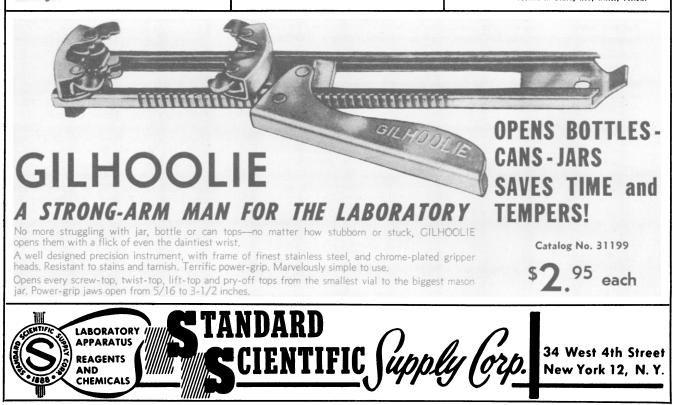
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26-30. Soc. of Protozoologists, annual. (N. D. Levine, College of Veterinary Medicine, Univ. of Illinois, Urbana.)

26-30. Soc. of Systematic Zoology. (R. E. Blackwelder, 3728 Second St. South, Arlington 4, Va.)

27-29. American Soc. of Zoologists, 53rd annual. (R. T. Kempton, Marineland Research Laboratory, Marineland, Fla.)

27-29. Genetics Soc. of America, annual. (H. B. Newcombe, Atomic Energy of Canada, Ltd., Chalk River, Ont.)

27-31. American Soc. of Naturalists, annual. (B. Wallace, Biological Lab., Cold Spring Harbor, Long Island, N.Y.)

26-1. International Soc. of Haematology, 6th cong., Boston, Mass. (ISH, New England Medical Center, Harrison Ave. at Bennet St., Boston 11.)

27-31. Biological Photographic Assoc., 26th annual, Rochester, N.Y. (BPA, c/o 343 State St., Rochester 4.)

27-31. Colloquium on Statistical Mechanics of Transport Processes, IUPAP, Brussels, Belgium. (I. Prigogine, 40 Avenue F. D. Roosevelt, Brussels.)

27-31. Infrared Spectroscopy Inst., 7th annual, Nashville, Tenn. (N. Fuson, Dept. of Physics, Fisk Univ., Nashville 8.)

28-2. Colloquium on Semiconductors and Phosphors, IUPAP, Garmisch-Partenkirchen, Germany. (H. Maier-Leibnitz, Walter-von-Dyck-Platz 1, Munich 2, Germany.) 29-5. British Assoc. for the Advancement of Science, annual, Sheffield, England. (Secretary, BAAS, Burlington House, Piccadilly, London, W.1., England.)

29-8. International Soc. of Soil Science, 6th cong., Paris. (F. A. Van Baren, ISSS, Royal Tropical Inst., Mauritskade 63, Amsterdam, Netherlands.)

30-5. American Psychological Assoc., Chicago, Ill. (F. H. Sanford, 1333 16 St., NW, Washington 6.)

30-5. Psychometric Soc., Chicago, Ill. (L. V. Jones, Dept. of Psychology, Univ. of Chicago, Chicago 37.)

#### September

1-9. International Cong. of Anthropological and Ethnological Sciences, 5th, Philadelphia, Pa. (Secretary, American Organizing Committee, International Cong. of Anthropology, National Acad. of Sciences-National Research Council, 2101 Constitution Ave., Washington 25.)

2-7. Laurentian Hormone Conf., AAAS, Mont Tremblant, Quebec, Canada. (Committee on Arrangements, LHC, 222 Maple Ave., Shrewsbury, Mass.)

4-5. Meteoritical Soc., 19th meeting, Bloomington, Ind. (C. W. Beck, Dept. of Geology, Indiana Univ., Bloomington.)

4-6. International Assoc. of Milk and Food Sanitarians, annual, Seattle, Wash. (H. L. Thomasson, IAMFS, Box 437, Shelbyville, Ind.)

4-7. American Physiological Soc.,

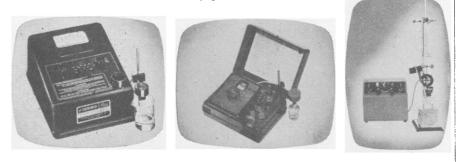


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Rochester, N.Y. (M. O. Lee, APS, 9650 Wisconsin Ave., Washington 14.)

4-9. American Ornithologists' Union, annual, Denver, Colo. (H. F. Mayfield, 2557 Portsmouth Ave., Toledo 13, Ohio.) 4-11. International Geological Cong.,

4-11. International Geological Cong., 20th, Mexico, D.F. (Congreso Geológico Internacional, Calle Balderas 36, Despacho 302-A, Mexico, D.F.)

4-11. International Paleontological Union, Mexico, D.F. (H. E. Vokes, Johns Hopkins Univ., Baltimore 18, Md.)

5-7. Cryogenic Engineering Conf., Boulder, Colo. (P. L. Barrick, National Bureau of Standards Cryogenic Engineering Laboratory, Boulder.

5-7. Wyoming Geological Field Conf., 11th annual, Moran, Wyo. (K. W. Frielinghausen, Box 1571, Casper, Wyo.)

5-13. International Cong. of Applied Mechanics, 9th, Brussels, Belgium. (H. L. Dryden, Director, National Advisory Committee for Aeronautics, Washington 25.)

6-8. American Political Science Assoc., annual, Washington, D.C. (E. M. Kirkpatrick, APSA, 1726 Massachusetts Ave., NW, Washington 6.)

6-8. Phi Sigma Soc., Ann Arbor, Mich. (K. F. Lagler, Dept. of Fisheries, School of Natural Resources, Univ. of Michigan, Ann Arbor.)

6-12. International Genetics Symposium, Tokyo and Kyoto, Japan. (Secretary, IGS 1956 (Science Council of Japan, Ueno Park, Tokyo.)

7-9. American Sociological Soc., annual, Detroit, Mich. (Mrs. M. W. Riley, ASS, New York Univ., Washington Square, New York 3.)

7-10. American Statistical Assoc., annual. Detroit, Mich. (D. C. Riley, ASA, 1757 K St., NW, Washington 6.)

7-10. Biometric Soc., ENAR, Detroit, Mich. (A. M. Dutton, Univ. of Rochester, Box 287, Station 3, Rochester 20, N.Y.)

7-10. Econometric Soc., Detroit, Mich. (R. Ruggles, Dept. of Economics, Yale Univ., New Haven, Conn.)

9-12. American Inst. of Chemical Engineers, Pittsburgh, Pa. (F. J. Van Antwerpen, AIChE, 25 W. 45 St., New York 36.)

9-13. International College of Surgeons, 21st annual, Chicago, Ill. (K. A. Meyer, 1516 Lake Shore Drive, Chicago 10.)

9-14. International Cong. of Clinical Chemistry, New York, N.Y. (J. G. Reinhold, 711 Maloney Bldg., Univ. of Pennsylvania, Philadelphia 4.)

9-16. Cong. on Analytical Chemistry, Lisbon, Portugal. (P. A. Laurent, Instituto Superior Tecnico, Av. Rovisco Pais, Lisbon.)

10-12. American Soc. of Mechanical Engineers, fall, Denver, Colo. (C. E. Davies, ASME, 29 W. 39 St., New York 18.)

10-12. Electron Microscope Soc. of America, annual, Madison, Wis. (Miss J. R. Cooper, Nela Park 130, Cleveland 12, Ohio.)

10-14. European Soc. of Cardiology, 2nd cong., Stockholm, Sweden. (K. E. Grewin, Sodersjukhuset, Stockholm.)

10-14. Immunomicrobiological Standardization Symposium, 2nd, Rome, Italy. (G. Penso, Instituto Superiore di Sanita, Viale Regina Elena, 299, Rome.)

10-14. International Cong. on Catalysis, Philadelphia, Pa. (H. Heinemann, ICC, c/o Houdry Process Corp., P.O. Box 427, Marcus Hook, Pa.)

10-14. International Cong. of Dietetics, 2nd, Rome, Italy. (American Dietetic Assoc., 620 N. Michigan Ave., Chicago 11, Ill.)

10-14. International Conf. on Fatigue of Metals, London, England. (Secretary, Institution of Mechanical Engineers, 1, Birdcage Walk, Westminster, London, S.W.1.)

13-17. Static Electricity in Textiles, Zurich, Switzerland. (General Secretary, Textile Institute, 10 Blackfriars St., Manchester 3, England.)

14-15. Calorimetry Conf., 11th annual, Baltimore, Md. (H. A. Boorse, Pupin Physics Laboratories, Columbia Univ., New York 27.)

15-22. Congreso Panamericano de Gerontología, 1st, Mexico, D.F., Mexico. (E. V. Cowdry, Washington Univ. School of Medicine, St. Louis 10, Mo.)

16-21. American Chemical Soc., Atlantic City, N.J. (A. H. Emery, ACS, 1155 16 St., NW, Washington 6.)

16-22. American Soc. for Testing Materials, Pacific Coast meeting, Los Angeles, Calif. (R. J. Painter, ASTM, 1916 Race St., Philadelphia 3, Pa.)

17-21. Illuminating Engineering Soc., annual, Boston, Mass. (A. D. Hinckley, IES, 1860 Broadway, New York 23.)

17-21. Instrument Soc. of America, 11th international conf., New York, N.Y. (F. J. Tabery, 250 W. 57 St., New York 19.)

17-23. European Confederation of Agriculture, 8th general assembly, Sheveningen, Netherlands. (M. Collaud, ECA, Pestalozzistrasse 1, Brugg, Argovie, Switzerland.)

19-23. International Cong. of Internal Medicine, 4th, Madrid, Spain. (C. Jimenez Diaz, Facultad de Medicina, Madrid.)

21-22. Pharmacotherapy in Mental Illness, Washington, D.C. (J. O. Cole, Na-tional Research Council, 2101 Constitution Ave., NW, Washington 25.)

24-26. American Oil Chemists' Soc., Chicago, Ill. (Mrs. L. R. Hawkins, AOCS, 35 E. Wacker Drive, Chicago 1.)

24-26. Biochemistry of Lignin, 3rd round table, Appleton, Wis. (H. F. Lewis, Inst. of Paper Chemistry, Appleton.)

24-28. International Dairy Cong., 14th, Rome, Italy. (R. E. Hodgson, Dairy Husbandry Research Branch, U.S. Dept. of Agriculture, Beltsville, Md.)

25-27. Atomic Industrial Forum and Trade Fair, 3rd annual conf., Chicago, Ill. (C. Robbins, AIF, 260 Madison Ave., New York 16.)

25-28. American Roentgen Ray Soc., annual, Los Angeles, Calif. (B. R. Young, Germantown Hospital, Philadelphia 44, Pa.)

25-28. Assoc. of Iron and Steel Engineers, annual, Cleveland, Ohio. (Secretary, AISE, Empire Bldg., Pittsburgh 22, Pa.)

26-28. Mississippi Valley Medical Soc., annual, Chicago, Ill. (H. Swanberg, 510 Maine St., Quincy, Ill.)

26-29. European Cong. of Allergology, 20 JULY 1956

3rd, Florence, Italy. (U. Serafini, Instituto di Patologia Medica, Viale Morgagni, Florence.)

27-30. Alaskan Science Conf., 7th annual, Juneau. (H. C. Baltzo, U.S. Fish and Wildlife Service, Juneau.)

28-29. American Medical Writers' Assoc., annual, Chicago, Ill. (H. Swanberg, 510 Maine St., Quincy, Ill.)

30. American College of Dentists, annual, Atlantic City, N.J. (O. W. Brandhorst, 4221 Lindell Blvd., St. Louis, Mo.)

30-4. Electrochemical Soc., Cleveland, Ohio. (H. B. Linford, 216 W. 102 St., New York 25.)

October

1-2. American Soc. of Photogrammetry, semiannual, Denver, Colo. (C. E. Palmer, ASP, 1515 Massachusetts Ave., NW, Washington 5.)

1-3. National Electronics Conf., 12th annual, Chicago, Ill. (NEC, 84 E. Randolph St., Chicago 1.)

1-4. American Dental Assoc., annual, Atlantic City, N.J. (H. Hillenbrand, ADA, 222 E. Superior St., Chicago 11, Ill.)

1-4. Semiconductor Symposium, Cleveland, Ohio. (M. F. Lamorte, Semiconductor Dept., Westinghouse Electric Corp., Youngwood, Pa.)



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1-5. American Inst. of Electrical Engineers, fall general, Chicago, Ill. (N. S. Hibshman, AIEE, 33 W. 39 St., New York 18.)

1-5. International Cong. on Medical Records, 2nd, Washington, D.C. (Miss G. L. Perkins, American Assoc. of Medical Record Librarians, 510 N. Dearborn St., Chicago 10, Ill.)

8-10. National Clay Conf., 5th, Urbana, Ill. (R. E. Grim, Univ. of Illinois, Urbana.)

8-12. American College of Surgeons, 42nd annual clinical cong., San Francisco, Calif. (ACS, 40 E. Erie St., Chicago 11, Ill.)

8-12. International Decennial Review Conf. on Tissue Culture, Woodstock, Vt. (P. R. White, Jackson Memorial Laboratory, Bar Harbor, Me.)

8-12. National Metal Cong., 38th annual, Cleveland, Ohio. (American Inst. of Mining, Metallurgical and Petroleum Engineers, 29 W. 39 St., New York 18.) 8-12. Pan-American Federation of Engineering Societies, 4th convention, Mexico, D.F., Mexico. (S. E. Reimel, Engineers Joint Council, 29 W. 39 St., New York 18.)

8-13. International Cancer Cytology Cong., Chicago, Ill. (A. H. Dearing, College of American Pathologists, Prudential Plaza, Chicago 1.)

9-10. Air Research and Development Command Science Symposium (classified), 4th annual, Boston, Mass. (Headquarters, ARDC, U.S. Air Force, P.O. Box 1395, Baltimore 3, Md.)

9-12. American Dietetic Assoc., 39th annual, Milwaukee, Wis. (Mrs. T. Pollen, ADA, 620 N. Michigan Ave., Chicago 11, Ill.)

9-15. World Medical Assoc., 10th general assembly, Havana, Cuba. (L. H. Bauer, WMA, 345 E. 46 St., New York, N.Y.)

11-12. International Scientific Radio Union, U.S. National Committee, Berke-



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14-17. Society of American Foresters, Memphis, Tenn. (H. Clepper, SAF, 17th and Pennsylvania Ave., NW, Washington 6.)

14–19. American Acad. of Ophthalmology and Otolaryngology, annual, Chicago, Ill. (W. L. Benedict, 100 First Ave. Bldg., Rochester, Minn.)

15-17. Assoc. of Official Agricultural Chemists, annual, Washington, D.C. (W. Horwitz, Box 540, Benjamin Franklin Station, Washington 4.)

15-17. Soil Conservation Soc. of America, Tulsa, Okla. (H. W. Pritchard, SCSA, 1016 Paramount Bldg., Des Moines, Iowa.)

15-18. American Veterinary Medical Assoc., annual. San Antonio, Tex. (J. G. Hardenbaugh, AVMA, 600 S. Michigan Ave., Chicago 5, Ill.)

15-26. New York Acad. of Medicine, annual graduate fortnight, New York, N.Y. (Secretary, Graduate Fortnight, NYAM, 2 E. 103 St., New York 29.)

16-17. National Acad. of Economics and Political Science, Washington, D.C. (D. P. Ray, George Washington Univ., Washington 6.)

16-18. Conference on Magnetism and Magnetic Materials, Boston, Mass. (T. O. Paine, Measurements Laboratory, General Electric Co., West Lynn, Mass.)

17-19. Symposium on Antibiotics, 4th annual, Washington, D.C. (H. Welch, Div. of Antibiotics, Food and Drug Administration, U.S. Dept. of Health, Education, and Welfare, Washington 25.)

18-20. Optical Soc. of America, semiannual, Lake Placid, N.Y. (A. C. Hardy, Massachusetts Inst. of Technology, Cambridge 39.)

21-23. American College of Apothecaries, Dallas, Tex. (R. E. Abrams, Hamilton Court, 39th & Chestnut St., Philadelphia 4, Pa.)

21-27. Iberian-Latin American Cong. of Dermatology, 3rd, Mexico City, Mexico. (Centro Dermatológico Pascua, Calle Dr. Garciadiego 21, Mexico 7, D.F.)

22-25. American Soc. for Pharmacology and Experimental Therapeutics, Louisville, Ky. (H. Hodge, Dept. of Pharmacology, Univ. of Rochester, Rochester, N.Y.)

22-26. National Safety Cong., Chicago, Ill. (R. L. Forney, National Safety Council, 425 N. Michigan Ave., Chicago, 11.)

23. American Soc. of Safety Engineers, annual, Chicago, Ill. (J. B. Johnson, ASSE, 425 N. Michigan Ave., Chicago 11.)

25-26. National Soc. of Professional Engineers, White Sulphur Springs, W.Va. (P. H. Robbins, 2029 K St., NW, Washington 6.)

26-29. American Heart Assoc., annual, scientific sessions, Cincinnati, Ohio. (Medical Director, AHA, 44 E. 23 St., New York 10.)

29-1. Society of Exploration Geophysicists, annual, New Orleans, La. (G. A. Grimm, Tide Water Associated Oil Co., Box 2131, Midland, Tex.)

31-2. Geological Soc. of America, annual, Minneapolis, Minn. (H. R. Aldrich, GSA, 419 W. 117 St., New York 27.)



#### **Equipment News**

■ TECHNICAL DATA on thermistors and varistors are contained in a catalog published by Victory Engineering. The catalog includes electric and physical characteristics covering bead, disk, rod, and washer-type thermistors, varistors, thermistor assemblies, varistor assemblies, and special products such as thermistor hypodermic needles, combustion analyzers, and gas analysis cells for vapor-phase chromatography and other uses. (Victory Engineering Corp., Dept. Sci., 54 Springfield Rd., Union, N.J.)

■ SCINTILLATION DETECTOR features a preamplifier circuit that permits its use with quarter-volt scalers and ratemeters or gamma-ray spectrometer systems. The probe-type instrument, designed for medical, biologic, and physical research where gamma-emitting radioisotopes are used, also contains a gamma-sensitive sodium iodide crystal, 6292 photomultiplier, magnetic shielding, and a detachable nose-piece collimator. The preamplifier provides a gain of 10 with negative output for use with a normal scaler or ratemeter and a gain of 2 with cathode-follower output for use with a spectrometer. Bandwidth is sufficient for 1-µsec resolution. Over-all detection efficiency is 50

20 JULY 1956

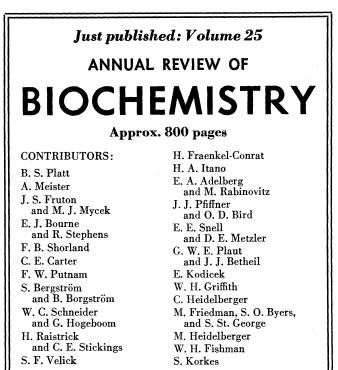
percent for iodine-131 and 45 percent for cobalt-60. Background is less than 200 count/min when the instrument is used with scaler or ratemeter and 2 to 25 count/min when it is used with a gammaray spectrometer system that is set on isotope photopeak (depends on windowwidth setting). (Nuclear Instrument and Chemical Corp., Dept. Sci., 229 W. Erie St., Chicago 10)

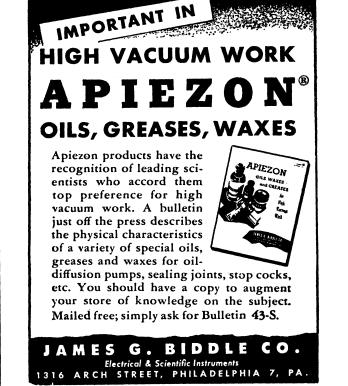
CAPILLARY TUBE RACK holds essentials for microhematocrit procedures—24 capillary tubes, hemolets, and a vial for capillary tubes. The rack contains 24 wells for unsealed tubes in upright position and 24 pairs of grooves for sealed tubes in horizontal position. (American Hospital Supply Corp., Dept. Sci., Evanston, Ill.)

DATA PROCESSING SYSTEM, using 12decimal digit numbers, is capable of 11,000 additions, 2000 multiplications, or 13,000 comparisons per sec. The electronic system's high-speed internal "memory" may be supplemented with up to 10 magnetic drum storage units, each having a 12-million-decimal digit capacity, and a 4-msec access time. Multiple tape units provide enlarged additional lower-speed storage. Input-output consists of punched cards, line printer, high-speed paper tape, and electric typewriter, as required. Operating strictly in decimal mode, the instrument is constructed on the modular principle, allowing compatible expansion for increasing data-processing requirements. (Logistics Research, Inc., Dept. Sci., Redondo Beach, Calif.)

**RADIATION SURVEY METER makes possible direct readings of x-ray, gamma, and beta radiations ranging from 3.0 to 3000 mr/hr on a single scale. The time constant of the portable logarithmic survey meter is inversely proportional to radiation intensity. A one-tube circuit provides an accuracy of \pm 20 percent throughout the entire range, and a built-in current source eliminates the need for radioactive sources for calibration. (Atomic Instrument Co., Dept. Sci., 84 Massachusetts Ave., Cambridge 39, Mass.)** 

■ VOLTAGE REGULATOR provides 0.05 percent accuracy of stabilization. The regulator circuit comprises an autotransformer that is controlled by a saturable reactor. The output is held to 220 v regardless of changes in input line voltage or output current demand. (North American Philips Co., Inc., Dept. Sci., 750 S. Fulton Ave., Mount Vernon, N.Y.)





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Biochemist, Ph.D. 1952. Research experience on enzyme synthesis, drug resistance, experimental pathology. Box 179, SCIENCE. X

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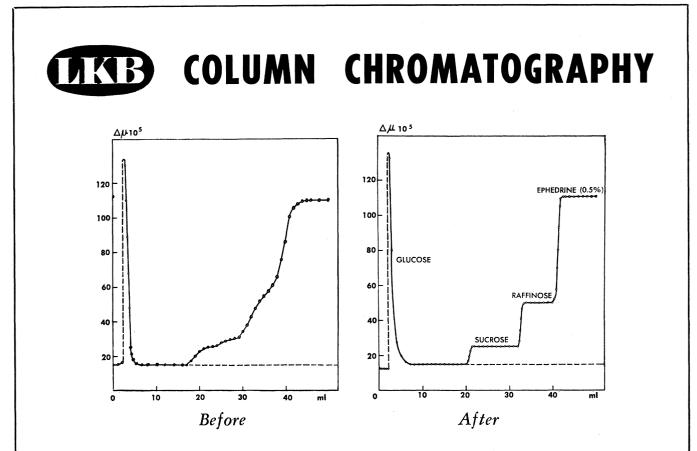
#### POSITIONS OPEN

Clinical Investigation—Opportunity for interesting career dealing with new medical developments of front-rank ethical pharmaceutical house located Midwest. Desired qualifications: American training and licensure, background in basic research or Board qualified, age below 40. Apply Box 178, SCIENCE. 7/27

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Opening for Fish and Crab Culturist with Comm, of Tidewater Fisheries in Annapolis. Requires bachelor's degree in biology or biochemistry, and 3 years' experience in fisheries biology work or biochemistry work; or master's degree and 1 year's experience. Salary \$5021-\$6021 with increase of \$260 on or after 1 Oct. File application by 31 July with Commissioner of Personnel, 31 Light St., Baltimore 2, Md. X

SCIENCE, VOL. 124



## LKB 3348 Composite Column for Chromatography

Both curves are from displacement chromatographic separations of 10-mg Glucose, 10-mg Saccharose, and 30-mg Raffinose in water, a 0.5% Ephedrine solution being used as displacer. Equal amounts of adsorbent, Carboraffin Supra, were used. The only diference between the two experiments—besides, of course, the very superior sharpness of the zones in the curve to the right—was the type of column used: in the case shown to the left, one single column; in the case to the right, a 3-component column according to Hagdahl. Write for bulletin SC-79C.

Also of interest to workers in Electrophoresis and Chromatography:

**LKB** 3340 Column Electrophoresis Apparatus—for preparative work with both powder and **density gradient** columns.

**LKB** 3276 Paper Electrophoresis Equipment—for micro analysis, for example in clinics. Unrivalled resolving power. **LKB** 3391 Grycksbo Chromatographic Filter Paper Column—converts paper chromatography into a large-scale **preparative** method.

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# RARE EARTHS AS CATALYSTS

### An application which offers intriguing possibilities

#### a report by LINDSAY

**E** ver tried to burn a cube of sugar? It can't be done, you know—unless you use a catalyst . . . in this case cigarette ashes. Dust the cube with ashes, apply a match and presto—you have a junior inferno.

Of course, you're not vitally interested in burning cubes of sugaraside from amazing your non-technical friends. We mention this little experiment to focus attention on the use of rare earths as catalysts.

Cerium and cerium oxide are being used for this purpose in several industries. And it is highly probable that among the other rare earths, you will find some that have important commercial possibilities in your operations.

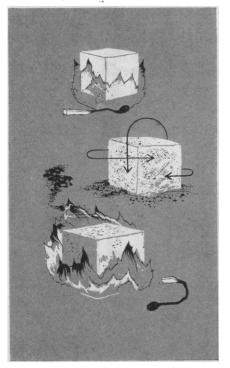
Interest in the rare earths as catalysts is gaining momentum. Although we, at Lindsay, do not make catalysts ourselves, we do supply rare earth materials for this use. Here are some of the operations where rare earths may have a place in your industry. Ammonia Synthesis and Oxidation, Combustion and Oxidation, Dehydration, Dehydrogenation and Hydrogenation, Fischer-Tropsch Reaction, Halogenation, Methanol Synthesis, Polymerization, Crude Oil Cracking, Paint Driers.

If any of these processes play a part in your plant operations, you may find it richly rewarding to investigate rare earths as catalysts.

This is only one of the many, many applications of these unique metals. Here at Lindsay, we have been refining and developing rare earths for over 50 years and almost every day we hear of new uses for them. Scientists in more and more industries are turning to the rare earths in their search for ways to improve their products and processes.

Take Lindsay's cerium oxide, for example. It has revolutionized glass polishing practices and is also used in colorizing and decolorizing glass.

Lindsay's rare earth chloride (a



natural mixture of the chlorides of cerium, lanthanum, neodymium and praseodymium and some other rare earths) is used extensively in the textile industry, the metal industry and in the manufacture of paint and ink.

You'd be surprised at the diverse uses of rare earths in today's industrial technology. It seems as if every time you turn around, some researcher has found a new and practical application for one or more of these amazing metals. That's why we would like to suggest that you look at the rare earths with an eye toward their use as catalysts in your operations.

Some technical people have tended to overlook the rare earths, believing them to be unavailable in commercial quantities. This is not true. Lindsay is engaged in large scale production of cerium, rare earth and thorium chemicals, and offers them for prompt shipment in quantities from a gram to a carload.

To aid you, the accumulated data and the advice of Lindsay's technical staff is at your service. Your inquiry is invited.



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