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16 March 1973

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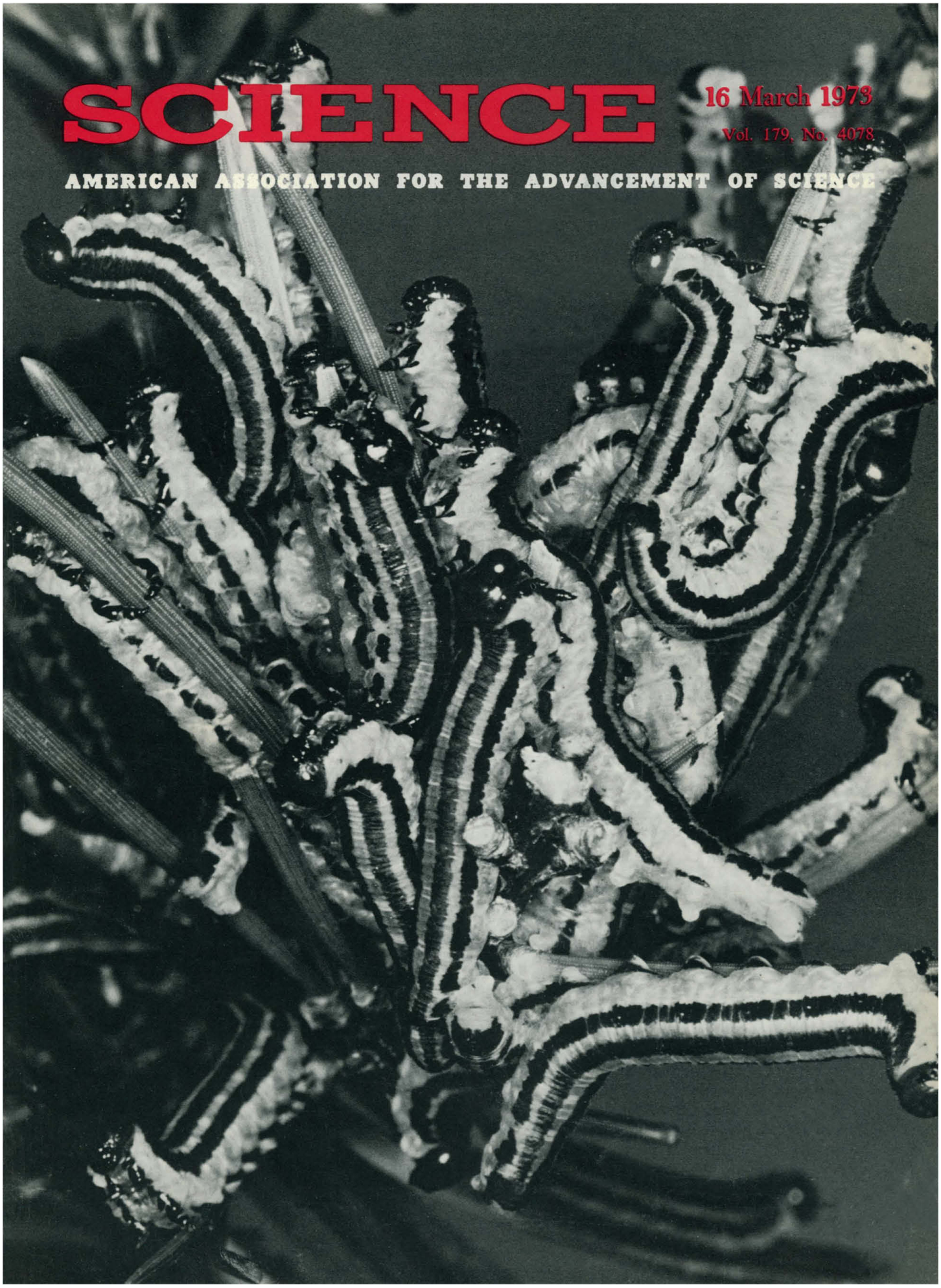

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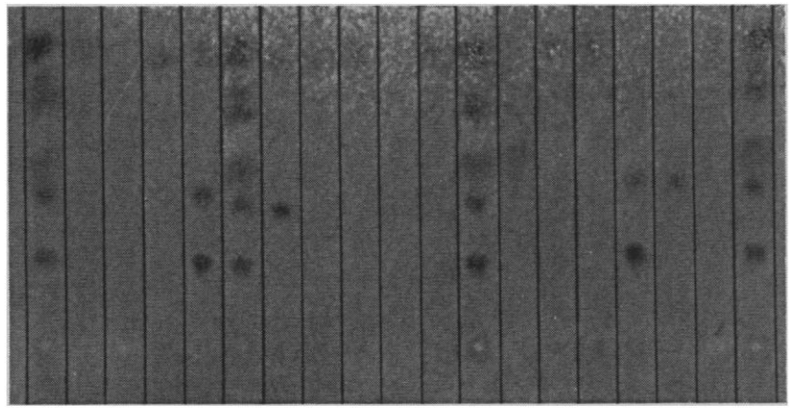

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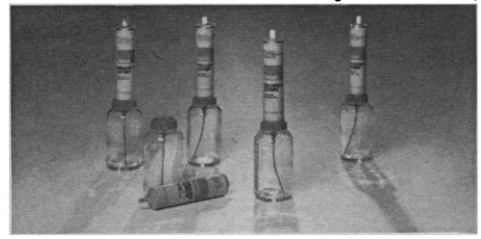

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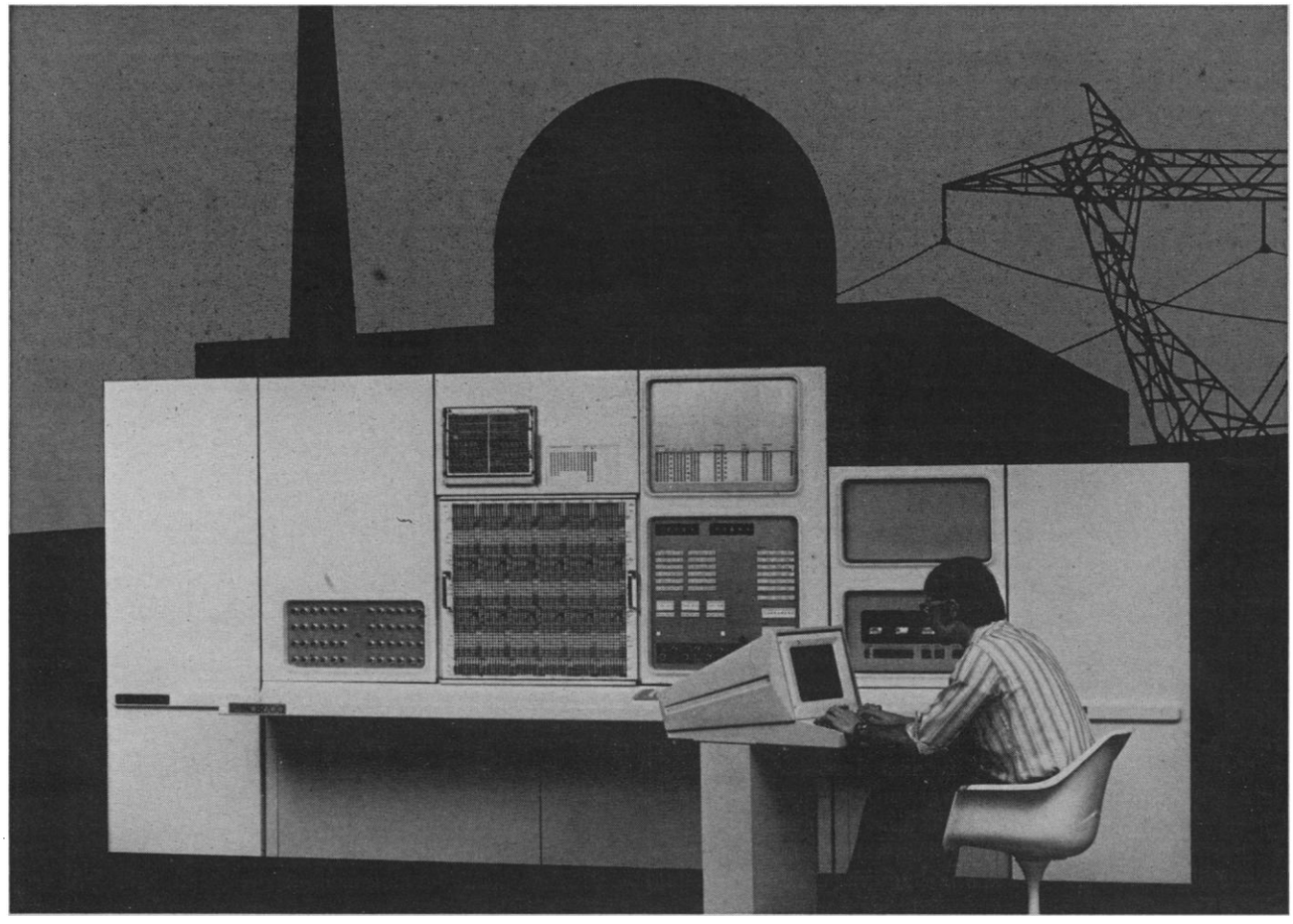

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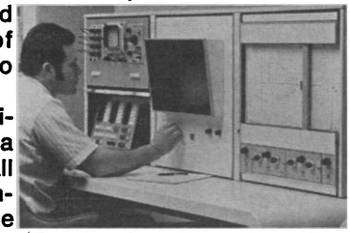

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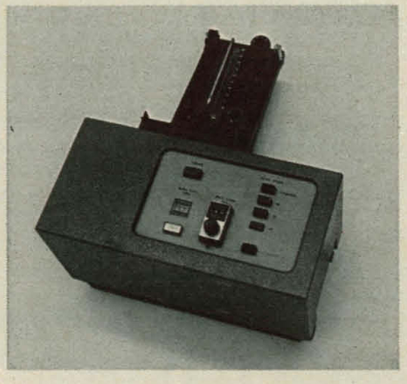
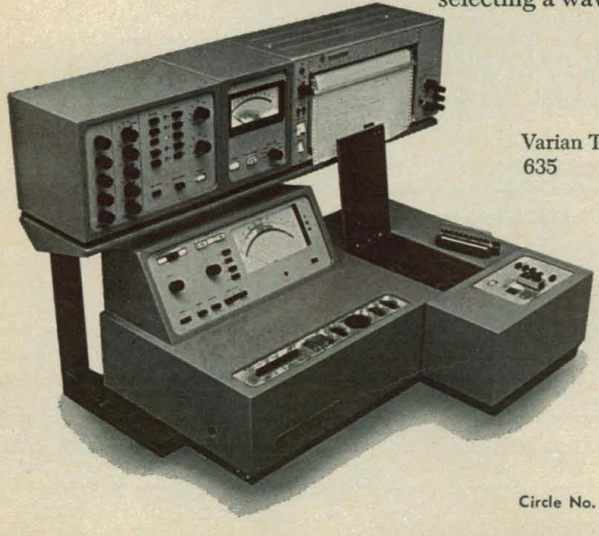


Varian Techtron Gel Scanner

Gel separation of extracted E coli protein.



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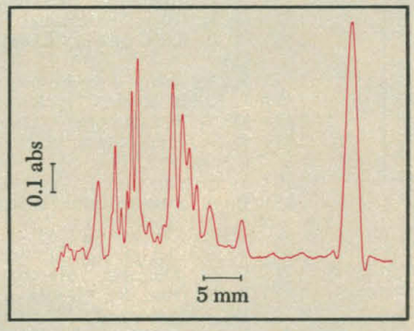

This spectrum of an SDS polyacrylamide gel separation of extracted E coli protein was recorded using the Techtron 635 spectrophotometer and new gel scanner to demonstrate the resolution to be expected with a typical gel separation. Wavelength setting: 550 nm; slit: 0.05 mm; transport speed: 5 mm/minute.

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that methadone is ". . . legal, a 'medicine' prescribed by physicians, whereas heroin is illegal, a 'drug'. . . ." A more accurate answer would be that methadone is better because of its longer period of action and oral effectiveness. Stabilization can be achieved with a daily dose of a constant amount. The patient is able to function normally without euphoria or other narcotic effects and therefore can live a normal life. The authors state only the similarities between the effects of heroin and methadone in single doses while ignoring the essential differences between their long-term effects.

Methadone patients are described as "somewhat somnolent," they "tire more easily," "require more sleep than do nondrugged individuals," have reflex reactions that are "somewhat abnormal," "perspire more profusely," are often constipated, and suffer from impotence. Some patients have reported these symptoms during the early months of methadone treatment, but this is not the long-term picture presented by the thousands of patients who are being maintained. The authors ignore the detailed studies that have shown reaction time and motor coordination (*1–3*), vigilance (*2*), and intellectual functioning (*1*) to be in the normal range in patients stabilized on methadone (*4*).

The statement that the blockade effect of methadone does not have any effect on nonopiate drug use is true, but certainly not relevant to a discussion of its value in treating heroin addiction. Neither methadone nor any other medication could be a panacea for all drug abuse problems.

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2. N. B. Gordon, *Psychopharmacologia* **16**, 337 (1970).
3. ——— and P. Appel, in *Proceedings of the Fourth National Conference on Methadone Treatment* (National Association for the Prevention of Addiction to Narcotics, New York, 1972), pp. 425–427.
4. A compilation of the various studies on the behavioral effects of methadone treatment is given by N. B. Gordon in *Discrimination and the Addict*, L. R. Simmons and M. B. Gold, Eds. (Sage, Beverly Hills, Calif., in press).

The treatment of drug addicts is too important to both the addicts themselves and to the society in which they live to let the article by Lennard *et al.* go unanswered. To my knowledge, no physicians actively engaged in using methadone as a therapeutic aid in the treatment of heroin addiction believe methadone to be a "solution" to heroin addiction. It does give real assistance to the heroin addict in relieving narcotic hunger. This tangible relief is the biggest asset methadone offers. For the vast majority of heroin victims, group therapy, a closed residential setting, and role model activity are simply not enough. But with methadone in the therapeutic setting, actual changes can and do occur.

It is absurd to ask whether methadone is better or worse than heroin. Can there be any question of the potential danger of regular intravenous and subcutaneous injections of heroin, usually with unsterilized equipment? There is a rapid buildup of tolerance to heroin, but not to methadone (*1*). Methadone dissolved in fruit-flavored liquid is rarely sold in the black market, and its abuse can be almost completely controlled. My experience and that of other clinicians affiliated with the Illinois Drug Abuse Program is that an individual whose methadone dosage has been constant for four or more weeks cannot be identified as a methadone patient, with the following exceptions: (i) constipation (which can be relieved

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with diet and regular laxative) and (ii) diminution of the sex drive (a variable effect).

The symptoms of muscle cramps, diaphoresis, tachycardia, and insomnia reported by Lennard, Epstein, and Rosenthal are signs of abrupt withdrawal or occur during the initial phase of giving up heroin and during the adjustment of the methadone dose level. I currently oversee more than 70 persons in a methadone withdrawal program which began over 3 months ago, and no patient has yet required hospitalization for withdrawal symptoms. At this point approximately 20 percent of this group has been abstinent for at least 6 weeks. In a properly run withdrawal group the physician in attendance can usually handle any symptomatology.

In the Illinois Drug Abuse Program there is no derogation of the work of therapeutic communities. Indeed, much inspiration comes from the Gateway House in Chicago. But only the most highly motivated addicts can gain access to these facilities. The vast majority of addicts are unable to qualify because they cannot "clean up," that is, abstain from heroin. This is the Catch-21 of drug abuse programs. Those who are ready to give up heroin *and* are able to endure heroin withdrawal constitute a small, select population. But the many thousands of addicts who have come to the point of wanting to stop deserve the assistance methadone can afford. That such assistance is required is attested to by the fact that there are many more people in methadone programs than in therapeutic communities.

A valid case can and must be made against perpetual methadone maintenance. It is a callous, cost-accounting approach to human life, ethically wrong, and based on the unsupported belief that the addict's physiology is permanently altered.

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It would have been much more informative and helpful to *Science* readers if co-author Mitchell S. Rosenthal, who was noted as being the director of the Phoenix House programs in New York, had described the successful efforts of Phoenix House in helping narcotic addicts. I, for one, would view any favorable results with a feeling of pleasure. It would not trouble me to hear that a program that I was not personally involved with had produced favorable results.

Unfortunately Rosenthal and his associates do not appear to feel the same way. They seem determined that the addict must be helped in the special way that is of particular interest and importance to them. The religious fervor of their article makes it clear that no report of favorable results with methadone would alter their antidrug dogma. This dogma appears to be more important to the authors than either the well being of the community or of the addict.

I sincerely hope for the success of the Phoenix House programs. I have read and heard mixed reports on their effectiveness, but have never questioned their usefulness or worth as long as there are addicts who are motivated to achieve abstinence and who demonstrate a readiness to remain in Phoenix House–type treatment programs.

The addiction problem is going to be with us for a long time and we cannot wait for a panacea that will be the perfect answer. Not all addicts have the same needs or similar motivation. There is plenty of room in the drug treatment field for a broad spectrum of treatment programs. Scientific study of these possible programs can only be hampered by moralistic arguments and an antidrug crusade.

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Those who persist in ignoring history are dooming themselves to repeat it. The arguments in the preceding letters in support of the use of methadone to control heroin addiction were advanced 70 years ago to support use of heroin to control morphine addiction.

We find ourselves in the same position today, having to speak out against the use of methadone, as those who seven decades ago warned against the use of heroin for this purpose. As the discussion of seven decades ago extolling the virtues of heroin and its hazards seems to be virtually identical with that heard on the subject of methadone, we thought it would be useful to recall the former discussion.

A letter that appeared in the *New York Medical Journal* (*1*) from Maurice B. Ahlborn in 1901 advised:

That heroine will take the place of morphine without its disagreeable qualities, I am convinced, as I have repeatedly

quieted morphinomanics whose cravings were awful, with a few injections of it which did not nearly represent the amount of morphine craved for. There seems to be no craving for the heroine awakened by its continued use, as the subsequent gradual withdrawal after its substitution for the morphine has been attended with no particular craving and only in one case of twenty-three years' standing have I seen any tendency to increase the dose of the substituted drug. . . .

Heroin was listed in *Squibb's Materia Medica* (*2*) as "a remedy of much value . . . and it is also used as a mild anodyne and as a substitute for morphine in combating the morphine habit" (*2*).

As for the side effects of heroin, James R. L. Daly reported in the *Boston Medical and Surgical Journal* of 22 February 1900 (*3*):

It [heroin] possesses many advantages over morphine . . . it is not a hypnotic; there is no danger of acquiring the habit . . . it does not weaken the respiratory apparatus . . . it does not cause unpleasant disturbance of the stomach or intestines . . . [and] the ratio of the therapeutic dose to the toxic dose is considerably smaller than that of morphine.

There were many advocates of heroin at that time. E. H. Sickler, writing in *Medical Age* in January 1902, said of heroin, "Its continued administration does not give rise to any craving" (*4*). E. Y. Johnson said in the *American Practioner and News* of December 1901 that heroin "given to a morphine habitue in place of the usual drug satisfies the craving and seems to destroy it finally without any longing for the new drug" (*5*).

The argument advanced against heroin in an article written in 1902, "The heroin habit another curse" by George E. Pettey (*6*), applies equally well to those who are presently defending and justifying the use of methadone.

. . . Many articles have appeared in medical literature during the last two years lauding this new agent . . . but some who have written in its praise seem to have been misled by the claim of its promoters, that even its prolonged use does not result in the formation of a habit.

When we consider the fact that Heroin is a morphine derivative, being the diacetyl of morphine, and that in this form it retains almost all of the properties of the salt from which it is derived, it does not seem reasonable that such a claim could be well founded. It is strange that such a claim should mislead any one or that there should be found among the members of our profession those who would reiterate and accentuate it without first subjecting it to the most critical tests, but such is the fact.

We cannot ignore, as do the enthusiastic proponents of methadone, the considerable effects of the adoption of the methadone maintenance model on a large scale. Reports are mounting that the expansion of methadone programs has been accompanied by an increase in deaths due to methadone. In some cities (Washington, D.C.; Buffalo; and Minneapolis), mortality related to the use of methadone approaches or equals that attributed to heroin (*7*). Methadone is readily available in the streets of New York and is replacing heroin as the opiate drug most widely bought and sold illegally (*8*). Unhappy consequences will surely follow unless we consider more carefully the long-range effects of a policy that undertakes to introduce potent psychoactive drugs into the community on a wide scale. Once the machinery to carry out a policy has been set in motion, it may not be possible to reverse its course before it is too late. How can physicians, policy-makers, and others who opt for such a policy justify their contribution to such outcomes?

Strategies and approaches that permit "no exit" need special scrutiny. The use of chemical solutions (methadone and its addicting potential) to solve chemical problems surely falls into this category. Problems that have diverse roots in social, economic, and human conditions require the development of social, economic, and human strategies for their solution. Phoenix House represents one such strategy (*9*). The use of chemical agents to combat the use of other chemical agents treats the problem as if it were its own solution.

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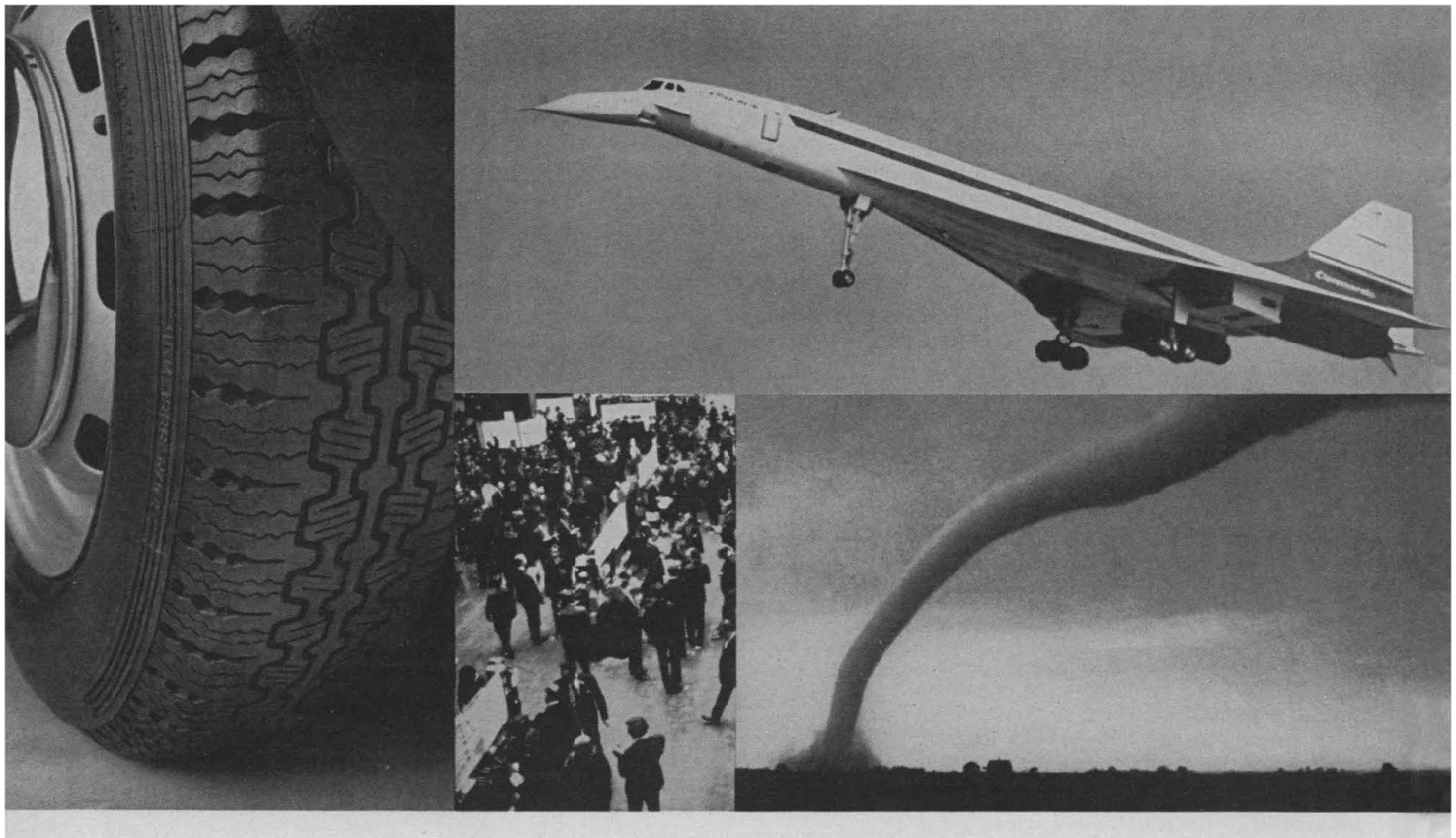

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16 March 1973, Volume 179, Number 4078 **SCIENCE**

Enclaves of Pluralism: The Private Universities

The survival of predominantly private universities may not be critical to the survival of civilization, yet their importance to higher education for the last 1000 years—their position and their purpose—makes their future worthy of deliberate decision rather than happenstance.

Any such consideration must recognize that completely private universities no longer exist. The convergence of public and private institutions started years ago and accelerated significantly in the last decade. For example, almost all universities now use public funds, private philanthropy, endowment income, and revenue from services they render to pay their expenses. Further, most provide a wide variety of undergraduate and graduate programs and strain to the utmost to add "new" ones. They select faculty in about the same manner, they have similar systems of governance, and they are subject to the same legal constraints (for example, unemployment compensation). Thus, each institution is, at best, more or less private or more or less public.

But significant differences do remain.

The predominantly private institutions have the potential for greater flexibility. They can exercise greater or lesser selectivity in assembling their study body. They can choose fewer programmatic variations or can limit themselves to scholarship. They can exert considerable leadership for change if they wish to do so.

By doing some or all of these things, private universities provide a pluralism matching that of the society they serve. So far, they have been doing this at little cost to society, although that cost has risen in recent years. Indeed, it is the problem of rising costs that has created the need to examine the future of private universities. If there were no need for subsidy, there would be no problem—private universities could continue to maintain a respectable profile among institutions of higher education.

An argument has been made that private universities, with their available open places, could take care of the overflow of students in the growing (1960's) pressure for higher education for all. A more pertinent point is that every student at a public university is offered a scholarship, regardless of need. This scholarship equals the difference between cost per student and actual charges. In principle, this difference could be made available to each student to use as tuition wherever desired; some 18 states have already adopted this practice.

Finally, we must not overlook the strong historic roots that tie private universities to the very beginning of higher education in America. Private universities are no longer the sole avenues of higher education, constituting just under half of the number of institutions in the country and enrolling only 30 percent of the students. Yet they continue to provide important contacts between faculty and students. Their small size and selectivity in faculty and student body have given private universities an elitist connotation. Size is not to be confused with quality—it goes without saying that many scholarly attainments stem from large institutions. Nor should elitism be equated with social superiority, greater wisdom, or a higher degree of humanity. The small, elite, quality university simply provides a community of scholarship for some people of high intellectual capacity.

Thus the diversity offered by the private institution, mirroring the makeup of society, should make the case for its survival. It is difficult to foresee society abandoning such an important reflection of its own image.—NORMAN HACKERMAN, *President, Rice University, Houston, Texas 77001*

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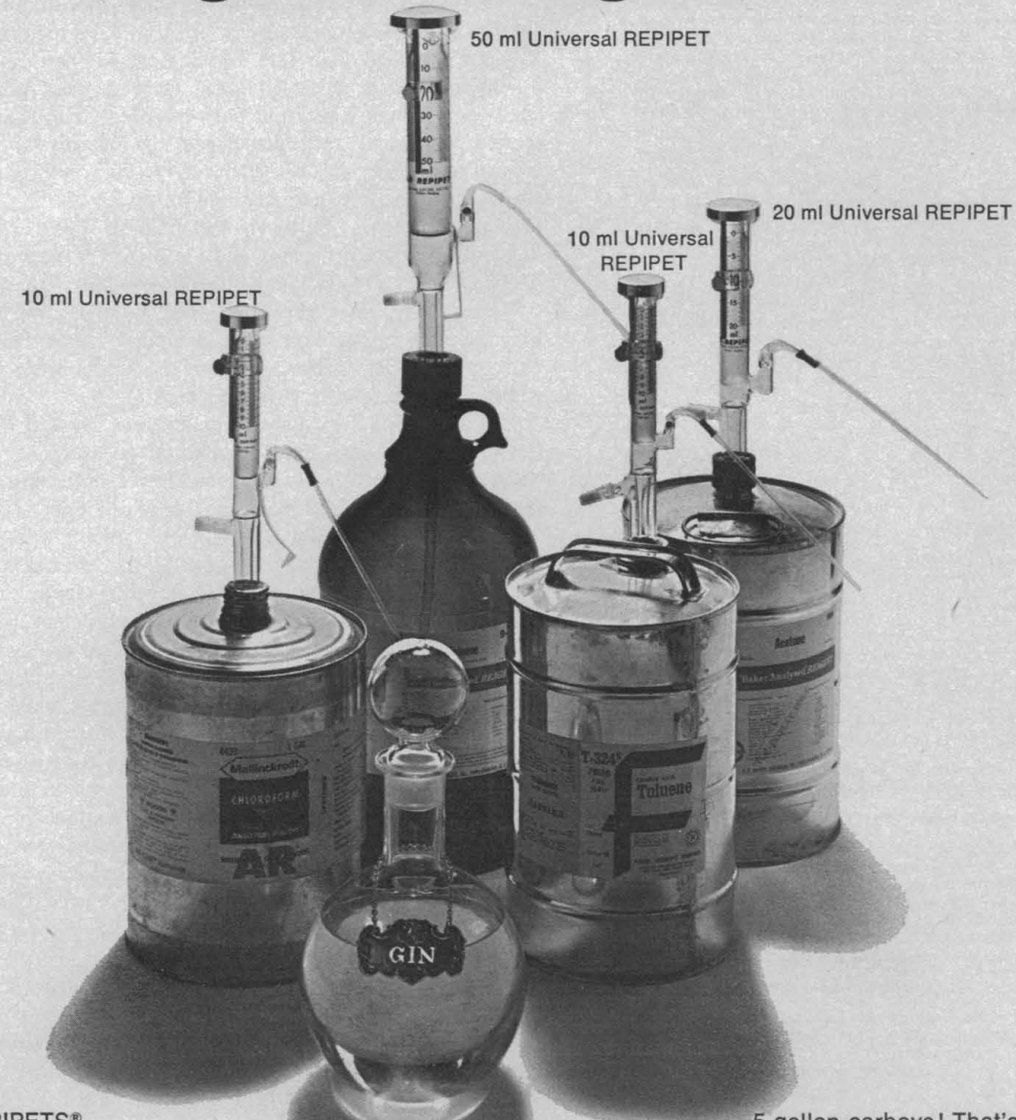

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April

16–18. Anglo-American Conf. on **Drug Abuse**, jcintly by Royal Soc. of Medicine and Royal Soc. of Medicine Foundation Inc., London, England. (Conf. Office, Royal Soc. of Medicine, 1 Wimpole St., London, W1M 8AE)

16–18. **Liquid State—Van der Waals Centenary**, Kent, England. (Meetings Officer, Inst. of Physics, 47 Belgrave Sq., London SW1X 8QX England)

16–18. **Nonlinear Elasticity**, Madison, Wis. (G. G. Moran, Mathematics Research Center, Univ. of Wisconsin, 610 Walnut St., Madison 53706)

16–20. American Soc. for **Experimental Pathology**, Atlantic City, N.J. (G. B. Mider, ASEP, 9650 Rockville Pike, Bethesda, Md. 20014)

16–20. American **Geophysical** Union, 54th annual, Washington, D.C. (A. F. Spilhaus, Jr., AGU, 1707 L St., NW, Washington, D.C. 20036)

16–20. American Assoc. of **Immunologists**, Atlantic City, N.J. (H. Metzger, AAI, 9650 Rockville Pike, Bethesda, Md. 20014)

16–20. American Inst. of **Nutrition**, Atlantic City, N.J. (AIN, 9650 Rockville Pike, Bethesda, Md. 20014)

16–20. American Soc. for **Pharmacology and Experimental Therapeutics**, Atlantic City, N.J. (E. B. Cook, ASPET, 9650 Rockville Pike, Bethesda, Md. 20014)

18–20. **Great Lakes Research**, 16th conf., Intern. Assoc. for Great Lakes Research, Columbus, Ohio. (C. E. Herdendorf, College of Biological Sciences, Ohio State Univ., Columbus 43210)

19–20. Symposium on **Controlled Release of Biologically Active Agents**, Birmingham, Ala. (A. C. Tanquary, Southern Research Inst., 2000 Ninth Ave. S., Birmingham 35205)

19–21. Southern Soc. for **Philosophy and Psychology**, Knoxville, Tenn. (M. Loeb, Dept. of Psychology, Univ. of Louisville, Louisville, Ky.)

20–21. Illinois State **Acad. of Science**, Urbana. (N. R. Brewer, ISAS, 5757 S. Drexel Ave., Chicago)

22–26. American **Radium** Soc., Colorado Springs, Colo. (F. N. Rutledge, 4828 Caroline St., Houston, Tex. 77004)

22–27. Council for **Exceptional Children**, 51st annual intern., Dallas, Tex. (P. W. Stavros, CEC, 1411 S. Jefferson Davis Hwy., Arlington, Va. 22202)

23–25. **Instrument** Soc. of America, 19th analysis instrumentation symp., 14th chemical and petroleum instrumentation symp., Process Measurement and Control Div. symp., St. Louis, Mo. (J. L. Kern, Monsanto Co., 800 N. Lindbergh St., St. Louis 63166)

23–28. American Acad. of **Neurology**, Boston, Mass. (S. A. Nelson, AAN, 4005 W. 65 St., Minneapolis, Minn. 55435)

23–30. American Soc. for **Clinical Investigation**, Atlantic City, N.J. (P. Calabresi, Roger Williams General Hospital, Providence, R.I. 02908)

24–25. Association for **Population/Family Planning Libraries and Information Centers**, 6th natl. conf., New Orleans, La. (R. Versteeg, APLIC, c/o Carolina Population Center Library, University Sq., Chapel Hill, N.C. 27514)

24–27. International **Magnetics** Conf., Magnetic Soc. of the Inst. of Electrical and Electronics Engineers, Washington, D.C. (D. H. Looney, Bell Labs., Whippany Rd., Whippany, N.J. 07981)

25–26. American **Geriatrics** Soc., Beverly Hills, Calif. (E. Henderson, 10 Columbus Circle, New York 10019)

25–27. **Nondestructive Evaluation**, 9th symp., Southwest Research Inst. and South Texas Section, American Soc. for Nondestructive Testing, Inc., San Antonio. (G. Matzkanin, SRI, P.O. Drawer 28510, San Antonio 78284)

25–27. The **Ocean, Nuclear Energy, and Man**, American Nuclear Soc. and Marine Technology Soc., Palm Beach Shores (Singer Island), Fla. (M. J. Ohanian, Dept. of Nuclear Engineering, Univ. of Florida, Gainesville 32601)

25–28. International **Communication** Assoc., Montreal, P.Q., Canada. (M. Z. Sincoff, Center for Communication Studies, Ohio Univ., Athens 45201)

25–28. National Council of **Teachers of Mathematics**, Houston, Tex. (J. D. Gates, NCTM, 1201 16th St., NW, Washington, D.C. 20005)

26. **Sigma Pi Sigma**, Washington, D.C. (D. W. J. Shea, State Univ. of New York, Stony Brook 11790)

26–27. **Scanning Electron Microscope** Symp., 6th annual, Chicago, Ill. (O. Johari, IIT Research Inst., 10 W. 35 St., Chicago 60616)

26–28. Louisiana **Acad. of Sciences**, Monroe. (B. F. Dowden, Dept. of Biological Sciences, Louisiana State Univ., Shreveport 71105)

26–28. Ohio **Acad. of Science**, Cleveland. (J. H. Melvin, OAS, 445 King Ave., Columbus 43201)

26–28. **Population** Assoc. of America, New Orleans, La. (J. W. Brackett, PAA, P.O. Box 14182, Benjamin Franklin Sta., Washington, D.C. 20044)

27–28. Georgia **Acad. of Science**, Atlanta. (E. A. Stanley, Dept. of Geology, Univ. of Georgia, Athens 30601)

27–28. Iowa **Acad. of Science**, Grinnell. (R. W. Hanson, Dept. of Chemistry, Univ. of Northern Iowa, Cedar Falls 50613)

27–28. Missouri **Acad. of Science**, Columbia. (R. G. Combs, 206 Electrical Engineering Bldg., Univ. of Missouri, Columbia 65201)

27–28. North Carolina **Acad. of Science**, Charlotte. (J. A. Yarbrough, Dept. of Biology, Meredith College, Raleigh 27602)

27–28. North Dakota **Acad. of Science**, Grand Forks, N.D. (A. W. Johnson, University Station, P.O. Box 8123, Univ. of North Dakota, Grand Forks 58201)

27–28. American Assoc. of **University Professors**, St. Louis, Mo. (B. H. Davis, AAUP, Suite 500, 1 Dupont Circle, NW, Washington, D.C. 20036)

27–28. Wisconsin **Acad. of Sciences, Arts and Letters**, Prairie du Chien. (J. R. Batt, WASAL, 5001 University Ave., Madison 53705)

28. Society for **Investigative Dermatology**, Atlantic City, N.J. (J. S. Strauss, Boston Univ. Medical Center, 80 E. Concord St., Boston, Mass. 02118)

28. **Societal Problems of Water Resources**, 2nd annual symp., Illinois Earth Science Assoc., Chicago. (M. Qutub, Northeastern Illinois Univ., Bryn Mawr at St. Louis Ave., Chicago 60625)

28–29. Montana **Acad. of Sciences**, Dillon. (R. E. Juday, Dept. of Chemistry, Univ. of Montana, Missoula 59801)

28–30. International Symp. on the **Genetics of Cyanophytes**, Pittsburgh, Pa. (E. Raizen, Dept. of Biological Sciences, Duquesne Univ., Pittsburgh 15219)

29–30. Congress on **Environmental Health**, American Medical Assoc., Chicago, Ill. (F. W. Barton, AMA, 535 N. Dearborn St., Chicago 60610)

29–1. **Classification** Soc., North American Branch, 4th annual, Atlanta, Ga. (F. J. Rohlf, Dept. of Biology, State Univ. of New York, Stony Brook 11790)

29–2. **Off-Shore Technology**, Inst. of Electrical and Electronics Engineers, Houston, Tex. (Technical Activities Bd., 345 E. 47 St., New York 10017)

29–3. American **Ceramic** Soc., Inc., Cincinnati, Ohio. (F. P. Reid, ACSI, 65 Ceramic Dr., Columbus 43214)

29–3. American **Oil Chemists** Soc., New Orleans, La. (J. Lyon, AOCS, 508 S. 6 St., Champaign, Ill. 61820)

30–12. Lindau **Psychotherapy** Weeks, Assoc. for Psychotherapeutic Training, Lindau, Germany. (H. Stolze, D-8 München 81, Adalbert-Stifter-Strasse 31)

May

1–2. **Electron Device Techniques** Conf., Inst. of Electrical and Electronics Engineers, New York, N.Y. (D. Slater, Advisory Group on Electron Devices, 9th Floor, 201 Varick St., New York 10014)

1–3. **Industrial Waste,** 28th annual conf., West Lafayette, Ind. (D. W. Hawkins, Room 308, Civil Engineering Bldg., Purdue Univ., West Lafayette 47907)

1–4. Virginia **Acad. of Science,** Williamsburg. (R. C. Berry, 5907 Brookfield Rd., Richmond, Va. 23227)

2–4. International Conf. on **Surgical Care,** Royal College of Surgeons, Dublin, Ireland. (H. O'Flanagan, Irish Medical Assoc., 10 Fitzwilliam Pl., Dublin 2)

2–5. Midwestern Assoc. of **Forensic Scientists,** Lansing, Mich. (R. E. Bisbing, Div. of Crime Detection, Michigan Dept. of Public Health, 3500 N. Logan St., Lansing 48914)

2–6. **Protides of Biological Fluids,** 21st colloquium, Brugge, Belgium. (Colloquium on Protides of the Biological Fluids, Simon Stevin Instituut, Jerusalemstraat 34, B-8000 Brugge)

3–4. **National Information Retrieval** Colloquium, 10th annual, Philadelphia, Pa. (M. Nussbaum, Computamation, 2955 Kensington Ave., Philadelphia 19134)

3–5. Society for American **Archaeology,** San Francisco, Calif. (R. E. W. Adams, Univ. of Texas, Suite 250, 4242 Piedras Dr., San Antonio 78228)

3–5. American Assoc. for the **History of Medicine,** Cincinnati, Ohio. (G. Miller, Howard Dittrick Museum of Historical Medicine, 11,000 Euclid Ave., Cleveland, Ohio 44106)

3–5. Eastern **Psychological** Assoc., Washington, D.C. (M. Benimoff, Dept. of Psychology, Glassboro State College, Glassboro, N.J. 08028)

3–6. **Christian Medical** Soc., Dallas, Tex. (H. W. Robinson, 3909 Swiss Ave., Dallas 75214)

3–6. Association of **Clinical Scientists,** Tampa, Fla. (F. W. Sunderman, Jr., Univ. of Connecticut, School of Medicine, Box G, Farmington 06032)

3–6. National Assoc. of **Social Workers,** Atlanta, Ga. (C. A. Alexander, NASW, 600 Southern Bldg., 15th and H Sts., NW, Washington, D.C. 20005)

3–7. American **Psychoanalytic** Assoc., Honolulu, Hawaii. (S. Goodman, 3021 Telegraph Ave., Berkeley, Calif. 94705)

3–7. Association for Research in **Vision and Ophthalmology,** Sarasota, Fla. (R. D. Reinecke, Albany Medical College, Albany, N.Y. 12208)

4–5. Minnesota **Acad. of Science,** Northfield. (M. I. Harrigan, MAS, 3100 38th Ave., S., Minneapolis, Minn. 55406)

4–5. North Dakota **Acad. of Science,** Grand Forks. (B. G. Gustafson, Div. of Continuing Education, Univ. of North Dakota, Grand Forks 58201)

4–6. American College of **Apothecaries,** St. Louis, Mo. (D. C. Huffman, Jr., 5291 Rock Ridge Rd., Memphis, Tenn. 38128)

4–6. **Drosophila Research** Conf., De Kalb, Ill. (S. Mittler, Dept. of Biological Science, Northern Illinois Univ., De Kalb 60115)

4–6. American Acad. of **Psychoanalysis,** Honolulu, Hawaii. (J. Barnett, AAP, 40

Gramercy Park North, New York 10024)

6–11. American Soc. for **Microbiology**, Miami Beach, Fla. (R. W. Sarber, ASM, 1913 I St., NW, Washington, D.C. 20006)

7–9. Rocky Mountain **Bioengineering** Symp., 10th annual, Boulder, Colo. (N. B. Kindig, Dept. of Electrical Engineering, Univ. of Colorado, Boulder 80302)

7–9. Society of **Economic Paleontologists and Mineralogists**, Anaheim, Calif. (Mrs. R. Tener, SEPM, Box 979, Tulsa, Okla. 74101)

7–10. **Aerospace Medical** Assoc., Las Vegas, Nev. (M. H. Goodwin, AMA, Washington National Airport, Washington, D.C. 20001)

7–11. Society of **Manufacturing Engineers**, Detroit, Mich. (R. W. Taylor, SME, 20501 Ford Rd., Dearborn, Mich. 48128)

7–11. Society of **Plastics Engineers**, Montreal, P.Q., Canada. (C. C. Campbell, SPE, 656 W. Putnam Ave., Greenwich, Conn. 06830)

8–9. **Fluvial Processes and Sedimentation**, 9th Canadian **Hydrology** Symp., Edmonton, Alta., Canada. (C. R. Neill, Research Council of Alberta, 303 Civil–Electrical Engineering Bldg., Univ. of Alberta, Edmonton T6G 2E1)

9–11. **Operations Research** Soc. of America, Milwaukee, Wis. (J. R. Borsting, Dept. of Operations Research and Administrative Science, Naval Postgraduate School, Monterey, Calif. 93940)

9–11. Midwestern **Psychological** Assoc., Chicago, Ill. (W. F. Hill, Dept. of Psychology, Northwestern Univ., Evanston, Ill. 60201)

9–11. International Symp. on **Thrombosis and the Molecular Biology of the Platelet and Other Interacting Cells**, Chicago, Ill. (F. M. Booyse, Dept. of Biochemistry, Rush Medical College, 1753 W. Congress Pkwy., Chicago 60612)

9–12. Society for **Technical Communication**, Houston, Tex. (C. T. Youngblood, STC, Suite 421, 1010 Vermont Ave., NW, Washington, D.C. 20005)

10–11. **Polymer and Fiber Microscopy**, 12th symp., Textile Research Inst., Raleigh, N.C. (D. C. Felty, Chemstrand Research Center, Research Triangle Park, Durham, N.C. 27702)

11–12. American Assoc. of **Clinical Urologists**, New York, N.Y. (R. B. Carson, AACU, 708 E. Broward Blvd., Fort Lauderdale, Fla. 33301)

13–17. **Radiation Research** Soc., St. Louis, Mo. (R. J. Burk, Jr., RRS, 4211 39th St., NW, Washington, D.C. 20016)

13–18. **Electrochemical** Soc., Chicago, Ill. (E. G. Enck, ES, P.O. Box 2071, Princeton, N.J. 08540)

13–18. Electronics Div., **Electrochemical** Soc., Chicago, Ill. (H. R. Huff, Texas Instruments, Inc., Mail Station 202, Dallas, Tex. 75222)

13–18. Society for **Experimental Stress Analysis**, Los Angeles, Calif. (B. E. Rossi, SESA, 21 Bridge Sq., Westport, Conn. 06880)

14–16. American Assoc. of **Petroleum Geologists**, Anaheim, Calif. (T. L. Bear, Bear & Kistler, 1052 W. 6 St., Los Angeles, Calif. 90017)

14–17. **Irregularities in the Equatorial Ionosphere**, American Geophysical Union, Dallas, Tex. (A. F. Spilhaus, Jr., AGU, 1717 L St., NW, Washington, D.C. 20036)

14–18. Symposium on **Environmental Behaviour of Radionuclides Released in the Nuclear Industry**, Intern. Atomic Energy Agency, Aix-en-Provence, France. (J. H. Kane, Office of Information Services, U.S. Atomic Energy Commission, Washington, D.C. 20545)

14–18. American **Psychiatric** Assoc., Montreal, P.Q., Canada. (B. W. Hogan, APA, 1700 18th St., NW, Washington, D.C. 20009)

15–17. American Inst. of **Chemists**, Houston, Tex. (P. B. Slawter, Jr., AIC., 79 Madison Ave., New York 10016)

15–17. **Electrical and Electronic Measurement and Test Instrument** Conf., Ottawa, Ont., Canada. (G. R. Symonds, 4-261 Fifth Ave., Ottawa K1S 2N4)

15–20. American **Physiological** Soc., Atlantic City, N.J. (R. G. Daggs, APS, 9650 Rockville Pike, Bethesda, Md. 20014)

16–18. National Soc. for the **Prevention of Blindness**, New York, N.Y. (W. D. David, NSPB, 79 Madison Ave., New York 10016)

16–19. Society of **Technical Writers and Publishers**, Houston, Tex. (C. T. Youngblood, STWP, Suite 421, 1010 Vermont Ave., NW, Washington, D.C. 20005)

16–20. American **Pediatric** Soc., San

Francisco, Calif. (C. D. Cook, 333 Cedar St., New Haven, Conn. 06510)

20–22. Council of **Biology Editors,** Bethesda, Md. (K. F. Heumann, Federation of American Socs. for Experimental Biology, 9650 Rockville Pike, Bethesda, Md. 20014)

20–23. American **Thoracic** Soc., New York, N.Y. (R. G. Weymueller, ATS, 1740 Broadway, New York 10019)

20–23. National **Tuberculosis and Respiratory Disease** Assoc., New York, N.Y. (R. J. Anderson, NTRDA, 1740 Broadway, New York 10019)

20–25. Conference on **Mass Spectrometry and Allied Topics,** 21st, San Francisco, Calif. (F. E. Saalfeld, Naval Research Lab., Code 6110, Washington, D.C. 20390)

20–26. American **Gastroenterological** Assoc., New York, N.Y. (J. A. Benson, Jr., 3181 SW Sam Jackson Park Rd., Portland, Ore. 97201)

20–26. American Soc. for **Gastrointestinal Endoscopy,** New York, N.Y. (J. A. Rinaldo, Jr., ASGE, 16001 W. Nine Mile Rd., Southfield, Mich. 48075)

21–23. **Biomedical Perspectives of Agglutinins of Invertebrate and Plant Origins,** New York Acad. of Sciences, New York, N.Y. (E. Cohen, Roswell Park Memorial Inst., Buffalo, N.Y.)

21–23. American Soc. for **Quality Control,** Cleveland, Ohio. (R. W. Shearman, ASQC, 161 W. Wisconsin Ave., Milwaukee, Wis. 53203)

21–24. American College of **Obstetricians and Gynecologists,** Bal Harbour, Fla. (M. Newton, ACOG, 79 W. Monroe St., Chicago, Ill. 60603)

21–25. American **Industrial Hygiene** Assoc., Boston, Mass. (G. D. Clayton, AIHA, 25711 Southfield Rd., Southfield, Mich., 48075)

21–26. World Congr. of **Otorhinolaryngology,** 10th, Venice, Italy. (M. Arslan, Clinica ORL, Policlinico, Univ. of Padua, Padua, Italy)

23–25. American Inst. of **Industrial Engineers,** Chicago, Ill. (J. F. Jericho, AIIE, 345 E. 47 St., New York 10017)

24–25. **Fluorescense: Microscopy, Measurements and Photochemistry,** intern. symp., Lisbon, Portugal. (A. de Lemos Bastos, Instituto Portugues de Oncologia de Francisco Gentil, Palhava-Lisboa 4)

27–30. International Congr. of **Bronchoesophagology,** 14th, Lausanne, Switzerland. (J. P. Taillen, Clinique ORL, Hopital Cantonal, 1011 Lausanne)

28–30. American **Ophthalmological** Soc., Hot Springs, Va. (R. W. Hollenhorst, AOS, 200 First St., SW, Rochester, Minn. 55901)

29–1. American **Orthopsychiatric** Assoc., 50th annual, New York, N.Y. (M. F. Langer, AOA, 1790 Broadway, New York 10019)

30–1. Canadian **Meteorological** Soc., 7th annual congr., Halifax, N.S. (Miss N. Waller, Maritime Command Headquarters, FMO Halifax, N.S.)

30–1. **Laser Engineering and Applications,** 4th biennial joint sponsorship of the Inst. of Electrical and Electronics Engineers and the Optical Soc. of America, Washington, D.C. (D. Edgar, Courtesy Associates, Suite 700, 1629 K St., NW, Washington, D.C. 20006)

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