

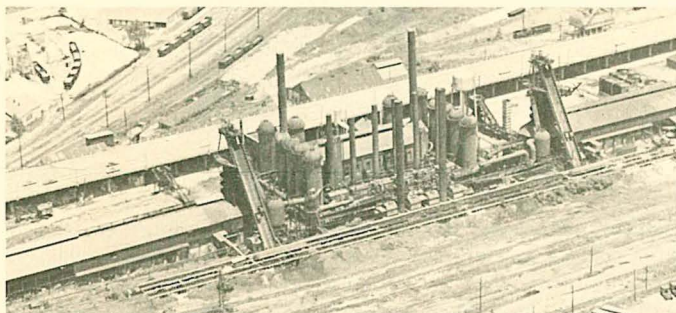
SOCIETY FOR INDUSTRIAL ARCHEOLOGY

NEWSLETTER

Volume One Number 6

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BLAST FURNACE



Alabama has added to the Natl Register and slated for preservation, two iron furnaces: the stone stacks of Tannehill Furnace, 1859 and 63, 25 miles SW of Birmingham near Bessemer; and more important, one of the few if not the only "modern" coke furnaces so noticed, Sloss Furnace No. 1, the oldest in the immediate Birmingham area, built 1882 and operated to 1970 when shut down because of pollution problems (parts of the complex probably are of later date). The furnace will be the focal point of Jim Walter historical and recreational park, to include a museum of RR and industrial history.

Offsetting this is Alabama's loss through arson last summer of two of her remaining covered bridges—Duck Springs and Buzzard's Roost, the only one on the Natchez Trace Parkway.

Canadian Engineering Heritage Record

The Federal Government and the Engineering Institute of Canada have agreed to jointly undertake a national survey of historic engineering achievements, to be known as the Canadian Engineering Heritage Record. Its principal goal will be identification and recording of remains of technological and engineering achievements. Further goals will be apprising the responsible authorities of those tangible remains which warrant consideration for commemoration due to national, provincial, or local significance, and the unearthing of significant documents and objects.

The identification and recording aspects of the Record, in general, will focus on those sites, structures, objects, remains, etc., which:

- (a) were connected with significant events or personages in the cultural, political, economic, military or social history of an area;
- (b) as part of a system or individually, were instrumental in achieving the settlement and development of an area;
- (c) were constructed using unusual, or unique, methodologies or materials;
- (d) are significant in the history of a particular branch of engineering or construction, or to progress made in science and technology, or in the development of an industry;
- (e) were designed or built by famous engineers, craftsmen or master builders;
- (f) are typical examples of an early technological structure, object or device commonly used throughout an area or period for a specific purpose; or
- (g) represent one of the few surviving examples, or the sole surviving example, of a type of structure or device.

Initially, the surveying and recording of the landmarks will be done by volunteer groups of the Institute. The Natl Historic Sites Service will provide recording forms, arrange for records preservation, and take appropriate steps to commemorate or preserve significant landmarks.

The CEHR will be coordinated by an 8-member Natl Committee, 4 members appointed by the Government and 4 by the Engineers. P H Bennett, an Asst Director, NHSS, is Chairman, R J Corby (SIA VP) is a member, and P Stumes (SIA) is Secretary. *PS. NHSS*

CUT MENACED



Cincinnati Union Terminal, one of the last major stations built in the US, orphaned with abandonment by AMTRAK of all passenger service there, with its impending sale is in grave danger of demolition because of the expense of maintaining it. Construction, begun in 1929, was completed in 1933 with an investment of \$45 million. In the terminal complex are 22 buildings on 287 acres.

The terminal is perhaps the most prominent example of the Art Deco architectural style in the nation. The artists Winold Reiss and Pierre Bourdelle were responsible for its decorating. Reiss created the two monumental mosaic murals (each 25 ft high x 105 ft long) in the 180-ft-span rotunda and the concourse industrial panels: photographic scenes of each of Cincinnati's 15 major industries. Bourdelle's contribution was the many elaborately carved panels of exotic and domestic flora and fauna decorating the many ante rooms off the main rotunda.

Univ of Cincinnati students and faculty have begun a "Revive Union Terminal" campaign with the objectives of rescuing not only the Art Deco murals (forerunners of Op Art and Hard Edge painting), but the entire building. Passage of House Bill 9719 (SIAN No 3) would undoubtedly have a salutary effect on the issue. *Alvin M Strauss, U of C.*

Concrete History Committee

The American Concrete Institute has organized a **History of Concrete Committee** whose mission is:

To study and report on the history of concrete by: assembling records of achievements (or failures) significant in the development of design and construction practices and materials technology, recording the personal contributions of those involved, assisting in the identification and encouraging the preservation of important structures and artifacts and assurance of access thereto for future study or inspection.

The Committee is working in several areas including development of archives, publications, IA, and participation in the Bicentennial. Information, ideas, and participation by those interested would be welcome. Chairman: Howard H Newlon, Jr (SIA), Virginia Highway Research Council, Box 3817 University Station, Charlottesville VA 22903, (703) 296-2168. *HHN*

PROJECTS, SITES & STRUCTURES

Restoration & Preservation

Delaware & Hudson Canal. A one-mile section of the canal near Cuddebackville, NY with other land, it is hoped, will be obtained by the Orange County Citizens Foundation for a park, to include the canal, rewatered; one lock; and the stone abutments of Roebling's Neversink River Aqueduct (1850), one of the 4 he built for the D&H. A boat factory, 2 canal boats and other canal facilities will be reconstructed. The \$600,000 cost is to be met by local, county and federal funds. The *entire* canal, incidentally, has *not* been designated a Natl Historic Landmark by the Park Service as noted earlier—rather 5 separate sections, including the Cuddebackville site and one near Lackawaxen, PA that includes the Delaware Aqueduct. The ASCE ceremony declaring the Aqueduct a Natl Historic *Civil Engineering* Landmark (Sept SIAN) took place there 12 Nov. Brochure on the park: OCCF, Inc, Box 636, Goshen, NY 10924. Release on the Delaware Aqueduct: ASCE, 345 E 47th St, NYC 10017.

The legendary **Calumet & Hecla copper mine site** in Upper Michigan, recently shut down after years of virtual inactivity, has been reappraised by its owners, Universal Oil Products, which through a Chicago architectural firm is investigating adaptive uses for the site and the many remaining late-19thC structures thereon.

The long-derelict **Murdock Woolen Mill** in Proctorsville has been rescued from deterioration and eventual oblivion by an imaginative industrialist, Karl Holl, owner of Ludlow Woolens, Inc. Holl, who firmly believes there is still a future for quality New Engl woolens, has proven it by transforming Ludlow into a prosperous enterprise even as many of his competitors are falling into bankruptcy. He is now devoting his energies to restoring the Murdock Mill's handsome exterior, adapting the interior for use as a trade school for the wool processing industry. Since finding new uses for obsolete structures is the most hampering problem in IA preservation efforts, such innovative re-use projects as **this** are infinitely encouraging.

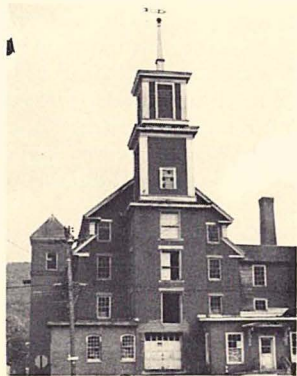


Photo: Richard Cleveland (SIA)

Impending Disasters

Station Expendibility again. Montreal's handsome Romanesque **Windsor Station** by Bruce Price (1889), CPRy eastern terminal and headquarters and a prototype for much Canadian station and hotel design, is facing the now customary threat of replacement, by a high-rise office/terminal complex. Friends of Windsor Station has been formed to promote retention of the "historically, artistically, and environmentally important Canadian building." Queries & contributions: FoWS, 4920 Boulevard de Maisonneuve, Rm 303, Montreal 215, PQ.

Recording/Preservation Needed. A possibly unique feed-



grinding **wind turbine** of 1890 is rapidly deteriorating in Napoli, Cattaraugus Co, (western) NY. Regulation was by movable shutters (in photo) surrounding rotor. Information: John S Watson, Office of State History, Univ of the State of NY, Bldg 8, Rotterdam Industrial Park, Schenectady, NY 12306.

Lesser-Known Sites of Interest

Over the last century, **ROCK ISLAND (Illinois) ARSENAL**



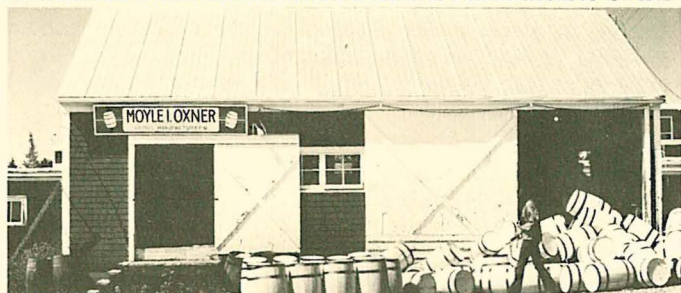
US Army Photograph

has played a major role in the industrial life of the upper Mississippi River area. Originally designed as a facility for military stores, deposit and repair, it developed into one of the Army's principal centers of manufacture by the time of the Spanish-American War. Industrial activity began in 1873 in temporary wooden structures erected near the island's center. Here, on machinery powered by a walking-beam steam engine, workers produced equipment and fixtures needed in construction of the original stone factory buildings. By 1875, the first of these was manufacturing stores, tin cups, saddle bag studs, and brass rings for the Army. Today, the 10 massive stone shops and 10 other buildings, erected between 1864 and 1890, form the nucleus of a modern plant for weapons development and fabrication. *Patrick L Klein, RIA.*

One of the few museums in NA operating machinery under live steam will open in 1973. **THE PUMP HOUSE STEAM MUSEUM**, housed in Kingston, Ontario's 1848 pumping station (enlarged 1888), is based on two steam pumping engines, of 1891 and 1897. The venture is sponsored jointly by the City and the Frontenac Society of Model Engineers. Final restoration and testing, now underway, may be witnessed. Information: F J Telgmann, Curator, PHSM, 23 Ontario St, Kingston K7L 2Y2, Ontario.

THE CANADIAN RAILWAY MUSEUM (MUSÉE FERROVIAIRE CANADIEN), 7 miles S of Montreal, has in its 7 years of operation become one of the finest on the continent. In the collections are over 100 pieces of equipment including 35 steam locomotives. A recent replica (Japan!) of one of Canada's first locomotives, the *John Molson*, is a feature. It steams on state occasions. Also private cars, trolleys, et al. Open May-Oct. Flyer: CRM, PO Box 148, St Constant, PQ.

PERSISTING ARCHAIC INDUSTRIES. Manufacturer of her-



ring barrels, the Moyle I Oxner cooperage, New Ross, Nova Scotia started as a hand operation in 1904 and converted to electricity c1922. Now owned by the 3rd generation of Oxners, the complex includes the main factory building, a hoop bendery, stave sawing mill and storage buildings. Raw wood is brought in from throughout N.S. and finished barrels are sent to coastal points for packing. The "full herring" or 10-gallon barrel is the major product, although some "half herrings" (5-gallons) are produced. Machinery is various 20thC, except for a stave saw, built in nearby Kentville in the late 19thC. Fifteen workers produce 10,000 barrels annually. *Danny A Morris (SIA) Smithsonian Institution.*

MISC NOTES

The Natl Trust for Historic Preservation at its recent Annual Meeting, Washington, scheduled a **two-hour IA session** for the 1st time in its history, with various aspects of industrial-structures preservation in the US and GB aired by Eric N DeLony (HAER), Ted Sande, and Robert M Vogel, and chaired by James C Massey, NTHP Historic Properties Director, *all SIA.*

Under Land & Sea. In a pioneer conjoining, the **Society for Historical Archaeology** Annual Meeting and the **Fourth Annual Conference on Underwater Archaeology** will be held concurrently, 11-13 January, in St Paul, Minn, attracting archeologists and historians from NA and Europe. Release with all details: David W Nystuen, Minn Historical Society, Bldg 25, Ft Snelling, Minn 55111. (612) 726-1171.

Archeology of Metals in Early America. The **Council for Northeast Historical Archaeology** (a loosely-organized conference of archeologists, historians & preservationists in the NE US & eastern Canada) announces its Spring Symposium and calls for papers on the history, archeology & preservation of early metal. Bear Mountain, NY, 14 April 1973. Edward F Heite, 21 S Main St, Camden, Del 19934.

Professional, mounted 35mm slides of **notable cast-iron structures** are available @ \$1.25 ea + 25c/order post: Haughwout Bldg, NYC, 1857; ZCMI Bldg, Salt Lake City, 1868; Window detail, Bogardus' Laing Store, NYC, 1848; Crystal Palace interior, NYC, 1853. Friends of Cast Iron Architecture, 44 W 9th, NYC 10011.

Prof Anthony N C Wallace (SIA), Dept of Anthropology, U of Pa has received a 2½-year Natl Science Foundation grant to study Culture Change and the Industrial Revolution.

Conrad Milster (SIA), Chief Engineer of Pratt Institute, Brooklyn, has been given a special award by Pratt in recognition of his constructive operation of their power plant, probably the oldest steam-powered generating plant in continuous

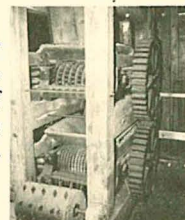
operation in the US. On the line 1887; present engine-generators installed 1900. Beyond its historical interest, Milster has kept the plant economically competitive with purchased electricity.

RESEARCH & ENQUIRIES

IA of the Farmington Canal. Robert L Schuyler (SIA), Dir, City College of NY Archeological Field School, is beginning a historical/archeological study of the canal (1825-47), that ran from New Haven, CT to Northampton, Mass, to include not only the canal itself but the general river valley system and the communities that felt its impact. Selected excavation is slated. Documentation location information, especially illustrations of the canal when active and post-abandonment photos, would be appreciated. Dept of Anthropology, CCNY, Convent & 138th St, NYC 10031.

Mechanization of the Construction Industry to 1860. This much-neglected field is to receive conference attention and research is now being actively encouraged. The Editor would be pleased to hear from anyone currently investigating, or who could be induced by probable publication to investigate: lumber & logging industry; quarrying & stone industry; mechanical brickmaking; nails, screws & other fastenings; nail-making machinery; elevators; general construction equipment—cranes, pumps, & other contractors' plant; roofing & sheathing; glass; concrete in buildings.

The original purpose of the **mill or grinder** shown cannot be determined by its possessor, The Speedwell Village (July SIAN). If you know, or would like to have a speculative bash at it, contact the Editor, who can furnish a detailed description.



SIA AFFAIRS

After some 5 months of telephonic interplay, Internal Revenue Service has been convinced that the SIA is, indeed, a legitimate educational body, essentially disinterested in violent overthrow of the Govt, and accordingly has accorded us **tax-exempt status**. This is important as making grants to the Society deductible, and exempting it from all federal and local taxes. It does mean, however, that we must refrain, as a body, from any lobbying activity. The Board is aware that that's something of a price to pay, but believes it worth it in the long run.

It has been our intention from the outset that all members receive copies of *all* Newsletters and other published material, great and small, and we hope that all have. Enclosed with this issue is a listing of matter published to date. Kindly check anything *not* in your hands and return to Editor. We have learned, with regret, that some Newsletters and announcements of the New England Mill tour were received late or not at all, due to the use of 3d-class bulk mailing, now seen as a postal disaster. Despite the additional cost, henceforth all mail to *members* will be dispatched 1st class.

Corrigendum. No date having been given for the proposed Ottawa-area—Rideau Canal IA tour mentioned in the Sept SIAN, it might have been assumed that it was imminent. It is not. It is for late Sept next. The two-day trip will be co-sponsored by the American Canal Society.

Quinebaug & Blackstone Valleys Industrial Architecture Tour. Judging from all accounts received thus far, the Oct 21st tour through SE Mass, eastern Conn, and northern RI was an unqualified success. Starting from Old Sturbridge Village at 9:00 under a bright autumn sky, two bus-loads of SIA and Boston Chapter, SAH members visited 30 industrial sites, predominantly textile factories, among them the Wauregan Mill (1853 and later); the village of Georgiaville (textile manufacturing from 1813); the Old Slater Mill Museum (1793-1835) where early textile machinery was operated for the group, and the Crown & Eagle Mills (c1823 and later). Along

the way, participants were refreshed with coffee at Wauregan, buffet luncheon at the OSM, and, at the day's last stop, Crown & Eagle, cocktails. Those taking part received folders containing an illustrated booklet briefly describing each site. The tour was arranged by Richard Candee and Robert Rettig, assisted by Paul Rivard and Ted Sande (all SIA). Tour guides were Candee and Sande. *TAS*



(L) The Tour at the Crown & Eagle Mill. Photo: R J Corby (SIA) (R) at the Old Slater Mill Museum, Director Paul Rivard (SIA) demonstrating throstle or warp spinning frame of c1835.

The Board has tentatively determined that *two* such tours can be undertaken each year, spring and fall; if possible in cooperation with other, interested organizations, in the US and Canada. Fall '73 is Ottawa (above); spring probably Washington-Baltimore, over two days, in mid-April, prior to the Annual Conference (Troy, 5-6 May).

The Membership Directory, based on the recent questionnaires, will accompany the Jan SIAN, not this, as originally stated.

The handsome silk-screen posters for the 1972 Annual Conference are still available. Illus flyer with all information: Editor.

PUBLICATIONS OF INTEREST

Gerald M Best, *The Ulster & Delaware*. San Marino, CA: Golden West Books, 1972. 210 pp, illus. \$12.95.

Benj Butterworth, *The Growth of Industrial Art*. Modern introd by Mark Kramer. NY: Alfred A Knopf, 1972. Folio. 216 pp. Cloth \$20; paper \$9.95. Facsimile reprint (publ 1880 & 1892) of one of the most curious, interesting and in some ways, useful, documents in the history of Amer technology. Individual pages devoted each to the history of virtually every area: mining, pumping, agriculture, windmills, steam engines, &c &c, in terms of early development and US Patent records, each aspect represented by a small woodcut.

Mary Stetson Clarke (SIA), *Pioneer Iron Works*. Chilton, 1968. A fine, well-illus history of the legendary Saugus Iron Works nr Boston (c1680; recons c1950).

Robert Copeland, *A Short History of Pottery Raw Materials and the Cheddleton Flint Mill*. Cheddleton Flint Mill Industrial Heritage Trust, Near Leek, Staffs, Engl. 1972. 64 pp. Paper, \$3 post paid. Superbly illus monograph on the background and restoration of an 18thC water-powered grinding mill, now open to the public. A model study. Chronology of important events in the pottery industry related to milling; bibl.

George A Gipe, "A Man & His Mills" in *Maryland*, Spring, 1972. Beautifully color illus description of flour mills in MD through the sympathetic eyes of John McGrain (SIA).

Norman A F Smith, *A History of Dams*. London: Peter Davies, 1971. \$10.00. Thorough treatment of a neglected but important and interesting subject. World-wide coverage, from ancient times to the present: water supply; irrigation; hydraulic & hydroelectric power; canal supply and all other functions. Highly recommended. Fairly well illus; index; glossary.

_____, *Victorian Technology & Its Preservation in Modern Britain*. Leicester Univ Press, 1970. (In US: Humanities Press, NY). \$2.70. The report of the findings of the Victorian Technology Survey conducted by the Dept of

Science & Tech at Imperial College, London, to investigate the problems of preserving the technology of Victorian Britain. Describes the Survey's origins and aims; other surveys; the history of such preservation; what agencies exist to promote preservation; and considers what else ought to be preserved. Appendices list existing and proposed museums and other preservation projects. A valuable document that considers preservation principally from the artifact and process standpoint, capable of effectively guiding similar work in N America.

George R Stevens, *The History of the Canadian National Railways*. 2 vols. NY: Macmillan. \$14.95. N America's largest ry system, claimed to be the world's most efficient publicly owned enterprise.

Charles H Weidner, *Water Supply—A History of NYC's Problem from the Beginning to the Delaware River System*. New Brunswick, NJ: Rutgers Univ Press, 1972. 350 pp., illus. \$15.

W James King (SIA), *Some Beam Engines*. Henry Ford Museum, Dearborn, Mich 48120, 1972. 28 pp. Paper. \$1. Catalog of the 20 beam, 2 table, 1 oscillating and 1 vertical steam engines (incl 1 replica), all English except 1 US—from the famed *Fair-bottom Bobs* mine pump of c1760 to a compound of 1873—in the world's largest and finest collection. Photo of each; description of Ford's collecting activities in late '20s; brief history of the beam engine.

Omer Lavallee, *Van Horne's Road*. Railfare, Box 1434, Station B, Montreal 110. Spring 1973. c200 pp. \$9.95. Pictorial history of the construction and early operation of the Canadian Pacific's transcontinental line, 1881-87, based mainly on photos, many previously unpublished.

Wm Pierson, "Harrisville, NH" in *Antiques*, Oct 1972, pp 632-41. Account of the "only industrial community of the early 19thC in America that still survives in its original form," plus several others. With the author's fine color photos.

Hamilton Schuyler, *The Roebings*. 1931. Reprint—NY: AMS Press, 1972. 424 pp, illus. \$14. (see *Reviews*)

"A Strategy for Stations," in *Country Life*, Aug 1972, p 393. General comments on RR station preservation in England.

John Temple, *Mining: An International History*. NY: Praeger, 1972. 143 pp. \$5.95.

Correction: Minchinton's *Tidemills* and Chitty's *Guide to Exeter IA*, Sept SIAN, are ordered *not* as there given, but from: Dept of Economic History, U of Exeter, Exeter EX4 4PU, Devon.

Reviews

J De Brevans, *The Manufacture of Liquors and Preserves*. (France c1885; transl & publ NY 1893) Noyes Press History of Tech Series Vol 3. \$12. (see *Programs*, below) A well-illustrated instruction on the processes for distillation, purification, rectification and testing of alcohol and the manufacture of essences, syrup, flavouring and colouring for "alcoholic beverages" (liquors). Includes the preservation of fruit—important for later use in liquor manufacturing. Reflects the industry's late-19thC devotion to the sophisticated art of "assembling" (artificial) liquors for industrial and medicinal as well as social uses. *Dianne Newell Macdougall, National Historic Sites Service, Ottawa.*

David McCullough, *The Great Bridge—the Epic Story of the Building of the Brooklyn Bridge*. NY: Simon & Schuster, 1972. 636 pp, illus, index. \$10.95. Epic hardly says it: intellectually heroic. A stunning examination and analysis of the greatest of America's Victorian engineering structures and the father and son who conceived, designed and built it, in terms of the national spirit, the municipal and state politics, the state of contemporary technology and the motivating forces on and within the Roebings, which all marked The Bridge. Others, notably Steinman, the Schuylers, and Trachtenberg, have told

parts of the saga. McCullough has assembled the elements into what must stand as the final word on the monument. *RMV*.

Arthur Raistrick, *Industrial Archaeology: An Historical Survey*. London: Eyre Methuen 1972. 314 pp. (US: Harper & Row, \$18.75).

R A Buchanan, *Industrial Archaeology in Britain*. London: Penguin Books, 1972. 446 pp. \$1.50.

Two survey publications on British IA have recently become available. Comparing them is appropriate because of their combined relevance to the future course of IA not only in GB, but other countries concerned with the study of their industrial heritage. If England is considered the nation foremost in pursuing the study of its industrial past, then these books and the views of their authors should prove singularly important to similar endeavors in other countries, especially in view of the fact that they summarize over 10 year's British experience.

The books represent primarily an approach to IA by two different schools of thought. Dr Raistrick's is along the lines of traditional archeology, hence, his strong argument to enter "... an expansive phase of IA that would reduce the preoccupation with the Industrial Revolution ..." by extending the subject from "... prehistoric into recent times [so as] to bring it into balance with the much greater foundations from which it has evolved." Dr Buchanan approaches the subject as a new "interdisciplinary study" to which everybody can bring some expertise. While this study may "... range from a Neolithic flint mine to a newly obsolete aircraft ... In practice ... it is useful to confine attention to monuments of the last two hundred years or so, both because earlier periods are dealt with by more conventional archaeological or historical techniques, and because of the sheer mass of material dating from Industrial Revolution."

IA has had a rather extended honeymoon of over a decade in Britain. For a number of years, it has gone begging for consummation in the form of a national organization and official recognition by Her Majesty's government. Both authors believe that in part this has been prevented by the issue of whether IA is viable as a separate discipline in its own rights or whether it is merely the hybrid of a number of such established subjects as archeology and the history of technology.

The two books will provide the student of IA the unique opportunity of comparing the views of and approaches to the subject by two of Britain's foremost practitioners and spokesmen on IA. *Eric N Delony, HAER.*

Special Publications Programs

Noyes Press (SIA), Mill Rd @ Grand Ave, Park Ridge, NJ 07656, has just released the first 4 vols in a History of Technology series, facsimile-reprinting important 18th & 19thC works, mainly US. A consistent format is used, in hard cover, high-quality manufacture:

Vol 1, *Construction of Mill Dams*, James Leffel, 1881 edn (1st in 1874), 167 pp, 52 illus, \$12; Vol 2, *Some Details of Water-Works Construction*, Wm R Billings, 1898, 96 pp, 27 illus, \$10; Vol 3, (see *Reviews*); Vol 4, *The Manufacture of Porcelain & Glass*, Dionysius Lardner (ed), 1832, 334 pp, 36 illus, \$15.

In an ongoing joint Smithsonian (Nat'l Museum of History & Technology)-Nat'l Science Foundation program selected books on the history of technology or descriptive of early industries are translated into English. Latest in the series is *Rural Industry in the Polish Tatra Highlands* by Jon & Stefan Reychman, translated by Halina Golebiowska. Fulling, saw, and grist mills; shingle making, brewing, forging; and water wheels, turbines, and power transmission are covered.

Poland shared in Europe's craft and technical heritage, and much that has survived there until recently reflects techniques that were more or less common to neighboring countries as well. Thus, much in this book bears on early milling practice

as brought to parts of Colonial America.

Orig publ 1965. 144 pp, 98 illus, folding map, bibliog, indexes, dialect dictionary. \$3 from US Dept of Commerce, Nat'l Tech Info Service, Springfield, VA 22151. Ref: TT70-55101. List of 9 others in series from editor. Refer suggested titles to E A Battison (SIA), Curator of Mechanical Engrng, Nat'l Museum of History & Technology, Wash, DC 20560.

WHENCE IA & the SIA: Responses to Mr Lee's Letter

James E Lee's provocative letter in the Sept SIAN did, indeed, stimulate a variety of responses. All are printed herewith, unexpurgated, in the belief that the exposure of these differing views on IA in general and the course of the SIA in particular will be beneficial to the Society, its membership, and its future in North America and beyond. We will continue to publish replies to the Lee Letter, and to the comments below. A session on the subject would appear to be called for at the Annual Meeting.

TO THE EDITOR:

Mr Lee's letter (Sept SIAN) prompts me to present some personal thoughts as to the proper direction I feel that the SIA as an institution and the study of industrial archeology in the western hemisphere should take. I stress that these are personal views, as no single person can speak for either the SIA or the "discipline" of IA in this country today.

Two major issues of the many raised in Mr Lee's interesting letter concern me. One is the definition of "industrial archeology" in America and the role which the SIA as an institution adopts in developing that definition. The second concern is, perhaps, merely a corollary of the first: the proper interrelationship between preservation activity and IA. Mr Lee stresses that these two activities are "discrete and different disciplines" using an analogy between science and engineering. I do not accept this thesis, although it is a belief shared by many persons both within and without the Society's membership.

In order to explain my own position I must return to my first concern, the definition of IA; specifically how current definitions seem to me to have been developed.

Those familiar with IA bibliography will recall that the use of the term "archeology" in this context has been widely debated on both sides of the Atlantic. Thus Mr Lee's definition of archeology and IA ("a subordinate area stressing the emergence and development of industrial manifestations" ...) assumes that the scope of IA has been defined to general satisfaction. This simply is not the case; a definition is still being forged out of current operational definitions. In my view, this is as it should be.

To justify this view, I would cite the nature of IA studies in Great Britain where the term was originally coined. Great Britain has had a long history of numerous amateur archeologists who have acquired professional or near-professional standards. In this situation the evident need to survey and record the post-medieval industrial remains of the British Isles was met by appropriating the generally recognized and accepted term "archeology" to this field activity. As the larger field has been carved up by specialists in prehistoric, Roman, medieval and post-medieval archeology, the development of above-ground techniques for the recording of artifacts dating after the "Industrial Revolution" was both logical and functional. It is interesting to note, however, that most of the authors of books on British IA are not professional archeologists or anthropologists. Rather they run a narrower gamut centering on the disciplines of social, economic and technological history. This is reflected, I think, in R A Buchanan's definition of the subject as:

Industrial Archaeology is a field of study concerned with the investigation, surveying, recording and, in some cases, the preservation of industrial monuments. It aims, moreover, at assessing the significance of such monuments in the context of social and technological history.

Two points may be noted here, the inclusion of preservation within the definition of the field and the use of the term "industrial monuments" which Buchanan feels "should be defined very broadly" to include a wide variety such as corporate and public housing or churches of industrial workers. In this I am in total agreement, although, I think the criteria for determining such "monuments" may well differ between Great Britain and America.

In this country Prof William H Pierson, Jr has espoused five criteria for selecting industrial or engineering structures for preservation: 1) historic importance of the company, structure or site; 2) pivotal

significance in either architecture or engineering; 3) visual quality or stylistic innovation; 4) sole surviving examples; 5) position within a larger environment which would be destroyed by removal of any major unit. It seems clear that the survey, recording, or analysis of individual sites by industrial archeologists (or those engaged in the field of industrial archeology) is nearly the only means available to test a site against these criteria.

Just as there are techniques for surveying and recording, there are techniques for preservation. The former have been drawn largely from experience derived in the recording of buildings and machinery as applied in other fields; therefore it is not surprising that IA preservation techniques, such as those reported in the *SIA Newsletter*, are drawn from the broader American experience with 'historic preservation'. Mr Lee perceives "The wholesale resurrection of major complexes" motivated by "sentimental reasons". Whether or not sentimentality is the motivation for any of the adaptive rehabilitation projects noted by contributors to the *Newsletter*, I do not know. It would appear to me to be an unfounded assumption on Mr Lee's part. The interesting point, however, is that whatever the motivation of preservation efforts, the site or structure normally survives because of that activity and allows scholars an opportunity to re-interpret the physical evidence on the basis of knowledge unavailable at the point of preservation or destruction. Mr Lee seems to suggest that "preservation of samples or elements for future study" is a proper IA function. However, the selection of these smaller elements has generally tended to illustrate previously recognized developments or innovations. The preservation of complex sets of elements in whole sites or structures has, in other areas of study, permitted the reformulation of new questions about the material artifact or the seeking of new evidence from the artifact itself. It is this reason especially that I feel that preservation activity should and must be subsumed within a definition of IA. Recording, like much other professionally trained activity, is highly culture bound. A set of photographs and measured drawings done to current standards of HABS has often proved unsatisfactory to later investigators, especially comparing those secondary products to the primary evidence of a preserved building. I have argued elsewhere that this is also true of the products of HAER. In any area of archeology the object or artifact itself is primary evidence. Archeologists, as a professionally oriented group of scholars, have long recognized that the only way to test the analytical results of one investigator is to have preserved each of the recovered artifacts and the descriptive record of their association. Industrial Archeologists, having assumed that name, share an equal responsibility for preserving not only their own record of the products of industrialization, but the material evidence which that record purports to represent. Just as we have had to adopt and adapt techniques for serious archeological inquiry from allied fields, so we must adopt and develop appropriate methods for preserving our primary evidence.

Finally, a word about the SIA and its newsletter. The October 1971 meeting of industrial archeologists and others in related fields which initiated the new society, agreed to pursue three principal goals:

1. an exchange of information within the field (by means of a newsletter initially)
2. the development of a bibliography and
3. education "to create a public awareness of the need for preservation, surveys, and the other objectives of IA".

Considering the areas of disagreement at that formative session, I would contend that preservation was conceded to be one of the Society's areas of concern and responsibilities. It was this motivation to which led to the phrase in the SIA's Articles of Incorporation "to foster the preservation and recording of industrial sites, structures and objects" which was approved by the general membership of the Society.

Mr Lee has urged that distinctions be made between IA and Historic Preservation, between economic and industrial factors, and between craft and industrial enterprises. In addition he suggests the separation of amateur (even the talented amateur) from professional industrial archeologists. Either this is blatant elitism of the worst order, or Mr Lee has not made one proper distinction. That is, we are nearly all amateurs in this new field, bringing our own professional trainings from many different fields. Most members have built their reputations within their own professional or nonprofessional field of endeavor, often by applying the techniques of that field to industrial subjects. Intolerance for the experience and methodologies of others will not assist the Society in defining its own proper role, nor elicit broad support from members of other intellectual communities.

Richard M Candee, Old Sturbridge Village, Sturbridge, Mass
(Mr Candee is currently Secretary of the SIA)

TO THE EDITOR:

I wish to take issue with James Lee's recent letter. I have no background in IA or in historic preservation; my interest is merely that of a layman. If the function of the SIA were only to hear papers by its learned members, then there would be no place in it for me. Mr Lee's contention that the SIA ought not to concern itself with preservation is absurd. If an organization devoted to fostering "the preservation and recording of industrial sites, structures and objects" (Articles of Incorporation, p 1) doesn't lead the fight for preservation, then surely we cannot expect any other organization to do so.

A quick reading of the purposes of the SIA, as set forth in the "Articles," convinces me that our society is broad enough in its aims to accommodate a diversity of interests. I find the SIA which Mr Lee envisions far too narrow in scope, and therefore of no particular use to me as an amateur (pardon the expression).

As far as I have been able to tell, the SIA has done a fine job, and I hope that it will continue to be a vigorous advocate of preservation.

Richard L Cleveland, Rep (R), Washington Co,
Vt Gen Assembly, Northfield, Vermont

TO THE EDITOR:

The letter from Mr James E Lee calls for some comment. While one cannot fault his argument that IA and Historic Preservation are two separate entities, to refer to the former at this stage as a "discipline" is premature. I have a feeling that IA, while it may safely be discussed in front of the children, is not yet considered quite respectable in academic circles. Certainly my own experiences in endeavouring to promulgate the activities of the Society have met with receptions ranging from the amused tolerance generally accorded to the mildly eccentric through enthusiastic understanding and support to occasional veiled hostility from some of the classical fraternity. No doubt as we become better known, and publish the findings of our members, we will become more acceptable. As regards Historic Preservation, this must surely be considered as a technical activity. Admittedly, it cannot be undertaken without considerable historical research, but its actual execution must be a matter for a judicious blending of expertise in technology, economics and the political process. In this connection it would be interesting to know what Mr Lee has in mind when he speaks of "the wholesale resurrection of major complexes for sentimental reasons". A logical extension of this argument would result in the Acropolis being turned into a parking lot, with a few capitals and columns being preserved for "future study".

In a broader sense, the work of the classical archeologist and his industrial counterpart may be similar in technique, but the framework within which they operate is quite different. The former, usually works in relative financial security, the result of a healthy injection of funds from some institutional benefactor. He can dig for his shards without constant backward glances to see if a wrecking ball is poised to strike, secure in the knowledge that should he make a discovery of great significance, further assistance will be readily available. As an instance of this, we may cite the vast international effort mounted to rescue the temples of Abdu Simbel. I have no doubt that a similar threat posed to the Taj Mahal or, for that matter, the Great Wall of China, would elicit a similar response.

The poor industrial archeologist, however, has a much tougher task. Not only has he first to convince those in authority of the value of his work, but he must be conscious of a sense of urgency in everything he undertakes, for where a significant industrial site exists today, an apartment building or a superhighway may appear tomorrow. In the urban environment in which so much of his material is found, pressures to develop and redevelop are constant and likely to increase with time. Thus, while he may wish to maintain a level of lofty academic detachment he is forced to take cognizance of the real world and is thus a part of the preservationist movement whether he likes it or not. I agree that Hanseatic trading ships and mediaeval guildhalls are not within our purview, although ancient port facilities may be. Surely, though, we cannot ignore the pre-industrial era in making our assessments, since it was the adaptation of these tools and techniques to the Machine Age which have brought mankind to its present level of development.

In conclusion, I submit that at this early stage, our Society cannot afford to make the narrow distinctions proposed by Mr Lee. As we grow in numbers and stature, this may become possible, or even desirable but at our present stage of development, fragmentation would be negating the principles on which we were founded, i.e. that IA is essentially a multi-disciplinary activity, whose aims and

objects are not served by affiliation with any other existing organization. I have no personal objection to the Newsletter being divided as Mr Lee proposes, if the membership so wishes and if this would not make our worthy Editor's task more burdensome.

Despite the foregoing, I wish to congratulate Mr Lee for his comments. Any organization with the least pretensions to scholarship needs the occasional injection of constructive criticism to remain alive and viable. If nothing else, Mr Lee has provided us with cause for reflection, and a basis for lively discussion.

R John Corby, National Museum of Science & Technology, Ottawa
(Mr Corby is currently Vice President of the SIA)

TO THE EDITOR:

Industrial Archeology was invented and has been practiced in Great Britain for about 15 years. The same type of argument that will result from Mr Lee's letter has permeated the British scene for a similar period of time. It is the primary reason for the schism that separates those who study IA at an academic level and those who practice as enthusiasts.

The practice of IA solely as a field of investigation and research will result in an elite subject dominated by professional scholars. A significant number of potential contributors may feel their efforts second rate, and the exact situation that has plagued the British movement will exist in America. The most exciting and interesting result of 15 years' British experience is 150 separate IA preservation projects. These for the most part are being carried out by individual amateur groups who earn their IA credentials by actually doing the job. On the other hand, Mr Lee has proposed what one may call the necessary argument.

His letter will stimulate a number of Industrial Archeologists, while others will dismiss it as so much verbiage. Hopefully, the movement as a whole will not become divided over the issues.

Only hard work, whether it be scholarly research or historic preservation, should determine the future course of IA. After all, the main justification of any new subject has always been that people enjoy it, and so long as this remains true, IA will be in a healthy condition.

Eric N DeLony, Historic American Engineering Record, Washington

TO THE EDITOR:

After reading James Lee's "Letter to the Editor," I felt compelled to respond to three of his major points: 1) The definition of Industrial Archeology; 2) The distinctions between "industrial" and "economic" research; and 3) The relationship between IA and related disciplines.

Industrial Archeology

First of all, Mr Lee's brief statement that "Archeology is the study of material evidence of the precedents of contemporary social life" is, in my view, too imprecise a description to be meaningful for formulating an adequate definition of IA. To some individuals, Archeology may indeed represent only the study of past "material evidence," but I would argue that for most archeologists, Archeology represents much more. Precisely, Archeology has as its goal the hypothetical reconstruction and theoretical interpretation of past hominid social activities, events, concepts, etc; and the data base for this goal consists primarily, but not entirely, of observations of past cultural remains. The point to be stressed is that Archeology in itself is not *just* the study of cultural remains, but rather the integration of information from a variety of sources for the purpose of socio-cultural reconstruction and interpretation.

Turning next to the concept of "industrial," it should be noted that when this term is used as an adjective, it denotes the concepts embodied by the terms "industrialism" and "industrialization." These terms have been well defined by economists, culture historians, and industrial relations specialists; and the "industrial archeologist" would do well to follow such definitions as closely as possible.

Economic historian G.D.H. Cole (1932), in a brief encyclopaedic description of industrialism, stated that "... industrialism can be said to have begun when machinery driven by a central supply of mechanical power became the typical method of manufacturing production." The emphasis here is upon the invention of mechanized manufacturing production, but that in itself is insufficient to complete a definition. Cole further stated that industrialism:

... is based upon the discovery and exploitation of improved methods of producing wealth, primarily in the processes of manufacture but also to an increasing extent in agriculture and in the extractive industries yielding primary products. It is closely associated with an increase in the scale of production, with the development of capitalistic methods in both

manufacture and marketing and with the employment of wage labor.

Sociologist Wilbert E Moore (1968) pointed out the fallacy of relying upon a purely technological determinist definition of industrialization, and stated that:

... there are clearly institutional and organizational preconditions and counterparts of large-scale and efficient utilization of power. Extensive industrialization is quite unlikely in the absence of a highly specialized and coordinated labor force, monetary exchange and rationalized accounting systems, the technology of precise measurement and production control, and so on.

Keeping in mind the above general concepts of Archeology and industrialization, I would assume that IA should be the science whose goal is the hypothetical reconstruction and theoretical interpretation of Man's socio-cultural affairs associated with industrialization. By definition, such a science would rely primarily upon observations and analyses of industrial cultural remains of *Homo sapiens* who lived during the historic period. Also, problem oriented research in this field should always be directed toward cultural hypotheses of industrialization, and not just directed toward any aspect of historic or contemporary economics.

Economics vs. Industrialization

As Mr Lee so rightly stated, not all economic problems should be considered within IA. Such economic activities as agriculture, commerce, and cottage industry may or may not be associated with industrialization. As an example, one precursor to industrialization in Great Britain was an elaborated form of cottage industry whereby independent craftsmen combined both farming and manufacturing. Goods manufactured by these craftsmen were both sold locally and to merchants for resale in larger cities. Production was kept at a low scale, and complex factories were rare. With increased mechanization, this form of manufacturing came under an economic handicap, and industrialization took hold.

Research conducted upon cottage industries is valid within IA, *but only* as a precursory study leading to the understanding of subsequent industrial activities. Obviously, explicit relationships should be maintained between the goals of IA as a science and the research problems generated by industrial archeologists. Thus, an individual whose research is limited strictly to cottage industries should not be considered as an industrial archeologist, nor should an individual whose primary interest is historic reconstruction, architectural restoration, artifact conservation, etc.

Industrial Archeology vs. Related Disciplines

Ideally such disciplines as Archeology, History, and Conservation should be viewed as separate fields of research and development. But realistically, many practicing professionals *must* become generalists in a number of fields. I would agree with Mr Lee that a "classical archeologist" *could* divorce himself from "preserving the pyramids," *but only* if the pyramids failed to collapse during excavation. Archeology as a field method is generally destructive in nature. Archeologists destroy the stratigraphy they wish to interpret, they destroy the relationship of *in situ* cultural material, and they destroy the evidence necessary to prove or disprove their cultural hypotheses. In return, observational records are maintained which supposedly represent what the method destroyed. Thus, if an archeologist uncovers a buried wooden structure, it may be destroyed through exposure before it can be preserved. If he cannot acquire the services of a conservator due to economic limitations or conflicting research interests (many conservators couldn't care less about a rotten wooden structure), then the only recourse is that the archeologist do the preserving himself. Thus, through necessity he becomes a generalist.

With this thought in mind, I would strongly urge the SIA to continue reporting relevant research in related fields, *but only* if and when such research is *explicitly* related to the goals of IA. Personally, I consider such items as the report of a proposed scheme to convert a Seattle gasworks into a park (SIAN July) to be tangent to the goals of IA. Such a report represents a nice piece of information for an architect interested in converting industrial complexes into recreational facilities, but its *explicit* contribution to IA is nil. If this type of report must appear, then at least let it be assigned to a "Miscellaneous" section.

Conclusion

I should like to address one question to the SIA membership. *Is the SIA truly an archeological organization?* During the past six months, I have followed with much interest the published discussions, goals, activities, etc. of the SIA; and I rather suspect that members of the SIA are more oriented toward the description, pro-

tection, preservation, and restoration of North American industrial sites rather than to IA. If this is true, then I for one would recommend that the organization name be changed to the "Society for North American Industrial Site Preservation" (or some other relevant title.) As such, a related discipline of the Society may indeed be IA, but at least the Society would not be "the" organization representing IA.

Finally, the continuation of published discussions relating to the above topics should be encouraged, and hopefully, by the Second Annual Conference, a public symposium could be arranged to discuss, evaluate, and act upon the recommendations of the membership.

Lester A Ross, Ft Vancouver Natl Historic Site, Vancouver, Wash.

TO THE EDITOR:

Industrial Archeology as a Subfield of Historical Archeology

In the last *Newsletter* appeared an excellent statement by James E Lee on a number of fundamental questions concerning what is without doubt the newest area of research within general archeology. Lee's basic points will be strongly endorsed by most professional archeologists, especially those coming to their discipline from the larger field of anthropology.

IA is a subfield of general historical archeology. Its concern must be the scholarly examination of material culture dating from the Industrial Revolution and from fully industrialized societies. Lee proposes such a definition and also notes a major problem, that of temporal and spatial boundaries. Individual pre-18th-19thC "industries" or mercantile activities will generally not be an integral part of the subject matter of IA, while colonial crafts might or might not be depending on their relationship to the emergence of an industrial society in North America. More important are his statements on "economic" factors that leave "agricultural and commercial residues of a cultural kind". His intent is not completely clear here because although we certainly agree that a "Hanseatc trading ship" or the remains of a guild hall would be excluded *because of their cultural setting*, it is at the same time precisely this setting as seen in "residues of a cultural kind" that is vital to the full emergence of a true discipline of IA.

An examination of the journal *Industrial Archaeology* or the numerous books appearing on the subject in England will reveal a selective pattern. Almost all work in the field to date involves the examination and description of standing industrial monuments or individual categories of artifacts which are frequently out of context. This situation has led to a recent debate between Vincent P Foley and Robert M Vogel (*Historical Archaeology* Vols 2 & 3, 1968 & 69). Their positions are in part that Foley, an anthropological archeologist, advocates that archeology is the excavation of cultural remains and basically consists of a set of techniques related to such a perspective, while Vogel, Curator at the National Museum of History & Technology, would see the study of above ground extant architectural and other features as equally being archeology, even minus excavation. Both views are in my opinion correct, nor are they incompatible. The major shortcoming of IA in its present form is not that what is being done is fallacious or unscholarly, but that it is incomplete. Industrial sites are like other archeological sites and their total range of remains, both above and below ground, must be part of any research that is going to call itself archeology. The real problem in IA arises from a limited view of its subject matter and is also seen in the development of other fields within both historical and prehistoric archeology, as for example Maya research. Examination of spectacular and isolated features such as temples and palaces (cf. factories, bridges, RR stations) and contextually isolated categories of artifacts led to a myopic and limited view of Mayan civilization and culture. The emphasis must be shifted, as it has in Maya archeology, to the total archeological context including all "residues of a cultural kind". Not just factories and RR stations but the towns, garbage dumps, and urban remains of the workers and owners of such establishments, and total settlement patterns that reflect the impact of the railways and other factors, must be added to the list of sites slated for description and excavation. Even farms and other agricultural sites which are parts of the totality of an industrialized society are vital to a full picture.

Industrialization must be viewed as a major cultural process that involves not just specific inventions and their application but the complete transformation of society in its economic, socio-political, and ideological aspects, as well as its technology. With such a definition then all remains that reflect such a process are the subject matter of IA whether, for example, they are 18thC English factories, 19thC company towns in Massachusetts, or early 20thC Japanese villages reflecting the impact of industrialization.

The Foley-Vogel debate, which one of my colleagues in historical archeology classifies as a pedantic waste of journal space, actually hits at a vital issue for the entire discipline of archeology. Why should standing monuments be excluded from a definition unless archeology is equated to a set of techniques mainly concerned with *in situ* (i.e. under the ground) relationships of remains of past societies. In fact most professional archeologists at least implicitly do work with such a definition. On the other hand it seems to me that the emergence of the various subfields of historical archeology (Classical, Medieval, Post-Medieval-Historic Sites, and Industrial Archeology) (RLS, "Historical and Historic Sites Archaeology as Anthropology," *Historical Archaeology*, Vol 4, 1970) will and already are moving us in the direction of a radical redefinition of the field. Rather than the study of past societies through their material remains ("the material evidence of the precedents of contemporary social life"), archeology would be viewed as the study, or science, of material culture irrespective of temporal position. Thus IA would involve the contemporary study of the material culture of modern functioning industrial society and the spread of industrialization into the Third World as well as 18th, 19th, and earlier 20thC sites. Such a redefinition would have far-reaching impact on archeology as a discipline as it would be certain to involve a shift of focus from techniques that deal mainly with chronology and specific events to an attempt to understand the interrelationships between the material and non-material aspects of culture. Archeologists with a foundation in cultural anthropology and other social sciences are obviously in the best position to implement such a transformation of the field, but this change would in no manner exclude other scholars be they architectural historians, curators, historians of technology, or folklore experts. Rather it would naturally complement and combine with such interests.

In the definition of IA outlined by Lee there would be room for all the scholarly interests seen in the field at present including, I would add, true preservationism. If preservation means the protecting of the total archeological context of sites, rather than partial preservation, or fabrication as in restoration, then such interests are obviously a vital area of interest for all industrial archeologists. IA is not different from prehistoric archeology in that its data base is just as rapidly being destroyed.

IA was the last branch of historical archeology to make its appearance and is only in an embryonic form, but its full substantive and theoretical contributions may indeed surpass that of all the other subfields combined. Eventually it may totally reformulate and strengthen general archeology.

Robert L Schuyler, City College of New York, New York, NY

TO THE EDITOR:

Mr James Lee's letter appears to call for a revision of the SIA's accepted purposes. He would limit our field of interest to archeological investigations and the scope of our work to a narrow definition of what is industrial.

Ironically, in attempting to dismiss preservation as a concern of SIA, the author displays a lack of knowledge of the current philosophy, motivation, and technology of the discipline which he suggests we omit from our activities for fear of becoming "tangential, redundant and inexact."

This point of view is out of touch with current preservation practice as evidenced by the assertion that historic preservation is motivated solely by sentimentality. This distortion is compounded when preservation is lumped together with restoration, and worst of all, with replication. It is pointless to embark on a lengthy discourse on the "New Preservation." Its tenets are becoming well known to those who have developed a minimum of environmental awareness. We only suggest that, in order to gain a less "inexact" understanding of present day historic preservation practice, "environmental quality" be substituted for "sentimentality" as a motive, and "adaptive use" for "restoration" and "replication" as a means.

We further caution that ignorance of the basic concepts of other disciplines often is the result of over specialization and academic elitism. These forces can have an ossifying effect on newly developing fields of study like IA.

Rather than a "Fraternity of Industrial Archeologists," we fortunately have a "Society for Industrial Archeology." The organization embraces a variety of people possessing various skills, all with a shared interest in IA. The resulting cross-pollination of ideas has given great scope, momentum, and vitality to the IA movement. One member's special interest in research or archeology need not exclude another's interest in preservation, especially in view of the fact that we *cannot study remains which will not remain*.

THE SIA PRESERVATION COMMITTEE Chester H Liebs, Chairman