The Alumni Gazette

William and Mary

Winter 1982

On The Cover

The cover illustration is a portrait (oil on canvas mounted on wood panel, 29 3/4" x 24") of a child of the Page family. It has been attributed to Charles Bridges (1670 - 1747), who was active in Virginia from 1735 until 1744. This is one of a group of ten Colonial portraits of the Page family of Virginia given to the College in 1897 by Dr. R. C. M. Page.

The portrait was restored in 1978 - '80 by Elizabeth Court, a student in the Winterthur Program in the Conservation of Artistic and Historic Objects, under the supervision of Joyce Hill Stoner, William and Mary Class of 1968. During the course of conservation treatment, several layers of old varnish and overpaint were removed, revealing for the first time in almost 100 years the child's face as it was rendered by the artist.

Photo by Thomas L. Williams

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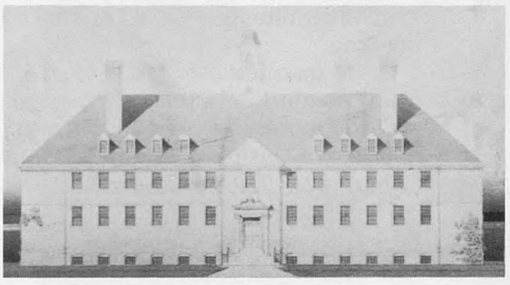
January/February 1982 *Volume 49, No. 6*



The College of William and Mary in Virginia

Editor: Gordon C. Vliet, '54
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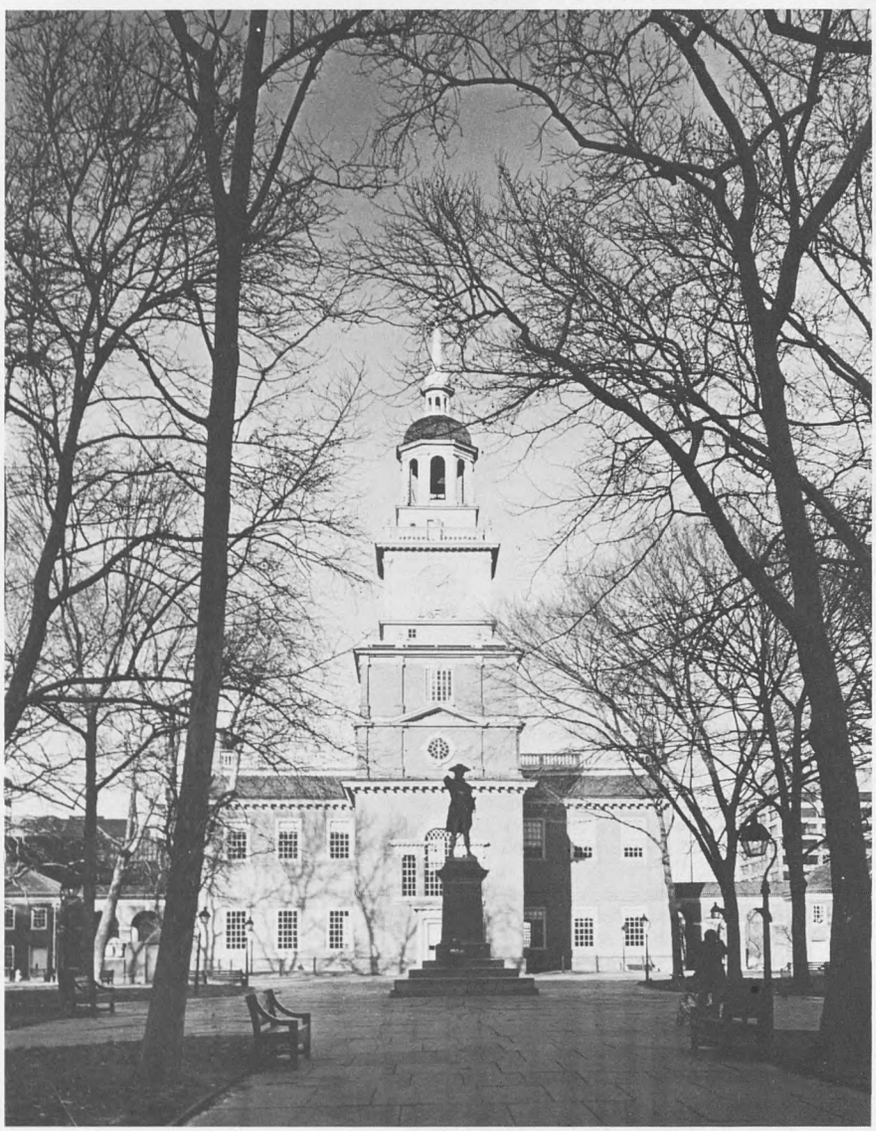
Saving America's Face

The Spirited Interest In Historic Preservation Shows How Much Americans Care About Their Country

By Fletcher L. Cox '48



A cherished shrine of liberty, Independence Hall in Philadelphia saw the adoption of the Declaration of Independence and the Constitution of the United States, and represents one of America's best-known National Historic Sites.

During the 1970s, the nation's veteran and hardy band of historic preservationists suddenly found themselves awash in admirers and recruits.

Jimmy Biddle, then in his ninth year as president of the National Trust for Historic Preservation, declared wonderingly in 1977: "For the first time, I've seen more blue jeans than blue hair at our annual meeting."

Other manifestations of at least a small revolution in the society were arriving at the Washington headquarters of the Trust, chartered by Congress in 1949 as a non-profit corporation to lead the private sector's preservation efforts. Wads of newspaper clippings told each week of preservation triumphs, struggles, and losses. Six regional offices were handling an ever-growing load of inquiries.

It was clear to Trust employees that uncounted tens of thousands of individuals were doing things a

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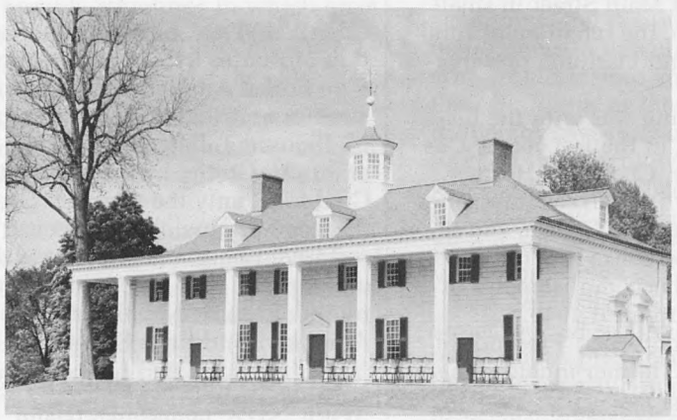
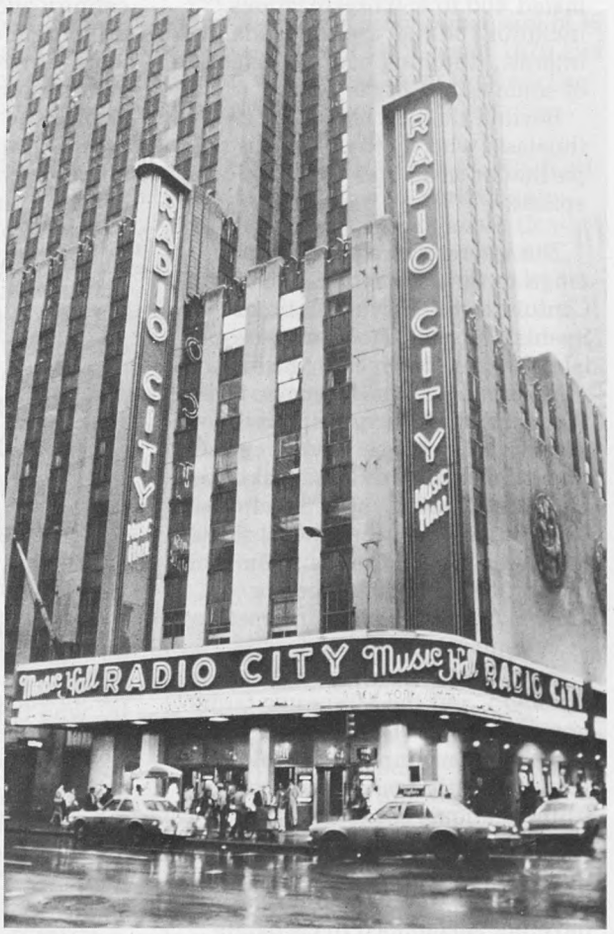
Fletcher Cox '48 attended the College of William and Mary with the Army Specialized Training Program during World War II and, after combat service in Europe, returned, married Flat Hat *editor Nancy Easley in 1947 and received his B.A. in English in 1948. Now a freelance writer and public relations consultant in Alexandria, Va., he began writing on* The Virginia Gazette. *He has been a reporter on* The Richmond News Leader *and has edited two magazines; his most recent salaried position was as director of media services for the National Trust for Historic Preservation.*

At left is the headquarters of the National Trust for Historic Preservation in Washington, D.C. The National Trust is a non-governmental, non-profit organization which encourages others to find new uses for old buildings in order to preserve them.





Among the nation's national historic sites are (top left) Whitefield Square in the Savannah Victorian Historic District, the largest revitalized urban historic district in the nation; Mount Vernon (bottom left), George Washington's home near the nation's capital; and (above right) the Radio City Music Hall in New York City, the "Showplace of the Nation" in the heart of Rockefeller Center, housing year-round entertainment. (Photos courtesy of the National Trust for Historic Preservation and the Mount Vernon's Ladies Association)

broad-minded person could consider as coming under the umbrella of historic preservation.

Now there are figures and estimates that show the scope of what has been happening.

Every state has a historic preservation office.

Nearly every major American city has a commission, created by local government, to watch over preservation of the significant, tangible survivors of the past. These are landmark and historic district commissions. More than 800 towns, cities, and counties have them, according to Frank B. Gilbert, assistant general counsel for the Trust.

There are another 10,000 groups generating community pride based upon their own neighborhoods' history and architecture. Their objectives are to encourage property owners to rehabilitate their houses and grounds and to achieve a measure of protection from developers and speculators.

Additionally, there are an estimated 400 to 450 organizations, including 34 that are statewide in interest, watching over the retention of some aspect of the past.

Beyond that are legions of enthusiasts who fly to the defense of particular structures and even open spaces.

The interests of all these folk range in time from the Seventeenth Century to the Twentieth, from Spanish missions and Jamestown Island to the Radio City Music Hall.

Their projects range in size from a World War II Liberty ship on the West Coast to a small, working sailboat, a skipjack, in Chesapeake Bay and from Grand Central Terminal in New York City to the modest frame Kam Wah Chung Company Building in John Day, Oregon, where a famous Chinese physician practiced during pioneering days.

Prostitutes' "cribs" in Telluride, Colorado, and the Minnesota farmhouse in which Thorstein ("conspicuous consumption") Veblen grew up, early roadside diners and filling stations, sod huts, adobe buildings, early skyscrapers, the downtown business districts of small towns, rural communities that have not succumbed to corporate agribusiness and the automobile—all of these are among the concerns of individuals who may or may not be card-carrying preservationists.

In Miami Beach, Florida, partisans defend Art Deco architecture from this century with the fervor once reserved for the Eighteenth Century's survivors. Victorian houses have leaped in a decade or so from near-universal scorn to such clamoring popularity that owners must be vigilant to keep thieves from taking stained glass windows right out of their sashes.

Cast iron architecture has a band of fierce defenders who are working overtime at persuading owners to save as many remaining examples of the "iron fronts" as possible.

Protective eyes are on covered bridges, early steel truss and suspension bridges, mills and factories remaining from the Industrial Revolution, dynamos, carousels, craftsmen's tools, and even advertising signs ("The Sign of the Flying Red Horse" and "His Master's Voice").

New Jersey citizens saved, moved and refurbished a badly-bedraggled Lucy the Margate Elephant, a six-story tall creation built nearly a century ago as a seashore real estate promotion device. Seattle's government turned an old, unused gas manufacturing plant into a playground.

Preservation is alive and robust in nearly every corner of the land. Private citizens, companies, corporations and organizations are quite literally saving as much of the nation's face as they can.

These activities fall into six major categories: Historic museums, neighborhood conservation, the adaptive reuse of significant structures that are still sound even though they have outlived their original purposes, the economic and physical rehabilitation of Main Street in small town America, the retention of rural open space, and maritime preservation.

The beginning was with the historic museum in the last century, as detailed by Dr. Charles B. Hosmer, Jr., who is Jay P. Walker Professor of History at Principia College and the author of three books that trace the evolution and accomplishments of preservation up until 1949.

In the first of these, "Presence of the Past," Dr. Hosmer includes these among the first major preservation steps: Philadelphia's buying what is

* "The Presence of the Past," (c) 1965 by Charles B. Hosmer, Jr., published by G.P. Putnam's Sons, New York.

The National Register

Uncle Sam has a lumber room—figuratively speaking—and it is stocked with the utilitarian and the frivolous, the serious and the whimsical, just as any real lumber room would be in a house built in 1607.

The nation's "lumber room" is the *National Register of Historic Places*. Authorized by Congress in 1966, the *National Register* is a listing of buildings, districts, structures, sites and objects that are culturally significant and worthy of preservation at the local, state and national levels.

There are 24,500 listings today.

Among the listings are the following in the Williamsburg area, bowed under the crushing weight of historical import, and a sampling of other listings to show how marvelously frivolous and eclectic are our national preservation tastes.

Williamsburg Area

For the Williamsburg area, the *National Register of Historic Places* listings, some of which date back to the late 1960s, are as follows:

JAMES CITY COUNTY

POWHATAN, north of the junction of Routes 615 and 5, vicinity of Five Forks. An Eighteenth Century structure attributed to, and the home of, Richard Taliaferro, builder-architect. Gutted by fire during the Civil War; only the masonry portions are original, but the house was restored. Georgian architecture. *Privately owned, not accessible to the public.* Recorded by the Historic American Buildings Survey.

JAMESTOWN NATIONAL HISTORIC SITE, Jamestown Island, 1607. A portion of the site of the oldest permanent English settlement in America, containing the church tower, the settlement's only Seven-

now Independence Hall from the State of Pennsylvania in the 1810s; establishment in 1850 of the first historic house museum, the Hasbrouck House in Newburgh, N.Y., George Washington's headquarters during the final two years of the Revolutionary War; the saving of the first President's home by the Mount Vernon Ladies Association of the Union, first chartered by the Virginia legislature in 1856, and formation of the Association for the Preservation of Virginia Antiquities in 1888, its purchase of the Powder Magazine in Williamsburg, and its work in preserving Jamestown Island.

In those early years, Dr. Hosmer writes, "If any single factor can be considered the motivating force behind the majority of preservation efforts, it would certainly be the hope that historic house museums would contribute to patriotic education." Some hoped that "historic buildings could help curb the sordid commercialism of the era of big business."*

The decision by Bruton Parish Church's vestry to restore that structure early in this century was another milestone.

Restoration of Williamsburg itself was of nearly incalculable influence for good in preservation, not alone for the quality of work done and the subsequent education of millions of citizens but also for creating skilled workers in preservation.

Historic museums are found across the country today, from the Vanderbilt mansion, Biltmore, where much of "Being There" was filmed, to humble structures in which great American figures were born and raised.

Whether or not more historic museums will be created is uncertain because of the high costs of upkeep and payrolls for trained staffs and guards.

This became clear in the 1970s, if not before, and nowadays local landmarks are being saved through adaptation to new uses. Old houses and inns have become branch banks, mansions and industrial buildings have become luxury apartments and condominiums, train stations now house restaurants, shops and offices. So do old markets, the most outstanding example being the Faneuil Hall Marketplace in Boston.

An early prototype for the steel-ribbed skyscraper, and an architectural jewel as well, the Wainwright Building in St. Louis, was saved from the wrecking ball by the Trust's intervention; it now houses Missouri state offices. Chicago's water tower, survivor of the great fire, is a visitor's center. Old trolley barns in Salt Lake city now house shops, cinemas and banks.

Artists, actors, and imaginative architects played an early and decisive role in saving old theaters, warehouses, and commercial buildings, such as those South of Houston, or in SoHo, in New York City. Artists turned a World War I torpedo factory, a white elephant on the waterfront of Alexandria, Virginia, into studios that draw thousands of shoppers weekly.

There is a counterpart in small town America where downtown merchants have begun to fight back against the suburban malls that left empty showrooms and demoralized shop owners on Main Street. The Trust has played a key role in this, as it has in so many preservation projects, by attracting and providing funds and consultants to create prototypes.

The Trust's Midwest Regional Office in Chicago began its Main Street Project in 1977 in three communities—Galesburg, Illinois, with a population of 38,000 and the hometown of Carl Sandburg; Madison, Indiana, with 14,000 inhabitants, and Hot Springs, South Dakota, population, 5,000. The concept was to provide advice to the towns from experts known by the Midwest Regional Office to be knowledgeable. These consultants would study each town and then make recommendations to downtown merchants who would restore and rehabilitate their buildings as they could afford it, thereby revealing a "living history" of the downtown; they would join together to promote downtown as a shopping area, and they would recruit suitable new businesses for vacant buildings.

Last September 29, *The Wall Street Journal* reported that in Galesburg "shops that open—many offering services, say, upholstering or insurance brokerage—outnumber ones that close two to one." Hot

* "Preservation Comes of Age," (c) 1981 by Charles B. Hosmer, Jr., The University Press of Virginia

teenth Century structure still standing; a 1907 memorial church built on the site of an earlier church; foundations of a church, dwellings, and two statehouses, and Eighteenth and Nineteenth Century structures including a plantation house and remains of a Confederate fort. Principal Virginia town and Colonial capital until 1700. Among those associated with its early history are Capt. John Smith, John Rolfe and his wife, Pocahontas, and Lord De La Warr. Museum property. *Private.* Recorded by the Historic American Buildings Survey.

GREEN SPRING, West of Williamsburg on Virginia Rt. 5. Area, which contains foundations and remains of structures and formal garden, was acquired in 1643 by Sir William Berkeley, twice governor of Virginia and noted agriculturist who cultivated rice and flax and experimented with wine and silk. The Virginia House of Burgesses met here after Jamestown was almost completely destroyed in 1676 during Bacon's Rebellion. Sketch by Benjamin Latrobe of second mansion of ½ stories, built of brick about 1670 and dismantled in 1796 by William Lee, survives. *National Park Service. National Park Service.*

COLONIAL NATIONAL HISTORICAL PARK (also in York County), Seventeenth and Eighteenth Centuries. Includes site and ruins of Jamestown and Yorktown and Yorktown battlefield where Americans, aided by the French under Rochambeau, Lafayette and Admiral de Grasse, fought the last important conflict of the War for Independence, forcing Cornwallis's surrender to General George Washington, August 30-October 19, 1781. *Federal/National Park Service/non-federal.*

PINEWOODS (WARBURTON HOUSE), 1.4 miles southwest of junction of Virginia Routes 613 and 614, near Lightfoot. Example of Seventeenth Century planter's house. Rebuilt after fire destroyed all but brick portions. *Private.* Recorded by the Historic American Buildings Survey.

HICKORY NECK CHURCH, north of Toano on U.S. Route 60. Present structure is a fragment of the original colonial church; north part is 1773-1774 extension, and the south bay dates from the alteration made about 1825. *Private.* Recorded by the Historic American Buildings Survey.

Springs reported, the article continued, "that town sales and use taxes are up a third since the start of its revival three years ago."

"The Trust has received 4,000 queries from across the country since it began the project," the article noted.

Now the Main Street Project has become the National Main Street Center operating out of the Trust's Washington headquarters, and the same kind of assistance is being given to 36 additional communities in six additional states.

Such rehabilitation of business districts is a logical extension of a half-century's experiences in the growing neighborhood conservation effort.

In the mid-1920s, local government officials and businessmen united in New Orleans to conserve the "civic, aesthetic and material prosperity" of the Vieux Carre. The City of Charleston, South Carolina, adopted a special historic district zoning ordinance in 1931; Dr. Hosmer calls the ordinance "the first legislation of this type in the United States to receive the full backing of a city government."*

Historic district ordinances, which come with varying mouthfuls of teeth in different cities and towns, generally provide that exteriors of existing buildings cannot be changed in a jarring fashion and that new construction must not damage the community's ambiance.

A study published two years ago found that, in Savannah, Georgia, the existence of a historic district had resulted in "significant upgrading in the quality of life and sense of community pride; economic expansion through increases in tourism, new jobs, retail stores, and sales; increases in real property values and tax revenue, and a new program to expand preservation efforts to stabilize an adjacent neighborhood."**

From Baltimore's Federal Hill to San Francisco's Inner Mission area, from Swiss Avenue in Dallas to Mount Auburn in Cincinnati, neighborhood after neighborhood has been brought back from near-slum status. It is one of the great untold stories in the country today.

** "The Contribution of Historic Preservation to Urban Revitalization," Advisory Council on Historic Preservation, January, 1979

In the fifth category of preservation efforts, the Trust—again—is in the forefront, sponsoring two rural demonstration projects in which local residents strive to work out affordable ways to conserve their economy and ambiance by managing the changes that are inevitable.

One project area is Oley Township in Berks County, near Reading, Pennsylvania, which "appears and functions much as it did in the early Nineteenth Century, vividly recalling our agrarian heritage in a way that history books never can," according to *Historic Preservation*, the Trust's magazine.

The other is Cazenovia, New York, laid out in 1793 by the Holland Land Company in a long, narrow valley at the edge of a lake as a model village for westward expansion. Today it is a prized recreation spot for the Syracuse area; it also contains some of the best farmland in the country.

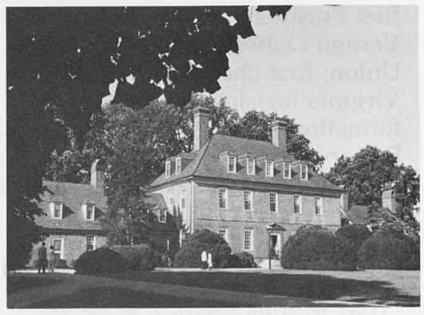
New ground must be broken, figuratively speaking, in the project. "Preservation in rural areas today is where historic preservation in cities was 20 years ago," says Sam Stokes, the Rural Project Administrator.

Finally, historic preservation encompasses maritime preservation because the Trust says it does. Prior to 1976, enthusiasts were saving old boats and teaching sailing and boatbuilding skills as an interesting and worthwhile thing to do. Then came Operation Sail, the parade of tall ships held in New York harbor for the Bicentennial, and a surplus of funds. What to do with the money? Give it to the Trust for a maritime preservation program, the Op-Sail directors decided. They did. Presto; yesterday's enthusiast was today's Historic Preservationist!

Meanwhile, other enthusiasts restore, preserve and continue to use steam locomotives, old railroad cars, old airplanes, and old automobiles--all outside the Trust's aegis, if not beyond the interest of some staff members.

The question arises: Just what *is* historic preservation? The answer depends upon whom one asks, as the words have never been defined. "Maybe nobody could agree on a definition" was the response of Carleton Knight III, editor of *Preservation News* for the Trust, when he was asked. "I've never seen a defi-

STONE HOUSE SITE, northeast of Toano, off Virginia Rt. 600. Remains of foundation from Seventeenth Century indicate rectangular structure of stone construction, unusual for the area. Form and location indicate use as defensive outpost. Unexcavated. *Private; not accessible to public.*



CARTER'S GROVE, southeast of the junction of Rt. 667 and U.S. Rt. 60. An excellent five-part Georgian country house, altered 1927-1928. Magnificent interior woodwork. *Private.* National Historic Landmark.* Recorded by Historic American Buildings Survey.

GOVERNOR'S LAND ARCHAEOLOGICAL DISTRICT, west of Williamsburg. Area contains a concentration of 18 known structure sites dating from the Seventeenth and Eighteenth Centuries, and the Seventeenth Century road connecting Green Spring with Jamestown. Excavated 1954-1955 by National Park Service. *Multiple public/private ownership, not accessible to public.*

KINGSMILL PLANTATION, five miles south of Williamsburg, dating from about 1736. Remains of early brick plantation complex; 1782 map locates outbuildings to reveal nearby landing site important to Eighteenth Century local economy. Excellent example of early colonial plantation complex. *Private.* Recorded by Historic American Buildings Survey.

CHICKAHOMINY SHIPYARD ARCHAEOLOGICAL SITE, southwest of Toano and about 12 miles from the mouth of the Chickahominy River. Site of the State Shipyard of the Virginia Navy during the Revolutionary War. Substantial archaeological remains. *Private.*

A saloon and four "cribs" in the notorious red light district of the former mining town of Telluride, Colorado, were acquired by the National Trust in 1979. (National Trust for Historic Preservation)

nition. That's not to say there isn't one, though," he added.

The Trust convened a conference in Williamsburg in 1979 under the heading, "Preservation: Toward an Ethic in the 1980s." From that conference of leaders came suggestions. One was that the word "historic" be dropped; another was that preservation be seen as a "quality of life" activity. Preservation was not defined, and that may be just as well.

A rigid definition of "historic preservation" in the 1949 Act of Congress could have locked the Trust into the historic museum mode. Absent such a strait jacket, the Trust's staff has been innovative and enthusiastic across the entire spectrum of what we know as preservation today.

Such a revolution in the nation's values has not occurred in a vacuum. Government at all levels has helped. One must give due credit to Congress, whipsawed and bumbling as it seems now.

In this century Congress protected prehistoric sites and artifacts on federal lands in the West, created the National Park Service to care for and protect historical parks, monuments and forts as well as scenic parks, authorized establishment of the Trust to "facilitate public participation in the preservation of sites, buildings and objects of national significance or interest," declared historic preservation to be a national goal, made it possible to create the *National Register of Historic Places* and gave some protection from adverse federal actions to properties listed therein, and appropriated $280,589,000 in matching funds between 1968 and 1981 to help the states, the Trust, and the owners of National Register properties.

Recently, at long last, the Supreme Court of the United States has considered a preservation case—this one involving Grand Central Terminal and then upheld New York City's landmarks preservation law. Said the Trust's Frank Gilbert, "Today, it is a waste of an owner's time to oppose a preservation effort as 'illegal'."

It seems unlikely that the impetus toward preservation will slacken any time soon. To the contrary, it will be broadened if the Trust's current president, Michael Ainslie, succeeds in one of his major efforts. Shortly after succeeding Jimmy Biddle, Ainslie told the Minority Community and Historic Preservation Conference in 1980 that "today marks the beginning of my campaign to get many more blacks and minorities to endorse and participate in the principles of preservation."

When and if minorities join what has been a middle- and upper-income movement, we will have seen the last of the Profligate American, the fellow who never counted the social and aesthetic costs of his profitable schemes, leaving it to others to "pick up the pieces" after he moved on—from worn out land in the old days and from grievously-wounded cities in the new. Ad hoc flying squads of preservationists will see to that.

It looks as if America's Age of Preservation and Conservation is already well advanced. Walter Cronkite or Ronald Reagan may proclaim it any day now.

WILLIAMSBURG

BRUTON PARISH CHURCH, Duke of Gloucester Street, 1712-1715, Alexander Spottswood, builder-architect. Square, three-story tower with spire added, 1769; altered; restored, 1905 and 1939; for many years, the court church of Virginia. *Private.* National Historic Landmark.* Recorded by Historic American Buildings Survey.

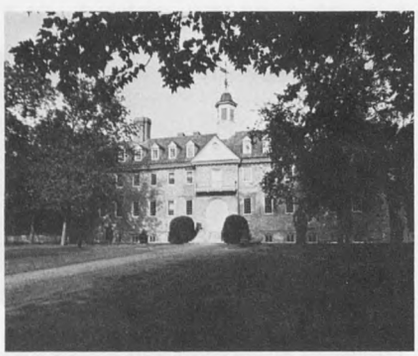
COLLEGE LANDING, off Virginia Rt. 31. Created in 1699 by the "Act Directing the Building of the Capitol and City of Williamsburg." One of the major water ports and an important supply point during the Revolutionary War. Architectural remains. *City-owned.*

WYTHE HOUSE, west side of the Palace Green, built about 1755, Richard Taliaferro, architect. Home of George Wythe, a signer of the Declaration of Independence. *Private.* National Historic Landmark.*

PEYTON RANDOLPH HOUSE, corner of Nicholson and North England Streets, about 1715. Erected in three stages; the east section was connected to the older house by Sir John Randolph about 1724. Notable paneling, most of which is original, in main rooms; restored. *Private.* National Historic Landmark.* Recorded by Historic American Buildings Survey.

JAMES SEMPLE HOUSE, south side of Francis Street between Blair and Walker Streets, about 1770. Restored 1932. Federal style, believed to have been designed by Thomas Jefferson. *Private, not accessible to the public.* National Historic Landmark.* Recorded by Historic American Buildings Survey.

WILLIAMSBURG HISTORIC DISTRICT, bounded by Francis, Waller, Nicholson, North England, Lafayette, and Nassau Streets, Seventeenth-Eighteenth Centuries. A district of 130 acres containing more than 490 one- to 2½-story brick and frame structures, reconstructed or restored to Eighteenth Century appearance. First settled in 1633; center of leadership and influence throughout period preceding Revolution; Virginia capital, 1699-1779. Location of College of William and Mary (established 1693), one of the oldest in the U.S. *Multiple public and private use.* National Historic Landmark.* Recorded by Historic American Buildings Survey.



WREN BUILDING, COLLEGE OF WILLIAM AND MARY, 1702, attributed to Sir Christopher Wren, architect. Burned and rebuilt several times; restored, 1927. Oldest academic building in the U.S. *State ownership.* National Historic Landmark.* Recorded by Historic American Buildings Survey.

YORK COUNTY

LEE HOUSE (KISKIACK), northeast of junction of Virginia Rts. 238 and 168, near Lackey. Added to in 1937. Typical early Virginia country house; tract patented in 1641 and remained in Lee family until 1918. *Federal/U.S. Navy, not accessible to public.*

GRACE CHURCH, Rt. 1003 and Main St., Yorktown, 1848. May be the only extant early marl structure. Replaced original York-Hampton Parish Church which burned in 1814. Prominent parishioners included Thomas Nelson, signer of the Declaration of Independence. *Private.*

WILLIAM GOOCH TOMB AND YORK VILLAGE ARCHAEOLOGICAL SITE, east of Yorktown on U.S. Coast Guard Reserve Training Center, Seventeenth Century. Site of colonial settlement containing brick foundations of York Church surrounding limestone slab tomb (1655) of Maj. William Gooch, Virginia Burgess; below ground village remains; and Confederate earthworks constructed by Gen. John B. Magruder in defense of Richmond, 1862. *Federal/Coast Guard.*

YORKTOWN WRECKS, four miles of York River between Gloucester and York County shores at Yorktown, 1781. Underwater site containing remains of British war fleet sunk in siege of Yorktown; undetermined number of ships. Partially investigated by National Park Service and Mariner's Museum, 1934-1935, and by Fort Eustis, 1954. *State/federal, not accessible to public.*

BRYAN SITE, east of Williamsburg. Site of an Eighteenth Century domestic complex that was the home of the York County Sheriff, Frederick Bryan, on approximately 500 acres on the north side of the road from Williamsburg to Yorktown. *Private.*

Eclectic Tastes

Among the unusual and marvelous listings in the *National Register* are these:

Boll weevil monument, Alabama.
Magnolia company filling station, Arkansas.
Lighter-Than-Air Ship hangars, California.
Launch Complex No. 39, Kennedy Space Center, Florida.
"General" and "Texas," both Civil War locomotives, and the Dixie Coca Cola Bottling Co., Georgia.
Site of the first self-sustaining nuclear reaction, Illinois.
Indianapolis Motor Speedway, Indiana.
What Cheer Opera House, Iowa.
Geodetic center of the United States, Kansas.
Hatfield-McCoy Feud Historic District, Kentucky.
St. Charles street car line, Louisiana.
Bromo Seltzer Tower, Maryland.
Plymouth Rock, Walden Pond, Massachusetts.
Lucy the Margate Elephant, New Jersey.
Brooklyn Bridge, New York.
S&W Cafeteria, North Carolina.
Steamboat "Delta Queen," old school privy, and first concrete street in the U.S., Ohio.
Sumpter Valley gold dredge, Oregon.
Pagoda, Pennsylvania.
Art's Auto, Modern Diner, Rhode Island.
Jack Daniel Distillery, Tennessee.
Swindle site, Texas.
Sweet Chalybeate Spring, Virginia.
Grave of the legendary giantess, Washington State.
Philadelphia Toboggan Co. Carousel No. 15, Wisconsin.
Mason and Dixon Survey terminal point, West Virginia.

* National Historic Landmarks are designated by the U.S. Secretary of the Interior as possessing exceptional value as visible reminders of the events, persons, places and objects which have affected broad patterns of American history, illustrated man's craftsmanship and artistry, and reflected America's evolving culture. About 1,500 have been designated since Congress adopted the Historic Sites Act in 1935, authorizing the program.

By the ravenous teeth that have smitten
Through the kisses that blossom and bud,
By the lips intertwisted and bitten
Till the foam has a savor of blood,
By the pulse as it rises and falters,
By the hands as they slacken and strain,
I adjure thee, respond from thine altars,
Our Lady of Pain.

Wilt thou smile as a woman disdaining
The light fire in the veins of a boy?
But he comes to thee sad, without feigning,
Who has wearied of sorrow and joy;
Less careful of labor and glory
Than the elders whose hair has uncurled;
And young, but with fancies as hoary
And grey as the world.

I have passed from the outermost portal
To the shrine where a sin is a prayer;
What care though the service be mortal?
O our Lady of Torture, what care?
All thine the last wine that I pour is,
The last in the chalice we drain,
O fierce and luxurious Dolores,
Our Lady of Pain.

- from "Dolores,
(Notre Dame des Sept Dolors)"
by Algernon Charles Swinburne

All heaven in every baby born,
All absolute of earthly leaven,
Reveals itself, though man may scorn
All heaven.

Yet man might feel all sin forgiven,
All grief appeased, all pain outworn,
By this one revelation given.

Soul, now forget thy burdens borne:
Heart, be thy joys now seven times seven:
Love shows in light more bright than morn
All heaven.

- from "Babyhood," by
Algernon Charles Swinburne

The two excerpts show Swinburne's intriguing shift, from the blasphemy and masochism of "Dolores" to the innocence and worship of "Babyhood."

SWINBURNE

Notorious, Eccentric, Prolific - But Obscure, Swinburne Re-Emerges As A Major Victorian Literary Figure

By Terry L. Meyers

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In 1882 James McNeill Whistler, smarting from an attack on him by his erstwhile friend Algernon Charles Swinburne, wrote Swinburne a public letter addressed to "one Algernon Swinburne--outsider--Putney." Those stinging words, "outsider--Putney," are an apt precis of the critical reputation of Swinburne's work written after his move in 1879 from London to the Pines, the suburban villa in Putney, near Wimbledon, that Swinburne was to share until his death in 1909 with a solicitor and man of letters, Theodore Watts (later Watts-Dunton).

Algernon Charles Swinburne,
drawing executed in 1874 by Carlo Pellegrini.

Indeed, to modern readers not professionally engaged in literary studies, Swinburne (1837-1909) is probably even more an outsider. Though he was notorious in his lifetime, and prolific as a poet, a dramatist, an essayist, and even a novelist, our century's early turn against all things Victorian has led to a double oblivion for Swinburne, a poet seemingly of the second rank in an age little regarded. But just as the distance of time is allowing a dispassionate reappraisal of the Victorian age and its accomplishments, so it is leading to a new look at Swinburne who, in recent years, has been the subject of increasing interest, understanding, and appreciation. The most recent anthology for college courses in Victorian poetry, for example, treats him, with Tennyson and Browning, as one of the triumvirate of major poets in the age.

Until Swinburne moved in 1879 to Putney, his poetry and plays had sung defiantly to the ears of the Victorians songs they did not want to hear, songs of catatonic despair and destruction, songs of fiery revolutionary fervour, and songs of lurid sin and depraved passion. In an age when poetry was much looked to for responsible moral, social, and religious sustenance, when Tennyson was struggling to mute his two voices and to resolve his internal debate between pleasure and duty, Swinburne was insisting on the independence of art from all but aesthetic concerns. He was, moreover, writing poetry that purposely assaulted Victorian propriety in matters political, religious, and sexual.

And in a kind of moral drama that hostile audiences must have much appreciated, Swinburne's determined violation of the restraints of convention was apparent in the 1860's and the 1870's in his increasingly ravaged health. Literary London was frequently abuzz with rumors of Swinburne's dissipations, of his drinking, of his patronizing richly appointed brothels pandering to *le vice anglais*, of his consorting with sordid denizens in the murky depths of the Victorian underworld.

Swinburne's life, with his poetry, insured a lingering distrust -- his political, religious, and sexual offensiveness and then his apparently baffling turn to writing such poetry as that in worship of babies were enough to bring him critical opprobrium. Certainly as an undergraduate confident and foolish enough to dismiss all of Victorian literature out of hand, I had never heard of Swinburne. My fascination with his poetry came only at the University of Chicago when I studied with Jerry McGann, one of those teachers and scholars whose vitality, insight, and force of personality essentially carve out whole careers for their students. But even by itself, Swinburne's life had quirks enough to attract the most jaded graduate student.

Swinburne was born, in London, in 1837, to parents of aristocratic lineage on both sides. His father, an admiral in the Royal Navy, and his mother raised him as a child in two homes, moving seasonally from Capheaton Hall, the ancestral home in Northumberland, to the softer climate of East Dene, near the tiny seaside village of Bonchurch, the Isle of Wight. Swinburne's youth was one of happy play, of climbing cliffs, of galloping ponies, of games shared with his cousins, including Mary Gordon, with whom he fell hopelessly in love, and whose marriage in 1865 shattered, perhaps, whatever composure Swinburne still retained. As a boy of nine, Swinburne was sent to Eton, where he studied under the tutelage of James Joynes, whose pedagogic use of the birch helped guide Swinburne's developing sensibilities into curious channels. From Eton, Swinburne went to Balliol College, Oxford, where, like Shelley, he was rusticated, for offenses still not known (one can suspect alcohol was involved). In any case, his landlady took the opportunity to close her lodgings to "them troublesome Balliol gentlemen."

At Oxford, Swinburne had met William Morris, Edward Burne-Jones, and Dante Gabriel Rossetti, all brought there to paint murals on the new building of the Oxford Union Society. Swinburne's delight in their camaraderie, their high jinks, their appreciation of local girls -- "stunners," they called the beauties -- carried on into London in the 1860's and 1870's. His acquaintances there ranged from the high to the low, from Browning and Tennyson, infrequently and formally, to the likes of Simeon Solomon and Charles Augustus Howell, frequently and informally. Solomon, a painter of some repute, had little in com-

Swinburne and his sisters - by George Richmond (1843).

mon with Howell, a blagueur whose wits kept him alive as he diddled friend and foe alike -- except that both came to sad and sordid deaths, Solomon as an alcoholic reduced to painting on sidewalks and Howell, found in the gutter, his throat cut, a coin wedged in his mouth, apparently signifying his execution as a squealer.

The poet-painter Dante Gabriel Rossetti was one of Swinburne's closest friends until Rossetti's addiction to laudanum so beclouded his mind with paranoia that the friendship had to be ended (Rossetti came to believe quite literally that the very birds in their twittering were talking about him!). Rossetti's regard for Swinburne in their happier days included his concern for Swinburne's sexual development. To initiate Swinburne, Rossetti is supposed to have hired, for ten pounds, an American actress, Adah Isaacs Menken, several times married, and much celebrated for her dazzling performance wearing a flesh colored body stocking while strapped to the back of a galloping stallion. Erotic stuff indeed! The story goes that Menken returned Rossetti's money -- "It's no good," she complained, "I can't get him to understand that biting's no good!" Another version, though, suggests that the temptress ignored the bard's nibbling in favor of long recitations of her own lush verse!

We can laugh now at the chaos in the Chelsea house Swinburne shared with Rossetti and George Meredith, a house where Rossetti kept a private zoo: a raccoon, a wombat, peacocks, a kangaroo, an armadillo, a zebu and other oddities. He wanted to add a lion and an elephant, but was dissuaded, though neighbors could have been no happier at the goings-on of the human menagerie. One story recounts a riotous soiree ending (one hopes) with Swinburne and Simeon Solomon racing, sliding down the stair banisters -- naked. But these follies had to cease, of course, and they did, when Rossetti's solicitor Watts-Dunton virtually kidnapped Swinburne and carried him away from dangerous temptation.

Then, under the mesmeric influence and gentle care of Watts-Dunton, Swinburne was able to make a recovery that vindicated commonsensical notions of moderation and regularity and healthful suburban living. Swinburne's mother was happy, Watts-Dunton was happy, and Swinburne was happy.

But literary critics have not been so happy. Swinburne tamed seemed to lose most of his vitality; his poetic scope seemed to narrow, and the magnificent energy of his revolt against God, of his intense obsession with the pain and pleasure of being under the rod of Dolores, Our Lady of Pain, was replaced with vapid verse jingoistically praising the Queen and the England he had assailed in *Songs before Sunrise* (1871) for being dormant; with elegies insistently and repetitiously recalling dead friends and heroes from his youth; with increasingly intricate poetic forms entwined around increasingly trivial themes; with finely wrought descriptions of flowering hawthorns and May mornings, and sea-scapes and the sea; and with apparently unblushing, sentimental poems about babies, babies whom he knew as well as babies whom he met only briefly in his daily perambulation across Wimbledon Common.

Though critics are willing to recognize some flashes of Swinburne's old power in a few late poems such as "A Nympholept" (1894), the consensus is that Watts-Dunton's rescue of Swinburne preserved the person but lost the poet. Certainly Swinburne himself seems to recognize a falling off in his 1889 poem "To a Sea Mew" where, like so many other nineteenth century poets from Wordsworth to Hardy, he chooses a symbolic bird with which to contrast his own life:

When I had wings, my brother,
  Such wings were mine as thine:
Such life my heart remembers
  In all as wild Septembers
As this when life seems other,
  Though sweet, than once was mine;
When I had wings, my brother,
  Such wings were mine as thine.

A renaissance, or, more properly, a naissance, of critical interest in the minor poetry of Swinburne's later period will surely, we can all hope, be a long time coming. Certainly I do not want to give these poems undue attention, or to suggest that we ought to value them more highly than they are presently valued. But I would like to try my hand at an extreme case, Swinburne's poetry dedicated to infants and infanthood, poetry that in most cases only a verse writer for Hallmark cards might decently praise. Seen, however, from one perspective, Swinburne's turn from the themes of his more famous, and more lurid, earlier works is a part of the evolution that in larger ways marks his poetry. The baby poems in this light are not necessarily the literary equivalent of Watts-Dunton's weaning Swinburne from brandy to beer (one glass daily) so much as they are a continuation, albeit in a quieter tone, of Swinburne's revolt against Christianity, against "the supreme evil, God," and an affirmation of Swinburne's moderated vision of the way the world is constituted.

Swinburne's poetic conception of human life, of the way the world is put together, is not a hard one to discover, though often the careful precision of his subtly convoluted and precisely intertwined syntax and imagery impedes forward progress in its exploration. Both in his early and in his late poetry, Swinburne discovers man in the clash of opposing extremes, the strife of contraries that tear and rend each other. He notes, for example, in *Atalanta in Calydon* (1865) the cruelty of the creating gods in their molding of man, the gods who "very subtly fashioned/Madness with sadness upon earth" and "circled pain about with pleasure,/And girdled pleasure about with pain." The chorus gives this account of the complex genesis and constitution of Man:

Before the beginning of years
  There came to the making of man
Time, with a gift of tears;
  Grief, with a glass that ran;
Pleasure, with pain for leaven;
  Summer, with flowers that fell;
Remembrance fallen from heaven,
  And madness risen from hell;
Strength without hands to smite;
  Love that endures for a breath;
Night, the shadow of light,
  And life, the shadow of death.

And the high gods took in hand
  Fire, and the falling of tears,
And a measure of sliding sand
  From under the feet of the years;
And froth and drift of the sea;
  And dust of the labouring earth:
And bodies of things to be
  In the houses of death and of birth;

And wrought with weeping and laughter,
And fashioned with loathing and love,
With life before and after
And death beneath and above,
For a day and a night and a morrow,
That his strength might endure for a span
With travail and heavy sorrow,
The holy spirit of man.

These constant antitheses that slip into mutual identity inform the entire corpus of Swinburne's work. John D. Rosenberg stresses that Swinburne charges his poetry "with the tension of delicately poised opposites: shadows thinned by light, lights broken by shade, sunset passing into moonrise, sea merging with sky. He is obsessed by the moment when one thing shades off into its opposite, or when contraries fuse." Swinburne's greatest poems, and many of his lesser ones, hover in musically nuanced ambiguity around those actual and symbolic points where both the profound kinship of all things and their terrible and essential division are revealed.

But that Swinburne's works evolve in their treatment of the vast contraries and oppositions he dramatizes and explores has not been much noted. Looking at this evolution suggests a way of relating poems as different as, on the one hand, "Félise," from *Poems and Ballads* (1866), with its soul - and consciousness-dissolving desire for a woman who "must be swift and white,/And subtly warm, and half perverse,/ And sweet like a snake's love lithe and fierce" and, on the other hand, such a later poem (1883) as that entitled, without irony, "Etude Réaliste":

I

A baby's feet, like sea-shells pink,
Might tempt, should heaven see meet,
An angel's lips to kiss, we think,
A baby's feet.

Like rose-hued sea-flowers toward the heat
They stretch and spread and wink
Their ten soft buds that part and meet.

No flower-bells that expand and shrink
Gleam half so heavenly sweet
As shine on life's untrodden brink
A baby's feet.

II.

A baby's hands, like rosebuds furled,
Whence yet no leaf expands,
Ope if you touch, though close upcurled,
A baby's hands.

Then, even as warriors grip their brands
When battle's bolt is hurled,
They close, clenched like tightening bands.

No rosebuds yet by dawn impearled
Match, even in loveliest lands,
The sweetest flowers in all the world --
A baby's hands.

III.

A baby's eyes, ere speech begin
Ere lips learn words or sighs,
Bless all things bright enough to win
A baby's eyes.

Love, while the sweet thing laughs and lies,
And sleep flows out and in,
Lies perfect in them Paradise.

Their glance might cast out pain and sin,
Their speech make dumb the wise,
By mute glad godhead felt within
A baby's eyes.

In his early poems like "Félise," those works dating from the 1860's, Swinburne is so stunned, so dismayed, so undone by the painful violence of existence, especially by the desolation of unrequited love, that he desires only oblivion and death, whether literally and immediately or more figuratively and indirectly through the dissolution promised by sin. This sense of the painfulness of life and the balm of death is illustrated in one tone by the subdued verse of "The Garden of Proserpine" (1866):

I am tired of tears and laughter,
And men that laugh and weep;
Of what may come hereafter
For men that sow to reap:
I am weary of days and hours,
Blown buds of barren flowers,
Desires and dreams and powers
And everything but sleep.
. . . . . .
From too much love of living,
From hope and fear set free,
We thank with brief thanksgiving
Whatever gods may be
That no life lives for ever;
That dead men rise up never;
That even the weariest river
Winds somewhere safe to sea.

Then star nor sun shall waken,
Nor any change of light:
Nor sound of waters shaken,
Nor wintry leaves nor vernal,
Nor days nor things diurnal;
Only the sleep eternal
In an eternal night.

A similar, though a more passionate, a more erotic, and a more complex desire for self-immolation burns forth from the jealous denunciation in "Anactoria" (1866) by Sappho of her lover Anactoria's taking a male lover:

O that I
Durst crush thee out of life with love, and die,
Die of thy pain and my delight, and be
Mixed with thy blood and molten into thee!
Would I not plague thee dying overmuch?
Would I not hurt thee perfectly? not touch
Thy pores of sense with torture, and make bright
Thine eyes with blood like tears and grievous light?
Strike pang from pang as note is struck from note,
Catch the sob's middle music in thy throat,
Take thy limbs living, and new-mould with these
A lyre of many faultless agonies?
Feed thee with fever and famine and fine drouth,
With perfect pangs convulse thy perfect mouth,
Make thy life shudder in thee and burn afresh,
And wring thy very spirit through the flesh?
Cruel? but love makes all that love him well
As wise as heaven and crueller than hell.
Me hath love made more bitter toward thee
Than death toward man; but were I made as he
Who hath made all things to break them one by one,
If my feet trod upon the stars and sun
And souls of men as his have alway trod,
God knows I might be crueller than God.

During these decades of the 60's and 70's, Swinburne's life nearly matched in despair the painful cries of his poetry. The speaker in the profoundly autobiographical poem "The Triumph of Time" (1866) virtually is Swinburne when he declares that "I shall go my ways, tread out my measure,/ Fill the days of my daily breath/ With fugitive things not good to treasure." About this time, it is reported in a private and confidential essay long kept locked in the private cases of the British Library, Swinburne was visiting "a mysterious house in St. John's Wood where two golden-haired and rouge-cheeked ladies received in luxuriously furnished rooms, gentlemen whom they consented to chastise for large sums." And these were the years too of alcoholic dissipation, with Swinburne so often the first in a company to be drunk that once, when he came across a friend inebriated, he called a doctor, not recognizing the symptoms, and thinking his friend must be in his death agony.

But in the late 1860's, though the irregularities of his life did not lessen, Swinburne's vision of the world began to expand to a more comprehending view that set oppositions and duality in a broader perspective. He began to celebrate the very contraries he had earlier sought to escape. In *Songs before Sunrise* (1871), his poems celebrate, as in "Genesis," "The immortal war of mortal things": "Labour and life and growth and good and ill,/ The mild antiphonies that melt and kiss,/ The violent symphonies that meet and kill." As the oxymorons suggest, Swinburne understands

both the parts and the relations that constitute the whole, both the division and the harmony. Swinburne depicts in "Hertha" (1871), an all encompassing being, an earth spirit who joins all apparent disharmony and division into harmony and unity; Hertha speaks to man to reveal the connected wholeness of all that exists, including humanity itself:

Beside or above me
Nought is there to go;
Love or unlove me,
Unknow me or know,
I am that which unloves me and loves;
I am tricken, and I am the blow.

I the mark that is missed
And the arrows that miss,
I the mouth that is kissed
And the breath in the kiss,
The search, and the sought, and the seeker,
the soul and the body that is.

One birth of my bosom;
One beam of mine eye;
One topmost blossom
That scales the sky;
Man, equal and one with me,
man that is made of me, man that is I.

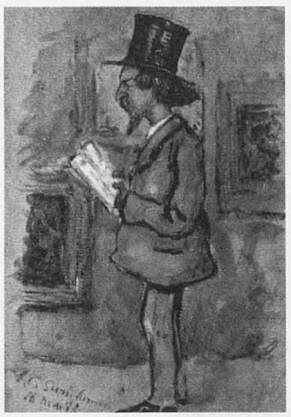
The humanism in *Songs before Sunrise* and the movement away from the devastating madness of *Poems and Ballads* are announced in the "Prelude" (1871): there Swinburne repudiates "that subtle shade" and "the fierce flute whose notes acclaim/ Dim goddesses of fiery fame" and girds himself to confront and cope with the actual conditions and limitations of human life:

Then he stood up, and trod to dust
Fear and desire, mistrust and trust,
And dreams of bitter sleep and sweet,
And bound for sandals on his feet
Knowledge and patience of what must
And what things may be, in the heat
And cold of years that rot and rust
And alter; and his spirit's meat
Was freedom, and his staff was wrought
Of strength, and his cloak woven of thought.

For what has he whose will sees clear
To do with doubt and faith and fear,
Swift hopes and slow despondencies?
His heart is equal with the sea's
And with the sea-wind's, and his ear
Is level to the speech of these,
And his soul communes and takes cheer
With the actual earth's equalities,
Air, light, and night, hills, winds, and streams,
And seeks not strength from strengthless dreams.

This acceptance of human life and its complexity finds one of its most vital expressions in Swinburne's much later poem "The Lake of Gaube" (1904), where, in the image of a swimmer plunging into the dark, plumbless cold of a mountain lake, Swinburne hymns the intensity of life, intensity increased by the power of death:

Death-dark and delicious as death in the
dream of a lover and dreamer may be,
It [the lake] clasps and encompasses body and
soul with delight to be living and free:
Free utterly now, though the freedom endure
but the space of a perilous breath,
And living, though girdled about with the
darkness and coldness and strangeness of
death.



Swinburne in 1883 - by G. K. Halkett (from the Mayfield Collection).

Swinburne's wondering sense of the harmony of life and death concludes the poem: "Whose vision has yet beholden/ The splendour of death and of life?/ Though sunset as dawn be golden,/ Is the word of them peace, not strife?"

Swinburne's sense of being wholly alive to the vital forces that pulse through experience, his sense of divinity in man, his sense of apparent oppositions in life actually enriching the experience of life all help to explain, if not perhaps wholly to justify, the energy Swinburne put in his later years into writing baby poetry. To celebrate babyhood is to celebrate birth, to celebrate growth, to celebrate life. And it is also to affirm humanism.

At first glance there seems little hope of redeeming from virtue such a saccharine piece as this one of Swinburne's "Cradle Songs" (1884):

Baby, baby dear,
Earth and heaven are near
Now, for heaven is here.

Heaven is every place
Where your flower-sweet face
Fills our eyes with grace.

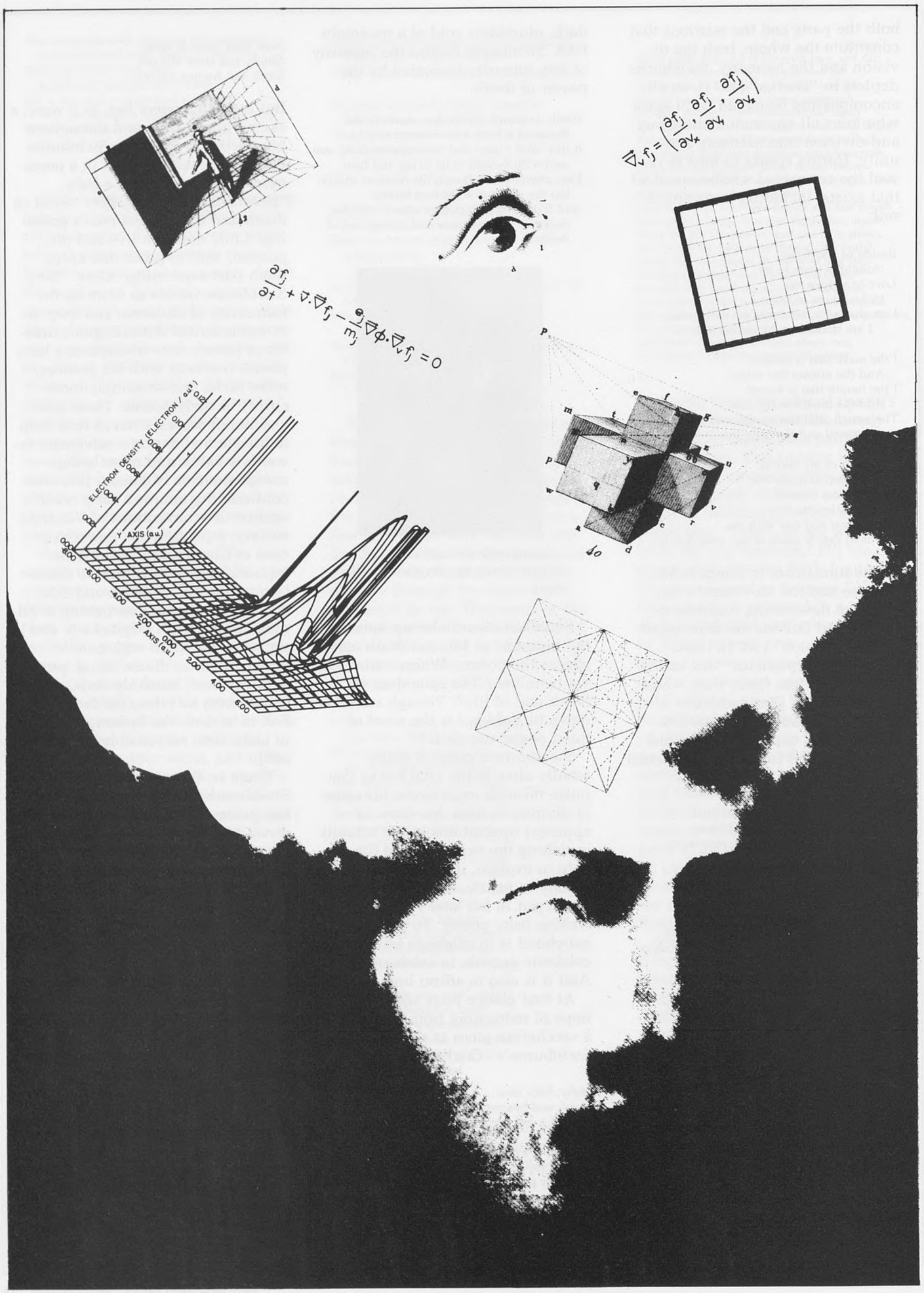
Till your own eyes deign
Earth a glance again,
Earth and heaven are twain.

Now your sleep is done,
Shine, and show the sun
Earth and heaven are one.

But even this poem has, as it were, a saving grace. Here and throughout his poetry on children, Swinburne obsessively reiterates, as in a poem mourning the death of a baby, "Benediction" (1883), how "Blest in death and life beyond man's guessing/ Little children live and die, possest/ Still of grace that keeps them past expressing/ Blest." Why Swinburne insists so often on the innocence of children, and does so in terms larded with religious overtones reveals how Swinburne's baby poetry connects with his grander, more lurid, and seemingly more corrosive early poems. These later and minor works, even as they help delineate Swinburne's movement towards a vaster and more benign comprehension of human life, also continue Swinburne's early revolt against the conventions of Victorian society, especially the repressiveness of Christianity. Swinburne repudiates a myth central to Christianity, the fall of Adam and Eve, and the consequent burdening of all men at birth with original sin, and replaces that myth with one he prefers, man as divine being, pure and innocent, humanly responsible for his own salvation (to deny the Fall is to deny the Redemption, and to make man responsible for himself).

There is, then, an abiding irony in Swinburne's baby poems, for if he has given up his thundering and direct assault on the citadel of Victorian propriety, in these minor poems he offers to the defenders of the citadel the sweets of sentimentality they enjoy, but sentimentality whose sweetness masks poison. Swinburne expressed his admiration for *Songs of Innocence* and *Songs of Experience* in *William Blake: A Critical Essay* (1866). That study of Blake was not without fruit.

Swinburne in Putney, at the Pines, under the tutelage of Watts-Dunton, was a reformed man and a reformed poet. No one can deny the loss of power and of magnificence in most of his later work. But even that part of the later work which is seemingly the least significant, the least connected with the earlier poems, has connections that must mitigate any judgment of the late Swinburne as absolutely an outsider.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THE SOMETIME IRRELEVANCE OF "RELEVANT" SCIENCE

Civilization Depends On The Health of Science, And Some Contemporary Trends Are Disturbing

By David C. Montgomery

Science writing for the non-scientist usually deals either with personalities or with phenomena. The expository problem is seen as a choice between displaying the rich, colorful, unexpected personal qualities of our scientific giants, and trying to communicate a feeling for the facts about nature that they have discovered. There is, however, a third facet of the story which is of wide importance, of which even the scientists themselves have often been unaware: the area of what might be called the social dynamics, or the political economics, of science. How does science organize and sustain itself? What are its internal priorities and rules of governance, and under what circumstances will these rules break down? In what sorts of symbiosis or tension can science exist with its surrounding economic and social environment? What does it need?

The above questions have only recently begun to be asked systematically* and should be asked more stridently in the future. The continued functioning of civilization is bound up, for better or worse, with the continued functioning of science, and society as a whole has as much right to inquire into the health of science as it does into the health of the medical profession, say, or the armed forces. Here, I want to comment on some recent rather striking changes that have occurred in the way science, and in particular American science, organizes its activities. First it is necessary to outline a few developments that have created the scientific establishment, as we know it, over the last few centuries. Then I want to return to some more specific contemporary trends which in my opinion represent a rather startling departure from the historical precedents, and which are perhaps grounds for public alarm.

A professor of physics at the College of William and Mary, David Montgomery received his bachelor's degree from the University of Wisconsin in 1956, and his doctorate from Princeton University in 1959. He has served on the faculties of the University of Maryland and the University of Iowa. He has held visiting appointments at the University of California at Berkeley, the University of Colorado, the City University of New York, the University of Alaska, and the University of Wisconsin, in addition to various national and industrial laboratories. A fellow of the American Physical Society, he has been a consultant to Los Alamos National Laboratory, Oak Ridge National Laboratory, and to the National Aeronautics and Space Administration. He is an author of about ninety scientific research papers and two monographs.

*See the suggested reading listed on page 19.

I

What distinguishes scientific research from other kinds of research, such as, for example, economic, historical, or social research? It has to be that science closes its eyes to most of the important questions. The *big* questions, such as: What is the purpose of life? To what should human beings aspire? What are the ultimate ethical imperatives? Are there any? How should societies organize the economic and social relations among their members? These are perennially gripping questions, and there is no serious adult who has not given them consider-thought. Yet they are questions, for whatever reasons, to which no universally convincing answers seem to have emerged. Individuals of great insight and high integrity have reached sharply differing answers to them throughout history, and each generation has to ask them anew, with little hope of reaching a consensus. A fraction of every generation gets excited enough about the answers to be willing to kill for them.

We must recognize such questions as important ones, but as intrinsically "unscientific." We may define science as that collection of propositions about the world to which all reasonable men *will* agree, given opportunity and energy to consider the evidence. The extraordinary quality of scientific research, as contrasted with economic or literary or

social research, is its remarkable power to persuade. No one who understands the statements doubts that, to a good approximation, a body accelerates in proportion to the force acting upon it, or that an atom consists of a cloud of electrons surrounding a dense nucleus of positive charge. Such statements may be refined, or they may have their limits of accuracy delineated, but no one expects them to be seriously challenged. We recognize them to be of a fundamentally different character than statements like "Mahler's symphonies are inferior to Mozart's," or "abortion is a basic human right," or "capitalism leads to better medical care than socialism." The last three statements can inspire degrees of passion or vindictiveness, but we cannot imagine "settling" them in the way we can "settle" questions of Newtonian mechanical behavior or atomic structure.

The persuasive power of science seems unreasonable at first sight. Why should *any* statements as self-evident as those of physics and chemistry exist? Yet, a moment's reflection reveals that at least some such statements are part of everyone's property (the sun rises in the east; apples fall down). What sets science apart from everyday life is its scrupulous determination to deal *only* in such statements, no matter how interesting or exciting or "important" others may be, and then to try to quantify and mathematicize its statements. As soon as a statement shows itself capable of arousing serious controversy which fails to subside over time, then we know that whatever it is about, it is not about science. It is not a decidable proposition, and must be discussed in some other arena of discourse.

The amount of rigorous discipline this requires sometimes escapes those who have not practiced it. It is not that scientists are individually successful at staying detached and cool when topics of interest to them are being discussed. Rather, it is that through a basically mysterious psychological process, it has been possible to maintain for three or four centuries a uniquely effective collective attitude which stringently and often painfully limits the range of approved topics to those which display a capacity for leading to propositions of virtually universal persuasiveness. It may require effort to *learn* the truths of science, but it can by definition require no effort to *believe* them. It seems that this may be a thoroughly unnatural way for human beings to think, as attested by the historical scarcity of times and places where it has been able to establish itself. Critical faculties are not suspended, but are exercised continuously and rapaciously. This historically peculiar mix of attitudes, style, and dedication has produced, in Western civilization since the Renaissance, an unreasonably effective institution called science, which, like it or not, has transformed nearly every human activity. It has done this by providing a steady stream of accurate, reproducible information about nature, and no society on earth has been able or willing to resist its effects.

"Aided by an influx of refugees during the 1930s, American science became vigorous, competent, robust, relatively uncomplicated, and . . .thoroughly competitive with Europe."

A set of institutional dogmas, often not articulated, has grown up with the enterprise. The activity originated in western Europe, and over the last century or two, has exploded over the globe. The level of the activity, as measured by the crudest indices such as the number of journals published, membership in professional societies, and so on, has been doubling about every fifteen years for almost three centuries. Throughout this growth, a model has emerged that characterizes the participants' judgment about how the activity should be carried out, even when the model has been only implicit. Since many of us believe that the properties of the model are essential to the functioning of the enterprise, it is worth trying to spell them out.

(1) *Freedom of choice of research area.* For the established practitioners of a scientific subject, there should be liberty to make their own choices of topics to investigate. The "best" choice of a research topic is most likely to be made by someone immersed in material close to that topic.

(2) *Critical judgment of research results.* The fact that the choice of subject matter for scientific research resides with the investigator does not imply that all choices are equal or even acceptable. Some choices will be perceived as good, some as poor, some as eccentric but intriguing, and some as foolish wastes of time and resources. The judgment will be courteous but uncomprisingly clear in the long run. Valuable lines of inquiry will be assimilated, trivial or incorrent ones forgotten.

(3) *Difficulty of admission to the ranks.* Certification and admission to a permanent place in the ranks of scientific research workers is neither swift nor easy. Many are called but few are chosen. Great scrutiny is necessary to admit only personalities whose dedication to serious work will remain, even in the face of a growing realization that they may not be destined for places among the immortals, and even in the face of solid job security. This requires not only careful examination of motivation and ability, but several years of what can accurately be called conditioning.

(4) *Modest but stable guaranteed employment.* The members of the research community, once in, are to be regarded as free from the need to guarantee their own survival by giving continual "proof" of how valuable they are. But they are not to get rich; the ceiling is low and the floor is high. They cannot improve their economic positions much, no matter what they do, but they need not be anxious about the necessities. The whole point is that they are then free to pursue projects whose immediate economic value is *not* demonstrable; there is no shortage of people who will pursue projects that *are* demonstrably profitable. Such rewards as there are to be striven for lie in other dimensions: professional respect, deference, status, acclaim -- but on the cheap.

(5) *Freedom from short-term societal pressure and interference.* Inhabitants of the upper levels of economic or political power always have their own ideas about targets on which the society should train its intellectual resources. Scientifically,

some of these targets make sense, but more often they do not, because they originate in what is desirable rather than what is possible or rational. Changing base metals into gold, designing an anti-gravity shield, or perfection of a super-weapon to create an impenetrable ballistic-missle defense may be scientifically all about in the same category, but a politically important person, then and now, is not in a position to distinguish what is possible from what is desirable, scientifically. Science, if it is to function, must be insulated from demands that seem to its practitioners bizarre or preposterous.

I do not know if the above five properties have ever been assembled in one place as the *sine qua non* of a functioning scientific establishment or not. But there is surely nothing original about them. Any practicing scientist of more than a few years' experience has heard them enunciated, one time or another, on various occasions. If they were universally accepted and not in jeopardy, there would be little point in coming to their defense. But I believe them to have been in danger during this last decade in a way they have not been before. What I hope to achieve in this brief article is to keep these dangers from going unnoticed by a wider community.

II

I want now to get somewhat more specific as to time and place, and relate the above desiderata to what has been going on in the United States for the last forty years. Prior to the 1940's, the American scientific community, poor as church mice, nevertheless operated pretty much within the above guidelines. Governance and agenda were internally determined, subject to the limitation that most of the practitioners had to teach school for a living at low salaries, in jobs which were not plentiful. Aided by an influx of refugees during the 1930's, American science had by 1940 become vigorous, competent, robust, relatively uncomplicated, and, though stressed by the Depression, thoroughly competitive with Europe.

Then came World War II, and an irreversible loss of innocence. Particularly through the development of radar and the Manhattan Project, politicians, generals, and industrialists learned the lesson that even abstruse and remote-looking scienti-

The scale of scientific research before World War II was small and, by today's standards, homespun. In top photo E. P. Lawsing of General Electric works in a typical laboratory of the time (1931). In the bottom photograph, NASA monitors the Space Shuttle flight from the control center of the Johnson Space Center in Houston, fifty years later.

(Photos courtesy of American Institute of Physics and NASA)

fic fields can lead, over fairly short time scales, to weapons which can quickly alter existing balances of power. There would never again be a time when science would simply go unnoticed by the dominant circles in an industrial society as it had before 1940: unnoticed and therefore free to run its own shop.

American science went through several phases in rather quick succession after 1945; documenting each one of them could occupy several Ph.D. theses in the history of science. First there was an enthusiastic swing back to pure research, riding on post-war prosperity and university expansion, that was interrupted by the bitterly contested decision to build the hydrogen bomb (roughly 1949-1954) and the climate of mistrust created during the McCarthy era. By the mid 1950's, except for a group of weapons researchers swept along by the Cold War, things appeared to be headed back where they had been before 1940. Not everyone was sorry. When we entered graduate school in the fall of 1956, it was not our expectation that anyone important was going to be interested in the results of our labors. A few voices, like Admiral Rickover's, were sounding warnings that a disastrous slip in the nation's scientific capacities might be happening through neglect. But these voices were largely ignored; the issues were complicated, and nobody was interested.

What was surely the most influential event, for the climate of Cold-War-era scientific life in America, took place in 1957: the successful launch of the Soviet satellite Sputnik. As a scientific event, it was minor. As a political event and as a stimulant to forces that were to affect science, it is hard to overrate its importance. The apparent lag of the Americans behind the Russians in the "space race" became a focus for both national anxiety and national determination: it was a clear signal that American science needed stimulating.

The next five to ten years saw the most enthusiastic and wholehearted support of the American scientific community by its popular base that we are likely ever to see. Scientific careers were urged on public-school students. One senior scientist whose work was central in the "space race" once told me that during those golden years, he could get money from Washington by telephone. The world had its problems then, but scientists who were young during the Kennedy administration got a uniquely exhilarating sense of harmony with their social milieu then that is likely never to be repeated. The support was given without many strings attached, with remarkably few attempts to dictate the internal institutional and social arrangements that the scientists would make for themselves in their new expansionary phase. From a perhaps worldly point of view, it was the Golden Age of American science. It came to an end abruptly, as a consequence of a well-defined cause: the Vietnam War.

"What was surely the most influential event for the climate of Cold War-era scientific life in America took place in 1957: the successful launching of the Soviet satellite Sputnik."

Vietnam left many scars in the American landscape and not all of them have healed yet. Here, I am only concerned with one of them--the effect of the war on the way science is done. Lyndon Johnson saw, correctly, that the domestic opposition to the war had begun on the campuses of the better-quality universities. With his politician's instinct to reward his friends and punish his opponents, his first and principal response to the opposition was to try to starve it out. He also saw, correctly, that those universities where the opposition had originated were by now addicted to the flow of federal economic support that had grown so enormously between 1957 and 1967.

What Johnson missed was that the opposition had originated not with the scientists (who, with exceptions, are apolitical fellows who usually will work for whoever is in charge), but rather with the social science and humanities divisions. These divisions were less vulnerable, however, because they always had a relatively small fraction of the cash flow, and needed it less, since their work usually did not tie them to expensive apparatus. Not for the only time in that war, the government found itself in the position of wanting to obliterate the village in order to get at the few guerillas it thought might be hiding there.

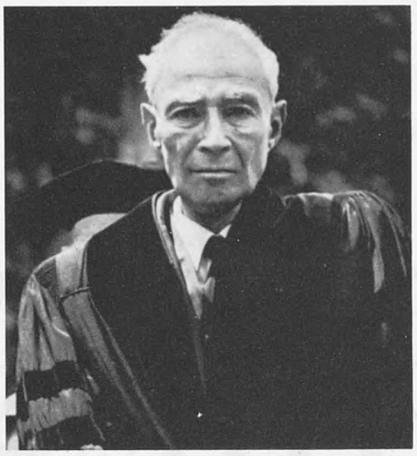
When Johnson withdrew from the combat, Richard Nixon and the university campuses inherited their mutual animosity ready-made. Since Nixon showed no more inclination than his predecessor to re-evaluate America's interest in Vietnam, the animosity continued, diversified, and amplified. The universities, the scientific parts necessarily, continued to be cut back, both due to the withdrawal of patronage and due to the war-fueled inflationary spiral. Such programs as COINTELPRO were set up to confuse, discredit, and harass campus critics of the war. While neither as blatant or as ugly as during the McCarthy era, the detrimental effect of these programs on individual careers, research projects, and institutions was often very great. The opportunities dried up overnight for many who had no strong opinions on the war as well. Having been enticed into pursuing scientific careers in the early 1960's by government programs designed around the "need" for more scientists, new Ph.D.'s in 1970 and 1971 sometimes found themselves driving taxicabs.

In an atmosphere as overheated as that one, with new and hungry recruits to science hanging out over the abyss of permanent unemployment or under-employment, something had to occur to fill the vacuum. In this case, what occurred was the rise of "relevance." Washington was as full then as it has ever been of ambitious young men, and

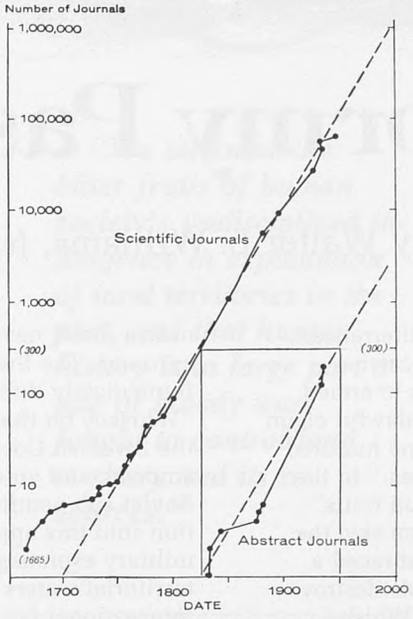
some of them found the doors to the corridors of power. The idea caught on, for reasons that were not invariably ignoble, that many problems would be solved at once if the legions of new scientists were redirected toward "meeting national needs." The needs were assigned engineering definitions, and the impression was created that only a lack of serious effort could possibly stand in the way of their satisfaction. The injunctions sounded precise to the public: "develop new energy sources," "cure cancer," "learn how to detect submarines." Compared with the obscure and otherworldly-sounding project descriptions that a scientist might give to his work if nobody were bothering him, these imperatives appeared to the lay public in a hundred-per-cent-American, red-blooded, practical light that made them seem like a bargain beyond debate.

Even people who should have known better were sucked in. For it was the day of the end run. The internal governance mechanisms of science, already weakened by 1960's gluttony, were by-passed or broke down completely. By skillful merchandising of his product to a political insider, a new Ph.D. could find himself at a tender age in charge of an empire, hiring, firing, consulting, dispensing largesse on a scale that Maxwell, Einstein, or Fermi could never have imagined. Instant "senior scientists" were created by the fact that they controlled the cash and there were plenty of people around who needed it. "Centers" of this, and "Institutes" of that, were born overnight in response to "needs," and were wholly bureaucratic in conception. Quite simply, the scientific community had its head turned, and it is still trying to regain its balance.

We are now still dazedly trying to make sense of the changes that have occurred during this 1970-76 period. The public, even the well-educated part of the public, remains hardly aware of the magnitude of the distortion that this brush with political power has effected in the scientific community. The satisfactory functioning of the scientific process has in my opinion been placed in a doubtful position, and it is at this point unclear whether adequate internal gyroscopes exist to straighten out the process independently of the political roller-coaster to which it has, in forty years, become firmly attached.



J. Robert Oppenheimer, who directed the Manhattan Project in which the atomic bomb was developed, was the pivotal figure in the rise of large scale government-funded scientific research, and remained ambivalent about his role in the process until the end of his life. This photo was taken at Princeton just before Oppenheimer's death.



A logarithmic plot of the number of scientific journals published per year from about the middle of the seventeenth century to the last quarter of the twentieth (taken from D. J. de Solla Price, Science Since Babylon *(New Haven: Yale University Press, 1961). During this period, science grew at a relatively greater rate than many other institutions, and considerably faster than the world's population.*

Documenting the foregoing generalities would require more space than has been allotted here, and more taste for making enemies than I have. I feel considerably more confident of my diagnosis of the ailment than of my capacity to prescribe for it. Perhaps if the well-educated non-scientific public can be made aware of the essential fragility of the scientific enterprise; of the plain dumb luck by which it evolved from the gyrations of alchemists, sorcerers, and mountebanks; and of the need to insulate its activities somewhat from the deep divisions that now frenetically jerk and twist the American political process, then something will have been achieved. We cannot expect to go on much longer as we are now, without serious impairment of the only machinery the world has ever had for discovering reliable truths about nature. The probable future with science is difficult to contemplate; but a future without it is impossible to imagine.

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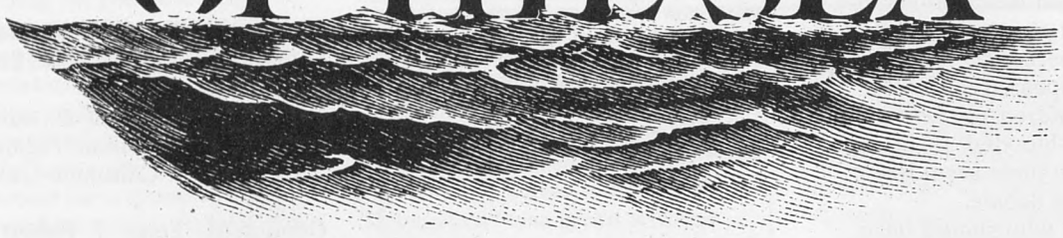
(These references, except for my own short essay, deal mainly with events before 1970. The dust may have to settle on the 1970's before the same standards of scholarship as those of such authors as Price and Ravetz can be brought to bear on this confused period.)

THE LAW OF THE SEA



A Stormy Passage

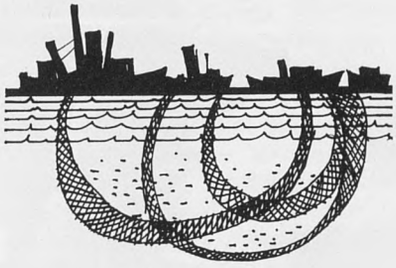
By Walter L. Williams, Jr.

Far out over the Mediterranean, Libyan jets attack U.S. carrier planes, as Libya resorts to armed force to impose her unlawful claim of sovereignty over a one hundred mile wide "territorial sea." In the gossamer web of jet "con trails" lacing the Mediterranean sky, the spider finds she has embraced a wasp, as American pilots destroy two Libyan planes. A "Whiskey Class" Soviet submarine, stealthily cruising close off Sweden's coast near a secret naval base, runs hard aground. The Swedish press immediately dubs the incident, "Whiskey on the Rocks." However, the Swedish Government is not amused, and vows to hold the Soviet sub pending full investigation into this apparent attempt at military espionage in Sweden's territorial waters in violation of international law. In the Gulf of Mexico, a Mexican offshore oil well "blows," spewing more oil into the sea in a few days than escapes in an entire year from world maritime shipping operations. In the English Channel, an enormous oil tanker runs aground, and escaping oil despoils miles of picturesque Brittany coastline. Cleanup costs and business loss run into the millions of dollars. Around the world, bitterly contested fishing rights disputes roil the diplomatic waters.

A professor of law at the Marshall-Wythe School of Law, Walter L. Williams, Jr., received his B.A., M.A., and LL.B. degrees from the University of Southern California and his LL.M. and J.S.D. from Yale University. An expert on law of the sea, Professor Williams addressed the ninth World Peace Through Law Conference in Madrid, in late 1979.

These dramatic events focus the world's attention on our oceans and the many roles they play in our existence. However, there is nothing startling *per se* in that. Humanity has always been in a relationship of close attention to, even fascination with the oceans. For the poet and philosopher, the painter and the musician, the "eternal sea" has ever been a source of inspiration. From the time Phoenician traders first ventured beyond the Pillars of Hercules to the present, as modern seafarers descend to unprecedented depths to explore unknown regions of "ocean space," the oceans have been highways to adventure, knowledge, sustenance and wealth. No, the world community's current interest in the oceans is not particularly dramatic. What *is* dramatic, is that an enormous range of human activity is expanding into ocean space; that our generation is a generation of frontiersmen and settlers opening up the "Oceanic Territory." Already, the variety and intensity of our uses of ocean space require that we regulate accommodations of competing uses. Already, the incidents described in the opening passage of this article and many others highlight the compelling need for rapidly establishing a modern, comprehensive and effective international law of the sea to promote and to regulate human activity in ocean space in accord with the policies of our world community.

Until the recent past, our wants from the oceans were simple: to harvest a trifling portion of the oceans' teeming life and to sail upon them. Then, in less than a century, the advent of modern technology has forever altered our age-old relationship with the oceans. Today, humanity comes to ocean space not as supplicant at the shore, but as a young Neptune, astride a nuclear porpoise and carrying his trident of technology to extract the resources of the oceans and to assert his will in the watery domain. Already, currents are in motion presaging an enormous increase in human activity in the oceans. As regards *exploitation of nonliving resources*, the already significant portion of world oil and gas production from off shore wells will expand greatly and extend to regions far out to sea. By 1988, commercial marine mining of hard minerals will begin, as mining vessels draw up from the deep seabed thousands of feet below "nodule deposits" containing such valuable minerals as manganese and cobalt. Later, perhaps, specialized "smeltering" vessels or floating islands will, on site, reduce ores to metals for industrial use. With increasing scarcity of fresh water in coastal areas, and land at a premium, many desalinization facilities will be established in coastal waters.



"We all know the bitter fruits of human society's undisciplined indulgence in exploitation of land territories in the past, and that human history is in large part a tale of bloody wars fought to control land territory and its resources."

As regards *exploitation of living resources*, modern fishing fleets, with floating processing factories, have already dramatically increased their yield from the oceans. This activity will increase to meet the world's escalating protein hunger. With some fisheries already exhausted and others depleted, many states will establish huge "fish farms" in the oceans to grow desired species and to replenish natural fisheries. Under water will be farms for seaweed and for various seabed life.

In addition to structures involved in the foregoing activities, many others will be erected. Deep water ports will handle shipments of oil and other dangerous or noxious materials. Nuclear "parks" will process nuclear wastes and store nuclear residue in selected seabed areas. These or other nuclear facilities will produce energy. Other facilities will produce energy from other wastes, sun or seawater. Permanent underwater research laboratories will be constructed, as well as resort recreational facilities. "Honeymoon at the Bermuda Rise Hilton," or "Take a Two Week Safari in the Puerto Rico Trench" may be close upon us! With coastal land already at a premium, artificial islands of high rise residential and business communities will dot our coastal waters. A multitude of pipelines and cables will connect many of these structures with the coast, and a swarm of air and water traffic will turn new generations of policemen grey-haired. Much of this may have a "Buck Rogers" flavor at the moment, but be assured, the world community is on its way to constructing a marine civilization, a modern Atlantis of activities in ocean space.

These ocean space activities offer great benefits, but also risks of great detriments. We all know the bitter fruits of human society's undisciplined indulgence in exploitation of land territories in the past, and that human history is in large part a tale of bloody wars fought to control land territory and its resources. As the world community now increases its uses of ocean space, we must act promptly to prevent a repeat performance of our dismal record on land. What are the major problems to anticipate?

First, increased use of ocean space increases the risks of international disputes. For Governments, the stakes are high. Some see the oceans' resources as a last chance to secure a decent standard of living for their citizens. Other Governments seeks to escape mineral scarcity or dependence on unreliable sources of land-based minerals. Some Governments see expanded control over ocean space as a source of power in international relations. Modern military weapons systems of unprecedented speed, accuracy and destructive capability are becoming increasing available to Governments who may become maritime disputants. In an already tense world, the risks of destructive economic or military conflict erupting in an unregulated international "land

rush" for control of ocean space territory and resources is the stuff of statemen's nightmares.

A second major problem in ocean space use is marine pollution, which at a global level has increased alarmingly in recent years. Entire seas, such as the Baltic and the Mediterranean, have threatened to become pollution disaster areas, and coastal zones have suffered much damage. Although deep water ports will reduce risk of the "catastrophy spill" close to shore, the enormous future increase of activities in ocean space and the nature of many of those activities suggest a substantial risk of higher levels of marine pollution.

A third major problem is conservation of living and nonliving resources. Intensified consumption of the oceans' living resources to meet the world's protein hunger, combined with effects of pollution, could decimate the desirable fish species. Concurrently, excessive "trash" fishing to produce fishmeal for animal feed and fertilizer, combined with marine pollution and seabed disturbance in implacing many structures, may severely damage the food chain of various desirable fish species and other marine life, with even broader-ranging adverse effects. Despite major efforts at fish farming, that source may be insufficient to match the natural bounty once received from the oceans. As regards mineral resources, with many land-based sources diminishing rapidly, the oceans' seabeds may represent the last major, relatively untapped source for minerals, not only for our generation, but *for all generations to come*. Wasteful extraction, unbridled consumption, and monopolization of benefits by the industrialized mining states would widen the already potentially disastrous development gap between those few states and the rest of the world. Further, in relatively short order, as measured in human history, profligate practices in the consumption of the oceans' minerals may doom the future world community to a mineral-scarce economy that could alter humanity's social, political and economic development in ways unforeseen.

We have said that we need a comprehensive, effective law of the sea responsive to present and future needs in ocean space. Until recently, traditional international law of the sea adequately met the limited needs for regulation of State conduct in the use of ocean space. The *leit-motif* of that law was maximum deference to the common right of all States to use the oceans in a virtually unrestricted manner. It was the individualistic law of the "open seas," with virtually no significant competing use. Freedom of navigation was the watchword. With that interest at the forefront and with limited maritime or military technology in the days of "wooden ships and iron men," a relatively narrow three-mile protective "buffer belt" sufficed for a coastal State's "territorial sea." By customary law a State could exercise sovereign authority in her territorial sea, but even within this zone a foreign vessel had (and still has) the right to "innocent passage," to pass along the State's coast as long as she does not engage in conduct resulting in significant harm or threatening imminent, significant harm to coastal State interests. Beyond the three mile limit, only rarely did States concur that a fishery or other location for harvesting living resources was under the exclusive control of a particular State.

Huge aircraft carriers, such as the USS Nimitz from which American jets flew to respond to Libya's unlawful claim to sovereignty over a one hundred mile wide strip of sea off its coast, are important in enforcing the law of the sea in the modern world. (Official U.S. Navy photo)

As regards the process of making and applying the traditional law of the sea, customary international law, built up over time through general practices by most of the maritime States, generally sufficed. International agreements, generally concerning localized matters, occassionally supplemented customary law. As regards dispute resolution under the law of the sea, the traditional method used was claim and counter-claim and settlement by negotiation. As regards the existence of international agencies to speak for the community concerns or to perform community legal functions, the concept was simply alien to the individualistic nature of this law. The principal "community concern"

was freedom of navigation and that concern was met.

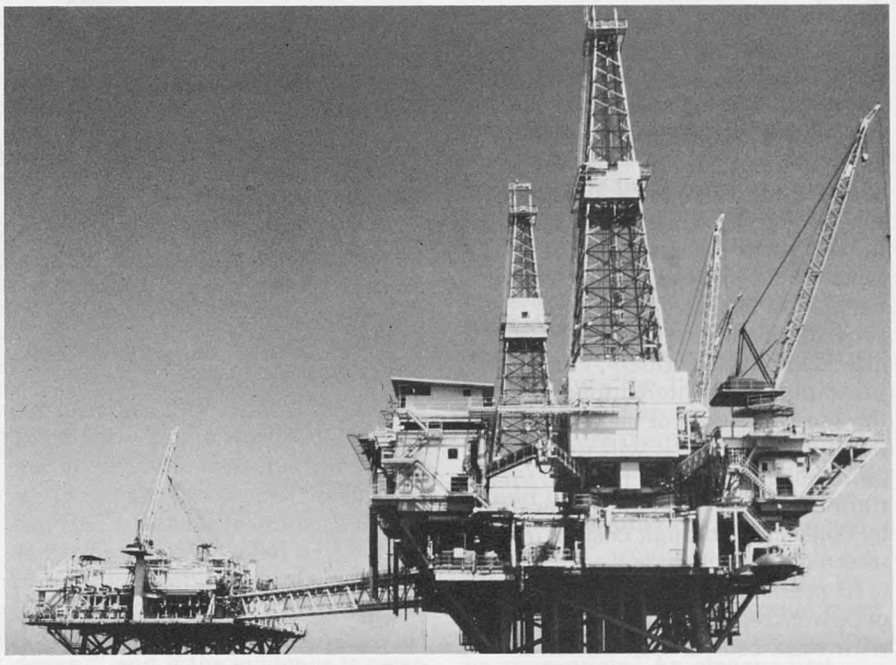
Then, in this century, technological developments have far outstripped the development of the law of the sea, and substantial detriments have occurred through the law's inadequacy. The traditional law of the sea simply was not premised upon or structured for the need to resolve a great number of problems rapidly, many of which require substantial international cooperation by many States and the existence of international agencies to coordinate cooperation and perform vital implementing functions.

However, all is not unrelieved gloom. In recent years, the law of the sea has been modernized in many respects. First, the *awareness* of the need for a modern law of the sea and of the need for research pertinent to developing appropriate policies concerning such matters as pollution, resource use and conservation have become wide-spread, and much valuable research and exchange of information have occurred. The Third Conference on the Law of the Sea, a United Nations sponsored conference that has struggled for nearly a decade to negotiate a comprehensive Law of the Sea Treaty, has played a major role in this regard. Second, the Intergovernmental Maritime Consultative Organization (IMCO), a functional intergovernmental organization concerned with world maritime shipping operations, has sponsored an imposing number of international agreements regulating pollution in shipping operations. Further, various regional agreements now limit pollution in particular areas, such as the North Atlantic, the Baltic and the Mediterranean. Third, a substantial number of international agreements exist that regulate the catch of various fish, mammals and other living resources, so as to conserve stocks to maintain or increase future harvest levels. Fourth, by international consensus, coastal States now have increased authority to deal with such problems as pollution control and exploitation of living and nonliving resources off their coasts. Now, with international law continuing to protect the right of innocent passage through territorial seas, coastal States may have up to a twelve mile territorial sea, in place of the traditional three miles. For an additional twelve miles out (a total of twenty-four miles) the coastal State may establish a "contiguous zone" to regulate certain specific conduct of special concern (for example, smuggling of goods). Also, coastal States may declare a two hundred mile "fisheries zone" and determine who may fish in that zone and the permissible catch from the various species. Coastal States that have a "continental shelf," a prolongation of the continent under water, can regulate the exploitation of nonliving resources of the shelf and of living resources on the shelf (for example, shell fish). The Third Conference of the Law of the Sea favors a provision for inclusion in an eventual Law of the Sea Treaty that each coastal State may establish a two hundred mile "Exclusive Economic Zone." In that zone, the coastal State could regulate the exploitation of *all* living and nonliving ocean zone and seabed resources, and also could control pollution there.

Concurrently, the fundamental freedom of navigation on the high seas has been preserved with only necessary minor abridgement in these various expanded areas under coastal State control, and in "international straits," which are crucial "choke points" in international maritime navigation.

Acknowledging the recent advances, we still note that major inadequacies continue in the law of the sea. We deal with two here. First, traditional law of the sea leaves basically unregulated the new, novel activity of mining of materials from the deep seabed. The conferees at the Third Conference on the Law of the Sea tentatively negotiated a comprehensive regulatory regime, to be implemented by an international agency. However, both the U.S. Senate and the present U.S. Administration appear strongly opposed to many of the regime's features, while on the other hand, the developing States appear equally opposed to making any major concessions. The possible adverse consequences of the failure of the law of the sea to regulate seabed mining are: (a) a climate of insecurity for investment in deep seabed mining that may discourage sufficient exploitation of essential minerals; (b) an inducement to States who may be involved in mining disputes, but lack a controlling international standard, to use coercion to resolve disputes, and (c) monopolization of deep seabed mining by the industrial States, with little or no participation by the developing States in the activity or the benefits derived.

A second major defect of the law of the sea is the continuing absence of international agencies empowered to *act for the world community* in



A Shell Oil Company oil rig off the coast of California illustrates how "humanity comes to the ocean space to extract the resources of the ocean and to assert (its) will in the watery domain," according to the author. (Photo courtesy of Shell Oil Co.)

making "regulatory law of the sea" and in deciding cases of alleged violations. Today, in ocean space, the current range of activities and the increasing frequency of repetitive activities already require expeditious subsidiary law making and prompt, effective application of the law. The traditional process of law making in the law of the sea, by build up of customary practices or by *ad hoc* negotiated agreement, simply are inadequate. Secondly, the world community already badly needs an international regulatory agency to overview the performance of States under the substantial body of law of the sea that exists. Thirdly, in view of the serious risks involved in disputes arising between States in the use of the oceans and the major community interest in securing adherence to the law of the sea, we can no longer rely solely on the traditional dispute resolution means, the negotiated settlement between the parties. We must have a system for compulsory and effective international adjudication of at least the more crucial security and economic controversies that may arise in the use of the oceans. Negotiations in the Third Law of the Sea Conference have developed at least some degree of institutional components to meet these needs. However, their future efficacy and indeed, their current chances for existence, are debatable.

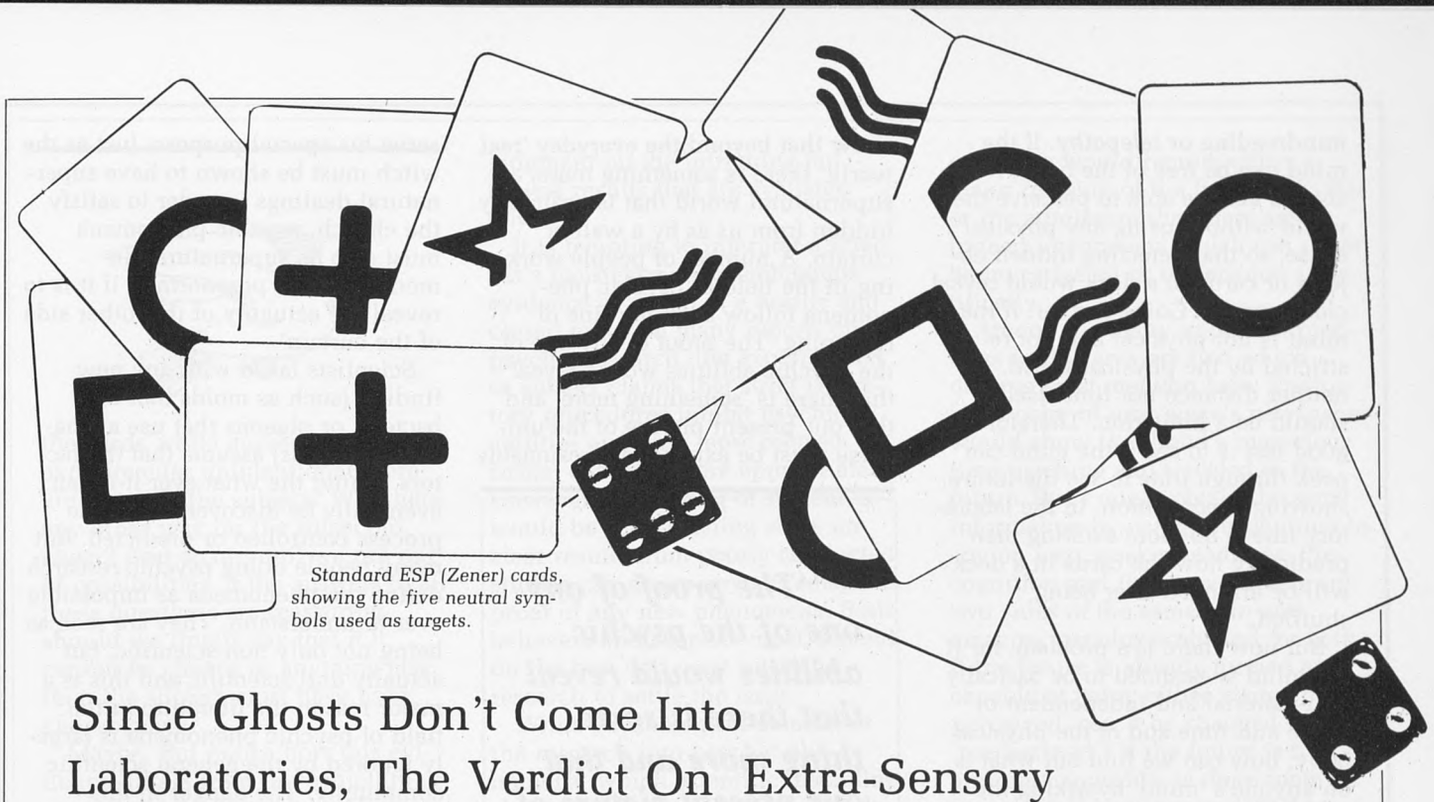
Conclusion

The preceding comments on the inadequacy of dispute resolution systems under the law of the sea suggest that we should use care to close this article with clear eyes. The shining splendor of what the law can be can sometimes blind us to its present defects, until we strike hard on the rocks of reality. Thus, we should hearken back to the sobering incident that opened this article. The still primary, guiding principle of the international law of the sea is freedom of navigation on the high seas. States will resist *any abridgement whatsover* of that vital right sought by coercion rather than by consensus through custom or international agreement.

At present, we live in a primarily decentralized world community with weak central institutions. If strong sanctions are going to be used at all to maintain legal rights under international law, then normally the party defending its rights must apply the sanctions. Thus, the United States, as is the case with other States, will defend her right to freedom of navigation in ocean space, if necessary, with military force. It is regrettable that self-help rather than community police agencies is the mainstay of international law in our time. We all know that self-help can be subject to error, to abuse, to the risk of escalation of violence. However, we must live in the world we have, and in continuing to uphold against unlawful coercion our own rights under the law of the sea, we must also remember that we help to uphold that law for others. This Bicentennial Year, we might do well to point out to those, who by force would deny our rights under the law of the sea, the motto of our Continental Navy in 1775: "Don't Tread on Me!"

However, most of the nations of the world are indeed joined in peaceful uses of ocean space, and it is manifestly to the best interest of our nation and of the world community to encourage a firm commitment by all nations to international cooperation and to regulation by a modern law of the sea based on accommodations of uses of the oceans in accord with world cooperation and an effective system of legal regulation, we could confidently expect that as human society continues the unfolding drama of expanding our civilization within ocean space, our generation and the future generations of humanity would continue to derive inspiration, knowledge, sustenance and wealth from the "wonders of the deep."

Two marine scientists from the Virginia Institute of Marine Science enter the ocean off Nag's Head to study the causes of erosion off the North Carolina coast. The preservation of the ocean beaches is one of a multitude of problems facing coastal zone research programs.



Standard ESP (Zener) cards, showing the five neutral symbols used as targets.

Since Ghosts Don't Come Into Laboratories, The Verdict On Extra-Sensory Perception Is Still Out

ESP

By Herbert Friedman

". . . and then I heard this story about a woman who had a sudden vision of her baby being in danger and she rushed home just in time to save him from drowning. And what about the haunted house where the ghost throws things? And this guy on T.V. who bends spoons with his mind? I don't always read those psychic predictions in the National Whatever, but there sure looks to be something going on! What's the matter? Don't you believe in this stuff?"

Don't you believe? That is a good question to start with if we are going to take a clear-eyed look at the field of scientific psychic research. The term 'psychic' as used here covers extra-sensory perception (ESP) or parapsychology as well as other phenomena that do not seem to fit our known physical world.

Do you believe that psychic phenomena exist?

certainly ____: maybe ____:

probably not ____: no way ____

Now keep your answer in mind and consider the following: With regard to the possible existence of psychic phenomena, it really makes no difference whether you believe absolutely or not at all. Belief or disbelief reveals something about you but provides little direct information about the way the world actually is. You might find someone who is prefectly certain that he can manage just fine without breathing. But try as hard as he can, belief will not prevent his turning purple.

The main scientific concern here is "How convincing is the evidence?" and if the evidence is clear-cut, research will continue regardless of how strange the findings might be. But to see why firm conclusions are difficult to draw in this area, we should first look at the origin of laboratory research into the different types of psychic phenomena.

While stories and reports of visions and ghosts go back through recorded history, attempts to study these topics scientifically started less than a century ago. Since ghosts do not come into laboratories and visions are infrequent and unexpected, researchers had to look elsewhere. The approach finally chosen, namely, to concentrate on investigations of the non-physical 'mind', influenced most laboratory studies since the 1930's.

If the mind can be shown to be distinct from the physical body, then various psychic phenomena would be easily explained and the mind, continuing beyond the death of the body, would be the 'soul'. If a scientist wanted to obtain proof for the existence of a non-material mind or soul, what sort of studies would be appropriate? An obvious first step is to find out if one mind can directly contact another without any physical connection; in other words,

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mindreading or *telepathy*. If the mind can be free of the body, it should also be able to perceive the world without using any physical sense, so that detecting hidden objects or cards in a deck would reveal *clairvoyance*. Going further, if the mind is not physical and not restricted by the physical world, neither distance nor time itself should be a limitation. Therefore, a good test is to see if the mind can peek through time to see the future, showing *precognition*. In the laboratory this is no more exciting than predicting how the cards in a deck will be arranged after being shuffled.

But now there is a problem, for if the mind is assumed to be basically non-material and independent of space and time and of the physical body, how can we find out what is on anyone's 'mind' by asking the physical person? This question raises a long standing philosophical issue, the Mind-Body problem. The solution required here is that the mind influences the brain directly, so that the mind could travel through space or time to acquire information and then convey it to the physical person to be reported. A crucial element needed to support this point of view is a demonstration that the non-material mind can indeed affect the brain. The experimental procedure originally selected was to see if subjects could control the fall of dice. Perhaps not obvious, but if the mind is able to affect dice, showing *psychokinesis*, then the mind should also be able to affect other physical objects, including the activity of the brain. So everything fits into place - telepathy and clairvoyance could show that the mind is not restricted by space; precognition would mean that time is no limitation for mind and psychokinesis would allow the brain to know what is on its mind.

Are all of these four factors needed together in order to have a convincing picture? The answer requires a brief digression: In the witch trials in Salem, the church had a special interest beyond that of rooting out evil. If the world that we can see or know through our senses is all of existence, then there is no place for any supernatural force, including God. But look what happens if there is proof of witches and devils: even these dreadful creatures would be sufficient to show that beyond the everyday 'real world' there is something more, a supernatural world that is ordinarily hidden from us as by a wall or curtain. A number of people working in the field of psychic phenomena follow a similar line of reasoning. The proof of any one of the psychic abilities would reveal that there is 'something more' and that our present picture of the universe must be expanded, presumably to allow the independent existence of mind and soul.

"The proof of any one of the psychic abilities would reveal that there is something more and that our present picture of the universe must be expanded, presumably to allow the independent existence of mind and soul."

Unfortunately, this viewpoint sometimes enters the picture in a disturbing way. Imagine that you approach Professor Truebeliever with news of the world's greatest telepathic subjects. They consistently and accurately read each other's minds even when in separate buildings. Professor T's eyes light up with interest as he scans summaries of your research.

But you saved the best part for last: "We have discovered a previously unknown brain wave that accounts for their telepathy which can be detected and even generated by the equipment you see here!" Professor T's shoulders suddenly slump with dejection and he mutters as he walks away, "Oh no, that's not what I am interested in at all. That's not what I mean by telepathy. *Real* telepathy cannot be understood in terms of our physical world. It's too bad that you wasted your time."

Professor T's lack of interest is understandable. Telepathy that can be explained scientifically will not serve his special purpose. Just as the witch must be shown to have supernatural dealings in order to satisfy the church, psychic phenomena must also be supernatural (in modern terms, *paranormal*) if it is to reveal the actuality of the 'other side of the curtain'.

Scientists faced with any new finding (such as molds that kill bacteria or pigeons that use a magnetic compass) assume that the factors behind the what-ever-it-is can eventually be discovered and the process controlled or predicted. But many people doing psychic research define the phenomena as impossible ever to understand. They are seen as being not only non-scientific, but actually *anti-scientific* and this is a major reason the literature in the field of psychic phenomena is largely ignored by the general scientific community. The danger in this situation is that the work of careful and dedicated scientists might unfairly be overlooked.

The problem of viewpoint is important and it ties directly into the next issue. How would you prove that penicillin kills bacteria? Easy, just put some of the drug on a culture and watch the bacteria float belly up. After the original discovery of penicillin, further research revealed exactly how it killed germs. Similarly, tiny magnetic crystals have been found in pigeons' brains and magnets tied to their necks caused them to lose their way, proving that they use a compass.

Scientific investigations of new phenomena involve the same elements - the effect is seen to occur, how to turn it on or off is discovered and finally the manner in which it works is understood. Compare this to the typical study designed to demonstrate clairvoyance. Assume that the subject guesses the suit of each card in a hidden deck and is correct on 22 out of 52 cards. What does this outcome show? Just by chance the subject would get about 1 out of 4 correct for a total of 13. Using a standard statistical analysis, the probability of getting 22 correct by lucky guessing works out to be less than one in a thousand. This outcome would be called 'statistically significant' and considered to be due to something other than pure chance.

But was it actually clairvoyance? We first must ask a series of questions: Could the subject have seen

the cards while guessing? Did the experimenter unintentionally provide cues to the subject? Was there any other way for the subject to cheat? And so on until we run out of possibilities. If the answers to all these questions are reassuring, should we finally say that if it cannot be chance or anything else, then the subject must have used clairvoyance?

Maybe. But notice how this evidence differs from the penicillin or pigeon studies described above. How do we know that it is clairvoyance? Because *what else could it be?* It takes a moment to realize that this is a very incomplete form of proof. Do you mean that if you could think of another possibility, then there would be no clairvoyance? What if there is no clairvoyance even if your imagination is limited and you cannot think of anything else? The negative form of 'proof' which depends on the lack of alternative explanations is a necessary but only a weak first step in scientific research.

The difference between standard research and psychic research can be seen in terms of two problems which are related to the question of proof. The first is that even if clairvoyance actually occurred in card guessing, there would be no way to point to any particular call as showing clairvoyance. On any given card, a correct guess might have been just luck. We cannot tell if luck or clairvoyance is operating at a particular moment because there is not even a partially satisfactory scientific (in other words, testable) explanation or theory for psychic phenomena; and this is the second problem. No one can turn psychic ability on or off or send it in the wrong direction (like a magnetized pigeon). Of course, this lack of a mechanism is not a concern for the believers in the 'other side of the curtain' but it makes scientists uncomfortable. Totally convincing data would certainly not be ignored, but without a reasonable theory, scientists prefer to withhold judgment on the intriguing but flawed results that are available now.

It is tempting to interpret a scientist's insistence on unambiguous evidence as a sign of a hostile and closed mind. In many reports on psychic research, the experimenter or subject claims that strict laboratory procedures inhibit psychic abilities and only more relaxed, casual conditions are appropriate. However, a lowering of standards would be self-defeating since unclear results from poorly conducted studies can never serve as adequate proof of any new phenomena. Both believers and skeptics must depend on the best and most scientific research to settle the issue.

While psychologists do most of the research into psychic phenomena, which scientific discipline should be the most involved? Telepathy and clairvoyance contradict no established psychological laws or theories - we could have a telepathy sense just as we have vision or hearing. But psychokinesis, for example, would be very disturbing to physicists who claim to have the world measured and explained to the twenty-seventh decimal place. In terms of our current knowledge of the physical universe, psychic phenomena that are not restricted by space and time are impossible. Their existence would require either a major revision of the field of physics or the admission that there are indeed phenomena which can never be investigated or understood scientifically.

Among the many important problems in this area are two which deserve brief mention here. Producing a copy of next week's newspaper would show that I had a marvelous time machine and traveled to the future. But I might obtain the same information by using precognition to spy on next week's headlines. Precognition and time travel really are two sides of the same coin and amazing paradoxes abound for both. If the future is already formed and capable of being either visited or perceived, can it be changed or is it 'predestined'? If the future is fixed and unchangeable, is there room for free will? If I use precognition to read a future poem or plans for a new machine, the future will eventually receive the poem or machine that I brought back from the future. Then who wrote the poem or invented the machine? And when was it created? The implications of precognition are even more varied and complex than those involved with telepathy or clairvoyance.

Psychokinesis raises issues of a different sort. If there is a 'mind' that is not affected by the limitations

Houses and Healing

Interesting reports are more likely to come from the world outside laboratories than from scientific journals.

Haunted houses are frequently reported and they usually have many features in common. Objects are moved or disappear only to reappear later. Strange noises are heard though the ghost itself is rarely seen directly. Hauntings often share another element - a teen-age girl living in the house! Since ghosts are shy, data from well planned studies are not available. One suggestion is that the signs of haunting are due to the girl unconsciously using psychokenesis in reaction to excessive teenage frustrations and tensions. An interesting idea (and believable to many parents) but presently without confirming evidence.

A striking and potentially important area is that of so-called psychic healing. There are many reports of serious diseases, including cancer, being slowed down and even eventually cured after visits from a 'healer.' We still know relatively little about the immune system and the healing process. However, there is ample evidence for the destructive physiological effects of stress, depression and fear which can trigger off many types of physical illness. Even a small speck of hope and encouragement might be enough to tip the balance toward recovery. This area deserves further study but there is no good reason to assume that a mysterious healing energy or anything related to psychic phenomena is involved.

of the physical world, such as weight and size, and the mind can affect the rolling of dice (as it is claimed) then why not have the prize dice subject move automobiles, tall buildings or, better yet, flip the moon out of the night sky? Maybe we have just been lucky and no one has really tried.

There are also alternatives for the 'other side of the curtain' if it does turn out that any of the psychic abilities do exist. One possibility is that our three dimensional world (three spatial dimensions like three walls which meet in a corner at right angles) could be part of a universe which has four (or more) spatial dimensions. There is no way to visualize such a corner but it would be easy to show how psychic phenomena (including limited forms of precognition and psychokinesis) could work as real world processes if the brain were somehow sensitive to 'vibrations' from a fourth spatial dimension. The point here is that a proof of psychic phenomena (going back to the witch-hunting example) would be very important but would not necessarily mean that there is a supernatural world and that the mind is free of the body.

The appeal of psychic research for scientists should be easy to appreciate. The subject matter is inherently interesting and positive findings would threaten a number of widely held viewpoints. Another factor is that studies in this area bring into sharp focus the basic problems and limitations of scientific experimentation, evidence and 'proof'. In many ways, psychic research resembles the hunt for the Loch Ness Monster: no one can resist being curious; something important just might turn up; and the search itself is a challenging contest to pry secrets from Nature.

So where do we stand right now in terms of the scientific investigation of psychic phenomena? There are many reported studies and close examination reveals nearly all to have technical problems which make interpretation difficult. To date, the most interesting and potentially important work (see Boxes) has not been adequately substantiated by later work, though many projects are still in progress. Even the best of reported experiments, taken at face value, fail to give any indication of a possible mechanism or explanation for the findings. It is difficult to see how telepathy and clairvoyance, along with psychokinesis and precognition, can ever all fit into a single theory or system that avoids paradoxes and contradictions. Perhaps it will even turn out that there is indeed another side to the curtain where Science and Logic are not allowed.

The current status of evidence might best be summarized this way: The Believer reads the thousands of reports and books and says "Where there's smoke, there's fire!" while the Skeptic, looking at the same material and well prepared aphorism-wise, proclaims "A thousand leaky buckets do not hold water longer than one leaky bucket!" Scientists are peering through the smoke at the very best buckets available and, sure enough, . . . drip, drip, drip. But the search goes on. ■

Dreams and Computers

Two relatively new approaches used in laboratory studies have produced impressive results.

One project focuses on telepathy and dreaming. Brain wave recordings can be used to show when a person is dreaming. In a sleep laboratory, subjects awakened at the end of this stage of sleep recall their dreams much more vividly and completely than they would in the morning. The experiments involve a sender who takes one sealed envelope from a pack of 10 or 12, each containing a copy of a famous painting. In a separate room the test subject sleeps with head electrodes attached for recording brain waves. A technician in a third room monitors the equipment. When a dream starts, the technician signals the sender to look at and think about the painting. At the end of each dream stage, one of four or more each night, the technician buzzes the subject to wake up and mumble the latest dream into a tape recorder.

In the morning, the subject is shown all the pictures in the original set and is asked to pick the one used during the previous night. In addition, the dream tapes are typed up for people outside the lab to use as a basis for trying to select the target picture.

The idea of the study is that telepathic signals are probably very weak and difficult to notice against a background of normal distractions. Since a sleeping person ignores most outside stimuli, a telepathic signal might get in clearly enough to affect dreaming.

Several subjects did particularly well. With a Paris scene as the target, the dreams contained reference to "a small shop . . . in the French quarter" and "a French policeman's hat" while another picture of Zapata's Mexican revolutionary soldiers gave rise to dreams about "New Mexico, Indians and Pueblos" and "a great deal of noise." A painting of two boxers in a prizefight ring led to a dream about two cars parked on a beach being pounded and broken by the waves. Sometimes the specific details of the picture itself came through but more often the dreaming subjects appeared to be affected by the overall idea or mood.

Over a series of such sessions, the correct target was selected by both the subjects and the outside judges much more often than would be expected by pure guessing or chance. Since direct communication between the sender and the subject could not occur, it looks as if telepathy might really be the explanation (what else could it be?). Unfortunately, this research has not been followed by enough supporting studies for the effect to be considered clearly established.

A very different type of study employs fully automated electronic equipment run by computers. This allows a full record of the procedure with a large number of trials run in a short period of time. In one series of experiments, subjects somehow were able to markedly affect the output of a computerized Geiger counter designed to generate random numbers, presumably by using psychokinesis. The studies look very neatly done and suggest that psychokinesis functions at the level of sub-atomic particles rather than with larger, more visible objects. But, again, the findings have yet to be backed up by subsequent research.

THE REMAKING OF THE WREN BUILDING

MR. ROCKEFELLER'S RESTORATION BEGAN WITH THE RECREATION OF THE COLLEGE'S MAIN BUILDING

By Wilford Kale '66

The Building is beautiful and commodious, being first modelled by Sir Christopher Wren, adapted to the Nature of the Country by the Gentlemen there. . ."

Writing in London in 1724 in his book, "The Present State of Virginia," Hugh Jones described the main building of the College of William and Mary which, 250 years later, is called the Sir Christopher Wren Building, after the famed English court architect of King William III and Mary II, founders of the College.

However, the contemporary building, in which students learn and faculty teach, is not the original building built on the land beginning in 1695. Rather, it is the restored building from Hugh Jones' time, the second of four versions that have served as the primary building for the nation's second oldest college.

Very little is known about the first building, which was constructed between 1695-1699 and was destroyed by the fire of 1705. Therefore when the restoration of Williamsburg began in the late 1920s consideration was given not to the first building, but rather to the second structure because so much was known about its appearance and the interior design. The second building stood until 1859 when it too was destroyed by fire. A third building, like the second, built within the old two-foot thick outer walls, lasted but four years and was burned in 1863 during the Federal troop occupation of the Old Campus.

The fourth building was adapted and constructed from 1867-69. The Italianate twin-towers of the third version of the building disappeared and a pedimented pavilion with a trible-arched loggia became the central feature of the east elevation's fourth form, which lasted until the restoration of 1928-31.

There is, however, an interesting and virtually unknown story about the restoration of the Wren Building. Most alumni realize that it was the late John D. Rockefeller, Jr., who provided the funds for the restoration of the Wren, the President's House and The Brafferton, as the first structures to return to their colonial appearance in the old areas of the city.

In fact, there was a concept involving the restoration of the Wren and the construction of two adjacent pavilions which was approved and later discarded. It is that restoration version that will be discussed here and the evolution to the Wren Building that we know today.

In 1923, the president of William and Mary was Dr. Julian Alvin Carroll Chandler, who had succeed-

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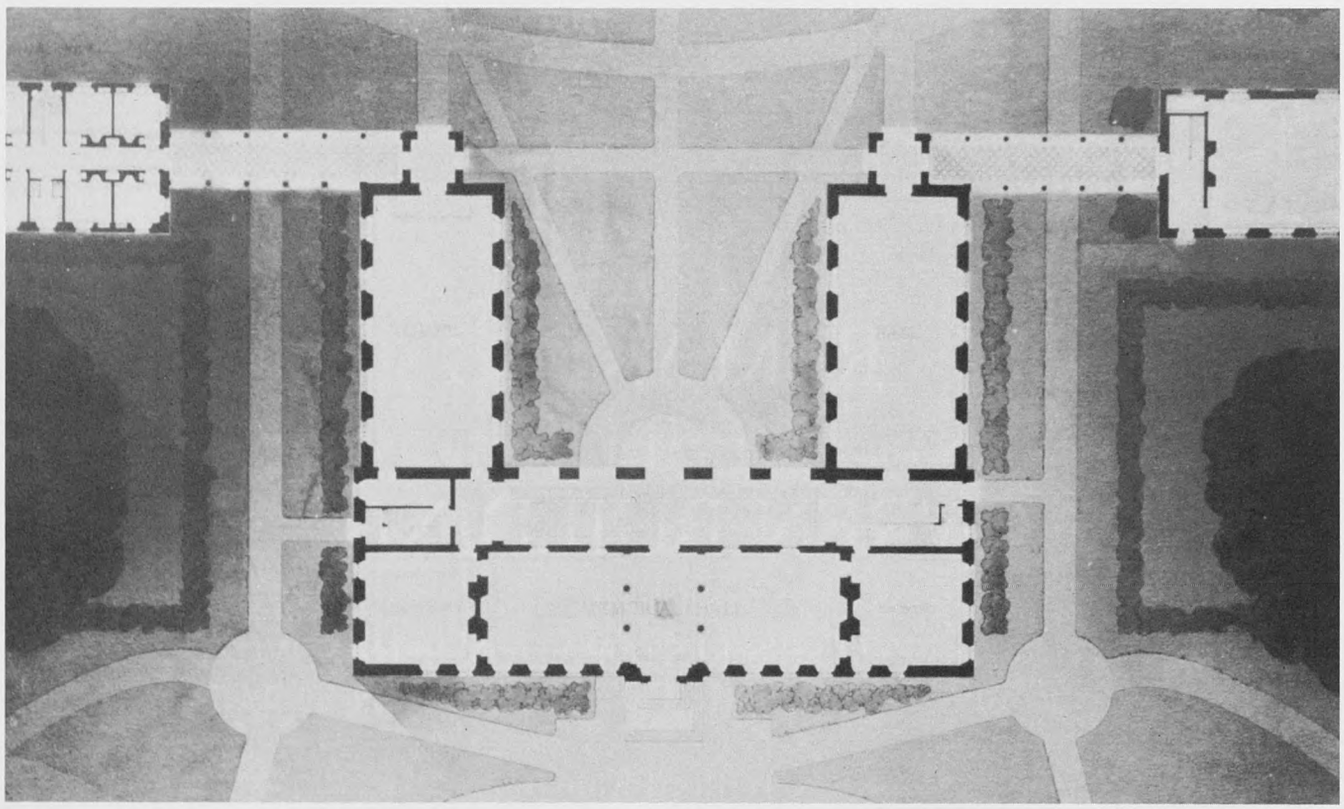
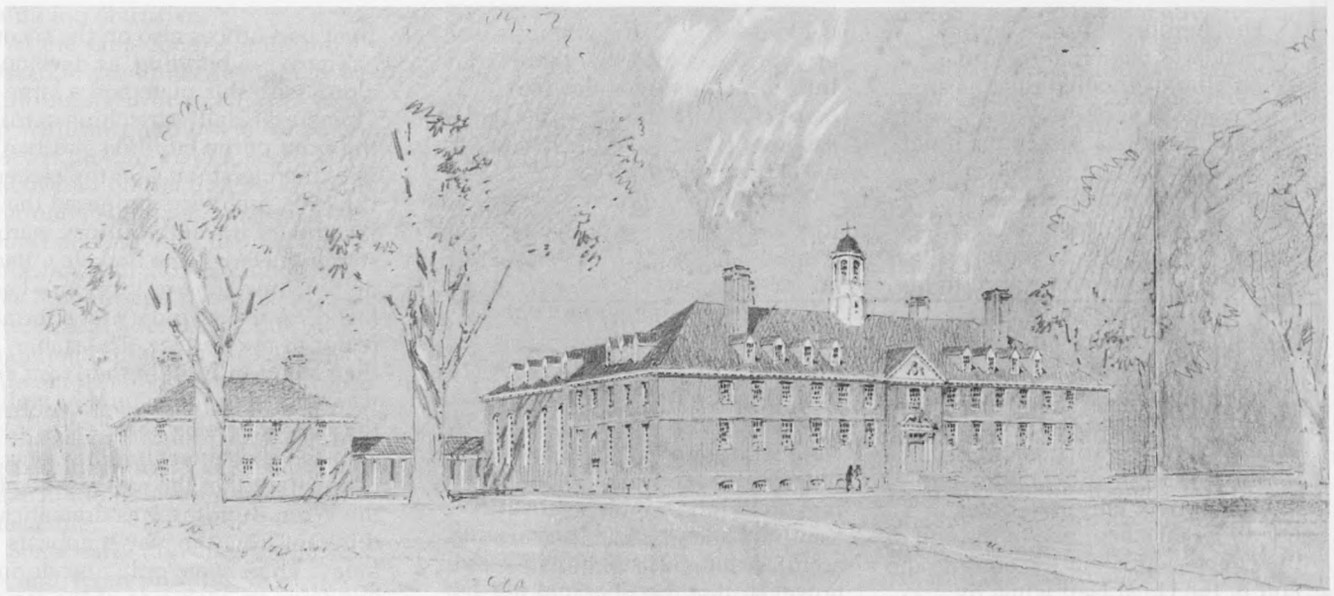
Wilford Kale is a William and Mary alumnus, class of 1966. Currently Bureau Chief of the Eastern Virginia office for the Richmond Times-Dispatch, *he was an undergraduate history major and was part of the original research team in 1966 that prepared a special report that was the basis for the Board of Visitor's decision to name the new fine arts building after Andrews. He has written numerous articles for the* Alumni Gazette *and other publications.*



This architect's drawing by Perry, Shaw and Hepburn of Boston shows the floor plan of the Wren Building with the proposed North and South Pavilions, which would have been attached to the main building by two colonnades from the chapel and great hall wings. Note that Memorial Hall with its proposed statue of Lord Botetourt is located at the front of the building. *(Photos courtesy of Colonial Williamsburg)*



This is a formal architect's rendering of the initial proposed restoration of the Wren Building with the South Pavilion. The drawing, by the Boston firm of Perry, Shaw and Hepburn, which handled the major restoration work not only of the College but also of Williamsburg, has never been published previously. The facade of the Wren Building shows major differences between this version and the restoration as it finally evolved.

ed Lyon Gardiner Tyler in 1919. Dr. William Archer Rutherfoord Goodwin, who had been rector of Bruton Parish Church in Williamsburg, 1903-1908, and later rector of St. Paul's Church in Rochester, N.Y., returned to Williamsburg. He came initially to be a professor, later agreeing to assume the task of directing a major fund raising effort, an endowment campaign that was designed to raise $5,755,000 for additional professorships, the library, new buildings, pensions and scholarships at the College.

Mr. Rockefeller visited Williamsburg in 1926 for the 150th anniversary celebration of the founding of Phi Beta Kappa at the College and it was then that he and Dr. Goodwin first discussed the professor/minister's dream of restoring the sleepy little college town to its 18th century appearance.

In January, 1927, the Boston architectural firm of Perry, Shaw and Hepburn was chosen to pursue the restoration project, initially working on an overall plan for the city, while beginning efforts to restore the Wren Building. Just two months into the project, William G. Perry wrote Dr. Goodwin, discussing detailed plans for the building and first mentioning the proposed North and South Pavilions. From the letter it is obvious that the two wings for the Wren had been mentioned earlier and that at least one other concept had been proposed.

According to architect A. Edwin Kendrew, retired senior vice president of Colonial Williamsburg, who was first employed in 1925 by Perry, Shaw and Hepburn, arrangements to get William and Mary involved in the restoration effort were tedious, even though Dr. Goodwin was still a member of Dr. Chandler's administrative staff. Every facet of the project was discussed, reviewed and then discussed again.

The idea to move the colonial-era statue of Lord Botetourt inside was an old one. Boston architects Perry, Shaw and Hepburn in the original proposed restoration of the Sir Christopher Wren Building conceived of a Memorial Hall, which would contain, as the architects' drawing indicates, the statue.

The architects' firm, Kendrew agreed, was acting, at this time, in an employer-client relationship. The restoration of the Wren would require major changes in the building's structure and the college would lose a significant number of classrooms. To compensate for the classroom loss, it was proposed that two pavilions be constructed to the rear on either side of the Wren Building. There is no record of where the concept originated.

Kendrew said these structures, about 60 feet wide and 37 feet deep each, would be two story, of Georgian design and would complement the main building. They would be attached, one to the end of the chapel wing and the other to the end of the Great Hall wing, by loggias, or colonnades.

"We had looked at the Frenchman's Map, a 1781 map of Williamsburg drawn by a French soldier following the Yorktown battle, and were not sure what all the details were, but felt that it was possible that small dots that seemed to connect the President's House and the Brafferton with the Wren Building could be loggias and therefore felt that such a design to the rear would be appropriate," he explained. (The dots on the Frenchman's Map turned out to be ornamental trees.)

Kendrew said that although the architects realized that these buildings did not exist in the 18th century, "the concept was a way of accomplishing what the college needed--more classrooms."

The East elevation of the Wren, as it was proposed in this concept, and the two flanking structures, created an imposing picture. Kendrew said the design resembled the 18th century home, Mount Airy, or any number of other Virginia plantation-like complexes.

"But you must remember that trees and plantings could have been placed in front of the two buildings to reduce the impact," Kendrew added, sounding like the architect he is. He confided, however, that the plan was not a good one and probably was not taken seriously by the Perry, Shaw and Hepburn architectural staff.

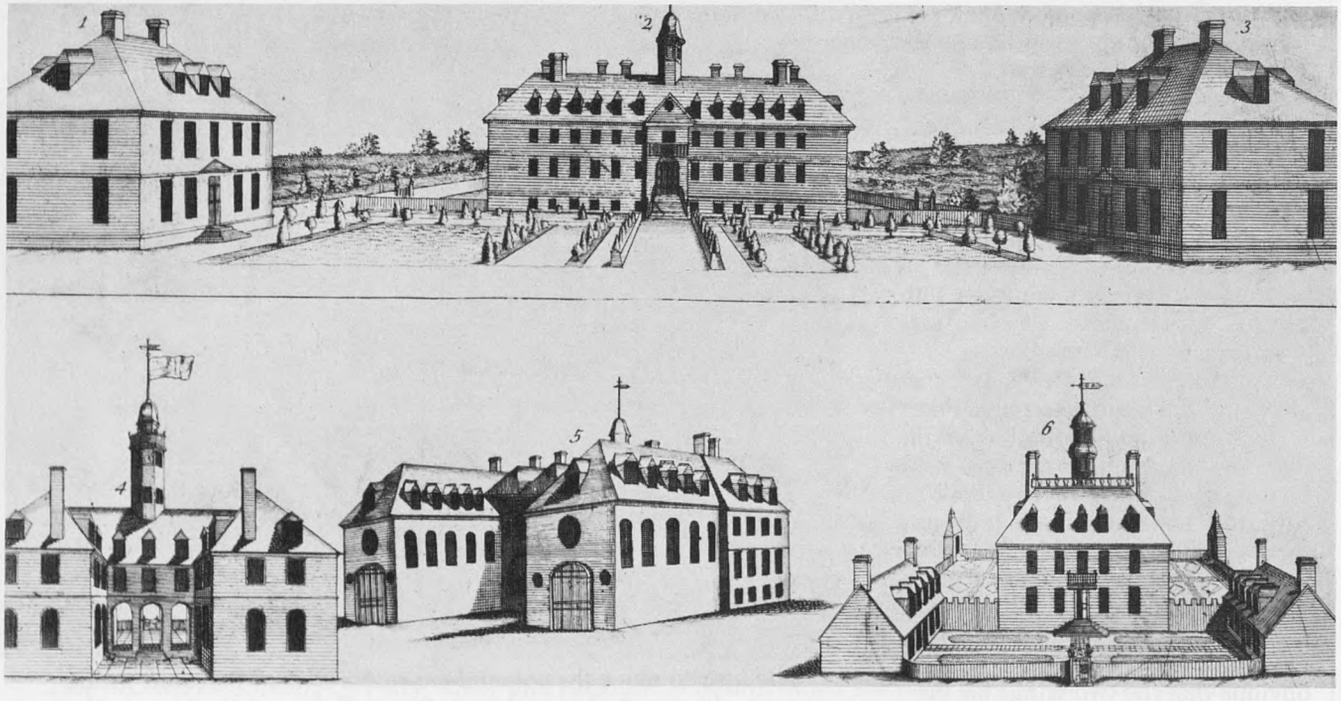
But it was taken seriously, apparently, by Dr. Chandler, Dr. Goodwin, the College Board of Visitors, and the Virginia State Art Commission which had to approve the plans for the Wren restoration before it could be undertaken.

One of the flanking buildings was to contain a large multi-purpose auditorium-type room on the first floor and faculty offices on the second, while the other building would have classrooms on the first floor and offices also on the second.

The Wren building, as developed along with this plan, had a large "Memorial Hall" stretching across the front of the building and two flanking classrooms. In the center of the Hall, architects proposed the location of the 18th century marble statue of Norbourne Berkeley, Baron de Botetourt, one of Virginia's best loved royal governors and a former rector of the College. The statue then stood in front of the Wren and was subject to the natural as well as the collegiate elements.

In the accompanying drawings, it is apparent that the east facade of the Wren Building was dramatically different from the way it appears today. There were only four dormer windows on each side of the main doorway, instead of the six today, and the treatment of the doorway and the size of the cupola was also dissimilar.

The drawings reproduced here were a part, Kendrew explained, of drawings that were probably presented to College officials during this time. "I know everyone who worked on the project did it with tongue-in-cheek," Kendrew said. "I believe it was a situation where they would do anything to get the project underway. It was simply a compromise. It was a way to give the College additional space without



The copper engraving plate was found in the Bodleian Library at Oxford University after the restoration of the Wren Building had already begun. The plate was of major assistance in the restoration work and the rear view of the College building (5) forced the alteration of the roofline and the rearrangement of various windows.

being too obtrusive."

At the same time, significant research was underway on the Wren building itself in an effort to come up with the appropriate restoration. Very little information could be uncovered on the first building, but gradually significant material was found dealing with the second building, which Hugh Jones said was "rebuilt and nicely contrived, altered and adorned by the ingenious Direction of Governor (Alexander) Spotswood," who was responsible for the erection of many of the town's significant buildings, including Bruton Parish Church, the Palace, the Debtor's prison and the Magazine.

Some early drawings of the second Wren Building were uncovered, along with the famous daguerreotype, taken before the fire of 1859. It shows the building, with some modifications, in much the same way as it looked in the 18th century.

Also during this period a floor plan, drawn by Thomas Jefferson in 1771/72 to depict his proposed expansion of the building, showed the specific room arrangement of the first floor, even with a front set of stairs which were not in the plans the Boston firm was developing. Thus, it was immediately apparent that the floor scheme with the Memorial Hall would have to be abandoned because it was simply not accurate.

The North and South Pavilions likewise were on shaky ground. It should be noted, however, that when the College agreed to turn the Wren building over to be restored in June, 1928, the pavilions were part of the package plan.

The William and Mary Board of Visitors accepted Mr. Rockefeller's "generous offer" of $400,000 to restore the Wren building, with an additional $100,000 for the two pavilions. A committee of the Board was appointed to supervise the restoration work.

After one of the meetings of that committee, College architect Charles M. Robinson, on Aug. 16, 1928, wrote to President Chandler expressing concern, not only about the Wren restoration project but also about the two Pavilions.

"What I fear is the ultimate destruction of this building and the loss of its historic value. I have no fear that the architects in charge cannot design a building to replace it, bringing as much or even greater beauty, but I do fear that it will not escape criticism. . . . In regard to the Pavilions, we should see these in their relation to the Main building and should give consideration as to what is going to be the historical effect. Architecturally I heartily approve the suggestion, but historically I am in doubt and there can be no harm in giving the matter consideration."

An enlargement of the Wren Building in the background of James Blair's portrait, attributed to Charles Bridges, circa 1735-43. This detail compares well with the famed Bodleian Plate engraving of the same period.

Robinson's statement about the Pavilions is the first recorded questioning of the project. Kendrew, however, stated that the architects had privately questioned it all along and noted that the way "Mr. Rockefeller felt about the entire restoration plan, it is difficult to see him ultimately approving the buildings. Mr. Rockefeller had a keen feeling of accuracy and, in fact, would not approve the restoring of a building, unless the entire environment of the building could be protected."

For example, he did not want to restore a building that stood next door to a gasoline service station. Therefore, all related parcels had to be purchased for the protection of the integrity of the existing 18th century structure, Kendrew said.

Workers were, at this time, late 1928, taking apart the Wren Building and allowing architects and archaeologists the opportunity to uncover and discover many fascinating features of the old structure. The discoveries within the building itself, Kendrew explained, were the most valuable of all the tools which the Boston architectural firm had at its disposal in the restoration project.

Details about the status of the Pavilions in early 1929 are sketchy at best. The State Art Commission met to consider major restoration features of the Wren Building. Some concepts were approved and others were rejected, but the Pavilions were not mentioned. In the Board of Visitors Minutes of May 16, 1929, Dr. Chandler included one small, almost insignificant item, except that it lay the foundation for a later eventuality. He told the Board about the deplorable conditions of The Brafferton and the President's House, noting that $10,000 each would be required to put the buildings in good physical order and that $20,000 each would more adequately do the job.

About the same time, the Advisory Board of Architects, created by Colonial Williamsburg to serve as consultants on the entire scope of the restoration, offered feelings that the pavilions as proposed were not historically accurate.

It should be noted that the buildings were positioned as they were to replace two existing structures--Old Ewell and Citizenship--in adjacent locations. These old structures were in a dilapidated condition and were in serious need of renovation or removal.

Dr. Chandler also was in the midst of the major construction behind the Wren, on what is now called the Main Campus at the College. The dormitories along Richmond Road and Jamestown Road were being built or had just been completed as were the classrooms on either side of the area that was to become the Sunken Gardens.

It is therefore logical that Dr. Chandler was interested in the two pavilions as significant classroom additions and replacements for the time-worn Ewell and Citizenship Halls.

On Nov. 14, 1929, in a communication to the Board of Visitors Dr. Chandler stated the situation as it had developed. Mr. Rockefeller "wished to be relieved of the erection of the two pavilion buildings . . .

(and wished instead) to restore The Brafferton and the President's House and the gardens around and in front of the Main Building."

Kendrew emphasized that more than anything else it was probably the lack of historical authenticity which was Mr. Rockefeller's objection to the pavilions, and he noted that Mr. Robinson's observation regarding the "historical effect" was prophetic.

A day later, Colonel Arthur Woods, president of Colonial Williamsburg, in a letter to Dr. Chandler, formally proposed that the money allocated for the two-winged pavilions be used instead in the restoration of The Brafferton and President's House, under the initial agreement which Mr. Rockefeller had with the College.

Thus, while architects were busily at work on the Wren Building, making drawings and architectural plans as they went along, the project was in the midst of being redefined.

While historical evidence supporting the pavilions was lacking, the concept became completely invalid just a month after the decision to eliminate them had been made. A copper engraving plate was found in the Bodleian Library at Oxford University. The plate, made sometime between 1732-47, depicts the major buildings in Williamsburg, the Wren Building at William and Mary, the Governor's Palace, and the Capitol.

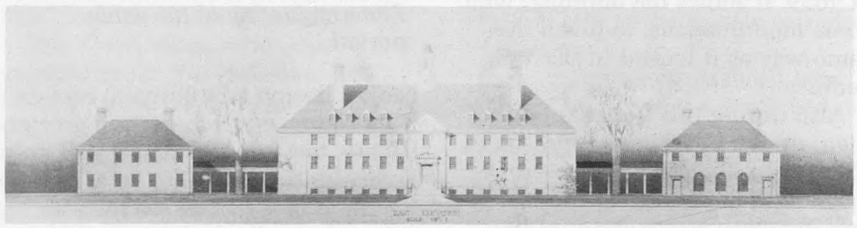
The engraving showed no outbuildings--such as the proposed pavilions--but did show, in detail, the east and west elevations of the structure. The east (front) elevation compared very favorably to the facade which was found in the famous portrait of the Rev. James Blair, the College's first president.

The portrait had been used until that day as one of the primary resources for determining what was the east elevation in the 18th century. The Bodleian Plate, as it is now called, matched the painting in nearly every detail. But more importantly, the west (rear) elevation was shown and radically changed the perceived roof lines in the rear of the structure.

When the plate was found in London, work on the Wren restoration had proceeded to a point where the steel framing system had already been put into place. Because the effort was being made to save the old walls of the first and second versions of the Wren, the steel beams were placed inside and were independent of the walls, for fear they would crumble. Photographs of this part of the work show the steel in place, including the beams for the building's roof.

The plate was sent by radiogram, one of the first such transmissions attempted from Europe, Kendrew explained. The reaction was immediate: the roof lines of the rear of the building had to be completely reworked.

The Bodleian Plate dramatically showed that while the east elevation had two stories of brick, with a third story in dormer windows, the rear elevation between the chapel and Great Hall wings was a full three-story brick with hips in the roof. The well-known architectural historian Marcus Whiffen noted in the Spotswood version of the Wren the third story walls of the original building were kept only in the rear portion.



Under the original concept of restoring the Wren Building, the two Pavilions, along with the main building, would have looked like this Perry, Shaw and Hepburn rendering.

Kendrew surmised in his own examination of the building that most probably the third story walls of the original building had been so severely damaged on the east elevation that they could not be used in the second version. At any rate, this forced the architects from Perry, Shaw and Hepburn to make swift changes.

Andrew H. Hepburn, in notes on the reconstruction of the roof, in the architectural report on the Wren Building, said that the five small hips were particularly interesting because "it closely follows a Tudor tradition and is similar to the type of roof shown on the reconstruction drawing, 'Old College,' in Professor (Samuel Eliot) Morrison's 'Founding of Harvard College' (published in 1835)."

A close examination of the Harvard Building, erected between 1638-1642 and apparently destroyed about 1675, shows a large building similar in size to the Wren, also with two rear wings--a half quadrangle, just like the Wren Building.

A stop order was issued by Perry, Shaw and Hepburn on the Wren Building restoration until the new roof plans could be drafted and the steel beams were cut and altered to accommodate the required changes, Kendrew explained.

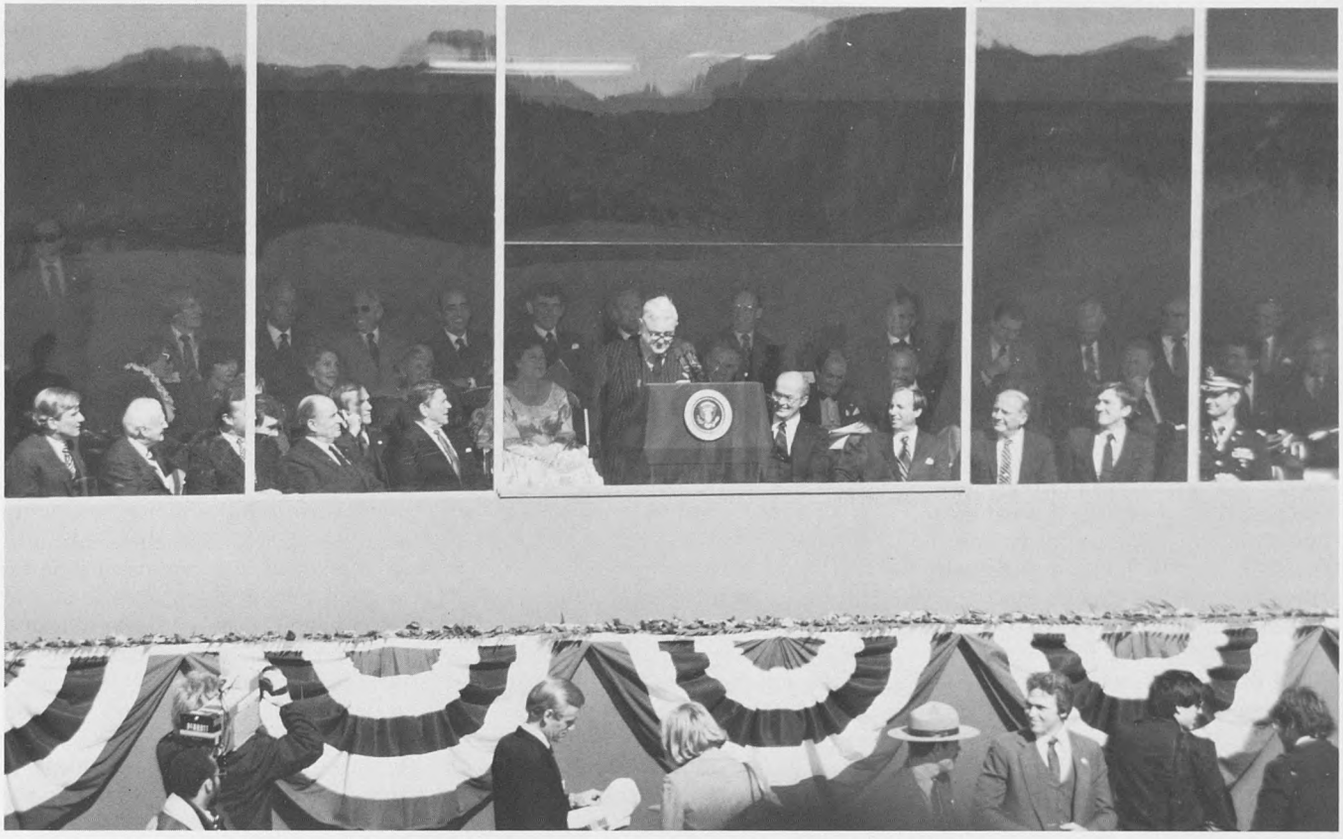
The firm, obviously, was taking every step possible to ensure the accuracy of the restoration of the building. It seems, through reading letters, messages, committee minutes, and other items that once the North and South pavilions were abandoned, the architects developed an almost crusade-like approach to accuracy and were determined that the Wren Building, as restored, should be as authentic as possible.

The long and tedious work on the Wren Building, Kendrew explained, gave Perry, Shaw and Hepburn vitally-needed experience. In a matter of speaking it was the "testing ground" for the later Restoration of the entire city. But Kendrew emphasized that the Wren Building project, although first, was also first-rate.

"I just marvel at the way it came out," Kendrew said, "especially when I think of the conditions under which we worked."

He also noted that the Wren Building was in the forefront of the "new thrust" in historic restoration and preservation. "At that time, we were just coming to grips with the underlying basis for historic preservation--to preserve all original remains and reproduce missing elements in accordance with the facts and best available data.

"Until this period, historic preservation dealt largely with what might better be termed renovation, making it new and not necessarily following original designs. Old buildings were being renewed without too much respect for the original design. The Wren Building," Kendrew said, "was simply not done that way."



The author, Quinton Hogg, Lord Hailsham, the Lord High Chancellor of Great Britain, addresses a distinguished audience, including President Reagan and President Mitterand of France, at the climactic ceremonies of the Yorktown Bicentennial Celebration at the Yorktown Battlefield on Oct. 19, 1981. (Photo courtesy of the Virginia Department of Highways)

They Changed History

The Brave Men Of Yorktown Laid The Foundations Of A New World Power For Centuries To Come

By Lord Hailsham

(The following address was delivered by Quinton Hogg, Lord Hailsham, the Lord High Chancellor of Great Britain, at the Yorktown Bicentennial Celebration at Yorktown on October 19, 1981.)

In the unavoidable absence of the late Lord Cornwallis or his successor in title today, I suppose that I am as suitable a person as any to represent Her Britannic Majesty on this rather moving occasion. I suppose that I am in a minority in that I have an identifiable male ancestor who, as I have been led to believe by my family tradition, was actually present on the occasion of the original surrender of Yorktown, the bicentenary of which we celebrate today. Unlike Lord Cornwallis, my own ancestor, a certain Captain Lytle, was a Junior Officer on the winning side, since when the name Lytle has been a recurrent given name in the various branches of my mother's family on this side of the Atlantic and, at any rate until recently, we have retained in England the actual pair of silver buckles said in the family tradition to have been worn by Captain Lytle when he was in the party which received the British surrender. These personal circumstances enable me to reflect in a somewhat philosophic mood upon the event which took place on this grassy spot two hundred years ago.

There is always something poignant about a battle field of the past. We regard the peacefulness of the scene, the grassy sward. We contrast our pleasant surroundings with the noise and bitterness of battle, the sounds and wreckage and heartbreaks of war. We humbly recall that we too, like those who took part in the original conflict two hundred years ago, have had our own responsibilities for day to day events, no

wiser and no better men than they who fought here then, each prepared to die for what each regarded as his duty. We too are ignorant as they were then of the enormous consequences which were to flow from matters which, to the world at large, would have seemed of little consequence. The 7,000 troops then surrendering on the orders of their English commander, a mere handful beside the vast arrays contemporaneously engaged on the continent of Europe, the tiny squadron commanded by de Grasse **exhibiting the enormous influence of sea power on the fortunes of land** warfare, the tatterdemallion Continental army wearing strange hats and inconspicuous uniforms and firing those new fangled guns with rifled barrels, the French land presence under that subject of Louis XVI the Marquis de La Fayette, who lived on into the reign of Louise Philippe and who at 19 years of age was surely the youngest Major General ever to be employed in the American Army, all must have believed, I suppose, nay must have known, that they were living on the fringe of world events as the world was then considered to be constituted. None knew, at least I suppose not, that they were laying the foundations of a new world power for centuries to come. None foresaw the vast immigration from the Old World, the ultimate destruction of Chattel Slavery in the war between the states, the great advance of the railways across the prairies, the industrial revolution. None foresaw the terrible convulsions of the French and Russian revolutions, the hideous enserfment of suffering millions in the early days of industrialisation, and their ultimate triumph, the dramatic intervention in two World Wars of the New World to save the Old. Nor are we in our own generation permitted to behold the strange and doubtless terrible events for which we in our turn will be held responsible in centuries to come. Here then is the raw material of history, the shaping of destiny out of relatively small beginnings and perhaps, who knows, here also is the hand of Providence, wiser and more far-seeing than human wisdom, that can **create out of a manger and a stable a force more potent than that of** thirty legions of the Roman Army led by a semi-divine figure clad in a purple robe and an imperial diadem. There is nothing quite so humbling for those with responsibility for the present as the contemplation of the past.

Yet, my friends and allies, we three nations, two hundred years ago at enmity with one another, have come here together again, as allies and comrades, to reflect for a moment on the lessons of history and, for this must be the most important part of this episode, our own ultimate responsibility to posterity. When Abraham Lincoln, under a century later than the surrender of Yorktown, made his immortal utterance on the field of Gettysburg, though he remembered the past at his beginning, yet did not end his speech until he had brought the future within his range of vision. He was right to choose this perspective. We three nations, here reunited after two centuries, must ponder the future too. In 1781, the fringe of the then known world, even, Mr. President, your own predecessor George Washington was more concerned, I believe, to be rid of the incubus of the European connection than to found a world power which cannot continue to exist in happiness, except on condition that all nations enjoy the peace and prosperity to which all men equally aspire. Neither Cornwallis, nor Washington, nor de Grasse, nor La Fayette nor that young Captain Lytle or his equivalents on the French or British sides foresaw the future in that October day in 1781. The great empires have fallen. Europe is united in a fraternal community. But the enormous enigma of the future still confronts us all with dangers and responsibilities magnified and rendered more awful by the development of military technology of which the range of nuclear weapons is not the only nor necessarily the more lethal example. But we three meet here together again today to celebrate the birth of your new nation, Mr. President, conceived in liberty, and dedicated to the proposition that all men are created equal. That is a proposition which over the last two hundred years has gained its adherents and still reigns supreme over the hearts and hopes of civilised man. You, M. le President, and Mr. President Reagan, are the Heads of States of two great historic nations. I have the honour, though in my much humbler capacity of the subject and servant of my own sovereign, to represent a third and not the least worthy of honour. United together in friendship and alliance, and with our other friends and allies throughout the world, we command a power for good, physical and moral, far **beyond the dreams of those whose lives and deaths we celebrate in** Yorktown today.

Let us rejoice that, thanks to those who in the last two hundred years, many of them in our own lifetime, have given in the cause of freedom and for our several countries that last full measure of devotion of which your great predecessor spoke, let us rejoice that thanks to them, Governments of the people by the people has not perished from the earth. Nor, if we and our friends and allies are worthy of our heritage and equal in our courage and determination to those whose lives we recall upon this peaceful spot today, need the next two hundred years be less worthy of celebration than the last. God bless America. Que le bon Die benisse la france et tous les Francais. May God bless my own country, and all those throughout humanity prepared to dedicate their lives anew to the undying tradition of the West, the cause of freedom under law. Let tyranny tremble. Freedom is the law of life and under God's good Providence will triumph in the end.

Autumn Moods

The beauty of the William and Mary campus never fails to reflect the mood of the seasons. On the back cover the colors of fall accent the idyllic setting of Crim Dell in a photo by Mark von Wehrden. On inside back cover, an early morning mist shrouds the President's House in the background on a fall morning as seen through the lens of free lance photographer Lyle Rosbotham '71.

The College of William and Mary in Virginia