HIGHLIGHTS FROM 150 YEARS OF AMERICAN ROWING

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Introduction

The origins of boat racing lie far back in human history. Indeed, if one assumes that competition lies deep in the human psyche, primitive man must early on have raced to see who could run the fastest, who had the fastest horse or the fastest boat. As soon as the second reed boat or dugout canoe was built, the first one must have been challenged to a race across the river or around the point. The paddle was undoubtedly the first way to propel a boat, but sometime after 1000 B.C. an oar working against a fulcrum was found to be much more effective mechanically (by about 50 percent) than a paddle. Although fishermen are still occasionally seen sculling while facing the bow, the human body whether sitting or standing can lever a boat through the water more efficiently when facing the stern. Thus the chestnut of the uninitiated about "the stupid oarsman who can't even see where he is going" must be one of the oldest jokes.

Today competitive rowing is essentially a leisure-time activity. This is not to deny that it is hard work--ranking indeed with the most energy-demanding sports--but rather to state that now there are no professionals, except coaches, who make their living out of rowing. This has not always been the case. Before the appearance of organized sports there were professional watermen who supported themselves with the oar. In England in 1716, it was his gratitude for the Thames watermen who taxied him to work that led Thomas Doggett, the actor, to endow annual races for apprentice watermen, with the winner receiving an orange coat and a silver badge engraved with a wild horse and the word Liberty. Similarly, less than a half-century later, it was the races between the watermen in New York harbor that launched boat racing in this country. Doggett's Coat and Badge was originally contested in heavy boats capable of carrying a passenger, though today the young watermen race over the five miles from London Bridge to Chelsea in light singles. The New York watermen first raced at the urging of their passengers, usually in fours to cope with the more exposed reaches of the harbor, in heavy but fine-lined lapstreak boats, which took their name from the Whitehall landing at the foot of the Battery.

In May 1843 a Yale junior brought a second-hand Whitehall boat, costing $29.50 with oars, to New Haven and formed the first boat club at Yale College. Within a few weeks two similar craft were purchased by other syndicates. Scratch races and informal tests of skill and strength inevitably followed, thus introducing intramural boat racing to American colleges. Almost ten years before, in 1834, the Castle Garden Amateur Boat Club Association was organized, which marked the beginning of club rowing in New York harbor. Rival groups soon appeared along the Hudson. Racing as well as recreational rowing spread rapidly over the country into the harbors, up the rivers, and even followed the Gold Rush into San Francisco. The Detroit Boat Club (founded in 1839) has the honor of being the oldest club in this country still active in the sport. The Schuylkill Navy, first organized in 1858, was to give the Philadelphia clubs a structure and a permanent role in American rowing. Meanwhile some professional watermen had found it possible to make a living by racing for money. By the Civil War the Biglin Brothers, the Wards, and James Hamill of Pittsburgh were gaining national reputations--racing for prizes of $50 to $3000 in fours, pairs, doubles, or singles--and were providing the public with their first sporting heroes, the press with constant copy, and painter Thomas Eakins with some of his best models. In those early years racing remained informal, infrequent, and unselective, with undergraduates or amateurs rowing against the professionals in the Boston City, Castle Garden, or Newburgh regattas--and taking the purse or money prize if they were skillful enough to win.

That sports are man-made or socially conditioned (to quote a sociological truism) is proven by the way they burst into being in the 15 years after the Civil War. Sport and outdoor pastimes, more than any other single thing, were to fill the activity gap created by urbanization. Throughout the country, thanks to the professional scullers, amateur members of rowing clubs, and college students, boat racing was among the leaders in this procession. Although today crew ranks low as a spectator sport, a century ago it heralded all the mass excitement to come. Regattas increased from ten or twelve before the Civil War to over 150 in 1872; were held everywhere from Savannah to Sacramento and Maine to Milwaukee; and included prizes of $500 to Kyle's Gold Badge or the weighty honor of pulling two passengers thirty-three miles around Manhattan Island in five-and-a-half hours.

Technical Developments

In even the briefest history of American rowing the technological development must be discussed because every major change in equipment has eventually produced or even required a rethinking of technique and training.

The single scull represented the original racing boat, and critical improvements or changes usually appeared there first. During most of the 19th century, England was the laboratory for boat building, with her oarsmen experimenting and writing about the art while her builders perfected most of the changes in boats and oars. By 1811 the Eton boys were racing regularly in VIIIs with cox; the Oxford colleges followed suit in 1815; and in 1829 the first Boat Race between Oxford and Cambridge was held. Miraculously, the Oxford boat of 1829, one of the original college VIIIs, has been preserved and can be seen today in the South Kensington Science Museum. Clinker-built and inrigged with thole pins, this boat is 45 feet 4 inches in length with only 28 inches of stateroom for each oarsman, as compared with over 50 inches needed for today's sliding seats. Balanced on a 7-inch thwart, the oarsmen rowed with enormous sweeps (13 feet 6 inches to 14 feet 6 inches) needed to fit a beam of about 3 feet 10 inches. The 1829 boat weighed 600 pounds--two-and-a-half times the weight of a modern racing VIII--which allowed a very short run between strokes and required a high rate of striking.

About 50 years and three major improvements lay between the 1829 boat and the basic design of a modern VIII. The first of these was the development of the iron outrigger by the Clasper family of watermen and professional scullers. Originally used in sculling boats and IVs, outriggers were first used on Oxford and Cambridge boats rowed in the 1846 Boat Race. This design resulted in a much longer and narrower VIII: up to 66 feet in length with a beam of less than 2 feet. The second great improvement, the keelless boat, came in the next decade and was first used by VIIIs in the 1857 Boat Race. Having a smooth skin but no exterior keel, this hull design further decreased both the weight and wetted surface, while opening up the possibility of endless experimentation with taper and length.

Although some had occasionally tried greased pants on a wider thwart, an American sculler finally came upon the third improvement--the sliding seat. Actually he was trying to get more reach with a fixed rigger-spread in order to attain a good beginning and strong finish. Since a moving oarlock proved impossible, he tried sliding seats--leather-covered 10-inch squares of wood with grooves on the bottom that moved fore and aft on two brass rods--but they were likely to break down, and it was 1885 before truly long slides with wheels were generally used. A moving seat was first tried, however, in a Hudson River regatta in 1870, by Yale the same year and by Harvard in 1872. Two advantages became quickly apparent: although sliding only 6 inches at first, the oarsman was able to increase the length of his stroke substantially over fixed-seat rowing; and instead of the stroke depending largely on the back and arms, the sliding seat made it possible to harness much more of the muscular power in the oarsman's legs. As a result, the most effective combination of back, legs, and arms would henceforth become central to the formulation of any rowing style.

Sometime in the 1870s the swivel oarlock was invented as an alternative to the older system of a vertical rowing thole (the fixed pin) and a stopping thole. American oarsmen quickly shifted to the swivel, primarily because it is easier to row on, but in England the fixed pin lasted much longer, being considered more efficient at both the beginning and end of the stroke. The swivel became universal for sculling boats, however.

Early on, the VIII had become the preference for English intercollegiate racing, although races for small boats (singles, pairs, and IVs) had been a regular part of the intramural program at Oxford and Cambridge since the 1840s, as well as a prominent feature of the Henley Regatta since the middle of the century. In America, on the other hand, by the late 1850s both Harvard and Yale had become so wedded to the straight VI (without cox) that when the rowing mania hit the other colleges in the 1870s they all started in VIs. Then Harvard and Yale led the change to VIIIs with cox in 1876, with other schools following by 1895, and in the process virtually excluded small boats. Until quite recently the latter were left to the rowing clubs, a contrast that worked to separate the rowing interests in this country.

Meanwhile some critical technical developments still lay ahead: lighter, adjustable riggers that eliminated the lower brace, which had made the going so wet in rough water; lighter boats and oars; adjustable buttons, which allowed the leverage to be changed to suit the conditions; plywood and fiberglass and their interesting possibilities, some of which were realized in the paper boats so popular from 1875 to 1895. The major achievements in boat-building technology, now over a century old, left the fundamental problems more distinct but still did not bring their resolution any closer. "Given the total weight to be carried, is there any relation between length and speed? Or between beam and speed? What is the right curve for the master section?" These are only some of the imponderables to be resolved every time a new shell is designed or built.

The Rise and Fall of the Professional Oarsman

While it was the professionals, especially the scullers, who inaugurated competitive rowing in this country, by 1900 they had virtually disappeared. Nevertheless, their influence as well as their colorful careers entitle them to a place in any rowing history. The professional IVs of the 1860s gave way to the amateur IVs and to the enormous popularity of professional sculling over the next 20 years. Rowing and sailing were the only sports featured in the Philadelphia Centennial Exposition of 1876 where professional sculling reflected the enormous and very international nature of the sport. Besides the best Americans, entries also included Higgins of London and three

Canadians. One of them, twenty-one-year-old Edward Hanlan of Toronto, was the unexpected victor, thus beginning a career that would take him to England, all over the States, and even Australia for innumerable exhibitions and races as he alternately defended or pursued the elusive title of World's Champion. In 1884 he finally lost the title in England to William Beach, an Australian, but he continued to race until 1897.

Perhaps Hanlan's greatest American rival was Charles Courtney, who had won the amateur sculling at the Centennial Regatta. Older and heavier than Hanlan and victor of 88 amateur races, Courtney turned professional in 1877. Amid the usual fanfare in the press and frantic hedging among the gamblers, three races between the two were arranged. Hanlan won the first--a five-miler with one turn, at Lachine, Canada--by little more than a length under sufficiently suspicious circumstances to generate great interest in a return match. This was set for Lake Chautauqua in October 1879. The promoter of Hop Bitters, a suspect patent medicine known as "The Invalid's Friend and Hope," sought increased sales by signing the two professional scullers to a $6,000, five-mile race. As the great day approached commercialism and speculation reached a fever pitch, which climaxed the morning of the race when Courtney's shell was found sawed in half. He refused to race in a borrowed boat and was charged with being in collusion with part of the gambling fraternity. Hanlan rowed over the course alone, only to have the wily promoter sequester the purse. This scandal darkened the good name of professional sculling, and Courtney did not improve it when he dropped out of their third and final race the next year. Although the day was hot, Hanlan was already far ahead when Courtney stopped at the end of two miles.

Since living on the water or working on the waterfront provided the obvious first step to a rowing career, such ports as Halifax, New York, Portland (Maine), and especially Boston became the centers for professional scullers. Hanlan was raised on an island (now Hanlan Island) in Toronto harbor; Courtney grew up on Cayuga Lake. In Cambridge George Faulkner, a successful sculler and one of Harvard's first coaches (1885), supervised unloading coal barges on the Charles. The stakes for which scullers raced varied from $25 for beginners rowing in heavy work boats to $5,000 or more for a race with Hanlan, who won almost $12,000 in 1879. If one was really sure of a victory, side bets could increase the take. In addition there were always exhibitions, the possibility of coaching a rowing club for the summer, and even raffles for the winning shell after the race. Some retired to the safer profession of boat-builder, like Michael Davis of Portland who held over a dozen patents on swivels, sliding seats, and leg-of-mutton oars.

Even a century ago, sports were beginning to fulfill a need for public entertainment for the new urban masses. Among the first to appear was professional sculling. Although hardly the ideal spectator

sport, sculling was able to provide the press with enough gossip, rumor, and human interest to make scullers the folk heroes of the day. The races themselves were always late and usually dull, since most spectators could only see the start and the finish, which often became a procession. But a regatta was an outing--an event with crowds, food, drink, gamblers, and plenty of excitement besides the races.

Sports have always contributed to the individual participant: to his pleasure, his good health and even his character. But entertaining the public was indeed the only justification for professional sports. In addition to general agreement on a minimum of rules (how two scullers, for instance, should turn around a single stake), some kind of sponsorship became necessary for the survival of a sport. As a pioneer, professional sculling found two kinds of sponsors available --commercial interests and gamblers. Unfortunately, between the two, they contributed to the early demise of professional sculling and rowing. While rowing could not offer business the kind of direct profit that Remington Rifles, Goodyear's Rubber Fishing Outfit or Imperial Croquet or Lawn Pool represented, at its height professional sculling did appeal to the promotional side of a product like Hop Bitters. The famous Chautauqua fiasco, however, showed how difficult it was to keep the self-serving gamblers from ruining the sport.

Despite their virtual disappearance by 1900, the professional scullers left an important legacy. Lightweights by today's figures (most under 160 pounds) and often rowing five-mile races, they proved the old truism that mileage makes champions and physical condition is vital. But the most important part of the legacy lay in the scullers' emphasis on perfection of watermanship by using small boats. A single--where the variables are reduced to the boat, the rig, the conditions, and the individual oarsman--has always offered the clearest path to effective, powerful, and successful rowing. Almost 70 years ago the achievement of the professional sculler was described as follows:

> It takes years of patient study and hand work and blade action to attain firm blade "footing" in the water; and until this is secured, no amount of sheer strength will command good speed.

In the history of American rowing the rise and fall of this sculling tradition correlates significantly with the popularity as well as the good health of the sport.

Although in the early 1870s both club and college rowing chose to disassociate themselves formally from the professionals and their "dirty tricks," it was not very realistic for American rowing to favor amateur coaches over professional watermen. In England, a country of modest size with a well-established sporting tradition,

a group of amateurs of independent means had emerged in sufficient numbers to provide coaches and expertise for both universities and clubs. Indeed the unpaid amateur coach became the rule in England from that day almost to this. So it is little wonder that American rowing, already looking to England for so much in the way of technique and training, should seek to emulate this ideal of the gentleman-amateur coach. For years before World War I many of the great English names would be lured over to this country as consultants and even coaches. The dramatic departure of Guy Nickalls from Yale in 1921, because he characterized the Varsity as "gutless," brought this practice to an abrupt end. Meanwhile a steady effort had been made to find such amateurs in this country. If anywhere, they were to be found among the rowing alumni. But the social and economic ethos of late 19th-century America was not conducive to providing a sufficient number of individuals with sufficient means, leisure, and skill to become "gentleman" coaches.

It was inevitable that the professional scullers would creep back into the picture as coaches, with some of their tricks and more secretiveness about the crews and their progress than was good for sport. Yet their knowledge and experience was invaluable. Faulkner and James Wray (1905-15) at Harvard, Michael Davis and John Kennedy (1906-11) at Yale, Jim Ten Eyck at Syracuse (1903-38), and Ellis Ward at Pennsylvania were some of the great names; but Pop Courtney, at Cornell from 1885 to 1920, was perhaps the most famous and successful. Of the 146 Cornell crews that he coached, 101 of them were winners. In 24 Poughkeepsie races, Courtney's Cornell Varsities finished first 14 times and never placed less than third. His great sculling rival, Ned Hanlan, coached Columbia for a few years at the very end of his life. Except for one epic race (1901), however, when Columbia drove Cornell to a course record, Hanlan's results were not distinguished--thus proving that great performers do not necessarily make great teachers. Less desirable was the professionals' suspected willingness to resort to sharp tricks, often under pressure from their desperate backers, which led to an unnecessary secretiveness about their coaching concerning both their style or stroke and the performance of a particular crew. This became most noticeable when one of them would take a crew to Henley, England, where the proximity of the tow path, along which the coach rode a horse or bicycle, had long resulted in an easy exchange of information and expertise. In 1901, for instance, Ellis Ward whispered to his crew through his megaphone lest, as he said later, some spy might reveal the secrets of the "Pennsylvania stroke" to their rivals.

The very fact that the professionals appeared early but disappeared soon after was to have several interesting effects on American rowing. The abuses that overtook and eventually overpowered professional rowing worked to separate those men from both the clubs and the college oarsmen. In 1872 the original charter of the National Association of Amateur Oarsmen carefully excluded from the amateur

ranks any oarsman who obtained any kind of "pecuniary" benefit from rowing. The next year the Rowing Association of American Colleges agreed not to use professional trainers after that year's regatta. Because proper amateur coaches did not appear in any number, as has already been explained, the professional scullers soon emerged to coach, though often almost surreptitiously as riggers or trainers. This worked to prevent a coaching profession from developing until after World War I. In the longer run the fate of the professional sculler was one reason why rowing's history proved quite different from that of other sports in this country. Sooner or later most sports or games, especially as they became part of the entertainment business, have progressed from a broad base of people who play for fun and exercise to the development of a hierarchy by ability with the paid professionals at the top. Baseball, football, basketball, or ice hockey would all illustrate this sequence. Admittedly these latecomers had not only greater appeal for spectators but could also be staged to yield more income at the gate. Yet the early rise and fall of professional oarsmen, for whatever combination of reasons, left rowing without the more normal structure and destined to have a rather different evolution than other sports--freer from commercial pressures and able to champion and maintain a unique version of the amateur athlete.

Club Rowing and the Amateur

The two most active periods in American rowing occurred almost a century apart. Ushered in by the professional scullers, the decade of the 1870s saw rowing more popular than ever before or since. As mentioned earlier, growing leisure time, affluence, and cities combined to produce both participants and spectators; rowing--like horse racing--was on hand to meet the needs of both. The railroad and the telegraph worked to make this activity regional and even national by bringing competitors and crowds together, broadcasting the results, and producing a half-dozen sporting weeklies to stimulate the rivalry and delight the fans. In 1873, as the NAAO was just being formed, the Aquatics Editor of Turf, Field and Farm put out the first Boating Almanac and Boat Club Directory. While admitting that some clubs were not as active as others, he listed 289 organized boat clubs in 25 states. New York led the list with 74, but Georgia with 12, Michigan with 14, Iowa's 5 and California's 14 showed how boating had swept the country. Some of these clubs had been boating for pleasure if not racing for over 30 years; others, like the Schuylkill Navy, had developed regional associations. Of the 159 races or regattas listed for the year, 15 were scheduled to celebrate the 4th of July. Originally the racing was in small boats (singles, double sculls, pairs, straight IVs and even straight VIs), usually for a mile and a half with one turn. When VIIIs began to participate in club races in 1880, the turn had to be eliminated!

The first regattas were open to professionals as well as amateurs, and the latter had no hesitation about accepting a purse if they won.

By 1872 interest in racing was so great that heats were required to cope with the large number of entries at the Schuylkill Navy regatta. At that point the questionable station of some of the entrants made it necessary to define an amateur and led to the organization of the NAAO by the end of the summer. Today, as in all sports, the distinction between an amateur and a professional rower is under challenge, review, and revision. The main concern in America was that the amateur should avoid any of the financial entanglements that plagued professional rowing. While amateur rowing in England was to remain an activity primarily for gentlemen, Americans believed rowing for pleasure should be available to anyone regardless of how he earned his living. Over the next 100 years as international competition was developing through the Olympics, the Anglo-American definition of amateur would eventually be challenged by a very different interpretation.

Meanwhile, during the 19th-century heyday of American rowing, the clubs represented the most popular and populous part. As the tide of popularity receded, the stronger clubs survived and were able to maintain the National Championships as well as their local regattas and to keep alive the NAAO, which eventually voted in 1929 to include not only amateur clubs but also individual and college members. Yet survival was not easy. Industrialism would drive the New York clubs from the Harlem River to the less convenient waters of Orchard Beach Lagoon. In Boston the Basin was created in 1910 through the efforts of a Harvard oarsman (James Storrow, class of 1885) marking a new era in boating on the Charles. Fortunately the clubs of the Schuylkill Navy remained anchored on Boat House Row. One of the clubs' most important contributions was to keep alive and flourishing the use of small boats, a tradition strongly influenced by the coaching of the old professional scullers. Unfortunately, with the latter's disappearance, the two groups remaining in this country--the clubs and the college oarsmen--have never achieved the same continuous, reciprocal relationship that has long prevailed in England. Until quite recently it was rare that the college oarsman continued to row after graduation. Only the lucky colleges like Harvard, Columbia, or Pennsylvania found club crews conveniently at hand for friendly rivalry. So college rowing developed slowly, discontinuously, and almost in isolation.

Rowing Leads the Colleges into Intercollegiate Sports

Despite an early start in American colleges, rowing took almost 50 years to become widely and firmly established, and its true flowering did not come until after World War I and later. Less than ten years after Harvard and Yale undergraduates discovered the pleasures

of boating, four crews met in 1852 at New Hampshire's Lake Winnipesaukee "to test the superiority of the oarsmen of the two colleges," in the words of the original challenge. Until 1871 the two raced only intermittently, usually on Lake Quinsigamond near Worcester, for three miles with one turn. Out of this general enthusiasm in the 70s emerged the Rowing Association of American Colleges. Assembled at Harvard's invitation, the Association organized a series of intercollegiate regattas over the next six years. Since the race was a three-mile straightaway, heats were impossible, so the Association kept searching for a place where many crews could race abreast.

College oarsmen were still racing in VIs without cox, which caused endless fouls, accidents, and arguments; it's a mystery why they didn't change to VIIIs sooner. Early races were a mile and a half each way around a stake, which gave the spectators a glimpse of both start and finish. The first Association race in 1871, however, was a three-mile straightaway (which at least eliminated the chaos around the turning stake). Two years later races were started by stake-boats "in the English way," a fairer and less risky method. But the mind boggles at the inevitable confusion of eleven VIs, without benefit of coxswain or lane markers, racing down the Connecticut for three miles, especially since the referee's steam-launch was struggling along a good half mile behind the crews.

The popularity of rowing continued to grow in this period, and in 1875 thirteen colleges (Cornell, Harvard, Yale, Columbia, Dartmouth, Wesleyan, Amherst, Brown, Williams, Bowdoin, Hamilton, Union and Princeton) raced before perhaps 25,000 people at Saratoga, New York.

Both Harvard and Yale were coming to see the advantage of the VIII (with cox, of course), but the other colleges kept voting down the suggestion, primarily because in student bodies of less than two hundred, eight oarsmen were just that much less available than six. By 1876 both the British model of the Oxford-Cambridge race and the continuing dissatisfaction with the uncertainties of straight VIs racing abreast for three miles led Yale to withdraw from the Rowing Association of American Colleges and to challenge Harvard to the first intercollegiate four-mile race for VIIIs in America. After two races in Springfield, the race was moved to New London where it has been held annually ever since with very few exceptions. While the 1876 race was the 17th time the two colleges had raced each other since 1852, their race that June made it actually the beginning of a new chapter in American rowing. Within 20 years the VIII would become the popular combination among college oarsmen, to the virtual exclusion of small boats.

The Association soon dissolved. Denied the chance to upset Harvard or Yale, most of the other colleges gave up rowing in favor of more popular, less expensive sports. Over the next 20 years Columbia, Cornell, and Penn kept trying either to compete in the

Harvard-Yale race or to start their own match races like the Childs Cup, which began in 1879. Almost 20 years later, in 1895, they finally succeeded in organizing another four-mile regatta for VIIIs at Poughkeepsie. The direct ancestor of the present Intercollegiate Rowing Association, Poughkeepsie would gradually evolve into a truly national regatta as other eastern crews (Syracuse, 1901, and Navy, 1907), as well as Wisconsin (1897), Stanford (1912), Washington (1913), and California (1921), came aboard. In one sense the persistence of the two alternatives--the match race and the regatta--served to inhibit the full development of college rowing until after World War II. Although few match races were inspired by the same institutional rivalry as that between Harvard and Yale or California and Washington, cup races or spring fixtures between two or three colleges did appear as preliminaries before Poughkeepsie or New London. These early season match races were rowed at every distance from a Henley to two miles; eventually Junior Varsity and Freshmen races were introduced; but work in small boats tended to disappear as endurance over distance became the ideal. Meanwhile, having ushered in the great age of intercollegiate sports, rowing was soon overshadowed by the others, even while it retained a kind of primacy that recognition of the effort involved and the virtual absence of any commercialism would always give it.

Other difficulties circumscribed the early development of rowing in American colleges. Expensive equipment, boathouses, and an accessible body of water were some of the complications. In the early days the students were responsible for everything, with little more than grudging permission and no financial help from faculty and administration for the first 50 years. Nineteenth-century American colleges were organized around the class, but this unit lacked the proper continuity for a boat club. Enthusiasm waned and the equipment deteriorated even before the class had graduated, and an incoming class had to start from scratch. A college boat club like the Yale Navy was little better. With no box office income, the club was dependent upon student subscriptions if they could collect them, the generosity of other more lucrative sports like football or baseball, the benefits that the Banjo Club, the Glee Club, or the Drama Club might run for the Boat Club, and eventually support from rowing alumni. Colleges were still small. To find the $400 for a shell (a year's tuition was only $150), especially if the entire student body numbered less than 500, was not easy. Traveling to races the shell and the crew often went together on a flat car, cinders and all. Little wonder that in 1874 the Dartmouth shell caught fire in the Hoosic Tunnel on the way to the Association Regatta at Saratoga.

Finally the weather, together with the academic calendar, has always complicated rowing at most American colleges. In England rowing at Oxford and Cambridge could be carried on virtually the year round, with a most stimulating mixture of boat races for every level of interest and ability. By contrast most American colleges found

their practice limited to a couple of months in the fall, the spring as soon as the ice went out, and early summer. Only recently has a program of races for the fall emerged. So the college oarsman faced a cheerless prospect: hours of lonely fall practice; winter runs, weight lifting in the gym, primitive hydraulic rowing machines, and (after 1890) rowing tanks with dead water; and an all-too-short spring to get the crew ready for the one or two races of the year. A baseball or football team was infinitely easier to move around by rail and could develop the kind of busy schedule that helped to make a team and to attract public interest and support.

Evolution of Style

Colleges have always played an important part in the evolution of the American rowing style. The basic problem is simple: how best to lever the boat through the water, by applying most effectively arms, back, and legs to the blade while it is in the water, and by interfering as little as possible with the boat's run during the rest of the stroke. Technology, of course, is critically important in shaping a style, whether it is the weight and shape of boat and oars or their rig. As long as rowing was on fixed seats, the back and arms were put to work much more completely than the legs. Of necessity this required a pronounced backswing from the hips and a comparatively high rate of striking. Even though the sliding seat would eventually make the legs most important, this very fact made the harnessing of back, arms, and slide both critical and, inevitably, controversial: the prominence of the backswing yielded only slowly and grudgingly to that of the leg-drive. The original slides were less than six inches long, which meant that the oarsman was stopped back of his work by several inches. Only after the mid-eighties was he coming up to the pin on a 16-inch slide. This technological breakthrough and the wealth of physical resources it made available eventually gave rise to the variations in style, as different sequences for harnessing the back, arms, and legs to the oar became possible.

With the emergence of different styles, the way they were handed down became important. There has always been a natural style to the extent that through trial and error individuals, especially scullers, have often discovered the most effective way to move a boat. The young Charles Courtney, for instance, had apparently come upon the most efficient stroke for himself during his long hours of lonely practice on Cayuga Lake. And, as has already been seen, Courtney and other professionals eventually became successful coaches of college crews, thus perpetuating the natural, scullers' style. But in addition England, whose influence on American rowing was most formative in the 19th century, also played its part in the evolution of style.

The first formal rowing style, English Orthodox, appeared in answer to the technical problems of the fixed-seat and as an expression of 19th-century England. Many of the public schools (Eton, Westminster, Shrewsbury, Radley) and the two ancient universities were conveniently located on enticing rivers where rowing was possible almost the year round. Academic programs that featured the humanist ideal of mens sana in corpore sano, as well as the social utility of competitive sports, completed the idyllic setting for painstakingly teaching boys and young men the nice points of style, especially a physically demanding body swing with a straight back swinging from the hips. By the mid-1800s, oarsmen and coaches were articulating the details of Orthodox style, largely in reaction to the rather short swing and early break of the arms that the professional watermen had originally developed with their heavier work boats. Because English Orthodox originated on fixed seats (and many of its disciples remained convinced that all oarsmen should be started out on them), it has always emphasized a shorter slide and a longer body swing. This puts the shoulders well back at the open finish where the wrists and hands drop squarely and smartly, leading the arms, body, and slide into a definitely sequential recovery--with the slide not starting forward until the hands have crossed the knees--and then decelerating as it approaches the front stop. A sharp, quick beginning is taken with the legs and shoulders opening up together and arms being saved for the second half of the stroke.

At first American oarsmen learned of English Orthodox through books. By 1870 the literature on rowing style was considerable, almost all of it originating in England as was long to be the case. The Principles of Rowing at Harvard, put out by the Harvard University Boat Club in 1873 for 50 cents a copy, and one of the first American treatises on style, was freely adopted from an English work of 20 years before. That same year Bob Cook, then a sophomore and Captain at Yale, became convinced that, in his words, "there was really no one in America who understood the subject /rowing/. . . . Reading descriptions and conversing with one or two English varsity men had given me a faint idea of what their stroke was. I felt convinced that Yale had to go to school in rowing and learn her alphabet." The result of his 3-month study at London, Cambridge, and Oxford was the migration of English Orthodox to America, just at the critical moment when the sliding seat was making a review of that style necessary. With a shorter rowing season and virtually no comparable secondary school feeders where a boy could master the long, straight-backed body swing and the fixed pin, the English import required a few changes to suit American conditions: a shorter swing on longer slides; swivels instead of fixed pins; larger blades; center seating and shorter oars inboard; fast hands out of bow, blade low on the recovery, and often a slower entry. Nevertheless, American Orthodox would keep essentially the same finish, recovery, and ratio if not the body swing of the English original.

Although initially greeted with much chauvinistic suspicion as an effete import from England, the new American Orthodox eventually caught on, particularly after Courtney and other sculler-coaches had securely fixed the leg-drive in the middle of the stroke. Over the next 40 years American Orthodox kept in touch with its English origins in various ways. In the 90s both Courtney and Cook took crews to Henley. Though unsuccessful, both seem to have realized that by shortening the body swing at both ends of the stroke the latter might in fact become too short. The occasional importation of English amateur coaches to Harvard, Yale, and Penn in the years before 1914 brought additional infusions of the true faith, again with no remarkable success since American colleges, their students, and their ways continued to mystify these visitors.

Perhaps the most extensive and permanent adaptation of the English tradition to American conditions came through Hiram Conibear at the University of Washington. In the spring of 1907 the former trainer of the White Sox and Alonzo Stagg's football team at the University of Chicago coached his first crew at Seattle. Brought to Washington to train the football team, Conibear took over the crew almost on a wager. His training for the job included a few hours of rowing at Chautauqua summer sessions (where his coach was a pupil of Bob Cook), careful study of an English book on rowing, and some now-legendary experiments made the previous winter. Using a skeleton borrowed from the biology laboratory, he taught himself the anatomical movement that a stroke required of an oarsman: where, how, and when the maximum drive could be applied to the oar. Similarly, by keeping a bicycle wheel spinning steadily with a simple pat of his hand, he came upon the critical role of the recovery in maintaining a shell's steady run. The Pocock brothers, whom Conibear persuaded to move down from Vancouver, gave him another contact with English Orthodoxy. Soon to become the principal shell builders for American crews for more than half a century, the brothers hailed from a family of watermen at Eton College, an historic center of Orthodoxy. Conibear's genius was to discover and absorb the central elements of English Orthodox and then to adapt it to American conditions and physiques, and, essentially, to develop a native American style--something that neither Cook nor Courtney had quite been able to do.

Killed in a tragic accident in 1917, at age 46 and barely 10 years into his chosen vocation, Conibear left an almost legendary style and a dynasty of pupils to carry it across the country. His successor at Washington, Ed Leader, rowed 2 in the Husky crew that confounded the experts when it took third at Poughkeepsie in 1913. Ten years later Leader moved east to Yale and became the first American to have rowed in college who chose coaching as his profession, and a bellwether of a Washington invasion that would spread the Conibear perfection of American Orthodox throughout the country. In 1924 Ky Ebright, Washington's cox in 1915-1916-1917 began his 35-year coaching career at California; Rusty Callow, captain of the 1915 crew,

followed Leader at Washington, was then called to Pennsylvania in 1927, and finally moved to Navy in 1950. Among Callow's pupils at Seattle a second generation of Washington coaches soon appeared: Al Ulbrickson, who stroked Callow's last three Washington crews, succeeded his mentor there, while his classmates Stork Sanford and Tom Bolles were eventually lured east in 1936 to coach at Cornell and Harvard. By 1937 every major rowing college in the country--save Columbia, Navy and Syracuse--enjoyed the benefits of a Washington coach who was a pupil of either Conibear himself or of Rusty Callow. And after World War II a third generation of Washington coaches began to emerge.

With the spread of the Washington version of American Orthodox throughout the country between the wars, there prevailed perhaps a greater uniformity of style and stability of technology and training than ever before or since. All were concerned to have the power come on immediately without missing water, to build up the drive to a solid finish, to get the crew out of bow quickly with fast hands and shoulders coming over, to slow down the slide as it approached the front stop yet to avoid any hang. Throughout there was meticulous attention to wrists, blade work, and body swing in the belief that uniformity and timing would maximize the power being applied to the blade. Selecting a crew was a special problem for these coaches, partly because they were always anxious to establish the order so that the crew could work on its precision and polish. But the ergometer had not yet appeared, and the use of small boats to compare the different oarsmen's ability to move a boat was generally ignored. So coaches depended on the still popular three-minute seat race between two boats, changing a couple of men, then another run until finally this exhausting trial and error would convince the coach that he had produced the best combination.

Perhaps the Olympics provide the best evidence that this system of style, training, and coaching was successful. Starting with Navy in 1920, American college VIIIs won eight successive Olympic gold medals, with California winning three times. The responsibility for small boats, however, was left almost entirely to the clubs. In the Olympics before World War II, the clubs provided American crews with three or four other medals each time, usually in the singles and double sculls, the pair and IV with cox. All too few college oarsmen kept up their rowing after graduation, partly because few of them had learned to row in anything but an VIII. Unfortunately for the long-term health of American rowing, the colleges, their oarsmen and coaches remained at best in only intermittent contact with the clubs, meeting every four years almost as strangers at the Olympic trials. The persistence of an almost national, Washington style perhaps prevented as much experimentation as was taking place elsewhere. And the variety of college races from the Henley to four miles perpetuated an almost mystical belief that mileage was the best if not the only way to produce a winning crew. Confident in the superiority of its style and boasting the finest physical material in the world, American

rowing especially in the colleges remained comparatively oblivious to the veritable revolution in technology, technique, and training that was accompanying intensified competition at the international level.

American Rowing in its Second Century

In the 35 years since World War II American rowing has enjoyed more activity, more popularity, and a broader base than at any time since its introduction a century ago. Surprisingly enough, there has been a rush of new developments in boats and rigging, much of it from abroad. Wider blades, movable buttons, and adjustable riggers now combine to permit the easy modification of inboard-outboard ratios to match variations in weather, boats, and oarsmen. New materials are making possible lighter and stronger shells. As never before coaches recognize the importance of accommodating rig to the individual oarsman so as to maximize his effectiveness.

With the new equipment has come another style of rowing, International Modern or Ratzeburg, named after the little German town 40 kilometers northeast of Hamburg. By 1962 its Boat Club had won or shared in thirteen German, three European, one World Championship, and two Olympic titles under the informed, inspired leadership of Karl Adam, a teacher in the local secondary school who had no rowing experience prior to coaching the school crews. As early as 1933 there were already doubts about the prevailing Orthodox style when a Fairbairn-trained crew was victorious over Germany's best. Whereas the Orthodox style had increasingly concentrated on body posture at the expense of moving the boat, Steve Fairbairn (1862-1938), a most articulate Australian critic of traditional Orthodoxy, had taught: "Drive at your blade and let your body and slide take care of themselves." It was Fairbairn that led Adam and his colleagues to their own revision of Orthodoxy, which ultimately culminated in West Germany's victory at the Rome Olympics (1960)--the first time in 40 years an American VIII had not won.

In the last 20 years the Ratzeburg style has spread throughout the world including to the United States. It is perhaps more closely linked to certain developments in technique, training, and equipment than any previous style. At Ratzeburg, Karl Adam sought equal perfection of technique, strength, and stamina, all of which were essential for a superior crew. Technically, his first concern was to minimize the change in hull speed between drive and recovery--probably the most radical departure from English or American Orthodox. Rather than slowing the slide as it approaches the front stop, there is an attempt to increase its speed in order to pull the boat forward, and to secure a quicker initial drive with a comparatively modest swing to anchor the blade. Though the stroke remains a continuous unbroken cycle, the Ratzeburg style produces an almost imperceptible gather in

(except in a heat of the Eastern Sprints), they beat Cornell, the best of the East, by a good length in the finals, rowing 40 strokes per minute most of the way. The challenge was to establish a new kind of cooperation between clubs and colleges: a rowing center strategically located, well equipped, and prepared to be supportive both afloat and ashore. The Lake Washington R.C. was founded in 1958 for this purpose, and across the continent Vesper (founded almost a century earlier) stood ready to provide the model.

Cheerfully accepting the old truism, "if you can't lick 'em, join 'em," Vesper and the veteran Olympic sculler, Jack Kelly, organized a program incorporating experienced oars from different colleges and clubs who were willing to work together for a year with a trainer, who had himself rowed for Karl Adam and was ready to teach Ratzeburg's weight-training, land-training, and interval-training. Prophetic of the National Camp that still lay ten years in the future, the crew won the Trials handily and led a team to the Tokyo Olympics, which did much to recover America's self-confidence as well as its reputation. Again five American crews made the finals, but this time two golds, a silver, and a bronze showed that the lesson was being learned. The VIII won over Germany by open water, and Conn Findlay took his third medal in the pair with (gold in 1956, bronze in 1960, and gold in 1964). Yet the old order was never to return; the Germans figured in six finals and took four medals (one gold, two silver, and a bronze), while the Russians won two golds in five finals.

By the 1968 Mexico Olympics a new era of international rowing had clearly arrived. Many countries, especially those behind the Iron Curtain, saw sport as a concern for the state, too important to be left to its own devices. An all-embracing department of government, to provide uniformity, direction, and purpose, was raising the level of rowing competition as much as interval-training had done a decade earlier. Teams representing the two Germanies appeared for the first time in 1968. Immediately, the German Democratic Republic (East Germany) began to show what totalitarian centralization could produce. From a population of 17 million came six finalists winning two golds and a silver, contrasted with America's seven finalists who won a silver and a bronze--a pattern that would prevail at Munich (1972) and Montreal (1976). While America had to be content with one silver each time, the GDR continued to set an awesome pace; seven medals out of seven finals in 1972 and seven medals out of eight finals in 1976 (a new event, the quad, had been added). Yet the competition became more extensive as well as intensive, as the following table makes clear:

	1968	1972	1976
Number of countries in the finals	16	14	17
Number of countries winning medals	12	10	9

amateurs have sought to measure themselves against international competition. Each year over 20 American scullers and crews follow in his wake to the Thames-valley market town, which has become a favorite regatta for the entire world; at the moment the fastest times in eight of the twelve events at the Royal Henley are held by crews from outside Great Britain. The Canadian Henley, about to celebrate its Centennial, has likewise always welcomed American crews. It is the Olympics, however, and in recent years the European and World Championships, that have provided the most exacting test and challenge for American rowers.

In 1900 rowing was first included in the second modern Olympic Games, and by 1920, at Antwerp, six of the eventual eight rowing events had appeared. American crews won six gold medals in 1900 and 1904, so it is little surprise that in eight successive Olympics, from 1920 through 1956, a crew from an American university took the gold in the VIIIs. During that period the Americans were winning two or three other rowing medals in each Olympics--a total of 29 medals (17 firsts, 5 seconds, and 7 thirds) for 52 percent of the best possible score (a medal in every race; there was no race for pair without in 1920). They had won the gold at least once in every event except the IV without. Throughout these years the college crews tended to concentrate on the VIIIs in the Trials, usually leaving the small boats to the clubs. It is true that many European countries were still recovering from the ravages of war, and after World War I the Central Powers were not allowed to compete again until 1928. Nevertheless, the achievement of the American crews was truly outstanding.

In retrospect, signs of change were first visible at the 1956 Melbourne Olympics. Six medals for the Americans (including golds in the pair with, pair without, and the VIII) was a record, but the Russians took four, with golds in the sculls and the doubles. Over the next three years the Karl Adam-coached Ratzeburg crews began winning sweep events in the European Championships. The day of reckoning came in 1960, at Lake Albano in the Rome Olympics. America was represented by one of its strongest teams--as evidenced by five out of seven crews making the finals--yet one gold and one bronze were the end result. Meanwhile Russia, with six crews in the finals, won three golds, one silver, and one bronze; German's five finalists gained three golds and a silver. Lake Albano also saw record times in five finals, impressive proof of the the new level of competition produced by the remarkable improvement in European rowing.

Over the next few years under the leadership of the Olympic Committee, America, its coaches, and its oarsmen went back to school. Physical conditioning, style, equipment, and even the traditional American view of sport in society all had to be re-examined. First-hand evidence of what had to be done was provided by the six-week visit of a Ratzeburg VIII in 1963. Undefeated in six races

the middle of the recovery, visible only at a lower rating, that serves to unite the crew for the swing into the catch. Ratings tend to be higher than American Orthodox had once preferred. Designed for 2000 meters, the basic distance for all international racing, the crews usually race at a cadence of 37 to 42, depending on the competition and the wind and water conditions.

Once the technique has been mastered through rowing and sculling in small boats, strength and stamina become the central element of the International Modern style; indeed, this is the area where Adam's insights have had their greatest impact on American rowing. A crew's training--how it is conditioned physically and psychologically--has changed most in the last 25 years. Oarsmen, following the lead of swimmers and runners and the example of German athletes, are profiting from the enormous advances in scientific, medical knowledge about what makes Sammy run (or row) fast and how to build up his circulation, muscles, and endurance so that he can row faster.

In this country competitive rowing now has three seasons: spring, summer, and fall. The number of fixed annual races rivals that of a century ago, and they are held all over the country. A new kind of regatta like the Head of the Charles has made it possible for hundreds of crews of all sorts and abilities to race against the clock in a three-mile procession, and provides fall rowing with much-needed color and interest while reinforcing the simple truth that "mileage is a means to an end and not an end in itself." The variety of spring race distances for American college crews has been almost completely replaced by the 2000-meter Olympic distance. This change was largely inspired by the need for American crews to have better preparation for international competition. Also, concentration on a single distance makes training more precise and a crew's progress more measurable. Thus interval-training, such as six rows over 500 meters against the clock to duplicate a fixed time, can combine speed-training and endurance-training, which will eventually increase the crew's speed over 2000 meters--a considerable advance from the spring a 1883 when the Yale crew was made to race four miles every day for five weeks! (By race day the stroke was so overtrained that he could not get the rating over 38 even though in practice, rowing a short stroke, they had never dropped below 42 for four miles.)

Land-training too has acquired a new range, intensity, and scientific purpose. Strength and stamina are sought through distance-running, bike and rowing ergometers, cross-country skiing, cycling, and specialized exercises with weights, all carefully logged, monitored, and scheduled. The ergometer is such an improvement over the primitive rowing machine that it can provide an objective measure of strength and endurance for evaluating and comparing oarsmen, as well as general training and learning of technique. In fact, the demands of such a program on the individual are truly awesome. It is little wonder that one participant confessed that, of all his goals, "having

fun" was the most difficult one to attain. As Karl Adam has written, the point is finally reached where motivation becomes the limiting factor.

Perhaps the most dramatic aspect of the present renaissance in American rowing is its ever-broadening base. All over the country young and old, men and women, heavy and light, in clubs, schools, and colleges are learning to appreciate the challenge as well as the satisfaction and sense of well-being that rowing provides. Many regattas are truly national, open to men and women of varying abilities through novice, intermediate, and elite divisions. Over a century ago rowing worked its way from the colleges down to the secondary schools. At first it was the independent schools of the northeast that, like their English counterparts, became persuaded of the values, social and personal, of organized sports for their charges. In time clubs and colleges worked to build a younger, broader base for the sport by providing coaches and equipment to local high schools and staging schoolboy regattas. In 1933 national championships were begun; with the addition of Junior programs, U.S. youth teams now compete at the international (FISA) Youth Championships.

Similarly, women have rowed for at least 90 years, on their own or at a few schools and colleges. In 1888 Mollie King, "oarswoman of Newport Kentucky," issued a challenge to any "female" in Covington, Cincinnati, or Newport for "a two mile race for stakes." Since violent, competitive exercise for women was generally considered dangerous and unladylike, Mollie could not have received many challenges: rowing for women was recreational and intramural; victory was decided on form rather than speed. In contrast, the number of women who have begun racing in the last 15 years represents one of the most remarkable achievements of today's women's revolution. The National Women's Rowing Association (NWRA), organized in 1964, drew only 45 boats and less than 100 competitors at its first regatta two years later. By 1978, however, the NWRA boated 650 participants in 130 shells from 60 clubs at their regatta in Seattle. Overcoming their share of chauvinistic resistance, which sometimes begrudged them boats, money, and even water to row on, American women have "embraced rowing with astonishing fervor." As one has explained it: women "know that rowing is explosively and wildly physical, fiercely competitive and gracefully, delicately beautiful." Women's rowing is an international phenomenon in which American women have joined almost from the start. By 1975 an American VIII took the silver medal in the FISA Championships. Medals at the 1976 Olympics--Joan Lind's silver in the sculls and the bronze garnered by the women's VIII--justify the verdict, again by a woman: "Women's rowing is the freshest, most innovative and by far the fastest growing aspect of American rowing and at an international level, currently the most successful."

Ever since the first American sculler (Edward Smith from New York's Atlanta Club) had a try for the Diamonds at Henley, American

Just as the number of countries winning medals has kept shrinking, the general level of competition has been increasing. In an effort to keep up, the NAAO has been sending crews to the European or World Championships since the mid-60s. The opportunity to row against Olympic-caliber oarsmen at these regattas provides invaluable racing experience.

Indeed, one reason that American women's rowing has improved so rapidly is that they were willing to tackle international competition. Just one year after the first NWRA regatta, an American VIII rowed at Vichy in the FISA European championships. Coming in sixth place, while quite creditable, showed how far they had to go. Annual trips abroad finally bore fruit when American women won two medals at Montreal in 1976, the first Olympics to feature women's rowing. While more successful than the American men, the women encountered the same formidable opposition: the GDR won four gold and two silver medals in six races. Over seventy-seven percent of the medals were won by East Germany, Russia, and Bulgaria, all countries where the governments had decided to make sport an arm of national policy.

This intensification of international rivalry is setting a standard of performance that is becoming increasingly difficult for individual Americans to meet; it demands extraordinary personal sacrifice in terms of time and careers that amateur oarsmen, at least in this country, have rarely been called upon to make. Consequently the NAAO, the U.S. Olympic Committee, and the federal government must decide how best to meet this state-mobilized challenge. A selection process based on competition among crews from clubs and colleges is probably not going to produce the best American teams for today's level of international competition, and only America's best can hope to compete successfully at this level. Some kind of National Team, however new and disturbing to existing arrangements, is the only answer.

So far the NAAO has shown the flexibility and imagination to adjust to this changing situation. For over 40 years schools and colleges have been encouraged to share membership with the clubs. Now room must be made for women's rowing and the new type of club that arises out of development programs. Broad national interest in rowing is being mobilized with a new regional organization. Nevertheless, the depth and experience necessary to race successfully at the international level requires time and money if Americans rather than the government are to provide proper support for the country's rowing. Perhaps the most hopeful sign for American rowing, even if it provides no immediate answer to the above problems, is people's burgeoning interest in getting afloat in some kind of shell.

Conclusion

Rowing shared, even led, in bringing sports to American society. Yet the very nature of the sport has given it a distinct development of its own that defies the easy generalizations of the sociologist or historian. As with all games, rowing's basic appeal was the release it provided from everyday life, "the purest form of escape." Since its first professional phase was short-lived, the sport has not been degraded by commercialization like other sports, turning "play into work" and subordinating "the athlete's pleasure to the spectator's." Rowing has avoided such contamination of standards as baseball's designated hitter and has been able to maintain that "staged rivalry of superior ability" that gives athletics their imaginative appeal and brings out over 3000 rowers, 700 crews, and 50,000 spectators at the Head of the Charles each October. Early on rowing demonstrated its potential for "character-building": few sports continue to satisfy the competitive urge while still helping to discipline it, by measuring "individual achievement against abstract standards of excellence," encouraging "cooperation among team mates," and enforcing "rules of fair play." Like all sports, rowing risks losing its charm when forced into the service of national rivalry, education, character development, or social improvement.

The appeal of rowing, now well into its second century in America, continues to mystify those who have so far resisted its spell. Except for a few Heads, it hardly ranks high as a spectator sport. It is near the top of the list in terms of the physical and psychic demands that rowing makes on any serious participant, however, and the cost of equipment may make many people see rowing as almost an elitist sport. Yet more men and women than ever before are discovering the satisfaction and pleasure of rowing, however mysterious or inexplicable. For the single sculler it may be the successful timing of a complex cycle of muscular movements as he savors the utter isolation of the water, so immediately dependent on his own efforts. For the oarsman rowing with someone else, the challenge of timing and balance must, in addition, be synchronized with the rest of the crew's. Whatever the combination, the rewards of physical fitness, the chance for personal growth and greater self-knowledge, and for some the pleasure of just "messing around in boats" will keep bringing them out. Over 30 years ago an English coach remarked that "rowing is not a game. . . . The dictionary will not let you either play or play at rowing." So it continues, unique among sports and a veritable religious experience--when the boat is truly moving--for its devotees.