

A black and white photograph of a swimmer's head and arms breaking the water's surface. The swimmer is in a freestyle stroke, with one arm extended forward and the other back. The water is splashing around the swimmer's head. In the top right corner, there is a circular price tag with the text "\$3.50".

\$3.50

The History of Swimming

By Francis Oronheim

ZANE STRATTEN

THE
"HISTORY OF SWIMMING"

by Francois Oppenheim

SWIMMING WORLD
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Preface

This book is concerned essentially with competitive swimming. It is written for those who already are acquainted with the ABC's of stroke. Therefore, no analysis of the rudiments of stroke is intended in any chapter.

The subject matter covers such a wide range that the chapters sketch only the framework of the main lines of competitive development characteristic of each era.

In writing this book we are indebted to those who, in the past and today, have written text on the history of swimming; consistently, we have indicated the sources. But honor must be paid to all historians of competitive swimming, for without them we could not have hoped to present anything of value.

Results, commentaries, statistics, and reports on the evolution of techniques are prepared as of January 1, 1970.

Acknowledgement

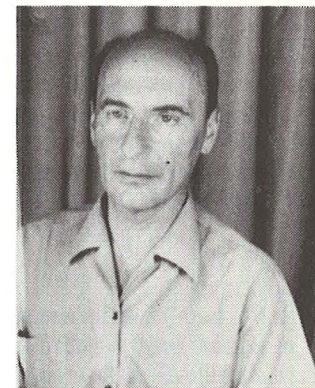
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Meet Francois Oppenheim

Francois Oppenheim, born November 17, 1906 in Paris, France has followed swimming since 1920 . . . 50 years. He was a competitive swimmer during the 1920's. In the 1930's he became a swimming coach and a sports journalist. He ended his coaching career in 1953 to devote himself to sports journalism.

He resigned his journalism career in 1963 to accept a position as technical advisor to the French Secretary of State for Youth and Sports, and in this capacity contributed greatly to the preparation of the New Caladonia swim team, winners of the II and III South Pacific Games.

Since 1924, Francois Oppenheim has attended and covered seven Olympic Swimming Championships, one British Commonwealth Games, and seven European Swimming Championships. During his career as a swimming coach, his team, the Swimming Club of Marseilles, bettered French open records and also age group standards of France. He has molded the training of many swimming coaches, the most notable being Georges Garret, who is presently the coach of the French swimming team.



Contents

Chapter I – Aspects of Swimming	Page 1
Chapter II – History of Sports Swimming	Page 3
Chapter III – Sports Swimming Becomes Organized	Page 5
America Swims into Supremacy – The Japanese Reign – A Harvest of Performances Mark the Resumption of Swimming – The Australian Dominance – Tokyo: America Again Moves Forward – Mexico: The USA Retains its Lead – Beginning of Period 1968-72 – Swimming Progression – The Current World Records	
Chapter IV – International Record Tables	Page 27
Olympic Games: Place, Date, Course, Records – Olympic Record Progression and Results – Ten All-Time Best Performers – Salt Water and Records – Performance and Altitude – U.S. National Swimming Champions	
Chapter V – Marathon Swimming	Page 90
Chapter VI – Progress of Strokes	Page 92
The Affirmation of the Crawl – The Evolution of the Crawl – Leg Action in the Crawl – The Respiration of Crawl – Arm Action in the Crawl – The Ways of the Modern Crawl – The Evolution of Swimming on the Back – The Evolution of the Hand over Hand (Breaststroke) – The Evolution of the Butterfly	
Chapter VII – Evolution of Conditioning	Page 122
Class and Swimming – The Age of the Champion – The Evolution of Training – Basic Technique – Preparation for Competition – Interval Training – Research of Power – Research of the Air Reserve – The Allotment of Effort to the Arms and Legs – The Way of Preparation – Specialization – The Evenness of Pace – Test of Discovery and Tests of Work – Test of Weights	

Chapter I

Aspects of Swimming

Competitive swimming comprises two very distinct actions: one being sprinting (sustained sprints and middle distances) and the other long distance swimming. Although sprints or middle distance races may be swum in a river, lake, or sea, the fact is that swimming up to 1500 meters (the longest international distance for middle distance races) confines itself to a pool. On the other hand, marathon activity remains, owing to physical circumstances, an open water activity.

Swimming has two stimulative forces: records and competition.

The record accords — or ought to accord — the highest expression of value. By means of the record, the quality of competition can be judged. It is the comparison of times or records that established a universal expression and understanding anywhere competitive swimmers perform. Therefore, in principle, since the record encourages swimmers to constantly improve their performance and achieve better times, it constitutes the superior element of competitive swimming.

Competitive swimming has, from its inception, modernized its equipment. In spite of the fact that competitive records fail to consider different water conditions, obviously, ideal conditions correspond best to the use of pools.

Since the very principle of a race is not the performance but victory, competition is the substance, the *raison d'Être* of swimming. With the creation of the championship, a super kind of competition, the power of the competitive “engine” increases. That is why the International Championship constitutes the fulfillment of competitive swimming. Competition helps in the improvement of equipment because, as the swimming pool demands a record attempt, the swimming stadiums demand national and international championships. In conclusion, the training of swimmers encourages — just as the teaching of swimming — the construction of indoor heated swimming pools in many countries.

Competitive swimming, of course, knows many forms. First of all there is the freestyle, which constitutes the core of swimming. (The aim of the race is to go as fast as possible, no matter what the stroke.) When the question of swimming supremacy is involved, as a rule supremacy in freestyle is implied. That is why the 100 meter freestyle, and events in which maximum speed and resistance must be combined, is the standard event which designates the "crack" swimmer. Every Olympiad might make one name famous: the winner of the 100 meter freestyle.

In spite of its restrictive and compulsory back position, the backstroke, where there exists complete freedom of movement, closely approaches the true plane of competitive swimming as dictated by the freestyle.

Next in the field of strokes, we consider the breaststroke, butterfly, and the completely artificial creation of the individual medley. Since the very spirit of racing claims freedom of movement, these strokes, by nature of the rules and regulations governing them, stand contrary to that principle.

The forms of competitive swimming range from individual races (scratch or handicap) to team events (relays or by additional placings).

Swimming also presents other aspects: besides being the most favorable sport for the young, it is a sport that people can practice a great deal for a long time and still achieve success whether it be in the old method of training (Duke Kahanamoku won Olympic medals in a span of 12 years, Frank de Baurepaire in a span of 16), or in the modern way based on interval training (Dawn Fraser broke her first 100 meter freestyle world record in February, 1956, and in February, 1964 she broke this same world record for the 11th time).

Chapter II

History of Sports Swimming

Competitive swimming has had its "letters of antiquity" in sports history. Swimming races were not featured in the program of the Ancient Olympic Games. Sports swimming was not, however, unknown to the Greeks. The Greek historian Pausanias commented on a swimming competition. Swimming races had taken place in Rome. In the Far East in 36 B.C. during the reign of Emperor Suiji, great competitions took place in Japan.

Japan was the first country to introduce a national sports organization for swimming. An Imperial edict dating from 1603 A.D. made swimming an integral part of the school curriculum and ordered that swimming be encouraged through the organization of inter-school matches. These meets have taken place ever since. Swimming was so much in vogue in Japan at the beginning of the nineteenth century that a three day meet was organized in 1810.

Japanese swimming, however, remained closed, and the spread of competitive swimming on a world wide plane turned out to be the work of the Anglo-Saxon countries. With reference to this, birth of modern sports swimming can be said to have occurred in London about 1837, with the first competitive races organized by a sports society. This society, the National Swimming Association, was directed by John Strachan. However, it was not in England, but in Australia, that the first modern swimming championship was organized. It was held on February 14, 1846 in Sydney, at the Robinson Baths, over 440 yards. The winner, W. Redmond, swam the distance in 8:43.0. It was also in Australia at Saint-Kilda, a suburb of Melbourne, that the first race with an international flavor took place, a so-called 100 yard "world championship" on February 9, 1858. It was won by an Australian — Jo Bennett from Sydney. He beat an Englishman, Charles Stedman.

Competitive swimming really began to get organized in England with the establishment of the first group of clubs in London. By way of

reference, January 7, 1869, must be considered an important historical date. On that day at the German Gymnasium in London, a meeting of London swimming clubs was held, and one of its members, W. Ramsden, suggested the creation of an association composed of the representatives from the London swimming clubs. The aim of this association was mainly to establish rules. Ramsden's motion was adopted, and the first federation of swimming clubs, the Metropolitan Swimming Club Association was born. On February 11, 1869, a month after its founding, the M.S.C.A. defined the term "amateur" and established rules for competition. For the first time in swimming history, a distinction between amateurs and professionals was made. Prior to this they swam together, and no one worried about monetary awards.

Five years later (1874) the London federation became a national federation known as the Swimming Association of Great Britain. This was the first national swimming federation.

The first championship, directed by a federation of clubs was organized in 1869 on the River Thames, over a mile down stream, between Putney Aqueduct and Hammersmith Bridge. It was won by T. Moriss, whose name also merits other mention in swimming annals. At the famous meeting of London clubs at the German Gymnasium, he gave vigorous support to Ramsden and the creation of the club and rules federation.

In 1889 the Erste Wiener Amateur Swim Club of Vienna organized competitions under the title European Championships. Only two events were included: a 60 meters, won by the Austrian Cal von Strass in 56.0, and a 500 meters, won by another Austrian, L. Hanisch. These European championships continued almost annually until 1903 but were not held again in their present form until 1926. In the years around 1900, so called world championship competitions were also organized, while at the same time the first modern Olympic Games — held in Athens in 1896 — were opened to swimmers. Three swimming events held in the bay of Zea near the Piraeus were featured in the program of the Athens Games. The winners were: at 100 meters, an 18 year old Hungarian, Alfred Guttman, known as Hajos, in 1:22.2; at 500 meters, Austrian Paul Newman, in 8:12.6; at 1200 meters, Hajos, his second victory, in 18:22.2. These events were almost unnoticed.

The same holds true for the swimming events of the 1900 Olympic Games in Paris and 1904 in St. Louis. In Paris the events were announced as world championships which at the time attracted more spectators. They were held on the Seine, and the program was more important than in Athens. The winners were: Australian Frederick Lane, (200 meters and 200 meters obstacle); Englishman John Jarvis, (1000 meters and 4000 meters); a German, Ernest Hoppenberg, (200 meter backstroke);

Germany's 5 x 40 meters relay, and the Frenchman Devendeville in the underwater swimming. Since the events were held in a river, times will not be mentioned. To insure the success of the St. Louis Games, the Americans included them in their own championships, which was not unusual of their swimmers since the U.S. Championships had always been open to swimmers from any country. The organizers of the combined freestyle classics merely added the 50 yard freestyle, the 100 yard backstroke, and the 440 yard breaststroke to the program of events.

For the first time (St. Louis, 1904) the Olympic swimming competitions took place in still water, an artificial lake created for the needs of the St. Louis World Fair. The winners were: a Hungarian, Zoltan Halmay, (50 yards in 28.0 and 100 yards in 1:02.8) an American, Charles Daniels, (220 yards in 2:44.2 and 440 yards in 6:16.2); a German, Emil Rausch, (one mile in 27:18.2); the New York Athletic Club in the 4x50 yard relay (2:04.6); a German, Walter Brack, in the 100 yards backstroke (1:16.8); another German, Georg Zacharias, in the 440 yards breaststroke (7:27.6).

As a result of championship competition, record performances were created and recognized. The first official record performance ratified by the Metropolitan Swimming Club Association was Englishman Winston Cole's 1:15.0 in the 100 yard distance in 1871.

The progress of swimming has been judged ever since on the improvement of performances and — even before the 1908 creation of an international body, the F.I.N.A. — best times achieved under certain conditions (swimming pools with still water, non-handicap races) were considered world records. So in October 1902 when the 1900 Olympic champion for 200 meters, Australian Frederick Lane, became the first man to officially swim 100 yards under one minute; a milestone in the history of swimming was marked. It was at Leicester, England, in a 33 1/3 yard pool, that Lane achieved his feat in winning a race in 59.6. (One month earlier, his countryman Richard Cavill had swam 58.6 in London, but this was in a handicap race, and not valid as a record.)

Chapter III

Sports Swimming Becomes Organized

From 1869 – the year of the founding in London of the first federation of clubs – to the first years of the 20th Century was a period of universalization of competitive swimming. During this period competitive swimming not only spread beyond England and Australia but became organized. In the countries where federations were formed, the method of organization followed the pattern of English swimming; the classification of swimmers into amateur and professional as well as the adoption of rules for races.

An important date in swimming history was March 3, 1886. On that date the schism which had started two years previously in the Swimming Association of Great Britain ended when, the Otter Swimming Club (London) had withdrew, followed by nine associations, to form the Amateur Swimming Union. The schism had been brought about by differences of opinion on the definition of the term "amateur". On March 3, 1886, the two groups united to form the Amateur Swimming Association, drawing up an interpretation of amateur (a definition which F.I.N.A. adopted in its broad outlines in 1908 and which is still applied). Its main points are: an amateur cannot compete for money; he must not gain material advantages or benefits from swimming; he loses his amateur status if he competes against a professional; he cannot receive remuneration for teaching or coaching sports; and all members of affiliated clubs must be amateurs.

With the universalization of sports swimming there was the need, of course, for the founding of an international body in order that the organization and regulation of sports swimming on the international level cease being anarchistic. It had been said that the rules regarding races laid down by the oldest of national federations, the N.S.C.A., had influenced the other nations. Nonetheless, unity was lacking. Thus the Olympic Games program varied according to the organizing country. In Athens, Paris, and St. Louis the events had been different so there was no

continuation in the record lists.

In 1908, the universal unity of sports rules was so necessary that the General Secretary of the organizing committee for the Olympic Games in London, J. de Courcy-Laffan, proposed that the English rules, amended if necessary, should be accepted, after scrutiny by the officials of the other countries, as the rules for the Olympic Games. For swimming, the task fell to George Hearn, then president of the English Swimming Association, who was given the responsibility of establishing the Olympic Swimming Code. He undertook this work, assisted by his compatriot William Henry, and American Max Ritter (who became President of F.I.N.A. in 1960), and a Swede, Hjalmar Johansson (who won the Olympic platform diving in 1908). Hearn realized that the task he was entrusted with would go much further than simply establishing common rules for the Olympic Games. It was necessary for the same code to be universally applied on a permanent basis. To achieve this, it was imperative to found an international organization governing swimming. To carry out his plan, Hearn decided to take advantage of the presence of representatives of the nations participating in the Olympic meeting in London. On July 19, 1908 in the salon bar of London's Manchester Hotel, he organized a meeting in which the agenda was the organization of an international body for swimming and establishment of a set of laws. The representatives from 10 nations (Germany, England, Belgium, Denmark, Finland, France, Hungary, Ireland, Wales, and Sweden) were present.

After decisions were made, the capitol saw the creation of the "Fédération Internationale de Natation Amateur" (although founded in London, it was named in French). Meanwhile the three main aims of F.I.N.A. (the official abbreviation for the international federation) were formulated:

- 1: To establish rules for swimming events, rules applicable for all international competitions;
- 2: To keep a list of world records and to verify whether performances put forward as records were established in complying with the ruling. (until May, 1957 performances up to 500 meters were accepted as records, even if they were achieved in regulation pools of less than 50 meters; we will follow all performances mentioned below in pools of less than 50 meters with the letters s.c. that is short course);
- 3: To organize the swimming competitions of the Olympic Games.

The swimming Code of the English federation constitutes the model which served for the establishment of that of F.I.N.A.. The Olympic program retained the events adopted by the English Federation for the Games of 1908. (100 meters freestyle, 400 meters freestyle, 1500 meters freestyle, 100 meters backstroke, 200 meters breaststroke. 4x200 meters

freestyle relay. All of these events were to remain until the 1960 Games. The only one to disappear for the 1964 Olympic Games was the 100 meters backstroke, replaced by the 200 meter backstroke, but the 100 was replaced again for the 1968 Olympic Games. Since the Olympic Games of 1956 the program was increased by the addition of the 200 meters butterfly, and since the 1960 Games by the 4 x 100 meters medley relay (backstroke, breaststroke, butterfly, freestyle). In the 1964 Games the 400 meter individual medley (butterfly, backstroke, breaststroke, freestyle) and the 4 x 100 meter freestyle relay were added. The 400 meter breaststroke figured in the Games of 1912 and 1920. In 1968 the following three events were added to the events: 100 m. breaststroke, 100 m. butterfly, and 200 m. individual medley.

It is very important to notice that F.I.N.A. gained consent from the Olympic Committee to open the 1912 Olympic Games to women. Women's swimming, in comparison to men's activity, was still in its early stages. The first women's national championship organized by a federation was the Scottish championships, over 200 yards, swam at Glasgow in 1892 and won by E. Dobbie in 4:25.0. The first record (that we have discovered) over the classic distance of 100 yards by a woman was that by Australian Annette Kellermann who, in 1902, swam 1:22.0. At the 1912 Games, the women's Olympic program included the 100 meter freestyle and the 4 x 100 meter freestyle relay. It was expanded at the 1920 Games with the addition of the 300 meter freestyle. In the 1924 Games the 100 meter backstroke and the 200 meter breaststroke were added to the women's program. There was no further modification until 1956 when the 100 meter butterfly was added to the Games. In 1960, the 4 x 100 meter medley relay was added, and in 1964, the 400 meter individual medley. In 1968 an even greater expansion took place with the addition of 200 and 800 m. freestyle, 200 m. backstroke, 100 m. breaststroke, 200 m. butterfly, and 200 m. individual medley.

F.I.N.A. determines the conditions under which records are valid. It decided in 1908 that world records could only be achieved over certain distances and in specific strokes. The list includes: freestyle; 100 yds., 100 m. 150 yds., 200 m., 220 yds. 300 yds, 300 m., 400 m. 440 yds., 880 yds., 1000 yds., 1000 m., 1500 m., 1 mile; backstroke; 100 m., 150 yds., 200 m. 400 m.: breaststroke; 100 m., 200 yds., 200 m., 400 m., 500 m. Between 1920 and 1930 the 150 yards was removed from the list of records. The list was increased between 1930 and 1940 by the addition of the 800 meter freestyle, 4 x 100 yard freestyle relay, 4 x 100 meter freestyle, 100 yard backstroke, 100 yard breaststroke, and in the men's division only, the 4 x 200 yard freestyle relay and 4 x 200 meter freestyle relay. In 1946 records for medley relays in three strokes were accepted

(backstroke, breaststroke, freestyle) over distances of 3 x 100 yards and 3 x 100 meters.

From the end of 1948 the following records were no longer recognized: 300 yards freestyle, 300 m. freestyle, 500 yard freestyle, 500 m. freestyle, 1000 yard freestyle, 1000 m. freestyle, 400 m. backstroke, 400 m. breaststroke, and 500 m. breaststroke. Since 1952 records for 150 yard backstroke and 200 yard backstroke and 200 yard breaststroke were no longer recognized. From 1953 the separation of breaststroke and butterfly forced F.I.N.A. to open new record lists for over 100 yards, 100 meters, 200 meters, and 220 yards in each stroke, while records for 300 yard and meter medley relay were withdrawn and replaced by records for relays in the four strokes over the corresponding distances (400 yards, 400 meters). Records for 220 yard backstroke, 400 yard individual medley and 400 meter individual medley were added to the list. From May 1957 old records for 100 yards or multiples of 100 yards as well as the mile record disappeared from the record lists, while the records for the yard distances in the lists were made comparable for a record in meters 110 yards, for 100 meters, 220 yards for 200 meters, etc.)

During the Olympic Period 1964-68 the following list of records was recognized by F.I.N.A.: 100 m. freestyle, 110 yard freestyle, 200 m. freestyle, 220 yard freestyle, 400 m. freestyle, 440 yard freestyle, 800 m. freestyle, 880 yard freestyle, 1500 m. freestyle, 1650 yards freestyle, 100 m. backstroke, 110 yard backstroke, 200 m. backstroke, 220 yard backstroke, 100 m. breaststroke, 110 yard breaststroke, 200 m. breaststroke, 220 yard breaststroke, 100 m. butterfly, 110 yard butterfly, 200 m. butterfly, 220 yard butterfly, 400 m. individual medley, 440 yard individual medley, 4 x 100 m. freestyle relay, 4 x 110 yard freestyle relay, 4 x 100 m. medley relay, and 4 x 110 yard medley relay. All these records were recognized for men and women, while two additional records, the 4 x 200 m. freestyle relay and 4 x 220 yard freestyle, relay were only recognized for men.

The Mexico F.I.N.A. Congress in 1968 decided records in 55 yard pools will no longer be recognized.

The decisions of F.I.N.A. either by choice of events and strokes recognized for the Olympic Games or the list of records, have had a tremendous impact on the evolution of competitive swimming. We have seen a stroke like the side-stroke practically disappear from sprints or middle distance competitions (it is still used in marathon swimming) because F.I.N.A. did not make legislation for this stroke as it did for the backstroke, breaststroke, and later the butterfly.

The fact that swimming records are not recognized over distances less than 100 meters (which, in swimming, is already a distance involving a

sustained sprint) and distances of over 1500 meters (which is still middle-distance), means that "pure" sprinting and long distance swimming remain neglected.

The F.I.N.A., which was founded in July, 1908, with 10 federations (two of which represented Great Britain), now has (97 countries (as of 1968). In fact, apart from a few exceptions of which the most noticeable is China, most national swimming organizations are affiliated with F.I.N.A.

AMERICA SWIMS INTO SUPREMACY

At the Olympic Games in London (the 1908, Games first organized in a pool specially constructed for swimming events), Great Britain dominated. Its representatives won the 400 meter freestyle (Henry Taylor in 5:36.8), 1500 meter freestyle (Taylor in 22:48.4), the 200 meter breaststroke (Fredrick Holman in 3:09.2), and 4 x 200 meter freestyle relay in 10:55.6. The only events the British failed to win were the 100 meter freestyle, which went to the American Charles Daniels in 1:05.6, and the 100 meter backstroke where the victor was the German Arno Bieberstein in 1:24.6.

Four years later at the Stockholm Olympic Games Pool, constructed near the harbor, titles were more equally distributed. The Americans retained the 100 meter title, won by Duke Kahanamoku in 1:03.4. Canadian George Hodgson achieved a double in winning the 400 meter freestyle (5:24.4) and 1500 meter freestyle (22:00.0). The 100 meter backstroke was won by an American, Harry Hebner (1:21.2), while the German Walter Bathe triumphed in both breaststroke events (200 meters in 3:01.8, 400 meters in 6:29.6). The 4 x 200 meter freestyle relay was a success for Australasia (a combination of Australia and New Zealand) in 10:11.6. The Australian Fanny Durack entered the women's world record list in the 100 meter freestyle, winning the final in 1:22.2 after setting a new world record of 1:19.8 in the preliminaries. Great Britain won the women's 4 x 100 meter freestyle relay (5:52.8).

From the 1912 through the 1920 Games, Duke Kahanamoku and Fanny Durack maintained their supremacy in the sprints. In 1915 in Sydney, Fanny Durack lowered her record to 1:16.2. Fanny also achieved a feat which has remained remarkable — she held the world record for the shortest distance (100 yards) and the longest (1 mile).

It was also during the 1912 Olympiad period that for the first time the three minute barrier was broken for the 200 meter breaststroke. The swimmer who achieved this outstanding feat was the Britisher Percy Courtmann. In July, 1914, he swam the distance in 2:56.6 (S.C.)

During this Olympic period (1913) the first Far Eastern Games took place at Manila which, after a long break (1935 — 1950), were designated the Asiatic Games. In these Games swimming had a large following, thanks mainly to the Japanese men swimmers performances.

Owing to the Great War, the Olympic Games scheduled for 1916 were not held, and there were few performances during the years 1916-1920. Most records were notched by the Americans, who did not join the world conflict until 1917. Records to be noted: 2:21.6 (S.C.) in the 220 yard freestyle by Norman Ross, and 53.0 for the 100 yard freestyle (equivalent to less than a minute for 100 meter freestyle) accomplished over a straight course by Duke Kahanamoku in 1917.

The 1920 Olympic Games in Antwerp (Germany was excluded as a result of the war) marked the great recovery of sports swimming. With the exception of the two breaststroke races (won by a Swede, Haken Malmroth, 3:04.4 at 200 meters, and 400 meters in 6:31.8), the Games were a triumph for the Americans who won all other events: the 100 meter freestyle, in which Duke Kahanamoku achieved the feat of retaining the title he had won eight years before at Stockholm; the 400 meter and 1500 meter freestyle by Norman Ross, 5:26.8 and 22:23.2 respectively; 100 meter backstroke by Warren Kealoha in 1:15.2, and the 4 x 200 meter freestyle relay in 10:04.4. Esthelda Bleibtrey won both women's freestyle events: 100 meters in 1:13.6, 300 meters in 4:34.0; while the American women team won the 4 x 100 meter freestyle relay in 5:11.6. One incident, unique in Olympic history, occurred during the final of the men's 100 meter freestyle. It had been won in 1:00.4 by Duke Kahanamoku. The winner's time became a new world record; however, although the record was ratified, the final had to be swum again. The Australian, Herald, who came in fourth, had lodged a protest against third place winner Norman Ross, who had impeded him. At that time there were no lane dividers in the pool, so the rules provided for just such a situation. The jury, of the opinion that Ross had in fact jeopardized Herald's chances of gaining a medal, ordered the race to be swum over, the victor again being Kahanamoku in 1:01.4.

The Olympiad Period 1920-1924 was featured by achievements which marked an epoch. Twenty years after the Australian Fredrick Lane lowered the best times for 100 yards to less than a minute, the American John Weissmuller also swam under a minute, but this time over 100 meters. At Alameda, in July 1922, he clocked 58.6. In March, 1923, the 400 meter freestyle was clocked under five minutes. It was also Weissmuller who achieved this feat, covering 440 yards (S.C.) in 4:57.0 at New Haven.

The 1924 Olympiad took place in Paris. For the first time the Games

were held in a stadium constructed specifically for swimming and was divided into lanes, separated by floating markers. For the first time the pool measured 50 meters, which is more normal for conducting good meets than courses of 100 meters, the length of the pools at London, Stockholm, and Antwerp. On these three points (swimming stadia, lane dividers, 50 meter pools) the 1924 Olympic Games set a pattern to be applied at all subsequent Games.

The American John Weissmuller was the standout of the 1924 Games. He won the 100 meter freestyle in 59.0 and 400 meters in 5:04.2. The 1500 meters fell to a 16 year old Australian boy, Andrew Charlton, in 20:06.6, a new world record. The American Warren Keāloha won the 100 meter backstroke in 1:13.2, retaining his title. There was also an American conquest in the 200 meter breaststroke with Robert Skelton the victor in 2:56.6. In the 4 x 200 meter freestyle relay, the USA won again, in 9:53.4. In the women's section the American Ethel Lackie won the 100 meter freestyle title in 1:12.4, topping her compatriot Mariechen Wehselau, who had broken the world record in the heats with a time of 1:12.2. Ethel Lackie, like Weissmuller, was a pupil of William Bachrach, coach of the Illinois Athletic Club in Chicago. It was the first time in the history of the Olympics that the victors in both men's and women's 100 meter freestyle had the same coach, a feat not repeated until 1956. The 400 meter freestyle resulted in another American victory, with 15 year old Martha Norelius winning in 6:02.2. The American women retained the 4 x 100 meter freestyle relay title clocking 4:58.8. Sybil Bauer opened the Olympic title winner list in the 100 meter backstroke, winning in 1:23.2, and Lucy Morton, an English girl, was victorious in the 200 meter breaststroke in 3:33.2. In this event the Dutch girl Marie Baron, disqualified in the preliminaries for a turn, had been timed in 3:22.6.

During the Olympic Period 1924-1928, there was an abundance of good performances. The American John Weissmuller and the Swede Arne Borg were the top record breakers. Weissmuller lowered the world record for 100 yards to 51.0 (S.C.), a performance which stood for 16 years in the record book. He also became the first man to swim 200 meters under 2:10.0, clocking 2:08.0 (S.C.). Finally he lowered the world record for 440 yards to 4:52.0. In the middle distance field the feats of Arne Borg attracted the most attention.

Under the drive of the Hungarian organizing official Leo Donath, the F.I.N.A. decided to organize European Championships to give impetus to European swimming. The championships first took place in Budapest in 1926 and were marked by the reinstatement of Germany to world swimming. In the next championships, held in Bologna in 1927, Borg achieved the feat of winning three European freestyle titles: 100 meters in

1:00.0, 400 meters in 5:08.6, and 1500 meters in 19:07.2, a clocking which shattered his own year old world record by a margin of 57.2 seconds and one which was destined to remain in the record book for almost 11 years. We cannot leave these European championships of 1927 without making reference to the swimming stadium in Bologna. The "Stadio Littorale", where the races were held, was constructed for swimming competitions with deep water throughout. On this point it represented a model precedent for swimming stadia.

In the Olympic Period 1924-1928, the American George Kojac became the first swimmer to break 1:10.0 in the 100 meter backstroke. In Detroit he improved the world record to 1:09.0, while the German Erich Rademacher was the first swimmer to break the 2:50.0 barrier in the 200 meter breaststroke. In Brussels he swam the distance in 2:48.0 (S.C.). In the women's division the American Ethel Lackie lowered the record for 100 meter freestyle to 1:10.0 (S.C.), while the American Martha Norelius was the first woman to better 5:50.0 in the 400 meter freestyle. She clocked 5:49.6 in New York.

American supremacy was maintained at the Amsterdam Olympic Games in 1928. In the men's events the Americans won the 100 meter freestyle with Weissmuller (58.6) retaining the title he had won in Paris; the 4 x 200 meter freestyle relay in 9:36.2, and the 100 meter backstroke with George Kojac, who broke the world record in 1:08.2. However, they failed to win the 400 meter freestyle, won for Argentina by Alberto Zorilla (who trained in New York) in 5:01.6; the 1500 meter freestyle, won in 19:51.8 by the Swede Arne Borg; and the 200 meter breaststroke, 2:48.8, won by the Japanese Yoshiyuki Tsuruta. In women's swimming, the Americans triumphed in the three freestyle events: the 100 meters, won by Albina Osipowich in 1:11.0; the 400 meters by Martha Norelius, who renewed her Paris Games success and improved her world record to 5:42.8; and the 4 x 100 meter freestyle relay in 4:47.6. The backstroke and breaststroke races went to Europeans. The backstroke was won by the Dutch girl Marie Braun in 1:22.0, after she had lowered the world record in the heats to 1:21.6. The breaststroke was won by the German Hilde Schrader in 3:12.6, despite some difficulty with her bathing suit (the button from one of the shoulder straps fell off as she dove at the start, a serious handicap for her during the entire race).

THE JAPANESE REIGN

At the Olympic Games in Amsterdam a Japanese breastroker, Yoshiyuki Tsuruta, caused a surprise by beating the favorite, the German Erich Rademacher. The gold medal he won was the first to be gained by a

Japanese swimmer, but it was not the only Japanese medal. Beaten by the American John Weissmuller and the Hungarian Istvan Barany, the Japanese Katsuo Takaishi won the bronze medal for 100 meter freestyle, while in the 4 x 200 freestyle relay the Japanese yielded only to the Americans by a relatively small margin of 5.2 seconds.

Four years later for the first time since 1904, the Olympic Games took place in the U.S.A., at the Swimming Stadium in Los Angeles. These 1932 Games marked the end, on the Olympic plane, of world supremacy American swimmers, maintained since the 1920 Olympic Games. This defeat of the American swimmers did not constitute a surprise since the year preceding the Olympics the Japanese had triumphed over the Americans at inauguration ceremonies of a swimming stadium in Meiji Park, Tokyo. This Japanese-American meeting, which took place in 1931 for the first time, was held with one meeting every four years, traditionally in Tokyo during the summer preceding the Olympics, until 1963, the last meeting. The many meetings were marked by great records. This same 1928-1932 Period saw (in 1929) the first swimming championships of South America and (in 1930) the first Commonwealth Games in which swimming was a major sport.

At the Los Angeles Games, the Japanese carried off all the men's titles with one exception — the 400 meter freestyle, won by the American Clarence (Buster) Crabbe (4:48.4), just ahead of the Frenchman Jean Paris (4:48.5), who the year before achieved the great feat of the Olympiad 1928-1932, when, in Paris, he had become the first swimmer to break 4:50.0 for 400 meters (he improved the world record to 4:47.0 S.C.). The Japanese victors were: in the 100 meter freestyle, (16-year-old) Yasugi Miyazaki (58.2), the youngest champion ever in the Olympic sprints; in the 1500 meter, Kusuo Kitamura (19:12.4), who at 14 and a half was the youngest champion ever in any Olympic swimming event; in the 100 meter backstroke, Masaji Kiyokawa (1:08.6); in the 200 meter breaststroke, Yoshiyuki Tsuruta (2:45.4), retaining his Olympic title won in Amsterdam, and the 4 x 200 meter freestyle relay easily won by the Japanese by 12.1 seconds over the Americans. The Japanese performance (8:58.4) opened the official world record lists for relays, and the Japanese well deserved it since their time was the best ever achieved.

In women's swimming, the Olympiad 1928-1932 was marked by the exploits of a 17-year-old American girl, Helene Madison, who, in July, 1931 became world record holder in all freestyle distances. The first great result during the Olympic Period was, however, by another American, Eleanor Baratti, who, in August, 1931, in a 55-yard pool, was the first woman to break 1:10.0 for the 100 meter freestyle clocking 1:09.8. This record was bettered during the period by Helene Madison to 1:06.6 (S.C.)

and later in Seattle (S.C.) she lowered the world records for 400 meters and 440 yards to 5:31.0.

American girls dominated the Los Angeles Olympic Games: Helene Madison won the two freestyle events (the 100 meters in 1:06.8 and the 400 meters in 5:28.5, a new world record), while Eleanor Holm won the 100 meter backstroke in 1:19.4. There was also an American victory in the 4 x 100 meter freestyle relay in 4:38.0 (a time which officially inaugurated the world record, and was the best time ever achieved to that day). Only one event escaped the Americans, the 200 meter breaststroke, won in 3:06.3 by the Australian Claire Dennis.

The Olympic Period 1932-1936 was marked in men's swimming by great achievements: the American Peter Fick broke John Weissmuller's 10 year old world 100 meter freestyle record in 1934 with a mark of 56.8 (S.C.) and improved it further during this period to 56.4 (S.C.). Another American, Jack Medica, became the first swimmer to go under 4:40.0 in the 400 meter freestyle. In 1933 he recorded 4:38.7 (S.C.) over 440 yards. In the backstroke American Adolph Kiefer lowered the record for 100 meters to 1:04.8 (S.C.). In the breaststroke, Frenchman Jacques Cartonnet was the first swimmer to break 2:40.0 for the 200 meters, churning a 2:39.6 in Paris in 1935 (S.C.). In 1935, the first world record in breaststroke was broken by a swimmer using butterfly. America's John Higgins did the trick at 100 meters in 1:10.8.

At the 1936 Olympic Games in Berlin, the Hungarian Ferenc Csik won the 100 meter freestyle (57.6); American Jack Medica, the 400 meter freestyle (4:44.5); Japan's Noboru Terada, 1500 meter freestyle (19:13.7); American Adolph Kiefer, 100 meter backstroke (1:05.9), and Japanese Tetsuo Hamuro, 200 meter breaststroke (2:42.5). The Japanese again proved themselves strongest in the 4 x 200 meter freestyle relay where they triumphed by 11.5 seconds over the Americans and achieved a new world record (8:51.5).

In women's swimming, the Olympic Period 1932 — 1936 was marked by the great records of the Dutch Girl Willie den Ouden. In February, 1936 she achieved her greatest feat, recording 1:04.6 (S.C.) in the 100 meter freestyle, a world record which, but for a few days, stood for 20 years. The Berlin Olympic Games maintained the supremacy acquired between the Olympiads by the Dutch. With the sole exception of the 200 meter breaststroke, won by the Japanese Hideko Mayehata (3:03.6), they carried off all the titles: the 100 meter (1:05.9) and the 400 meter freestyles (5:26.4) by Hendrika Mastenbroek; the 100 meter backstroke by Nida Senff (1:18.9), and the 4 x 100 meter freestyle relay in 4:36.0.

The Olympic Games were not held in 1940 and 1944 because of the Second World War. During the period 1936-1940 the best achievements

were, in the freestyle, by the Japanese Amano, the first swimmer to better 19:00.0 in the 1500 meter freestyle (in 1938, in Tokyo, he broke the Swede Arne Borg's 10 year old record clocking 18:58.8), and by the Danish girl Ragnhild Hveger, who established herself in 1937 as the best female swimmer in the world over all distances (in 1939, she held every freestyle record for women with the exception of the 100 meters, her best swim being 400 meters in 5:00.1 (S.C.) achieved in 1940 and which stood until 1956). In the backstroke the Dutch girl, Cor Kint, shaved the world 100 meter (S.C.) time to (1:10.9) (a standard which stood until 1959 short course and until 1960 long course). In the breaststroke the Dutch Jopie Waalberg, swam the 200 meters in 2:58.0 (S.C.) in June, 1937.

For the period 1941-1944 particularly noteworthy performances were achieved by the American Alan Ford, the first swimmer to break 50.0 for 100 yards (in 1944, he swam 49.7, S.C.) and 56.0 for the 100 meters (he swam 55.9 (S.C.) also in 1944), and by the Danish girl Ragnhild Hveger (20:57.0 for 1500 meters in 1941).

A HARVEST OF PERFORMANCES MARK THE RESUMPTION OF SWIMMING

With the end of war hostilities, swimming resumed on a world wide scale in 1946. The most striking records of the first two years were by the Frenchman Alex Jany who, in sea water, improved the world 200 meter freestyle record to 2:05.4 (S.C.), and in 1947 during the European Championships lowered the world record for 400 meters to 4:35.2. During these same championships Jany achieved a time which proved more sensational than his previous records, as he swam the 100 meter freestyle in 56.2, an amazing achievement for a long course performance. A few days after the European Championships, Jany broke the American Ford's 100 meter freestyle world record in clocking 55.8 (S.C.) at Mentom in salt water.

The 1948 Olympic Games were held in London without the Japanese and Germans who had been barred by the Olympic Committee and F.I.N.A. as a result of the war. The Americans were the great victors of the London Games. They won the 100 meter freestyle with Walter Ris (57.3); the 400 meter with Bill Smith (4:41.0); the 1500 meter with Jimmy McLane (19:18.5); the 100 meter backstroke with Allan Stack (1:06.4); the 200 meter breaststroke, won by Joe Verdeur in 2:39.3 using the butterfly; and a world record in the 4 x 200 meter freestyle relay in 8:46.0. However, the U.S.A. was unable to assert complete supremacy in the men's swimming as will be seen. At the very time the Games were held, the Japanese were holding their national championships in Tokyo. It was

there Hironoshin Furuhashi achieved freestyle times of 4:33.0 in the 400 meters and 18:37.0 in the 1500 meters, both performances improving the official records of F.I.N.A. — records which the Japanese could not claim at that time — and easily surpassed the times of the Olympic champions. In the women's Olympic events, the titles were well divided. The Danes won the 100 meter freestyle with Greta Andersen (1:06.3), and the 100 meter backstroke, with Karen Harup (1:14.4). The Americans triumphed in the 400 meter freestyle, Ann Curtis winning in 5:17.8, and the 4 x 100 meter freestyle relay (4:29.2). The Dutch gained victory in the 200 meter breaststroke (2:57.2), taken by Nelly van Vliet.

Soon after the beginning of the 1948-1952 Olympic Period the Japanese and Germans were reinstated by F.I.N.A., and in the summer of 1949 Japan marked its return to international swimming with dazzling success. Invited to the U.S.A. Championships in Los Angeles, the Tokyo Swimming Club reduced the world 4 x 200 meter freestyle record to 8:45.4, while its best swimmer, Hironoshin Furuhashi, broke world records at 800 meters (9:35.5), 1500 meters (18:19.0), and recorded 4:33.3 at 400 meters to become the official world record holder in that event too.

The Australian John Marshall was the great star of 1950-1951 when he was a student in the U.S.A. at Yale University. He set 19 world records, including the 400 meter freestyle in 4:26.7 (S.C.). In the women's class, the Dutch swimmer Geertje Wielema in 1950 reduced the world 200 meter backstroke record to 2:35.3 (S.C.), while the Hungarian Eva Novak improved the world record for 200 meter breaststroke to 2:48.5 (S.C.) in 1951. This period 1948-1952 saw (in 1951) the first Pan American Games, organized in Buenos Aires. Swimming naturally occupied a high place in the festivities.

The Olympic Games in Helsinki saw the American men take most of the titles, despite the renewed opposition of the Japanese. Winning gold medals for the U.S.A. were Clarke Scholes, 100 meter freestyle (57.4); Ford Konno, 1500 meters (18:30.0); Yoshinobu Oyakawa, 100 meter backstroke (1:05.4), and the 4 x 200 meter relay team, 8:31.1. Although the Japanese gained several medals, they failed to win any gold medals. The two victories which escaped the Americans were in the 400 meter freestyle, won by a Frenchman, Jean Boiteux (4:30.7), and the 200 meter breaststroke, won by an Australian (a student in the U.S.A.), John Davies, who, using a butterfly technique, triumphed in 2:34.4. In the women's events the Hungarians won everything except the 100 meter backstroke in which South Africa's Joan Harrison placed first in 1:14.3. Hungary captured the 100 meter freestyle with Catalin Szoke (1:06.8); 400 meter freestyle with Valeria Gyenge (5:12.1); 200 meter breaststroke, won in

2:51.7 by Eva Novak Szekely with a butterfly: and the 4 x 100 meter freestyle relay, in the new world record time of 4:24.4.

THE AUSTRALIAN DOMINANCE

At the Olympic Games in Helsinki, Australian swimming was considerably below world class despite the success of butterfly star John Davies. Now the Olympic Period 1952-1956 was to be marked by an extraordinary rise in Australian swimming which saw the Aussies in the 1956 Olympic Games at Melbourne win all the men's and women's freestyle titles, a feat achieved only once before (at the 1920 Antwerp Games by the Americans). Australian supremacy was such in the 1956 Games that in the main event, the 100 meter freestyle, three Australians gained medals in both the men's and women's events.

Australian supremacy was not asserted however, until the early months of 1956. At the start of the Olympiad Jon Hendricks, the future Olympic Games champion at Melbourne, began to make progress on the world scene. Until 1956 he was a star in isolation, and the most noteworthy feat in the first years of the Olympiad was the new 100 meter freestyle record, 54.8 (S.C.), by the American Richard Cleveland in 1954. Starring with him on the world record horizon between 1953 and 1955 were the American Ford Konno (400 meter freestyle in 4:26.7 S.C.); the Britisher Jack Wardrop (220 yard freestyle in 2:03.4 S.C.); the Frenchman Gilbert Bozon (100 meter backstroke in 1:02.1 S.C.); and the Japanese Nasaru Furukawa (200 meter breaststroke in 2:31.0 S.C.).

If, at the beginning of 1956 the Australian hour was approaching, besides Jon Hendricks there was Murray Rose asserting his position, while the Australian girls Dawn Fraser and Lorraine Crapp shattered world freestyle records. Prior to the Melbourne Olympics Miss Crapp improved the 100 meter freestyle record to 1:02.4 and the 400 meters to 4:47.2.

At the Olympic Games in 1956, the Australians won the 100 meter freestyle by Jon Hendricks (55.4); the 400 meter (4:27.3) and 1500 meter (17:58.9) by Murray Rose: 4 x 200 meter freestyle in 8:23.6, (a new world record), and the 100 meter backstroke (1:02.2) by David Theile. Nasaru Furukawa won the 200 meter breaststroke for Japan (2:34.7), and the American William Yorzyk triumphed in the 200 meter butterfly (2:19.3).

In the women's events, Australia won the 100 meter freestyle, Dawn Fraser (1:02.0, a world record); 400 meter freestyle, Lorraine Crapp (4:54.6), and the 4 x 100 meter freestyle relay (4:17.1, a new world record). The 100 meter backstroke went to the British girl Judy Grinham (1:12.9), the 200 meter breaststroke to German Ursula Happe (2:53.1),

and the 100 meter butterfly to the American Shelley Mann (1:11.0). In Melbourne the 100 meter freestyle Olympic men's and women's champions had the same coach, Harry Gallagher, a phenomenon which has occurred but twice in the history of the Games.

The Olympic Period 1956-1960 got under way with an amazing performance by Australian John Devitt, who lowered the world 100 meter freestyle record to 54.6 in January, 1957, bettering the short course world record held by the American Richard Cleveland since 1954. From May 1, 1957, when F.I.N.A. decreed that world records were to be recognized only in pools of 50 meters or 55 yards, records up to 500 meters made in short course pools were no longer valid, and only long course records stood. The greatest achievements of the period, beside Devitt's, — were in the freestyle by Australian Jon Konrads, who lowered freestyle world records for 400 meters and 440 yards to 4:15.9 (salt water) in 1960, and for 1500 meters and 1650 yards to 17:11.0 (and who twice achieved the distinction of being world record holder for all freestyle distances except 100 meters and 110 yards), and by the Japanese Tsuyoshi Yamanaka, who lowered the world 200 meter freestyle record to 2:01.5. Australian John Monckton reduced the world records for 100 meters and 110 yards backstroke to 1:01.5.

Dawn Fraser was the queen of the period in women's swimming. Early in 1960 she improved her world records for 100 meters and 110 yards freestyle to 1:00.2 (salt water), and for the 200 meters and 220 yards to 2:11.6 (salt water). Over the 400 meters and 440 yards distances Ilsa Konrads, Jon's sister, set new standards with a 4:45.4, and in August the American Chris von Saltza lowered the 400 meters time to 4:44.5. In the backstroke in August, 1960, American Lynn Burke, became the first swimmer to break the 1:10.0 barrier for 100 meters, clocking 1:09.2. In the breaststroke, in which from May, 1957, swimming underwater was limited to one arm pull and one leg kick after the start and after each turn, the West German Wilturd Urselmann lowered the world 200 meters time early in 1960 to 2:50.2, and the East German Karin Beyer reduced the 100 meter time to 1:19.6.

At the 1960 Olympic Games in Rome the Australian men won all the individual freestyle titles. John Devitt won the 100 meters in 55.2; Murray Rose retained his 400 meter crown (4:18.3); and Jon Konrads triumphed in the 1500 meter (17:19.6). Although the Australian 4 x 200 meter freestyle relay team included its three individual winners, it still could not prevent the Americans from carrying off the title (8:10.2, a new world record), and wound up third behind the Japanese. In the 100 meter backstroke, the Australian David Theile, the Olympic titlist in 1956 at Melbourne, won again, this time in 1:01.9. The Americans won the 200

meter breaststroke, Bill Mulliken (2:37.4); the 200 meter butterfly, Michael Troy (2:12.8, a new world record); and the 4 x 100 meter medley relay (4:05.4, world record).

In women's swimming only two titles escaped the Americans, while regaining world dominance. The 100 meter freestyle was easily won by Australian Dawn Fraser (1:01.2), who retained the title she had won in Melbourne in 1956. The 200 meter breaststroke resulted in a world record for Britain's Anita Lonsborough, in 2:49.5. There were five American victories: the 400 meter freestyle, won by Chris von Saltza (4:50.6); the 100 meter backstroke, won by Lynn Burke (1:09.3); the 100 meter butterfly, won by Carolyn Schuler (1:09.5); the 4 x 100 meter freestyle relay (4:08.9, a world record); and the 4 x 100 meter medley relay (4:41.1, a world record), in which Lynn Burke broke the 100 meter backstroke world record with her split time of 1:09.0.

TOKYO: AMERICA AGAIN MOVES FORWARD

The Olympic Period 1960-1964 witnessed the breaking of all metric records except one. The only record to withstand assault was the women's 200 meter freestyle mark held by Dawn Fraser. In the star event (100 meter freestyle) the record was improved by the American Steve Clark to 54.4 (1961); and later that year in Rio de Janeiro by the Brazilian Manuel Dos Santos in a salt water attempt to break the 54.0 seconds barrier, with 53.6.

In women's swimming, in October, 1962, Dawn Fraser attained the goal she had set for herself six years previously, where she broke one minute in the 100 meter freestyle. She lowered her own world records (100 meters - 110 yards) to 59.9. The following month in Perth at the Commonwealth Games she reduced them to 59.5, and in February, 1964, in Sydney she swam the 100 meter freestyle in 58.9 (mixed water). Many other brilliant performances also require mention, such as the American Don Schollander's 1:57.6 for 200 meter and 4:12.7 for 400 meter freestyle; Australian Murray Rose's 8:51.5 for 800 meters; the American Roy Saari's 16:58.7 for 1500 meters freestyle; the American Thompson Mann's 1:00.0 for 100 meter backstroke; American Tom Stock's 2:10.9 in the 200 meter backstroke; Russian Georgi Prokopenko's 1:06.9 in the 100 meter breaststroke; American Chet Jastremski's 2:28.2 for 200 meter breaststroke; Argentinian Luis Nicolao's 57.0 for 100 meter butterfly - in mixed water, in a record attempt; Australian Kevin Berry's 2:06.9 for 200 meter butterfly (in mixed water); and American Dick Roth's 4:48.6 in the 400 meter individual medley.

In women's swimming the following world records were posted: 4:39.5

for 400 meter freestyle by Marilyn Ramenofsky; 9:36.9 for 800 meters, by Sharon Finneran; 18:30.5 for 1500 meters by Patty Caretto (13 years old); 1:08.3 for 100 meter backstroke by Ginnie Duenkel; 2:27.4 for 200 meter backstroke by Cathy Ferguson; 5:14.9 for 400 meter individual medley by Donna de Varona; 2:26.4 for 200 meter butterfly by Sharon Stouder (all Americans); 1:17.2 for 100 meter breaststroke by Svetlana Babanina; 2:45.4 for 200 meter breaststroke by Galina Prozumenschikova (both U.S.S.R.), and 1:05.1 for 100 meter butterfly by the Dutch girl Ada Kok (in salt water over 110 yards).

The Tokyo Olympic Games (October, 1964) were on the whole a triumph for the Americans, who, in men's swimming, were victorious in the three relay events (the 4 x 100 meter freestyle in 3:33.2, the 4 x 200 meter freestyle in 7:52.1, and the 4 x 100 medley relay in 3:58.4), all breaking the world record. In these relays Steve Clark, lead-off man in the 4 x 100 meter freestyle, equaled the world 100 meter freestyle record (52.9), and Thompson Mann achieved the historic feat of being the first backstroker to better a minute for 100 meters (59.6). An excellent achievement in the relays, but not a record, was accomplished by Don Schollander. In anchoring the 4 x 200 meter freestyle relay, he churned the distance in 1:55.6. Four individual titles were won by the Americans: the 100 meter and 400 meter freestyle by Don Schollander in 53.4 and 4:12.2 respectively, the latter time a new world record; the 200 meter backstroke by Jed Graef (2:10.3, a world record), and the 400 meter individual medley by Dick Roth (4:45.4, a world record).

Australia gained victories in the three events which America failed to win: the 1500 meters, won by Robert Windle in 17:01.7 (to hold off a powerful finish by a 16-year-old American, John Nelson in 17:03.1); the 200 meter breaststroke, won by Ian O'Brien in 2:27.8 (a world record), and the 200 meter butterfly, in which Kevin Berry triumphed in 2:06.6 (a world record).

The women's competitions revealed the overall superiority of the Americans, who won both relays (4 x 100 meter freestyle in 4:03.8, and the 4 x 100 medley in 4:33.9, both world records) and won four out of six individual titles: the 400 meter freestyle, Ginnie Duenkel (4:43.3); the 100 meter backstroke, Cathy Ferguson (in the world record time of 1:07.7) beating the French girl Christine Caron, 1:07.9, and Ginnie Duenkel, 1:08.0, in the last few meters; the 100 meter butterfly, Sharon Stouder (1:04.7, a world record), and the 400 meter individual medley, Donna de Varona (5:18.7).

They failed to win the 100 meter freestyle won by Australian Dawn Fraser who achieved a unique result in Olympic swimming history (by winning the same event at three successive Games.) It is noteworthy to add

that if the Games of 1916 had taken place, Duke Kahanamoku, the Olympic champion in 1912 and 1920, would most certainly have also achieved the triple. The most important race of the 1964 Games was the 100 meter freestyle. Dawn Fraser won in 59.5, ahead of the 15-year-old American Sharon Stouder, 59.9 (the second female swimmer to break a minute). The Americans also failed to win the 200 meter breaststroke, in which the Russian girl Galina Prozumenschikova was victorious (2:46.4). Lastly must be emphasized a great performance set in the 4 x 100 meter medley relay by breaststroker Svetlana Babanina who covered her 100 meters in 1:15.2, a time far superior to her world record but which couldn't be recognized because of the flying start.

MEXICO: THE USA RETAINS ITS LEAD

The Olympic period 1964-1968 saw all the world records for metric distances fall. The only time remaining being Dawn Fraser's 100 m. freestyle record. It should be pointed out that since 1965, freestyle swimmers do not have to touch the ends of the pool with their hands while turning, but only need to touch the wall with any part of their body. The advantage that this has produced can be estimated in roughly 4 or 5/10 per turn.

Among the men, the 100 m. free record was lowered in 1967 by the American Ken Walsh to 52.6, a performance which was equalled in 1968 by Zac Zorn, also from the U.S. At 200 m. free, Schollander brought the time to a 1:54.3. At the 400 m. free, seven swimmers bettered the world record, the Frenchman Alain Mosconi, at Monaco, in salt water, was the first to better 4:10 (4:09.2 in 1967). The record, at the end of 1968 belonged to the Canadian Ralph Hutton with 4:06.5. The Soviet Belitz-Geiman, the Australian Bennett, the Frenchmen Mosconi and Luyce had all bettered the listed 800 m. free record and at the end of 1968 the American Mike Burton had the WR with an 8:34.3 made during the 1500 m. world record swim (16:08.5). The improvement in this event was particularly spectacular, during the previous four years (50.2 seconds).

In backstroke, the East German, Roland Matthes brought the records to new peaks with (58.4 for the 100 in 1967 and 2:07.9 for the 200 in 1967). The breaststroke records were taken by the Soviet swimmers, the 100 m. to a 1:06.2 by Nikolai Pankin, and the 200 m. to 2:27.4 by Vladimir Kossinsky, both times in 1968. This last time is technically slower than the 220 yard record set by the Australian Olympic Champion, Ian O'Brien, with a 2:28.0, at the 1966 Commonwealth Games. In butterfly, the American, Mark Spitz, was the first swimmer to better 56.0 for the 100 and 2:06 for the 200 m. He dropped the records to 55.6

(1968) in the 100 and 2:05.7 (1967) in the 200. In the individual medley, the 400 m. record was bettered by five swimmers with the American Charles Hickcox, holding the record at 4:39.0 at the end of 1968. The new event, 200 m. individual medley, had as its first record holder, the American Greg Buckingham (2:12.4 in 1966) and was improved to a 2:10.6 in 1968 by Hickcox. The relay records also fell: the 4 x 100 free relay was bettered to a 3:32.5 by the U.S.A., the 4 x 100 medley relay to a 3:56.5 by East Germany and meanwhile the Santa Clara Swim Club equalled the world record for the 4 x 200 free held since the Tokyo Olympics with a 7:52.1 by the U.S.A.

Among the women, seven swimmers bettered the 200 m. free record, the American Pam Kruse, in 1967 was the first girl to swim under 2:10, clocking 2:09.7. After the 1968 Olympics, the record was held by the U.S.A.'s Deborah Meyer with a 2:06.7. Over 400 meters, 800 m. and 1500 m. the records improved in spectacular manner, currently in possession of Debbie Meyer at 4:24.5, 9:10.4 and 17:31.2, respectively. In backstroke, the South African, Ann Fairlie did 1:07.4 in 1966, the Canadian Elaine Tanner 1:07.1 in 1967, and then the South African Karen Muir 1:06.4 in 1968 bettered the 100 m. record in succession. Over 200 meters, Karen Muir brought the record to a 2:23.8, but her 220 yard record set at Kimberley in 1968 of 2:24.1 at altitude, can be considered of greater value. In breaststroke, at 100 m. the Soviet swimmer, Svetlana Babanina did 1:16.5 in 1966, during the course of the same year her fellow countrywoman Galina Prozumenschikova bettered 1:16 for the first time with a 1:15.7; but during 1968, the U.S.A.'s Catherine Ball, brought the time to a new record with a 1:14.2. At 200 m. a 13 year-old Soviet swimmer, set a world record with a 2:43.0 in 1966, later that year Galina Prozumenschikova achieved a 2:40.8. In 1967 the U.S.A.'s Catherine Ball was the first girl to better 2:40 with a 2:39.5 and in 1968 she bettered that with 2:38.5. In butterfly, at Budapest in 1965, the Dutch swimmer Ada Kok did a 1:04.5 and in 1967 at Blackpool, in salt water, she bettered the 200 m. over a 220 yard distance with 2:21.0. In the individual medley Claudia Kolb did 2:23.5 for the 200 and 5:04.7 for the 400 m. In the relays, a feat by the Santa Clara Swim Club who in July of 1968 did 4:01.0 (an average of less than 1:00.3 per swimmer) and the U.S. National Team in September 1968 at altitude achieved a 4:28.1 over the medley relay.

The Olympic Games of Mexico were (just like the ones at Tokyo) evidence of the superiority of the Americans, who won all the relay events, without first being seriously challenged except by Australia in the men's 800 m. free and the women's medley. World records were set in events which required not more than a minute of individual effort, these were in

the men's 100 free with a 52.2 by the Australian Michael Wenden, in the 100 m. back, where Roland Matthes did a 58.0, the 4 x 100 free relay by the U.S.A. with time of 3:31.7, an average of 52.9 per swimmer, the 4 x 100 medley relay brought down to a 3:54.9 by the Americans (during this event, Wenden anchored his team with a 51.4, a performance which can be considered better than his world record swim). Among the women: the 100 m. back, 1:06.2 by the U.S.A.'s Kaye Hall. In the events longer than 100 meters the altitude did not allow any new records, but as always the winners proved to be, as usual, great champions.

In total the American men won 10 titles (400 and 1500 m. free with Mike Burton, 100 m. fly, Doug Russell and 200 m. fly, Carl Robie, 200 and 400 IM with Charles Hickcox, the 100 breast Don McKenzie and all three relays). Australia obtained two titles (with Wenden winning the 100 and 200 free) East Germany two (100 and 200 back with Roland Matthes) and Mexico one (Felipe Munoz the 200 breast). The American women obtained 11 titles (100 m. free with Jan Henne, 200-400-800 m. free Deborah Meyer, 100 back Kaye Hall, 200 m. back Lillian (Pokey) Watson, 200 and 400 IM Claudia Kolb 200 m. breast Sharon Wichman and both relays) Australia one (Lynn McClements 100 fly) Holland one (Ada Kok 200 m. fly) and Yugoslavia one (Djurdjica Bjedov 100 breast).

BEGINNING OF PERIOD 1968-72

The first year of the period 68-72 saw several records improved to new heights. Many of these times were achieved at the U.S.A. Outdoor Championships in Louisville in August. The West German Hans Fassnacht, established a new mark for the 400 m. free with a 4:04.0, averaging 1:01 per 100, but not without a fierce struggle with Olympic Champion Mike Burton who's time of 4:04.4 was the second best ever. Burton bettered his 1500 m. time with a 16:04.5, bettering his own 800 world record along the way with an 8:28.8 (his average 100 being 1:04.3). American Gary Hall improved the 200 and 400 IM's to 2:09.6 and 4:33.9, respectively.

Debbie Meyer bettered her 1500 m. world record to 17:19.9 (1:09.3 average) after a neck and neck fight with teammate Vicki King who was beaten by a mere 1/10 of a second. Susie Atwood brought the 200 back time down to 2:21.5. In Europe, East German's Roland Matthes improved his own 100 world record to 57.8 and regained his 200 mark with a 2:06.4 after Gary Hall had earlier set a 2:06.6 mark at Louisville. The Soviet swimmer, Nikolai Pankin, swimming at Magdeburg in April, 1969 set new standards for the 100 breast with a 1:05.8 and the 200 breast 2:25.4.

South Africa's Karen Muir, unable to swim at the Olympic Games, because her country was excluded from the Games, got back her 100 m.

world record with a 1:05.6 swim at Utrecht. Two records were equalled, 200 m. free (1:54.3) and the 100 m. fly (55.6) both by U.S.A.'s Mark Spitz. The 200 m. record was established by Schollander in 1968 and the 100 by the same Spitz in 1968.

SWIMMING PROGRESSION

Even more than the following table, the extraordinary progress of swimming during the period 1920-1968 is borne out by these results:

...In 1924, the U.S.A. won the 4 x 200 meter freestyle relay at the Olympic Games in Paris in 9:53.4 (an Olympic record). In 1968 Mike Burton lowered the world record for 800 meter freestyle to 8:34.3, and Deborah Meyer set a new women's 800 meter freestyle record of 9:10.4.

...In 1924, the U.S.A. team won the women's 4 x 100 meter freestyle relay at the Paris Games in 4:58.8. (an Olympic record). In 1968 Miss Meyer improved the women's 400 meter freestyle world record to 4:24.5.

Also impressive is the progression of the average times for 100 meters (all times are for 100 meters);

...In 1924 John Weissmuller won the Olympic 100 meters in 59.0. In 1968 Don Schollander swam the 200 meter freestyle at an average of 57.1.

...In 1936 Jack Medica swam an average of 1:03.6 in his world 200 meters record. In 1968 Ralph Hutton of Canada swam the 400 meters at an average of 1:01.6.

...In 1920 Norman Ross broke the 220 yard freestyle record with an average of 1:10.8 (equivalent to 1:10.4 for the metric distance). In 1941 Billy Smith broke the world 440 yard record averaging 1:09.6 (or 1:09.2 for 100 meters). In 1968 Mike Burton swam the 1500 meter freestyle, averaging 1:04.5.

...In 1928 George Kojac broke the world 100 meter backstroke record with 1:08.2. In 1969 Roland Matthes swam the 200 meter distance with an average of 1:03.2.

And in the women's events:

...In 1924 Mariechen Wehselau broke the world 100 meter freestyle record in a time of 1:12.2. In 1939 Reghnild Hveger swam an average of 1:11.3 in her record for 200 meters. In 1964 Marilyn Ramenofsky swam the 400 meters averaging 1:09.8.

...In 1930 Helene Madison averaged 1:17.3 in her 200 meters record swim. In 1940 Reghnild Hveger swam an average of 1:15.0 for the 400 meters record. In 1964 Patty Caretto swam the 1500 meters averaging 1:14.0. Debbie Meyer broke the world 1500 meter record in 1969 averaging 1:09.2 with a 17:19.9 time.

...In 1928 Marie Braun broke the 100 meter backstroke world record in

1:21.6. In 1969 Karen Muir of South Africa swam the 100 meter backstroke in 1:05.6 and Susie Atwood of the U.S.A. averaged 1:10.7 in the 200 m. backstroke.

Before concluding the history of competitive swimming it is worthwhile to note that as of January 1, 1969 over the classic metric freestyle distances (100 meters, 200 m., 400 m., 800 m., 1500 m.), the leaders in the table for the number of world records broken are: in the men's section, Australian Jon Konrads (12 records); in the women's division, American Deborah Meyer (16 records). Let us note also that, since 1953, when five strokes were recognized, two swimmers have broken metric records in three out of five strokes: the Dutch Mary Kok and the American Sharon Finneran (both in freestyle, butterfly, and individual medley).

During 1969, at the U.S. Outdoor Championships, Debbie Meyer swam 17.19.9 for the 1500 m. freestyle, swimming the last 400 meters in 4.37.5 (which due to the feet touch has an actual value of 4.38.0). Vicki King, who in this same race did a 17.20.0, had a last 400 meters of 4.37.7 (actual swim value of 4.38.2). At the 1964 Olympic Games in Tokyo, the winning time for the women's 400 meters freestyle was 4.43.6!

PROGRESSION OF WORLD RECORDS

Men	100 m.	200 m.	400 m.	1500 m.	100 m.	200 m.	
					backstroke	backstroke	
as of	1-1-1920	1:01.4	2:21.6 s.c.	5:14.6 s.c.	22:00.0	1:15.6 s.c.	2:48.4 s.c.
at	1-1-1930	57.4 s.c.	2:08.0 s.c.	4:50.3 s.c.	19:07.2	1:08.2	2:37.8
at	1-1-1940	56.4 s.c.	2:07.2 s.c.	4:38.7 s.c.	18:58.8	1:04.8 s.c.	2:24.0 s.c.
at	1-1-1950	55.4 s.c.	2:05.4 s.c.	4:33.3	18:19.0	1:03.6 s.c.	2:18.5 s.c.
at	1-1-1960	54.6	2:01.5	4:16.6	17:28.7	1:01.5	2:17.8
at	1-1-1965	52.9	1:57.6	4:12.2	16:58.7	59.6	2:10.3
at	1-1-1969	52.2	1:54.3	4:06.5	16:08.5	58.0	2:07.5
Women	100 m.	200 m.	400 m.	1500 m.	100 m.	200 m.	
					backstroke	backstroke	
as of	1-1-1920	1:16.2	2:56.0 s.c.	6:30.2	none	none	none
at	1-1-1930	1:09.4	2:40.6 s.c.	5:39.2 s.c.	23:44.6	1:21.0 s.c.	2:59.2 s.c.
at	1-1-1940	1:04.6 s.c.	2:21.7 s.c.	5:06.1 s.c.	21:45.7	1:10.9 s.c.	2:38.8 s.c.
at	1-1-1950	1:04.6 s.c.	2:21.7 s.c.	5:00.1 s.c.	20:57.0	1:10.9 s.c.	2:38.8 s.c.
at	1-1-1960	1:01.2	2:14.7	4:47.2	19:25.7	1:11.4	2:37.1
at	1-1-1965	58.9	2:11.6	4:39.5	18:30.5	1:07.7	2:27.4
at	1-1-1969	58.9	2:06.7	4:24.5	17:31.2	1:06.2	2:23.8

s.c. = SHORT COURSE POOL

Chapter IV

International Record Tables

A) OLYMPIC GAMES

For the Olympic results the following are applied: O.B. Orthodox butterfly;

N.R. The new rule limiting swimming under the surface of the water except for one arm pull and one leg kick after start and turn.;

Germany: In the Olympic tables from 1952 to 1964 Germany alone is represented, a combination of West Germany and East Germany, since the International Olympic Committee recognized only one German team. In 1968 Germany split into West and East German teams.

The Games: Place, Date, Course, Records

1896 ATHENS (March 30): open sea water course

1900 PARIS (August 11-19): River Seine.

1904 ST. LOUIS (Sept. 5-7): artificial lake.

1908 LONDON (July 13-25): 100 meters pool in the Olympic athletics stadium.

1912 STOCKHOLM (July 6-15): 100 meters course (salt water) in a sheltered harbor.

1920 ANTWERP (August 22-29): 100 meters course. From 1924 the course was always a 50 meter pool.

1924 PARIS (July 13-20).

1928 AMSTERDAM (August 4-11).

1932 LOS ANGELES (August 6-13).

1936 BERLIN (August 8-15).

1948 LONDON (July 30-Aug. 7) in an indoor pool.

1952 HELSINKI (July 25-Aug. 2).

1956 MELBOURNE (November 30-Dec. 6) an indoor pool.

1960 ROME (August 25-Sept. 3).

1964 TOKYO (October 11-18) an indoor pool.

1968 MEXICO CITY (October 17-26) an indoor pool.

INTERNATIONAL RECORD TABLES

MEN

100 Meter Freestyle

- 1896 A. Hajos (Hungary): 1:22.2 (in sea water).
 1908 C. Daniels (USA): 1:05.6
 1912 D. Kahanamoku (USA): 1:03.4 (in the semi final, D. Kahanamoku: 1:02.4).
 1920 D. Kahanamoku (USA): 1:01.4. (in the first final which was later re-swum: D. Kahanamoku: 1:00.4, a world record.)
 1924 J. Weissmuller (USA): 59.0.
 1928 J. Weissmuller (USA): 58.6.
 1932 Y. Miyazaki (Japan): 58.2 (in the heats: Y. Miyazaki: 58.0).
 1936 F. Csik (Hungary) 57.6 (in the preliminaries: Taguchi (Japan) and M. Yusa (Japan): 57.5).
 1948 W. Ris (USA): 57.3.
 1952 C. Scholes (USA): 57.4 (in the heats: C. Scholes: 57.1).
 1956 J. Henricks (Australia): 55.4.
 1960 J. Devitt (Australia): 55.2.
 1964 D. Schollander (USA): 53.4.
 1968 M. Wenden (Australia): 52.2 (world record)

400 Meter Freestyle

- 1904 (swam over 440 yards): C. Daniels (USA): 6:16.2.
 1908 H. Taylor (G.B.): 5:36.8 (world record).
 1912 G. Hodgson (Canada): 5:24.4 (world record).
 1920 N. Ross (USA): 5:26.8 (in the semi final: G. Bernot, Canada: 5.24.8, a world record).
 1924 J. Weissmuller (USA): 4:54.2.
 1928 A. Zorilla (Argentina): 4:51.6.
 1932 C. Crabbe (USA): 4:48.4.
 1936 J. Medica (USA): 4:44.5.
 1948 W. Smith (USA): 4:41.0.
 1952 J. Boiteux (France): 4:30.7.
 1956 M. Rose (Australia): 4:27.3.
 1960 M. Rose (Australia): 4:18.3.
 1964 D. Schollander (USA): 4:12.2 (world record).
 1968 M. Burton (USA): 4:09.0.

1500 Meter Freestyle

- 1908 H. Taylor (G.B.): 22:48.4 (world record).
 1912 G. Hodgson (Canada): 22:00.0 (world record).
 1920 N. Ross (USA): 22:23.2.
 1924 A. Charlton (Australia): 20:06.6 (world record).
 1928 A. Borg (Sweden): 19:51.8.
 1932 K. Kitamura (Japan): 19:12.4.
 1936 N. Terada (Japan): 19:13.7.
 1948 J. McLane (USA): 19:18.5.
 1952 F. Konno (USA): 18:30.0.
 1956 M. Rose (Australia): 17:58.9 (in the heats: G. Breen, (USA): 17:52.9, a world record).

- 1960 J. Konrads (Australia): 17:19.6.
 1964 R. Windle (Australia): 17:01.7.
 1968 M. Burton (USA): 16:38.9.

100 Meter Backstroke

- 1908 A. Bieberstein (Germany): 1:24.6.
 1912 H. Hebner (USA): 1:21.2 in the heats: H. Hebner, 1:20.8.
 1920 W. Kealoha (USA): 1:15.2 in the heats: W. Kealoha, 1:14.8, (world record.)
 1924 W. Kealoha (USA): 1:13.2.
 1928 G. Kojac (USA): 1:08.2 (world record).
 1932 M. Kiyokawa (Japan): 1:08.6.
 1936 A. Kiefer (USA): 1:05.9.
 1948 A. Stack (USA): 1:06.4.
 1952 Y. Oyakawa (USA): 1:05.4.
 1956 D. Theile (Australia): 1:02.2.
 1960 D. Theile (Australia): 1:01.9.
 1968 R. Matthes (E. Germany): 58.7.

200 Meter Backstroke

- 1900 E. Hoppenberg (Germany): 2:47.0 (in a river).
 1964 J. Graef (USA): 2:10.3 (world record).
 1968 R. Matthes (E. Germany): 2:09.6.

200 Meter Breaststroke

- 1908 F. Holman (G.B.): 3:09.2 (world record).
 1912 W. Bathe (Germany): 3:01.8.
 1920 H. Malmroth (Sweden): 3:04.4.
 1924 R. Skelton (USA): 2:56.6.
 1928 Y. Tsuruta (Japan): 2:48.8.
 1932 Y. Tsuruta (Japan): 2:45.4 (in the semi finals: R. Koike, (Japan), 2:44.9).
 1936 (O.B.): T. Hamuro (Japan): 2:42.5 (in breaststroke).
 1948 (O.B.): J. Verdeur (USA): 2:39.3 (in butterfly).
 1952 (O.B.): J. Davies (Australia): 2:34.4 (in butterfly).
 1956 M. Furukawa (Japan): 2:34.7.
 1960 (N.R.): W. Mulliken (USA): 2:37.4 (in the semi finals: W. Mulliken, 2:37.2).
 1964 (N.R.): I. O'Brien (Australia): 2:27.8 (world record).
 1968 F. Munoz (Mexico): 2:28.7.

400 Meter Breaststroke

- 1904 (swum over 440 yards): G. Zacharias (Germany): 7:27.6.
 1912 W. Bathe (Germany): 6:29.6.
 1920 H. Malmroth (Sweden): 6:31.8.

200 Meter Butterfly

- 1956 W. Yorzyk (USA): 2:19.3 (in the heats: Yorzyk 2:18.6).
 1960 M. Troy (USA): 2:12.8 (world record).

1964 K. Berry (Australia): 2:06.6 (world record).
1968 C. Robie (USA): 2:08.7.

400 Meter Individual Medley

1964 R. Roth (USA): 4:45.4 (world record).
1968 C. Hickcox (USA): 4:48.4.

4 X 100 Meter Freestyle Relay

1964 USA: 3:33.2 (world record).
1968 USA: 3:31.7 (world record).

4 X 200 Meter Freestyle Relay

1908 Great Britain: 10:55.6.
1912 Australasia: 10:11.6.
1920 USA: 10:04.4.
1924 USA: 9:53.4.
1928 USA: 9:36.2.
1932 Japan: 8:58.4 (world record established).
1936 Japan: 8:51.5 (world record).
1948 USA: 8:46.0 (world record).
1952 USA: 8:31.1.
1956 Australia: 8:23.6 (world record).
1960 USA: 8:10.2 (world record).
1964 USA: 7:52.1 (world record).
1968 USA: 7:52.3.

4 X 100 Meter Medley Relay

1960 USA: 4:05.4 (world record).
1964 USA: 3:58.4 (world record).
1968 USA: 3:54.9 (world record).

Events on the Men's Program before the founding of F.I.N.A. (1908)

50 Yard Freestyle

1904 Z. Halmai (Hungary): 28.0 (after a dead heat and second race with Scott Leary, USA).

100 Yard Freestyle

1904 Z. Halmai (Hungary): 1:02.8.

200 Meter Freestyle

1900 F. Lane (Australia): 2:25.2 (in a river).
1904 (Swum over 220 yards): C. Daniels (USA): 2:44.2.

500 Meter Freestyle

1896 P. Neumann (Austria): 8:12.6 (sea water).

880 Yard Freestyle

1904 E. Rausch (Germany): 13:11.4.

1000 Meter Freestyle

1900 J. Jarvis (Great Britain): 13:40.2 (in a river).

1200 Meter Freestyle

1896 A. Hajos (Hungary): 18:22.2 (sea water).

1 Mile Freestyle

1904 E. Rausch (Germany): 27:18.2.

4000 Meter Freestyle

1900 J. Jarvis (Great Britain): 58:24.0 (in a river).

5 X 40 Meter Freestyle Relay

1900 Germany (in a river).
1904 (swum over 5 X 40 yards): New York Athletic Club.

200 Meter Freestyle Obstacle Swimming

1900 F. Lane (Australia): 2:38.4 (in a river).

100 Yard Backstroke

1904 W. Breck (Germany): 1:16.8.

Underwater Swimming (limited to 60 Meters)

1900 Devendeville (France): 60 m. in 53.4 (in a river).

WOMEN

100 Meter Freestyle

1912 F. Durack (Austroasia): 1:22.2 (in the heats: F. Durack, 1:19.8, world record).
1920 E. Bleibtrey (USA): 1:13.6 (world record).
1924 E. Lackie (USA): 1:12.4 (in the heats: M. Wehslau, USA, 1:12.2, world record).
1928 A. Osipowich (USA): 1:11.0.
1932 H. Madison (USA): 1:06.8.

- 1936 R. Mastenbroek (Holland): 1:05.9.
 1948 G. Andersen (Denmark): 1:06.3 (in the heats: G. Andersen, 1:05.9).
 1952 K. Szoke (Hungary): 1:06.8 (in the heats: J. Temes, Hungary, 1:05.5; J. Harrison, S. Africa, 1:06.5; J. Alderson, USA, 1:06.6; I. Schumacher-Heyting, Holland, 1:06.7).
 1956 D. Fraser (Australia): 1:02.0 (world record).
 1960 D. Fraser (Australia): 1:01.2.
 1964 D. Fraser (Australia): 59.5.
 1968 J. Henne (USA): 1:00.1.

300 Meter Freestyle

- 1920 E. Bleibtrey (USA): 4:34.0 (world record).

400 Meter Freestyle

- 1924 M. Norelius (USA): 6:02.2.
 1928 M. Norelius (USA): 5:42.8 (world record).
 1932 H. Madison (USA): 5:28.5 (world record).
 1936 R. Mastenbroek (Holland): 5:26.4.
 1948 A. Curtis (USA): 5:17.8.
 1952 V. Gyenge (Hungary): 5:12.1.
 1956 L. Crapp (Australia): 4:54.6.
 1960 C. von Saltza (USA): 4:50.6.
 1964 G. Duenkel (USA): 4:43.3.
 1968 D. Meyer (USA): 4:31.8.

100 Meter Backstroke

- 1924 S. Bauer (USA): 1:23.2.
 1928 M. Braun (Holland): 1:22.0 (in the heats: M. Braun, 1:21.6, world record).
 1932 E. Holm (USA): 1:19.4 (in the heats: E. Holm, 1:18.3).
 1936 N. Senff (Holland): 1:18.9 (in the heats: N. Senff, 1:16.6).
 1948 K. Harup (Denmark): 1:14.4.
 1952 J. Harrison (S. Africa): 1:14.3 (in the heats; G. Wielema, Holland, 1:13.8).
 1956 J. Grinham (Great Britain): 1:12.9.
 1960 L. Burke (USA): 1:09.3.
 1964 C. Ferguson (USA): 1:07.7 (world record).
 1968 K. Hall (USA): 1:06.2 (world record).

200 Meter Breaststroke

- 1924 L. Morton (Great Britain): 3:33.2 (in the heats: A. Geraghty, USA, 3:27.6; L. Morton, 3:29.4; G. Carson, Great Britain, 3:30.0).
 1928 H. Schrader (Germany): 3:12.6 (in the semi-finals: H. Schrader, 3:11.2, equaling the world record).
 1932 C. Dennis (Australia): 3:06.3.
 1936 (O.B.): H. Maehata (Japan): 3:03.6 (in breaststroke) (in the heats: H. Maehata, 3:01.5; M. Genenger, in breaststroke, Germany, 3:02.8).
 1948 (O.B.): N. Van Vliet (Holland): 2:57.2 (in breaststroke) (in the semi-finals: N. Van Vliet, 2:57.0).

- 1952 (O.B.): E. Novak Szekely (Hungary): 2:51.7 (in butterfly).
 1956 U. Happe (Germany): 2:53.1.
 1960 (N.R.): A. Lonsbrough (Great Britain): 2:49.5 (world record).
 1964 (N.R.): G. Prozumenschikova (USSR): 2:46.4.
 1968 S. Wichman (USA): 2:44.4.

100 Meter Butterfly

- 1956 S. Mann (USA): 1:11.0.
 1960 C. Schuler (USA): 1:09.5.
 1964 S. Stouder (USA): 1:04.7 (world record).
 1968 L. McClements (Australia): 1:05.5.

400 Meter Individual Medley

- 1964 D. de Varona (USA): 5:18.7.
 1968 C. Kolb (USA): 5:08.5.

4 X 100 Meter Freestyle Relay

- 1912 Great Britain: 5:52.8.
 1920 USA: 5:11.6.
 1924 USA: 4:58.8.
 1928 USA: 4:47.6.
 1932 USA: 4:38.0 (world record established).
 1936 Holland: 4:36.0.
 1948 USA: 4:29.2.
 1952 Hungary: 4:24.4 (world record).
 1956 Australia: 4:17.1 (world record).
 1960 USA: 4:08.9 (world record).
 1964 USA: 4:03.8 (world record).
 1968 USA: 4:02.5.

4 X 100 Meter Medley Relay

- 1960 USA: 4:41.1 (world record).
 1964 USA: 4:33.9 (world record).
 1968 USA: 4:28.3.

OLYMPIC RECORD PROGRESSION

(Events held before the International Swimming Federation was formed. (1908))

MEN 50 YARD FREESTYLE

- 1904 — 1. Z. Halmay (Hungary) 28.0 — 2. S. Leary (U.S.) — 3. C. Daniels (U.S.) — 4. F. Gailey (U.S.) There was a swim-off for first place between Zoltan Halmay and Scott Leary.

100 YARD FREESTYLE

- 1904 — 1. Z. Halmay (Hungary) 1:02.8 — 2. C. Daniels (U.S.) — 3. S. Leary (U.S.) — 4. F. Gailey (U.S.).

200 METER FREESTYLE

1900 — 1. F. Lane (Australia) 2:25.2 — 2. Z. Halmay (Hungary) 2:31.0 — 3. K. Ruberl (Austria) 2:32.0 — 4. O. Wahle (Austria) — 5. J. Clevenot (France).
1904 (220 yd) — 1. C. Daniels (U.S.) 2:44.2 — 2. F. Gailey (U.S.) 2:46.0 — 3. E. Rausch (Germany) 2:56.0.

500 METER FREESTYLE

1896 — 1. P. Neumann (Austria) 8:12.6 — 2. A. Pepanos (Greece) — 3. E. Choraphas (Greece).

880 YARD FREESTYLE

1904 — 1. E. Rausch (Germany) 13:11.4 — 2. F. Gailey (U.S.) 13:23.4 — 3. G. Kiss (Hungary) — 4. O. Wahle (Austria).

1000 METER FREESTYLE

1900 — 1. Jarvis (Great Britain) 13:40.2 — 2. O. Wahle (Austria) 14:53.4 — 3. Z. Halmay (Hungary) 15:16.4 — 4. M. Hainle (Germany) 15:22.0.

1200 METER FREESTYLE

1896 — 1. A. Hajos (Hungary) 18:22.2 — 2. J. Andreou (Greece) — 3. Koryphas (Greece) — 4. Williams (U.S.) According to other sources (FINA) Pepanos was 2nd.

1 MILE FREESTYLE

1904 — 1. E. Rausch (Germany) 27:18.2 — 2. G. Kiss (Hungary) 28:28.2 — 3. F. Gailey (U.S.) 28:54.0 — 4. O. Wahle (Austria).

4000 METER FREESTYLE

1900 — 1. J. Jarvis (Gr. Brit.) 58:24.0 — 2. Z. Halmay (Hungary) 1 h. 8:55.4 — 3. Martin (France) 1 h. 13:10.4 — 4. Burgess (France) 1 h. 15:00.0 — 5. Meyer (Holland) 1 h. 16:00.0.

5 x 40 METER FREESTYLE RELAY

1900 — 1. Germany (E. Hoppenberg, M. Hainle, M. Schoene, H. Petersdorff, J. Frey) — 2. Great Britain — 3. Belgium — 4. France.
1904 (5 x 40 yd) — 1. New York Athletic Club (J.A. Ruddy, B. Goodwin, L. de B. Handley, C. Daniels) 2:04.6 — 2. Germany.

200 METER FREESTYLE WITH OBSTACLES

1900 — 1. F. Lane (Australia) 2:38.4 — 2. O. Wahle (Austria) 2:40.0 — 3. P. Kemp (Gr. Brit.) 2:47.4.

100 YARD BACKSTROKE

1904 — 1. W. Brack (Germany) 1:16.8 — 2. G. Hoffman (Germany) — 3. G. Zacharias (Germany) — 4. C. Daniels (U.S.).

UNDERWATER FREESTYLE (Limited to 60 Meters)

1900 — 1. Devendeville (France) 60 meters in 53.4 — 2. Six (France) 60 meters in 56.4 — 3. Lukkeberg (Sweden) 47 meters in 50.2 — 4. De Roman (France).

100 METER FREESTYLE

1896 — 1. A. Hajos (Hungary) 1:22.2 — 2. E. Choraphas (Greece) 1:23.0 — 3. O. Herschmann (Austria) — 4. Aminos (Greece) — 5. Williams (United States) — 6. Chrysaphos (Greece).
1908 — 1. C. Daniels (United States) 1:05.6 — 2. Z. Halmay (Hungary) 1:06.2 — 3. H. Julin (Sweden) 1:08.0 — 4. G. Rich (United States)
1912 — 1. D. Kahanamoku (United States) 1:03.4 — 2. C. Healey (Australia) 1:04.6 — K. Huszagh (United States) 1:05.6 — 4. C. Bretting (Germany) 1:05.8 — 5. Ramme (Germany). In preliminary; D. Kahanamoku 1:02.6. In semi-final: D. Kahanamoku 1:02.4 (equalled World Record; Olympic record).
1920 — 1. D. Kahanamoku (United States) 1:01.4 — 2. P. Kealoha (United States) 1:02.6 — 3. W. Harris (United States) 1:03.0 — 4. W. Herald (Australia) 1:03.8. The final had to be reswum. Result of the first finals: 1. D. Kahanamoku 1:00.4 (World Record) — 2. P. Kealoha (U.S.) 1:02.2 — 3. N. Ross (U.S.) — 4. W. Herald (Australia) — 5. W. Harris (United States).
1924 — 1. J. Weissmuller (United States) 59.0 (Olympic Record) — 2. D.

Kahanamoku (United States) 1:01.4 — 3. S. Kahanamoku (United States) 1:01.8 — 4. Arne Borg (Sweden) 1:02.0 — 5. K. Takaishi (Japan) 1:03.

1928 — 1. J. Weissmuller (U.S.) 58.6 — 2. I. Barany (Hungary) 59.8 — 3. K. Takaishi (Japan) 1:00.0 — 4. G. Kojac (U.S.) 1:00.8 — 5. W. Lauffer (U.S.) 1:01.0 — 6. Spence (Canada) 1:01.4 — 7. A. Zorilla (Argentina) 1:02.0. In prelim. Weissmuller swam 58.6 (Olympic Record).

1932 — 1. Y. Miyazaki (Japan) 58.2 — 2. T. Kawaishi (Japan) 58.6 — 3. A. Schwartz (U.S.) 58.8 — 4. K. Takaishi (Japan) 59.2 — 5. Kalli (U.S.) 59.2 — 6. Thompson (U.S.) 59.5. In semi-final Miyazaki 58.0 (Olympic Record).

1936 — 1. F. Csik (Hungary) 57.6 — 2. M. Yusa (Japan) 57.9 — 3. S. Arai (Japan) 58.4 — 4. Taguchi (Japan) 58.1 — 5. H. Fischer (Germany) 59.3 — 6. P. Fick (U.S.) 59.7 — 7. Lindgreen (U.S.) 59.9. In prelim. Taguchi 57.5 (Olympic Record). In semi-final: Yusa 57.5.

1948 — 1. W. Ris (U.S.) 57.3 (Olympic Record) — 2. A. Ford (U.S.) 57.8 — 3. G. Kadas (Hungary) 58.1 — 4. K.E. Carter (U.S.) 58.3 — 5. A. Jany (France) 58.3 — 6. P.O. Olson (Sweden) 59.3 — 8. T.Y. El Gamal (Egypt) 1:00.5.

1952 — 1. C. Scholes (U.S.) 57.4 — 2. H. Suzuki (Japan) 57.4 — 3. G. Larson (Sweden) 58.2 — 4. T. Goto (Japan) 58.5 — 5. G. Kadas (Hungary) 58.6 — 6. R. Aubrey (Australia) 58.7 — 7. A. Eminent (France) 58.7 — 8. R. Gora (U.S.) 58.8. In prelim.: Scholes 57.1 (Olympic Record).

1956 — 1. J. Hendricks (Australia) 55.4 (Olympic Record) — 2. J. Devitt (Australia) 55.8 — 3. G. Chapman (Australia) 56.7 — 4. L. Patterson (U.S.) 57.2 — 5. R. Hanley (U.S.) 57.6 — 6. W. Woolsey (U.S.) 57.6 — 7. A. Tani (Japan) 58.0 — 8. A. Eminente (France) 58.1.

1960 — 1. J. Devitt (Australia) 55.2 (Olympic Record) — 2. L. Larson (U.S.) 55.2 — 3. M. Dos Santos (Brazil) 55.4 — 4. B. Hunter (U.S.) 55.6 — 5. G. Dobay (Hungary) 56.3 — 6. R. Pound (Canada) 56.3 — 7. A. Burer (South Africa) 56.3 — 8. P.O. Lindberg (Sweden) 57.1.

1964 — 1. D. Schollander (United States) 53.4 (Olympic Record) — 2. R. McGregor (Great Britain) 53.5 — 3. H. Klein (Germany) 54.0 — 4. G. Ilman (United States) 54.0 — 5. A. Gottvalles (France) 54.2 — 6. M. Austin (United States) 54.5 — 7. G. Dobai (Hungary) 54.9 — 8. U. Jacobsen (Germany) 56.1.

1968 — 1. M. Wenden (Australia) 52.2 (World and Olympic Record) — 2. K. Walsh (United States) 52.8 — 3. M. Spitz (United States) 53.0 — 4. R. McGregor (Great Britain) 53.5 — 5. L. Ilchev (USSR) 53.8 — 6. G. Kulikov (USSR) 53.8 — 7. L. Nicolao (Argentina) 53.9 — 8. Z. Zorn (United States) 53.9.

400 METER FREESTYLE

1904 (440 yd.) — 1. C. Daniels (U.S.) 6:16.2 — 2. F. Gailey (U.S.) 6:22.0 — 3. O. Wahle (Austria) 6:39.0.

1908 — 1. H. Taylor (Great Britain) 5:36.8 (World Record) — 2. F. de Beaurepaire (Australia) 5:44.2 — 3. O. Scheff (Austria) 5:46.0 — 4. W. Foster (Great Britain).
1912 — 1. G. Hodgson (Canada) 5:24.4 (World Record) — 2. J. Hatfield (Gr. Brit.) 5:25.8 — 3. H. Hardwick (Australia) 5:31.2 — 4. C. Healey (Australia) 5:37.8 — 5. B. von Las Torres (Hungary) 5:42.0.

1920 — 1. N. Ross (U.S.) 5:26.8 — 2. L. Langer (U.S.) 5:29.2 — 3. G. Vernot (Canada) 5:29.8 — 4. Kaele (U.S.). In semi-final: Vernot 5:24.8.

1924 — 1. J. Weissmuller (U.S.) 5:04.2 (Olympic Rec.) — 2. Arne Borg (Sweden) 5:05.6 — 3. A. Charlton (Australia) 5:06.6 — 4. Ake Borg (Sweden) 5:26.0 — 5. J. Hatfield (Great Britain) 5:32.0.

1928 — 1. A. Zorilla (Argentina) 5:01.6 (Olympic Rec.) — 2. A. Charlton (Australia) 5:03.6 — 3. Arne Borg (Sweden) 5:04.6 — 4. C. Crabbe (U.S.) 5:05.4 — 5. A. Claff (U.S.) 5:16.0 — 6. Ruddy (U.S.) 5:25.0.

1932 — 1. C. Crabbe (U.S.) 4:48.4 (Olympic Rec.) — 2. J. Taris (France) 4:48.5 — 3. T. Oyokota (Japan) 4:52.3 — 4. T. Yokoyama (Japan) 4:52.7 — 5. Sugimoto (Japan) 4:56.1 — 6. A. Charlton (Australia) 4:58.6.

1936 — 1. J. Medica (U.S.) 4:44.5 (Olympic Rec.) — 2. S. Uto (Japan) 4:45.6 — 3. S. Makino (Japan) 4:48.1 — 4. R. Flanagan (U.S.) 4:52.5 — 5. Negami (Japan) 4:53.6 — 6. J. Taris (France) 4:53.8 — 7. B. Leivers (Great Britain) 5:00.9.

1948 — 1. W. Smith (U.S.) 4:41.0 (Olympic Rec.) — 2. J. McLane (U.S.) 4:43.4 — 3. J. Marshall (Australia) 4:47.7 — 4. G. Kadas (Hungary) 4:49.4 — 5. G. Mitro (Hungary) 4:49.9 — 6. A. Jany (France) 4:51.4 — 7. Hale (Great Britain) 4:55.9 — 8. A. Yantoro (Argentina) 4:58.7.

1952 — 1. J. Boiteux (France) 4:30.7 (Olympic Rec.) — 2. F. Konno (U.S.) 4:31.3 — 3. P.O. Ostrand (Sweden) 4:35.2 — 4. P. Duncan (So. Africa) 4:37.9 — 5. J. Wardrop (Gr. Britain) 4:39.9 — 6. W. Moore (U.S.) 4:40.1 — 7. J. McLane (U.S.)

- 4:40.3 — 8. H. Furuhashi (Japan) 4:42.1.
 1956 — 1. M. Rose (Australia) 4:27.3 (Olympic Rec.) — 2. T. Yamanaka (Japan) 4:30.4 — 3. G. Breen (U.S.) 4:32.5 — 4. K. O'Halloran (Australia) 4:32.9 — 5. K. Zierold (Germany) 4:34.6 — 6. G. Winram (Australia) 4:34.9 — 7. K. Nonoshita (Japan) 4:38.2 — 8. A. Romani (Italy) 4:41.7.
 1960 — 1. M. Rose (Australia) 4:18.3 (Olympic Rec.) — 2. T. Yamanaka (Japan) 4:21.4 — 3. J. Konrads (Australia) 4:21.8 — 4. I. Black (Gt. Brit.) 4:21.8 — 5. A. Somers (U.S.) 4:22.0 — 6. M. McLachlan (So. Africa) 4:26.3 — 7. E. Lenz (U.S.) 4:26.8 — 8. M. Fukui (Japan) 4:29.6.
 1964 — 1. D. Schollander (USA) 4:12.2 (World and Olympic Record) — 2. F. Wiegand (Germany) 4:14.9 — 3. A. Wood (Australia) 4:15.1 — 4. R. Saari (USA) 4:16.7 — 5. J. Nelson (USA) 4:16.9 — 6. T. Yamanaka (Japan) 4:19.1 — 7. R. Phegan (Australia) 4:20.2 — 8. S. Belitz-Geiman (USSR) 4:21.4.
 1968 — 1. M. Burton (USA) 4:09.0 (Olympic Record) — 2. R. Hutton (Canada) 4:11.7 — 3. A. Mosconi (France) 4:13.3 — 4. G. Brough (Australia) 4:15.9 — 5. G. White (Australia) 4:16.7 — 6. J. Nelson (USA) 4:17.2 — 7. H. Fassnacht (Germany) 4:18.1 — 8. B. Berk (USA) 4:26.0.

1500 METER FREESTYLE

- 1908 — 1. H. Taylor (Gr. Brit.) 22:48.4 (World Rec.) — 2. T. Battersby (Gr. Brit.) 22:51.2 — 3. F. de Beurepaire (Australia) 22:56.2 — O. Scheff (Austria) dropped out.
 1912 — 1. G. Hodgson (Canada) 22:00.0 (World Rec.) — 2. J. Hatfield (Gr. Brit.) 22:39.0 — 3. H. Hardwick (Australia) 23:15.4 — B. von Las Torres (Hungary) and M. Champion (Australia), dropped out.
 1920 — 1. N. Ross (U.S.) 22:23.2 — 2. G. Vernet (Canada) 22:36.4 — 3. F. de Beurepaire (Australia) 23:04.0 — 4. Kahele (U.S.) — 5. Bolden (U.S.).
 1924 — 1. A. Charlton (Australia) 20:06.6 (World Rec.) — 2. Arne Borg (Sweden) 20:41.4 — 3. F. de Beurepaire (Australia) 21:48.4 — 4. J. Hatfield (Gr. Brit.) 21:55.6 — 5. K. Takaishi (Japan) 22:10.4.
 1928 — 1. Arne Borg (Sweden) 19:51.8 (Olympic Rec.) — 2. A. Charlton (Australia) 20:02.6 — 3. C. Crabbe (U.S.) 20:28.8 — 4. Ruddy (U.S.) 21:05.0 — 5. A. Zorilla (Argentina) 21:23.8 — 6. Ault (Canada) 21:46.
 1932 — 1. K. Kitamura (Japan) 19:12.4 (Olympic Rec.) — 2. S. Makino (Japan) 19:14.1 — 3. J. Cristy (U.S.) 19:39.5 — 4. N. Ryan (Australia) 19:45.1 — 5. C. Crabbe (U.S.) 20:02.0 — 6. J. Taris (France) 20:09.2.
 1936 — 1. N. Terada (Japan) 19:13.7 — 2. J. Medica (U.S.) 19:34.0 — 3. S. Uto (Japan) 19:34.5 — 4. Ishiharada (Japan) 19:48.5 — 5. R. Flanagan (U.S.) 19:54.8 — 6. Leivers (Gr. Brit.) 19:57.4 — 7. Arendt (Germany) 19:59.0.
 1948 — 1. J. McLane (U.S.) 19:18.5 — 2. J. Marshall (Australia) 19:31.3 — 3. G. Mitro (Hungary) 19:43.2 — 4. G. Csordas (Hungary) 19:54.2 — 5. M. Stipetic (Yugoslavia) 20:10.7 — 6. F. Norris (U.S.) 20:18.8 — 7. D. Bland (Gr. Brit.) 20:19.8 — 8. W. Heusner (U.S.) 20:45.4.
 1952 — 1. F. Konno (U.S.) 18:30.0 (Olympic Rec.) — 2. S. Hashizume (Japan) 18:41.4 — 3. T. Okamoto (Brazil) 18:51.3 — 4. J. McLane (U.S.) 18:51.5 — 5. J. Bernardo (France) 18:59.1 — 6. Y. Kitamura (Japan) 19:00.4 — 7. P. Duncan (So. Africa) 19:12.1 — 8. J. Marshall (Australia) 19:53.4.
 1956 — 1. M. Rose (Australia) 17:58.9 — 2. T. Yamanka (Japan) 18:00.3 — 3. G. Breen (U.S.) 18:08.2 — 4. M. Garretty (Australia) 18:26.5 — 5. W. Slater (Canada) 18:38.1 — 6. J. Boiteux (France) 18:38.3 — 7. Y. Aoki (Japan) 18:38.3 — 8. G. Winram (Australia) 19:06.2. In Prelim.: G. Breen 17:52.9 (World Record).
 1960 — 1. J. Konrads (Australia) 17:19.6 (Olympic Rec.) — 2. M. Rose (Australia) 17:21.7 — 3. G. Breen (U.S.) 17:30.6 — 4. T. Yamanaka (Japan) 17:34.7 — 5. J. Katona (Hungary) 17:43.7 — 6. M. McLachlan (So. Africa) 17:44.9 — 7. A. Somers (U.S.) 18:02.8 — 8. R. Campion (Gr. Britain) 18:22.7.
 1964 — 1. R. Windle (Australia) 17:01.7 (Olympic Record) — 2. J. Nelson (USA) 17:03.0 — 3. A. Wood (Australia) 17:07.7 — 4. W. Farley (USA) 17:18.2 — 5. R. Phegan (Australia) 17:22.4 — 6. S. Sasaki (Japan) 17:25.3 — 7. R. Saari (USA) 17:29.2 — 8. J. Katona (Hungary) 17:30.8.
 1968 — 1. M. Burton (USA) 16:38.9 (Olympic Record) — 2. J. Kinsella (USA) 16:57.3 — 3. G. Brough (Australia) 17:04.7 — 4. G. White (Australia) 17:08.0 — 5. R. Hutton (Canada) 17:15.6 — 6. G. Echevarria (Mexico) 17:36.4 — 7. J. Alanis (Mexico) 17:46.6 — 8. J. Nelson (USA) 18:05.1.

100 METER BACKSTROKE

- 1908 — 1. A. Bieberstein (Germany) 1:24.6 (Olympic Rec.) — 2. L. Dam (Denmark) 1:26.6 — 3. H. Harensnape (Gr. Brit.) 1:27.0 — 4. G. Aurich (Germany)
 1912 — 1. H. Hebner (U.S.) 1:21.2 — 2. O. Fahr (Germany) 1:22.4 — 3. P. Kellner (Germany) 1:24.0 — 4. Baronyi (Hungary) 1:25.2 — 5. Gross (Germany) 1:25.8. In semi-final: Hebner 1:20.8 (Olympic Rec.)
 1920 — 1. W. Kealoha (U.S.) 1:15.2 — 2. R. Kegeris (U.S.) 1:16.2 — 3. G. Blitz (Belgium) 1:19.0 — 4. P. McGillivray (U.S.) — 5. Kruger (U.S.). In prelim.: Kealoha 1:14.8 (World Record).
 1924 — 1. W. Kealoha (U.S.) 1:13.2 (Olympic Rec.) — 2. P. Wyatt (U.S.) 1:15.4 — 3. K. Bartha (Hungary) 1:17.8 — 4. G. Blitz (Belgium) 1:19.6 — 5. Rawlinson (Gr. Brit.) 1:20.0.
 1928 — 1. G. Kojac (U.S.) 1:08.2 (World Rec.) — 2. W. Laufer (U.S.) 1:10.0 — 3. P. Wyatt (U.S.) 1:12.0 — 4. T. Irie (Japan) 1:13.6 — 5. E. Kuppers (Germany) 1:13.8 — 6. J. Besford (Gr. Brit.) 1:15.4.
 1932 — 1. M. Kiyokawa (Japan) 1:08.6 — 2. T. Irie (Japan) 1:09.8 — 3. K. Kawatsu (Japan) 1:10.0 — 4. D. Zehr (U.S.) 1:10.9 — 5. E. Kuppers (Germany) 1:11.3 — 6. Kerber (U.S.) 1:12.8.
 1936 — 1. A. Kiefer (U.S.) 1:05.9 (Olympic Rec.) — 2. A. van de Weghe (U.S.) 1:07.7 — 3. M. Kiyokawa (Japan) 1:08.4 — 4. T. Drysdale (U.S.) 1:09.4 — 5. Yoshida (Japan) 1:09.7 — 6. Kojima (Japan) 1:10.4 — 7. P. Oliver (Australia) 1:10.7.
 1948 — 1. A. Stack (U.S.) 1:06.4 — 2. R. Cowell (U.S.) 1:06.5 — 3. G. Vallerey (France) 1:07.8 — 4. Tie: M. Chaves (Argentina) and A. Mejia (Mexico) 1:09.0 — 6. J. Wild (So. Africa) 1:09.1 — 7. J. Brockway (Gr. Brit.) 1:09.2 — 8. A. Kinnear (Gr. Brit.) 1:09.6.
 1952 — 1. Y. Oyakawa (U.S.) 1:05.4 (Olympic Rec.) — 2. G. Bozon (France) 1:06.2 — 3. J. Taylor (U.S.) 1:06.4 — 4. A. Stack (U.S.) 1:07.6 — 5. P. Galvao (Argentina) 1:07.7 — 6. R. Wardrop (Gr. Brit.) 1:07.8 — 7. B. Skanata (Yugoslavia) 1:08.1 — 8. N.L. Meiring (So. Africa) 1:08.3.
 1956 — 1. D. Theile (Australia) 1:02.2 (Olympic Rec.) — 2. J. Monckton (Australia) 1:03.2 — 3. F. McKinney (U.S.) 1:04.5 — 4. R. Christophe (France) 1:04.9 — 5. J. Hayes (Australia) 1:05.0 — 6. G. Sykes (Gr. Brit.) 1:05.6 — 7. A. Wiggins (U.S.) 1:05.8 — 8. Y. Oyakawa (U.S.) 1:06.9.
 1960 — 1. D. Theile (Australia) 1:01.9 (Olympic Rec.) — 2. F. McKinney (U.S.) 1:02.1 — 3. R. Bennett (U.S.) 1:02.3 — 4. R. Christophe (France) 1:03.2 — 5. L. Barbier (U.S.S.R.) 1:03.5 — 6. W. Wagner (Germany) 1:03.5 — 7. J. Monckton (Australia) 1:04.1 — 8. V. Siymar (U.S.S.R.) 1:04.6.
 Event dropped from the Olympic program for the Games in Tokyo.
 Event added to program at 1968 Olympics.
 1968 — 1. R. Matthes (E. Germany) 58.7 (Olympic Record) — 2. C. Hickcox (USA) 1:00.2 — 3. R. Mills (USA) 1:00.5 — 4. L. Barbieri (USA) 1:01.1 — 5. J. Shaw (Canada) 1:01.4 — 6. B. Schoutsen (Holland) 1:01.8 — 7. R. Blechert (E. Germany) 1:01.9 — 8. F. Del Campo (Italy) 1:02.0.

200 METER BACKSTROKE

- 1900 — 1. E. Hoppenberg (Germany) 2:47.0 — 2. K. Ruberl (Austria) 2:56.0 — 3. F. Dooxt (Holland) 3:01.0 — 4. Bloemen (Holland).
 Event discontinued on the program until the Tokyo Games (1964).
 1964 — 1. J. Graef (USA) 2:10.3 (World and Olympic Record) — 2. G. Dille (USA) 2:10.5 — 3. R. Bennett (USA) 2:13.1 — 4. S. Fukushima (Japan) 2:13.2 — 5. E. Kuppers (Germany) 2:15.7 — 6. V. Mazanov (USSR) 2:15.9 — 7. R. Hutton (Canada) 2:15.9 — 8. P. Reynolds (Australia) 2:16.6.
 1968 — 1. R. Matthes (E. Germany) 2:09.6 — 2. M. Ivey (USA) 2:10.6 — 3. J. Horsley (USA) 2:10.9 — 4. G. Hall (USA) 2:12.6 — 5. S. Esteva (Spain) 2:12.9 — 6. L. Dobroskokin (USSR) 2:15.4 — 7. J. Rother (E. Germany) 2:15.8 — 8. F. Del Campo (Italy) 2:16.5.

100 METER BREASTSTROKE

- Event added to program at 1968 Olympics.
 1968 — 1. D. McKenzie (USA) 1:07.7 (Olympic Record) — 2. V. Kosinsky (USSR) 1:08.0 — 3. N. Pankin (USSR) 1:08.0 — 4. J. Fiolo (Brazil) 1:08.1 — 5. E. Mikhailov (USSR) 1:08.4 — 6. I. O'Brien (Australia) 1:08.6 — 7. A. Forelli Lopez (Argentina) 1:08.7 — 8. E. Henninger (E. Germany) 1:09.7.

200 METER BREASTSTROKE

- 1908 — 1. F. Holman (Gr. Brit.) 3:09.2 (World Rec.) — 2. W. Robinson (Gr. Brit.) 3:12.8 — 3. P. Hanson (Sweden) 3:14.6 — 4. Toldy (Hungary) 3:15.2.
1912 — 1. W. Bathe (Germany) 3:01.8 (Olympic Rec.) — 2. W. Lutzow (Germany) 3:05.0 — 3. P. Malisch (Germany) 3:08.0 — 4. P. Courtman (Gr. Brit.) 3:08.8. T. Henning (Sweden) dropped out.
1920 — 1. H. Malmroth (Sweden) 3:04.4 — 2. T. Henning (Sweden) 3:09.2 — 3. A. Altonen (Finland) 3:12.2 — 4. Howell (U.S.) — 5. I. Stedman (Australia).
1924 — 1. R. Skelton (U.S.) 2:56.6 (Olympic Rec.) — 2. J. de Combe (Belgium) 2:59.2 — 3. W. Kirschbaum (U.S.) 3:01.0 — 4. Linders (Sweden) 3:02.2 — 5. Wyss (Switzerland) 3:05.6.
1928 — 1. Y. Tsuruta (Japan) 2:48.8 (Olympic Rec.) — 2. E. Rademacher (Germany) 2:50.6 — 3. T. Ildefonso (Philippines) 2:56.4 — 4. E. Sietas (Germany) 2:56.6 — 5. Harling (Sweden) 2:56.8 — 6. Spence (Canada) 2:57.2.
1932 — 1. Y. Tsuruta (Japan) 2:45.4 — 2. R. Koike (Japan) 2:46.6 — 3. T. Ilderfonso (Philippines) 2:47.1 — 4. E. Sietas (Germany) 2:48.0 — 5. Adjaluddin (Philippines) 2:49.2 — 6. Nakagawa (Japan) 2:52.8. In semi-final: Koike 2:44.9 (Olympic Record).
1936 — (U.B.*) — 1. T. Hamuro (Japan) 2:42.5 (Olympic Rec.) — 2. E. Sietas (Germany) 2:42.9 — 3. R. Koike (Japan) 2:44.2 — 4. J. Higgins (U.S.) 2:45.2 — 5. Ito (Japan) 2:47.6 — 6. J. Balke (Germany) 2:47.8 — 7. T. Ildeponso (Philippines) 2:51.1.
1948 — (U.B.) — 1. J. Verdeur (U.S.) 2:39.3 (Olympic Rec.) — 2. K. Carter (U.S.) 2:40.2 — 3. R. Sohl (U.S.) 2:43.9 — 4. J. Davies (Australia) 2:43.7 — 5. T. Cerer (Yugoslavia) 2:46.1 — 6. W. Jordan (Brazil) 2:46.4 — 7. A. Kandil (Egypt) 2:47.5 — 8. B. Bonte (Holland) 2:47.6. (Davies, 4th, credited with a better time than Sohl, 3rd).
1952 — (U.B.) — 1. J. Davies (Australia) 2:34.4 (Olympic Rec.) — 2. B. Stassforth (U.S.) 2:34.7 — 3. H. Klein (Germany) 2:35.9 — 4. N. Hiramaya (Japan) 2:37.4 — 5. T. Kajikawa (Japan) 2:38.6 — 6. J. Nagasawa (Japan) 2:39.1 — 7. M. Lusien (France) 2:39.8 — 8. L. Komadel (Czechoslovakia) 2:40.1.
1956 — 1. M. Furukawa (Japan) 2:34.7 (Olympic Rec.) — 2. M. Yoshimura (Japan) 2:36.7 — 3. K. Younitchev (U.S.S.R.) 2:36.8 — 4. T. Gathercole (Australia) 2:38.7 — 5. I. Zasseda (U.S.S.R.) 2:39.0 — 6. K. Gleie (Denmark) 2:40.0 — 7. M. Sanguily (Cuba) 2:42.0. H. Broussard (France), disqualified for incorrect stroke.
1960 — (N.R.) — 1. W. Mulliken (U.S.) 2:37.4 — 2. Y. Ohsaki (Japan) 2:38.0 — 3. W. Menzonides (Holland) 2:39.7 — 4. E. Henninger (Germany) 2:40.1 — 5. R. Lazzari (Italy) 2:40.1 — 6. T. Gathercole (Australia) 2:40.2 — 7. A. Klopowowski (Poland) 2:41.2 — 8. P. Hait (U.S.) 2:41.4. In semi-final: Mulliken 2:37.2 (Olympic Record).
1964 — 1. I. O'Brien (Australia) 2:27.8 (World and Olympic Record) — 2. G. Prokopenko (USSR) 2:28.2 — 3. C. Jastremski (USA) 2:29.6 — 4. A. Tutakaev (USSR) 2:31.0 — 5. E. Henninger (Germany) 2:31.1 — 6. O. Tsurumine (Japan) 2:33.6 — 7. W. Anderson (USA) 2:35.0 — 8. V. Kosinsky (USSR) 2:38.1.
1968 — 1. F. Munoz (Mexico) 2:28.7 — 2. V. Kosinsky (USSR) 2:29.2 — 3. B. Job (USA) 2:29.9 — 4. N. Pankin (USSR) 2:30.3 — 5. E. Mikhailov (USSR) 2:32.8 — 6. E. Henninger (E. Germany) 2:33.2 — 7. P. Long (USA) 2:33.6 — 8. O. Tsurumine (Japan) 2:34.9.
*Used Butterfly during race.

400 METER BREASTSTROKE

- 1904 — (440 yd.) — 1. G. Zacharias (Germany) 7:27.6 — 2. W. Brack (Germany) 7:33.0 — 3. J. Handy (U.S.) — 4. Adams (U.S.)
1912 — 1. W. Bathe (Germany) 6:29.6 (Olympic Rec.) — 2. T. Henning (Sweden) 6:35.6 — 3. P. Courtman (Gr. Brit.) 6:36.4 — 4. P. Malisch (Germany). Lutzow (Germany) dropped out.
1920 — 1. H. Malmroth (Sweden) 6:31.8 — 2. T. Henning (Sweden) 6:45.2 — 3. A. Altonen (Finland) 6:48.0 — 4. Howell (U.S.) — 5. Cederblom (Sweden).
Event eliminated from the Olympic program after the 1920 games.

100 METER BUTTERFLY

- Event added to program at 1968 Olympics.
1968 — 1. D. Russell (USA) 55.9 (Olympic Record) — 2. M. Spitz (USA) 56.4 — 3. R. Wales (USA) 57.2 — 4. V. Nemshilov (USSR) 58.1 — 5. S. Maruya (Japan) 58.6 — 6. Y. Suzdaltzen (USSR) 58.8 — 7. L. Stocklasa (Germany) 58.9 — 8. R. Cusack (Australia) 59.8.

200 METER BUTTERFLY

- 1956 — 1. W. Yorzyk (U.S.) 2:19.3 — 2. T. Ishimoto (Japan) 2:23.8 — 3. G. Tumpek (Hungary) 2:23.9 — 4. F. Nelson (U.S.) 2:26.6 — 5. J. Marshall (Australia) 2:27.2 — 6. E. Rios (Mexico) 2:27.3 — 7. B. Wilkinson (Australia) 2:29.7 — 8. A. Popescu (Rumania) 2:31.0. In prelim.: Yorzyk 2:18.6 (Olympic Record).
1960 — 1. M. Troy (U.S.) 2:12.8 (World Record) — 2. N. Hayes (Australia) 2:14.6 — 3. D. Gillanders (U.S.) 2:15.3 — 4. F. Dennerlein (Italy) 2:16.0 — 5. H. Yoshimuta (Japan) 2:18.3 — 6. K. Berry (Australia) 2:18.5 — 7. V. Kuzmin (U.S.S.R.) 2:18.9 — 8. K. Izutsu (Japan) 2:19.4.
1964 — 1. K. Berry (Australia) 2:06.6 (World and Olympic Record) — 2. C. Robie (USA) 2:07.5 — 3. F. Schmidt (USA) 2:09.3 — 4. P. Riker (USA) 2:11.0 — 5. V. Kuzmin (USSR) 2:11.3 — 6. Y. Kadonaga (Japan) 2:12.6 — 7. B. Hill (Australia) 2:12.8 — 8. D. Sherry (Canada) 2:14.6.
1968 — 1. C. Robie (USA) 2:08.7 — 2. M. Woodroffe (Great Britain) 2:09.0 — 3. J. Ferris (USA) 2:09.3 — 4. V. Kuzmin (USSR) 2:10.6 — 5. P. Feil (Sweden) 2:10.9 — 6. V. Meeuw (Germany) 2:11.5 — 7. V. Sharygin (USSR) 2:11.9 — 8. M. Spitz (USA) 2:13.5.

200 METER INDIVIDUAL MEDLEY

Event added to program at 1968 Olympics.

- 1968 — 1. C. Hickcox (USA) 2:12.0 (Olympic Record) — 2. G. Buckingham (USA) 2:13.0 — 3. J. Ferris (USA) 2:13.3 — 4. J. Bello (Peru) 2:13.7 — 5. G. Smith (Canada) 2:15.9 — 6. J. Gilchrist (Canada) 2:16.6 — 7. M. Holthaus (Germany) 2:16.8 — 8. P. Lazar (Hungary) 2:18.3.

400 METER INDIVIDUAL MEDLEY

Event added to program at 1964 Olympics.

- 1964 — 1. R. Roth (USA) 4:45.4 (World and Olympic Record) — 2. R. Saari (USA) 4:47.1 — 3. G. Hetz (Germany) 4:51.0 — 4. C. Robie (USA) 4:51.4 — 5. J. Gilchrist (Canada) 4:57.6 — 6. J. Jiskoot (Netherlands) 5:01.9 — 7. G. Kosztolanczi (Hungary) 5:01.9 — 8. T. Buck (Australia) 5:03.0.
1968 — 1. C. Hickcox (USA) 4:48.4 — 2. G. Hall (USA) 4:48.7 — 3. M. Holthaus (Germany) 4:51.4 — 4. G. Buckingham (USA) 4:51.4 — 5. J. Gilchrist (Canada) 4:56.7 — 6. R. Merkel (Germany) 4:59.8 — 7. A. Dunaev (USSR) 5:00.3 — 8. R. Hernandez (Mexico) 5:04.3.

4 x 100 METER FREESTYLE RELAY

Event added to program at 1964 Olympics.

- 1964 — 1. USA (S. Clark, M. Austin, G. Ilman, D. Schollander) 3:33.2 (World and Olympic Record) — 2. Germany (H. Loffler, F. Wiegand, Jacobsen, H. Klein) 3:37.2 — 3. Australia (D. Dickson, P. Doak, J. Ryan, R. Windle) 3:39.1 — 4. Japan (K. Iwasaki, T. Goto, T. Fujimoto, Y. Okabe) 3:40.5 — 5. Sweden (B. Nordvall, E. Eriksson, J. Lundin, P. Lindberg) 3:40.7 — 6. USSR (V. Mazanov, V. Shuvalov, V. Semchenkov, Y. Sumtsov) 3:42.1 — 7. Britain (R. Lord, J. Martin Dye, P. Kendrew, R. McGregor) 3:42.6.
1968 — 1. USA (Z. Zorn, S. Rerych, M. Spitz, K. Walsh) 3:31.7 (World and Olympic Record) — 2. USSR (S. Belitz-Geiman, V. Mazanov, G. Kulikov, L. Ilichev) 3:34.2 — 3. Australia (G. Rogers, R. Cusack, R. Windle, M. Wenden) 3:34.7 — 4. Britain (M. Turner, D. Jarvis, D. Hemrov, R. McGregor) 3:38.4 — 5. E. Germany (F. Wiegand, H. Gregor, U. Poser, L. Gericke) 3:38.8 — 6. W. Germany (P. Schorning, W. Kremer, O. von Schilling, H. Fassnacht) 3:39.0 — 7. Canada (G. Finch, G. Smith, R. Hutton, S. Gilchrist) 3:39.2 — 8. Japan (K. Iwasaki, M. Ohsawa, S. Nakano, T. Kitani) 3:41.5.

4 x 200 METER FREESTYLE RELAY

(The International Swimming Federation did not accept a World Record on this event until 1932.)

- 1908 — 1. Great Britain (J. Derbyshire, P. Radmilovic, W. Foster, H. Taylor) 10:55.6 — 2. Hungary (J. Munk, I. Zachar, B. Las Torres, Z. Halmay) 10:59.0 — 3. United States (H. Hebner, B. Goodwin, C. Daniels, L. Rich) 11:02.8 — 4. Australia 11:14.0. In preliminary: Great Britain 10:53.2 (Olympic Record).
1912 — 1. Australia (C. Healey, M. Champion, L. Boardman, H. Hardwick) 10:11.6 (Olympic Record) — 2. United States (P. McGillivray, H. Hebner, K. Huszagh, D. Kahanamoku) 10:20.2 — 3. Great Britain (W. Foster, T. Battersby, J. Hatfield, H. Taylor) 10:28.2 — 4. Germany 10:37.0.
1920 — 1. United States (P. McGillivray, P. Kealoha, N. Ross, D. Kahanamoku)

10:04.4 (Olympic Record) — 2. Australia (W. Herald, I. Stedman, K. Kirkland, F. deBeaurepaire) 10:25.4 — 3. Great Britain (L. Savage, H. Taylor, H. Annison, E. Peters) 10:37.2 — 4. Sweden 10:50.2 — 5. Italy.

1924 — 1. United States (W. O'Connor, H. Glancy, R. Breyer, J. Weissmuller) 9:53.4 (Olympic Record) — 2. Australia (A. Charlton, F. deBeaurepaire, M. Christie, E. Henry) 10:02.2 — 3. Sweden (G. Werner, O. Trolle, Ake Borg, Arne Borg) 10:06.8 — 4. Japan 10:15.2 — 5. Great Brit. 10:29.4.

1928 — 1. United States (A. Clapp, W. Laufer, G. Kojac, J. Weissmuller) 9:36.2 (Olympic Record) — 2. Japan (Yoneyama, S. Arai, Sata, K. Takaishi) 9:41.4 — 3. Canada (Bourne, Thompson, Ault, Spence) 9:47.8 — 4. Hungary 9:57.0 — 5. Sweden 10:01.8 — 6. Great Britain 10:15.8 — 7. Spain 11:43.0.

1932 — 1. Japan (Y. Miyazaki, T. Yokohama, M. Yusa, H. Toyoda) 8:58.4 (World Record established) — 2. United States (F. Booth, Majola Kalili, G. Fissler, Manuella Kalili) 9:10.5 — 3. Hungary (A. Wanie, L. Szabados, A. Szekely, I. Barany) 9:31.4 — 4. Canada 9:36.3 — 5. Great Britain 9:45.8 — 6. Argentina 10:13.1 — 7. Brazil 10:36.5.

1936 — 1. Japan (M. Yusa, S. Sugiura, S. Arai, M. Taguchi) 8:51.5 (World Rec.) — 2. United States (R. Flanagan, J. Macionis, P. Wolf, J. Medica) 9:03.0 — 3. Hungary (O. Grof, A. Lengyel, O. Abay Nemes, F. Csik) 9:12.3 — 4. France (R. Cavalero, A. Nakache, C. Talli, J. Paris) 9:18.2 — 5. Germany 9:19.0 — 6. Great Britain 9:21.5 — 7. Canada 9:27.5 — 8. Sweden 9:37.5.

1948 — 1. United States (W. Ris, W. Wolf, J. McLane, W. Smith) 8:46.0 (World Record) — 2. Hungary (I. Nyeki, G. Mitro, E. Szatmari, G. Kadas) 8:48.4 — 3. France (H. Padouffis, R. Cornu, J. Bernardo, A. Jany) 9:08.0 — 4. Sweden 9:09.1 — 5. Yugoslavia 9:14.0 — 6. Argentina 9:19.2 — 7. Mexico 9:20.2 — 8. Brazil 9:31.0.

1952 — 1. United States (W. Moore, W. Woolsey, F. Konno, J. McLane) 8:31.1 (Olympic Record) — 2. Japan (H. Suzuki, Y. Hamaguchi, T. Goto, T. Tanigawa) 9:33.5 — 3. France (A. Eminente, J. Bernardo, A. Jany, J. Boiteux) 8:45.9 — 4. Sweden 8:46.8 — 5. Hungary 8:52.6 — 6. Great Britain 8:52.9 — 7. So. Africa 8:55.1 — 8. Argentina 8:56.9.

1956 — 1. Australia (K. O'Halloran, J. Devitt, M. Rose, J. Henricks) 8:23.6 (World Record) — 2. United States (R. Hanley, G. Breen, W. Woolsey, F. Konno) 8:31.5 — 3. U.S.S.R. (V. Sorokine, V. Stroujanov, G. Nikolaiev, B. Nikitine) 8:34.7 — 4. Japan 8:36.6 — 5. Germany 8:43.4 — 6. Great Britain 8:45.2 — 7. Italy 8:46.2 — 8. So. Africa 8:49.5.

1960 — 1. United States (G. Harrison, R. Blick, M. Troy, J. Farrell) 8:10.2 (World Record) — 2. Japan (M. Fukui, H. Ishii, T. Yamanaka, T. Fujimoto) 8:13.2 — 3. Australia (D. Dickson, J. Devitt, M. Rose, J. Konrads) 8:13.8 — 4. Great Britain 8:28.1 — 5. Finland 8:28.7 — 6. Sweden 8:31 — 7. Germany 8:31.8 — 8. U.S.S.R. 8:32.2.

1964 — 1. USA (S. Clark, R. Saari, G. Ilman, D. Schollander) 7:52.1 (World and Olympic Record) — 2. Germany (H. Gregor, G. Hetz, F. Wiegand, H. Klein) 7:59.3 — 3. Japan (M. Fukui, K. Iwasaki, T. Shoji, Y. Okabe) 8:03.8 — 4. Australia (D. Dickson, A. Wood, P. Doak, R. Windle) 8:05.7 — 5. Sweden (M. Svensson, E. Eriksson, H. Rosendahl, J. Lundin) 8:08.0 — 6. France (J. Curtillet, C. Pierre, F. Luyce, A. Gottvalles) 8:08.7 — 7. USSR (S. Belitz-Geiman, V. Berezin, A. Paramonov, E. Novikov) 8:15.1 — 8. Italy (S. de Gregorio, B. Bianchi, G. Orlando, P. Boscaini) 8:18.1.

1968 — 1. USA (J. Nelson, S. Rerych, M. Spitz, D. Schollander) 7:52.3 — 2. Australia (G. Rogers, G. White, R. Windle, M. Wenden) 7:53.7 — 3. USSR (V. Bure, S. Belitz-Geiman, G. Kulikov, L. Ilchev) 8:01.6 — 4. Canada (G. Smith, R. Jucks, S. Gilchrist, R. Hutton) 8:03.2 — 5. France (M. Rousseau, G. Letast, F. Luyce, A. Mosconi) 8:03.7 — 6. Germany (H. Fassnacht, O. von Schilling, F. Meeuw, W. Kremer) 8:04.3 — 7. E. Germany (F. Wiegand, G. Horst-Gunter, A. Muller, J. Herbst) 8:06.0 — 8. Sweden (H. Ljungberg, G. Larson, O. Ferm, L. Eriksson) 8:12.1.

4 x 100 METER MEDLEY RELAY

1960 — 1. United States (F. McKinney, P. Hait, L. Larson, J. Farrell) 4:05.4 (World Record) — 2. Australia (D. Theile, T. Gathercole, N. Hayes, G. Shipton) 4:12.0 — 3. Japan (K. Tomita, Y. Ohsaki, K. Hirakida, K. Shimizu) 4:12.2 — 4. Canada 4:16.8 — 5. U.S.S.R. 4:16.8 — 6. Italy 4:17.2 — 7. Great Britain 4:17.6 — 8. Holland 4:18.2.

1964 — 1. USA (H. Mann, W. Craig, F. Schmidt, S. Clark) 3:58.4 (World and Olympic Record) — 2. Germany (E. Kuppers, E. Henninger, H. Gregor, H. Klein)

4:01.6 — 3. Australia (P. Reynolds, I. O'Brien, K. Berry, D. Dickson) 4:02.3 — 4. USSR (V. Mazanov, G. Prokopenko, V. Kuzmin, V. Shuvalov) 4:04.2 — 5. Japan (S. Fukushima, K. Ishikawa, I. Nakajima, Y. Okabe) 4:06.6 — 6. Hungary (J. Csikany, F. Lenkei, J. Gulrich, G. Dobai) 4:08.5 — 7. Italy (C. Rora, G. Gross, G. Fossati, P. Boscaini) 4:10.3 — 8. Britain (A. Thwaites, N. Nicholson, B. Jenkins, R. McGregor) 4:11.4.

1968 — 1. USA (C. Hickcox, D. McKenzie, D. Russell, K. Walsh) 3:54.9 — 2. E. Germany (R. Matthes, E. Henninger, H. Gregor, F. Wiegand) 3:57.5 — 3. USSR (Y. Gromak, V. Kosinsky, V. Nemshilov, L. Ilchev) 4:00.7 — 4. Australia (K. Byron, I. O'Brien, R. Cusack, M. Wenden) 4:01.8 — 5. Germany (R. Blechert, G. Betz, L. Stockklasa, W. Kremer) 4:05.4 — 6. Canada (J. Shaw, W. Mahony, T. Arusoo, J. Gilchrist) 4:07.3 — 7. Spain (S. Esteve, J. Duran, A. Lang Lenton, A. Chicoy) 4:08.8.

WOMEN 100 METER FREESTYLE

1912 — 1. F. Durack (Australia) 1:22.2 — 2. W. Wylie (Australia) 1:25.4 — 3. J. Fletcher (Gr. Britain) 1:27.0 — 4. G. Rosenberg (Germany) 1:27.2 — 5. A. Spiers (Gr. Brit.) 1:27.4. In prelim.: F. Durack 1:19.8 (World Rec.)

1920 — 1. E. Bleibtrey (United States) 1:13.6 (World Record) — 2. I. Guest (U.S.) 1:17.0 — 3. F. Schroth (U.S.) 1:17.2 — 4. C. Jeans (Gr. Brit.) 1:22.8 — 5. Walrond (New Zealand) 1:22.8.

1924 — 1. E. Lackie (U.S.) 1:12.4 — 2. M. Wehselau (U.S.) 1:12.8 — 3. G. Ederle (U.S.) 1:14.2 — 4. C. Jeans (Gr. Brit.) 1:15.4 — 5. I. Tanner (Gr. Brit.) 1:20.8. In preliminary: M. Wehselau 1:12.2 (World Rec.)

1928 — 1. A. Osipovich (U.S.) 1:11.0 (Olympic Rec.) — 2. E. Garatti (U.S.) 1:11.4 — 3. J. Cooper (Gr. Brit.) 1:13.6 — 4. McDowall (Gr. Brit.) 1:13.8 — 5. Laird (U.S.) 1:14.6 — 6. L. Lehmann (Germany) 1:15.2.

1932 — 1. H. Madison (U.S.) 1:06.8 (Olympic Rec.) — 2. W. den Ouden (Holland) 1:07.8 — 3. E. Garatti-Saville (U.S.) 1:08.2 — 4. J. McKim (U.S.) 1:09.3 — 5. Bult (Australia) 1:09.9 — 6. J. Maakal (So. Africa) 1:10.8.

1936 — 1. R. Mastenbroek (Holland) 1:05.9 (Olympic Rec.) — 2. J. Campbell (Argentina) 1:06.4 — 3. G. Arendt (Germany) 1:06.6 — 4. W. den Ouden (Holland) 1:07.6 — 5. C. Wagner (Holland) 1:08.1 — 6. O. McKean (U.S.) 1:08.4 — 7. C. Rawls (U.S.) 1:08.7.

1948 — 1. G. Andersen (Denmark) 1:06.3 — 2. A. Curtis (U.S.) 1:06.5 — 3. M. Vaessen (Holland) 1:07.6 — 4. K. Harup (Denmark) 1:08.1 — 5. I. Fredin (Sweden) 1:08.4 — 6. I. Schumacher (Holland) 1:08.4 — 7. Ahlgren (Sweden) 1:08.8 — 8. F. Nathansen-Carstensen (Denmark) 1:09.1. In Preliminary: G. Andersen 1:05.9 (equals Olympic Record).

1952 — 1. K. Szoke (Hungary) 1:06.8 — 2. H. Termeulen (Holland) 1:07.0 — 3. J. Temes (Hungary) 1:07.1 — 4. J. Harrison (So. Africa) 1:07.1 — 5. J. Alderson (U.S.) 1:07.1 — 6. I. Schuhmacher-Heyting (Holland) 1:07.3 — 8. M. Stepan (U.S.) 1:08.0 — 8. A. Barnwell (Gr. Britain) 1:08.6. In preliminary: J. Temes 1:05.5 (Olympic Record) — J. Harrison 1:06.5 — I. Schuhmacher-Heyting 1:06.7. In semi-final: J. Alderson 1:06.6 — I. Schuhmacher-Heyting 1:06.7.

1956 — 1. D. Fraser (Australia) 1:02.0 (World Record) — 2. L. Crapp (Australia) 1:02.3 — 3. F. Leech (Australia) 1:05.1 — 4. J. Rosazza (E.U.) 1:05.2 — 5. V. Grant (Canada) 1:05.4 — 6. S. Mann (U.S.) 1:05.6 — 7. M. Roe (New Zealand) 1:05.6 — 8. N. Myburgh (So. Africa) 1:05.8.

1960 — 1. D. Fraser (Australia) 1:01.2 (World Record) — 2. C. von Saltza (U.S.) 1:02.8 — 3. N. Steward (Gr. Brit.) 1:03.1 — 4. C. Wood (U.S.) 1:03.4 — 5. C. Bajnogel (Madagascar) (Hungary) 1:03.6 — 6. E. Terpstra (Holland) 1:04.3 — 7. C. Gastelaars (Holland) 1:04.7 — 8. M. Stewart (Canada) 1:05.5.

1964 — 1. D. Fraser (Australia) 59.5 (Olympic Record) — 2. S. Stouder (USA) 59.9 — 3. K. Ellis (USA) 1:00.8 — 4. E. Terpstra (Netherlands) 1:01.8 — 5. M. Lay (Canada) 1:02.2 — 6. M. Dobai (Hungary) 1:02.4 — 7. A. Hagberg (Sweden) 1:02.5 — 8. L. Bell (Australia) 1:02.7.

1968 — 1. J. Henne (USA) 1:00.0 — 2. S. Pedersen (USA) 1:00.3 — 3. L. Gustavson (USA) 1:00.3 — 4. M. Lay (Canada) 1:00.5 — 5. M. Grunnert (E. Germany) 1:01.0 — 6. A. Jackson (G. Britain) 1:01.0 — 7. M. Segrt (Yugoslavia) 1:01.5 — 8. J. Turoczi (Hungary) 1:01.6.

200 METER FREESTYLE

Event added to program at 1968 Olympics.

1968 — 1. D. Meyer (USA) 2:10.5 (Olympic Record) — 2. J. Henne (USA) 2:11.0 — 3. J. Barkman (USA) 2:11.2 — 4. G. Wetzko (E. Germany) 2:12.3 — 5. M. Segrt

(Yugoslavia) 2:13.3 — 6. C. Mandonnaud (France) 2:14.9 — 7. L. Bell (Australia) 2:15.1 — 8. O. Kozicova (Czechoslovakia) 2:16.0.

300 METER FREESTYLE

1920 — 1. E. Bleibtrey (U.S.) 4:34.0 (World Record) — 2. M. Woodbridge (U.S.) 4:42.4 — 3. F. Schroth (U.S.) 4:52.0 — 4. C. Jeans (Gr. Brit.) 4:52.4.
(Event swum only in 1920; 400 meter Freestyle since Games of 1924.)

400 METER FREESTYLE

1924 — 1. M. Norelius (U.S.) 6:02.2 (Olympic Record) — 2. H. Wainwright (U.S.) 6:03.8 — 3. G. Ederle (U.S.) 6:04.8 — 4. Molesworth (Gr. Brit.) 6:25.4 — Shand (New Zealand) dropped out.
1928 — 1. M. Norelius (U.S.) 5:42.8 (World Record) — 2. M. Braun (Holland) 5:57.8 — 3. J. McKim (U.S.) 6:00.2 — 4. S. Stewart (Gr. Brit.) 6:07.0 — 5. Van der Goes (So. Africa) 6:07.2 — 6. V. Tanner (Gr. Brit.) 6:11.6.
1932 — 1. H. Madison (U.S.) 5:28.5 (World Record) — 2. L. Kight (U.S.) 5:28.6 — 3. J. Maakal (So. Africa) 5:47.3 — 4. J. Cooper (Gr. Brit.) 5:49.7 — 5. Y. Godard (France) 5:54.4 — 6. Forbes (U.S.) 6:06.0.
1936 — 1. R. Mastenbroek (Holland) 5:26.4 (Olympic Record) — 2. R. Hveger (Denmark) 5:27.5 — 3. L. Kight-Wingard (U.S.) official time 5:29.0 — 4. M.L. Petty (U.S.) 5:32.2 — 5. A. Coutinho (Brazil) 5:35.2 — 6. Kojima (Japan) 5:43.1 — 7. G. Frederiksen (Denmark) 5:45.0 — 8. C. Wagner (Holland) 5:46.0.
1948 — 1. A. Curtis (U.S.) 5:17.8 (Olympic Rec.) — 2. K. Harup (Denmark) 5:21.2 — 3. C. Gibson (Gr. Brit.) 5:22.5 — 4. F. Caroen (Belgium) 5:25.3 — 5. B. Helser (U.S.) 5:26.0 — 6. A. Coutinho-Tavares (Brazil) 5:29.4 — 7. F. Nathansen-Carstensen (Denmark) 5:29.4 — 8. N. Lees (U.S.) 5:32.9.
1952 — 1. V. Gyenge (Hungary) 5:12.1 (Olympic Record) — 2. E. Novak (Hungary) 5:13.7 — 3. E. Kawamoto (U.S.) 5:14.6 — 4. C. Green (U.S.) 5:16.5 — 5. R. Hveger-Andersen (Denmark) 5:16.9 — 6. E. Szezely (Hungary) 5:17.9 — 7. A.M. Schultz (Argentina) 5:24.0 — 8. G. Andersen (Denmark) 5:27.7.
1956 — 1. L. Crapp (Australia) 4:54.6 (Olympic Record) — 2. D. Fraser (Australia) 5:02.5 — 3. S. Ruuska (U.S.) 5:07.1 — 4. M. Schriver (U.S.) 5:12.9 — 5. E. Szezely-Gyarmati (Hungary) 5:14.2 — 6. S. Morgan (Australia) 5:14.3 — 7. H. Frost (France) 5:15.4 — 8. V. Gyenge (Hungary) 5:21.0.
1960 — 1. C. von Saltza (U.S.) 4:50.6 (Olympic Record) — 2. J. Cederqvist (Sweden) 4:53.9 — 3. C. Lagerberg (Holland) 4:56.9 — 4. I. Konrads (Australia) 4:57.9 — 5. D. Fraser (Australia) 4:58.5 — 6. N. Rae (Gr. Brit.) 4:59.7 — 7. C. Schimmel (Holland) 5:02.3 — 8. B. Segerstrom (Sweden) 5:02.4.
1964 — 1. V. Duenkel (USA) 4:43.3 (Olympic Record) — 2. M. Ramenofsky (USA) 4:44.6 — 3. T. Stickles (USA) 4:47.2 — 4. D. Fraser (Australia) 4:47.6 — 5. J. Hughes (Canada) 4:50.9 — 6. E. Long (Britain) 4:52.0 — 7. K. Herford (Australia) 4:52.9 — 8. G. Lilja (Sweden) 4:53.0.
1968 — 1. D. Meyer (USA) 4:31.8 (Olympic Record) — 2. L. Gustavson (USA) 4:35.5 — 3. K. Moras (Australia) 4:37.0 — 4. P. Kruse (USA) 4:37.2 — 5. G. Wetzko (E. Germany) 4:40.2 — 6. M. Ramirez (Mexico) 4:42.2 — 7. A. Coughlan (Canada) 4:51.9 — 8. I. Morris (Sweden) 4:53.8.

800 METER FREESTYLE

Event added to program at 1968 Olympics.

1968 — 1. D. Meyer (USA) 9:24.0 — 2. P. Kruse (USA) 9:35.7 — 3. M. Ramirez (Mexico) 9:38.5 — 4. K. Moras (Australia) 9:38.6 — 5. P. Caretto (USA) 9:51.3 — 6. A. Coughlan (Canada) 9:56.4 — 7. D. Langford (Australia) 9:56.7 — 8. L. Vaca (Mexico) 10:02.5.

100 METER BACKSTROKE

1924 — 1. S. Bauer (U.S.) 1:23.2 (Olympic Record) — 2. P.M. Harding (Gr. Brit.) 1:27.4 — 3. A. Riggan (U.S.) 1:28.2 — 4. Chambers (U.S.) 1:30.8 — 5. Mullerova (Czechoslovakia) 1:31.2.
1928 — 1. M. Braun (Holland) 1:22.0 — 2. E. King (Gr. Brit.) 1:22.2 — 3. J. Cooper (Gr. Brit.) 1:22.8 — 4. Gilman (U.S.) 1:24.2 — 5. E. Holm (U.S.) 1:24.4 — 6. Lindstrom (U.S.) 1:25.0. In preliminary: M. Braun 1:21.6 (World Record).
1932 — 1. E. Holm (U.S.) 1:19.4 — 2. P. Mealing (Australia) 1:21.3 — 3. E. Davies (Gr. Brit.) 1:22.5 — 4. P.M. Harding (Gr. Brit.) 1:22.6 — 5. M. Sheehy (U.S.) 1:23.2 — 6. J. Cooper (Gr. Brit.) 1:23.4. In Preliminary: E. Holm 1:18.3 (Olympic Record).
1936 — 1. N. Senff (Holland) 1:18.9 — 2. H. Mastenbroek (Holland) 1:19.2 — 3. A.

Bridges (U.S.) 1:19.4 — 4. E. Mortridge (U.S.) 1:19.6 — 5. Bruunstrom (Denmark) 1:20.4 — 6. Frampton (Gr. Brit.) 1:20.6 — 7. P.M. Harding (Gr. Brit.) 1:21.5. In prelim.: N. Senff 1:16.6 (Olympic Rec.)

1948 — 1. K. Harup (Denmark) 1:14.4 (Olympic Record) — 2. S. Zimmermann (U.S.) 1:16.0 — 3. J. Davies (Australia) 1:16.7 — 4. I. Novak (Hungary) 1:18.4 — 5. R. van der Horst (Holland) 1:18.8 — 6. D. van Ekris (Holland) 1:18.9 — 7. Mellon (U.S.) 1:19.0 — 8. G. Galliard (Holland) 1:19.1.
1952 — 1. J. Harrison (So. Africa) 1:14.3 — 2. G. Wielema (Holland) 1:14.5 — 3. J. Stewart (New Zealand) 1:15.8 — 4. J. de Korte (Holland) 1:15.8 — 5. B. Stark (U.S.) 1:16.2 — 6. G. Herrbruck (Germany) 1:18.0 — 7. M. McDowall (Gr. Brit.) 1:18.4 — 4. R. van der Horst disqualified. In preliminary: G. Wielema 1:13.8 (Olympic Record).
1956 — 1. J. Grinham (Gr. Brit.) 1:12.9 (Olympic Record) — 2. C. Cone (U.S.) 1:12.9 — 3. M. Edwards (Gr. Brit.) 1:13.1 — 4. H. Schmidt (Germany) 1:13.4 — 5. M. Murphy (U.S.) 1:14.1 — 6. J. Hoyle (Gr. Brit.) 1:14.3 — 7. S. Barber (Canada) 1:14.3 — 8. G. Beckett (Australia) 1:14.7.
1960 — 1. L. Burke (U.S.) 1:09.3 (Olympic Record) — 2. N. Steward (Gr. Brit.) 1:10.8 — 3. S. Tanaka (Japan) 1:11.4 — 4. L. Ranwell (So. Africa) 1:11.4 — 5. R. Piacentini (France) 1:11.4 — 6. S. Lewis (Gr. Brit.) 1:11.8 — 7. R. van Velsen (Holland) 1:12.1 — 8. N. Delache (France) 1:12.4.
1964 — 1. C. Ferguson (USA) 1:07.7 (World and Olympic Record) — 2. C. Caron (France) 1:07.9 — 3. V. Duenkel (USA) 1:08.0 — 4. S. Tanaka (Japan) 1:08.6 — 5. N. Harmor (USA) 1:09.4 — 6. L. Ludgrove (Britain) 1:09.5 — 7. E. Wier (Canada) 1:09.8 — 8. J. Norfolk (Britain) 1:11.2.
1968 — 1. K. Hall (USA) 1:06.2 (World and Olympic Record) — 2. E. Tanner (Canada) 1:06.7 — 3. J. Swagerty (USA) 1:08.1 — 4. K. Moore (USA) 1:08.3 — 5. A. Gyarmati (Hungary) 1:09.1 — 6. L. Watson (Australia) 1:09.1 — 7. S. Canet (France) 1:09.3 — 8. G. Stirling (New Zealand) 1:10.6.

200 METER BACKSTROKE

Event added to program at 1968 Olympics.

1968 — 1. L. Watson (USA) 2:24.8 (Olympic Record) — 2. E. Tanner (Canada) 2:27.4 — 3. K. Hall (USA) 2:28.9 — 4. L. Watson (Australia) 2:29.5 — 5. W. Burrell (Britain) 2:32.3 — 6. Z. Gasparac (Yugoslavia) 2:33.5 — 7. M. Gorominas (Spain) 2:33.9 — 8. B. Duprez (France) 2:36.6.

100 METER BREASTSTROKE

Event added to program at 1968 Olympics.

1968 — 1. D. Bjedov (Yugoslavia) 1:15.8 (Olympic Record) — 2. G. Prozumenschikova (USSR) 1:15.9 — 3. S. Wichman (USA) 1:16.1 — 4. U. Frommater (Germany) 1:16.2 — 5. C. Ball (USA) 1:16.7 — 6. K. Nakagawa (Japan) 1:17.0 — 7. S. Babanina (USSR) 1:17.2 — 8. A. Norbis (Uruguay) 1:17.3.

200 METER BREASTSTROKE

1924 — 1. L. Morton (Gr. Brit.) 3:33.2 — 2. A. Geraghty (U.S.) 3:34.0 — 3. G. Carson (Gr. Brit.) 3:35.4 — 4. Petterson (Sweden) 3:37.6 — 5. I. Gilbert (Gr. Brit.) 3:38.0 — 6. Koster (Luxemburg) 3:39.2. In preliminaries: Agnes Geraghty 3:27.6 (Olympic Record) — L. Morton 3:29.4 — G. Carson 3:30.0.
1928 — 1. H. Schrader (Germany) 3:12.6 — 2. M. Baron (Holland) 3:15.2 — 3. L. Muhe-Hildesheim (Germany) 3:17.6 — 4. E. Jacobsen (Denmark) 3:19.0 — 5. M. Hoffmann (U.S.) 3:19.2 — 6. B. Hazellius (Sweden) 3:23.0. In preliminary: H. Schrader 3:11.3. In semi-final: H. Schrader 3:11.2 (Equals World Record; Olympic Record).
1932 — 1. C. Dennis (Australia) 3:06.3 (Olympic Record) — 2. H. Maehata (Japan) 3:06.4 — 3. E. Jacobsen (Denmark) 3:07.1 — 4. M. Hinton (Gr. Brit.) 3:11.7 — 5. M. Hoffmann (U.S.) 3:11.8 — 6. A. Govednik (U.S.) 3:16.0 — 7. J. Cadwell (U.S.) 3:18.2.
1936 (U.B.*) — 1. H. Maehata (Japan) 3:03.6 — 2. M. Genenger (Germany) 3:04.2 — 3. I. Sorensen (Denmark) 3:07.8 — 4. A. Holzner (Germany) 3:09.5 — 5. J. Waalberg (Holland) 3:09.5 — 6. D. Storey (Gr. Brit.) 3:09.7 — 7. J. Kastein (Holland) 3:12.8. In preliminary: Genenger 3:03.0 — Maehata 3:01.5 (Olympic Record). In semi-final: Maehata 3:03.1 — Genenger 3:02.8.
1948 (U.B.) — 1. N. van Vliet (Holland) 2:57.2 — 2. B. Lyons (Australia) 2:57.7 — 3. E. Novak (Hungary) 3:00.2 — 4. E. Szekeley (Hungary) 3:02.5 — 5. A. de Groot (Holland) 3:06.2 — 6. E. Church (Gr. Brit.) 3:06.1 — 7. A. Hom (Holland) 3:07.5 — 8. J. Hansen (Denmark) 3:08.1. Note: Church, 6th, is credited with a better

time than Groot, 5th. In semi-final: N. van Vliet 2:57.0 (Olympic Record).
 1952 (U.B.) — 1. E. Szekely (Hungary) 2:51.7 (Olympic Record) — 2. E. Novak (Hungary) 2:54.4 — 3. H. Gordon (Gr. Brit.) 2:57.6 — 4. K. Killermann (Hungary) 2:57.6 — 5. J. Hansen (Denmark) 2:57.8 — 6. M. Gavriš (U.S.S.R.) 2:58.9 — 7. U.B. Eklund (Sweden) 3:01.8 — 8. P. Garritsen (Holland) 3:02.1.
 1956 — 1. U. Happe (Germany) 2:53.1 (Olympic Record) — 2. E. Szekely (Hungary) 2:54.8 — 3. E. Ten Elsen (Germany) 2:55.1 — 4. V. Jericevic (Yugoslavia) 2:55.8 — 5. K. Killermann (Hungary) 2:56.1 — 6. H. Gordon (Gr. Brit.) 2:56.1 — 7. M.J. Sears (U.S.) 2:57.2 — 8. C. Gosden (Gr. Brit.) 2:59.2.
 1960 — (N.R.) — 1. A. Lonsbrough (Gr. Brit.) 2:49.5 (World Record) — 2. W. Urselmann (Germany) 2:50.0 — 3. B. Gobel (Germany) 2:53.6 — 4. A. den Haan (Holland) 2:54.4 — 5. Margretta Kok (Holland) 2:54.6 — 6. A. Warner (U.S.) 2:55.4 — 7. P. Kempner (U.S.) 2:55.5 — 8. D. Kristensen (Denmark) 2:55.7.
 1964 — 1. G. Prozumenschikova (USSR) 2:46.4 (Olympic Record) — 2. C. Kolb (USA) 2:47.6 — 3. S. Babanina (USSR) 2:48.6 — 4. S. Mitchell (Britain) 2:49.0 — 5. J. Slattery (Britain) 2:49.6 — 6. B. Grimmer (Germany) 2:51.0 — 7. K. Bimolt (Netherlands) 2:51.3 — 8. U. Kuper (Germany) 2:53.9.
 *Used Butterfly during race.
 1968 — 1. S. Wichman (USA) 2:44.4 (Olympic Record) — 2. D. Bjedov (Yugoslavia) 2:46.4 — 3. G. Prozumenschikova (USSR) 2:47.0 — 4. A. Grebennikova (USSR) 2:47.1 — 5. S. Babanina (USSR) 2:48.4 — 6. C. Jamison (USA) 2:48.4 — 7. C. Shibata (Japan) 2:51.5 — 8. A. Norbis (Uruguay) 2:51.9.

100 METER BUTTERFLY

1956 — 1. S. Mann (U.S.) 1:11.0 (Olympic Record) — 2. N. Ramey (U.S.) 1:11.9 — 3. M.J. Sears (U.S.) 1:14.4 — 4. M. Littomericzky (Hungary) 1:14.9 — 5. B. Bainbridge (Australia) 1:15.2 — 6. J. Langenauer (Germany) 1:17.4 — 7. B. Whittall (Canada) 1:17.9 — 8. S. Barber (Canada) 1:18.4.
 1960 — 1. C. Schuler (U.S.) 1:09.5 (Olympic Record) — 2. M. Heemskerk (Holland) 1:10.4 — 3. J. Andrew (Australia) 1:12.2 — 4. S. Watt (Gr. Brit.) 1:13.3 — 5. A. Voorbij (Holland) 1:13.3 — 6. Z. Belovezkaia (U.S.S.R.) 1:13.3 — 7. Kristina Larsson (Sweden) 1:13.6 — C. Wood (U.S.) dropped out.
 1964 — 1. S. Stouder (USA) 1:04.7 (World and Olympic Record) — 2. A. Kok (Netherlands) 1:05.6 — 3. K. Ellis (USA) 1:06.0 — 4. E. Pyrhonen (Finland) 1:07.3 — 5. D. de Varona (USA) 1:08.0 — 6. H. Hustede (Germany) 1:08.5 — 7. E. Takahashi (Japan) 1:09.0 — 8. M. Stewart (Canada) 1:10.0.
 1968 — 1. L. McClements (Australia) 1:05.5 — 2. E. Daniel (USA) 1:05.8 — 3. S. Shields (USA) 1:06.2 — 4. A. Kok (Holland) 1:06.2 — 5. A. Gyarmati (Hungary) 1:06.8 — 6. H. Hustede (W. Germany) 1:06.9 — 7. T. Hewitt (USA) 1:07.5 — 8. H. Lindner (E. Germany) 1:07.6.

200 METER BUTTERFLY

Event added to program at 1968 Olympics.
 1968 — 1. A. Kok (Holland) 2:24.7 — 2. H. Lindner (E. Germany) 2:24.8 — 3. E. Daniel (USA) 2:25.9 — 4. T. Hewitt (USA) 2:26.2 — 5. H. Hustede (W. Germany) 2:27.9 — 6. D. Giebel (USA) 2:31.7 — 7. M. Auton (Britain) 2:33.2 — 8. Y. Fujii (Japan) 2:34.3.

200 METER INDIVIDUAL MEDLEY

Event added to program at 1968 Olympics.
 1968 — 1. C. Kolb (USA) 2:24.7 (Olympic Record) — 2. S. Pedersen (USA) 2:28.8 — 3. J. Henne (USA) 2:31.4 — 4. S. Steinbach (E. Germany) 2:31.4 — 5. Y. Nishigawa (Japan) 2:33.7 — 6. M. Seydel (E. Germany) 2:33.7 — 7. L. Zakharova (USSR) 2:37.0 — S. Ratcliffe (Britain) disqualified.

400 METER INDIVIDUAL MEDLEY

Event added to program at 1964 Olympics.
 1964 — 1. D. de Varona (USA) 5:18.7 (Olympic Record) — 2. S. Finneran (USA) 5:24.1 — 3. M. Randall (USA) 5:24.2 — 4. V. Holletz (Germany) 5:25.6 — 5. L. McGill (Australia) 5:28.4 — 6. E. Heukels (Netherlands) 5:30.3 — 7. A. Lonsbrough (Britain) 5:30.5 — 8. M. Egervari (Hungary) 5:38.4.
 1968 — 1. C. Kolb (USA) 5:08.5 (Olympic Record) — 2. L. Vidali (USA) 5:22.2 — 3. S. Steinbach (E. Germany) 5:25.3 — 4. S. Pedersen (USA) 5:25.6 — 5. S. Ratcliffe (Britain) 5:30.5 — 6. M. Seydel (E. Germany) 5:32.0 — 7. T. Shipston (New Zealand) 5:34.6 — 8. L. Vaca (Mexico) 5:35.7.

4 x 100 METER FREESTYLE RELAY

(The International Swimming Federation did not recognize a world record on this relay until 1932.)

1912 — 1. Great Britain (B. Moore, I. Steer, A. Speirs, J. Fletcher) 5:52.8 (Olympic Record) — 2. Germany (H. Stindt, L. Otto, W. Dressel, G. Rosenberg) 6:04.6 — 3. Austria (M. Adler, K. Milch, B. Zahourek, J. Sticker) 6:17.0 — 4. Sweden.
 1920 — 1. United States (E. Bleibtrey, F. Schroth, I. Guest, M. Woodbridge) 5:11.6 (Olympic Record) — 2. Great Britain (C. Radcliffe, H. James, C. McKenzie, C. Jeans) 5:40.8 — 3. Sweden (E. Machnow, A. Berg, J. Gylling, K. Nilsson) 5:43.6.
 1924 — 1. United States (G. Ederle, M. Wehselau, E. Lackie, E. Donelly) 4:58.8 (Olympic Record) — 2. Great Britain (C. McKenzie, C. Jeans, F. Barker, I. Tanner) 5:17.0 — 3. Sweden (A. Berg, G. Everlund, V. Petterson, H. Topel) 5:35.6 — 4. Denmark 5:42.4 — 5. France (G. Mortier, E. Lebrun, B. Pellegry, M. Protin) 5:43.4 — 6. Holland 5:45.8.
 1928 — 1. United States (A. Lambert, A. Osipovich, E. Garatti, M. Norelius) 4:47.6 (Olympic Record) — 2. Great Britain (M. Cooper, S. Stewart, V. Tanner, E. King) 5:02.8 — 3. So. Africa (K. Russel, Rennie, Bedford, Van der Goes) 5:13.4 — 4. Germany 5:14.4 — 5. France (C. Horrent, M. Ledoux, G. Roty, B. Pellegry) 5:32.4. Holland finished 3rd, disqualified (premature take-off).
 1932 — 1. United States (J. McKim, E. Garatti-Saville, H. Johns, H. Madison) 4:38.0 (World Record established) — 2. Holland (M. Vierdag, C. Ladde, M. Oversloot, W. den Ouden) 4:47.5 — 3. Great Britain (E. Davies, M. Cooper, H. Varcoe, E. Hughes) 4:52.4 — 4. Canada 5:05.7 — 5. Japan 5:06.7.
 1936 — 1. Holland (J. Selbach, C. Wagner, W. den Ouden, H. Mastenbroek) 4:36.0 (Olympic Record) — 2. Germany (R. Halbgtut, L. Lohman, I. Schmitz, G. Arent) 4:36.8 — 3. United States (C. Rawls, B. Lapp, M. Freeman, O. McKean) 4:40.2 — 4. Hungary 4:48.0 — 5. Canada 4:48.0 — 6. Great Britain 4:51.0 — 7. Denmark 4:51.4.
 1948 — 1. United States (M. Corridon, T. Kalama, B. Helser, A. Curtis) 4:29.2 (Olympic Record) — 2. Denmark (E. Riise, K. Harup, G. Andersen, F. Nathansen-Carstensen) 4:29.9 — 3. Holland (I. Schumacher, M. Marsman, M. Vaessen, J. Termeulen) 4:31.6 — 4. Great Britain 4:34.7 — 5. Hungary 4:44.8 — 6. Brazil 4:49.1 — 7. France (J. Arene, G. Vallerey, C. Thomas, G. Jany) 4:49.8. Sweden finished 4th, disqualified (premature take-off).
 1952 — 1. Hungary (I. Novak, J. Temes, E. Novak, K. Szoke) 4:24.4 (World Rec.) — 2. Holland (M.L. Vaessen-Linssen, K. van Voorn, J. Termeulen, I. Schumacher-Heyting) 4:29.0 — 3. United States (J. Lavine, M. Stepan, J. Alderson, E. Kawamoto) 4:30.1 — 4. Denmark 4:36.2 — 5. Great Britain 4:37.8 — 6. Sweden 4:39.0 — 7. Germany 4:40.3 — 8. France (G. Tanguy, M. Morandini, G. Jany, J. Arene) 4:44.1.
 1956 — 1. Australia (D. Fraser, L. Crapp, F. Leech, S. Morgan) 4:17.1 (World Record) — 2. United States (S. Ruuska, S. Mann, N. Simons, J. Rosazza) 4:19.2 — 3. So. Africa (N. Myburgh, S. Roberts, J. Myburgh, M. Abernethy) 4:25.7 — 4. Germany 4:26.1 — 5. Canada 4:28.3 — 6. Sweden 4:30.0 — 7. Hungary 4:31.1 — 8. Great Britain 4:35.8.
 1960 — 1. United States (J. Spillane, S. Stobs, C. Wood, C. von Saltza) 4:08.9 (World Record) — 2. Australia (D. Fraser, I. Konrads, L. Crapp, A. Colquhoun) 4:11.3 — 3. Germany (C. Steffin, H. Pechstein, G. Weiss, U. Brunner) 4:19.7 — 4. Hungary 4:21.2 — 5. Great Britain 4:24.6 — 6. Sweden 4:25.1 — 7. Italy 4:26.8 — 8. U.S.S.R. 4:29.0.
 1964 — 1. USA (S. Stouder, D. de Varona, L. Watson, K. Ellis) 4:03.8 (World and Olympic Record) — 2. Australia (R. Thorn, J. Murphy, L. Bell, D. Fraser) 4:06.9 — 3. Netherlands (P. van der Wildt, C. Beumer, W. van Weerdenburg, E. Terpstra) 4:12.0 — 4. Hungary (J. Turoczi, E. Erdelyi, K. Takaca, M. Dobai) 4:12.1 — 5. Sweden (G. Lilja, L. Andersson, U. Jafvert, A. Hagberg) 4:14.0 — 6. Germany (M. Grunert, T. Beierlein, R. Schumacher, H. Pechstein) 4:15.0 — 7. Canada (M. Stewart, P. Thompson, H. Kennedy, M. Lay) 4:15.9 — 8. Italy (P. Saini, M. Pacifici, M. Sacchi, D. Beneck) 4:17.2.
 1968 — 1. USA (J. Barkman, L. Gustavson, S. Pedersen, J. Henne) 4:02.5 (World and Olympic Record) — 2. E. Germany (G. Wetzko, R. Krauser, U. Schumck, G. Perthes) 4:05.7 — 3. Canada (A. Coughlan, M. Corson, E. Tanner, M. Lay) 4:07.2 — 4. Australia (J. Steinbeck, S. Eddy, L. Watson, L. Bell) 4:08.7 — 5. Hungary (E. Kovacs, M. Patoh, A. Gyarmati, J. Turoczi) 4:11.0 — 6. Japan (S. Kawanishi, Y. Nishigawa, Y. Fujii, M. Kobayashi) 4:13.6 — 7. Britain (S. Ratcliffe, F. Kellock, S. Williams, A. Jackson) 4:18.0.

4 x 100 METER MEDLEY RELAY

- 1960 — 1. United States (L. Burke, P. Kempner, C. Schuler, C. von Saltza) 4:41.1 (World Record) — 2. Australia (M. Wilson, R. Lassig, J. Andrew, D. Fraser) 4:45.9 — 3. Germany (I. Schmidt, U. Kuper, B. Fuhrmann, U. Brunner) 4:47.6 — 4. Holland 4:47.6 — 5. Great Britain 4:47.6 — 6. Hungary 4:53.7 — 7. Japan 4:56.4 — 8. U.S.S.R. 4:58.1.
- 1964 — 1. USA (C. Ferguson, C. Goyette, S. Stouder, K. Ellis) 4:33.9 (World and Olympic Record) — 2. Netherlands (K. Winkel, K. Bimolt, A. Kok, E. Terpstra) 4:37.0 — 3. USSR (T. Savelieva, S. Babanina, T. Deviatova, N. Ustinova) 4:39.2 — 4. Japan (S. Tanaka, N. Yamamoto, E. Takahashi, M. Kihara) 4:42.0 — 5. Britain (J. Norfolk, S. Mitchell, M. Cotterill, E. Long) 4:45.8 — 6. Canada (E. Weir, M. Lay, M. Stewart, H. Kennedy) 4:49.9.
- 1968 — 1. USA (K. Hall, C. Ball, E. Daniel, S. Pedersen) 4:28.3 (World and Olympic Record) — 2. Australia (L. Watson, J. Playfair, L. McClements, J. Steinbeck) 4:30.0 — 3. W. Germany (A. Krauss, U. Frommater, H. Hustede, H. Rineck) 4:36.4 — 4. USSR (Lekveishvili, Grebennikova, Devjatava, Grebetz) 4:37.0 — 5. E. Germany (M. Grunnert, E. Mittke, H. Lindner, U. Schumck) 4:38.0 — 6. Britain (W. Burrell, D. Harrison, M. Auton, A. Jackson) 4:38.3 — 7. Holland (C. Buter, K. Bimolt, A. Kok, N. Box) 4:38.7 — 8. Hungary (M. Lantos Balla, E. Kovacs, A. Gyarmati, J. Turocz) 4:42.9.

B) Ten All-Time Best Performers as of January 1, 1970

Only performances conforming to rules governing world records (length) of pools 50 m. or 55 yards; for relays, team members must be of the same nationality. The capital letter "Y" indicates that the time was achieved for the corresponding yards distance (thus 110 yards for 100 m.). The capital letter "S" indicates the time was made in salt water.

If the best time in fresh water does not appear in the list, it is included after the list.

Where two or more times tie for first place, the one listed first is the oldest, i.e. the only official record.

Ten World Best Times as of January 1, 1970

Men

100 Meter Freestyle

- | | |
|------------------------------------|-------------|
| 1. Michael Wenden (Australia) | 52.2 (1968) |
| 2. Don Havens (USA) | 52.5 (1969) |
| 3. Ken Walsh (USA) | 52.6 (1967) |
| 3. Zac Zorn (USA) | 52.6 (1968) |
| 3. Mark Spitz (USA) | 52.6 (1969) |
| 4. Alan Gottvalles (France) | 52.9 (1964) |
| 4. Steve Clark (USA) | 52.9 (1964) |
| 4. Don Schollander (USA) | 52.9 (1968) |
| 4. Jerry Heidenreich (USA) | 52.9 (1969) |
| 5. Leonid Ilichev (USSR) | 53.2 (1967) |
| 6. Steve Rerych (USA) | 53.3 (1968) |
| 7. Bobby McGregor (Gt. Britain) | 53.4 (1967) |
| 7. Michael Rousseau (France) | 53.4 (1967) |
| 8. Dan Frawley (USA) | 53.5 (1969) |
| 9. Manuel Dos Santos (Brazil) | 53.6 (1961) |
| 9. Frank Heckl (USA) | 53.6 (1969) |
| 10. Mike Austin (USA) | 53.7 (1964) |
| 10. Frank Wiegand (E. Germany) | 53.7 (1965) |
| 10. Gyorgy Kulikov (USSR) | 53.7 (1968) |
| 10. Jose Chicoy (Spain) | 53.7 (1968) |
| 10. Sergei Gusev (USSR) | 53.7 (1968) |
| 10. Nico Van der Merwe (S. Africa) | 53.7 (1969) |

200 Meter Freestyle

- | | |
|--------------------------------|---------------|
| 1. Don Schollander (USA) | 1:54.3 (1968) |
| 1. Mark Spitz (USA) | 1:54.3 (1969) |
| 2. Michael Wenden (Australia) | 1:55.2 (1968) |
| 3. Hans Fassnacht (W. Germany) | 1:56.5 (1969) |
| 4. John Nelson (USA) | 1:56.6 (1968) |
| 5. Tom McBreen (USA) | 1:56.7 (1969) |
| 6. Leonid Ilichev (USSR) | 1:56.9 (1968) |
| 7. Juan Bello (Peru) | 1:57.0 (1969) |
| 8. Ralph Hutton (Canada) | 1:57.1 (1968) |
| 9. Greg Charlton (USA) | 1:57.3 (1967) |
| 9. Steve Rerych (USA) | 1:57.3 (1968) |
| 10. Brent Berk (USA) | 1:57.5 (1968) |

400 Meter Freestyle

- | | |
|--------------------------------|---------------|
| 1. Hans Fassnacht (W. Germany) | 4:04.0 (1969) |
| 2. Mike Burton (USA) | 4:04.4 (1969) |
| 3. John Kinsella (USA) | 4:06.2 (1969) |
| 4. Ralph Hutton (Canada) | 4:06.5 (1968) |
| 5. Mark Spitz (USA) | 4:07.7 (1968) |
| 6. Brent Berk (USA) | 4:08.1 (1968) |
| 6. John Nelson (USA) | 4:08.1 (1968) |
| 7. Greg Charlton (USA) | 4:08.2 (1967) |
| 8. Guil. Echevarria (Mexico) | 4:08.5 (1968) |
| 8. Gary Hall (USA) | 4:08.5 (1969) |
| 9. Alain Mosconi (France) | 4:09.2 (1967) |
| 10. Andy Strenk (USA) | 4:09.6 (1968) |

800 Meter Freestyle

- | | |
|--------------------------------|----------------|
| 1. Mike Burton (USA) | 8:28.8 (1969) |
| 2. John Kinsella (USA) | 8:33.9 (1969) |
| 3. Francis Luyce (France) | 8:42.0 (1967) |
| 4. Simon Belitz-Geiman (USSR) | 8:45.7 (1969) |
| 5. Ralph Hutton (Canada) | 8:46.7 (1968) |
| 6. Guil. Echevarria (Mexico) | 8:46.8 (1968) |
| 6. Hans Fassnacht (W. Germany) | 8:46.8 (1969) |
| 7. Jack Horsley (USA) | 8:51.8y (1968) |
| 8. Henry Watson (USA) | 8:52.5 (1969) |
| 9. Andy Strenk (USA) | 8:52.9 (1969) |
| 10. Greg Brough (Australia) | 8:53.4 (1969) |

1500 Meter Freestyle

- | | |
|--------------------------------|----------------|
| 1. Mike Burton (USA) | 16:04.5 (1969) |
| 2. John Kinsella (USA) | 16:18.9 (1969) |
| 3. Guil. Echevarria (Mexico) | 16:28.1 (1968) |
| 4. Hans Fassnacht (W. Germany) | 16:32.1 (1969) |
| 5. Gary Hall (USA) | 16:32.8 (1969) |
| 6. John Nelson (USA) | 16:40.7 (1968) |
| 7. Graham White (Australia) | 16:41.5 (1968) |
| 8. Henry Watson (USA) | 16:42.1 (1969) |
| 9. Mike Wall (USA) | 16:43.2 (1968) |
| 10. Andrew Strenk (USA) | 16:43.4 (1969) |

100 Meter Backstroke

- | | |
|--------------------------------|---------------|
| 1. Roland Matthes (E. Germany) | 57.8 (1969) |
| 2. Charles Hickcox (USA) | 59.1 (1967) |
| 3. Doug Russell (USA) | 59.5 (1967) |
| 4. Thompson Mann (USA) | 59.6 (1964) |
| 5. Mitch Ivey (USA) | 59.8 (1969) |
| 6. Viktor Mazanov (USSR) | 1:00.0 (1966) |
| 7. Ronnie Mills (USA) | 1:00.3 (1968) |
| 8. Yuri Gromak (USSR) | 1:00.5 (1968) |
| 8. Mike Stamm (USA) | 1:00.5 (1969) |
| 9. Gary Hall (USA) | 1:00.6 (1969) |
| 10. Larry Barbieri (USA) | 1:00.7 (1968) |
| 10. Volker Werner (E. Germany) | 1:00.7 (1969) |

200 Meter Backstroke

1. Roland Matthes (E. Germany)	2:06.4 (1969)
2. Gary Hall (USA)	2:06.6 (1969)
3. Mitch Ivey (USA)	2:07.3 (1969)
4. Jack Horsley (USA)	2:08.8 (1968)
5. Charles Hickcox (USA)	2:09.4 (1967)
6. Jed Graef (USA)	2:10.3 (1964)
7. Ray Rivero (USA)	2:10.4 (1968)
8. Gary Dilley (USA)	2:10.5 (1964)
9. Mike Stamm (USA)	2:10.8 (1969)
10. Tom Stock (USA)	2:10.9 (1962)

100 Meter Breaststroke

1. Nikolai Pankin (USSR)	1:05.8 (1969)
2. Jose Silvo Fiolo (Brazil)	1:06.4 (1968)
3. Vladimir Kosinsky (USSR)	1:06.7 (1967)
4. Georgi Prokopenko (USSR)	1:06.9 (1964)
5. Egon Henninger (E. Germany)	1:07.0 (1967)
6. Brian Job (USA)	1:07.0 (1969)
7. Don McKenzie (USA)	1:07.3 (1968)
8. Chet Jastremski (USA)	1:07.4 (1969)
9. Yuri Podoprigora (USSR)	1:07.5 (1969)
10. Ian O'Brien (Australia)	1:07.6 (1964)
10. Mike Dirksen (USA)	1:07.7 (1969)

200 Meter Breaststroke

1. Nikolai Pankin (USSR)	2:25.4 (1969)
2. Brian Job (USA)	2:25.8 (1969)
3. Mike Dirksen (USA)	2:26.9 (1969)
4. Klaus Katzur (E. Germany)	2:27.2 (1969)
5. Vladimir Kosinsky (USSR)	2:27.4 (1968)
6. Ian O'Brien (Australia)	2:27.8 (1964)
6. Felipe Munoz (Mexico)	2:27.8 (1969)
7. Egon Henninger (E. Germany)	2:28.0 (1969)
8. Chet Jastremski (USA)	2:28.2 (1964)
8. Georgi Prokopenko (USSR)	2:28.2 (1964)
9. Igor Marcukov (USSR)	2:28.9 (1969)
10. Rick Colella (USA)	2:29.4 (1969)

100 Meter Butterfly

1. Mark Spitz (USA)	55.6 (1968)
2. Doug Russell (USA)	55.9 (1968)
3. Luis Nicolao (Argentina)	57.0 (1962)
3. Ross Wales (USA)	57.0 (1968)
4. Walt Richardson (USA)	57.5 (1964)
5. Juan Bello (Peru)	57.6 (1969)
6. Bruce Lechler (USA)	57.8 (1968)
6. Vladimir Nemshilov (USSR)	57.8 (1969)
7. Jerry Heidenreich (USA)	57.9 (1969)
7. John Ferris (USA)	57.9 (1968)
8. Phil Riker (USA)	58.0 (1965)
8. Carl Robie (USA)	58.0 (1967)
8. Lutz Stoklasa (Sweden)	58.0 (1968)
8. Satoshi Maruya (Japan)	58.0 (1968)
9. Larry Schulhof (USA)	58.1 (1964)
9. Dan Sherry (Canada)	58.1 (1965)
9. Mike Masarie (USA)	58.1 (1968)
9. Victor Sharigyn (USSR)	58.1 (1969)
9. Udo Posor (E. Germany)	58.1 (1969)
10. Charles Hickcox (USA)	58.2 (1968)

200 Meter Butterfly

1. Mark Spitz (USA)	2:05.7 (1967)
2. John Ferris (USA)	2:06.0 (1967)
3. Mike Burton (USA)	2:06.5 (1969)

4. Kevin Berry (Australia)	2:06.6 (1964)
5. Carl Robie (USA)	2:06.9 (1967)
6. Phil Houser (USA)	2:07.1 (1967)
7. Yasuo Takada (Japan)	2:07.6 (1969)
8. Martyn Woodroffe (Gr. Britain)	2:07.8 (1969)
9. Fred Schmidt (USA)	2:08.0 (1964)
9. Peter Feil (Sweden)	2:08.0 (1968)
9. Andy Strenk (USA)	2:08.0 (1969)
10. Udo Posor (E. Germany)	2:08.1 (1969)

200 Meter Individual Medley

1. Gary Hall (USA)	2:09.6 (1969)
2. Charles Hickcox (USA)	2:10.6 (1968)
3. Greg Buckingham (USA)	2:11.3 (1967)
4. John Ferris (USA)	2:11.6 (1968)
5. Doug Russell (USA)	2:12.6 (1969)
6. Juan Bello (Peru)	2:13.0 (1969)
7. Carl Thomas (USA)	2:13.1 (1969)
8. George Smith (Canada)	2:13.4 (1969)
9. Frank Wiegand (E. Germany)	2:13.5 (1967)
9. Roland Matthes (E. Germany)	2:13.5 (1969)
10. Mark Spitz (USA)	2:13.6 (1967)
10. Peter Williams (USA)	2:13.6 (1968)

400 Meter Individual Medley

1. Gary Hall (USA)	4:33.9 (1969)
2. Charles Hickcox (USA)	4:39.0 (1968)
3. Greg Buckingham (USA)	4:40.2 (1968)
4. Peter Williams (USA)	4:41.8 (1968)
5. Steve Power (USA)	4:42.0 (1969)
6. Hans Fassnacht (W. Germany)	4:42.5 (1969)
7. Michael Holthaus (W. Germany)	4:44.0 (1968)
8. Wolfgang Sperling (E. Germany)	4:44.4 (1969)
9. Matthias Pechmann (E. Germany)	4:45.1 (1969)
10. John Ferris (USA)	4:45.3 (1968)
10. Andrei Dunaev (USSR)	4:45.3 (1968)

4 x 200 Freestyle Relay

1. USA National Team (Zorn, Rerych, Spitz, Walsh)	3:31.7 (1968)
2. Los Angeles Athletic Club (Frawley, Dewitt, Frlakin, Havens)	3:32.8 (1969)
3. USA National Team	3:33.2 (1964)
4. Essen Club (W. Germany)	3:34.1 (1969)
5. USSR National Team	3:34.2 (1968)
6. Australian National Team	3:34.7 (1968)
7. Phillips 66 Long Beach	3:35.2 (1969)
8. Santa Clara Swim Club	3:35.4 (1966)
9. Australia	3:35.6 y (1966)
10. Santa Clara Swim Club	3:36.1 (1965)

4 x 200 Meter Freestyle Relay

1. USA National Team (Clark, Saari, Ilman, Schollander)	7:52.1 (1964)
1. Santa Clara Swim Club (Schollander, Spitz, Wall, Ilman)	7:52.1 (1967)
2. USA National Team	7:52.3 (1968)
3. Phillips 66 Long Beach	7:52.7 (1969)
4. Australian National Team	7:53.7 (1968)
5. USSR	7:54.5 (1969)
6. Santa Clara Swim Club "A"	7:56.9 (1966)
7. Santa Clara Swim Club "B"	7:58.0 (1964)
7. Santa Clara Swim Club "B"	7:58.0 (1966)
8. France	7:58.6 (1968)
9. Germany (combined) Olympic team	7:59.3 (1964)
10. Australia	7:59.5 y (1966)

4 x 100 Meter Medley Relay

1. USA National Team (Hickcox, McKenzie, Russell, Walsh)	3:54.9 (1968)
2. East Germany National Team	3:56.5 (1967)
3. USSR	3:57.0 (1969)
4. E. Germany National Team	3:57.5 (1968)
4. Phillips 66 Long Beach	3:57.5 (1969)
5. Santa Clara Swim Club "A"	3:58.1 (1969)
6. USA National Team	3:58.4 (1964)
7. Australia	4:00.8 (1968)
8. Burford Club	4:01.7 (1969)
8. David Douglas Swim Club	4:01.7 (1969)
9. Japan	4:01.8 (1968)
10. West Germany	4:02.8 (1968)

Ten World Best Times as of January 1, 1970

Women

100 Meter Freestyle

1. Dawn Fraser (Australia)	58.9 (1964)
2. Sue Pedersen (USA)	59.0 (1968)
3. Jan Henne (USA)	59.1 (1968)
4. Linda Gustavson (USA)	59.6 (1968)
4. Gabriele Wetzko (E. Germany)	59.6 (1969)
4. Jane Barkman (USA)	59.6 (1968)
5. Sharon Stouder (USA)	59.9 (1964)
5. Pokey Watson (USA)	59.9 (1966)
5. Ericka Bricker (USA)	59.9 (1967)
6. Kathy McKittrick (USA)	1:00.0 (1969)
6. Judit Turoczy (Hungary)	1:00.0 (1969)
7. Andrea Gyarmati (Hungary)	1:00.3 (1969)
8. Cathy Corcione (USA)	1:00.4 (1968)
8. Mirjana Segrt (Yugo)	1:00.4 (1968)
9. Eadie Wetzel (USA)	1:00.5 (1968)
9. Marion Lay (Canada)	1:00.5 (1968)
9. Alexandra Jackson (Gr. Brit.)	1:00.5 (1968)
10. Kathy Ellis (USA)	1:00.6 (1964)
10. Jeanne Hallock (USA)	1:00.6 (1964)
10. Pam Kruse (USA)	1:00.6 (1967)
10. Libby Tullis (USA)	1:00.6 (1968)

200 Meter Freestyle

1. Debbie Meyer (USA)	2:06.7 (1968)
2. Sue Pedersen (USA)	2:07.8 (1969)
3. Jan Henne (USA)	2:07.9 (1968)
3. Linda Gustavson (USA)	2:07.9 (1968)
4. Jane Barkman (USA)	2:08.1 (1968)
5. Pam Kruse (USA)	2:08.3 (1968)
6. Eadie Wetzel (USA)	2:08.8 (1968)
7. Gabriele Wetzko (E. Germany)	2:08.9 (1969)
8. Pokey Watson (USA)	2:10.2 (1968)
8. Mirjana Segrt (Ygo)	2:10.2 (1968)
9. Ann Simmons (USA)	2:10.6 (1969)
10. Nancy Ryan (USA)	2:10.7 (1968)

400 Meter Freestyle

1. Debbie Meyer (USA)	4:24.5 (1968)
2. Linda Gustavson (USA)	4:28.2 (1968)
3. Pam Kruse (USA)	4:28.8 (1968)
4. Sue Pedersen (USA)	4:28.9 (1969)
5. Ann Simmons (USA)	4:29.6 (1969)
6. Vicki King (USA)	4:30.4 (1969)
7. Eadie Wetzel (USA)	4:31.5 (1968)
8. Patty Caretto (USA)	4:32.1 (1968)
9. Karen Moras (AUST)	4:34.5 (1969)
10. Angela Coughlan (Canada)	4:35.6 (1969)

800 Meter Freestyle

1. Debbie Meyer (USA)	9:10.4 (1968)
2. Vicki King (USA)	9:11.6 (1969)
3. Patty Caretto (USA)	9:18.5 (1968)
4. Pam Kruse (USA)	9:20.7 (1968)
5. Ann Simmons (USA)	9:21.4 (1969)
6. Karen Moras (Australia)	9:22.3 (1968)
7. Evelyn Kossner (USA)	9:24.3 (1969)
8. Claudia Kolb (USA)	9:24.5 (1968)
9. Eadie Wetzel (USA)	9:26.1 (1968)
10. Angela Coughlan (Canada)	9:30.8 (1969)
10. Karin Neugebauer (E. Germany)	9:30.8 (1969)

1500 Meter Freestyle

1. Debbie Meyer (USA)	17:19.9 (1969)
2. Vicki King (USA)	17:20.0 (1969)
3. Ann Simmons (USA)	17:47.3 (1969)
4. Evelyn Kossner (USA)	17:50.8 (1969)
5. Karen Moras (Australia)	18:00.0 (1968)
6. Ann Tasnady (USA)	18:05.9 (1969)
7. Eadie Wetzel (USA)	18:06.2 (1968)
8. Pam Kruse (USA)	18:06.3 (1968)
9. Patty Caretto (USA)	18:08.6 (1968)
10. Cindy Plaisted (USA)	18:08.9 (1969)

100 Meter Backstroke

1. Karen Muir (S. Africa)	1:05.6 (1969)
2. Susie Atwood (USA)	1:06.0 (1969)
3. Kaye Hall (USA)	1:06.2 (1968)
4. Elaine Tanner (Canada)	1:06.7 (1968)
5. Ann Fairlie (S. Africa)	1:07.4 (1966)
5. Jane Swagerty (USA)	1:07.4 (1968)
6. Cathy Ferguson (USA)	1:07.7 (1964)
7. Chris Caron (France)	1:07.9 (1964)
7. Kendis Moore (USA)	1:07.9 (1967)
7. Glenda Stirling (N.Z.)	1:07.9 (1969)
8. Virginia Dunkel (USA)	1:08.0 (1964)
9. Benedicte Duprez (France)	1:08.2 (1968)
9. Pokey Watson (USA)	1:08.2 (1968)
9. Tina Lekveichvili (USSR)	1:08.2 (1969)
10. Libby Tullis (USA)	1:08.3 (1969)
10. Andrea Gyarmati (Hungary)	1:08.3 (1969)

200 Meter Backstroke

1. Susie Atwood (USA)	2:21.5 (1969)
2. Karen Muir (S. Africa)	2:23.8 (1968)
3. Pokey Watson (USA)	2:24.3 (1968)
4. Elaine Tanner (Canada)	2:24.4 (1967)
5. Kaye Hall (USA)	2:25.0 (1969)
6. Kendis Moore (USA)	2:26.7 (1968)
7. Lynn Skrifvars (USA)	2:26.8 (1969)
8. Cecilia Dougherty (USA)	2:27.1 (1968)
9. Cathy Ferguson (USA)	2:27.4 (1964)
10. Libby Tullis (USA)	2:27.5 (1969)

100 Meter Breaststroke

1. Catie Ball (USA)	1:14.2 (1968)
2. Galina Prozumenschikova (USSR)	1:15.4 (1968)
3. Sharon Wichman (USA)	1:15.5 (1968)
4. Kimla Brecht (USA)	1:15.7 (1969)
5. Djurdjica Bjedov (Yugoslavia)	1:15.8 (1968)
6. Anna M. Norbis (Uruguay)	1:15.9 (1967)
7. Uta Frommater (W. Germany)	1:16.2 (1968)
8. Sue Jones (USA)	1:16.3 (1968)
8. Terry Auda (USA)	1:16.3 (1968)
9. Alla Grebennikova (USSR)	1:16.4 (1968)
10. Svetlana Babanina (USSR)	1:16.5 (1965)

200 Meter Breaststroke

1. Catie Ball (USA)	2:38.5 (1968)
2. Galina Prozumenschikova (USSR)	2:40.8 (1966)
3. Irina Pozdynakova (USSR)	2:41.9 (1966)
4. Kathy Jamison (USA)	2:42.5 (1968)
5. Sharon Wichman (USA)	2:44.1 (1968)
6. Alla Grebennikova (USSR)	2:44.7 (1967)
7. Uta Frommater (W. Germany)	2:45.1 (1968)
7. Valentina Burkauskaitė (USSR)	2:45.1 (1969)
8. Sue Jones (USA)	2:45.2 (1968)
9. Kim Brecht (USA)	2:45.5 (1969)
10. Terry Auda (USA)	2:45.5 (1968)

100 Meter Butterfly

1. Ada Kok (Holland)	1:04.5 (1965)
2. Sharon Stouder (USA)	1:04.7 (1964)
3. Ellie Daniel (USA)	1:04.8 (1968)
3. Susie Shields (USA)	1:04.8 (1968)
4. Toni Hewitt (USA)	1:05.0 (1968)
5. Elaine Tanner (Canada)	1:05.4 (1967)
5. Sue Pitt (USA)	1:05.5 (1966)
5. Lynn McClements (Australia)	1:05.5 (1968)
6. Andrea Gyarmati (Hungary)	1:05.5 (1969)
7. Sara Wylie (USA)	1:05.6 (1968)
8. Virginia Durkin (USA)	1:05.9 (1969)
9. Kathy Ellis (USA)	1:06.0 (1964)
10. Claudia Kolb (USA)	1:06.1 (1967)

200 Meter Butterfly

1. Ada Kok (Holland)	2:21.0 (1967)
2. Lynn Colella (USA)	2:21.6 (1969)
2. Ellie Daniel (USA)	2:21.6 (1969)
3. Helga Lindner (E. Germany)	2:21.8 (1969)
4. Toni Hewitt (USA)	2:22.0 (1968)
5. Diane Giebel (USA)	2:23.1 (1968)
6. Sue Pitt (USA)	2:24.7 (1968)
7. Claudia Kolb (USA)	2:25.5 (1967)
8. Karen Moe (USA)	2:25.6 (1969)
9. Patty Caretto (USA)	2:25.9 (1968)
10. Kendis Moore (USA)	2:26.3 (1965)

200 Meter Individual Medley

1. Claudia Kolb (USA)	2:23.5 (1968)
2. Sue Pedersen (USA)	2:25.0 (1968)
3. Jan Henne (USA)	2:25.5 (1968)
4. Lynn Vidali (USA)	2:25.6 (1968)
5. Martina Grunert (E. Germany)	2:27.5 (1969)
6. Susie Atwood (USA)	2:28.1 (1969)
7. Cathy Corcione (USA)	2:28.4 (1968)
8. Catie Ball (USA)	2:28.9 (1968)
9. Kathy Thomas (USA)	2:29.0 (1968)
10. Judit Turoczy (Hungary)	2:29.6 (1968)

400 Meter Individual Medley

1. Claudie Kolb (USA)	5:04.7 (1968)
2. Debbie Meyer (USA)	5:08.6 (1969)
3. Susie Atwood (USA)	5:09.5 (1969)
4. Sue Pedersen (USA)	5:10.3 (1968)
5. Lynn Vidali (USA)	5:12.5 (1968)
6. Donna de Varona (USA)	5:14.9 (1964)
6. Sabine Steinbach (E. Germany)	5:14.9 (1968)
7. Kathy Thomas (USA)	5:15.1 (1968)
8. Lynn Colella (USA)	5:15.9 (1969)
9. Patty Caretto (USA)	5:16.1 (1968)
10. Catie Ball (USA)	5:16.3 (1968)

4 x 100 Meter Freestyle Relay

1. Santa Clara Swim Club "A" (Gustavson, Watson, Carpinelli, Henne)	4:01.0 (1968)
2. USA National Team (Barkman, Gustavson, Pedersen, Henne)	4:02.5 (1968)
3. Hungary National Team	4:02.6 (1969)
4. Santa Clara Swim Club	4:02.9 (1969)
5. E. Germany National Team	4:03.8 (1964)
6. USA National Team	4:03.3 (1969)
7. Santa Clara Swim Club	4:04.5 (1966)
8. Arden Hills Swim Club "A"	4:06.7 (1968)
9. Australian National Team	4:06.9 (1964)
10. Vesper Boat Club	4:07.0 (1966)

4 x 100 Freestyle Relay

1. Arden Hills Club "A" (Kossner, King, Meyer, Pedersen)	8:42.3 (1969)
2. Santa Clara Swim Club "A" (Henne, Ryan, Vidali, Gustavson)	8:44.0 (1969)
3. Santa Clara Swim Club	8:55.4 (1966)
4. Lakewood Aquatic Club	8:57.7 (1969)
5. Vesper Boat Club "A"	9:00.5 (1966)
6. Santa Clara Swim Club "B"	9:07.1 (1968)
7. Los Angeles Aquatic Club "A"	9:07.8 (1966)
7. Phillips 66 Long Beach	9:07.8 (1969)
8. Philadelphia Aquatic Club	9:08.3 (1969)
9. Santa Clara Swim Club "B"	9:09.1 (1969)
10. Lakewood Aquatic Club "B"	9:10.1 (1969)

4 x 100 Meter Medley Relay

1. USA National Team (Hall, Ball, Daniel, Pedersen)	4:28.3 (1968)
2. Australian National Team (Watson, Playfair, McClements, Steinbeck)	4:30.0 (1968)
3. Lakewood Aquatic Club	4:31.4 (1969)
4. Santa Clara Swim Club "A"	4:33.8 (1968)
5. USA National Team	4:33.9 (1964)
6. USA National Team	4:34.6 (1964)
7. Santa Clara Swim Club "B"	4:34.8 (1968)
7. E. Germany National Team	4:34.8 (1969)
8. Holland	4:35.5 (1968)
9. USSR	4:35.7 (1967)
10. West German National Team	4:36.4 (1968)
10. Holland	4:36.4 (1966)

WORLD RECORDS
As of December 31, 1969

MEN

FREESTYLE

100m.	:52.2	Michael Wenden	Australia	19 Oct. 68	Mexico City
110 yds.	:53.5 S	Robert McGregor	Britain	10 Sept. 66	Blackpool
200 m.	1:54.3	Donald Schollander	USA	30 March 68	Long Beach
		Mark Spitz	USA	12 July 69	Santa Clara
220 yds.	1:57.0	Donald Schollander	USA	27 Aug. 66	Vancouver
400 m.	4:04.0	Hans Fassnacht	W. Germany	14 Aug. 69	Louisville
440 yds.	4:12.2	Gregory Charlton	USA	26 Aug. 66	Vancouver
800 m.	8:28.8	Michael Burton	USA	17 Aug. 69	Louisville
880 yds.	8:55.5	I. Murray Rose	Australia	5 Sept. 64	Vancouver
1500 m.	16:04.5	Michael Burton	USA	17 Aug. 69	Louisville
1650 yds.	17:11.0 S	Jon Konrads	Australia	27 Feb. 60	Sydney

BREASTSTROKE

100 m.	1:05.8	Nicolai Pankin	USSR	20 April 69	Magdeburg
110 yds.	1:08.2	Ian O'Brien	Australia	12 Aug. 68	Jamaica
200 m.	2:25.4	Nicolai Pankin	USSR	19 April 69	Magdeburg
220 yds.	2:28.0	Ian O'Brien	Australia	6 Aug. 66	Jamaica

BUTTERFLY

100 m.	:55.6	Mark Spitz	USA	30 Aug. 68	Long Beach
				11 July 69	Santa Clara
110 yds.	:56.3	Mark Spitz	USA	30 Sept. 67	London
200 m.	2:05.7	Mark Spitz	USA	8 Oct. 67	Berlin
220 yds.	2:08.4	Kevin Berry	Australia	12 Jan. 63	Sydney

BACKSTROKE

100 m.	57.8	Roland Matthes	E. Germany	23 Aug. 69	Wurzburg
110 yds.	1:00.1	Roland Matthes	E. Germany	20 Sept. 67	Leipzig
200 m.	2:06.4	Roland Matthes	E. Germany	29 Aug. 69	Berlin
220 yds.	2:12.0	Peter Reynolds	Australia	9 Aug. 66	Jamaica

INDIVIDUAL MEDLEY

200 m.	2:09.6	Gary Hall	USA	17 Aug. 69	Louisville
220 yds.	2:14.0	(Standard Maximum Time)			
400 m.	4:33.9	Gary Hall	USA	15 Aug. 69	Louisville
440 yds.	4:46.8	Michael Holthaus	W. Germany	20 Aug. 68	London

FREESTYLE RELAY

4 x 100 m.	3:31.7	National Team	USA	17 Oct. 68	Mexico City
		(Z. Zorn, S. Rerych, M. Spitz, K. Walsh)			
4 x 110 yds.	3:35.6	National Team	Australia	11 Aug. 66	Jamaica
		(M. Wenden, D. Dickson, J. Ryan, R. Windle)			
4 x 200 m.	7:52.1	National Team	USA	18 Oct. 64	Tokyo
		(S. Clark, R. Saari, G. Ilman, D. Schollander)			
	7:52.1	Santa Clara S.C.	USA	12 Aug. 67	Oak Park
		(D. Schollander, M. Spitz, M. Wall, G. Ilman)			
4 x 220 yds.	7:59.5	National Team	Australia	5 Aug. 66	Jamaica
		(M. Wenden, P. Reynolds, D. Dickson, R. Windle)			

MEDLEY RELAY

4 x 100 m.	3:54.9	National Team	USA	26 Oct. 68	Mexico City
		(C. Hickcox, D. McKenzie, D. Russell, K. Walsh)			
4 x 110 yds.	4:03.2	National Team	Australia	12 Aug. 66	Jamaica
		(P. Reynolds, I. O'Brien, M. Dunn, M. Wenden)			

WOMEN

FREESTYLE

100 m.	:58.9 S	Dawn Fraser	Australia	24 Nov. 64	Sydney
110 yds.	:59.5	Dawn Fraser	Australia	24 Nov. 62	Perth
200 m.	2:06.7	Deborah Meyer	USA	24 Aug. 68	Los Angeles
220 yds.	2:11.6 S	Dawn Fraser	Australia	27 Feb. 60	Sydney
400 m.	4:24.5	Deborah Meyer	USA	26 Aug. 68	Los Angeles
440 yds.	4:38.8	Katherine Wainwright	Australia	12 Aug. 68	Jamaica
800 m.	9:10.4	Deborah Meyer	USA	28 Aug. 68	Los Angeles
880 yds.	9:44.1	Deborah Meyer	USA	30 Sept. 67	London

1500 m.	17:19.9	Deborah Meyer	USA	17 Aug. 69	Louisville
1650 yds.	18:47.8	Angela Coughlan	Canada	27 July 68	Hamilton

BREASTSTROKE

100 m.	1:14.2	Catherine Ball	USA	26 Aug. 68	Los Angeles
110 yds.	1:17.0	Catherine Ball	USA	30 Sept. 67	London
200 m.	2:38.5	Catherine Ball	USA	26 Aug. 68	Los Angeles
220 yds.	2:46.9	Catherine Ball	USA	30 Sept. 67	London

BUTTERFLY

100 m.	1:04.5	Ada Kok	Netherlands	14 Aug. 65	Budapest
110 yds.	1:05.1 S	Ada Kok	Netherlands	30 May 64	Blackpool
200 m.	2:21.0 S	Ada Kok	Netherlands	25 Aug. 67	Blackpool
220 yds.	2:21.0 S	Ada Kok	Netherlands	25 Aug. 67	Blackpool

BACKSTROKE

100 m.	1:05.6	Karen Muir	S. Africa	6 July 69	Utrecht
110 yds.	1:06.7	Karen Muir	S. Africa	30 Jan. 68	Kimberley
200 m.	2:21.5	Susan Atwood	USA	14 Aug. 69	Louisville
220 yds.	2:24.1	Karen Muir	S. Africa	29 Jan. 68	Kimberley

INDIVIDUAL MEDLEY

200 m.	2:23.5	Claudia Kolb	USA	26 Aug. 68	Los Angeles
220 yds.	2:29.0	(Standard Maximum Time)			
400 m.	5:04.7	Claudia Kolb	USA	24 Aug. 68	Los Angeles
440 yds.	5:25.1	Mary-Ellen Olcese	USA	21 Aug. 65	Cardiff

FREESTYLE RELAY

4 x 100 m.	4:01.0	Santa Clara S.C.	USA	6 July 68	Santa Clara
		(L. Gustavson, L. Watson, P. Carpinelli, J. Henne)			
4 x 110 yds.	4:10.8	National Team	Canada	5 Aug. 66	Jamaica
		(E. Tanner, J. Hughes, L. Kennedy, M. Lay)			

MEDLEY RELAY

4 x 100 m.	4:28.1	National Team	USA	14 Sept. 68	USAF Acad.
		(K. Hall, C. Ball, E. Daniel, S. Pedersen)			
4 x 110 yds.	4:37.4	National Team	USA	30 Sept. 67	London
		(L. Watson, C. Ball, E. Daniel, J. Barkman)			

NATIONAL SWIMMING CHAMPIONS

NOTE — Standard events are listed first in either yards or metric equivalent. Where events have been switched to meters or a different yardage distance, this distance is given in parenthesis alongside of the time.

BREASTSTROKE — NOTE: Prior to 1954, recovery of the arms in breaststroke swimming was permitted under or over the surface of the water. In 1954 the butterfly stroke was adopted as a separate style of swimming and the breaststroke reverted to orthodox style. Effective in 1958, rules were adopted prohibiting swimming under the surface of the water, except for one arm pull and one leg kick after the turn. At all other times the rules require one part of the head shall always break the surface of the water. Records as listed are based on these rule changes.

OUTDOOR — MEN

50 YARD FREE STYLE

1921	John Weissmuller	Illinois A.C.	23.2s.
1922	John Weissmuller	Illinois A.C.	23s.
1923	Herbert Topp	Chicago A.A.	28.4s.

100 YARD FREE STYLE — 100 METERS — 110 YARDS

1883	A.F. Camacho	M.A.C.	1m.28 ¹ / ₄ s.
1884	H.E. Toussaint	New York A.C.	1m.21s.
1885	H. Braun	New York City	1m.18.4s.
1886	H. Braun	Pastime A.C.	1m.29.2s.
1887	H. Braun	Pastime A.C.	1m.17.2s.
1888	H. Braun	Pastime A.C.	1m.16.2s.
1889	W.C. Johnson	V.B.C.	1m.22.4s.
1890	W.C. Johnson	M.A.C. (With Tide)	1m.5.2s.
1891	W.C. Johnson	M.A.C.	1m.10.6s.
1892	A.T. Kenney	P.A.S.C.	1m.18.2s.
1893	A.T. Kenney	U.P. and N.S.A., Philadelphia	1m.12.4s.
1894	A.T. Kenney	N.S.A., Philadelphia	1m.9.6s.
1895	Not Held		
1896	George R. Whittacker	Chicago A.A.	1m.13.4s.
1897	D.B. Renear	L.S.C. San Francisco	1m.7.4s.
1898	S.P. Avery	Chicago A.A.	
1899	E.C. Schaeffer	New York A.C.	1m.8.6s.
1900	E.C. Schaeffer	University of Pennsylvania	1m.5.6s.
1901	E.C. Schaeffer	N.S.A.	1m.10s.
1902	E.C. Schaeffer	Reading Pa.	1m.7s.
1903	Fred A. Wenck	New York A.C.	1m.9.6s.
1904	Zoltan de Holomay	Hungary	1m.2.8s.
1905	C.M. Daniels	New York A.C.	1m.3.8s.
1906	C.M. Daniels	New York A.C.	1m.
1907	C.M. Daniels	New York A.C.	1m.3.4s.
1908	C.M. Daniels	New York A.C.	57.2s.
1909-1915	Not Held		
1916	Duke Kahanamoku	Hui Nalu, Honolulu	53.2s.
1917	Duke Kahanamoku	Hui Nalu, Honolulu	54s.
1918	Perry McGillivray	Great Lakes N.T.S.	56.2s.
1919	Perry McGillivray	Illinois A.C.	1m.5.8s.
1920	Duke Kahanamoku	Honolulu	55.4s.
1921	P. Kealoba	Hui Makani	53s.
1922	John Weissmuller	Illinois A.C.	52.8s.
1923	John Weissmuller	Illinois A.C.	54.6s.
1924	Not Held		
1925	John Weissmuller	Illinois A.C.	52s.
1926	John Weissmuller	Illinois A.C.	(100 meters) 59.6s.
1927	John Weissmuller	Illinois A.C.	(100 meters) 58s.
1928	John Weissmuller	Illinois A.C.	(100 meters) 57.8s.

1929	Walter Spence	Penn. A.C.	(100 meters) 1m.2.2s.
1930	George Kojac	New York A.C.	(100 meters) 59.2s.
1931	Manuella Kalili	Hollywood A.C.	(100 meters) 60.2s.
1932	Not Held		
1933	James Gilhula	Detroit A.C.	(100 meters) 1m.1.3s.
1934	Art Highland	Lake Shore A.C.	(100 meters) 1m.1.6s.
1935	Peter Fick	New York A.C.	(100 meters) 59.8s.
1936	Peter Fick	New York A.C.	(100 meters) 58.3s.
1937	Peter Fick	New York A.C.	(100 meters) 59.8s.
1938	Peter Fick	New York A.C.	(100 meters) 1m.00.2s.
1939	Otto Jaretz	Medinah Club, Chicago	(100 meters) 1m.00.7s.
1940	Otto Jaretz	Towers Club, Chicago	(110 yards) 58.4s.
1941	Takashi Hirose	Alex. House C.A., Maui	(100 meters) 1m.00.1s.
1942	Alan Ford	Yale	(110 yards) 59.4s.
1943	Alan Ford	Yale	(110 yards) 59.5s.
1944	Jerry Kerschner	Bunker Hill (Ind.) N.A.S.	(100 meters) 59s.
1945	Albert Isaacs	Mexican Sw. Federation	(100 meters) 1m.02.1s.
1946	Bill Smith	Hawaii University	(100 meters) 59s.
1947	Walter Ris	University of Iowa	(100 meters) 58.5s.
1948	Robert Nugent	New York A.C.	(100 meters) 58.9s.
1949	Robert Gibe	Detroit A.C.	(100 meters) 58.2s.
1950	Richard Cleveland	University of Hawaii	(110 yards) 58.2s.
1951	Richard Cleveland	Unattached, Hawaii	(100 meters) 58.0s.
1952	Richard Cleveland	Ohio State University	(110 yards) 58.4s.
1953	Richard Cleveland	Unatt., Hawaii	(100 meters) 57.5s.
1954	Richard Cleveland	Unatt., Hawaii	(100 meters) 57.5s.
1955	Hendrick Gideonse	New Haven S.C.	(100 meters) 57.6s.
1956	Dick Hanley	Unatt., Ann Arbor, Mich.	(100 meters) 56.3s.
1957	Dick Hanley	Detroit A.C.	(100 meters) 57.3s.
1958	Jon Hendricks	Los Angeles A.C.	(100 meters) 55.8s.
1959	Jeff Farrell	Yale Naval R.O.T.C.	(100 meters) 56.9s.
1960	Jeff Farrell	New Haven S.C.	(100 meters) 54.8s.
1961	Steve Clark	Santa Clara S.C.	(100 meters) 54.4s.
1962	Steve Jackman	Gopher S.C.	54.6s.
1963	Steve Clark	Santa Clara S.C.	54.9s.
1964	Don Schollander	Santa Clara S.C.	54.0s.
1965	Don Roth	Santa Clara S.C.	53.8s.
1966	Don Schollander	Santa Clara S.C.	53.5s.
1967	Don Schollander	Santa Clara S.C.	53.3s.
1968	Mark Spitz	Santa Clara S.C.	53.6s.
1969	Don Havens	Los Angeles A.C.	52.5s.

220 YARD FREESTYLE — 200 METERS

1897	D.M. Reeder	New York A.C.	2m.57.4s.
1898	H.H. Reeder	K.A.C.	3m.7.6s.
1899	E.C. Schaeffer	New York A.C.	2m.53.6s.
1900	E.C. Schaeffer	Univ. of Pennsylvania	3m.7.2s.
1901	E.C. Schaeffer	N.S.A.	2m.50.8s.
1902	E.C. Schaeffer	Reading, Pa.	2m.58.8s.
1903	Charles Ruberl	New York A.C., New York	3m.18.4s.
1904	C.M. Daniels	New York A.C.	2m.44.2s.
1905	C.M. Daniels	New York A.C.	2m.45s.
1906	C.M. Daniels	New York A.C.	2m.42.4s.
1907	C.M. Daniels	New York A.C.	3m.13.8s.
1908	C.M. Daniels	New York A.C.	2m.36.8s.
1909	Not Held		
1910	C.M. Daniels	New York A.C.	2m.33s.
1911-1920	Discontinued		
1921	John Weissmuller	Illinois A.C.	2m.28s.
1922	John Weissmuller	Illinois A.C.	2m.22.4s.
1923	Harry Glancy	Pittsburgh A.A.	2m.36.6s.
1924-1933	Discontinued		
1934	James Gilhula	Detroit A.C.	2m.18.5s.

1935	James Gilhula	Detroit A.C.	2m.15s.
1936	Tom Haynie	Unattached Michigan (200 meters)	2m.14.3s.
1937	Irving McCaffrey	Lake Shore A.C.	2m.18.8s.
1938	Adolph Kiefer	Unattached, Chicago	2m.18.7s.
1939	Kiyoshi Nakama	A.H.C.A., Maui	2m.16.3s.
1940	Otto Jaretz	Towers Club, Chicago	2m.13.1s.
1941	Bill Smith, Jr.	Alex. House C.A., Maui (200 meters)	2m.16.1s.
1942	Bill Smith, Jr.	Alexander Community House	2m.10.7s.
1943	Alan Ford	Yale	2m.19.4s.
1944	Jerry Kerschner	Bunker Hill, Ind. N.A.S. (200 meters)	2m.12.9s.
1945	Keo Nakama	Ohio State Univ. (200 meters)	2m.18.7s.
1946	Bill Smith	Hawaii University S.C. (200 meters)	2m.14.4s.
1947	Bill Smith	Ohio State (200 meters)	2m.12.6s.
1948	Ed Gilbert	Unattached, Texas (200 meters)	2m.16.9s.
1949	Yoshiro Hamaguchi	Tokyo S.C. (200 meters)	2m.11.0s.
1950	James McLane	New Haven S.C. (220 yards)	2m.10.5s.
1951	Wayne Moore	New Haven S.C. (200 meters)	2m.08.4s.
1952	William Woolsey	Unattached, Honolulu (220 yards)	2m.13.2s.
1953	Wayne Moore	New Haven S.C. (200 meters)	2m.09.0s.
1954	Ford Konno	Unatt., Hawaii (200 meters)	2m.10.6s.
1955	William Woolsey	Unatt., Hawaii (200 meters)	2m.08.2s.
1956	William Woolsey	Unatt., Hawaii (200 meters)	2m.06.5s.
1957	Dick Hanley	Detroit A.C. (200 meters)	2m.08.4s.
1958	Jon Hendricks	Los Angeles A.C. (200 meters)	2m.05.2s.
1959	Jeff Farrell	Yale Naval R.O.T.C. (200 meters)	2m.06.9s.
1960	Jeff Farrell	New Haven S.C. (200 meters)	2m.03.2s.
1961	Tsuyoshi Yamanaka	Tokyo, Japan (200 meters)	2m.00.4s.
1962	Don Schollander	Santa Clara S.C.	2m.00.4s.
1963	Don Schollander	Santa Clara S.C.	1m.59.0s.
1964	Don Schollander	Santa Clara S.C.	1m.57.6s.
1965	Gary Ilman	Santa Clara S.C.	1m.59.0s.
1966	Don Schollander	Santa Clara S.C.	1m.56.2s.
1967	Don Schollander	Santa Clara S.C.	1m.55.7s.
1968	Mark Spitz	Santa Clara S.C.	1m.57.0s.
1969	Hans Fassnacht	Phillips 66 LB	1m.56.5s.

440 YARD FREESTYLE — 400 METERS

1893	A.T. Kenney	U.P. and N.S.A., Philadelphia	6m.24.4s.
1894	P.F. Dickey	New York A.C.	7m.24.6s.
1895-1896	Not Held		
1897	Howard F. Brewer	L.S.C.	7m.8.4s.
1898	Dr. Paul Neumann	Chicago A.A.	6m.51.4s.
1899	E.C. Schaeffer	New York A.C.	6m.48.6s.
1900	E.C. Schaeffer	Univ. of Pennsylvania	6m.52.8s.
1901	E.C. Schaeffer	N.S.A.	6m.26s.
1902	E.C. Schaeffer	Reading, Pa.	6m.18.2s.
1903	T.E. Kitching, Jr.	New York A.C.	6m.31.6s.
1904	C.M. Daniels	New York A.C.	6m.16.2s.
1905	L.B. Goodwin	New York A.C.	6m.22s.
1906	C.M. Daniels	New York A.C.	6m.24s.
1907	C.M. Daniels	New York A.C.	6m.26.8s.
1908	C.M. Daniels	New York A.C.	5m.54.2s.
1909	C.M. Daniels	New York A.C.	5m.57.4s.
1910	C.M. Daniels	New York A.C.	5m.59.8s.
1911	R.M. Ritter	City A.C.	5m.52.6s.
1912	R.E. Frizell	City A.C.	5m.56.8s.
1913	J.C. Wheatley	Unattached	6m.4.6s.
1914	H.J. Hebner	Illinois A.C.	6m.22s.
1915	Ludy Langer	Los Angeles A.C.	5m.32.2s.
1916	Ludy Langer	Los Angeles A.C.	5m.38.6s.
1917	Norman Ross	San Francisco Olympic Club	5m.58.6s.
1918	W.L. Wallen	Great Lakes N.T.S.	5m.57.8s.
1919	W.L. Wallen	Illinois A.C.	5m.45s.
1920	Norman Ross	Illinois A.C.	5m.40.4s.

1921	Ludy Langer	Hui Nalu Club	5m.45s.
1922	John Weissmuller	Illinois A.C.	5m.16.4s.
1923	John Weissmuller	Illinois A.C.	5m.37.4s.
1924	Not Held		
1925	John Weissmuller	Illinois A.C.	5m.22.5s.
1926	John Weissmuller	Illinois A.C.	5m.21.8s.
1927	John Weissmuller	Illinois A.C.	4m.52s.
1928	John Weissmuller	Illinois A.C.	4m.58.6s.
1929	Clarence Crabbe	Outrigger Canoe Club	5m.4s.
1930	Maiola Kallli	Hui Makani, Honolulu	4m.56.4s.
1931	Clarence Crabbe	Los Angeles A.C.	4m.59.8s.
1932	Not Held		
1933	Jack Medica	Washington A.C.	4m.52.8s.
1934	Jack Medica	Washington A.C.	4m.50.9s.
1935	John Macionia	Big Brothers A.A.	4m.51.6s.
1936	Ralph Flanagan	Miami A.C. (400 meters)	4m.48.6s.
1937	Ralph Flanagan	Miami Biltmore S.C. (400 meters)	4m.46s.
1938	Ralph Flanagan	Miami Biltmore Club	4m.51.1s.
1939	Ralph Flanagan	Unattached, Austin, Tex.	4m.50.2s.
1940	Kiyoshi Nakama	Alexander House, Maui, Hawaii	4m.50.4s.
1941	Bill Smith, Jr.	Alex. House C.A., Maui (400 meters)	4m.47.6s.
1942	Bill Smith, Jr.	Alexander Community	4m.39.6s.
1943	Eugene Rogers	Columbia Univ.	5m.04.2s.
1944	Keo Nakama	Ohio State Univ. (400 meter)	4m.53.6s.
1945	Keo Nakama	Ohio State Univ. (400 meters)	5m.05.7s.
1946	James McLane	Phillips Academy (400 meters)	4m.49.5s.
1947	James McLane	New Haven S.C. (400 meters)	4m.41.9s.
1948	James McLane	New Haven S.C. (400 meters)	4m.53.5s.
1949	Hironshin Furuhashi	Tokyo S.C. (400 meters)	4m.33.3s.
1950	John Marshall	New Haven S.C. (440 yards)	4m.39.3s.
1951	Wayne Moore	New Haven S.C. (400 meters)	4m.35.8s.
1952	Ford Konno	Ohio State University (440 yards)	4m.48.0s.
1953	Ford Konno	Unatt., Hawaii (400 meters)	4m.39.8s.
1954	William Woolsey	Unatt., Hawaii (400 meters)	4m.42.3s.
1955	Ford Konno	Hawaii S.C. (400 meters)	4m.38.7s.
1956	George Breen	Buffalo A.C. (400 meters)	4m.37.6s.
1957	George Breen	Buffalo A.C. (400 meters)	4m.35.1s.
1958	Murray Rose	Los Angeles A.C. (400 meters)	4m.24.5s.
1959	Alan Somers	Indianapolis A.C. (400 meters)	4m.30.6s.
1960	Alan Somers	Indianapolis A.C. (400 meters)	4m.21.9s.
1961	Tsuyoshi Yamanaka	Tokyo, Japan (400 meters)	4m.17.5s.
1962	Murray Rose	Los Angeles A.C.	4m.17.2s.
1963	Don Schollander	Santa Clara S.C.	4m.17.7s.
1964	Don Schollander	Santa Clara S.C.	4m.12.7s.
1965	John Nelson	Pompano Beach S.A.	4m.14.1s.
1966	Don Schollander	Santa Clara S.C.	4m.11.6s.
1967	Greg Charlton	Los Angeles A.C.	4m.09.8s.
1968	Ralph Hutton	Foothill	4m.06.5s.
1969	Hans Fassnacht	Phillips 66 LB	4m.04.0s.

880 YARD FREESTYLE — 800 METERS

1893	W.G. Douglas	New York A.C.	13m.39.4s.
1894	T. Carey	Pastime A.C.	15m.33s.
1897	Dr. P. Neumann	C.A.A.	15m.6.6s.
1898	F.A. Wenck	New York A.C.	14m.8s.
1899	F.A. Wenck	New York A.C.	15m.3s.
1900	Dr. W.G. Douglas	New York A.C.	15m.4.6s.
1901	L.B. Goodwin	K.A.C.	14m.18.8s.
1902	E.C. Schaeffer	Reading, Pa.	13m.27.4s.
1903	Charles Ruberl	New York A.C.	13m.30.6s.
1904	Emil Rausch	Berlin, Germany	13m.11.6s.
1905	C.M. Daniels	New York A.C.	12m.58.6s.
1906	H.J. Handy	Chicago A.A.	12m.24s.
1907	L.B. Goodwin	New York A.C.	13m.2.4s.
1908	L.B. Goodwin	New York A.C.	13m.23s.

1909	C.M. Daniels	New York A.C.	12m.18.4s.
1910	L.B. Goodwin	New York A.C.	13m.12s.
1911	L.B. Goodwin	New York A.C.	14m.25.8s.
1912	L.B. Goodwin	New York A.C.	12m.42s.
1913	Gilbert E. Tomlinson	Philadelphia S.C.	12m.49.6s.
1914	L.B. Goodwin	New York A.C.	12m.55.6s.
1915	Ludy Langer	Los Angeles A.C.	12m.8.6s.
1916	Ludy Langer	Los Angeles A.C.	12m.2s.
1917	W.L. Wallen	Hamilton Club, Chicago	13m.5.8s.
1918	W.L. Wallen	Great Lake N.T.A.	11m.27.6s.
1919	W.L. Wallen	Illinois A.C.	12m.36.2s.
1920	Chas. Shields	Hui Nalu Club	12m.3s.
1921	L. Langer	Olympic Club	12m.48s.
1922-1924	Not Held		
1925	John Weissmuller	Illinois A.C.	11m.12s.
1926	Arne Borg	Illinois A.C.	10m.38.4s.
1927	John Weissmuller	Illinois A.C.	10m.22.2s.
1928	Clarence L. Crabbe	Central Y.M.C.A., Honolulu, T.H.	10m.29.2s.
1929	Clarence Crabbe	Outrigger Canoe Club	10m.27s.
1930	Clarence Crabbe	Los Angeles A.C.	10m.20.4s.
1931	Clarence Crabbe	Los Angeles A.C.	10m.37.6s.
1932	Not Held		
1933	Jack Medica	Washington A.C.	10m.20.4s.
1934	Jack Medica	Washington A.C.	10m.16.1s.
1935	Ralph Flanagan	Miami A.C., Fla.	10m.07.6s.
1936	Ralph Flanagan	Miami A.C., Fla. (800 meters)	10m.07s.
1937	Ralph Flanagan	Miami Biltmore S.C.	10m.19.2s.
1938	Ralph Flanagan	Miami Biltmore S.C.	10m.11.1s.
1939	Ralph Flanagan	Unattached, Austin, Texas	10.11.9s.
1940	Kiyoshi Nakama	Maui, Hawaii	10m.08.6s.
1941	Kiyoshi Nakama	Alex. House C.A., Maui (800 meters)	10m.06.2s.
1942	Bill Smith, Jr.	Alexander Community House	9m.54.6s.
1943	Eugene Rogers	Columbia Univ.	10m.46.7s.
1944	Keo Nakama	Ohio State Univ. (800 meters)	10m.26.9s.
1945	James McLane, Jr.	Unattached, Akron (800 meters)	10m.33.3s.
1946	James McLane	Phillips Academy (800 meters)	10m.06.7s.
1947	James McLane	New Haven S.C. (800 meters)	10m.18.1s.
1948	James McLane	New Haven S.C. (800 meters)	10m.17.1s.
1949	Hironshin Furuhashi	Tokyo S.C. (800 meters)	9m.35.5s.
1950	John Marshall	New Haven S.C. (880 yards)	9m.37.5s.
1951	Ford Konno	Nuano YMCA (800 meters)	9m.39.9s.
1952	Ford Konno	Ohio State University (880 yards)	10m.07.8s.

1000 YARD FREESTYLE

1908	L.B. Goodwin	New York A.C.	14m.13.2s.
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ONE MILE FREESTYLE - 1500 METERS

1877	R. Weissenborn	New York City	45m.44 ¹ / ₄ s.
1878	H.J. Heath	New York City	29m.20s.
1879-1882	Not Held		
1883	R.P. Magee	Baltimore, Md.	29m.42 ¹ / ₄ s.
1884	R.P. Magee	Baltimore, Md. (With Tide)	25m.41.5s.
1885	R.P. Magee	Baltimore, Md. (With Tide)	22m.38s.
1886	R.P. Magee	Baltimore, Md. (With Tide)	29m.02s.
1887	A. Meffert	M.A.C.	35m.18.2s.
1888	H. Braun	P.A.C.	26m.57s.
1889	A. Meffert	M.A.C. (With Tide)	27m.20s.
1890	A. Meffert	M.A.C. (With Tide)	22m.39.4s.
1891	J.R. Whitmore	P.A.C. St. Louis, Mo.	24m.11.6s.
1892	A.T. Kenney	P.A.S.C. (With Tide)	28m.45.4s.

1893	G. Whittaker	M.R. and S.C. (With Tide)	28m.55.4s.
1894	A.T. Kenney	N.S.A., Philadelphia	33m.34.4s.
1895	Not Held		
1896	B.A. Hart	Chicago A.A.	30m.27.6s.
1897	Dr. P. Neumann	C.A.A.	30m.24.4s.
1898	F.A. Wenck	New York A.C.	29m.51.6s.
1899	F.A. Wenck	New York A.C.	30m.33.8s.
1900	George W. Van Cleef	K.A.C.	34m.45.6s.
1901	Otto Wable	New York A.C.	28m.52.6s.
1902	E. Carroll Schaeffer	Reading, Pa.	28m.14.6s.
1903	Charles Ruberl	New York A.C.	28m.05.6s.
1904	Emil Rausch	Berlin, Germany	27m.15.2s.
1905	C.M. Daniels	New York A.C.	26m.41.8s.
1906	H.J. Handy	Chicago A.A.	28m.43.4s.
1907	H.J. Handy	Chicago A.A.	29m.20.8s.
1908	C.M. Daniels	New York A.C.	27m.20.6s.
1909	C.M. Daniels	New York A.C.	26m.19.6s.
1910	L.B. Goodwin	New York A.C.	30m.02.4s.
1911	J.H. Reilly	New York A.C.	25m.40.4s.
1912	L.B. Goodwin	New York A.C.	25m.25s.
1913	L.B. Goodwin	New York A.C.	25m.18.4s.
1914	L.B. Goodwin	New York A.C.	25m.42.2s.
1915	Ludy Langer	Los Angeles A.C.	24m.59.4s.
1916	Ludy Langer	Los Angeles A.C.	23m.22s.
1917	N. Ross	San Francisco Olympic Club	24m.10s.
1918	W.L. Wallen	Great Lakes N.T.S.	25m.08.6s.
1919	W.L. Wallen	Illinois A.C.	25m.37.6s.
1920	E. Bolden	Illinois A.C.	25m.26.4s.
1921	Not Held		
1922	Clyde Goldwater	Neptune Club of Stockton	25m.02s.
1923	Eugene Bolden	Illinois A.C.	25m.06s.
1924	Not Held		
1925	Harry Glancy	Cincinnati Y.M.C.A.	24m.27.8s.
1926	Arne Borg	Illinois A.C.	21m.46.4s.
1927	Clarence L. Crabbe	Outrigger Canoe Club, Honolulu	22m.52.4s.
1928	Clarence L. Crabbe	Central Y.M.C.A., Honolulu	21m.35.6s.
1929	Clarence Crabbe	Outrigger Canoe Club, Honolulu	22m.09.8s.
1930	Clarence Crabbe	Los Angeles A.C.	21m.27s.
1931	Clarence Crabbe	Los Angeles A.C.	22m.14.8s.
1932	Not Held		
1933	Ralph Flanagan	Miami A.C.	21m.12.2s.
1934	Jack Medica	Washington A.C.	20m.57.8s.
1935	Ralph Flanagan	Miami A.C.	21m.00.3s.
1936	Ralph Flanagan	Miami A.C.	20m.58.9s.
1937	Ralph Flanagan	Miami Biltmore S.C.	20m.42.6s.
1938	Ralph Flanagan	Miami Biltmore S.C.	21m.06.3s.
1939	Ralph Flanagan	Unattached, Austin, Texas	21m.00.7s.
1940	Bunmei Nakama	Alexander House, Maui, Hawaii	21m.31.4s.
1941	Kiyoshi Nakama	Alex. House C.A., Maui (1500 m.)	19m.55.8s.
1942	Keo Nakama	Ohio State	20m.29.0s.
1943	Paul Maloney	Buffalo A.C.	23m.06.5s.
1944	Keo Nakama	Ohio State Univ. (1500 meters)	19m.42.6s.
1945	James McLane, Jr.	Unattached, Akron (1500 meters)	19m.49.5s.
1946	James McLane	Phillips Academy (1500 meters)	19m.23.1s.
1947	James McLane	New Haven S.C. (1500 meters)	19m.57.5s.
1948	Jack Taylor	Firestone Club (1500 meters)	19m.48.1s.
1949	Hironshin Furuhashi	Tokyo S.C. (1500 meters)	18m.29.9s.
1950	John Marshall	New Haven S.C. (one Mile)	20m.08.6s.
1951	Ford Konno	Nuani YMCA (1500 meters)	18m.46.3s.
1952	Ford Konno	Ohio State University (one Mile)	20m.47.1s.
1953	Ford Konno	Unatt., Hawaii (1500 meters)	19m.20.0s.
1954	Ford Konno	Unatt., Hawaii (1500 meters)	19m.07.1s.
1955	George Oneke	Hawaii S.C. (1500 meters)	18m.52.3s.
1956	George Breen	Buffalo A.C. (1500 meters)	18m.27.6s.
1957	George Breen	Buffalo A.C. (1500 meters)	18m.17.9s.
1958	Murray Rose	Los Angeles A.C. (1500 meters)	18m.06.4s.

220 YARD BACKSTROKE – 200 METERS

1959	Alan Somers	Indianapolis A.C.	(1500 meters)	17m.51.3s.
1960	George Breen	Indianapolis A.C.	(1500 meters)	17m.33.5s.
1961	Roy Saari	El Segundo S.C.	(1500 meters)	17m.29.8s.
1962	Murray Rose	Los Angeles A.C.		17m.16.7s.
1963	Roy Saari	El Segundo S.C.		17m.34.6s.
1964	Murray Rose	Los Angeles A.C.		17m.01.8s.
1965	Steve Krause	Cascade S.C.		16m.58.6s.
1966	Mike Burton	Arden Hills		16m.41.6s.
1967	Mike Burton	Arden Hills		16m.34.1s.
1968	Mike Burton	Arden Hills		16m.29.4s.
1969	Mike Burton	Arden Hills		16m.04.5s.

100 YARD BACKSTROKE

1906	A.M. Goersling	Missouri A.A.		1m.18.6s.
1907	H.J. Handy	Chicago A.A.		1m.23s.

100 METER BACKSTROKE – 110 YARDS

1934	Albert Vande Weghe	Newark Athletic Club, N.J.		1m.11s.
1935	Adolph Kiefer	Lake Shore A.C.		1m.07.8s.
1936	Adolph Kiefer	Lake Shore A.C.		1m.06.5s.
1937	Adolph Kiefer	Lake Shore A.C.		1m.06.3s.
1938	Adolph Kiefer	Unattached, Chicago, Ill.		1m.07.8s.
1939	Adolph Kiefer	Medinah Club, Chicago, Ill.		1m.06.6s.
1940	Adolph Kiefer	Towers Club, Chicago, Ill. (110 yards)		1m.05.5s.
1941	Adolph Kiefer	Towers Club, Chicago		1m.06.3s.
1942	Adolph Kiefer	Lake Shore A.C.		1m.6.6s.
1943	Adolph Kiefer	U.S.N.R., Bainbridge, Md.		1m.07s.
1944	Jack Weeden	Oakland Swimming Assn.		1m.12.1s.
1945	Robert E. Cowell	U.S. Naval Academy		1m.10.6s.
1946	Harry Holiday	Hawaii University, S.C.		1m.08s.
1947	Allen Stack	New Haven S.C.		1m.07.8s.
1948	Allen Stack	New Haven S.C.		1m.07.7s.
1949	Allen Stack	New Haven S.C.		1m.07.1s.
1950	Allen Stack	New Haven S.C. (110 yards)		1m.08.2s.
1951	James Thomas	Chapel Hill S.C. (100 meters)		1m.07.4s.
1952	Yoshi Oyakawa	Ohio State University (110 yards)		1m.05.7s.
1953	Yoshi Oyakawa	Hawaii S.C. (100 meters)		1m.06.8s.
1954	Albert Wiggins	Unatt., Pittsburgh, Pa. (100 meters)		1m.07.2s.
1955	Yoshi Oyakawa	Hawaii S.C. (100 meters)		1m.05.3s.
1956	Yoshi Oyakawa	Coca Cola S.C. (100 meters)		1m.05.9s.
1957	Frank McKinney	Indianapolis A.C. (100 meters)		1m.04.5s.
1958	Frank McKinney	Indianapolis A.C. (100 meters)		1m.04.5s.
1959	Frank McKinney	Indianapolis A.C. (100 meters)		1m.03.6s.
1960	Tom Stock	Unat. Indianapolis (100 meters)		1m.02.9s.
1961	Bob Bennett	Kris Kristenson S.S. (100 meters)		1m.01.3s.
1962	Tom Stock	Indianapolis A.C. (100 meters)		1m.01.0s.
1963	Rich McGeagh	Verdugo Hills S.C. (100 meters)		1m.01.7s.
1964	Rich McGeagh	Verdugo Hills S.C. (100 meters)		1m.01.6s.
1965	Thompson Mann	North Carolina A.C. (100 meters)		1m.00.5s.
1966	Charles Hickcox	Indianapolis A.C. (100 meters)		1m.01.0s.
1967	Charles Hickcox	Indianapolis A.C. (100 meters)		59m.7s.
1968	Larry Barbieri	Vesper B.C. (100 meters)		1m.00.9s.
1969	Mitch Ivey	Santa Clara S.C. (100 meters)		1m.00.2s.

150 YARD BACKSTROKE

1908	A.M. Goersling	Missouri A.C.		2m.2s.
1909	J.H. Handy	Illinois A.C.		2m.05.4s.
1921	W. Kealoha	Hui Makani		1m.49s.
1923	H. Kruger	Illinois A.C.		1m.48s.

1925	Walter Laufer	Cincinnati Y.M.C.A.		2m.50s.
1926	Paul Wyatt	Uniontown Y.M.C.A.		2m.45.8s.
1927	George Kojac	Boys' Club of N.Y.		2m.36s.
1928	George Kojac	Boys' Club of N.Y.		2m.37.8s.
1929	Frank Walton	Unattached		2m.42s.
1930	George Kojac	New York A.C.		2m.35.8s.
1931	Maiola Kalili	Hollywood A.C.		2m.39s.
1932	Not Held			
1933	Dan Zehr	Fort Wayne Y.M.C.A., Indiana		2m.39s.
1953	Yoshi Oyakawa	Hawaii S.C. (200 meters)		2m.29.9s.
1954	Albert Wiggins	Unatt., Pittsburgh, Pa. (200 meters)		2m.31.0s.
1955	Yoshi Oyakawa	Hawaii S.C. (200 meters)		2m.26.1s.
1956	Frank McKinney	Indianapolis A.C. (200 meters)		2m.24.5s.
1957	Frank McKinney	Indianapolis A.C. (200 meters)		2m.21.7s.
1958	Frank McKinney	Indianapolis A.C. (200 meters)		2m.20.8s.
1959	Frank McKinney	Indianapolis A.C. (200 meters)		2m.17.9s.
1960	Tom Stock	Unat. Indianapolis (200 meters)		2m.16.0s.
1961	Tom Stock	Indianapolis A.C. (200 meters)		2m.11.5s.
1962	Tom Stock	Indianapolis A.C. (200 meters)		2m.10.9s.
1963	Tom Stock	Indianapolis A.C. (200 meters)		2m.12.4s.
1964	Robert Bennett	Los Angeles A.C. (200 meters)		2m.15.7s.
1965	Thompson Mann	North Carolina A.C. (200 meters)		2m.12.4s.
1966	Charles Hickcox	Indianapolis A.C. (200 meters)		2m.12.4s.
1967	Charles Hickcox	Indiana A.C. (200 meters)		2m.12.3s.
1968	Jack Horsley	Washington (200 meters)		2m.12.2s.
1969	Gary Hall	Phillips 66 LB (200 meters)		2m.06.6s.

100 METER BREASTSTROKE

1951	John Davies	University of Michigan (100 meters)		1m.08.4s.
1952	Jerry Holan	Ohio State University (110 yards)		1m.09.3s.
1953	John Dudeck	Unatt., Detroit (100 meters)		1m.08.4s.
1956	Robert Hughes	Club Del Mar (100 meters)		1m.11.2s.
1957	Robert Hughes	Unat., L.A. (100 meters)		1m.12.1s.
1958	Manuel Sanguilly	Unat., Columbus, Ohio (100 meters)		1m.15.9s.
1959	Manuel Sanguilly	Unat., Columbus, Ohio (100 meters)		1m.14.6s.
1960	Chet Jastremski	Indianapolis A.C. (100 meters)		1m.12.4s.
1961	Chet Jastremski	Indianapolis A.C. (100 meters)		1m.07.5s.
1962	Chet Jastremski	Indianapolis A.C. (100 meters)		1m.08.2s.
1963	William Craig	Verdugo Hills S.C. (100 meters)		1m.10.2s.
1964	Chet Jastremski	Indianapolis A.C. (100 meters)		1m.10.0s.
1965	Tom Tretheway	Indianapolis A.C. (100 meters)		1m.08.3s.
1966	Ken Merten	Los Angeles A.C. (100 meters)		1m.08.9s.
1967	Ken Merten	Los Angeles A.C. (100 meters)		1m.08.7s.
1968	Mike Dirksen	David Douglas (100 meters)		1m.08.8s.
1969	Jose Fiolo	Phillips 66 LB (100 meters)		1m.06.9s.

220 YARD BREASTSTROKE – 200 METERS

1906	A.M. Goersling	Missouri A.C. (200 yards)		3m.01.2s.
1907	H.J. Handy	Chicago A.A. (200 yards)		3m.17.6s.
1908	A.M. Goersling	Missouri A.C. (200 yards)		2m.46.4s.
1909	A.M. Goersling	Missouri A.C. (200 yards)		2m.49s.
1921	M.J. McDermott	Illinois A.C. (200 meters)		3m.10.4s.
1922	R. Skelton	Illinois A.C. (200 meters)		3m.22.8s.
1923	R. Skelton	Illinois A.C. (200 meters)		3m.06.6s.
1934	John Higgins	Olneyville B.C.R.I. (200 meters)		2m.55s.
1935	John Higgins	Olneyville B.C.R.I. (200 meters)		2m.47.6s.
1936	John Higgins	Olneyville B.C.R.I. (200 meters)		2m.43.3s.
1937	Ray Kaye	Detroit A.C. (200 meters)		2m.52.2s.
1938	Jim Werson	San Francisco Olympic Club (200 meters)		2m.49.2s.
1939	James Skinner	Detroit A.C. (200 meters)		2m.46.6s.
1940	James Skinner	Unattached, Detroit, Mich. (200 meters)		2m.48.8s.
1941	Jose Balmores	Alex. House C.A., Maui (200 meters)		2m.45.5s.

1942	Jim Counsilman	Ohio State	2m.45.4s.
1943	Joseph Verdeur	No. Branch Y.M.C.A., Phila.	2m.53.2s.
1944	Joseph Verdeur	No. Branch Y.M.C.A., Phila. (200 ms.)	2m.46.3s.
1945	Dave Seibold	Michigan State College (200 meters)	2m.55.5s.
1946	Joe Verdeur	Philadelphia Turner Club (200 meters)	2m.44.2s.
1947	Joe Verdeur	Brighton-Drake S.C. (200 meters)	2m.38.4s.
1948	Joe Verdeur	Brighton-Drake S.C. (200 meters)	2m.48.7s.
1949	Joe Verdeur	Brighton-Drake S.C. (200 meters)	2m.36.3s.
1950	Robert Brawner	Princeton A.C. (220 yards)	2m.41.0s.
1951	John Davies	University of Michigan (200 meters)	2m.35.8s.
1952	Burwell Jones	University of Iowa (220 yards)	2m.34.7s.
1953	Dave Hawkins	Harvard University (200 meters)	2m.37.9s.
1954	Dick Fadgen	N. Carolina S.C. (200 meters)	2m.49.5s.
1955	Bob Mattson	N. Carolina State	2m.46.8s.
1956	Dick Fadgen	N. Carolina A.C.	2m.45.8s.
1957	Manuel Sanguilly	Unat., Havana, Cuba	2m.44.0s.
1958	Norbert Rumpel	New York A.C.	2m.47.8s.
1959	Ronald Clark	Detroit A.C.	2m.45.6s.
1960	Peter Fogarasy	N.C. State Frosh (200 meters)	2m.38.8s.
1961	Chet Jastremski	Indianapolis A.C. (200 meters)	2m.29.6s.
1962	Chet Jastremski	Indianapolis A.C.	2m.30.0s.
1963	Ken Merten	Los Angeles A.C.	2m.34.5s.
1964	William Craig	Verdugo Hills S.C.	2m.31.8s.
	Chet Jastremski	Indianapolis A.C.	tie
1965	Chet Jastremski	Indianapolis A.C.	2m.30.7s.
1966	Ken Merten	Los Angeles A.C.	2m.31.2s.
1967	Ken Merten	Los Angeles A.C.	2m.30.8s.
1968	Brian Job	Santa Clara S.C.	2m.31.2s.
1969	Mike Dirksen	David Douglas S.C.	2m.26.9s.

440 YARD BREASTSTROKE

1921	R.D. Skelton	Illinois A.C.	6m.50.4s.
1925	R.D. Skelton	Illinois A.C.	6m.30.4s.
1926	Walter Spence	Brooklyn Central Y.M.C.A.	6m.16.8s.
1927	Walter Spence	Brooklyn Central Y.M.C.A.	6m.19.8s.
1928	Thomas Blankenburg	Athens A.C.	6m.32.2s.
1929	Walter Spence	Penn A.C.	6m.22.8s.
1930	Leonard Spence	New York A.C.	6m.12.6s.
1931	Donald Horn	Lake Shore A.C.	6m.19.8s.
1932	Not Held		
1933	Leonard Spence	New York A.C.	6m.08.8s.

100 METER BUTTERFLY

1954	Dick Fadgen	N. Carolina S.C. (100 meters)	1m.07.4s.
1956	Albert Wiggins	Unatt., Pittsburgh, Pa. (100 meters)	1m.04.2s.
1957	Albert Wiggins	Coca Cola S.C.	1m.02.8s.
1958	Mike Troy	Indianapolis A.C.	1m.02.8s.
1959	Lance Larson	Los Angeles A.C.	1m.01.1s.
1960	Lance Larson	Los Angeles A.C.	58.7s.
1961	Fred Schmidt	New Trier S.C. (100 meters)	58.6s.
1962	Ed Spencer	North Carolina A.C.	58.9s.
1963	Walt Richardson	Gopher S.C.	58.8s.
1964	Walt Richardson	Gopher S.C.	57.5s.
1965	Luis Nicolao	Santa Clara S.C.	57.8s.
1966	Mark Spitz	Santa Clara S.C.	58.1s.
1967	Mark Spitz	Santa Clara S.C.	56.7s.
1968	Mark Spitz	Santa Clara S.C.	57.0s.
1969	Doug Russell	Burford S.C.	56.0s.

200 METER BUTTERFLY

1955	Bill Yorzyk	New Haven S.C.	2m.29.1s.
1956	Bill Yorzyk	New Haven S.C.	2m.24.3s.

1957	William Yorzyk	Unat., Northampton, Mass.	2m.22.0s.
1958	William Yorzyk	Pine Knoll S.C.	2m.22.5s.
1959	Mike Troy	Indianapolis A.C.	2m.16.4s.
1960	Mike Troy	Indianapolis A.C.	2m.13.4s.
1961	Carl Robie	Vesper Boat Club (200 meters)	2m.12.6s.
1962	Carl Robie	Vesper B.C.	2m.10.8s.
1963	Carl Robie	Vesper B.C.	2m.08.8s.
1964	Carl Robie	Vesper B.C.	2m.09.2s.
1965	Carl Robie	Vesper B.C.	2m.07.7s.
1966	Philip Houser	Los Angeles A.C.	2m.09.9s.
1967	Mark Spitz	Santa Clara	2m.06.4s.
1968	Carl Robie	Suburban S.C.	2m.08.9s.
1969	Mike Burton	Arden Hills	2m.06.5s.

200 METER INDIVIDUAL MEDLEY

1959	Lance Larson	Los Angeles A.C.	2m.24.7s.
1960	Ted Stickles	San Mateo Marlins	2m.22.1s.
1961	Ted Stickles	Indianapolis A.C.	2m.15.9s.
1962	Ted Stickles	Indianapolis A.C.	2m.16.2s.
1963	Richard Roth	Unattached, Atherton	2m.16.0s.
1964	Richard Roth	Santa Clara S.C.	2m.15.5s.
1965	Richard Roth	Santa Clara S.C.	2m.14.9s.
1966	Greg Buckingham	Santa Clara S.C.	2m.12.4s.
1967	Greg Buckingham	Santa Clara S.C.	2m.11.3s.
1968	Juan Bello	Peru	2m.14.1s.
1969	Gary Hall	Phillips 66 LB	2m.09.6s.

300 METER INDIVIDUAL MEDLEY - 300 YARDS - 330 YARDS

1925	Harry Glancy	Cincinnati Y.M.C.A. (300 yards)	4m.02.4s.
1926	Walter Spence	Brooklyn Central Y.M.C.A.	4m.25.4s.
1927	Walter Spence	Brooklyn Central Y.M.C.A.	4m.14.6s.
1928	Clarence L. Crabbe	Central Y.M.C.A., Honolulu	4m.16s.
1929	Clarence Crabbe	Outrigger Canoe Club	4m.12.2s.
1930	Clarence Crabbe	Los Angeles A.C.	4m.06.8s.
1931	Clarence Crabbe	Los Angeles A.C.	4m.05.8s.
1932	Not Held		
1933	Ralph Flanagan	Miami A.A.	4m.14.2s.
1934	Not Held		
1935	John Higgins	Olneyville B.C.R.I.	4m.09.7s.
1936	Paul Wolf	Los Angeles A.C.	4m.02.4s.
1937	Paul Wolf	Los Angeles A.C.	4m.09.8s.
1938	Adolph Kiefer	Unattached, Chicago	4m.02s.
1939	Adolph Kiefer	Medinah Club, Chicago	4m.02.2s.
1940	Adolph Kiefer	Towers Club, Chicago (330 yards)	3m.58.6s.
1941	Jose Balmores	Alex. House C.A., Maui	3m.56.9s.
1942	Mike Priano	Flatbush Boys' Club	4m.9.1s.
1943	Adolph Kiefer	U.S.N.R., Bainbridge, Md.	4m.04.5s.
1944	Joe Verdeur	No. Br. Y.M.C.A., Phila.	4m.07.3s.
1945	Dave Seibold	Michigan State College	4m.18.5s.
1946	Harry Holiday	Hawaii University, S.C.	3m.58.8s.
1947	Joe Verdeur	Brighton Drake S.C.	3m.59.2s.
1948	Joe Verdeur	Brighton-Drake S.C.	4m.00.0s.
1949	Joe Verdeur	Brighton-Drake S.C.	3m.53.7s.
1950	James Thomas	North Carolina (330 yards)	3m.55.1s.
1951	Burwell Jones	Unattached (300 meters)	3m.52.3s.
1952	Bowen Stassforth	University of Michigan (330 yards)	3m.54.8s.
1953	Burwell Jones	Unatt., Detroit (300 meters)	3m.46.2s.

400 METER INDIVIDUAL MEDLEY

1954	Burwell Jones	Unatt., Detroit (400 meters)	5m.29.0s.
1955	George Harrison	Berkeley C.C.	5m.23.3s.
1956	Bill Yorzyk	New Haven S.C.	5m.19.0s.
1957	Gary Heinrich	Bay-O-Vista S.C.	5m.15.6s.

1958	Frank Brunell	Indianapolis A.C.	5m.20.6s.
1959	Bill Barton	Indianapolis A.C.	5m.14.6s.
1960	Dennis Rounsavelle	Los Angeles A.C.	5m.04.5s.
1961	Ted Stickle	Indianapolis A.C.	4m.55.6s.
1962	Ted Stickle	Indianapolis A.C.	4m.51.5s.
1963	Ted Stickle	Indianapolis A.C.	4m.55.0s.
1964	Richard Roth	Santa Clara S.C.	4m.48.6s.
1965	Richard Roth	Santa Clara S.C.	4m.49.2s.
1966	Richard Roth	Santa Clara S.C.	4m.47.9s.
1967	Peter Williams	Spartan S.C.	4m.50.8s.
1968	Gary Hall	Phillips 66 LB	4m.48.0s.
1969	Gary Hall	Phillips 66 LB	4m.33.9s.

300 METER MEDLEY RELAY - 330 YARDS

1934	Lake Shore A.C., Chicago	A. Kiefer, M. Brydenthall, A. Highland	3m.32.7s.
1935	Lake Shore A.C., Chicago	A. Kiefer, M. Brydenthall, A. Highland	3m.28.4s.
1936	Detroit A.C.	T. Drysdale, R. Kaye, J. Gilhula	3m.22.2s.
1937	Lake Shore A.C., Chicago	A. Kiefer, Horschke, O. Jaretz	3m.25.6s.
1938	Ohio State Univ.	B. Johnson, B. Quayle, B. Neunzig	3m.30.1s.
1939	Detroit A.C.	T. Drysdale, J. Skinner, B. Prew	3m.22.2s.
1940	Towers Club, Chicago	A. Kiefer, Kraus, O. Jaretz	(330 yards) 3m.22s.
1941	Towers Club, Chicago	A. Kiefer, G. Lowe, O. Jaretz	3m.29.3s.
1942	Ohio State	M. Follansbee, J. Counsilman, J. Hill	3m.24.2s.
1943	Yale Univ.	C. Gillet, T. Jackson, A. Ford	3m.34.5s.
1944	No. Br. Y.M.C.A., Phila	J. Verdeur, J. Lumsden, J. Shand	3m.29.4s.
1945	Michigan State College	H. Patterson, J. Quigley, D. Seibold	3m.32.4s.
1946	Ohio State University	D. Fetterman, J. Counsilman, H. Hirose	3m.20.7s.
1947	University of Michigan	H. Holiday, B. Sohl, D. Weinberg	3m.15.3s.
1948	Brighton-Drake S.C.	Clinton, Verdeur, Devlin	3m.22.7s.
1949	Iowa University	Draves, Stassforth, Ris	3m.18.8s.
1950	Coca Cola S.C., Cincinnati	Fetterman, Sohl, Thamon	(330 yards) 3m.19.4s.
1951	Ohio State University	Taylor, Holan, Sonner	(330 meters) 3m.17.4s.
1952	Ohio State University	Oyakawa, Holan, Cleveland	(330 yards) 3m.18.5s.
1953	Cherry Point Marine Flyers	Small, Sonner, Benza	(300 meters) 3m.21.9s.

400 METER MEDLEY RELAY - 440 YARDS

1954	N. Carolina S.C.	Sonner, Faden, McIntyre, Mattson	(400 meters) 4m.14.7s.
1955	New Haven S.C.	(P. Kennedy, C. Hardin, W. Yorzyk, S. Gideonse)	4m.28.6s.
1956	New Haven S.C.	(J. Dolbey, D. Hardin, W. Yorzyk, D. Armstrong)	4m.26.5s.
1957	Indianapolis A.C.	(F. McKinney, G. Miki, W. Barton, W. Cass)	4m.21.6s.
1958	Los Angeles A.C.	(J. Fellows, L. Zeichel, L. Larson, J. Hendricks)	4m.24.6s.
1959	Detroit A.C.	(J. Smith, R. Clark, C. Wooley, D. Gillanders)	4m.21.9s.
1960	Indianapolis A.C.	(F. McKinney, C. Jastremski, L. Schulhuf, P. Sintz)	4m.09.2s.
1961	Indianapolis A.C.	(T. Stock, C. Jastremski, L. Schulhuf, P. Sintz)	4m.03.0s.
1962	Indianapolis A.C. "B"	(T. Stock, C. Jastremski, F. Schmidt, P. Sintz)	4m.01.6s.
1963	Indianapolis A.C.	(T. Stock, T. Tretheway, F. Schmidt, R. Blick)	4m.04.9s.
1964	Verdugo Hills S.C.	(R. McGeagh, W. Craig, E. Spencer, F. Bates)	4m.03.8s.
1965	Indianapolis A.C.	(P. Hammer, T. Tretheway, K. Berry, R. Windle)	4m.01.8s.
1966	Los Angeles A.C.	(T. Birnie, K. Merten, T. Hellend, Z. Zorn)	4m.02.2s.
1967	Santa Clara S.C.	(F. Haywood, W. Anderson, M. Spitz, D. Schollander)	3m.59.7s.
1968	Santa Clara S.C.	(F. Haywood, B. Job, M. Spitz, D. Schollander)	4m.00.3s.
1969	Phillips 66 LB	(C. Campbell, J. Fiolo, G. Hall, J. Bello)	3m.57.5s.

400 METER FREESTYLE RELAY

1964	Santa Clara S.C. "A"	(G. Ilman, E. Townsend, D. Schollander, S. Jackman)	3m.42.5s.
1965	Santa Clara S.C. "A"	(L. Nicolao, G. Buckingham, D. Roth, G. Ilman)	3m.36.1s.
1966	Santa Clara S.C. "A"	(L. Nicolao, G. Buckingham, D. Roth, D. Schollander)	3m.35.4s.
1967	Los Angeles A.C.	(R. Kidder, Z. Zorn, D. Havens, R. Hoag)	3m.36.4s.
1968	Los Angeles A.C.	(B. Johnson, R. Kidder, R. Saari, D. Havens)	3m.35.3s.
1969	Los Angeles Athletic Club	(D. Frawley, H. Dewitt, S. Frelkin, D. Havens)	3m.32.8s.

200 YARD RELAY

1906	New York A.C.	(Trubenbach, Crane, Kitching, Jr., Daniels)	1m.58s.
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400 YARD RELAY

1908	New York A.C.	Trubenbach, South, Goodwin, Daniels	4m.13.4s.
1909	New York A.C.	Daniels, South, Goodwin, Reilly	4m.16.4s.

880 YARD RELAY - 800 METERS

1923	Illinois A.C.	Kruger, Wallen, McGillivray, Weissmuller	10m.05.4s.
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1924	Los Angeles A.C.	Smith, Williams, Smith, Kahanamoku	10m.34s.
1925	Illinois A.C.		(no time)
1926	Illinois A.C.		9m.43s.
1927	Illinois A.C.	Kimball, Halloran, Miller, Weissmuller	9m.35s.
1928	Illinois A.C.	Dithmer, O'Connor, Samson, Weissmuller	9m.32.6s.
1929	Hollywood A.C.	Miller, Booth, Kimball, Clapp	9m.49.2s.
1930	New York A.C.	Zorilla, Fissler, Ruddy, Kojac	9m.27s.
1931	Hollywood A.C.	Clapp, Manuela Kalili, Booth, Maiola Kalili	9m.21.8s.
1932	Not Held		
1933	Los Angeles A.C.	Barthels, Cummings, Kalili, Callaghan	9m.40.4s.
1934	Los Angeles A.C.	Wolfe, Callaghan, Boals, Barthels	9m.41.9s.
1935	Detroit A.C., Michigan	Robertson, Sinkiewicz, Haynie, Gilhula	9m.21.6s.
1936	Yale University	Hoyt, Breuckel, Cooke, Macionia	9m.22.5s.
1937	Lake Shore A.C.	McCaffrey, Jaretz, Wilson, Kiefer	9m.20s.
1938	Ohio State University	Quayle, Woodling, Johnson, Neunzig	9m.51.4s.
1939	Alexander House C.A.	Neunzig, Hirose, Balmores, Nakama	9m.21s.
1940	Alexander House C.A.	B. Nakama, K. Nakama, Balmores, Hirose	9m.17.3s.
1941	Alexander House C.A.	Hirose, Balmores, Oda, Smith	(800 meters) 9m.14.9s.
1942	Ohio State	J. Ryan, D. Schnabel, J. Hill, K. Nakama	9m.13.4s.
1943	Yale Univ.	D. Lyon, D. Morgan, J. Eusden, A. Ford	9m.59.3s.
1944	Camp Chikopi	N. Adams, T. Coates, J. Gorman, M. Mann	10m.04.4s.
1945	Great Lakes N.T.C.	J. Weeden, T. Gastineau, R. White, C. Solberg	10m.18.6s.
1946	Hawaii University, S.C.	C. Oda, R. Wright, H. Holiday, W. Smith	9m.25.4s.
1947	Ohio State	W. Smith, H. Hirose, R. DeGroot, Jack Ryan	9m.13.8s.
1948	New Haven S.C.	Farnsworth, Girdes, Gill, McLane	9m.21.0s.
1949	Tokyo S.C.	Hamaguchi, Maruyama, Murayama, Furuhashi	8m.45.4s.
1950	New Haven S.C.	McLane, Scheff, Moore, Marshall	(880 yards) 9m.07.0s.
1951	New Haven S.C.	Sheff, Marshall, McLane, Moore	(800 meters) 8m.51.0s.
1952	New Haven S.C.	Marshall, Smith, Moore, McLane	(880 yards) 8m.58.8s.
1953	New Haven S.C.	Moore, Marshall, Phair, Gideonse	(800 meters) 9m.07.6s.
1954	New Haven S.C.	Moore, Marshall, Armstrong, Phair	(800 meters) 9m.07.9s.
1955	New Haven S.C.	Phair, Yorzyk, Armstrong, Smith	8m.54.2s.
1956	New Haven S.C.	D. Armstrong, R. Anderson, T. Jecko, W. Yorzyk	8m.53.7s.
1957	New Haven S.C.	R. Anderson, J. Robinson, R. Aubrey, J. Jecko	8m.53.7s.
1958	Los Angeles A.C.	M. Rose, D. Reddington, J. Henricks, J. Fellows	8m.42.7s.
1959	Indianapolis A.C.	A. Somers, D. O'Neil, G. Breen, M. Troy	8m.35.9s.
1960	Indianapolis A.C.	P. Sintz, G. Breen, A. Somers, M. Troy	8m.17.0s.
1961	Indianapolis A.C.	A. Somers, D. Allen, M. Troy, P. Sintz	(800 meters) 8m.17.9s.
1962	Santa Clara S.C.	(M. Wall, S. Clark, E. Townsend, D. Schollander)	8m.12.2s.
1963	Santa Clara S.C.	(E. Townsend, M. Wall, S. Clark, D. Schollander)	8m.07.6s.
1964	Santa Clara S.W.	(G. Buckingham, M. Wall, G. Ilman, D. Schollander)	8m.09.1s.
1965	Santa Clara S.C.	(R. Roth, D. Roth, M. Wall, G. Ilman)	8m.04.6s.
1966	Santa Clara S.C.	(G. Buckingham, K. Cummings, M. Spitz, D. Schollander)	7m.56.9s.
1967	Santa Clara S.C.	(D. Schollander, M. Spitz, M. Wall, G. Ilman)	7m.52.1s.
1968	Santa Clara S.C.	(D. Schollander, B. Berk, G. Buckingham, M. Spitz)	7m.55.0s.
1969	Phillips 66 LB	(J. Bello, A. Strenk, G. Hall, H. Fassnacht)	7m.52.7s.

DIVING 1 METER

1964	Bernie Wrightson	Dick Smith S.G.	
1965	Bernie Wrightson	Dick Smith S.G.	
1966	Bernie Wrightson	Dick Smith S.G.	
1967	Jim Henry	Indianapolis A.C.	
1968	Jim Henry	Indiana A.C.	
1969	Jim Henry	Bloomington A.C.	

10 FOOT OR 3 METER SPRINGBOARD DIVING

1921	Arthur W. Hartung	Olympic Club	
1922	Albert C. White	Illinois Athletic Club	
1923	Clarence Pinkston	Olympic Club	
1924	Albert C. White	Stanford University	
1925	Pete Desjardins	Roman Pool, Miami	
1926	Pete Desjardins	Roman Pool, Miami	
1927	Pete Desjardins	Roman Pool, Miami	
1928	Mickey Riley (Galitzen)	Los Angeles Athletic Club	
1929	Mickey Riley (Galitzen)	Los Angeles Athletic Club	
1930	Harold Smith	Los Angeles A.C.	
1931	Harold Smith	Los Angeles A.C.	
1932	Not Held		
1933	Richard Degener	Detroit, Unattached	
1934	Richard Degener	Detroit A.C., Michigan	
1935	Richard Degener	Detroit A.C., Michigan	
1936	Richard Degener	Detroit A.C., Michigan	
1937	Al Patnik	Ohio State University	
1938	Al Patnik	Ohio State University	
1939	Al Patnik	Ohio State University	(3 meters)
1940	Al Patnik	Ohio State University	(3 meters)

1941	Earl Clark	Ohio State University	(3 meters)
1942	Sammy Lee	Pasadena A.C.	
1943	Floyd Stauffer	Columbus, Ohio, U.S.N.	
1944	Norman Sper, Jr.	Sand and Pool Club, Calif.	
1945	Norman Sper, Jr.	Unattached, Hollywood, Calif.	
1946	Bruce Harlan	Naval Air Tech. Cn'tr, Jacksonville, Fla.	(3 mtrs.)
1947	Bruce Harlan	Ohio State University	(3 meters)
1948	Bruce Harlan	Ohio State University	(3 meters)
1949	Skippy Browning	Texas Aquatic Club	(3 meters)
1950	Joe Marino	Ohio State	(3 meters)
1951	Robert Clotworthy	Ohio State	(3 meters)
1952	D.S. Browning	University of Texas	(3 meters)
1953	Robert Clotworthy	Unatt., Westfield, N.J.	(3 meters)
1954	Joaquin Capilla	Mexican S.F.	(3 meters)
1955	Don Harper	Unatt., Ohio	
1956	Bob Clotworthy	New York A.C.	
1957	Ronnie Smith	Unat., Houston, Texas	
1958	Gary Tobian	Los Angeles A.C.	
1959	Don Harper	Coca Cola S.C.	
1960	Sam Hall	WBNS S.C., Columbus, O.	
1961	John Vogel	Lafayette, Ind. S.C.	
1962	Lou Vitucci	Blue Hills C.C.	
1963	Larry Andreason	City of Commerce S.C.	
1964	Bernie Wrightson	Dick Smith S.G.	
1965	Bernie Wrightson	Dick Smith S.G.	
1966	Rick Gilbert	Indianapolis A.C.	
1967	Keith Russell	Dick Smith S.G.	
1968	Bernie Wrightson	Dick Smith S.G.	
1969	Jim Henry	Bloomington A.C.	

PLATFORM DIVING

1909	George W. Gaidzik	Chicago Athletic Association	
1910	George W. Gaidzik	Chicago Athletic Association	
1911	George W. Gaidzik	Chicago Athletic Association	
1912	J.F. Dunn	New York Athletic Club	
1913	Not Held		
1914	C. Wolfeld	Illinois A.C.	
1915	A.E. Downes	New York Athletic Club	
1916	A.E. Downes	New York Athletic Club	
1917	W. Williams	Los Angeles Athletic Club	
1918	Clyde Swendson	U.S. Naval Reserve, San Pedro	
1919	Fred Sponberg	New York A.C.	
1920	Clarence Pinkston	Olympic Club, Calif.	
1921	C. Pinknton	Olympic Club, Calif.	
1922	C. Pinkston	Olympic Club, Calif.	
1923	C. Pinkston	Olympic Club, Calif.	
1924	Clarence Pinkston	Olympic Club, Calif.	
1925	Pete Desjardins	Roman Baths, Miami, Fla.	
1926	Pete Desjardins	Roman Pool, Miami, Fla.	
1927	Pete Desjardins	Miami, Florida	
1928	Mickey Riley (Galitzen)	Los Angeles A.C.	
1929	John Riley (Galitzen)	Los Angeles A.C.	
1930	Farid Samaika	Hollywood A.C.	
1931	Farid Samaika	Hollywood A.C.	
1932	Not Held		
1933	Frank Kurtz	Los Angeles A.C.	
1934	Marshall Wayne	Miami, Fla.	
1935	Richard Degener	Detroit A.C., Michigan	
1936	Marshall Wayne	Miami Biltmore	
1937	Elbert Root	Detroit A.C., Michigan	
1938	Elbert Root	Detroit A.C., Michigan	
1939	Earl Clark	Ohio State University	
1940	Earl Clark	Ohio State University	
1941	Earl Clark	Ohio State University	
1942	Sammy Lee	Pasadena A.C.	

1943	Miller Anderson	Army Air Corps, U.S.	
1944	Norman Sper, Jr.	Sand and Pool Club, Calif.	
1945	(not held)		
1946	Dr. Sammy Lee	Pasadena A.C.	
1947	Bruce Harlan	Ohio State University	
1948	Bruce Harlan	Ohio State University	
1949	Norman Sper	University of North Carolina	
1950	John McCormack	Pasadena A.C.	
1951	John McCormick	Pasadena A.C.	
1952	Jerry Harrison	Ohio State University	
1953	Joaquin Capilla	Mexican S.F.	
1954	Joaquin Capilla	Mexican S.F.	
1955	Gary Tobian	Los Angeles A.C.	
1956	Gary Tobian	Los Angeles A.C.	
1957	Gary Tobian	Los Angeles A.C.	
1958	Gary Tobian	Los Angeles A.C.	
1959	Gary Tobian	Los Angeles A.C.	
1960	Gary Tobian	Los Angeles A.C.	
1961	Don Harper	WBNS-TV, Columbus, Ohio	
1962	Robert Webster	Sammy Lee S.S.	
1963	Tom Gompf	U.S. Air Force	
1964	Robert Webster	U.S. Army	
1965	Bernie Wrightson	Dick Smith S.G.	
1966	Rick Gilbert	Indianapolis A.C.	
1967	Keith Russell	Dick Smith S.G.	
1968	Win Young	Bloomington, Indiana	
1969	Dick Rydze	Unattached, Michigan	

PLAIN HIGH DIVING

1925	Pete Desjardins	Miami, Fla.	
1927	Pete Desjardins	Miami, Fla.	

LONG DISTANCE SWIMMING

1909	J.H. Handy	Illinois A.C.	1hr.43m.30s.
1910	L.B. Goodwin	New York A.C.	1h.30m.49s.
1911	M. McDermott	C.A.A.	1hr.41m.
1912	Chauncey Heath	M.A.C.	1hr.39m.2.2s.
1913	M. McDermott	Illinois A.C.	1hr.50m.44.4s.
1914	Herman Laubis	Missouri A.C.	1hr.48m.25s.
1915	L.B. Goodwin	New York A.C.	1hr.39m.38s.
1916	M. McDermott	Illinois A.C.	1hr.45m.23.4s.
1917	M. McDermott	Illinois A.C.	1hr.44m.45s.
1918	Leo Geibel	New York	2hrs. 1m.20s.
1919	Eugene T. Bolden	Great Lake Naval Station	1hr.59m.18s.
1920	E.J. Bolden	Illinois A.C.	2hrs. 9m.17s.
1921	J.W. Hall, Jr.	Brooklyn Central Y.M.C.A.	2hrs. 12m.25s.
1922	T.E. Blake	Los Angeles A.C.	2hrs.24m.30s.
1923	Edward Keating	Boys' Club	2hrs.7m.
1924	Clarence Ross	New York A.C.	1hr.57m.24.6s.
1925	Clarence Ross	New York A.C.	1hr.48m.39s.
1926	Clarence Ross	New York A.C.	1hr.35m.32.0s.
1927	R. Ruddy	New York A.C.	1hr.21m.5.4s.
1928	Edward Lee	New York A.C.	50m.57.8s.
1929	Raymond Ruddy	New York A.C.	1hr.19m.22.2s.
1930	Raymond Ruddy	New York A.C.	39m.16s.
1931	Edward Lee	New York A.C.	1hr.39m.2.4s.
1932	Not Held		
1933	Edward Lee	New York A.C.	2hrs.16m.25s.
1934	Edward Lee	New York A.C.	8hrs.3m.24.6s.
1935	Dexter Woodford	Ohio State University	1hr.37m.44.4s.
1936	Elwood Woodling	E. Akron Bd. of Trade	1hr.51m.20s.
1937	Not Held		
1938	Steven Wozniak	Downtown Y.M.C.A., Bflo., N.Y.	1hr.46m.48s.
1939	Steven Wozniak	Unattached, Buffalo, N.Y.	2hrs.18m.04s.

1940	Steven Wozniak	Unattached, Buffalo, N.Y.	2hrs.5m.16.4s.
1941	Steven Wozniak	Unattached, Buffalo, N.Y.	52m.45.8s.
1942	Joe Lucas	New York A.C.	1h.35m.37.5s.
1943	Paul Maloney	Buffalo A.C.	1h.37m.32.8s.
1944	James McLane	Firestone A.A.	1h.41m.51.4s.
1945	James McLane	Unattached, Akron, Ohio	1h.35m.01s.
1946	Jerry Kerschner	Coca Cola Club, Ohio	1h.32m.15.6s.
1947	Forbes Norris	Harvard University	1h.35.10s.
1948	Forbes Norris	Harvard University	1h.35m.06s.
1949	Louis Childs	Camp Chikopi	1hr.34m.08s.
1950	Louis Childs	Michigan	1hr.29m.33s.
1951	Robert Arwezen	Providence Central Boy's Club	1hr.39m.38.9s.
1952	Rocco Cirigliano	Ohio State University	1hr.37m.28.0s.
1953	Eugene Adler	Brooklyn Y.M.C.A.	1hr.30m.46s.
1954	Frank Brunell	Unatt., Philadelphia, Pa.	1hr.35m.53.4s.
1955	Frank Brunell	Unatt., Phila., Pa.	1hr.39m.26s.
1956	George Breen	Buffalo A.C.	1hr.32m.55s.
1957	George Breen	Buffalo A.C.	1hr.32m.01.5s.
1958	George Breen	Indianapolis A.C.	1hr.29m.02s.
1959	Roy Saari	El Segundo S.C.	1hr.33m.22.1s.
1960	Roy Saari	El Segundo S.C.	1hr.26m.45.3s.
1961	Murray Rose	Los Angeles A.C.	1hr.25m.14.5s.
1962	Ed Glick	Huntington Y	1hr.29m.57.6s.
1963	Ed Glick	Huntington Y	1hr.26m.13.0s.
1964	Doug Webster	Patton Pool	1hr.27m.56.0s.
1965	Steve Folk	Huntington Y	1hr.24m.27.3s.
1966	Dana Curtis	Shamrock-Hilton S.C.	1hr.27m.36.7s.
1967	Fred Southward	Indiana A.C.	1hr.24m.45.2s.
1968	Jeff Adams	Huntington S.C.	1hr.29m.21.0s.
1969	Ric Phillips	Air Force Academy	1hr.27m.14.9s.

LONG DISTANCE TEAM

1925	Brooklyn Central S.C.
1928	New York Athletic Club
1929	New York Athletic Club
1930	New York Athletic Club
1931	New York Athletic Club
1932	Not Held
1933	Not Held
1934	Lenox Hill Athletic Club, New York
1935	East High School, Akron, Ohio
1936	East Akron Board of Trade
1937	Not Held
1938	Scranton Y.M.C.A.
1939	Canton Sea Lions, Canton, Ohio
1940	Canton Sea Lions, Canton, Ohio
1941	Roxbury Boys' Club, Boston, Mass.
1942	Brooklyn Central Y.M.C.A.
1943	U.S. Naval Training Station, Bainbridge, Md.
1944	Grand Central R.R. Y.M.C.A., New York
1945	Buffalo (N.Y.) A.C.
1946	New York A.C.
1947	University Circle Y.M.C.A.
1948	University Circle Y.M.C.A.
1949	Camp Chikopi, Michigan
1950	Providence Central Boys' Club
1951	Providence Central Boys' Club
1952	Ohrbach A.A., New York
1953	Cleveland Elks
1954	Huntington (Ind.) Y.M.C.A.
1955	Huntington, Ind., Y.M.C.A.
1956	Huntington, Ind., Y.M.C.A.
1957	Camp Chikopi, Ont., Can.
1958	Indianapolis A.C.
1959	New York A.C.

1960	Los Angeles A.C.	Bucy, Ota, Hitchcock
1961	Los Angeles A.C.	M. Rose, T. Ralphs, W. Farley
1962	Detroit P & R	G. Saldana, P. Webster, P. Adams
1963	Patton Pool	G. Saldana, D. Webster, M. Blashill
1964	Northwest A.C.	G. Golin, A. McDaid, R. Pohlonski
1965	Huntington Y	S. Folk, S. Ware, G. Kinkaid
1966	Shamrock-Hilton S.C.	D. Curtis, S. DeRapau, H. Hurst
1967	Los Angeles A.C.	S. Boss, C. Campbell, S. Thompson
1968	Huntington "A" Swim Club	J. Adams, S. Keefer, B. Preston
1969	Greater Lexington S.A.	D. Watkins, A. McAlister, D. Tweedale

HARDBALL WATER POLO

1906	New York A.C.
1907	New York A.C.
1908	New York A.C.
1909	Chicago A.A.
1929	New York A.C.
1930	New York A.C.
1931	New York A.C.
1932	Not Held
1933	New York A.C.
1934	New York A.C.
1935	New York A.C.
1936	Not Held
1937	Not Held
1938	New York A.C.
1939	New York A.C.
1940	Not Held
1941	Los Angeles A.C. E. Knox, K. Beck, L. Case, R. Starr, W. Miller, D. Fiske, J. Van Dyke
1942-1945	Not Held
1947	Los Angeles A.C.
1948	Not Held
1949	Whittier (Calif.) S.C.
1950	Whittier (Calif.) S.C.
1951	Illinois A.C.
1952	Los Alamitos N.A.S.
1953	El Segundo A.C.
1954	New York A.C.
1955	Illinois A.C.
1956	New York A.C.
1957	San Francisco, Cal., O.C.
1958	Illinois A.C.
1959	San Francisco, Cal., O.C.
1960	Toronto Water Polo Club
1961	New York A.C.
1962	City of Commerce
1963	Inland-Nu Pike
1964	Inland-Nu Pike
1965	Foothill A.C.
1966	Foothill A.C.
1967	Foothill A.C.
1968	Phillips 66 LB (formerly Inland-Nu Pike)
1969	De Anza Aquatic Foundation

OUTDOOR - WOMEN

50 YARD FREESTYLE

1921	Ethelda Bleibtrey	Women's S.A., New York	.29.4s.
1922	Helen Wainwright	Women's S.A., New York	.29.8s.
1923	Gertrude Ederle	Women's S.A., New York	.29.4s.

100 YARD FREESTYLE - 100 METERS - 110 YARDS

1917	Gertrude Artelt	Philadelphia Turngemeinde	1m.18.4s.
1918	Charlotte Boyle	Women's S.A., New York	1m.11.6s.
1919	Not Held		
1920	Ethelda Bleibtrey	Women's S.A., New York	1m.5.2s.
1921	Ethelda Bleibtrey	Women's S.A., New York	1m.3.4s.
1922	Helen Wainwright	Women's S.A., New York	1m.8.4s.
1923	Adelaide Lambert	Unattached	1m.13.4s.
1924	Ethel Lackie	Illinois A.C.	1m.6s.
1925	Doris O'Mara	Women's S.A., New York	1m.7.4s.
1926	Ethel Lackie	Illinois A.C. (100 meters)	1m.14.4s.
1927	Martha Norelius	Women's S.A., New York (100 meters)	1m.13.8s.
1928	Eleanor Garratti	San Rafael, California (100 meters)	1m.10.6s.
1929	Eleanor Garratti	San Rafael, California (100 meters)	1m.9.8s.
1930	Helene Madison	Unattached, Seattle (100 meters)	1m.8.2s.
1931	Helene Madison	Washington A.C. (100 meters)	1m.9.4s.
1932	Jennie Cramer	Unattached, Los Angeles (100 meters)	1m.13.4s.
1933	Lenore Kight	Carnegie Library Club (100 meters)	1m.10.8s.
1934	Olive McKean	Washington A.C. (100 meters)	1m.11.7s.
1935	Olive McKean	Washington A.C. (100 meters)	1m.10.2s.
1936	Toni Redfern	Shelton Dolphins, N.Y. (100 mtrs.)	1m. 10.1s.
1937	Elizabeth Ryan	Women's S.A., New York (100 meters)	1m.8s.
1938	Virginia Hopkins	Los Angeles A.C. (100 meters)	1m.10.5s.
1939	Esther Williams	Los Angeles A.C. (100 meters)	1m.9s.
1940	Brenda Helser	Multnomah A.C. (110 yards)	1m.09.6s.
1941	Brenda Helser	Multnomah A.C. (100 meters)	1m.08.9s.
1942	Suzanne Zimmerman	Multnomah A.C. (100 meters)	1m.10.3s.
1943	Brenda Helser	Multnomah A.C. (100 meters)	1m.09.3s.
1944	Ann Curtis	Crystal Plunge Pool (100 meters)	1m.09.5s.
1945	Ann Curtis	Crystal Plunge Pool (100 meters)	1m.07.5s.
1946	Brenda Helser	Los Angeles A.C. (100 meters)	1m.07.2s.
1947	Ann Curtis	Crystal Plunge S.C. (100 meters)	1m.07s.
1948	Ann Curtis	Crystal Plunge S.C. (100 meters)	1m.08s.
1949	Thelma Kalama	Hawaiian (110 yards)	1m.10.9s.
1950	Jackie LaVine	Chicago Town Club (100 meters)	1m.10.0s.
1951	Sharon Geary	Los Angeles A.C. (100 meters)	1m.07.6s.
1952	Not Held		
1953	Judy Roberts	Indianapolis A.C. (110 yards)	1m.07.9s.
1954	Jody Alderson	Comm. Builders S.C. (100 meters)	1m.06.1s.
1955	Wanda Werner	Walter Reed S.C. (100 meters)	1m.06.1s.
1956	Wanda Werner	Walter Reed S.C. (110 yards)	1m.06.3s.
1957	Dawn Fraser	Australia S.U. (110 yards)	1m.03.9s.
1958	Chris von Saltza	Santa Clara S.C. (100 meters)	1m.03.5s.
1959	Chris von Saltza	Santa Clara S.C. (110 yards)	1m.04.8s.
1960	Chris von Saltza	Santa Clara S.C. (100 meters)	1m.01.6s.
1961	Robyn Johnson	Northern Virginia A.C. (100 meters)	1m.03.2s.
1962	Robyn Johnson	Northern Virginia A.C. (100 meters)	1m.02.2s.
1963	Robyn Johnson	Northern Virginia A.C. (100 meters)	1m.01.5s.
1964	Sharon Stouder	City of Commerce S.C.	1m.00.4s.
1965	Pokey Watson	Santa Clara S.C.	1m.00.7s.
1966	Pokey Watson	Santa Clara S.C.	.59.9s.
1967	Jane Barkman	Vesper B.C.	.59.8s.
1968	Jane Barkman	Vesper B.C.	1m.00.1s.
1969	Sue Pedersen	Arden Hills S.C.	.59.7s.

220 YARD BACKSTROKE - 200 METERS

1922	Gertrude Ederle	Women's S.A., New York	2m.49.2s.
1923	Gertrude Ederle	Women's S.A., New York	3m.12.4s.
1958	Molly Botkin	Los Angeles A.C. (200 meters)	2m.23.2s.
1959	Chris von Saltza	Santa Clara S.C. (220 yards)	2m.21.1s.
1960	Chris von Saltza	Santa Clara S.C. (200 meters)	2m.15.1s.
1961	Carolyn House	Los Angeles A.C. (200 meters)	2m.18.9s.
1962	Carolyn House	Los Angeles A.C.	2m.14.6s.
1963	Robyn Johnson	Northern Virginia A.C.	2m.15.6s.
1964	Jeanne Hallock	City of Commerce S.C.	2m.13.3s.
1965	Martha Randall	Vesper B.C.	2m.12.3s.
1966	Pokey Watson	Santa Clara S.C.	2m.10.5s.
1967	Pam Kruse	Ft. Lauderdale S.A.	2m.09.7s.
1968	Eadie Wetzel	Lake Forest S.C.	2m.08.8s.
1969	Sue Pedersen	Arden Hills S.C.	2m.07.8s.

440 YARD FREESTYLE - 400 METERS

1916	Claire Galligan	N.W.L.S.L.	7m.43.2s.
1917	Olga Dorfner	Philadelphia Turngemeinde	7m.53.4s.
1918	Claire Galligan	Women's S.A., New York	7m.20s.
1919	Ethelda Bleibtrey	Women's S.A., New York	6m.30.2s.
1920	L. Snowgrass	Unattached	8m.24s.
1921	Ethelda Bleibtrey	Women's S.A., New York	6m.30s.
1922	Gertrude Ederle	Women's S.A., New York	6m.1.2s.
1923	Gertrude Ederle	Women's S.A., New York	6m.35.4s.
1924	Helen Wainwright	Women's S.A., New York	6m.10.4s.
1925	V. Whitenack	Women's S.A., New York	6m.7s.
1926	Martha Norelius	Women's S.A., New York	6m.6s.
1927	Martha Norelius	Women's S.A., New York	5m.57.2s.
1928	Martha Norelius	Women's S.A. New York	5m.49.6s.
1929	Josephine McKim	Unattached, Canal Zone	5m.47.4s.
1930	Helene Madison	Unattached, Seattle	5m.39.4s.
1931	Helene Madison	Washington A.C.	5m.42.8s.
1932	Not Held		
1933	Lenore Kight	Carnegie Library Club	5m.33.6s.
1934	Lenore Kight	Carnegie Library Club	5m.40.2s.
1935	Lenore Kight	Carnegie Library Club	5m.32.5s.
1936	Lenore K. Wingard	Carnegie Library Club	5m.37.6s.
1937	Katherine Rawls	Miami Beach Swim Club	5m.36s.
1938	Katherine Rawls	Miami Beach Swim Club	5m.34.5s.
1939	Nancy Merkl	Multnomah A.A.C. (400 meters)	5m.29.6s.
1940	Mary M. Ryan	Lakeside Club, Kentucky	5m.30.1s.
1941	Betty Bemis	Riviera Club (400 meters)	5m.23.7s.
1942	Betty Bemis	Riviera Club (400 meters)	5m.32.5s.
1943	Ann Curtis	Crystal Plunge Pool (400 meters)	5m.27.8s.
1944	Ann Curtis	Crystal Plunge Pool (400 meters)	5m.32.4s.
1945	Ann Curtis	Crystal Plunge Pool (400 meters)	5m.26.3s.
1946	Ann Curtis	Crystal Plunge Pool (400 meters)	5m.26.7s.
1947	Ann Curtis	Crystal Plunge Pool (400 meters)	5m.21.5s.
1948	Ann Curtis	Crystal Plunge Pool (400 meters)	5m.26.5s.
1949	Thelma Kalama	Hawaii	5m.41.2s.
1950	Thelma Kalama	Hawaii S.C. (400 meters)	5m.30.9s.
1951	Barbara Hobelmann	Unattached (400 meters)	5m.21.6s.
1952	Not Held		
1953	Delia Meulenkamp	Crystal Plunge S.C. (440 yards)	5m.22.2s.
1954	Carolyn Green	Ft. Lauderdale S.A. (400 meters)	5m.14.7s.
1955	Dougie Gray	Walter Reed S.C. (400 meters)	5m.16.1s.
1956	Marley Shriver	Los Angeles A.C. (440 yards)	5m.13.8s.
1957	Lorraine Crapp	Australia S.U. (440 yards)	5m.08.5s.
1958	Sylvia Ruuska	Berkeley Y.M.C.A. (400 meters)	5m.04.1s.
1959	Chris von Saltza	Santa Clara S.C. (440 yards)	4m.59.6s.
1960	Chris von Saltza	Santa Clara S.C. (400 meters)	4m.46.9s.
1961	Carolyn House	Los Angeles A.C. (400 meters)	4m.52.5s.

1962	Carolyn House	Los Angeles A.C.	4m.45.3s.
1963	Robyn Johnson	Northern Virginia A.C.	4m.46.8s.
1964	Marilyn Ramenofsky	Dick Smith S.G.	4m.41.7s.
1965	Martha Randall	Vesper B.C.	4m.39.2s.
1966	Martha Randall	Vesper B.C.	4m.38.0s.
1967	Debbie Meyer	Arden Hills S.C.	4m.29.0s.
1968	Debbie Meyer	Arden Hills S.C.	4m.26.7s.
1969	Debbie Meyer	Arden Hills S.C.	4m.26.4s.

880 YARD FREESTYLE - 800 METERS

1916	Thelma Darby	Indianapolis Canoe Club	16m.8.8s.
1917	Claire Galligan	N.W.L.S.L., New York	15m.35s.
1918	Claire Galligan	Women's S.A., New York	13m.31.8s.
1919	Ethelda Bleibtrey	Women's S.A., New York	15m.26.4s.
1920	Ethelda Bleibtrey	Women's S.A., New York	16m.30s.
1921	Ethelda Bleibtrey	Women's S.A., New York	14m.37.6s.
1922	Helen Wainwright	Women's S.A., New York	13m.5s.
1923	Gertrude Ederle	Women's S.A., New York	13m.19s.
1924	Gertrude Ederle	Women's S.A., New York	13m.59s.
1925	Ethel McGary	Women's S.A., New York	13m.6s.
1926	Martha Norelius	Women's S.A., New York	12m.47s.
1927	Martha Norelius	Women's S.A., New York	12m.17.8s.
1928	Martha Norelius	Women's S.A., New York	11m.56.6s.
1929	Josephine McKin	Unattached, Canal Zone	12m.3.8s.
1930	Helene Madison	Unattached, Seattle	11m.41.2s.
1931	Helene Madison	Washington A.C.	11m.50.4s.
1932	Katherine Rawls	Unattached, Florida	12m.35.6s.
1933	Lenore Kight	Carnegie Library Club	11m.44.6s.
1934	Lenore Kight	Carnegie Library Club	11m.50.7s.
1935	Lenore Kight	Carnegie Library Club	11m.34s.
1936	Lenore K. Wingard	Carnegie Library Club	11m.38.6s.
1937	Katherine Rawls	Miami Beach Swim Club	11m.44.2s.
1938	Katherine R. Thompson	Miami Beach, Florida	11m.33.2s.
1939	Nancy Merki	Multnomah A.A.C. (800 meters)	11m.19.9s.
1940	Mary M. Ryan	Lakeside Club, Kentucky	11m.26.4s.
1941	Nancy Merki	Multnomah A.C. (800 meters)	11m.16s.
1942	Betty Bemis	Riviera Club (800 meters)	11m.41s.
1943	Ann Curtis	Crystal Plunge Pool (800 meters)	11m.19.3s.
1944	Ann Curtis	Crystal Plunge Pool (800 meters)	11m.29.5s.
1945	Ann Curtis	Crystal Plunge Pool (800 meters)	11m.24.1s.
1946	Ann Curtis	Crystal Plunge Pool (800 meters)	11m.26.3s.
1947	Ann Curtis	Crystal Plunge Pool (800 meters)	11m.21.8s.
1948	Ann Curtis	Crystal Plunge Pool (800 meters)	11m.37.4s.
1949	Catherine Kleinschmidt	Hawaii	11m.48.1s.
1950	Carolyn Green	Ft. Lauderdale S.A. (800 meters)	11m.28.3s.
1951	Carolyn Green	Ft. Lauderdale S.A. (800 meters)	11m.15.5s.
1952	Not Held		
1953	Carolyn Green	Ft. Lauderdale S.A. (880 yards)	11m.15.2s.
1954	Carolyn Green	Ft. Lauderdale S.A. (800 meters)	10m.49.9s.
1955	Carolyn Green	Ft. Lauderdale S.A. (800 meters)	10m.45.3s.
1956	Sylvia Ruuska	Berkeley Y.M.C.A. (880 yards)	10m.54.5s.
1957	Sylvia Ruuska	Berkeley Y.M.C.A. (880 yards)	10m.45.8s.

ONE MILE FREESTYLE - 1500 METERS

1916	Claire Galligan	N.W.L.S.L., New York	31m.19.6s.
1917	Claire Galligan	N.W.L.S.L., New York	33m.8s.
1918	Frances Cowells	San Francisco	33m.3s.
1919	Not Held		
1920	Ethelda Bleibtrey	Women's S.A., New York	32m.25.2s.
1921	Thelma Darby	Los Angeles A.C.	31m.58s.
1922	Helen Wainwright	Women's S.A., New York	26m.44.8s.
1923	Olive Holland	Boston Swimming Club	29m.27.4s.
1924	Not Held		
1925	Ethel McGary	Women's S.A., New York	26m.27.4s.

1926	Ethel McGary	Women's S.A., New York	26m.33.4s.
1927	Martha Norelius	Women's S.A., New York	24m.19.4s.
1928	Josephine McKin	Homestead Library Club	24m.49.6s.
1929	Josephine McKin	Unattached, Canal Zone	25m.10s.
1930	Helene Madison	Unattached, Seattle	24m.32.2s.
1931	Helene Madison	Washington A.C.	24m.45s.
1932	Not Held		
1933	Lenore Kight	Carnegie Library Club	24m.53.8s.
1934	Lenore Kight	Carnegie Library Club	25m.10.5s.
1935	Lenore Kight	Carnegie Library Club	24m.20.4s.
1936	Lenore K. Wingard	Carnegie Library Club	24m.07.2s.
1937	Katherine Rawls	Miami Beach Swim Club	24m.19.6s.
1938	Katherine R. Thompson	Miami Beach, Florida	23m.47.4s.
1939	Mary M. Ryan	Lakeside Club, Kentucky	24m.12.8s.
1940	Mary M. Ryan	Lakeside Club, Kentucky	23m.15s.
1941	Nancy Merki	Multnomah A.C. (1500 meters)	22m.12.2s.
1942	Nancy Merki	Multnomah A.C. (1500 meters)	22m.18.2s.
1943	Florence Schmitt	Women's S.A., N.Y. (1500 meters)	22m.31.3s.
1944	Ann Curtis	Crystal Plunge Pool (1500 meters)	22m.13.1s.
1945	Marilyn Sahner	Crystal Plunge Pool (1500 meters)	21m.59.3s.
1946	Ann Curtis	Crystal Plunge Pool (1500 meters)	22m.08.1s.
1947	Marilyn Sahner	Crystal Plunge Pool (1500 meters)	22m.23.1s.
1948	Joan Mallory	Crystal Plunge Pool (1500 meters)	22m.58.4s.
1949	Jean Lutyens	Indianapolis, Indiana	24m.34.5s.
1950	Barbara Hobelmann	Ambassador S.C. (1500 meters)	22m.25.7s.
1951	Carolyn Green	Ft. Lauderdale S.A. (1500 meters)	21m.48.3s.
1952	Not Held		
1953	Carolyn Green	Ft. Lauderdale S.A. (1 mile)	23m.03.4s.
1954	Carolyn Green	Ft. Lauderdale S.A. (1500 meters)	21m.08.5s.
1955	Carolyn Green	Ft. Lauderdale S.A. (1500 meters)	21m.15.4s.
1956	Carolyn Green	Ft. Lauderdale S.A. (1650 yards)	21m.30.2s.
1957	Carolyn Murray	Los Angeles A.C. (1 mile)	22m.13.7s.
1958	Sylvia Ruuska	Berkeley Y.M.C.A. (1500 meters)	20m.34.6s.
1959	Sylvia Ruuska	Berkeley Y.M.C.A. (1 mile)	21m.38.9s.
1960	Carolyn House	Los Angeles A.C. (1500 meters)	19m.45.0s.
1961	Carolyn House	Los Angeles A.C. (1500 meters)	19m.46.3s.
1962	Carolyn House	Los Angeles A.C. (1500 meters)	18m.44.0s.
1963	Ginny Duenkel	Summit Y	18m.57.9s.
1964	Patty Caretto	City of Commerce S.C.	18m.30.5s.
1965	Patty Caretto	City of Commerce S.C.	18m.23.7s.
1966	Patty Caretto	Los Angeles A.C.	18m.12.9s.
1967	Debbie Meyer	Arden Hills S.C.	17m.50.2s.
1968	Debbie Meyer	Arden Hills S.C.	17m.38.5s.
1969	Debbie Meyer	Arden Hills S.C.	17m.19.9s.

100 METER BACKSTROKE - 110 YARDS - 150 YARDS

1922	Sybil Bauer	Illinois A.C., Chicago, Ill. (100 yds.)	1m.17.6s.
1923	Sybil Bauer	Illinois A.C., Chicago, Ill. (150 yds.)	2m.4.8s.
1939	Edith Motridge	Los Angeles A.C.	1m.18.9s.
1940	Gloria Callen	Women's S.A., New York (110 yards)	1m.18.5s.
1941	Gloria Callen	New York W.S.A.	1m.17.5s.
1942	Gloria Callen	Women's S.A., New York	1m.18.6s.
1943	Suzanne Zimmerman	Multnomah A.C.	1m.18.3s.
1944	Joan Fogle	Riviera Club	1m.20.2s.
1945	Marion Pontacq	Crystal Plunge Pool	1m.18.7s.
1946	Suzanne Zimmerman	Multnomah Club	1m.18s.
1947	Suzanne Zimmerman	Multnomah Club	1m.17.6s.
1948	Suzanne Zimmerman	Multnomah Club	1m.16.4s.
1949	Barbara Jensen	Crystal Plunge Pool (110 yards)	1m.20.3s.
1950	Maureen O'Brien	Chicago Town Club (100 meters)	1m.17.9s.
1951	Mary Freeman	Unattached, Washington (100 meters)	1m.18.8s.
1952	Not Held		
1953	Barbara Stark	Unatt., Orinda, Cal. (110 yards)	1m.16.6s.
1954	Shelley Mann	Walter Reed S.C. (100 meters)	1m.15.5s.
1955	Carin Cone	Unatt., Ridgewood, N.J. (100 meters)	1m.15.6s.

1956	Carin Cone	Unatt., Ridgewood, N.J.	(110 yards)	1m.14.5s.
1957	Carin Cone	Unat., Ridgewood, N.J.	(110 yards)	1m.13.6s.
1958	Carin Cone	Unat., Ridgewood, N.J.	(100 meters)	1m.13.3s.
1959	Carin Cone	Shamrock Hilton S.C.	(110 yards)	1m.13.3s.
1960	Lynn Burke	Santa Clara S.C.	(100 meters)	1m.10.2s.
1961	Nina Harmer	Vesper Boat Club	(100 meters)	1m.11.0s.
1962	Donna DeVarona	Santa Clara S.C.		1m.10.4s.
1963	Cathy Ferguson	Los Angeles A.C.		1m.09.2s.
1964	Cathy Ferguson	Los Angeles A.C.		1m.09.2s.
1965	Christine Caron	France		1m.08.1s.
1966	Ann Fairlie	South Africa		1m.07.9s.
1967	Kendis Moore	Arizona Desert Rats		1m.09.2s.
1968	Karen Muir	South Africa		1m.06.9s.
1969	Susie Atwood	Lakewood A.C.		1m.06.0s.

220 YARD BACKSTROKE — 200 METERS

1924	Sybil Bauer	Illinois A.C.		3m.9.4s.
1925	Sybil Bauer	Illinois A.C.		3m.11s.
1926	Adelaide Lambert	Women's S.A., New York		3m.15s.
1927	Adelaide Lambert	Women's S.A., New York		3m.11s.
1928	Lisa Lindstrom	Women's S.A., New York		3m.3.4s.
1929	Eleanor Holm	Women's S.A., New York		3m.3.6s.
1930	Eleanor Holm	Women's S.A., New York		3m.5s.
1931	Eleanor Holm	Women's S.A., New York		3m.4.4s.
1932	Eleanor Holm	Women's S.A., New York		2m.57.8s.
1933	Eleanor Holm	Women's S.A., New York		2m.57.2s.
1934	Alice Bridges	Whitin Comm. Ass'n.		3m.6s.
1935	Elizabeth Kompa	Women's S.A., New York		2m.58.9s.
1936	Eleanor Holm Jarrett	Women's S.A., New York		2m.51.8s.
1937	Ema Kompa	Women's S.A., New York		2m.57.5s.
1938	Jeanne Laupheimer	St. George Dragon Club, Brooklyn		3m.2s.
1946	Suzanne Zimmerman	Multnomah Club	(200 meters)	2m.48.7s.
1947	Suzanne Zimmerman	Multnomah Club	(200 meters)	2m.49s.
1948	Suzanne Zimmerman	Multnomah Club	(200 meters)	2m.48.3s.
1949	Barbara Jensen	Crystal Plunge		2m.54.9s.
1950	Maureen O'Brien	Chicago Town Club	(200 meters)	2m.51.2s.
1951	Mary Freeman	Unattached, Washington	(200 meters)	2m.49.8s.
1952	Not Held			
1953	Barbara Stark	Unatt., Orinda, Cal.	(220 yards)	2m.45.7s.
1954	Barbara Stark	Crystal Plunge S.C.	(200 meters)	2m.47.9s.
1955	Carin Cone	Unatt., Ridgewood, N.J.	(200 meters)	2m.45.6s.
1956	Carin Cone	Unatt., Ridgewood, N.J.	(220 yards)	2m.43.8s.
1957	Chris von Saltza	Santa Clara S.C.	(220 yards)	2m.40.2s.
1958	Chris von Saltza	Santa Clara S.C.	(200 meters)	2m.37.4s.
1959	Carin Cone	Shamrock Hilton S.C.	(220 yards)	2m.37.9s.
1960	Lynn Burke	Santa Clara S.C.	(200 meters)	2m.33.5s.
1961	Nina Harmer	Vesper Boat Club	(200 meters)	2m.35.0s.
1962	Ginny Duenkel	Summit Y		2m.32.1s.
1963	Ginny Duenkel	Summit Y		2m.30.8s.
1964	Cathy Ferguson	Los Angeles A.C.		2m.29.2s.
1965	Judy Humbarger	Club Olympic		2m.28.0s.
	Cathy Ferguson	Los Angeles A.C.		tie
1966	Karen Muir	South Africa		2m.26.4s.
1967	Kendis Moore	Arizona Desert Rats		2m.28.1s.
1968	Karen Muir	South Africa		2m.24.3s.
1969	Susie Atwood	Lakewood A.C.		2m.21.5s.

100 YARD BREASTSTROKE — 100 METERS

1942	Edna O'Connell	Illinois A.C., Chicago, Ill.		1m.34.2s.
1943	Jane Dillard	Unat., Ft. Worth, Tex.	(100 meters)	1m.24.3s.
1944	Jane Dillard Kittleson	Forth Worth, Texas	(100 meters)	1m.25.3s.
1945	Jeanne Wilson	Lake Shore Club	(100 meters)	1m.26.2s.
1946	Jeanne Wilson	Lake Shore Club	(100 meters)	1m.26.2s.

1947	Nel Van Vliet	Netherlands Swim Assn.	(100 meters)	1m.21.6s.
1948	Jeanne Wilson	Chicago Lake Shore	(100 meters)	1m.28.9s.
1949	Carol Pence	Lafayette C.C.		1m.25.8s.
1950	Judy Cornell	Multnomah A.C.	(100 meters)	1m.23.1s.
1951	Judy Cornell	Unattached, Portland, Ore.	(100 mtrs.)	1m.21.0s.
1952	Not Held			
1953	Gail Peters	Walter Reed S.C.	(110 yards)	1m.18.0s.
1956	Mary Jane Sears	Walter Reed S.C.	(110 yards)	1m.22.7s.
1957	Mary L. Elsinius	Berkeley Y.M.C.A.	(110 yards)	1m.24.9s.
1958	Susie Ordogh	Washington A.C.	(100 meters)	1m.23.8s.
1959	Marianne Hargreaves	Kris Kristenson	(110 yards)	1m.22.4s.
1960	Ann Warner	Santa Clara S.C.	(100 meters)	1m.23.4s.
1961	Dale Barnhard	Congressional C.C.	(100 meters)	1m.22.6s.
1962	Wiltrud Urselmann	Germany		1m.20.6s.
1963	Jean Ann Dellekamp	Indianapolis A.C.		1m.20.7s.
1964	Claudia Kolb	Santa Clara S.C.		1m.19.0s.
1965	Claudia Kolb	Santa Clara S.C.		1m.17.1s.
1966	Catie Ball	Unattached, Fla.		1m.16.4s.
1967	Catie Ball	Unattached, Fla.		1m.16.4s.
1968	Catie Ball	Jacksonville Jets		1m.14.6s.
1969	Kim Brecht	Lakewood A.C.		1m.15.7s.
				1m.15.7s.

220 YARD BREASTSTROKE — 200 METERS

1923	Ruth Thomas	Ambassador Swimming Club		3m.50.6s.
1924	Agnes Geraghty	Women's S.A., New York		3m.35.2s.
1925	Agnes Geraghty	Women's S.A., New York		3m.32.4s.
1926	Agnes Geraghty	Women's S.A., New York		3m.29.4s.
1927	Agnes Geraghty	Women's S.A., New York		3m.28.4s.
1928	Lisa Lindstrom	Women's S.A., New York		3m.19.4s.
1929	Agnes Geraghty	Women's S.A., New York		3m.17s.
1930	Margaret Hoffman	Scranton S.A.		3m.20s.
1931	Katherine Rawls	Unattached, Hollywood, Fla.		3m.13.6s.
1932	Katherine Rawls	Unattached, Florida		3m.18.8s.
1933	Margaret Hoffman	Scranton Swimming Association		3m.14.6s.
1934	Ann Govednik	Unattached, Chisholm, Minn.		3m.18.3s.
1935	Katherine Rawls	Miami Beach Swim Club		3m.17.1s.
1936	Iris Cummings	Los Angeles, A.C.		3m.17.2s.
1937	Iris Cummings	Los Angeles A.C.		3m.16.9s.
1938	Iris Cummings	Los Angeles A.C.		3m.18.7s.
1939	Fujiko Katsutani	Walluku, Maui, Hawaii	(200 meters)	3m.16.1s.
1940	Fujiko Katsutani	A.H.C.A., Maui, Hawaii		3m.14.9s.
1941	Patty Aspinall	Riviera Club	(200 meters)	3m.14.9s.
1942	Patty Aspinall	Riviera Club	(200 meters)	3m.19.5s.
1943	Patty Aspinall	Riviera Club	(200 meters)	3m.21.2s.
1944	Nancy Merki	Multnomah A.C.	(200 meters)	3m.16.5s.
1945	Clare Lamore	Olneyville Boys' Club	(200 meters)	3m.18.6s.
1946	Nancy Merki	Multnomah Club	(200 meters)	3m.15s.
1947	Nel Van Vliet	Netherlands Swim. Assn.	(200 meters)	2m.58.6s.
1948	Jeanne Wilson	Chicago Lake Shore A.C.	(200 meters)	3m.17.7s.
1949	Evelyn Kawamoto	Hawaii		3m.14.5s.
1950	Marge Hulton	Brighton S.C.	(200 meters)	3m.10.2s.
	Evelyn Kawamoto	Hawaii S.C.		tie
	Carol Pence	Lafayette S.C.	(200 meters)	3m.09.2s.
1951	Not Held			
1952	Gail Peters	Walter Reed S.C.	(220 yards)	3m.01.1s.
1954	Mary Jane Sears	Walter Reed S.C.	(200 meters)	3m.07.4s.
1955	Mary Jane Sears	Walter Reed S.C.	(200 meters)	3m.01.4s.
1956	Mary Jane Sears	Walter Reed S.C.	(220 yards)	2m.59.0s.
1957	Mary L. Elsinius	Berkeley Y.M.C.A.	(220 yards)	3m.04.8s.
1958	Susie Ordogh	Washington A.C.	(200 meters)	2m.58.6s.
1959	Ann Warner	Santa Clara S.C.	(220 yards)	3m.02.4s.
1960	Ann Warner	Santa Clara S.C.	(200 meters)	2m.53.3s.
1961	Jean Dellekamp	Indianapolis A.C.	(200 meters)	2m.56.7s.
1962	Wiltrud Urselmann	Germany		2m.53.3s.
1963	Jean Ann Dellekamp	Indianapolis A.C.		2m.53.4s.

1964	Claudia Kolb	Santa Clara S.C.	2m.49.8s.
1965	Claudia Kolb	Santa Clara S.C.	2m.48.6s.
1966	Catie Ball	Unattached, Fla.	2m.44.4s.
1967	Catie Ball	Unattached, Fla.	2m.39.5s.
1968	Catie Ball	Jacksonville Jets	2m.40.9s.
1969	Kim Brecht	Lakewood A.C.	2m.45.4s.

100 METER BUTTERFLY — 110 YARDS

1954	Shelley Mann	Walter Reed S.C.	(100 meters) 1m.17.0s.
1955	Betty Mullen	Walter Reed S.C.	(100 meters) 1m.15.0s.
1956	Shelley Mann	Walter Reed S.C.	(110 yards) 1m.11.8s.
1957	Nancy Ramey	Washington A.C.	(110 yards) 1m.11.3s.
1958	Nancy Ramey	Washington A.C.	(100 meters) 1m.10.3s.
1959	Becky Collins	Riviera Club	(110 yards) 1m.11.2s.
1960	Becky Collins	Riviera Club	(100 meters) 1m.10.8s.
1961	Susan Doerr	Vesper Boat Club	(100 meters) 1m.08.2s.
1962	Mary Stewart	Canada	1m.07.6s.
1963	Kathy Ellis	Unat., Indianapolis	1m.06.5s.
1964	Sharon Stouder	City of Commerce S.C.	1m.05.4s.
1965	Sue Pitt	Sea Jay S.C.	1m.06.2s.
1966	Sue Pitt	Sea Jay S.C.	1m.07.0s.
1967	Ellie Daniel	Vesper B.C.	1m.05.7s.
1968	Ellie Daniel	Vesper B.C.	1m.06.9s.
1969	Virginia Durkin	St. Petersburg Rec.	1m.05.9s.

220 YARD BUTTERFLY — 200 METERS

1956	Shelley Mann	Walter Reed S.C.	(220 yards) 2m.44.4s.
1957	Jane Wilson	Santa Clara S.C.	(220 yards) 2m.47.6s.
1958	Sylvia Ruuska	Berkeley Y.M.C.A.	(200 meters) 2m.43.6s.
1959	Becky Collins	Riviera Club	(220 yards) 2m.37.0s.
1960	Becky Collins	Riviera Club	(200 meters) 2m.36.8s.
1961	Becky Collins	Unat., Indianapolis	(200 meters) 2m.32.8s.
1962	Sharon Finneran	Los Angeles A.C.	2m.31.2s.
1963	Sharon Finneran	Unat., Los Angeles	2m.31.8s.
1964	Sharon Stouder	City of Commerce S.C.	2m.26.4s.
1965	Kendis Moore	Arizona Desert Rats	2m.26.3s.
1966	Lee Davis	Vesper B.C.	2m.27.2s.
1967	Toni Hewitt	Corona del Mar S.C.	2m.23.6s.
1968	Toni Hewitt	Corona del Mar S.C.	2m.24.2s.
1969	Lynn Colella	Cascade S.C.	2m.21.6s.

200 METERS INDIVIDUAL MEDLEY

1961	Donna deVarona	Unat., Lafayette, Cal.	(200 meters) 2m.35.0s.
1962	Donna deVarona	Santa Clara S.C.	2m.33.3s.
1963	Donna deVarona	Santa Clara S.C.	2m.31.8s.
1964	Donna deVarona	Santa Clara S.C.	2m.29.9s.
1965	Claudia Kolb	Santa Clara S.C.	2m.30.8s.
1966	Claudia Kolb	Santa Clara S.C.	2m.27.8s.
1967	Claudia Kolb	Santa Clara S.C.	2m.25.0s.
1968	Claudia Kolb	Santa Clara S.C.	2m.27.5s.
1969	Lynn Vidali	Santa Clara S.C.	2m.26.2s.

300 METER INDIVIDUAL MEDLEY — 330 YARDS

1922	Hilda James	Liverpool, England	(300 yds.) 4m.40.8s.
1925	Adelaide Lambert	Women's S.A., New York	(300 yds.) 4m.38.6s.
1926	Adelaide Lambert	Women's S.A., New York	5m.1s.
1927	Eleanor Holm	Women's S.A., New York	4m.57.8s.
1928	Eleanor Holm	Women's S.A., New York	4m.56s.
1929	Eleanor Holm	Women's S.A., New York	4m.49.8s.
1930	Eleanor Holm	Women's S.A., New York	4m.57s.
1931	Katherine Rawls	Unattached, Hollywood, Fla.	4m.45.8s.
1932	Katherine Rawls	Unattached, Florida	4m.52.8s.

1933	Katherine Rawls	Unattached, Ft. Lauderdale	4m.35.6s.
1934	Not Held		
1935	Katherine Rawls	Miami Beach Swim Club	4m.38.5s.
1936	Katherine Rawls	Miami Beach Swim Club	4m.40.2s.
1937	Katherine Rawls	Miami Beach Swim Club	4m.38.7s.
1938	Katherine R. Thompson	Miami Beach, Florida	4m.33.1s.
1939	Doris Brennan	Olneyville Boys Club, Aux R. I.	4m.32.3s.
1940	Chieko Miyamoto	A.H.C.A., Maui, Hawaii	(330 yards) 4m.35.7s.
1941	Chieko Miyamoto	Alex. House C.A., Maui	4m.32.7s.
1942	Joan Fogle	Riviera Club	4m.43s.
1943	Joan Fogle	Riviera Club	4m.35.3s.
1944	Joan Fogle	Riviera Club	4m.33.1s.
1945	Joan Fogle	Riviera Club	4m.34.7s.
1946	Nancy Merkl	Multnomah Club	4m.29.9s.
1947	Nancy Merkl	Multnomah Club	4m.32.9s.
1948	Barbara Jensen	Athens Athletic Club	4m.31.3s.
1949	Evelyn Kawamoto	Hawaii	4m.27.5s.
1950	Evelyn Kawamoto	Hawaii S.C.	4m.29.0s.
1951	Evelyn Kawamoto	Hawaii S.C.	(300 meters) 4m.33.0s.
1952	Not Held		
1953	Gail Peters	Walter Reed S.C.	(330 yards) 4m.21.7s.

400 METERS INDIVIDUAL MEDLEY — 440 YARDS

1954	Marie Gillett	Walter Reed S.C.	(400 meters) 6m.06.9s.
1955	Marie Gillett	Walter Reed S.C.	(400 meters) 6m.01.5s.
1956	Shelley Mann	Walter Reed S.C.	(440 yards) 5m.52.5s.
1957	Sylvia Ruuska	Berkeley Y.M.C.A.	(440 yards) 5m.49.5s.
1958	Sylvia Ruuska	Berkeley Y.M.C.A.	(400 meters) 5m.43.7s.
1959	Sylvia Ruuska	Berkeley Y.M.C.A.	(440 yards) 5m.40.2s.
1960	Donna deVarona	Berkeley Y.M.C.A.	(400 meters) 5m.36.5s.
1961	Donna deVarona	Unat., Lafayette, Cal.	(400 meters) 5m.34.5s.
1962	Sharon Finneran	Los Angeles A.C.	5m.25.4s.
1963	Donna deVarona	Santa Clara S.C.	5m.24.5s.
1964	Donna deVarona	Santa Clara S.C.	5m.17.7s.
1965	Mary Ellen Oleese	Vesper B.C.	5m.19.6s.
1966	Claudia Kolb	Santa Clara S.C.	5m.15.5s.
1967	Claudia Kolb	Santa Clara S.C.	5m.08.2s.
1968	Sue Pedersen	Arden Hills S.C.	5m.10.3s.
1969	Debbie Meyer	Arden Hills S.C.	5m.08.6s.

300 METER MEDLEY RELAY — 330 YARDS

1934	Miami Beach S.C., Fla.	K. Rawls, D. Rawls, J. Burr	4m.15s.
1935	Women's S.A., New York	J. Fowler, E. Kompa, D. Dickinson	4m.09.3s.
1936	Women's S.A., New York	E.H. Jarrett, E. Petri, M. Freeman	4m.01.6s.
1937	Women's S.A., New York	E. Kompa, E. Petri, E. Ryan	4m.4.1s.
1938	Los Angeles A.C.	I. Cummings, M. Hopkins, V. Hopkins	4m.7.8s.
1939	Los Angeles A.C.	E. Motridge, E. Williams, V. Hopkins	3m.52.8s.
1940	Women's S.A., New York	L. Fischer, M. O'Donnell, G. Callen	(330 yds.) 4m.1.4s.
1941	Women's S.A., New York	G. Callen, L. Fischer, M. Sahner	3m.53.5s.
1942	Multnomah A.C.	S. Zimmerman, N. Merkl, B. Helser	4m.02.8s.
1943	Multnomah A.C.	S. Zimmerman, N. Merkl, B. Helser	4m.00s.
1944	Multnomah A.C.	S. Zimmerman, N. Merkl, B. Helser	3m.58.8s.
1945	Multnomah A.C.	S. Zimmerman, N. Merkl, B. Helser	3m.54.2s.
1946	Multnomah A.C.	S. Zimmerman, N. Merkl, M. Hansen	3m.59.1s.
1947	Los Angeles A.C.	M. Mellon, L. Wehrman, B. Helser	4m.00.2s.
1948	Los Angeles A.C.	M. Mellon, L. Wehrman, B. Helser	4m.01.6s.
1949	Los Angeles A.C.	S. Geary, I. Feathers, M. Mellon	4m.02.6s.
1950	Lafayette S.C.	E. Donahue, C. Pence, B. Mullen	3m.54.8s.
1951	Lafayette S.C.	C. Pence, S. Donahue, B. Mullen	(300 meters) 3m.52.4s.
1952	Not Held		
1953	Walter Reed S.C.	Freeman, Peters, Mann	(330 yards) 3m.47.6s.

400 METER MEDLEY RELAY — 440 YARDS

1954	Walter Reed S.C.	Mann, Knapp, Sears, Wemer	(400 ms.) 5m.14.0s.
1955	Walter Reed S.C.	Mann, Sears, Mullen, Wemer	(400 ms.) 5m.07.0s.
1956	Walter Reed S.C.	Mann, Sears, Bray, Wemer	(440 yards) 5m.05.8s.
1957	Santa Clara S.C.	C. von Saltza, A. Warner, J. Wilson, D. Ransom	(440 yards) 5m.06.6s.
1958	Santa Clara S.C.	C. von Saltza, A. Warner, J. Wilson, D. Ransom	(400 meters) 5m.00.9s.
1959	Santa Clara S.C.	C. von Saltza, A. Warner, K. Simecek, D. Ransom	(400 meters) 4m.59.9s.

1960	Santa Clara S.C.	L. Burke, A. Warner, . . . (400 meters)	4m.49.1s.
1961	Vesper Boat Club	K. Simecek, C. von Saltza N. Hammar, B. Chesneau, (400 meters)	4m.50.3s.
1962	Vesper Boat Club	S. Doerr, L. Hopkins N. Hammar, L. Talley, S. Doerr, M. Randall	4m.47.5s.
1963	Los Angeles A.C.	C. Ferguson, C. Ford, M. Templeton, C. House	4m.44.4s.
1964	Santa Clara S.C.	J. Haroun, C. Kolb, D. deVarona, L. Watson	4m.40.3s.
1965	Santa Clara S.C.	L. Watson, C. Kolb, L. Hildreth, T. Stickles	4m.38.4s.
1966	Santa Clara S.C.	T. Ogilvie, S. Jones, C. Kolb, L. Watson	4m.37.7s.
1967	Santa Clara S.C.	P. Watson, C. Kolb, L. Davis, L. Gustavson	4m.34.6s.
1968	Santa Clara S.C.	J. Swagerly, J. Henne, C. Kolb, L. Gustavson	4m.33.8s.
1969	Lakewood A.C.	S. Atwood, K. Brecht, P. Lines, B. Adair	4m.31.4s.

400 YARD RELAY – 400 METERS

1921	Women's S.A., New York	Bleibtrey, Boyle, Wainwright, Riggan	4m.47s.
1922	Women's S.A., New York	Wainwright, Riggan, McGary, Ederle	4m.32.6s.
1939	Los Angeles A.C., Calif.	V. Hopkins, M. Hopkins, Chamberlin, Williams (400 meters)	4m.46s.
1957	Los Angeles A.C.	S. Kelley, M. Botkin, (440 yards)	4m.36.0s.
1958	Santa Clara S.C.	J. Primrose, C. Simonson J. Wilson, D. Ransom, (400 meters)	4m.30.1s.
1959	Berkeley Y.M.C.A.	S. Honig, C. Von Saltza P. Ruuska, C. Schuler, (440 yards)	4m.29.0s.
1960	Santa Clara S.C.	S. Ruuska, A. Bancroft K. Simecek, L. Watson, (400 meters)	4m.21.8s.
1961	Vesper Boat Club	D. Lee, C. von Saltza S. Doerr, M. Randall, (400 meters)	4m.17.0s.
1962	Vesper Boat Club	N. Hammar, L. Hopkins S. Doerr, M. Randall, M. Brundage, E. Johnson	4m.14.8s.
1963	Los Angeles A.C.	M. Templeton, S. Bakewell, C. House, C. Ferguson	4m.13.7s.
1964	Santa Clara S.C.	T. Stickles, D. deVarona, L. Watson, J. Haroun	4m.08.5s.
1965	Santa Clara S.C.	T. Stickles, J. Haroun, L. Hildreth, P. Watson	4m.08.6s.
1966	Santa Clara S.C.	L. Gustavson, N. Ryan, C. Kolb, P. Watson	4m.04.5s.
1967	Santa Clara S.C.	L. Gustavson, N. Ryan, L. Fritz, P. Watson	4m.03.5s.
1968	Santa Clara S.C.	L. Gustavson, P. Watson, P. Carpinelli, J. Henne	4m.02.1s.
1969	Santa Clara S.C.	J. Henne, L. Fritz, L. Vidali, L. Gustavson	4m.02.9s.

800 YARD RELAY – 800 METERS

1928	Women's S.A., New York	G. Ederle, E. McGary, D. O'Mara, A. Riggan	12m.15.2s.
1924	Women's S.A., New York	Wainwright, Whitenack, McGary, Riggan	10m.48.2s.
1925	Women's S.A., New York	Whitenack, O'Mara, McGary, Nilsson	12m.17s.
1926	Women's S.A., New York	. . . . .	11m.45.6s.
1927	Women's S.A., New York	Whitenack, Lindstrom, McGary, Norelius	. . . . .
1928	Women's S.A., New York	Norelius, Lindstrom, Holm, McGary	. . . . .
1929	Women's S.A., New York	Holm, Lindstrom, McGary, Lambert	11m.22.2s.
1930	Los Angeles A.C., Calif.	Cramer, Lowe, Hatch, McKim	11m.15.4s.
1931	Los Angeles A.C., Calif.	Cramer, Forbes, Lowe, McKim	11m.20.4s.
1932	Carnegie Library Club	J. Gorman, A.M. Gorman, Clark, Kight	11m.17.8s.

1933	Carnegie Library Club	J. Gorman, A.M. Gorman, Clark, Kight	11m.10s.
1934	Carnegie Library Club	Kight, A.M. Gorman, Clark, J. Gorman	11m.13.3s.
1935	Washington A.C., Seattle	Petty, Lea, Buckley, McKean	10m.37.8s.
1936	Washington A.C., Seattle	Petty, Lea, Buckley, McKean	10m.46.3s.
1937	Washington A.C., Seattle	Hughes, Lea, Buckley, Mucha	11m.10.4s.
1938	Women's S.A., New York	Rains, Callen, Freeman, Ryan	10m.55.5s.
1940	Women's S.A., New York	Hoole, Sahner, O'Donnell, Rains	10m.58.8s.
1941	Riviera Club, Indianapolis	Waltz, Fogle, Hardin, Bemis	(800 meters) 10m.30.7s.
1942	Riviera Club, Indianapolis	Waltz, Joan Fogle, Hardin, Bemis	11m.09.5s.
1943	Riviera Club, Team A, Ind.	Waltz, Joan Fogle, Hardin, Bemis	10m.42.1s.
1944	Riviera Club, Indiana	Waltz, Bemis, Hardin, Fogle	10m.52.2s.
1945	Crystal Plunge Pool	Sahner, Graham, S. Curtis, A. Curtis	10m.44.5s.
1946	Crystal Plunge Pool	S. Curtis, D. Maddock, M. Sahner, A. Curtis	(800 meters) 11m.10s.
1947	Crystal Plunge Pool	J. Mallory, M. Hayes, M. Sahner, A. Curtis	(800 meters) 11m.02.6s.
1948	Crystal Plunge Pool	M. Hayes, McRae, M. Sahner, A. Curtis	(800 meters) 11m.37.4s.
1949	Hawaii Team A	J. Murakami, C. Kleinschmidt, E. Kawamoto, T. Kalama	11m.48.1s.
1950	Hawaii S.C.	T. Kalama, E. Kawamoto, C. Kleinschmidt, J. Murakami	(800 meters) 10m.37.4s.
1951	Lafayette S.C.	B.J. Lynch, A. Moss, B. Mullen, S. Donahue	(800 meters) 10m.53.3s.
1952	Not Held		
1953	Walker Reed S.C.	Gillett, Freeman, Peters, Mann	(880 yards) 10m.24.9s.
1954	Ft. Lauderdale S.A.	Aspinal, Greenlaw, Cahill, Green	(800 meters) 10m.18.7s.
1955	Walter Reed S.C.	Mann, Gillett, Gray, Werner	(800 meters) 10m.10.3s.
1956	Walter Reed S.C.	Mann, Gray, Gillett, Werner	(880 yards) 10m.09.8s.
1964	Santa Clara S.C.	T. Stickle, S. Finneran, D. deVarona, L. Watson	9m.08.8s.
1965	City of Commerce S.C.	P. Caretto, D. Pflieger, M. Campbell, J. Hallock	9m.00.1s.
1966	Santa Clara S.C.	N. Ryan, L. Gustavson, C. Kolb, L. Watson	8m.55.4s.
1967	Santa Clara S.C.	L. Gustavson, N. Ryan, L. Watson, C. Kolb	8m.53.0s.
1968	Arden Hills S.C.	D. Meyer, L. Williams, V. King, S. Pedersen	8m.46.2s.
1969	Arden Hills S.C.	D. Meyer, E. Kossner, V. King, S. Pedersen	8m.42.3s.

3 FOOT OR 1 METER SPRINGBOARD DIVING

1948	Zoe Ann Olsen	Athens A.C., Oakland, California
1949	Zoe Ann Olsen	Athens A.C., Oakland, California
1950	Patricia Keller McCormick	Los Angeles A.C.
1951	Patricia Keller McCormick	Los Angeles A.C.
1952	Not Held	
1953	Patricia Keller McCormick	Los Angeles A.C.
1954	Patricia Keller McCormick	Los Angeles A.C.
1955	Patricia Keller McCormick	Los Angeles A.C.
1956	Patricia Keller McCormick	Los Angeles A.C.
1957	Paula Jean Myers	Indian Springs A.C.
1958	Paula Jean Myers	Encino S.S., Cal.
1959	Irene Mac Donald	Los Angeles A.C.
1962	Patsy Willard	Dick Smith S.G.
1963	No Event	
1964	Patsy Willard	Dick Smith S.G.
1965	Joel O'Connell	Santa Clara S.C.
1966	Joel O'Connell	Santa Clara S.C.
1967	Lt. Micki King	U.S. Air Force
1968	Cynthia Potter	Shamrock-Hilton S.C.
1969	Cynthia Potter	Unattached, Texas

10 FOOT OR 3 METER SPRINGBOARD DIVING

1921	Helen Meany	Women's S.A., New York
1922	Helen Meany	Women's S.A., New York
1923	Aileen Riffin	Women's S.A., New York
1924	Aileen Riffin	Women's S.A., New York
1925	Aileen Riffin	Women's S.A., New York
1926	Helen Meany	Women's S.A., New York
1927	Helen Meany	Women's S.A., New York
1928	Lillian Fergus	Alameda, California
1929	Georgia Coleman	Los Angeles A.C., Calif.
1930	Georgia Coleman	Los Angeles A.C., Calif.
1931	Georgia Coleman	Los Angeles A.C., Calif.
1932	Katherine Rawls	Unattached, Florida
1933	Katherine Rawls	Unattached, Ft. Lauderdale, Fla.
1934	Katherine Rawls	Miami Beach Swim Club, Florida
1935	Mary Hoerger	Miami Beach Swim Club, Florida
1936	Claudia Eckert	Shawnee C.C., Illinois
1937	Marjorie Gestring	Unattached, Los Angeles, Calif.
1938	Marjorie Gestring	Unattached, Los Angeles, Calif.
1939	Helen Crlenkovich	Fairmont Hotel S.C., California
1940	Marjorie Gestring	Unattached, Los Angeles, Calif.
1941	Helen Crlenkovich	Fairmount Plunge, San Francisco, Cal. (3 meters)
1942	Ann Ross	St. George Dragon Club
1943	Ann Ross	St. George Dragon Club, Brooklyn
1944	Ann Ross	St. George Dragon Club, Brooklyn
1945	Helen Crlenkovich Morgan	Fairmont Hotel S.A., San Francisco, Calif.
1946	Zoe Ann Olsen	Athens A.C., Oakland, Calif.
1947	Zoe Ann Olsen	Athens A.C., Oakland, Calif.
1948	Zoe Ann Olsen	Athens A.C., Oakland, Calif.
1949	Zoe Ann Olsen	Athens A.C., Oakland, Calif.
1950	Patricia Keller McCormick	Los Angeles A.C.
1951	Patricia Keller McCormick	Los Angeles A.C.
1952	Not Held	
1953	Patricia Keller McCormick	Los Angeles A.C.
1954	Patricia Keller McCormick	Los Angeles A.C.
1955	Patricia Keller McCormick	Los Angeles A.C.
1956	Patricia Keller McCormick	Los Angeles A.C.
1957	Paula Jean Myers	Indian Springs A.C.
1958	Paula Jean Myers	Encino S.S., Cal.
1959	Irene Mac Donald	Los Angeles A.C.
1960	Patsy Willard	Dick Smith Swim Gym
1961	Joel Lenzi	Unat., Philadelphia, Pa.

1962	Barbara McAlister	Dick Smith S.G.
1963	Jeanne Collier	Dick Smith S.G.
1964	Barbara Talmadge	Dick Smith S.G.
1965	Micki King	Ann Arbor S.C.
1966	Sue Gossick	Deauville C.C.
1967	Lt. Micki King	U.S. Air Force
1968	Jerrie Adair	Phillips 66 Long Beach
1969	Lt. Micki King	U.S. Air Force

PLATFORM DIVING

1916	Evelyn Burnett	St. Louis, Missouri
1917	Aileen Allen	Los Angeles A.C.
1918	Josephine Bartlett	Women's S.A., New York
1919	Betty Grimes	Minneapolis A.C.
1920	Not Held	
1921	Helen Meany	Women's S.A., New York
1922	Helen Meany	Women's S.A., New York
1923	Helen Meany	Women's S.A., New York
1924	Not Held	
1925	Helen Meany	Women's S.A., New York
1926	Esther Foley	Women's S.A., New York
1927	Not Held	
1928	Helen Meany	Women's S.A., New York
1929	Georgia Coleman	Los Angeles A.C., California
1930	Georgia Coleman	Los Angeles A.C., California
1931	Georgia Coleman	Los Angeles A.C., California
1932	Not Held	
1933	Dorothy Poynton	Los Angeles A.C., Calif.
1934	Dorothy Poynton Hill	Los Angeles A.C., Calif.
1935	Dorothy Poynton Hill	Unattached, Los Angeles, Calif.
1936	Ruth Jump	Los Angeles A.C., Calif.
1937	Ruth Jump	Los Angeles A.C., Calif.
1938	Ruth Jump	Los Angeles A.C., Calif.
1939	Marjorie Gestring	Unattached, Los Angeles, Calif.
1940	Marjorie Gestring	Unattached, Los Angeles, Calif.
1941	Helen Crlenkovich	Fairmount Plunge, San Francisco, Calif.
1942	Margaret Reinholdt	Unattached, Columbus
1943	Jeanne Kessler	Lake Shore Club
1944	Not Held	
1945	Helen Crlenkovich Morgan	Fairmont Hotel S.A., San Francisco, Calif.
1946	Mrs. Victoria Manalo Draves	Unattached, Los Angeles, Calif.
1947	Mrs. Victoria Manalo Draves	Los Angeles A.C.
1948	Mrs. Victoria Manalo Draves	Los Angeles A.C.
1949	Pat Keller McCormick	Los Angeles A.C.
1950	Patricia Keller McCormick	Los Angeles A.C.
1951	Patricia Keller McCormick	Los Angeles A.C.
1952	Not Held	
1953	Paula Jean Myers	Unatt., Los Angeles
1954	Patricia Keller McCormick	Los Angeles A.C.
1955	Juno Irwin	Pasadena A.C.
1956	Patricia McCormick	Los Angeles A.C.
1957	Paula Jean Myers	Indian Springs A.C.
1958	Paula Jean Myers	Encino S.S., Cal.
1959	Paula Jean Myers Pope	Unat., Los Angeles
1960	Juno Stover Irwin	Los Angeles A.C.
1961	Barbara McAlister	Los Angeles A.C.
1962	Linda Cooper	Unattached, Los Angeles
1963	Barbara Talmadge	Dick Smith S.G.
1964	Patsy Willard	Dick Smith S.G.
1965	Leslie Bush	Unattached
1966	Shirley Teeples	Unattached, Calif.
1967	Leslie Bush	Unattached
1968	Ann Peterson	Dick Smith S.G.
1969	Lt. Micki King	U.S. Air Force

PLAIN HIGH DIVING

1925	Caroline Smith	Illinois A.C., Chicago, Ill.
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LONG DISTANCE SWIMMING

1916	Claire Calligan	National Women's L.S.L., New York	1hr.51m.26s.
1917	Not Held		
1918	Claire Galligan	National Women's L.S.L., New York	1hr.24m.3.2s.
1919	Charlotte Boyle	Women's S.A., New York	1hr.32m.30.6s.
1920	Marie Curtis	Detroit A.C., Michigan	49m.37s.
1921	Ethelda Bleibtrey	Women's S.A., New York	56m.27s.
1922	Not Held		
1923	Ethel McGary	Women's S.A., New York	1hr.56m.43s.
1924	Not Held		
1925	Ethel McGary	Women's S.A., New York	1hr.5m.32.8s.
1926	Ethel McGary	Women's S.A., New York	
1927	Not Held		
1928	Ethel McGary	Women's S.A., New York	1hr.7m.15.4s.
1929	Ethel McGary	Women's S.A., New York	1hr.31m.49.2s.
1930	Lisa Lindstrom	Women's S.A., New York	2hrs.5m.17.8s.
1931	Eva Bein	Women's S.A., New York	1hr.8m.
1932	Susan Robertson	Women's S.A., New York	1hr.52m.7.4s.
1933	Susan Robertson	Women's S.A., New York	54m.45.8s.
1934	Susan Robertson	Women's S.A., New York	59m.40s.
1935	Susan Robertson	Women's S.A., New York	55m.53.6s.
1936	Mavis Freeman	Women's S.A., New York	1hr.6m.42.4s.
1937	Mavis Freeman	Women's S.A., New York	1hr.8m.28s.
1938	Gloria Callen	Women's S.A., New York	1hr.21m.27.5s.
1939	Ann Hardin	Lakeside Club, Kentucky	1hr.20m.15.7s.
1940	Ann Hardin	Lakeside Club, Kentucky	1hr.41m.3s.
1941	Ann Hardin	Riviera Club, Indianapolis	1hr.19m.6s.
1942	Ann Hardin	Riviera Club, Indianapolis	1hr.21m.23.6s.
1943	Florence Schmitt	Women's S.A., New York	1hr.21m.02.6s.
1944	Florence Schmitt	Women's S.A., New York	1hr.18m.32.6s.
1945	Betty Lachok	Firestone Club	1hr17m.36.7s.
1946	Florence Schmitt	W.S.A., New York	1hr.18m.44.5s.
1947	Florence Schmitt	W.S.A., New York	1hr.22m.07.8s.
1948	Jean Lutyens	Riviera Club, Indiana	1hr.23m.21.6s.
1949	Kathleen Clark	Akron, Ohio	1hr.20m.34s.
1950	Kathleen Clark	Lafayette S.C.	1hr.19m.08.2s.
1951	Ann Moss	Lafayette S.C.	1hr.16m.16.0s.
1952	Ann Moss	Lafayette S.C.	1hr.15m.35.0s.
1953	Sue Storer	Lafayette (Ind.) S.C.	1hr.27m.31.6s.
1954	Helen Hughes	Lafayette (Ind.) S.C.	1hr.21m.33.8s.
1955	Kitty Kennary	Women's C.C., Detroit	1hr.27m.27s.
1956	Helen Hughes	Lafayette S.C.	1hr.16m.06s.
1957	Liz Taylor	Unat., Pompano, Fla.	1hr.23m.56.2s.
1958	Donna Graham	Riviera Club	1hr.17m.19.5s.
1959	Donna Graham	Riviera Club	1hr.15m.47.5s.
1960	Donna Graham	Riviera Club	1hr.11m.07.3s.
1961	Patsy Harrower	Riviera Club	1hr.12m.28.2s.
1962	Wilma Riemenschneider	Cleveland	23m.05.5s. (unofficial, 1 mile course)
1963	Robyn Johnson	Northern Virginia A.C.	1hr.09m.38.2s.
1964	Robyn Johnson	Northern Virginia A.C.	1hr.09m.21.9s.
1965	Maureen Lee	Austin S.C.	1hr.19m.32.4s.
1966	Marilyn House	Shamrock-Hilton S.C.	1hr.12m.10.6s.
1967	Kendall Kessinger	Greater Lexington S.A.	1hr.10m.47.0s.
1968	Kendall Kessinger	Greater Lexington S.A.	1hr.07m.21.2s.
1969	Kate McAlister	Greater Lexington S.A.	1hr.10m.33.1s.

LONG DISTANCE TEAM

1927	Women's Swimming Ass'n., New York	
1928	Not Held	
1929	Women's Swimming Ass'n., New York	
1930	Women's Swimming Ass'n., New York	
1931	Women's Swimming Ass'n., New York	
1932	Women's Swimming Ass'n., New York	

1933	Women's Swimming Ass'n., New York	.....
1934	Women's Swimming Ass'n., New York	.....
1935	Women's Swimming Ass'n., New York	.....
1936	Women's Swimming Ass'n., New York	.....
1937	Women's Swimming Ass'n., New York	.....
1938	Women's Swimming Ass'n., New York	.....
1939	Women's Swimming Ass'n., New York	.....
1940	Lakeside Club, Kentucky	.....
1941	Riviera Club, Indianapolis, Ind.	.....
1942	Firestone A.C., Akron, Ohio	.....
1943	Firestone A.C., Akron, Ohio	.....
1944	Firestone A.C., Akron, Ohio	.....
1945	Firestone A.C., Akron, Ohio	.....
1946	Firestone A.C., Akron, Ohio	.....
1947	Firestone A.C., Akron, Ohio	.....
1948	Riviera Club, Indiana	.....
1949	Women's City Club of Detroit	.....
1950	Kenosha Youth Foundation	.....
1951	Kenosha Youth Foundation	.....
1952	Kenosha Youth Foundation	.....
1953	Lafayette (Ind.) S.C.	.....
1954	Women's City Club Detroit, Mich.	..... K. Kennary, J. Post, C. Edwards
1955	Riviera Club, Indianapolis	..... Newbold, Pickard, Noone
1956	Connecticut W.S.A.	..... Bicroft, Harkabus, Levin
1957	Women's Swim Assn., N.Y.	..... E. Fink, P. Trimmer, J. Murphy
1958	Riviera Club, Indianapolis	..... D. Graham, P. Harrower, B. Collins
1959	Riviera Club, Indianapolis	..... D. Graham, P. Harrower, N. Galvich
1960	Riviera Club, Indianapolis	..... D. Graham, P. Harrower, N. Galvich
1961	Riviera Club, Indianapolis	..... P. Harrower, C. Collins, K. Dunlevy
1962	No official results that year	
1963	Northern Virginia A.C.	..... R. Johnson, K. Hennessey, M. Michaels
1964	Patton Pool, Detroit	..... M. Ceresko, T. Solis, J. Makkonen
1965	Montana S.C.	..... J. Bickler, J. Mathers, H. Lockie
1966	Shamrock-Hilton S.C.	..... M. House, M. Anderson, G. Hansel
1967	Greater Lexington S.A.	..... K. Kessinger, P. Crowther, C. Richards
1968	Greater Lexington S.A.	..... K. Kessinger, S. Hoff, K. McAlister
1969	Greater Lexington S.A.	..... K. McAlister, S. Kessinger, K. Kessinger

SALT WATER AND RECORDS

The F.I.N.A. has always recognized records without taking into account the components of the water: it recognizes them both in salt water (or sea water) or fresh water. The question as to the value of records in salt water is therefore often raised. Also, when a world record has been made in salt water (sea water), the best world time in fresh water is considered by many as the true world record. In fact, the question of the advantage of salt water (sea water) is very complex. This advantage depends first of all on the buoyancy of the swimmer (the better this is, the less important the advantage) and on the amount of salt in the water (the salinity is considerable in the Mediterranean where the water often attains 38 grams of salt to the liter, but much less in the Baltic where it sometimes goes under 10 grams to the liter). This advantage of salt water (sea water) depends also on the distance (sometimes fairly considerable in middle-distance, usually much less for the same stroke in sprints).

The advantage also depends on the stroke: it is considerable in the butterfly (because of both arms being brought forward together over the water). In the crawl, the advantage is not quite so distinct, while the advantage in the backstroke is very slight (because if, as in the crawl, the arms are brought back alternately to the point of propulsion over the water, the buoyancy is better in a back position than in the ventral position). There is no advantage in the breaststroke where there is total support of the body by the water, no parts of the body leaving the surface of the water, and where the smallest advantage resulting from a better density is compensated by the considerable slowing of the arms pushed forward under the surface of the water in "denser water"

To realize personal best times in sea water, the swimmer must accustom himself to swimming in it because of the change of buoyancy, especially for a swimmer with plenty of buoyancy. On this subject, John Weissmuller reports in his book: "I found that it was interesting to vary my leg kicks according to whether I was swimming in salt water or fresh water. Salt water gives more support. The legs have far more tendency to support the body in the hydroplane position. I tried that once in Honolulu, and the result was very satisfactory, especially for distances over 100 yards." And he adds: "When I was in Honolulu and swam in that marvelous water, I found that a fast leg kick brought my feet too high and that I was hitting the surface. So I decided to reduce my kicks from six to two, one for each arm. I found that sufficed in that water to keep me in a high position, and I broke world records for 220, 440, and 880 yards in the national championships." Weissmuller adds further that he tried the same thing for the 100 yard distance "and I saw that wasn't so good." Weissmuller stated

that for the 100 yards he had to resume his customary six kicks. On the other hand it is also necessary for a swimmer accustomed to swimming in sea water to get used to swimming in fresh water so as to achieve results worthy of his ability, since it is necessary for him to get accustomed to swimming in conditions which give lesser buoyancy than those in salt water.

PERFORMANCE AND ALTITUDE

The most difficult problem for coaches in having the Olympic Games in Mexico during 1968, was the altitude; Mexico City being situated at 2,240 meters (7350 feet) above sea level. At this altitude the oxygen content of the air is 20% less than at sea level. The problem is particularly large for swimming, in which in frontal swimming (breast, free, fly) the inhaling time available for the swimmer is very short.

The Olympic meet was evidence that in all events exceeding 100 meters altitude proved to be a handicap, and it increased as the distance of the event got longer. This handicap, altitude, offered no advantage as it did in track and field, where the sprinters benefited from the lessening of the resistance of the air, due to its thinner composition.

Each competitor was affected differently. With varying degrees of adaptation, coaches tried to overcome the effects caused by altitude, by having their swimmers acclimatize themselves to the height with periods of varying time at places of altitude. If these sessions at altitude had any effect, they could not really change the basic reaction of the athlete to altitude.

In contrast, some athletes, with natural abilities to perform at altitude, were not adversely affected by not being able to train at altitude prior to the Games, evidence of this can be found in the performance of the Australians and the Yugoslavians.

Superlative conditioning is a must, for performance at altitude. Any swimmer who was hampered by any disability (fever, stomach disorder) was far more severely affected than he would have been at sea level. The French coach, Georges Garret, arrived at the conclusion, following the Games, that to achieve good results at altitude the athlete must be highly peaked, to a much greater level than ordinarily.

A healthy body is certainly not enough at altitude, add to this an increased resistance as an absolute must to insure good performance. The American coach, James Counsilman, indicated that several countries did not reach their expected results due to under training, in the last phase of their tapering.

In regard to technique, altitude requires certain variations, not so critical at sea-level.

As the freestyler requires a great deal of oxygen to support a vigorous kick, obviously at altitude those swimmers with a strong kick would be somewhat handicapped, so changes would have to be made to their stroke.

In freestyle events over 100 meters, swimmers using alternate breathing (on opposite sides, every three strokes) were placed in a disadvantage as against breathing on every arm cycle on the same side. This fact was evident prior to the Games and logically, fewer swimmers used it in Mexico than at Tokyo four years earlier.

Also in freestyle, the rotating arm action was particularly favorable to performances, as it permitted a quicker or increased rhythm of breathing. In achieving better pulmonary ventilation, Michael Wenden and Mike Burton had a decisive advantage and eventually dominated their respective events. Butterfly swimmers who would normally breathe every second arm stroke were severely handicapped and had to alter their breathing pattern.

The ability to evenly distribute effort was even more important at altitude than at sea level. An athlete with a high initial pace will be affected to a much greater degree at altitude than he would have been at sea level. Thus, an even pace, the key to good performance at low elevation, was even more important at Mexico's elevation.

Chapter V

Marathon Swimming

The field of long distance swimming, so called "marathon swimming", is that involving swims representing at least five hours of swimming. In fact often the events last 12 hours. Because "marathons", generally events from 15 to 37 miles, take place in open water, it is difficult to furnish precise data on the performances and to compare them validly. The conditions existing on the day (speed of the current, state of the sea, temperature of the water) are the deciding factors.

The "marathon" remains the sole field in swimming in which professional sport has continued to exist on an international level. An international body combining amateurs and professionals was formed in 1954 and became the Federation Internationale de Natation de Longue Distance (F.I.N.L.D.). Of course, owing to the fact that the F.I.N.L.D. recognizes professional sport, no connection exists between it and the F.I.N.A.

Marathon swimming has two divisions: a long distance attempt by a solitary swimmer and a race.

The most famous long distance swim is the crossing of the English Channel which is, in fact, the crossing of the Straits of Dover, on the course from Cape Gris-Nez to Dover or vice versa. In August, 1875, it was a 27 year old Englishman, Captain Matthew Webb, who achieved the first crossing, a feat which was not repeated for 36 years. It was only since 1926 — the year when, for the first time, a woman (the American Gertrude Ederle) crossed the Strait for the first time, that successes grew in number.

In 1958 a total of 100 successful crossings was reached. Competitive swims were organized from 1950 to 1959, and in the course of one of these (1951) 18 swimmers crossed the Straits of Dover. As of January 1, 1969 the best time for the crossing of the Straits of Dover belongs to a 25 year old Britisher, Barry Watson, who swam from France to England in 9

MARATHON SWIMMING

hours, 35 minutes in August, 1964. The best time for the women belongs (as of the same date) to the professional Australian Linda McGill, 22 years old, who in 1967 reached the English coast from the French coast in 9 hours and 59 minutes. The greatest achievement in crossing the Straits of Dover took place in September, 1961 by the Argentinian professional, Antonio Abertondo, who completed the crossing both ways, swimming for 43 hours, 5 minutes.

"Marathons" became classic events. Among them let us mention the CAPRI-NAPLES MARATHON, that the F.I.N.L.D. considers as a world championship competition, and the ATLANTIC CITY MARATHON. Here is the men's record list and winners for Capri-Naples:

- 1954: Hassan Hamad (Egypt)
- 1955, 1956: A. Camarero (Argentina)
- 1957: T. Gutierrez (Egypt)
- 1959: L. Kovacs (Hungary)
- 1960, 1961: M. Zeytoun (Egypt)
- 1962: N. El Shazly (Egypt)
- 1963: M. Ali (Egypt) and A. Heif (Egypt)
- 1964: A. Heif (Egypt) and M. Zeytoun (Egypt)
- 1965: S. M. Hanafy (Egypt)
- 1966, 1967: G. Travaglio (Italy)
- 1968: G. Travaglio (Italy) current record holder in 8:12.54
- 1969: M. Saleh (Syria)

Capri-Naples women's record is 8:55.13 set by Judy DeNijs, Holland, in 1967.

The Atlantic City Marathon, started in 1954, takes place around the Island of Abesecon. Here is the list of winners:

- MEN: 1954, 1955: T. Park (USA)
- 1956: C. Lumsden (Canada)
 - 1957: A. Camarero (Argentina)
 - 1958: T. Park (USA)
 - 1959: C. Lumsden (Canada)
 - 1960, 1961, 1962, 1963, 1964: H. Willemse (Holland)

WOMEN:

- 1954: M. Bell (Canada)
- 1955: L. Jamnicky (Canada)
- 1956, 1957, 1958, 1959: G. Andersen-Sonnichsen (Denmark, then USA)
- 1960: M. Kok (Holland)
- 1961, 1962, 1963: G. Andersen-Sonnichsen (USA)
- 1964: M. Sinn (Canada)

The best times for the Atlantic City Marathon:

MEN: Tom Park, 9 hours, 21 minutes, 42 seconds in 1954

WOMEN: Marty Sinn, 10 hours, 37 minutes, 15 seconds in 1964

The Atlantic City race was discontinued "temporarily" after the 1964 event but has not been reestablished as yet.

Chapter VI

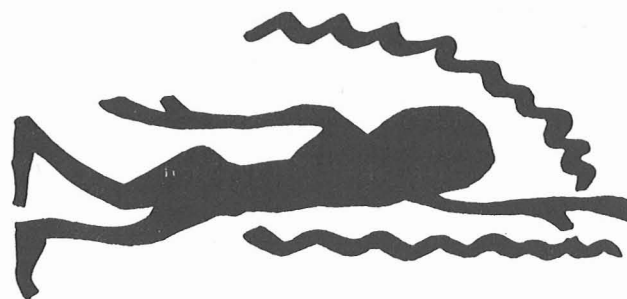
Progress of Strokes

The evolution of techniques used in sports swimming results essentially from the constant research for improvement of speed. This evolution, since the beginning of swimming races in England around the year 1830, may be divided into two periods. The first, from 1830 to 1900, is that of the transition from the breaststroke to the crawl as a speed stroke. The second, which began in 1900, is that in which the crawl stroke was affirmed.

The most important part of this evolution is that which brought breaststroke swimming to the crawl, since, essentially, swimming races are synonymous with freestyle swimming. Fortunately for the development of swimming on the whole of this period from 1830 to 1900, the freestyle race practically constituted the sole form of swimming competition. This, however, is no longer the case.

The technique of the different strokes (backstroke, breaststroke) which have been maintained (because races in which these strokes were imposed have remained in the competitive program) has likewise advanced. Thus backstroke swimming has changed from the breaststroke style to the crawl style. The butterfly stroke originated from the breaststroke, and the latter, replaced by the faster butterfly, has only been retained because the F.I.N.A. decided to organize competitions in both strokes. If this hadn't happened, breaststroke would have disappeared like the breast-backstroke did to the advantage of the crawl-backstroke.

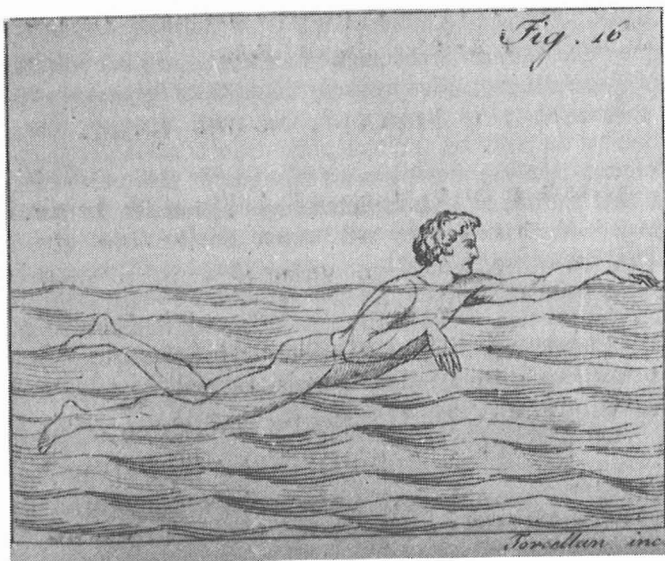
Certainly, with the probable exception of the artificial stroke, the butterfly, all forms of ventral strokes existed long before their appearance in sports swimming. The breaststroke was notably found in Scandinavian Europe. The crawl and the trudgen stroke were swum by many people in the hot countries. The Ancients (Egyptians, Greeks, Romans) were not unaware of the crawl as seen in the Egyptian bas-reliefs of Nagada which dated back more than 5000 years, and the so-called Greek medal of Abydos, which dates back more than 1700 years.



Egyptian Hieroglyph which the German archeologist Carl Diem described as indicating the crawl stroke in the sixth Egyptian Dynasty, roughly 2500 B.C.

A hieroglyph signified swimming. It represented a swimmer doing a form of crawl swimming, showing the position of the arms and the legs. This hieroglyph has been found to be used during the sixth dynasty, that is roughly 4,400 years ago, during the construction of the great Pyramid. This hieroglyph is repeated many times during the Old Kingdom, it appears once more during the Middle Kingdom and then it disappears, as described by the German archeologist Carl Diem, in his book, *Physical Culture in Ancient Egypt*. This hieroglyph indicates that crawl swimming was the common form for more than 4000 years, since the hieroglyph which stood for the word swimming represented a crawl stroke.

The forerunner of the crawl was practiced in the nineteenth century in West and East Europe as revealed in text and pictures in the remarkable work devoted to swimming by an Italian, Adolfo Corte (which was published in Venice in 1819). One of the styles akin to the crawl Corte described, (and also reproduced in a picture) in his book is called by him "A French and Russian stroke". The stroke that we call trudgen was not unknown in Europe at the beginning of the nineteenth century, witnessed by the stroke described by the German Clais named "spur" in the swimming treatise he published in 1809.



A man swimming an early version of the front crawl. A drawing from Adolfo Corte's 1819 book, which he called "A French and Russian stroke". The trudgen crawl was known in Europe as early as 1800.

The opening of the first indoor pools in England (the first one in 1828 in Liverpool) marked an epoch when competitive swimming really began to develop. The breaststroke was at that time considered in England the best style for racing. Besides, it was not necessarily the same as the style to which we now give this name. It was a form of freestyle swimming, and the English had noticed that it was more advantageous to swim it on the side than on the breast.

An improved style appeared in England in the 1840's: the English sidestroke. It was characterized, aside from its position on the side, by an alternate action, always under the surface of the water, of the arms and by the introduction of a scissor kick instead of the breaststroke kick.

It was about 1850 that an Australian, C.W. Wallis, gave the sidestroke characteristic form. Wallis, watching some Aborigines in a river near Sydney, noticed that they were swimming on the side but bringing forward the upper arm above the surface of the water. In 1855 during a trip to England, he taught this style to a friend, F.R. Beckworth. Four years later Beckworth became the champion of England using this new style called single over arm sidestroke. This stroke, more commonly named "over arm stroke", or "over", remained for more than 35 years the queen of competitive strokes over all distances. If the over arm stroke was affirmed in 1859, it was still dominant in 1894 when one of its exponents, the Englishman J.H. Tyers, lowered the world record for 100 yards to 1:01.2. The reign of the over arm stroke as a speed stroke was at that time drawing to an end, giving way to the trudgen.

On an historical note, it will be noted that it was in the over arm stroke that the Hungarian Alfred Hajos won the 100 meter freestyle title in the 1896 Olympic Games. In middle distance and in long distance, the over arm stroke was to maintain its supremacy for some dozen years thanks to the Englishman John Jarvis.

The trudgen bears the name of the swimmer who introduced it into sports swimming. Englishman John Trudgen, who was a breaststroke swimmer, had gone to South Africa, where he saw the Kaffirs and noticed they were swimming on their stomachs and bringing their arms forward with an alternate movement over the surface of the water. When he returned to England he used this stroke for the first time at London in August, 1873, in a handicap race. He accompanied his arm action, copied from the Kaffirs, with a breaststroke kick. The stroke aroused much discussion at the time because it was considered fast, but too hard to swim over the 100 yards distance. In fact, for a long time the trudgen was used only by specialists in 50 yard events and by water polo players.

It was in Australia that the stroke with the arms brought forward over the water was first asserted in the classic distances. In 1890 some

Australian swimmers had adopted the trudgen arm action but did not accompany it with a breaststroke kick as John Trudgen did, instead using a scissor kick. This form of swimming was called "double over arm stroke". About 1900 it was often confused with the trudgen and was wrongly considered as the authentic trudgen 25 years later. In 1896, using the double over arm stroke, Peter Bishop placed third in the New South Wales 880 yards championship. The fact that he swam that whole distance in double arm stroke amazed the Australian swimming world. His race was reported in the Sydney Referee: ". . . an unequaled fete in any of the previous events of this championship. This particular way of moving is so demanding and requires so much resistance that swimmers rarely used this stroke for distances over 200 yards." Three years later (1899), using the trudgen arm action, Frederick Lane won the New South Wales mile championship.

The reign of the trudgen and the double over arm stroke in the sprints proved to be short. It began in 1897 when Englishman J. H. Derbyshire, using the trudgen, broke the 100 yards record which has compatriot J.H. Tyers held in the over arm side stroke (1:00.2 against 1:01.2). It ended March 28, 1903 when Richard Cavill, a crawl swimmer, took the 100 yards record from his compatriot Frederick Lane, a trudgen swimmer (58.8 against 59.6). In the middle distance record field, however, the trudgen and the double over arm stroke did not give way to the crawl until 1923. Their eclipse was, moreover, not final: in 1956 the American George Breen, who became the world record holder for 1500 meters, used a trudgen because the "cross over kick", perfected by his coach James Counsilman, was far closer to the conception of "balancing legs in the trudgen" than the classic crawl kick. The former world record holder Roy Saari swam a classic double over arm stroke in the 1500 meters, using only a "scissor" for the whole distance until in his sprint, when he swam the crawl trudgen.

THE AFFIRMATION OF THE CRAWL

The major difference between the over arm side stroke and the English side stroke is that the upper arm is brought forward above the surface of the water in the over arm side stroke, thus avoiding the slowing produced by the return underwater of this arm. This slowing motion exists in the English side stroke where the arm is brought forward in the water.

Two major differences between the trudgen or the double over and the over arm stroke are these: first, whereas the over is a side stroke, the trudgen and the double over are flat ventral strokes (the body rests flat on the water in a ventral position); second, the two arms are brought forward

alternately above the water in the trudgen and in the double over, which completely removes the slowing of this back movement that exists with the submerged arm in the over. By the position of the body, the work of the arms is more efficient in the trudgen and the double over than in the over arm side stroke. The scissor kick is a movement suited to the stroke on the side where it has its full propulsive force, but in the ventral strokes it is a break in the forward movement. That is why, in the double over stroke, the scissor kick is retained, and in the trudgen the legs remain as the Frenchman Paul Blache says in his 1907 book. "Straight out and close together, only the feet pivoting on the ankles in an opposite movement from right to left and from left to right while remaining as stretched as possible in the extension of the leg".

It is the breaking of the scissor kick in the double over, originally the beginning of the crawl in sports swimming. Which is associated with two families – the Wickhams and the Cavills.

In his book "How To Swim Correctly", published in Sydney in 1929, Dudley Hellmrich, a former New South Wales Swim Coach who had followed the development of Australian swimming since 1894, relates the beginning of the crawl in Australia.

He states that the first introduction of the crawl in Australia occurred about 1893. It was introduced by Harry Wickham, who had come from the island of Rubiana in the Pacific. The "stroke with leg kick" did not, however, attract the attention of the experts until 1897 when Alick Wickham, Harry's brother, swam 66 $\frac{2}{3}$ yards in 44.0 at the Bronte Baths in Sydney. George Farmer, a coach, amazed to see the speed and the stroke of the young Alick (he was 12 years old), exclaimed, "Look at the kid crawling!" With this exclamation the name crawl was born and was to become the fastest of strokes.

The Wickhams' stroke, Dudley Hellmrich explained, was not their invention. It was used by all the natives on the island of Rubiana, who, in their language, gave it a name suggesting the action of the legs striking the water.

The Cavills were at this time owners of a swimming pool in Sydney, and it is to the Cavill brothers (there were six of them, four were swimming champions) that we owe the spread of the crawl. "They were the first to recognize its possibilities," Hellmrich continues. Arthur Cavill, who had been the New South Wales swimming champion in 1895 and who had turned professional, invited Alick Wickham to come to swim in his pool so he could study his stroke. Arthur Cavill, whose scissor kick slowed him, and who swam faster in sprints with his arms alone than with a complete stroke, no doubt appreciated the efficiency of the leg action of Alick Wickham. Arthur Cavill taught the stroke with a kick to his brother

Richard, and early in 1899 the latter tried it during the New South Wales 100 yard championship. He drew away in the first 50 yards but was overtaken and beaten toward the end of the race. Just as Alick Wickham's stroke had convinced Arthur Cavill, Richard Cavill convinced the coaches present of the possibilities of the new style despite his defeat.

Richard Cavill used the crawl for a long time only for his sprints. More than three years elapsed before he swam the crawl from start to finish, unofficially breaking the world 100 yard record (unofficially, because it was made in a handicap race) in September, 1902.

Although the crawl had been spread by the Australians, by 1900 others were also using it. Hellmrich and Frederick Lane (200 meters champion at the Paris Games in 1900 using the trudgen) stated that the second place finisher in this race, the Hungarian Zoltan de Halmay, swam the entire distance using the crawl, which indicated that he had been swimming it for quite some time. How had Halmay come to learn the crawl? Let me recall the 1819 Italian book by Adolfo Corte, proving that the crawl was swum in Western Europe and Eastern Europe.

The name crawl was not the only one given the stroke with the flutter leg kick in Australia. In Sydney it was also called the "Cavill splash stroke". The term was obviously much more appropriate and characteristic, because what differentiated the new stroke from the trudgen or from the double over was the leg kick, in which the word splash defined the underlying difference from the non-splash leg action of the trudgen or of the double over. For many years, in the United States and in England, the stroke with the leg kick was known as the Australian splash as well as Australian crawl. In the United States, Western Europe, the new stroke, designated either splash or crawl, had the epithet Australian attached to it for years. There were two reasons for this: the crawl had originated in sports in Australia, and it was the Australians who spread it to America and Europe. The first being the Cavill Brothers.

However, in spreading the influence of the crawl, it was Syd Cavill who played the most important role. He introduced it to the Americans in 1903, while Richard introduced it to Europe in 1902. Another famous Australian spread it widely in 1906: Cecil Healey.

The affirmation of the crawl in sprints was fast, and at the Olympic Games in 1908 American Charles Daniels, who had changed to the crawl from the double over, won the 100 meter title. Henceforth all big international competitions for 100 meters were won by swimmers using the crawl. The crawl took longer to assert itself, as previously said, in middle distance and distance events.

If, by 1908, the trudgen and the double over were no longer regarded solely as sprint strokes, the opposite could not be said for the crawl which

was considered valid only in the sprints.

However, the middle distance events in the 1912 Olympic Games were no longer won with the trudgen or the double over but with a stroke which combined both scissor kick and flutter kick between two scissor kicks were two flutter beats. This stroke would bear the name of the crawl trudgen (the double over was usually called trudgen). In the 1908 Games the Britisher Henry Taylor was the last Olympic champion to use the double over. Australian Frank de Beaurepaire, swimming the crawl trudgen, broke four world middle distance records in 1910, becoming the first exponent of world stature in this stroke. The crawl trudgen proved triumphant in the two middle distance events at the 1912 Olympic Games with Canadian George Hodgson.

The crawl trudgen was dethroned in middle distance by the crawl in the 1920 Games. The winner of the 400 meters and the 1500 meters races at these Games, the American Norman Ross, is usually considered as having used the crawl trudgen. But the description given by Less Duff (the manager of the Australian swim team at the Antwerp Games) of the stroke Norman Ross used proved that he swam the crawl, in fact a crawl with a three beat kick, two vertical, one lateral. (The lateral kick, when the swimmer rolls to breathe, isn't the scissor kick of the over or the crawl trudgen.) In John Weissmuller's book studying the stroke of Norman Ross and describing his leg action, confirms that contrary to appearances, it was purely a crawl kick. The Australian Andrew Charlton, winner of the 1500 meters in the Olympic Games in 1924, swam a crawl similar to that of Norman Ross (a lateral kick between three vertical kicks) and for the same reason had often wrongly considered his crawl a crawl trudgen. Between the Antwerp Games and the Paris Games the world record for 1500 meters was broken in 1923 for the first time by a crawl swimmer, the Swede Arne Borg, who became 1928 Olympic champion.

Two years after the Paris Olympic Games, American Gertrude Ederle (19 years old), who had won the bronze medal for 100 and 400 meters at these Games, showed that the crawl was a stroke equally valid in marathons when she accomplished the crossing of the Straits of Dover using the crawl exclusively.

THE EVOLUTION OF THE CRAWL

After the Paris Olympic Games and after the crossing of the Straits of Dover by Gertrude Ederle, the crawl became the supreme stroke. It became such that the word freestyle is at present often used as a synonym for crawl. Nothing could more clearly express the fact that the crawl is now considered the stroke par excellence.

It was the evolution of the crawl that marked the progression of speed in swimming from 1903. But to follow the evolution of the crawl we must go back to its initial appearance in swimming, back to Alick Wickham and the Cavill brothers.

There were two distinct types of development of the crawl in Australia and in the USA, especially concerning the leg kick: the Australian crawl (two kicks for every complete arm cycle, the kicks synchronized with the movement of the arms) and the one called American (a continuous kick done four or six times for every complete arm cycle). It is, however, a long way from being proven that in its original form the Australian crawl was characterized by two synchronized kicks per cycle.

Australian coach Forbes Carlile, who made an investigation of the subject, collected firsthand, or from articles, statements of Australian champions of the early crawl era which do not agree at all with the opinion that the initial Australian crawl had a synchronized two beat kick. Fred Gillis, who was Alick Wickham's coach, said, "I never counted the kicks Alick made, but they were done very rapidly." Les Bond, who swam against Wickham, stated that Alick swam with "at least four kicks to a stroke". Harold Hardwick, the freestyle champion of Australia in 1908 and a great observer of the swimming world, wrote that the old Australian crawl was not confined to two kicks but that "a non-synchronized action of kicks (with the arms) was swum in competition first, not by the Americans but by Cavill and Wickham". Hardwick adds that Cavill's technique "was a four-beat" and states precisely that one of the beats was unequal to the others. In an article published in 1915, Frank de Beaurepaire wrote that Healey's swimming could be distinguished from Cavill's by the synchronized action of his arm and leg movements. Sam Smith, an excellent Australian swimmer of the same era, wrote that "Cavill, like Wickham, swam with a continuous beat" and Smith added that "the use of the two beat Australian crawl was begun by Cecil Healey." Hardwick said that Wickham used a "six-beat," but that at the end of his career, under the influence of Cecil Healey, he started swimming with a "two-beat".

Thanks to the remarkable documented study published in Forbes Carlile's book, one can ascertain that the initial beat of Alick Wickham and Richard Cavill was a continuous beat (four or six times) and the technique under which the Old Australian crawl was known (the two beats) was developed by Cecil Healey in 1905. Cecil Healey then was an advocate of the "two-beat" school and was made its publicist. Healey believed that a non-synchronized beat with the arm action was a mistake and that one should put "law and order" in the kick; in other words, not to allow lack of synchronization to exist between the action of the arms and that of the

legs. Healey's campaign tends to confirm the idea that the "two synchronized kicks" was at the time a new technique in Australia that struggled to gain acceptance.

At this point it is probably essential to study the evolution lines of the crawl components (leg action, breathing, arm action), remembering the bonds which exist between the components since they are interdependent in the technical evolution of the crawl styles.

LEG ACTION IN THE CRAWL

The first Australian kick was utilized and adapted to the technique of "double over" specialists, in other words for a swim on the surface of the water. The Australian kick utilized by Cavill and Cecil Healey, but with a different beat, was, according to the description by Gunnar Wennerstrom, the Swedish 100 meter champion of 1903-1904, and non-Australians a "hammering of the water with the feet". Evidently, this was an accurate evaluation of the kick as the thighs remained stuck together, but the knees bent to allow the lower part of each leg — up to the middle-calf — to leave the water alternately so as to be able to re-hit the water vigorously. Cecil Healey coordinated arms and legs in his "two-kick" by counteracting the leg entry with an arm entry. Naturally, Healey's method of kicking could only be used to fullest advantage by a swimmer employing a rapid arm rhythm.

The first evolution in the technique of kicking was brought into effect by American trainers: instead of a kick starting from the knee, as in the Australian style, they employed a hip action kick in an attempt to utilize the whole leg. The movement, marked by a parting of the thighs and a bending of the knees, constituted a sort of pedaling action. Cavill's kick was a reaction against the side-acissors of the double over which interrupted speed movements. His primary goal was to eliminate the negative angles of the stroke.

For Gus Sunderstrom, New York Athletic Club trainer and principal creator (1903) of the American kick, the research was nothing more than deciding which kick supplied the best propulsion. American Charles Daniels, the 1908 100 meter Olympic champion, proved the "swiftness" of the Sunderstrom kick. The coordination of the hip action with a "pedaling" motion of the legs was not the only improvement Sunderstrom brought to the kick. In contrast to the Australian style of the rigid foot, Sunderstrom's still valid technique, based on better efficiency, brought the feet into action at the ankles, causing the feet to turn inward in a "Pigeon wing" fashion. Sunderstrom calculated the flat position of the swimmer would naturally cause the foot to clear the water surface.

In order to achieve ultimate efficiency from the American kick, the swimmer must utilize an oblique, not flat, torso position in the water. In 1911 a young crawler, Duke Kahanamoku, proved this upon his arrival in San Francisco from the Hawaiian Islands. Considering position, kick, and breathing, the future two-time Olympic champion permeated a big influence on the advancement of swimming. The "hydroplane" position of Kahanamoku permitted him to start the kick at the hip and to obtain maximum efficiency from the legs as only the flat of the foot broke the surface.

John Weissmuller, who succeeded Kahanamoku as two-time Olympic 100 meter champion and used the same principles of position and kicking, pointed out in his book how difficult it was to have all the work of the leg carried out in the water. Jamison Handy, who was during the period of 1906-1909 several times United States champion, wrote in 1949 in an American magazine, "Water hit with air gives much less support," stressing the importance of keeping an especially fast kick underwater. In a six-beat kick the air forced down into the water plus the close unison of the kicks causes each leg to function within a vacuum. This drawback cannot always, especially in the classical six-beat, be completely avoided.

In later years when the Kahanamoku and Weissmuller principles remained frequently in abeyance, they suddenly reappeared again in the new Australian school, victorious in 1956, which then stated in principle: "We have realized that the original crawl of Weissmuller was the only style of the crawl on which improvements were sought" (statement of Australian trainer Frank Guthrie in 1958). Harry Gallagher, trainer of three-time Olympic champion Dawn Fraser, pointed out in 1962 the necessity of a low kick because "when the movement of the leg constrained the foot to raise to a high position, this carried along with it a loss for advancement," shown by reasons already mentioned (less efficiency in the mixture of air and water).

When Weissmuller retired from competition at the beginning of 1929, a new concept of kicking had already asserted itself. At the 1928 Olympic Games the Americans Buster Crabbe and Austin Clapp swam with a kick where the forward movement is obtained, not like Weissmuller on the entirety of the undulation, but on the upward movement giving them the characteristic name of "up thruster". At the 1932 Olympic Games the "up thruster" was the form that was used by the best American and European swimmers: naturally by Crabbe, by the Frenchman Jean Taris, the American Helen Madison, the Dutchwoman Willie den Ouden, and later, in 1936, by the Hungarian Ferenc Csik, winner of the 100 meters at the Berlin Games.

At the 1932 Games, the Japanese introduced a kick where the forward

movement was obtained in two ways (up thrust and down), but where the principle effort was given from up to down. This Japanese technique offers the advantage of being effectual in spite of the loss of flexibility in the ankles, because being given the direction of effort the "pigeon wings" are less useful.

In the 1932 Japanese style, the leg becomes stretched coming down and bends going up. This kick, to be well done, requires the swimmer to take an oblique position, keep his hips underwater, and his knees very deep. This Japanese kick had two difficulties: in the descending movement where the leg is straight out, the lowest part (the foot) should not go down too far, as it will brake the swimmer; in the rising part the bend should not put the foot out of the water too much because of the mixing of air with water that results.

The 1932 Japanese technique of kicking is not, as has been erroneously reported, a technique peculiar to the yellow race; it has been used with success by a number of Caucasian champions, including the Dane, Ragnhild Hveger, who held 39 world freestyle records.

Not all swimmers hold an oblique position in the water. Many swim in a flat drawn-out position. The type of kick they use must naturally be different from the Weissmuller product. Their leg action is, in general, composed of a lengthened loose and flexible leg with a slight bend at the knee and a "pigeon wing" ankle movement.

From the evolution of the kick technique, there remains the task of explaining the coordination between the arms and legs. In Cecil Healey's "two times" crawl, there was coordination of movement between an arm and the opposite leg. The American coaches made a point prior to 1908 that remained a great principle of American kicking: individualization of the rhythm between the arms and legs.

In this rhythmic individualization between the arms and legs, in contrast to Healey's "two-beat", around 1905 the Americans placed the accent on an increase in the number of kicks for each cycle of the arms. The "four-beat" remained for more than 10 years the rhythm used by the majority of America's sprinters (the crawl remained by and large a sprint stroke). Then the accent was placed on the "six-beat". In 1917 two young students of L. de B. Handley, New York coach, Claire Calligan and Charlotte Boyle, demonstrated that, swimming with two major kicks and four minor kicks, the "six-beat" could be used in distances as well as sprints with success. The "six-beat" rapidly became the most familiar aspect of the American crawl. The best American sprinters employed this technique until 1920. Finally, around 1926 the "six-beat" was replaced by still faster rhythms.

In 1922 the American Ethel McGary demonstrated a brilliant

"eight-beat". In 1925, utilizing the "eight-beat", she became United States champion and world record holder in middle distance. Then in 1926 Miss McGary won the United States freestyle championship, using a "ten-kick". Between 1924-1928, she was not the only American swimmer to employ the "eight-kick". Gertrude Ederle, who crossed the English Channel in 1926, swam with an "eight-kick" crawl. In spite of their success at this time, the eight and ten beat kicks did not gain a world-wide audience. Nevertheless, the young Japanese boy Yasugi Miyazaki became Olympic 100 meter champion in 1932 by successful application of the "ten-kick" technique.

However, at least in the case of the men, the classic "six-beat" was not, except rarely, really employed in the middle-distance crawl. Although the "six-beat" dominated all phases of women's swimming, it must be remembered that the women's Olympic schedule neglected the 1500 meters. As a result the women were unconcerned with an appropriate middle distance style.

The first great example of a special middle distance crawl uncovered in this research of style was the Swede Arne Borg, who from 1923 to 1927 established five world records at 1500 meters and in 1928 was the Olympic 1500 meter champion. In effect Borg used a "five-beat" kick in the sprint races and a "three-beat" in the middle-distance races his kick was then reduced to its simplest expression, his legs appearing to lag behind.

A unique middle distance style was introduced at the 1936 Olympic Games by the Japanese 1500 meter winner, Noburu Terada. It was a continual synchronized arm-leg action crawl, each group of three kicks was followed by a short pause while the legs lagged. The purpose of this technique was to gain maximum forward push from the legs at the exact moment when the arms produced the least. This interesting technique did not gain an international audience for those who used it.

At the 1964 Olympic Games in Tokyo, the continuous kick was king in prolonged sprints and in the 400 meters, but the opposite was true in the 1500 meters where the "kick and stop" had many variations. In accord with Arne Borg's 1920 fashion the swimmers adopted a kick technique (continuous or kick and stop) to coincide with the length of the race. For example, the Australian Robert Windle, champion at 1500 meters, used for this distance a kick and stop technique, and for the 400 meter race he used a continuous kick. The continuous kick utilized by the best had a notable exception in the American Ginnie Duenkel, winner of the 400 meters.

During the period 1964-68, broken-tempo kicking characterized by the cross-over type of kicking reigned over the 1500 m. distance in men's

swimming. It was also employed by the majority of swimmers over 400 meters. Among women's swimming, Debbie Meyer with a continuous six beat kick, affirmed her superiority over all distances 200, 400, 800, 1500, over swimmers with broken tempo kicking, like Patty Caretto, holder of the world record for 1500 in 1965, and the Australian Karen Moras, bronze medalist in the 400 free at Mexico. Over the sprint events, six beat kicking retained its supremacy both among men and women. Curiously Michael Wenden's style of kicking low, resembled somewhat the style of one of the early greats, Duke Kahanamoku, the winner of the Olympics in 1912 and 1920, also illustrated later by John Weissmuller and Dawn Fraser.

THE RESPIRATION OF CRAWL

The regularity and frequency of breathing are very important factors in middle distance freestyle. In the 100 meter freestyle, this fact, after being refuted and then admitted, is once more under debate. The difficulty that the trudgen, the double over, and the crawl had in the middle distance was discussed, and it was admitted that to use these strokes with efficiency, "rolling" (turning) the head too often to the side to breathe, must be avoided. It was recommended to breathe after every four cycles of the arms, and if the swimmer could remain longer than that without breathing, it was thought to be even more to his advantage since it was that many more cycles without "rolling". It was believed that less frequent breathing was advantageous not only because one avoided "rolling", but also because breathing too often caused a jerky expiration, making the swimmer tired and out of breath.

In the crawl inhaling is always done through the mouth, while exhaling is done underwater through the nose (as is done in the trudgen or the double over).

Slow breathing, used from the inception of the crawl, was an absolute necessity with the less frequent breathers. Alick Wickham had used a complete breathing cycle for each stroke of the arms. But he did not set the precedent, and it wasn't until the 1924 Olympic Games and the 100 meter victories by John Weissmuller and Ethel Lackie that it was admitted that even in the 100 meters, where rolling is more costly and where one need not save himself as much for later, a regular and frequent breathing rhythm was more advantageous. "Inhale through the mouth, exhale through the nose" as advocated by Weissmuller remained for some years an American rule. It was the triumph of a regular breathing cycle, done often, that favored a radical change in the breathing method. When one breathes only once for every four or five arm cycles exhaling through the

nose into the water — less plentiful than mouth exhalation, the slower — is preferable. But when one inhales with every arm cycle (or each one and one half cycle, if one breathes alternately), a combination of mouth and nose exhaling is more efficient. This form of mouth exhaling was pioneered by the French trainer Georges Hemant during the 1930's.

Let us return to the evolution of rhythmic breathing. It should be pointed out that in 1924, with John Weissmuller as its most famous exponent, the principle of a breathing cycle for each arm cycle triumphed. The bent position, as demonstrated by Duke Kahanamoku from 1911, naturally favored the adoption of this economical breathing rhythm to facilitate the gaining of crawl supremacy in all the distances. This breathing rhythm remained the one used by the majority of sprint and middle distance swimmers.

If the bent position favored a rhythmic inhaling for each complete arm cycle, it was because it allowed inhaling by just turning the head slightly. However, it resulted for almost all swimmers in a lack of balance to a degree more or less depending on the position of the swimmer. This had its effects on the swim by causing an imbalance. A number of American crawlers, swimming high on the water, had to take their breaths on the arm that was making its forward motion in the water. This breathing method is called the "opposite" because the breath is taken when the swimmer should be exhaling.

Breathing late, that is when the arm is pulling and the hand tucks under the opposite arm, has retained some adepts over 100-200 m. distances. Example of this type is Jane Barkman of the U.S., bronze medalist at the 200 m. free in 1968.

Two breathing techniques, diametrically different, had to develop to eliminate the minor inconveniences that existed — not swimming high on the water and not breathing to the opposite side — when looking at the major advantages of a frequent breathing rhythm based on each arm cycle.

One of these techniques was the "bilateral" breathing system, called alternative breathing. This breathing method seemed (just like the unilateral breathing method) to be as old as the crawl. The Australian Cecil Healey wrote after the Stockholm Games that the crawl was the style regularly used by the natives of the Pacific Islands and that all those he had seen swim inhaled bilaterally, at the moment when the arm plunged into the water. The first crawler to use the alternative breathing method during a race seems to have been the Englishman, J. T. A. Temple, in 1923. His technique was not noticed except in England and it did not capture international attention until it was used at the 1928 Olympic Games by the American Clarence Crabbe, who had employed it in the Hawaiian Islands. The difference between Crabbe's bilateral breathing

method and the method used by the Pacific Islanders was that Crabbe took a breath every three arm strokes instead of every one. Crabbe's excellently balanced swimming style was adapted in many forms. In Europe the Frenchman Jean Taris, using it in 1931, became the world record holder for the 400 meters. The Belgian (girl) Fernande Caroen (who was world champion) demonstrated another form of alternate breathing in 1938. She swam high on the water, breathed bilaterally, and inhaled when each arm entered the water (regaining the bilateral rhythm of the Pacific Island natives).

The Tokyo Games showed that among the greatest champions the number of adherents of alternate breathing (the Crabbe formula) was on the increase. Three of them (Bob McGregor, Hans Joachim Klein, Sharon Stouder) were placers in the 100 meter free, while the first two in the women's 400 meters (Ginnie Duenkel, Marilyn Ramenofsky) swam with a new type bilateral breathing (two breaths to one side, one to the other). The period between Olympic Games 1964-68 saw fewer practitioners of bi-lateral breathing, not so much for technical reasons but as a form of adaptation to the rarer oxygen level of the site of '68 Games, Mexico City (7350 feet).

The other breathing technique based on inhaling unilaterally with each arm cycle was Japanese and was developed during the Olympiad of 1932-1936. Affirming the best method for the flat position swimmer to breathe, it advocated "rolling". A pronounced roll, if it didn't include a lurch, would not harm the arm movement. Under conditions which furnish equal power, the arm stroke becomes different in its path as in power. This technique facilitated the victories of two middle distance crawlers who swam flat on the water, (the American Jack Medica and the Japanese Neboru Terada) at the 1936 Olympic Games. At the Tokyo Games, this technique was used almost exclusively by the Japanese.

ARM ACTION IN THE CRAWL

Crawl speed depends mainly on efficiency, power, and arm action. From the beginning of competitive crawl swimming, it was admitted that for forward movement the arm action was primary and the leg action secondary.

The essential part of the arm action is naturally the propelling part, the underwater stroke. However, it should not be concluded that the arm recovery action is without importance. It is important, if only for the fact that the balance of the upper body (torso) can be modified by the arm recovery. There are different types of arm recovery: the taut or mildly bent return, and the bent return. These recovery forms can be free and

easy. In the bent recovery the elbow can point high or out to the side. It seems that the essential condition, varying with each swimmer, is that the arm recovery in no way endanger the swimmer's body position or stability in the water. A good hold on the water is necessary to assure good support, while a good body balance permits a freer stroke (an essential condition for efficiency). To avoid a bad hold on the water there must be a sufficient easiness of stroke, while to avoid endangering the stability of the torso one must avoid drawing the hand too high or attacking the water too far in front. That is why the mildly bent return as shown by John Weissmuller and Ethel Lackie at the 1924 Olympics, and Jon Konrads and Dawn Fraser at the 1960 Games, became the models for their respective periods.

It is for the same reason — good balance of the body — that one must avoid going too deep in the underwater pull. A bent passage of the arm (wide or centered, depending on the style) has always, since the beginning of the crawl, been used by the majority of the champions because it is an absolute standard of better efficiency.

The first crawl swimming form, credited to the Australians, was characterized by a fast beat chopping motion. The American Charles Daniels carried off the 1908 Olympic title with a sliding arm style.

The distinction between the "Australian crawl", Cecil Healey being the most notable exponent, and the "American crawl" was the "American" hold on the water and method of kicking. Thanks to Duke Kahanamoku's arm sliding in 1912, a new classic form would develop and achieve fame through John Weissmuller. It was an arm slide reduced to essentials: that is to say a non neglected slide clearly slanted toward the point of traction (in fact the swimmer did not prolong the slide). Eight years later the "overtake", a form of long stroke swimming, resulted in Japanese victories at the Los Angeles Olympic Games. The "overtake" is natural for those who push with their kicks or curtail the return of the arms as the Japanese do. The "overtake", the European exponent being 1931 world record holder, Jean Taris made a major revision in the arm action. The original arm action retained its previous form, based on the "double-over", and the equal swerving principle of movement maintained by one arm entering the water as the other came out.

This equal swerving principle vanished with the "overtake": the "overtake" principle maintains that the pulling arm must not pass the vertical point of the shoulders before the other arm begins its slide. The "overtake" goal is to give more balance and better support thus more power for the pulling arm.

The lead in the development of crawl techniques passed for the first time since 1930 from the Australians, Hawaiians, and Americans to the

Japanese. The sport of swimming is not new to Japan. Its swimming is based on antiquity: a history of more than three centuries. Old styles analogous to Japanese swimming are closely related to the crawl. Without a doubt they had an influence, just as the American principles had theirs, on the Japanese crawl in studies by the Japanese at the 1920-24 Olympic Games. But it was a weak influence. Katsuo Takaishi, a 100 meter finalist at the 1924 and 1928 Games (bronze medal), a 1924 1500 meter finalist, and captain of the 1932 Japanese squad, wrote that there was "a deep abyss of difference between the Japanese crawl and those of the Americans and Europeans." Takaishi's statement indicates, as Englishman Gilbert Collins wrote in his book on the era, that if there was "some influence of John Weissmuller (on the Japanese crawl), it was rapidly absorbed and transformed by Japanese thinking." There is no doubt that the Japanese style differed greatly from the Anglo-Saxon although the Japanese copied Anglo-Saxon swimming techniques from 1923-1925. The Filipinos then copied from the Japanese.

If a common link can be found between the Japanese and Anglo-Saxon it would have to be the Swede Arne Borg (who went, like Weissmuller, to Japan in 1926). Arne Borg's stroke (per se) conflicted with the American stroke because Borg employed a short rather than a long backward stroke.

In the Japanese theory of swimming the essential element is the short backward stroke. This short backward stroke is very good for the slanted low position in the water (characteristic position of the Japanese style, 1932). The "overtake" owes all its power to this short stroke.

Although the Japanese stroke, pointed out by Japanese coach Professor Matzuzawa, is called the "overtake", to over accentuate the stroke would be detrimental. Nonetheless, exaggeration marks the development of the American "overtake" style. A number of Americans and Europeans swam with a long, strong, and accented "overtake". This caused a pause in the essential arm motion. Though the arm action remained primary, the slight pause in the arm pull allowed the leg action to gain in importance, especially with the short stroke of the Japanese.

The full reaction against the "overtake", the return to the Weissmuller era, was achieved by the Australians. Although the principles of the new Australian crawl, victors at the 1956 Olympic Games, are in agreement (a low kick and the effort directed to the arms) with those of Weissmuller, the crawls differed in the method of breathing (if the inhaling is also unilateral, it is no longer considered necessary that the breathing be done with every complete arm cycle, and exhaling is done by the mouth and the nose, no longer just the nose as Weissmuller advocated). Also there existed a profound difference in the stroke, a lesser one in the kick.

As in the swimming of Weissmuller the slide rapidly attains the point of

traction and is followed by a long stroke. However the underwater path is different. With Weissmuller the emerging arm followed its course in a circular arc. The arm pulled toward the bottom (avoiding pulling toward the outside or the inside), being always as Weissmuller says: "bent at the elbow so as to diminish the length of its point of support and divide between the shoulder and the elbow the necessary amount of power." With the Australians, the power came in a downward slide or in the prolongment of the shoulder (1956 technique), or toward the other shoulder (1958 technique illustrated by Jon Konrads and Dawn Fraser), followed by a traction achieving a very bent power pull across the axis of the body.

Indeed, the centered traction was not a new feature of the crawl. The first exponent of the crawl, Alick Wickham, used a bent and centered traction. Duke Kahanamoku employed the same technique. The bent and centered traction, not man made but born on the Pacific Island beaches, is truly the natural traction of the crawl. In reality it is the most normal, natural, and powerful. This classic stroke going straight from the front to the back was inherited from the "doubleover" and from the trudgen. The centered traction has undergone certain adaptations: Olympic champions or world record holders employing it between the two wars were the Swede Arne Borg, the Frenchman Jean Taris, the American Buster Crabbe, and his fellow countrywoman Helene Madison. But the centered stroke demonstrated by the Australians at the 1956 Olympic Games had a particular characteristic: at Sydney, it was called the "boomerang" because the bend of the arm appeared to be like the curve of a boomerang. It had the characteristic of being shallow and, until the final shove, of moving directly from the front to the back instead of, like most of the centered tractions, starting with a slanting movement. The Australian coaches stated at the Melbourne Games that the "boomerang" stroke was not adopted by them for empiricism: it was tried in practice at Sydney, and it proved itself to be the most powerful.

In his remarkable study written in 1962, on the *Mecanique de la Progression du corps humain dans l'element liquide* (Mechanics of the Progress made by the Human Body in Water), Dr. Raymond Ferrand explained perfectly the superiority of the arm passage in the "boomerang". He wrote: "This necessity of avoiding any side resistance adding on to the backward resistance, makes one understand the importance that there is in the stomach crawl to always pass the point of support of the stroke under the exact center of gravity of the body. Finally, since it is a question of the stroke support point, let us say that in the stomach crawl another obligation has been imposed during the course of these last years: that of remaining throughout the length of the path

anterior-posterior at the depth, which is as exact as possible where it is found. This implies that the stroke is strongly bent in the forearm with the arm which is at the time vertical to the shoulder, the boomerang stroke of the Australians. It is equally important that along the path the palm of the hand maintains its push on the water and doesn't stop at the end of its edge."

This "boomerang" stroke was used at the Rome Games by the majority of the best swimmers of the world, but the Tokyo Games showed that it was now a long way from remaining popular: the Japanese and several of the best Americans discarded it to return to a less bent and sometimes less centered traction.

The period 1964-68 saw a great diffusion of the rotating action (high turn over). The principle of opposition of arms (windmill) which not since the 1930's had been in vogue, reappeared in the 1964 Games. The American Steve Clark, who equalled the world record for the 100 m. free, and Australian Robert Windle, winner of the 1500 m. free, used what appeared to be this principle.

During the period 1964-68, the complete opposition of the arm style gained among U.S. and Australian swimmers. Michael Wenden's stroke, high turnover, or rotating action, is considered the logical evolution of this stroke. His high turnover no doubt originates in his high strength and the velocity of his push phase.

The center pull, which had diminished in popularity during 1960-64, once again regained favor during 1964-68. The Australians, used a boomerang type of arm action, that is, the arm flexed with the hands in line with the axis of the body (the shape of the arm being that resembling a boomerang). The U.S. swimmers had a tendency to pull at a deeper level than their Australian counterparts, and U.S. Coach George Haines, whose swimmer Steve Clark, used this style at Tokyo, explains that a deeper pull not in line with the axis of the body is preferable as it prevents the forearm from leading the elbow, a key fault in freestyle swimming.

THE WAYS OF THE MODERN CRAWL

At the end of this study on the evolution of the crawl, let's make a point: in middle distance, a new era began with Hironoshin Furuhashi's of Japan. By the light of a 15 year evolution, based on actual datum, Furuhashi's 1949 style revealed the future of the middle distance crawl.

The two characteristics of Furuhashi's swimming were a continuous arm action (that's to say without a pause) and a dragging kick in "four-time", of which two are major kicks. This was a totally new action. After viewing Furuhashi's swimming, Yale University coach Robert

Kiphuth stated in 1950 that his swimming is absolutely unique, and it, by itself, constitutes a type of style. Kiphuth added that "his style was copied from no one". His trainer, Masagi Kayotame, said the same thing, adding that his style differed profoundly from the current Japanese style.

The continuous action of the forearms was termed the "rotary action" by Dr. James Counsilman (a perfect description). A major characteristic of Furuhashi's swimming supported itself on its other major characteristic, a kick with a dragging beat, clearly defined in Forbes Carlile's remarkable book as "broken tempo".

Furuhashi's "broken tempo" kick was as far away from group kicks by Terada as from the classic "six-beat" the distinction being a major kick for every arm action. The major kick came prior to the arm pull. The legs lagged in a very weak, effortless and loose kick.

Furuhashi's swimming based on the principles of "rotating action" and "broken tempo" seemed in contrast to the general crawl technique of 1950 and opened the evolution toward speed stroking. One of the apparent factors for this was the trend toward a fast and continuous kick or toward a group of kicks, both favoring the slide. There were two American schools of thought: type of kick of Charles Daniels, 1908 Olympic 100 meter champion, and De Handley's fast kick (the principle of the six to 10 beat). The Japanese school of Matzuzawa advocated kicking during the slide. The foremost exponent of this theory was the Hawaiian American, Ford Konno, 1952 1500 meter Olympic champion. One of the greatest coaches of the 1950 era, Hawaiian trainer Soichi Sakamoto, voiced a widely held opinion that the slide was the most important thing.

Jamison Handy, the veteran swimmer and passionate follower of the crawl evolution supported the idea that Furuhashi's style opened a road to the future. Contrary to the truths of the time, Handy believed in the conformity of evolution. This evolution in the theories of Jamison Handy was accomplished thanks to Dr. Counsilman and the Australian trainers. For Counsilman, as for the Australians, the kick of the legs must not lessen any of the arm power. The heretical aspect of Weissmuller's theories was this: since the kick cannot really lessen the power of the arms, one must not work only with the arms, but avoid using a kick beat that thwarts the "rotating action" of the forearms. Dr. Counsilman summed up the subject when he said, "While you coast on your arms, it is very bad for you if the water currents pull on the arms." To avoid putting an effort on the legs and to avoid a coast which thwarts the "rotating action", a continuous six-beat must not be used in the middle distances: it requires a "broken tempo" kick. In the sprint an independent continuous kick (usually a six-beat like Dawn Fraser, but being possibly a five-beat or even a four-beat as John Devitt used) can be effective. The use of a six-beat, if

not natural, would in effect impede the realization of the rotating action in the sprint.

The success of Jon Hendricks, John Devitt, Dawn Fraser and Alva Colquhoun gave credence to the theory of the continuous free kick. Therefore, modern coaches do not impose rigid motions for leg rhythm in the sprint.

Without a doubt one of the bases of swimming simplicity was the Australians not forcing their sprinters to follow a rigid arm and leg rhythm. Thus sprint crawl efficiency caught on in the 50's in Australia. This ties in with a remark by William Bachrach, the famous Chicago coach of the 1920's who "always asserted that the kick should not be governed by theories, but by a sense of coordination" (ideas of Bachrach expressed in Weissmuller's book). Moreover, Weissmuller said, "When Bachrach was asked about the number of kicks in relation to arm movements, Bachrach merely smiled and swerved all argument." A rhythmic leg beat action six-beats, classic, or eight-beats, depending on the school of thought) was still, at that time, almost universally used in the United States. Bachrach in the 1920's, like the Australian coaches of the 50's, was opposed to the theoretical spring kick.

The sprinter's continuous free kick, the broken tempo, and the distance swimmers being guided by pace, are not defects. These kick forms aided the action necessary in swimming an efficient "rotating action". This rotary action seemed to hold the future of the distance crawl.

The cross-over kick consists of crossing one foot over the other and in the broken-tempo style of swimming is one of the essential parts of this style. The cross-over has the advantage of keeping the thighs closer together than with an up and down kick where the thighs spread to a greater degree which is one of the biggest faults with styles other than the broken tempo.

Dr. Counsilman advocated this style of kicking prior to the 1964 Olympics and the style was adopted by the grand majority of distance swimmers in the 1964-68 period. It is worth noting that the cross-over kick, can be learned and is also natural with certain swimmers who without any instruction will utilize a form like this kick.

THE EVOLUTION OF SWIMMING ON THE BACK

The nineteenth century was scarcely aware of anything other than freestyle swimming races. The first references to specialized (back, etc.) swimming races appears around 1900.

The first back consisted in arm over arm style (hand over hand). The 1900, 1904, and 1908 Olympic champions used this technique but "hand

over hand" backstroking was not the only style known. In their 1903 swimming edition Archibald Sinclair and William Henry, two Englishmen, indicated the use of an arm attach analogous to the stomach trudgen. At the 1912 Olympic Games the winner, Harry Hebner, (who, since 1910, was the best American backstroker) used a revolutionary style: the back crawl. A complaint against his style caused Games officials to consider disqualification. But American officials, rule book in hand, proved the regulations demanded only that the swimmer remain on his back, otherwise allowing freedom of movement. Henceforth the back crawl would dominate the Olympic Games. Since the 1920 Games at Antwerp all backstroke finalists used it. At Antwerp America's Warren Kealoha established the world 100 meter backstroke record previously dominated by hand over hand specialists. Belgium's Gerard Blitz pioneered the back crawl in Europe and became the first European Olympic medal winner in the back crawl in 1920.

If it weren't for the necessary angle of the arm stroke, an angle much less efficient than that of the crawl, the backstroke, would unquestionably become the fastest method of swimming. Among the advantages of the back crawl are its floatability, position, and ease of breathing, thereby allowing for efficient leg action. The crawl, compared to the back crawl, has only the advantage of a better angled arm stroke. The fact that this superior angle was enough to assure the crawl a big speed advantage makes obvious the primary importance of the arm stroke in swimming.

From America's first disciple, 1912 Olympic champion Harry Hebner who was considered the inventor of the back crawl, until 1930, Americans and their techniques predominated. The first leaders of America's backstroke school advocated an "all-power" swim. The only non-American Olympic Gold Medal backstroke winner prior to 1932, the Dutchwoman Marie Braun (winner at the 1928 games), utilized the American technique. This first American style, the prone position (in the style of the 1908 crawler), due to the examples of Warren Kealoha (Olympic champion 1920, 1924) and George Kojac (champion 1928) became arched and high on the water. This backstroke technique allowed the arms to make use of the largest possible area in the axis of the body (this angle was named "midi" (noon), image of the position of the small hand on a watch). In order to give the maximum amount of power to the deep stroke, a forceful attack was used. During the period when Kealoha and Kojac dominated the world backstroke, they employed a leg kick similar to a pedaling movement. The upward movement of the knee, being the leg's highest point, and the foot's instep, pointing inward, broke the surface of the water.

American backstroke supremacy ended at the 1932 Olympic Games.

The Japanese, employing a new and superior kicking style, took three places in the men's backstroke. For the "pedaling" kick the Japanese substituted a kick based on an ascending movement of the extended leg. This kick, to be executed with maximum efficiency, demands a continually submerged knee. It is important that the leg bends and turns inward in the downward movement, supported by thigh pressure, and straightens out in the upward sweep. At the height of the ascension movement the knee must remain entirely below the surface so that the tip of the foot only skins the surface. The Americans prior to the 1932 Games had observed but not adopted, except for L. de B. Handley, coach of the Women's Association of New York, the Japanese style of kicking. As a result, Eleanor Holm, Handley's pupil, used a style identical to the Japanese and won the women's gold medal.

The Japanese kick by permitting a flat slightly slanted, not arched, body position paved the way to the smooth non lurching modern backstroke of today.

The Japanese kick obtained its full efficiency from the flat body position. American Adolph Kiefer, world backstroke leader from 1935, proved its efficiency. Kiyokawa and Eleanor Holm, 1932 Olympic winners, utilized (the then classic American technique) a fairly arched body position and a deep stroke with the arm entering at "noon".

In 1933 American coach Robert Kiphuth added to the Japanese kick and flat body position a revolutionary wide arm action (entry at eleven o'clock and at one o'clock) followed by shallow side strokes, avoiding water retake. This style with its flat position and shallow less tiring arm action prevented lurches and conserved energy. Thanks to the new American style, the 100 meter backstroke could cease to be a test of resistance.

The Kiefer style, demonstrated in European and Japanese meets in 1935, had within one year an international audience. At the 1936 Olympic Games the first two places in the men's 100 meter backstroke went to its exponents. But its influence effected the performances of all finalists as well as the style of Holland's Nida Senff, woman's gold medalist.

The Kiefer style (an arm-leg rhythm of six beats) and its variants dominated the world backstroke scene until 1956. A principal variant of the Kiefer style was the 1937 Dutch school represented by Cor Kint and Iet van Feggelen, characterized by a higher body position.

An important variation opposed to the Kiefer principles became known in 1948. Instead of the side circle arc strokes done with an extended and continual pushing arm, the side stroke was marked by a bending of the elbow when the arms come into line with the shoulders, a retaking of water (i.e. a new support proceeding the push). The bent elbow originated

with French swimmer Georges Vallerey, bronze medal winner at the 1948 Olympic Games. Vallerey was one of the few swimmers of that time who did not use the Kiefer technique or a technique derived from Kiefer's. The bent arm stroke was eventually taken up by all of the best swimmers whether they used Kiefer's style or not.

In 1956 Kiefer's style was dethroned by a style in which all power was reserved to the arms: the swimmer rejecting the flat position of Kiefer's style retook a very high position on the water, lightly arched, avoiding at all times swimming in a "sitting" position. The entry returned to twelve o'clock but the stroke remained from the side. The kick, giving little support, moved away from the Japanese style, the leg becoming less extended in the upward movement. Australia's David Theile, using this method, was victorious at the 1956 and 1960 Olympics. At the 1956 Games this style was not used exclusively by the Australians. The French coach Georges Garret had introduced an analogous style, used at Melbourne by Robert Christopher, future European 100 meter backstroke champion (1958). But this difficult style, caused by a necessary high body position, transformed the 100 meter backstroke into a race of resistance, similar to the Kojac era.

Because the men's Olympic backstroke distance changed to 200 meters for the 1964 Tokyo Games, (both the 100 and 200 meters were swum at Mexico City in 1968) this high body position, almost universally used by the men, was practically abandoned. Once again the Kiefer style and its variants came into vogue. However, there is also a new Japanese style and the style of America's Tom Stock.

The new Japanese style was demonstrated at the Rome Olympic Games by women's bronze medal winner Satoko Tanaka, a student of coach Kurosa. This Japanese style is similar to the Kiefer style but differs in its slightly arched body position and bent arm stroke. The arched position is easy to stay in because one is low in the water. This Japanese style not only appeared well adapted for 100 meters but also for the 200 meters as the performances of Satoko Tanaka demonstrated.

Tom Stock, a Counsilman student and in 1962 world 100 and 200 meter backstroke record holder, avoided for the most part Kiefer's arm stroke principles. Stock's body position followed the 1960 American principles (that is to lie on the water), a position used by all American backstrokers at the Rome Olympic Games, with the exception of Lynn Burke, women's 100 meter backstroke winner, who swam in the high position like the Australians and Christopher. Stock focused his effort on the arms. Applying the rotating action principle to the back, Stock utilized a fast arm action. Stock attacked the water at "noon", the shoulder buried to support the attack. In his bent strokes to the side, the bend reached a

90° angle when the arm passed the shoulder line. Then Stock pushed his arms back and toward the bottom, beginning to retake the water at this phase. Stock's stroke is the expression of a remarkably perfected technique. Its simplicity of execution permits an easy acceleration of the beat. It compares to superior power of the beginning phase of the stroke (a very big bend, precedent to the formula of the Australian's boomerang crawl). At the Tokyo Games the most successful performers were those bending their arms in the initial phase of the stroke. The only medal to escape American hands was won by the pupil (Caron) of French coach Suzanne Berlioux. Coach Berlioux accepted the Stock theory minus the ultra fast rotary action.

At the Mexico Olympics, the 100 m. backstroke distance was adjusted with the 200 m. distance as well as, by adding the 100 m. event. The high body position had regained favor and East Germany's Roland Matthes was the best example, in fact he looked very similar to double Olympic winner 1956-60, David Theile. It is worth noting that having changed the Olympic distance for the backstroke event at Tokyo from the 100 to a 200 made most of the backstrokers abandon the high body position, Matthes demonstrated that the high body position was not necessarily an obstacle in the longer race by his world records and his double Olympic victories.

The arm stroke was generally noted for a larger degree of flexion in the early part of the stroke cycle, except with the South African girls who swam with quite the opposite action, that is, the arm is virtually straight until passing the shoulder. The South African coaches claimed that this would favor the naturally weaker females and would prove advantageous. As evidence of this one can point to Ann Fairlie and Karen Muir, both holders of backstroke world records during this period. Roland Matthes, who with his numerous records and double Olympic titles completely dominated the stroke, swims with a relatively low turn over.

First of all the "hand over hand" or breaststroke constitutes a method of swimming that should not be considered a racing stroke. The movements of the "hand over hand" are, in effect, clearly and finally defined. The strict observance of the prescribed movements hinders the development of any speed. But the goal in a race is to acquire maximum speed. Because of this the history of breaststroke competition shows the swimmers, trying to stay within the limit of the rules (to avoid being disqualified), attempted to change the style to gain speed. It was the same with the butterfly swimmers.

Not until 1904 did the breaststroke figure in the Olympic Games program. The American organizers included it in consideration of European interest in the stroke. But the technique studies are much older. Controversies have continued since 1870 on the respective parts the arms

and legs should play in the forward motion. At that time, most authors were of the opinion that the legs were of primary importance. Nonetheless, Englishman Reverend J. C. Wood, in his book *How to Swim*, defended the theory of the importance of the arm in the breaststroke. The early years saw controversies develop over the width that should exist between legs (extended or closed) to achieve the best propulsion and the oar type stroke (arms extended parallel to the surface as prescribed by most experts,) versus Canadian Captain Andrew's depth stroke, as prescribed in his 1889 book.

The primary breaststroke was the English hand over hand, a slide going upward, followed by a wide stroke of "oars" parallel to the surface continuing until in line with the shoulders. The wide leg lurch was preceded by a bending of the knees, pointed outward. This hand over hand technique reigned until 1924 when Erich Rademacher, a German, opened a new concept of breaststroke racing. He utilized a horizontal extended arm movement, a stroke of "oars" in depth, and a low knee position. This technique had the advantages of a more powerful traction, a better and more effective leg start, and diminished lurches.

Inspired by Rademacher's methods, the Japan's Yashiyuki Tsuruta introduced a bent arm traction in depth breaststroke. Tsuruta's stroke abolished lurches and presented the possibility of a fast non-jerky stroke. Tsuruta's technique, improved by Frenchman Jacques Cartonnet, 100 and 200 world record holder, was until 1956 the base of all technical evolution in surface breaststroke. By 1946 the surface breaststroke disappeared more and more from major competition, yielding first to the butterfly in 1953 and then to the underwater breaststroke.

Underwater breaststroke proved faster than the surface style. This was the reason many of the best breaststrokers traveled long distances underwater on the start and turns. Naturally, the underwater technique was limited to individual breath control. Teofilo Ildefonso, a Filipino, using the underwater style, took third place in the 200 meter breaststroke at the 1928 Olympic Games in Amsterdam. However, to sprint home he abandoned the underwater style for the surface stroke. Perhaps for this reason his style gained but scant attention. The submerged breaststroke differed from the surface stroke notably in the stroke, analogous to the crawl. The stroke continued until the arms reached the thigh. The coordination between arms and legs was such that leg propulsion, caused by completion of the kick, came as the stroke finished.

The underwater breaststroke, however, was intensively studied by the Japanese in the years prior to the separation of the breaststroke from the butterfly. As a result, the Japanese revived the stroke with success in 1953. Under Japanese influence, the underwater breaststroke proceeded to

develop. The underwater style, both efficient and economical, either copied from Ildefonso (breathing after two underwater strokes) or modified like Russia's Iounitchev (breath after every underwater stroke), plainly triumphed in the men's 200 meter breaststroke at the 1956 Olympic Games. But the underwater style, the only true racing breaststroke, was banned after 1957. Since the Melbourne Congress of the F.I.N.A. stopped the development of the true racing breaststroke, it is a wonder the Congress maintained the stroke as a racing style.

The period between the Helsinki and the Melbourne Games also saw the development of the surface breaststroke. Influenced by the underwater arm power, a number of the best surface breaststrokers re-oriented their thinking toward more efficient arm action, modifying the traditional belief that the legs provided primary propulsion. In the men's 200 meter breaststroke at Rome, the winner, America's William Mullikan, utilized a primary arm action. This tendency was even more obvious in 1961 when America's Chet Jastremski established world records in the 100 and 200 meter breaststroke. Jastremski totally sacrificed the leg action for the rotating action of the arms, Jastremski's pulling power was favored by his body position, head lowered and shoulders kept submerged during the pull, and by his method of breathing-inhaling done at the very end of the pull. The rotating action triumphed at Tokyo. Ian O'Brien, Georgi Prokopenko, and Jastremski took the top three places. Best representatives for the classical style were Russia's Galina Prozumenschikova in the 200 meters and Svetlana Babanina in the 100 meters.

The period 1964-68 was dominated by the 'rotating-arm-action' not only among the males but also the females, especially Catherine Ball. The Russian breaststrokers evolved a new technique while Miss Ball, confirmed the supremacy of the U.S. style.

Catie Ball swam breaststroke without dropping her head below the surface, and keeping it slightly inclined in the direction of travel. By this head position she obtained a remarkable equilibrium favoring rapid progression together with a constant turnover. It is worth noting that Catie Ball brought breaststroke swimming to a new pinnacle, her technique was already apparent with Claudia Kolb, silver medalist at Tokyo in 1964.

Another technique during this period was the new Russian method consisting of bringing the hands forward at the point of maximum extension of the arm stroke, that is when they are in line with the shoulders, without the hands coming together under the chest. Nikolai Pankin is an excellent example of this technique, facilitating maximum rotating-action. This will increase the rhythm of the stroke as against the more traditional approach where the hands join together under the chest. This technique permits a somewhat delayed breathing and of longer

duration than the conventional approach with a deeper body position.

THE EVOLUTION OF THE BUTTERFLY

The butterfly was used in competition for the first time in 1926. Its inventor, the German Erich Rademacher, profited from a flaw in the rules which did not force a swimmer to keep his arms in the water while bringing them forward. He found a more efficient means. Recovering above the surface, he eliminated the braking effect the water had on the arms.

Rademacher used the usual underwater stroke only for the turns and at the finish. Participating in a series of meets in the United States in 1927, his stroking method raised loud protests. However, since nothing in the breaststroke rules forbade the arms moving forward over the water, he was never disqualified. Rademacher, moreover, did not use the butterfly the next year at the Olympic Games in Amsterdam, and the style was forgotten for a few years. It next appeared in the United States in 1933 when New York's Henry Myers brought his arms forward over the water while competing in a 1500 meter medley race. At the New York winter championships he used the butterfly to finish the breaststroke part of the race. This once more caused amazement. The arguments started anew with the same result as in 1927: the method of swimming conformed to the letter but not the spirit of the breaststroke rules. This time the butterfly caught on and its career started. It was named the "breaststroke butterfly" to distinguish it from the classic breaststroke, which out of habit came to be called the "orthodox hand over hand".

In 1953 the butterfly was separated from the breaststroke and became, with regards to the racing code, a fourth stroke. At the same time it acquired the right to its normal form, a double-crawl with simultaneous movements of the arms and legs. These coordinated kicks were termed "dolphin kicks" and the butterfly with dolphin kick was often called "dolphin butterfly" or just dolphin.

Prior to the separation of the strokes, the dolphin kick was against the rules. Previously, the rules clearly defined the kick regulations to be followed by the breaststroke-butterflies. The dolphin kick, however, was not the only kick they were permitted to use. They were free to use the breaststroke leg action. But the vertical style (dolphin) was used by the best butterflyers because it eliminated the braking caused by the lateral movements of the breaststroke kick.

In the beginning the butterfly dolphin was swum with a marked undulation, action which made the swim a series of immersions and emmersions. The Hungarian Gyorgy Tampek was the first famous

exponent of this initial form of the dolphin butterfly. But the 1956 Olympic Games where the dolphin butterfly was first permitted, showed that supremacy of the undulators was finished. America's winners William Yorzyk and Shelley Mann remained in a much flatter position on the water, a position more favorable to forward motion. This tendency became more accented in the 1964 and 1968 Games.

In the butterfly the arms play the largest part in the forward motion. Following the American technique (which showed its superiority at the Melbourne and Rome Games), the traction immediately follows the attack. There is no pause and no slide in the arm movement. Like in the other strokes, the swimmer must apply the principle of the rotating action. The 1960 Olympic champion, Michael Troy, is considered as the prototype of modern butterflyer. It was his data, not strictly copied from his style, that marked the evolution of the butterfly since 1960.

The Tokyo Games made it clear that the best butterflyers employ the straight position (avoiding all forward descent) caused by the arm effort yet using more leg action than did Troy, who had a wide arm attack with a bent stroke. As for breathing, the most widely used technique of the best butterflyers was to breathe after every two arm cycles. This technique permits the shoulders to remain underwater during the traction and helps keep the body horizontal, two definite advantages. However, certain 200 meter swimmers have experienced difficulty in trying to maintain this technique at the end of a race. A noted exception was the Olympic winner and former world record holder, Kevin Berry of Australia. A student of Don Talbot, he gained a serious advantage in the second half of the race by breathing with each arm cycle throughout. If breathing every second (or even third) cycle of the arm seems preferred in the 100 meters (men as well as women), it has displayed no conclusive evidence for 200 meters. At least it is not predisposed physiologically in the 200 meters.

The period 1964-68 did not give rise to any new developments in butterfly technique. The stroke had reached its current development by 1964, one that emphasized to a greater degree the kick, than had the 1960 style utilized by the winner, Michael Troy. This development was particularly notable in the swimming styles of Mark Spitz and Doug Russell both of whom had bettered 56.0 for the 100 meter event.

Chapter VII

Evolution of Conditioning

If the swimmer is to obtain maximum results, technique, training, conditioning, and pace are some of the important factors. In swimming, as in any sport, nothing can replace talent. But class alone cannot do much if the swimmer does not combine this with technique and work.

CLASS AND SWIMMING

Since class is literally impossible to define, we will simply say that class in swimming claims, besides the qualities necessary for all sports, qualities which are peculiar to it by reason of the element in which it must be performed.

Among the prime sporting qualities are suppleness and excellent cardio-vascular condition. A swimmer's suppleness is his flexibility in the water. Remember, there are cases of boys and girls who lack flexibility for floor exercises but combine flexibility with ease of stroke in the water. Moreover, the cardio-vascular condition is a necessary factor for success. A world authority in the field of conditioning, Dr. Thomas K. Cureton, supervisor at the conditioning research laboratory at the University of Illinois, declared in 1960 during a lecture in Paris (at the Nat'l Institute for Sports), "The best cardio-vascular conditions are translated by the highest performances."

Among the qualities suited for swimming, one is particularly important: buoyancy. In swimming, more so than size, stature, and strength, the importance lies in the relationship of the pulmonary capacity with the weight. This relationship constitutes an essential factor for performance in swimming. This factor explains why "lightweight" athletes can obtain great results in swimming. Recent examples have been furnished by Mike Burton, Tom Stock, and Patty Caretto. That is one of the reasons why adolescents or pre-adolescents have been able on several occasions to accomplish high level performances in swimming only attained by a few adults.

Let us recall, among the examples that one might choose, that at 12 years of age the Danish girl, Inge Sorensen, won the bronze medal in the 200 meter breaststroke at the Olympic Games in Berlin; that the Japanese Kusuo Kitamura was at 14 years of age the Olympic 1500 meter champion at the Los Angeles Games; that at these same Games the Dutch girl, Willie den Ouden (also 14 years old) won the silver medal for 100 meters and that, among more recent results the Australian girl Ilsa Konrads in 1958 became (at 13 years of age) world record holder for 800 m. in 1964 the American girl, Patty Caretto (13 years old) became world record holder for 1500 meters; in 1966, the Soviet girl, aged 13, Irina Pozdnyakova, became the World Record holder for the 200 m. breaststroke.

The other reason for the success of adolescents and pre-adolescents in swimming is that they can follow the same training schedule as an adult. During the 1958 Paris appearance of the Australian National Team, the French newspaper *L'Equipe* brought together three of the top Australian coaches; Frank Guthrie, Sam Herford, Don Talbot. In answer to a question by the French coach Lucien Zinz on the training method for 12 and under in Australia, they replied, "The training for the under 12's is similar to that of the seniors. The intensity in training depends upon the resistance of the swimmer." Don Talbot added, "We make them train as hard as they can."

It is not on empirical evidence alone that the Australian coaches proceed. Scientific research into what has been justifiably called the "Australian revolution" in regard to stroke, training, and conditioning support their claims.

In swimming asphyxiating fatigue precedes all other forms of fatigue — cardiac, muscular, nervous, even hepatic — Dr. Maronneaud, president of the medical commission of the French Swimming Federation, has revealed. He added that "asphyxiating fatigue is a fatigue which is produced without any definite disorder of the organism." There exists a reason why contrary to all other sports, the pre-adolescent can follow an adult's training, limited for both by resistance.

The famous Australian coach, Harry Gallagher (coached Jon Henricks and Dawn Fraser) contends that even a more intensive program is feasible for the very young swimmers rather than the adults. Gallagher directed his ideas and remarks to the Institute of Physiological Research at the University of Adelaide. The professors at this institute replied that Gallagher's ideas were valid, because fatigue is eliminated quickest in a child and faster in adolescents than adults.

There is no doubt that the formula "equal resistance and equal training" has been adopted by many Australian and American coaches, as the results achieved in age group competition are indicative. In the 10

and under division, swimming in a 50 m. pool, Susan Pedersen in 1964 swam a 100 m. free in 1:06.1. And we all know of her subsequent swimming career, with a silver medal at the Mexico Olympics in 1968 for the same event! But there are other outstanding results in that age group, in the same year, 1964, the second ranked U.S. girls in the 10 and under 100 free was Bonnie Adair with a 1:09.3. And the best time of the 1968 season was by Dawn Nakanishi of the Santa Clara Swim Club, with a 1:08.3.

In the report published in 1963, after his trip to the USA, the famous coach Stefano Hunyadfi, formerly of Hungary, now in the USA (among his pupils the 1952 100 m. Olympic champion, Catherine Szoke, former world breaststroke record holder, Eva Gerard-Novack, and 1968 Olympic breaststroke champion American Sharon Wichman), stated that swimming should be taught in the USA at the pre-elementary school level (for children of 4 and 5 years of age) wherever possible, three times a week. This means many American children of elementary school age (6 years old) learn to swim and can compete in a well provided for age group competition by age eight.

During 1969, in 50 m. pools, the Australian Virginia Rickard, swimming in the 10 year old category, swam 1:07.2 for 100 m. free, 10:15.5 for 800 m. free and 19:30.9 for 1500 m. free. The French girl Maria-Dolores Anewy, swimming in the under 12 category, swam a 4:52.6 for 400 m. free and an 11:05 for 800 m. free. Lianna Sexton from the U.S.A. swimming in the 11-12 age group swam a 1:02.8 for 100 m. free.

THE AGE OF THE CHAMPION

Although a pre-adolescent gains advantages from his pulmonary weight capacity, more favorable at this time than at adulthood (to which might be added, concerning a girl swimmer, the advantage of having less to support until the development of the female form), it is no less true that the pre-adolescent and the adolescent have a disadvantage as they lack the strength of an adult. Remember, as the American coach Peter Daland emphasized (during a lecture in Bordeaux in 1961), "In swimming, strength is speed."

Of course, the strength factor has more importance in sprints than in middle distance, but on the other hand, the pulmonary weight-capacity has more importance in middle distance than in the sprints. The result is that in swimming the young have more facility to shine in middle distance than in the sprints. As a consequence, the average age of international middle distance champions is not as high as that of sprinters.

Below are listed the ages (of those research has uncovered) of the

Olympic champions for the 100 m. men and women, the 1500 m. men, and the 400 m. women since the F.I.N.A. organized the Games.

100 Meter Freestyle — Men

1912	D. Kahanamoku	21 years old
1920	D. Kahanamoku	29 years old
1924	J. Weissmuller	19 years old
1928	J. Weissmuller	23 years old
1932	Y. Miyazaki	16 years old
1936	F. Csik	22 years old
1948	W. Ris	24 years old
1952	C. Scholes	22 years old
1956	J. Hendricks	21 years old
1960	J. Devitt	23 years old
1964	D. Schollander	18 years old
1968	M. Wenden	19 years old

1500 Meter Freestyle — Men

1924	A. Charlton	16 years old
1928	A. Borg	27 years old
1932	K. Kitamura	14 years old
1936	N. Terada	21 years old
1948	J. McLane	17 years old
Furuhashi (Japan, at that time being excluded from F.I.N.A. could not participate in the Games; but Furuhashi, 18 yrs. old, dominated the 1500 m.)		
1952	F. Konno	19 years old
1956	M. Rose	17 years old
1960	J. Konrads	18 years old
1964	R. Windle	19 years old
1968	M. Burton	21 years old

In men's swimming, the over 20 have an advantage in the sprints, whereas in long and middle distance the advantage is with those under 20. In women's swimming, the sole middle distance event being the 400 meter, the advantage in terms of Olympic winners is with those under 20 years of age in both the sprint and the middle distance.

100 Meter Freestyle — Women

1932	H. Madison	18 years old
1936	R. Mastenbroek	15 years old
1948	G. Andersen	19 years old
1952	K. Szoke	17 years old
1956	D. Fraser	19 years old
1960	D. Fraser	23 years old
1964	D. Fraser	27 years old
1968	J. Henne	21 years old

400 Meter Freestyle — Women

1924	M. Norelius	15 years old
1928	M. Norelius	19 years old
1932	H. Madison	18 years old
1936	R. Mastenbroek	15 years old
1948	A. Curtis	24 years old
1952	V. Gyenge	19 years old
1956	L. Crapp	18 years old
1960	C. von Saltza	16 years old
1964	G. Duenkel	17 years old
1968	D. Meyer	16 years old

THE EVOLUTION OF TRAINING

There are two kinds of data in the training of the swimmer: one common to all sports (food, sleep, and medical check-ups), and the other suited to swimming. It is the latter that we will deal with. The physical training of the swimmer includes dry land exercises and water work. The former, for a long time unemphasized and sometimes totally neglected, has become very important. Certain coaches, and those dealing with technique, even consider this of prime importance. However, we believe that it is going too far and the aquatic work remains, in our opinion, the essential thing. One can eventually become a swimming champion without doing any dry land exercises, but one cannot become a champion without swimming. It is no less certain that a cult of strength and improvement of the cardio-vascular condition by dry land exercises suited to swimming and to the individual must be linked to swimming to allow the swimmer to realize the maximum of his ability.

The evolution of training methods is to a great extent the cause of the great speed improvement in competitive swimming. Certainly, a harsh comparison cannot be made between the performances achieved today and those of more than 50 years ago, since larger swimming suits, pools with un-filtered water and no lane lines were all common in those days.

A fact remains that however efficiently the backstroke or breaststroke are swum, they remain time-wise inferior to the crawl, the trudgen or the double over. In October 1902 Frederick Lane, a trudgen swimmer, became the first swimmer to officially break the minute for 100 yards with a 59.6 effort (in Leicester, England, in a short course pool). In 1962 also in a short-course pool, Chet Jastremski swam a 100 yard breaststroke in 59.1. In 1963, thirteen swimmers covered the 100 meter backstroke under 1:03.0, whereas the world record for 100 meter freestyle was not lowered under 1:03.0 until 1910 by the crawl swimmer Charles Daniels (1:02.8, short-course). We could give many more examples. It is sufficiently clear

that if the style evolution has played its part in the progression of performances, the largest part of this progression hinges on the improvement in methods of training and conditioning.

The improvement in methods came first of all from an increase in the amount of work rather than from a change or a hardening in the work load.

Evolution is a permanent thing in the field of training, swimming, or any activity. Although exact limits cannot be given, this evolution can be divided into three main periods. (Often they are over in one country, whereas they are continuing in another.) Moreover, since one conception of training has usually followed another, a clear break rarely came in the evolution of training.

The "first period" extends from the beginning of swimming to about the time of the Olympic Games in Paris (1924). At that time the general line of "preparation" compared to today comprised only a little swimming. Many coaches already preached daily training, but the majority of training treatises indicated a total daily distance (including loosening up, pace work, sprinting) of not more than a half mile daily for 400 meter swimmers and often half that for 100 meter swimmers.

What we call interval training was in fact completely ignored. On the other hand, it was a principle almost universally accepted that the swimmer must swim once or twice a week, and in the last period of preparation the race distance covered at an all out speed. For the swimmers preparing for 1500 meters, the training would be slightly longer, and certain coaches would advocate covering the actual distance at least twice a week, and perhaps swimming one-and-a-quarter miles once a week. Only for long distance events (races of more than three miles) was mileage training recommended by a few coaches. In this "first period", on the other hand, the question of dry land work was progressing: cross-country walking at a race pace, gymnastics, weight lifting, and pulleys with weights were already recommended in training treatises. This kind of training remained, however, not in general use.

The "second period" extends from about 1925 to 1955. For the sprinters and middle-distance swimmers there was a considerable increase in distances swum, an increase in the pace, and the establishment of a concrete dry land program for swimming. Concerning the increase in distances and the increase in pace work, two coaches, the Frenchman Georges Hermant and the Japanese Matsuzawa, were the real pioneers of this new swimming form which gradually asserted itself throughout the world. After 1930 the American coach Robert Kiphuth perfected a method of dry land exercises for swimmers. Used first at Yale University, the exercises soon won world acceptance, making Kiphuth the undisputed leader of dry land exercises.

The "third period" began about 1956. In fact 1956, marked by the success of the "Australian Revolution" constituted, on occasions, a new orientation of the methods of the "second period" and more often than not, would only be their development or logical conclusion. The emphasis on strength was a feature of this revolution.

The revolution's main lines were stated about 1945 by Frank Cotton, a former freestyle champion (middle distance) of New South Wales and a Doctor of Science and Professor of Psychology at Sydney University. His colleague was former swimmer Forbes Carlile, a lecturer in physiology at the same university and then an amateur swimming coach. The ideas which were to make Australian swimming a potent force were gradually evolved and supported by top professional coaches such as Harry Gallagher, Frank Guthrie, and Sam Herford. On their own initiative these coaches created groups of competitive swimmers whose results surprised the world in 1956. This search for strength was translated by ground exercises with weights and by the emphasis placed on the importance of interval training. "Preparation" based on interval training was an integral part of the Australian program by 1956.

However, compared to the increased program of 1958, the 1956 program was a limited system of interval training. At this point it constituted the essential ingredient for training swimmers and marked a progress in all freestyle performances. Dawn Fraser and Jon and Ilsa Konrads were the principal exponents of interval training. The 1958 Australian formula of interval training established a world wide program. The other feature of the Australian revolution was the emphasis placed on scientific research in regard to swimming and the swimmer's conditioning.

Both features of the Australian revolution cannot be considered as absolutely new facts. Swimmers such as Japan's Furuhashi and America's Richard Cleveland had included weight work in their programs, but the Australians were the first to employ weight training as the essential basis of dry land work.

Interval training dated back about 25 years prior to the Australians' success in the 1956 Olympic Games. French coach Georges Hermant, the apostle of interval training, had used it to condition Jean Tardif in his successful world record assault at 400 meters. But until the universalization of Australian ideas, interval training did not constitute the prime factor in training, although it remained more or less a large part of the program.

This also held true for scientific research as applied to swimming. It was not new. In 1940 the studies of America's Cureton appeared and gained for their author international renown. However, the Australians changed everything because they gave an important role to scientific research, still a

little unappreciated and often a matter of contention. Of course, even if scientific research is of prime importance, it is not everything, because as its most ardent protagonist Forbes Carlile has stated, "It does not include the personal genius of the coach." No technical knowledge can replace that.

BASIC TECHNIQUE

Of prime importance to a swimmer's career is his basic preparation. If possible, the swimmer must be given the rudiments of a good technique when he learns to swim. Faults must be eliminated. It may not be possible to fight against faulty strokes which have become mechanical. Of course even with faults in style, a swimmer with natural talent will still achieve outstanding performances. However, a swimmer will not be able to achieve his maximum capabilities if his swimming technique is defective.

In his Guide For Swimming Coaches, the Frenchman Pierre Frayssinhes was correct when he wrote in 1962: "It is clearly evident that the one who has the best technique will win, and that a given swimmer will prove his times if he perfects his techniques. As a result, the coach must make the teaching of technique the basis of training and have a thorough knowledge of this technique. To have this knowledge does not necessarily mean being capable of proving it, but being able to explain, break down, and make it easy to assimilate. It is also knowing how to reveal the slightest fault, stop defects, and indicate the means of correcting them. It is hardly necessary to state that the surest way of eliminating defects is not to let them start. That is why the coach must closely follow the basic preparation of beginners."

However, for many years debates will follow the great 200 freestyle race at the 1968 Olympic Games in Mexico City between American Don Schollander and Australian Michael Wenden. Schollander had the superior technique, but Wenden's conditioning and strength gave him the victory.

Australian coach, Frank Guthrie, during the course of a conference in 1958, emphasized that the higher the level of performance, the better the technique.

In order that potential won't be ignored, or so it won't become boring, we know the need always arises for a good orientation after which a good competitive spirit will develop.

A good orientation is necessary at the start. The crawl not the breaststroke — should be taught. Furthermore, this corresponds best with (general) elementary teaching: push off and glide, push off glide and kick, and finally using the complete crawl. In this book devoted to competitive swimming we will only describe the teaching method from the viewpoint

of its advantages or disadvantages in the development of competitive swimmers.

There are in fact two basic strokes: the crawl and the breaststroke. The backstroke crawl and the recent butterfly constitute derivatives of the crawl. The crawl (or the backstroke crawl) stroke are natural. Any gifted beginner in swimming must reveal his natural ability on his first attempts at learning leg kicks. However, if this talented crawl swimmer begins by learning the breaststroke, he may very well not distinguish himself, because the breaststroke may not be easy for him to do. As a result, he will not acquire a taste for competitive swimming.

A good basic preparation requires perfection and use of technique. In competitive swimming the latter is not only the effective execution of strokes but also acquiring stroke facility — for strokes other than crawl strokes — and the normalization of “aquatic” breathing. To obtain stroke facility, mechanical “aquatic” breathing is not everything. A good balance must be achieved in the water. A position must be held whereby, without forcing his buoyancy (that is to say that part of the effort is not needed to support the body position), the swimmer offers the least hold to water resistance (particularly important for the competitive swimmer, since water resistance increases with the increase of speed). Good coordination is also necessary.

Addressing the club instructors of New South Wales early in 1956, Frank Guthrie said, “In my opinion it is significant that among our current world class swimmers those who have the most efficient technique and who have the smoothest stroke are world record breakers.”

Harry Gallagher and James Counsilman were even more precise at the meeting in Vichy, “The search for technical stroke perfection in his pupils must be a constant and important concern of the coach, whatever the level of performance that they have reached might be.” Harry Gallagher stated he carried out special pupil exercises, short sprints and distance swims in which the swimmer concentrates on the search for style perfection.

The basic technique, indispensable to swimmers, is acquired best by swimming distances. On this point there is almost unanimous agreement among the top coaches. This impromptu remark by the American coach Peter Daland is completely valid, “Middle distance is the basis for all swimmers.” For what reason? Pierre Frayssinhes says in his *GUIDE FOR COACHES*, “In swimming, breathing is the fundamental factor, the very essence of what one calls resistance.” By what better method can a beginner acquire correct breathing than by swimming middle distance crawl or trudgen?

PREPARATION FOR COMPETITION

A resume of the evolution in training methods has already been given. Since 1956 training has been based almost entirely on interval training. Repetition, after rest intervals, of distances at a fast pace has been paramount. No details will be given on training or on the different methods used to produce a champion swimmer. Harry Gallagher, the Australian coach, was completely correct when he answered the question of how he prepared his pupil Dawn Fraser for her first Olympic victory. He replied that he would certainly like to explain, except the preparation had no value other than in the case of Dawn Fraser: it was training suited to her and might not necessarily be successful for another swimmer. In fact, there are as many training methods as coaches and as many variants as individuals, circumstances, or degrees of preparation. Only the main characteristics in the preparation of the modern competitive swimmer will be dealt with.

INTERVAL TRAINING

The American definition of interval training is “time fixed by rest between each swim.” It is an excellent definition, since in effect everything hinges on the duration of the rest interval between the repeats.

Why has interval training become the essential basis (except when resuming training) of the competitive swimmers aquatic work? The Frenchman Frayssinhes states in his *Guide For Coaches*: “The old methods of training certainly succeeded in obtaining resistance, but because of the principle of musculation, the work had to be sufficiently long, as were the distances, and consequently could only be swum at a pace with no relation to that of the distance prepared.” For a worthwhile workout, it now appears to be a proven fact that it is necessary to train at or near the race pace. Why? To quote again from the work by Frayssinhes: “The largest part of training must be done in practicing breathing as it will be done in the race, and it is obvious that training will only be successful in this respect if the movement of the arms, which is aligned with the breathing, is close to that in the race. That implies that numerous exercises be done at a speed equal or slightly inferior to that of the distance prepared.”

On the same subject of pace in training, the American coach James Counsilman writes in his *Training Applicable to Swimming* (published in the French Swimming Federation’s book: *Sports Swimming*): “Swimming slowly can be dangerous in regard to technique . . . if swimmers swim slowly, they get accustomed to a false

style. Examples: breaststrokers exaggerate the glide, freestylers bend their elbows too much at the end of the drive, and butterfly swimmers have a tendency to keep the arms forward during the pull. A swimmer tends to do during the race what he has learned in training. Having stated this, an athlete must adopt the same technique in training as in competition. He cannot do this if he swims slowly."

Interval training offers another advantage other than a method for training competitive swimmers. It also causes an improvement in the swimmer's physique. Why? In a study, *Competitive Swimming and the Young*, published in 1962, Dr. Eva Gerard-Novak, a world swimming record holder in 1948, states: "In interval training, efforts of short duration constitute an efficient stimulus for the hypertrophy of the heart and muscles, while during the short intervals a large systolic flow is a particular stimulant for the heart and the increase of its cavities. Interval training improves the cardio-circulatory system, facilitating a general use of the heart, of circulation, of breathing, and the muscles."

But the prime formula of modern training — interval training — must not be conducted in just any fashion, even in swimming. Dr. Ferrand, president of the medical commission of the French Swimming Federation, in his study *The Doctor and Sports Swimming* (which was published in the *Reflets du Cercle* and in the work of the French Swimming Federation already quoted), writes: "What are precisely the latest teachings which flow from the vast experience of sports swimming undertaken for several years on a world wide scale?"

"1. Swimming is above all a sport for the young, since it is the only athletic sport which can pride itself on being able to present champions and world record holders whose ages range from 16 to 19 years of age; 2. That among all these champions it is the youngest that one sees as holders of titles or records in so-called middle distances, precisely for which it is established that the heart must be the strongest and most resistant. The miraculous results are proof that by a precocious beginning and a wise physical preparation progressively intensified without relaxing caused a profound harmony between the muscles and the heart. This is particularly manifest in the careers of Murray Rose and Dawn Fraser with regard to their progress and longevity" Dr. Ferrand continues. "The magnificent examples furnished by these champions would not have been possible unless, aside from their qualities, the progression of their training was very wisely, very methodically, and scientifically conducted. In their training an exact equilibrium was always maintained between the imposed effort and the organic value effectively acquired. Only an attentive surveillance by the trainer and a serious medical control could safeguard this equilibrium."

The examples cited are particularly valid because the sporting career of Dawn Fraser as well as that of Murray Rose carried them to the top of the swimming world during nine years. These were made under the sign of interval training. And these examples lead us to ask questions which are a legitimate consequence of the citation of Dr. Ferrand about the careers of the two Australian champions. These questions are treated as underlined in the study, "Modern Methods of Training," in *Swimming Sport of the F.F.N.*, by the French trainers Georges Garret and Lucien Zins, as four essential factors of the interval training:

"1. the length of the distance covered; 2. the speed of the distance covered; 3. the number of intervals; 4. the time of recuperation between each distance covered."

As Garret and Zins correctly indicated, "The principles are very simple. It is in the application that the difficulty resides and it is there that the competence of the coach becomes evident."

These are the questions that arise from the time the swimmer has a sufficient foundation that will allow him to employ interval training. If interval training relates to almost all subjects in swimming, it can for organic needs be prescribed for some people: the initial test is thus necessary. Consequently work and physiological tests disclose over-effort or lack of effort on the part of the swimmer.

It is necessary to avoid too great an effort in training swimmers by the interval method. The physiologist and Australian swim coach Forbes Carlile told us (during an interview in Paris in 1958): "The fundamental idea is that one should give a swimmer a certain work in training, as much work as he is able to sustain. If he were to be given too much, however, the result would be worse rather than better. Each swimmer is different as to how much effort he can sustain." Dr. Thomas K. Cureton, a supervisor of the research laboratory at the University of Illinois — who is particularly interested in competitive swimming — said in 1960 during a lecture in Paris (at the National Institute of Sports): "To examine the possibilities of a beginner for physical exercise, there should be a time in the beginning to give him tests which are fundamental and which are good for all sports, then aptitude tests valid for the sport he wishes to enter. The improvement of cardio-vascular conditions should then be the base of physical preparations." And for those already swimmer (or athlete), Professor Cureton underlined: "The tests must show the effort that can be carried out in a profitable manner by an athlete, because too big an effort may cause a slump that could last for two or three weeks. The comparison of these tests indicate whether during this period the athlete has gotten better, how he has improved, and the level and intensity of effort that can be expected of him. The heart and muscles of an athlete dictate the limits

of his performance. As a result, the athlete must be prepared and taught during practice to always give a little more. It is daily exercise given in a progressive manner over a number of years that allows a man to reach his maximum."

It would appear that interval training, more so than any other method of training, is highly individualized. Actually this is not so. In swimming interval training has proven successful for group work, called swimming "waves." The world record results obtained by Peter Daland in Los Angeles from swimming waves offers conclusive proof. Daland, coach of the Los Angeles Athletic Club, said at a 1961 Paris conference, "In general, the same training is valuable for everyone. It is not the best thing but it is often necessary." Naturally it is often necessary when there are many swimmers to be trained, and because the coach is limited in pool time (even if the pool is entirely his, everyone cannot train at the same time).

Even if all interval training remains the same, highly productive and allowing achievement of high performances, it is at first the "grammar" (following the felicitous term of the Frenchman Damiot) that is the same (this grammar is the practice of the middle distances) and afterwards "the water, by its elastic resistance is a veritable resistant of which the power is automatically given to the power of the subject." Dr. Ferrand, in a study already cited, states that the interval training in "waves" gives the benefit of emulation if, of course, the swimmers of the "wave" are of almost equal talent.

RESEARCH OF POWER

In swimming, power does not hinder speed. To the contrary, it increases it. The nature of power swimming is, above all else, dependent on the fact that exercises can add to the power of the arm action. The water exercises consist in principle of arm work alone, legs bound during work involving the principles of interval training. Dry land power work with weights has four main forms:

1. "Isotonic" work (classic form of work with weights and dumbbell): the weights used vary according to the physical development of the person who is to use them. In presenting the training formula which it recommended to its trainers, the Swimming Union of New South Wales stated that "in executing this program, one must always think about the extension and suppleness, because large muscles of the dumbbell type are not favorable to swimming." If everyone is agreed on this point, the proposed movements, the load, and the number and beat of repetitions vary. Workouts with heavy weights around 1960 was very popular and so

advocated by many coaches. Today, the thinking has changed, with the emphasis being on lighter weights. As heavy weights tend to increase the bulk of swimmers. Thus, lower weights with higher number of repetitions is more the norm today, a form of interval training with weights.

2. Work with pulleys: This form of resistance work can be used either in a standing or lying position. It consists of arm traction exercises analogous with those of swimming. These pulley exercises designed to build up the swimmer's arm strength were recommended in the United States in 1908 and have had pioneers in most countries. A noteworthy French pioneer was the Marseilles coach Devallet. He employed the pulley technique from 1937 gaining a universal audience in 1944 after the publication of the methods of the American coach Kiphuth. Although pulley exercises are at present threatened by the Australian system of weights and dumbbells and by the German System of isometric contractions, the system still maintains a very large following.

3. Work with isometric exercises: this is the most recent form. It was developed after the publication (1953) of the works of the German physiologists Hettinger and Muller, and is now frequently used by swimmers, notably in the United States. "This is a method for developing strength by the static contraction of muscles placed in their working positions. Strength is applied in the same direction as that of the swimming gesture. It works with the maximum of strength against an unmoving resistance." As the Belgian Mollet defined isometric exercises.

Dr. Counsilman, world famous coach, wrote a book concerned with the application of isometric exercises to a swimmer's movements. Convinced of this method, which does not exclude the non-static forms of work loads, Counsilman, at that time, considered isotonic exercises to be the indispensable complement in the intensive work of power development (out of season work for swimmers) of isometric exercises.

4. Intermediary Contractions: this is weight work (in the form of weights and dumbbells) where the student makes his stopping point at different points of the lifting. This constitutes a work term (where the title intermediary comes from) between the isotonic work and the isometric exercises.

It should be noted that for the isometric and intermediary exercises — because of the violent effort caused by the pressure or the weights — it is recommended that the approval of a doctor be obtained and that heavy training under these methods be watched over by a trainer qualified by his knowledge in physiology.

It was common knowledge for a long time that during the taper period weight lifting and other similar strength exercises had to be stopped, as they would unduly fatigue the athlete just prior to the culmination of the

season. Around 1960, scientific research proved that if at certain times of the season the swimmer only swam, without any further exercises, eventually he would lose strength, as swimming only generally has that effect. Thus, around 1960, certain U.S. and Australian coaches continued to use certain contractions right into the final period of the taper. However, today, the vast majority of the coaches have abandoned this point of view, as the value of maintaining strength in the taper period, together with the ensuing fatigue, could jeopardize the ultimate performance.

The time devoted to strength exercises has diminished as the time devoted to water workouts has increased. Many coaches estimate that only one quarter of the total time available should be spent on strength development.

The grand majority of the better coaches will devote some time to strength development outside of the taper period, properly using weights or some form of contraction. A notable exception to this doctrine has been George Haines, coach of the Santa Clara Swim Club, one of the leading clubs in World Swimming. Haines declared that while he is not opposed to exercises outside of the workout time proper, he feels very strongly that it should not be taken off the time available to swim. This in many ways is a return to the ideas of the great coach of the 50's Sakamoto, who summed it up "for a swimmer it all boils down to swimming." Sakamoto's ideas have even further relevance in the importance of the kick and its development with extensive kicking at high speed.

RESEARCH OF THE AIR RESERVE

This study — make oxygen do more — was researched with the intention of adding to the possibilities of the sprinter. If the sprinter in the initial phase of the race, without inconvenience for the rest of the race, could swim the maximum possible meters without inhaling, he would gain a definite advantage. Inhaling (in the majority of cases) wastes time in modifying the balance of the swim. This theory is not new. In 1912 the book *Swimming for Everyone* by Gerard Meister, French 100 meter champion, and Charles Joly pointed out that one of the secrets of the American Charles Daniels, 1908 Olympic 100 meter champion, was his constant training toward improved breathing possibilities. Today Australia's modern coaches have methodically studied the aquatic procedures which permit the sprint swimmer to increase his "oxygen debt" (what oxygen will do for him), thus his power.

These procedures were exposed by trainers Harry Gallagher, Forbes

Carlile, and Don Talbot. Essentially they consist in the "first breath" sprints. In his expose on training (appeared in *La Natation Sportive* [competitive swimming] published by the F.F.N.), Talbot spoke of basic training (that is to say prior to the period of intensive training) for his students Jon and Ilsa Konrads. He wrote that during the last week of that training "I added (to their program) a series of sprints called first breath sprints, done with a 90 percent effort. The swimmer dives and goes as far as possible on the only breath that he inhaled at the moment of the dive. I did this to increase still more the 'oxygen debt' of the swimmer and found that it paid off at the end of the season and made a swimmer capable of traveling much farther on a single breath than he would have been able to if he had not practiced this method. It is particularly valuable for sprinters. And in these times a swimmer should be able to sprint well, even if he swims the middle distances. It would help all students if they would do these first breath sprints.

Harry Gallagher wrote in his chapter "The Foundation of Success" (appearing in Australian Ken Knox's book *The Dawn of Swimming*). "In races of short distances, the breath can be held for considerable duration." Gallagher cited some examples: Jon Hendricks, 26 meters were covered before the first breath and only six breaths during the first 50 meters; John Devitt, 24 meters were covered before the first breath and only 10 breaths in the first 50 meters. In her story recorded in the book *Australian Style*, Dawn Fraser said that at the end of 1959 she concentrated a month on breathing exercises "at the end of which I was able to hold five breaths consecutively one minute each. These exercises paid dividends a few months later at the National Championships at Sydney. In beating my record for the 110 yard free (she established a world record at 1:00.2, dropping her previous mark of 1:01.2, February 1960), I did not take a breath in the first 25 yards (about 23 meters). In the 30 yards following that separated me from the turn, I took seven breaths and only 20 in the last length of the pool."

After this record swim Harry Gallagher, Dawn Fraser's coach, told her that her results were facilitated because she had an above normal lung capacity. Besides these natural dispositions and exercises described here to increase the "oxygen debt", the practice of aquatic breathing in the long middle distances is the base of increased lung capacity, an increase also notable in the middle distances practiced by a young child swimmer. This is why young swimmers should be trained in freestyle middle distance crawl. This constitutes the surest foundation to obtain the maximum results. As Peter Daland said, "The middle distance (by that he means the 1500 m.) is the base of all swimming."

THE ALLOTMENT OF EFFORT TO THE ARMS AND LEGS

A very remarkable fact is that beginning swimmers who prevail at pulling or kicking a prescribed distance are not necessarily the fastest swimmers. This can stem naturally from bad coordination. But two other causes could be a bad adaptation of breathing to the complete swim or the mistake of stressing the leg kick at the expense of the arm pull.

THE WAY OF PREPARATION

In his work about *Isometric Contractions and Isogym*, Dr. James Counsilman said that getting into condition takes an effort based on: development of endurance, flexibility, and strength. It is not until after the completion of a program covering these three points that one can start the major period of swimming with maximum profit. This includes nine to 12 weeks of intensive training based on a high quality interval training practice. Such is the method of preparation generally advocated in Australia and the United States. The method has also caught on in Europe where the period of active swimming is in general longer, and where the division is not as clear between the current swimming work and heavy preparation period. The American-Australian system can then apply itself to the two form seasons per year as well as a studious inquiry. In that case, the superior shape does not undergo in principle a critical and exhaustive examination except for the period when the major competition takes place — the goal of preparation or as such an annual maturity.

The major course of American-Australian preparation is first period: little or no swimming, serious work out of the water to increase strength, endurance, and flexibility; second period: thorough work in swimming (swimming distances without forcing), continuing work outside of the water; third period: increasing habit through interval training, progressive lessening of the work out of the water; fourth period: work with interval training at maximum intensity, continuing a light amount of work outside the water for the development of strength.

SPECIALIZATION

The higher the level of swimming on a world wide scale, the more imposing is the demand for a specialization in one distance and one stroke. This is needed if one wishes to attain the maximum result. At the Vichy Parley, Counsilman and Gallagher emphasized that during the period of heavy training practically all the interval training work should be done in the swim in which the swimmer wishes to turn in a superior performance

or win a championship. (For Gallagher, this is equally applied to all the other periods of swimming preparation.)

At the same Vichy Parley, Gallagher as well as Counsilman underlined another principle facet of the heavy preparation period: the most important point of interval training work consists of repetitions in the distance to be swum. So a 100 meter swimmer performs 100 meter repeats while a 200 meter swimmer performs 200 meter repeats. Naturally, the number of repetitions as well as the time between repetition vary according to the coach's own methods. For the heavy preparation training the quality of the repetitions in general is high, especially in the prolonged sprint. As an example, in 1963 Schollander, coached by George Haines at the Santa Clara Swim Club, made his repetitions for 200 meters at 96 or 97 percent of his best speed.

As regards the necessity of high quality repetitions, it has now been established as one of the underlying factors of success. Thus a high quality effort can be expressed as 95% and a good quality at 90%.

Choosing the right specialty with regards to stroke and distance is of great importance. As was pointed out in the 30's by the great French Track coach, Alfred Spitzer, in high level competition what is important is not to waste one's efforts in a stroke or event which comes easiest but to find the specialty in which one will have the greatest chances of success. This is one of the most important and delicate roles that a coach has to play.

An example of the importance of this kind of approach: George Haines coach of the Santa Clara Swim Club, in handling Pokey Watson and Jan Henne prior to the 1968 Olympics. For some years Miss Henne had been one of the top U.S. breaststrokers, but Haines thought she had little chance of winning the event in that stroke. However, he correctly saw her chances being considerably greater in winning the 100 m. free, thus he had Jan abandon breast in favor of crawl. And Jan Henne was the Olympic Champion in the 100 m. freestyle! Pokey Watson was ranked number one in the World for the 100 free in 1965, however, Haines considered that her best chances in 1968 were not in the 100 and 200 free but in backstroke. Thus she was made to specialize in that stroke, and Pokey won the gold medal for the 200 m. back in Mexico City!

THE EVENNESS OF PACE

The best performance stems from the evenness of pace aspect. This holds true for all distances whether 100 or 1500 meters. The Olympic swimming program does not include any race of less than 100 meters. A pure sprint race is any race that does not exceed 50 seconds in time. In

fact, the regularity of pace should be such that the swimmer takes into account the advantage provided by the start. He must be able to swim the second half of the race faster than the first. This is something he will not be able to do if he does not force his breathing in the first half of the race. Remember the exercise for the "first breath" sprints had as their goal the development of the "oxygen debt" to allow the best possible sprint development in the beginning of the race without making the swimmer force his breathing and subsequently pay in the second half of the race.

Research into the evenness of swimming pace is not novel, and it isn't only from the past that examples are found. The 1932 Los Angeles Olympic Games presented noteworthy examples of even pace. In a semi-final heat of the women's 100 meter freestyle, America's Helen Madison won in 1:09.2 but finished exhausted because of an exceptionally fast first 50 meters. The other semi-final was won by the Dutch girl Willie den Ouden in 1:07.6. In the final, Helen Madison relaxed more through the first 50 meters (turning in 31 sec.) and won, swimming a long course world record time of 1:06.8. The other good example was in the 1500 meters where the winner, Japan's Kusuo Kitamura, swam the first 400 in 5:07.6 and the last in 5:07.0. The opinion on even pace formulated here appears far from being accepted by the best coaches in swimming, but on the other hand one also notes a current in its favor.

The Australian coach Harry Gallagher affirmed in 1958 that "new and large progress in competitive swimming will be a bigger research into the evenness of effort during a race, as it is done in foot races, which is ahead of swimming in this respect." Since Gallagher's declaration, his student Dawn Fraser has turned the first 50 meters in 30 seconds for a 100 meter swim of 58.9. This represents the minimum loss in the "return" 50 meters of a 100 meter sprint. Allowing two seconds for the start, the return swim was only 9/10 slower in the first part in value of swimming. Dawn Fraser had then realized an analogous deviation when, doing 55 yards in 28.6, she swam 110 yards in exactly one minute which represents in value of swimming a return of 2.8 slower than the first half.

In events with a diving start it is possible to calculate the value of the first lap by adding two seconds to it and thus compare it to the value of the second lap. A special note is added to the end of this sub-chapter for explanation.

Since May 1965 crawl swimming does not require a hand touch at the turns, thus all leading freestyle swimmers are now touching with only their feet at the turns. This changes the method of calculating the first 50 split over the second 50. See note at end of this sub-chapter.

In recent world performances in the 100 meter sprint, Miss Fraser's example is not by itself. There is also Alain Gottvalle's time of 52.9. He

turned the first 50 in 25.8 which represents in the value of swimming a return of only 1.3 slower than the first half.

Michael Wenden at the time of his 52.2, at the 1968 Mexico City Olympics, had a 50 m. split, feet touch, of 25.3, which can be converted to a hand touch value of 24.8. Thus his second lap was .6 slower than his first. Zac Zorn, when he swam his 52.6 (At that time tying the world record) had a first 50 of 24.9, feet touch, hand touch value of 24.4. Thus his second 50 was 1.8 seconds slower than his first. In Mexico, Zorn foot touched the first 50 with 24.4, a hand touch value of 23.9, and ended up with a time of 53.9, which gave him a 4.1 second loss on the second lap, and an eighth place Olympic finish.

Jan Henne won the women's 100 m. free at the 1968 Olympics with 1:00.0. Her 50 m. foot touch was 28.8, hand touch value of 28.3, thus her second 50 was 1.4 slower than her first 50. Sue Pedersen in the Mexico Olympics swam a 1:00.3 and has a foot touch 50 of 28.4, a hand touch value of 28.1 thus she lost 2.1 on her second lap. At the U.S. Olympic Trials, Miss Pedersen swam 59.0 with a foot touch 50 of 28.4, a hand touch value of 27.9. Thus her second 50 was 1.2 seconds slower than her first one.

The men's 200 meter freestyle, as demonstrated by the record of under two minutes, is closely tied to both the prolonged sprint (a swimmer must swim for an extended period of time at his best effort) and a short middle distance race (a swimmer must swim for a long distance close to the original speed). Since the 200 meter freestyle should be covered in approximately two minutes, it would seem easier to set an even pace for the distance than even the 100 meter free. Research, however, uncovers the fact that only since 1961 has even pace been affirmed over the 200 meter distance. The world record swim of Japan's Tsuyoshi Yamanaka, (in 1959) 2:01.5, had a 100 of 58.5, and of Australia's Jon Konrads, (in 1960) 220 yards in 2:01.6 turning at 58.2, represent swimming value losses for the second half of the race of 2.5 and 2.8 respectively.

Dawn Fraser, who in 1960 established a record of 2:11.6 for the 200 meters and 220 yards, turned the first 110 yards in 1:03.1. A swim value loss of 3.4. Her previous record for the same distances, recorded in 1958, was 2:14.7. In this record performance Dawn turned at the 110 yard mark in 1:03.9, a swim value loss of 7.9. Yamanaka's 2:00.4 performance in 1961 had a value loss of 1.2 as he turned the first 100 in 58.6. America's Don Schollander's record performance of 1:58.8 (in 1963) had a value loss of 1.6 as he passed the 100 in 57.7. In 1963 when Schollander established his record of 1:58.5, he passed the 100 meter mark in 58.3, perfection of pace was practically achieved, for the value loss in this swim was only 0.2. Later in 1963, Schollander broke his own record with a 1:58.4

performance crossing the mid-point of the race in 58.0. Since the value loss was only 0.4, once again evenness of pace played an important role.

Fortunately, Schollander's 50 meter times are known for this record performance. Taking into account the advantage of the start, Schollander's splits demonstrate the extraordinary even pace of his record performance: 27.7, 30.3, 30.4, 30.0. In 1964 for his record of 1:57.6, Schollander turned in 58.3, realizing a faster second 100 meters. Compare this to Schollander's 1962 performance at the United States Championships when he equalled the world record (held by Yamanaka) in 2:00.4. Schollander turned at the 100 in 56.8, representing a value loss in the swim of 2.6 a tendency prior to 1961. In 1968, Don Schollander brought the record to 1:54.3 and had a first 100 split of 56.7, this presents a swim with even pacing and virtually equilibrium between the first and second 100's. Studying his 50 splits, we can see an extraordinary example of even pacing. His first 50 was 27.5, feet touch, a hand touch value of 27.0, taking into account the dive, the real value of the swim is 29.0. His second 50 was 29.2, the third one 28.6 and the last one in 29.0. Olympic Champion Michael Wenden split 56.4 at the 100 on the way to his 1:55.2. This split has a hand touch value of 55.9, thus his second 100 is 1.3 slower than his first. Schollander, second in Mexico, split 57.1 feet touch, an actual hand touch value of 56.6, this also being another example of equilibrium in the swim as his second 100 was only 0.6 slower than his first. Debbie Meyer swimming in 1968 a 2:06.7, split the first 100 1:01.4 feet touch, an actual hand touch value of 1:00.9, thus she lost 2.9 seconds in the second 100 from swimming an even race.

The 400 meters, 800 meters and 1500 meters represent the domain of the middle distances, and the even pace must, or should, rule. This criteria as pointed out by the French trainer Georges Garret in his study "Consideration on Technique" (appearing in *Natation Sportive* [sports swimming] of the F.F.N.), is naturally easier to see in the 1500 meters than in the 400 meters. In 400 meters the racing swimmers can have a greater tendency to allow themselves to be carried by a faster pace, as was the case in the final at the Rome Games for three of the first five. When Australia's Murray Rose established a 400 meter record of 4:13.4 in 1962, he did not observe an even pace as he turned the 200 meters in 2:03.7, representing a value loss of 4.0. Rose's deficiency was a little less than that of the previous world record holder, Jon Konrads, who swam the 400 meter and 440 yards in 4:15.9, crossing the first 200 meters in 2:04.6 (loss in deficiency of 4.7). However Rose's deficiency was greater than Tsuyoshi Yamanaka's deficiency of 3.0, recorded in 1959 as he crossed the first 200 meters in 2:05.8 for a final time of 4:16.6.

Research, however, points out that the evenness between the first and

second half of the race was better in several Olympic finals. In 1932 America's Clarence Crabbe won in 4:48.4 (crossing in 2:21.9, a value loss of 2.6); in 1936 America's Jack Medica won in 4:44.5 (crossing in 2:20.0 and value loss of 2.5); in 1956 Australia's Murray Rose won in 4:27.3 (crossing in 2:11.6, a value loss of 2.1). The 1964 winner, Don Schollander turned at 2:05.7 midway to swim a 4:12.2, or in swim value the second half of the race was 1.2 faster than the first half.

During 1968, the American, Mark Spitz, bettered the 400 m. record to 4:07.7 splitting 2:05.7 feet touch at the 200, (hand touch value of 2:05.2) this represents a 5.2 improvement in the second half of the race, this kind of swim is not conducive to perfect equilibrium especially since his first 100 was 1:01.6 (feet touch, hand touch value of 1:01.1) and his last 100 58.6 (feet touch, hand touch value of 58.1). Ralph Hutton of Canada in improving the record to 4:06.5 split a 2:01.0 at the 200 (feet touch, hand touch value of 2:00.5) thus his second 200 was four seconds slower than his first. Mike Burton in his 4:06.6 swim, split 2:02.2 at the 200 (feet touch, hand touch value of 2:01.7) thus his second 200 was only 2.9 slower than his first. At the 1968 Olympic Games, Burton's 4:09.0 was split at the 200 in 2:03.8 (feet touch, hand touch value of 2:03.8 (feet touch, hand touch value of 2:03.3) thus his second 200 was 3.7 slower than his first 200. At altitude, this was a remarkable swim.

The best examples of deficiency over 400 meters for women are: the 1960 Olympic Champion Chris von Saltza of the USA who recorded a 4:44.5 covering the first 200 meters in 2:16.8 for a value loss of 8.9; the former world record holder, America's Marilyn Ramenofsky at 4:39.5, crossing the mid point in 2:17.8, a value loss of 1.9; the 1964 Olympic titlist, America's Ginnie Duenkel at 4:43.3, turning at 200 meters in 2:20.0, a value loss of 1:3; and last but not least the 1952 Olympic winner, Hungary's Valerie Gyenge at 5:12.1, reached the mid-point in 2:34.6, a value loss of .9. In setting a world record of 4:24.5, Debbie Meyer split a 2:10.0 feet touch (hand touch value of 2:09.5) thus her second 200 was 3.5 slower than her first. Linda Gustavson, also in 1968, split 2:13.4 on her way to a 4:28.2, feet touch, (hand touch value of 2:12.9) this represents a perfectly equal swim in both halves of the race, as a 0.3 drop is virtually negligible. Pam Kruse in swimming her 4:28.8, split a 2:12.6 feet touch, (hand touch value of 2:12.1) thus her second 200 was 2.6 slower than her first one.

Debbie Meyer in swimming 17:19.9 for the 1500 m. free split a 8:35.8 for the 750 m. (feet touch, actual value hand touch of 8:35.3). So her second 750 m. of the race was 6.8 seconds slower than her first half. Vicki King in swimming 17:20.0 in the same event had a 750 m. split of 8:37.3 (feet touch, hand touch value of 8:36.8). So her second 750 m. was 4.6

seconds slower than her first. As has been observed of Miss Meyer and even more in the case of Miss King, they are approaching perfect even pacing throughout the whole event, equilibrium in both halves.

In men's competition the record holders from 800 meters through 1500 meters believed in even pace. As examples, take the records of Murray Rose (800 meters in 8:51.5), the first 400 meters in 4:26.3, the second in 4:25.2, and Roy Saari (1500 meters in 16:58.7), the first 750 meters in 8:28.4, the second in 8:30.3. At the Rome Games, Jon Konrads won the 1500 meters in 17:19.6 (8:38.5 and 8:41.1). At the Tokyo Games, however, winner Robert Windle did not respect the principle of even balance for the two halves of the race. He won in 17:01.7, doing 8:24.6 and 8:37.1. On the contrary, even pace was used to the fullest extent by the second place finisher, America's John Nelson, who swam 17:03.0 (8:30.6 and 8:32.4).

In improving the world record to 16:08.5 in the 1500 m. free, Mike Burton split the first 750 m. in 8:01.4 (feet touch, hand touch value of 8:00.9) thus his second 750 was only 4.5 slower than his first! Thus, coming very close to even pace swimming.

In 1964 Sharon Finneran bettered the 800 free record with a 9:36.9 and Patty Caretto the 1500 m. to 18:30.5. Both swimmers swam faster in the first half of the race than in the second half as Miss Finneran split 4:44.2 and 4:52.7, while Miss Caretto in her first 750 split 9:10.2 and returned in 9:20.3.

In 1968 Debbie Meyer in swimming her 9:10.4 800 m. world record, split a 4:31.2 which indicates a seven second dropoff for her second 400. However, in her world record 1500 m. swim of 17:31.2 she split 8:43.8 in her first 750 which is virtually an even paced swim as her second 750 was only 2.6 seconds slower.

The American, Catie Ball in swimming the 200 m. breaststroke in 2:38.5 in 1968, split a 1:17.1 at the 100 which indicates a 2.3 dropoff in her second 100.

Note 1:

The two second value assigned to the dive is naturally an arbitrary figure. It was based on studies made by Francois Damiot, who after numerous calculations arrived at the figure of 2.2 seconds for world class swimmers. We use this figure to arrive at the relative value of two halves of a race. As an example, a swimmer did 2:03.0 for the 200 m. splitting 59.0 at the 100. Thus he swam his second 100 in 1:04.0. To compare the value of the first 100 to the second 100 by adding 2.0 to the first 100 giving us a 1.01, thus his first 100 is 3.0 faster than his second in actual swimming, not including the dive. In backstroke swimming, only 1.0 should be added to the first half of the race.

Note 2:

In freestyle swimming, since 1965 an adjustment has to be made in arriving at split comparisons. Since 1965 swimmers in freestyle are not required to touch with their hands but only with any part of their body. Thus all world class swimmers now touch with their feet only and the actual value of a given distance can be subtracted 0.5 seconds. This figure is also an arbitrary one, and is based on an estimate that it takes a swimmer to tumble and get his feet in position.

Note 3:

To arrive at the 750 m. time for a 1500 m. swim, exactly half-way, times are known for the 700 and the 800 and are simply divided in half.

In equalling Schollander's 200 m. world record of 1:54.3, Mark Spitz split a 55.7 feet touch 100 (hand touch value of 55.2) thus his second 100 was 1.9 slower than his first.

Hans Fassnacht in establishing the 4.04 world record in the 400 split a 2:01.0 feet touch 200 (hand touch value of 2:00.5) thus his second 200, was only 1.5 seconds slower than his first, a remarkable example of even swimming at such a fast pace.

At 1500 meters Burton's 16:04.5 had a 750 m. split of 7:55.8 giving him 8:08.7 for the second half, this is not in keeping with the principles of even pacing.

Roland Matthes in swimming 2:06.4, split a 1:02.0 at the 100 which gives him a mere 1.4 second dropoff for the second 100. Susie Atwood in her 2:21.5 200 m. back world record split a 1:08.4 giving her a 2.3 second dropoff for the second 100.

THE TURNS

In order to learn proper turns and relay starts the swimmer must undergo a special program. After the acquisition of a good technique, the only proper way to acquire these skills is constant repetitions, especially for good turns.

It is to be noted that the primary turn evolution came with the "invention" of the diving turn. The first big diving turn exponent was a swimmer from Chicago, Perry McGillivray, the United States 100 yard champion in 1918 and 1919. McGillivray taught his turn to Weissmuller. Since Weissmuller was the first to demonstrate it in Europe, it now carries his name. The 1936 Olympic Games saw Olympic finalist Rawls become the most remarkable exponent of the somersault and half-somersault freestyle turns.

It is only 45 years after the demonstration of McGillivray that the tumble turn imposed itself over all distances in freestyle, over the original

diving kind of push-off. FINA modified its turning requirements in 1965, a hand touch being no longer required but any part of the body must touch the wall. Up to this date all freestyle sprinters utilized the tumble turn, with the notable exception of Dawn Fraser who used an open turn in the final of the 1964 Olympics. Until 1965 very few swimmers used the tumble turn in distances over 200 m. However, some swimmers had already demonstrated the value of the tumble in longer events, especially the Dutch swimmers. The reason so few world ranked swimmers used the faster turn was the opinion of many coaches that for the 100 and 200 the greater efficiency of the turn was certainly beneficial but for longer distances it would be too difficult to execute, demanding large oxygen consumption. Since 1965, the tumble turn, with the no hand touch requirement has become universally accepted, in virtue of the swimmers requiring less distance to swim with it.

In backstroke swimming, the tumble turn is universally practiced by all world ranked swimmers, while in breast and butterfly the rules have not particularly favored the use of tumble turns.

TEST OF DISCOVERY AND TESTS OF WORK

The coach's role covers A to Z in capital letters. Although the generalization of modern methods of training (interval training) puts added emphasis on conditioning, this in no way diminishes the importance of the coach. To properly prepare a swimmer, the coach must make use of his own extensive knowledge as well as conduct physiology tests. But Forbes Carlile warns: "Take care not to waste too much of the swimmer's time with tests and checks which, as much as they can help to tell us about the swimmer, can become bothersome and boring to him. I tried to combine these two approaches to the problem, but in a constant way I tied myself down to using just the tests which I felt would have a true practical value. It does not help at all to do all kinds of tests and checks, wasting the swimmer's time and stopping him from doing the most important thing — swim."

Carlile emphasized that the tests should create an incitement for the swimmer. He stated: "What I mean by incitement is that it must awaken the desire of betterment (physically) within the swimmer. If the tests verify the improvement in the swimmer's "cardiac debt" as he increases the intensity of his training, he will be encouraged to train even harder. If strength tests disclose initial weakness in the swimmer, he will be helped both mentally and physically as the test results of special exercises are verified."

Does size determine the best 100 meter swimmer? In other words, is

the 100 meter swimmer necessarily a large person? Certainly not. Indeed, most 100 meter swimmers are large, but swimmers of average size and even smaller have shown proficiency in the 100. The surest advantage accorded a large competitor is at the finish line. Three time Olympic champion Murray Rose was correct when (in his book *Australian Style*) he stated: "The theory that distinct body build is better at a certain distance has been refuted. Today it is generally accepted that aptitude and temperament are more important factors than one's 'build'."

Rose added: "Your temperament is the best guide in deciding if your best successes can be obtained in the distances or in the sprints." The only physical indicator to determine if a swimmer has better sprint or middle distance potential is, says Rose, what can be called short muscles. The short muscle is an explosive type of muscle which allows a swimmer to obtain a large amount of energy for a short period of time, but the temperament, according to Rose, is as important for a sprinter as the muscle. One is, says Rose, "a sprinter in his personality as well as in his muscles."

The world's best 100 meter swimmer cannot be a "pure" sprinter. In fact, there are but two kinds of swimmers: the pure sprinter (for whom, internationally, there is not a race) and the 50 meter king who can also swim the 100 meters. But all do not make it, and the fast middle distance swimmer who "descends" on the 200 meters, and sometimes the 100 meters, can, even in the world plan, menace or beat the 50 meter swimmers. Take 50 or 100 meter swimmers who later distinguish themselves in the 200, 400, or 1500 meters. They are middle distance swimmers who simply learned their swimming "grammar" backwards. Australia's Jon Hendricks, 1956 Olympic 100 meter champion, won his first national title in the 1500. This constitutes the normal development of a competitive career in swimming, because speed comes with strength, and the adult is stronger than the adolescent.

How does a swimmer select his best race? The swimmer's preference and ease in swimming a particular race seems to be the best test. But a swimmer possessing a technique of high quality in all the crawl forms (backstroke, butterfly and freestyle) will turn in good performances in all races, the exception to the rule being breaststroke. A swimmer can possess skill in the breaststroke and lack proficiency in any other stroke. The reason seems to be that certain swimmers, although rare, are not at ease unless moving all at once in the water. On the other hand, good crawl style swimmers are not versed in the breaststroke technique. This frequently prevents them from making good efforts in this swim.

Forbes Carlile, a physiology instructor and swim coach, is perhaps the best qualified person to state whether science or man can best determine

what would be a swimmer's best race. He stated, "The training plays one part and science plays another." In the beginning the coach's "feeling" is the important factor for discovering among the group the possible champion. Alban Minville, who led Alex Garry to world records and Jean Boiteux to the Olympic title, wrote in his book *Champion De Natation Pourquoi Pas?* (Swimming Champion, Why Not?): "The trainer must have the eye of a horsetrader who right away sees the qualities and the faults of the animal in which he is interested. He must develop this eye, this permanent flare, which allows him to distinguish in the course of a swim, the young swimmer who has the qualities to become a champion."

The quality tests should be supplemented by willpower tests, today more than ever, before a swimmer must want to work at training. Peter Daland, at the Bordeaux Conference in 1961, stated: "My advice is that all swimmers should start with the middle distances, and afterwards, if a particular swimmer has a lot of strength and speed, he can perform well in the sprint. Naturally there are some swimmers who would not like this, but that is unimportant. If you have swimmers who do not want to swim long distances, you would be much better off without their services. This is a way of finding out who is interested in swimming and who just wants to play. There are many lazy persons who can stay in the sport and swim only 100 meter or 50 meter races from time to time. But when one must swim a 1500 meter race every two or three weeks, you can find out right away who is really interested in swimming."

Peter Daland, in the course of his lectures, stated what he considered to be the most important test for the swimming coach: "One thing that has contributed greatly to the American successes is that the coach puts into the swimmer's head that he'll be able to do tomorrow the things that he can't do today; in other words, that the swimmer can do things he believes are impossible." He also said, "If you have the sun for your goal, perhaps you can reach the moon: but if you have the moon for your goal, you will fall to the earth." Naturally, American coaches are not the only ones with this philosophy. In France a Hermant with Taris; a Minville with Jany and Boiteux; a Zins with Gottvalles, and a Suzanne Berlious with Christine Caron have done the same, as have many other French coaches and coaches in all the countries of the world. Daland's words are cited here because they illustrate perfectly the essential point, that the coach must withdraw from the swimmer's mind the "barriers" to his progress. In destroying these "barriers" the coach has added to a swimmer's eagerness to train and compete.

TESTS OF WEIGHTS

For the weeks of complete unwinding, that is to say, the weeks not figuring in any of the four periods of preparation (according to the Australian-American system), a swimmer remains physically active and constantly watches his diet to avoid being overweight when he resumes training. This point must hold particular attention, stated Harry Gallagher at the Vichey Parley, because upon this condition rests, in effect, whether or not the swimmer will get off to a good start. As an example, Gallagher cited the 1962 100 meter world record performance of Dawn Fraser. Throughout 1962 she had maintained a normal competitive body weight. During the two unwinding months prior to the start of the Australian winter (April and May), she watched her weight and her diet making certain she remained in competitive condition. At this time Dawn hiked and played tennis, squash (game of racquets very popular in Australia), and golf.

It is impossible to cover all phases of preparation, but to conclude on a general point, one could do no better than to cite the French formula of J. Teissié, which points out that if an athlete wins with his strong points, he loses with his weak points. Therefore an athlete cannot be negligent in any part of his training.

The History of Swimming

The History of Swimming by Francois Oppenheim has been long overdue. Now for the first time, students, coaches, competitors and collectors will find this volume of memorabilia a complete study on the subject. It covers the evolution of swimming as a competitive sport from its primitive origins to its present Olympic champions.

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