Practical and Scientific Aspects of Cross-Country Running

An annotated bibliography

Introduction

Historical development of cross-country running

Organized cross-country running has its roots in the mid-nineteenth century. The members of the Thames Rowing Club, who met at Roehampton in Surrey, decided to take runs on the nearby Wimbledon Common to keep fit, and in 1868 began to organize paperchases. Even earlier, in 1837, a cross-country race known as the Crick Run had been originated at Rugby School. It was a cross-country event, too, which led to the modern 3000 metre steeplechase.

The first English Cross-Country Championships as such were staged in Epping Forest in 1876. However, the race was declared void because all thirty-two competitors went off course. The inaugural National Championship is therefore considered to have been the 1877 race, held over 11 1/4 miles at Roehampton.

As early as in 1881 more than 100 starters took part in the English Cross-Country Championships. Participation grew steadily over the following years, and in 1979 no less than 1672 runners took part in the Senior Championship event. (For the development of cross country in England see TEMPLE in ch. 9.)

In Germany cross-country running developed from so-called "forest running" which took place on forest paths with a more or less flat surface. The first official competition of this kind was the 8.5 km forest run in Hohenneuendorf near Berlin on July 29, 1900. Only six runners took part in this race. The winner was Johannes Runge, who in 1904 was placed fifth in the Olympic 800 and 1500m events. Together with Eugen Wagener, who had been placed second in the Hohenneuendorf race, Runge invited entries for the first German "Forest-Run Championships" in 1913. This première took place on October 5, 1913, on a 7.5km course in the Berlin Grunewald. Because of World War I there were no championships until October 1919.

After a break from 1936 on, the German "Forest-Run Championships" were resumed in 1947, on April 27, on a flat 6km course in Kassel. From 1961 on there was a championship both over a middle distance course (between 2.5 and 3.5km) and over a long-distance course, which in Berlin in 1961 was first lengthened to 9km and then to 10km in the course of the following years. In 1974 there was a change from "Forest-Run Championships" to "Cross-Country Championships". From then on the courses have been hillier and they have included sections over grassland, soft surfaces and sometimes even ploughed land. While the long-distance course was still about 10km long (in 1996 9.0km and in 1997 9.7km), the middle-distance course was about 5000m, in 1996 and 1997 it was only about 3.5km.

Until 1934 the "Forest-Run Championships" were always staged in April (in 1921 as early as on March 28). From 1947 on the German Athletics Federation kept to this scheduling until in 1996, in Hamburg, the championships could not take place because of icy ground and they were put off until November 30. Although in 1997 the German Cross-Country Championships were conducted in March again, the fact that the 1998 Championships will take place in November could be an indication that one intends to adapt to the international cross-country season.

In 1957 a women's "Forest-Run Championship" was conducted for the first time. Until 1959 the distance of the course was 1000m. Then it was gradually lengthened, and in 1996 and 1997 it was about 3.5km). From 1970 on there has been an additional long-distance race, which at the beginning was 2500m long and then was steadily lengthened until in 1980 the women ran 6km for the first time. After 7550m had been reached in 1985, the distance was shortened again. In 1996 it was 5.3km and in 1997 6.5km. (For the development of cross country in Germany see STEINMETZ in ch. 6.)

In the United States cross-country running is only of minor importance. There are only a handful of cross-country meets held in any large area, and most are limited to high school or college teams. The sport of cross-country has the reputation of the sport you went out for if you couldn't be successful in the traditional American sports. (For the development of cross country in the United States see GLAD and VIRGIN in ch. 1 as well as MCFADDEN in ch. 9.)

For a short time cross country was included in the Olympic Games programme, but the occurrences at the 1924 Games in Paris led to its removal. The Olympic race, over a 10,000 metre course, was held on an extremely hot July day when the temperature was higher than 45 degrees centigrade. Many of the competitors suffered heat stroke and dehydration. Only fifteen of the original thirty-nine starters finished. Of these, a number were in a very poor state, and only the legendary Finn Paavo Nurmi, who won the race by nearly 75 seconds, appeared unaffected by the weather.

Internationally the World Cross-Country Championships were started in a modest form in 1903. In 1973 this competition came under the wing of the International Amateur Athletic Federation (IAAF). Since the beginning of the nineties the World Cross-Country Championships have been preceded by a series of top-class international cross-country meetings, the so-called IAAF World Cross Challenge. While during the seventies the medals in the World Cross-Country Championships went to European runners, African runner have dominated the races since 1981. 1985 was the last time that a European runner (Carlos Lopez from Portugal) could win the title of World Cross-Country Champion; since 1986 all gold medals have been won by African runners.

On December 10, 1994, the first European Cross-Country Championships were conducted in Alnwick Castle in Northern England. In 1997/98 the German Cross-Country Cup series was inaugurated not least as a preparation for the European Championships. This greater emphasis on cross-country running is also connected with the hope that it could lead to better results on the track.

Demands of and training for cross-country running

Cross-country running differs from track races by its technical, tactical and mental demands. Unlike track, the athlete must be prepared to adapt to a wide range of terrain while competing in a race. Steep uphills, sharp downhills, uneven footing, hurdling various barriers and adjusting to speed changes such as tight turns or long straightaways, which interrupt the running rhythm, are just some examples of the challenges faced in cross-country running.

Cross country is also a team sport for distance runners. To be a good team, several runners must run closely together in as tight a group as possible. This is an additional reason why in cross country there is more room to apply strategy and tactics than in track races.

Training for cross country does not differ much from training for the longer distances in track (see GAMBETTA and SWARDT in ch. 1), except that there should be a greater emphasis on a well-rounded training programme in the areas of aerobic, anaerobic and muscular strength

endurance. Muscular strength endurance is a vital point of training for a cross-country athlete (see e.g. SYMONS in ch. 1). Technique is also regarded as very important (see GAMBETTA in ch. 2). The focus should be on hill technique (uphill running (see UHER in ch. 2), downhill running, cresting the hill), and turn technique.

About this bibliography

The following bibliography is a selection taken from the database SPOLIT of the Federal Institute for Sport Science, the database of the Sport Research and Information Centre (SIRC) in Ottawa/Canada, the SPOWIS database of the Institute for Applied Training Science in Leipzig as well as from databases MEDLINE and HEALTHSTAR of the National Library of Medicine. Unlike the SIRC and SPOWIS databases the SPOLIT database of the Federal Institute of Sport Science contains abstracts of every document, which help users with the process of selecting the literature needed. SPOLIT is available on the CD ROM "Sportwissenschaft" ("Sport Sccience"), which can be ordered from the following address: Edition Czwalina im Feldhaus Verlag, Postfach 730240, 22122 Hamburg, Germany. Requests for literature searches can be sent to the address given in the imprint of this bibliography (p. 5 or 7).

This bibliography includes altogether 356 documents from the years 1911 until the present. It is subdivided into nine chapters:

- Publications with an emphasis on the planning, organisation and methods of cross-country training (182 documents)
- Articles dealing with biomechanical and technical aspects of cross-country running (5 documents)
- Articles focussing on medical aspects of cross-country running (75 documents)
- Publications dealing with educational aspects of cross-country running (7 documents)
- Publications discussing psychological aspects of cross-country running (26 documents)
- Articles with an emphasis on historical and sociological aspects of cross-country running (14 documents).
- Articles about the organisation and scoring of cross-country races (12 documents).
- Articles about cross-country equipment (3 documents).
- General or comprehensive publications about cross-country running (32 documents).

This is only a rough division because there are fluent transitions mainly between chapters 1, 2 and chapters 4 and 5.

The overwhelming majority of publications included in this bibliography are periodical articles. There are only eight books dealing with cross-country running, six of which deal exclusively with this topic (BLOOM, CANHAM/CRUMP, LONG/KING/LOEFFELHARDT, NEWTON (see ch. 1), CANHAM (see ch. 2), JEANNOTAT (see ch. 6)). While the book by ORTON (see ch. 9) seems to be the earliest book about cross country, the book by NEWTON (see ch. 1) is the most recent one covering all aspects of this event in detail.

The focus of the publications presented in chapter 1 of this bibliography is on the following aspects of cross-country running and training:

- Variety of cross-country-specific demands and cross-country training (BOEHM, ESTES, FREEMAN, HASSARD, LENZI, LEWIS, MARSH, MOSS, NONELLA, OLCOTT, WRIGHT). The aspect of variety is also dealt with in the articles by TONNER (see ch. 4) and RAFFIN (see ch. 9).
- Strength development for and through cross-country running (GARVEY, HELSLER, MILLER, PIGG, SMYERS, SWARDT, SYMONS, WILSON, WRIGHT, RAFFIN).
- Hill training (BANKS, COFFMAN, LAWRENCE/SCHEID/WILT, MARSH, MCFARLANE, MILLS, MIRKIN, MURRAY/MURRAY, MYERS, NURMEKIVI, PIGG, ROSE, SMITH, SWARDT, TEMPLE, TUTTLE, VOLLMER; see also GAMBETTA and UHER in ch. 2).
- The hard-easy approach of training (BANKS, GARTLAND, MANN, MCLAUGHLIN).
- The influence of Lydiard (ESTES, HAMBURGER, LYDIARD, LYDIARD/GILMOUR, NURMEKIVI, NYGAARD, PARKS).
- Summer training for cross country (BELL, BOWERS/SPARROW, DESCHRIVER, KIESSLING, LEVINE, MCGUIRE, NEWTON, PARKS, SMITH, STEVENSON, TUTTLE, WALSH/O'BRIEN, WATTS, WEIS/LARKINS, WILSON, ANJOS/ADRIAN, O'DONNELL). It is quite interesting that summer training especially for cross country is only considered in American publications. However, a cause of this is the close connection of seasonal planning in the United States with the school calendar. In Europe, and especially in Germany, there is no specific preparation for cross-country during summer. Rather is cross-country considered as a useful means of preparation for the summer track season (see SCHMIDT and STEFFENS). This view is also expressed by LYDIARD.
- Team idea (COFFMAN, ESTES, MOSS, NEWTON, GAMBETTA, KUES, WIRZ, HASSARD, SMOOT, PRICE).

The articles about sports-medical aspects of cross-country presented in chapter 3 can be distinguished into articles with a focus on

- exercise physiology (ADAMS, ANJOS/ADRIAN, BERG/LATIN/HENDRICKS, BULBULIAN/WILCOX/DARABOS, BUTTS/TUCKER/SMITH, CORRY/POWERS, CREAGH/REILLY/NEVILL, CUNNINGHAM, DEMAERE/RUBY, FERNHALL et al., FLYNN et al., GRIMBY/RENSTROM/SALTIN, HARTUNG, KNOWLTON et al., KRANENBURG/SMITH, KRUSE/RUNYAN/PUHL, LAMBERT, LAMBERT/COSTILL, LOFTIN/WARREN/MAYHEW, MAYERS/GUTIN, MAZZEO/MARSHALL, MORRIS/DOTSON/DAVIS, MOSENTHAL, NALDER, PUHL/RUNYAN/KRUSE, REDDON, REILLY/FOREMAN, ROLIM/SANTOS, RUNYAN/PUHL, SIEVERS, WILCOX/BULBULIAN, YAU, SKELTON et al.),
- traumatology (ALBANESE, DAHLE et al., KROB, LOMBARDO/BERGFELD/MICHELI, MCCLAY/APPLEBY/PLASCAK, NEWTON, RENBERG, SHIVELY/GRANA/ELLIS, SOHN/MICHELI),
- gynecological aspects of cross-country (BERGEN CICO, BROWN/HARROWER/DEETER, BUTTS, DOYLE, FREDERICKSON, FREDERICKSON/PUHL/RUNYAN, NICKERSON/TRIPP,

PLOWMAN/MCSWEGIN, POWELL/TUCKER, PRUDHOMME LIZOTTE, ROBERTS, SMALLEY/RUNYAN/PUHL, WAKAT/SWEENEY/ROGOL, WEBB/PROCTOR, ROWLAND/BLACK/KELLEHER, NICKERSON et al.),

- nutritional aspects (NIEKAMP/BAER, ROSS, SCHUBIGER, TANAKA/TANAKA/LANDIS, PARKS/READ),
- anthropometric considerations (ADRIAN/ANJOS, BOENNEC/PREVOST/GINET, BUTTS, WILLIAMS).

The vast majority of the articles included in chapter 3 take cross-country runners only as examples, there does not seem to be any medical problem which is specific to cross-country running.

The focus of the psychological articles presented in chapter 5 is on

- motivation (BAYCOCK, O'DONNELL, PECOR, DONSELAAR, WITTKOWSKI, ZINKOWICZ),
- anxiety (HANSON/GOULD, SANDERSON/REILLY),
- moods (COCKERILL/NEVILL/LYONS, REILLY),
- goal setting (LANE/KARAGEORGHIS, RICHARDS), and
- personality (BOWMAN).

The articles and books listed in the last chapter of this bibliography are either very general or comprehensive in character (e.g. DREARY, DZIEZAWIEC, GENOT, GRATTON, GRIAK, JEANNOTAT, PILKINGTON), or very vague (at least according to their title) (e.g. BERG, REEVES, TULLOH), or they do not fit into any other chapter of this bibliography (e.g. SONKA/BINA).