

Science and Football

AMERICAN
AUSTRALIAN
RULES
GAELIC
RUGBY
LEAGUE
RUGBY
UNION
SOCCER

EDITED BY
T. Reilly
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and
W.J. Murphy

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PROCEEDINGS OF THE
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SCIENCE AND FOOTBALL
LIVERPOOL 13-17TH APRIL 1987

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Liverpool, 13–17 April 1987**

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Preface

It was our privilege to organize the First World Congress of Science and Football held at the Albert Dock, Liverpool, in April 1987. The broad aim of the Congress was to bring together those scientists whose research work is directly related to football and practitioners of football interested in obtaining current information about its scientific aspects. The Congress attempted to bridge a gap between research and practice so that scientific knowledge about football could be communicated and later applied.

The theme of football was broadly interpreted to embrace all codes, amateur and professional, including soccer, rugby union, rugby league, American football, Australian Rules and Gaelic football. The intention was to provide a forum where the common threads, in research and practice, among these games could be debated. Existence of common factors between games has been demonstrated in recent years, for example, when Australian Rules and Gaelic footballers have competed in 'compromise rules football' and when rugby union and rugby league, soccer and American football officials have shared their stadia.

The idea of organizing the First World Congress of Science and Football was first mooted by Professor Jan Clarys, Secretary General of the World Commission on Sports Biomechanics. His proposal to base the Congress at Liverpool was enthusiastically adopted by the authorities of Liverpool Polytechnic who provided substantial back-up and support for its organization. From the outset the encouragement from the offices of the International Council of Sport Science and Physical Education, who provided patronage and set the Congress within its calendar of events, was invaluable. Within the UK the Congress was supported by the British Association of Sports Sciences.

The city of Liverpool was an appropriate choice of venue for an inaugural conference with the stated aims. It is regarded as one of the world's capital cities of soccer with Everton and Liverpool football clubs being located in the heart of the city: both clubs offered substantial support to the Congress.

Besides, the North West of England is the major area of popularity for rugby league whilst rugby union too has a strong foothold in the region. Liverpool is conveniently near to Eire to provide a fair representation of Gaelic football: the homes of American football and Australian Rules football were more remote, but both codes were well represented. The footballing bodies who supported the Congress in principle at the outset – the Football League, UEFA, English Rugby Football Union, Rugby League Association, Gaelic Athletic Association and Western Australian Rules Association – provided the necessary moral support for the Congress to realize its aims.

The formal oral lectures at the Congress were complemented by interactive sessions – posters, seminars, workshops and demonstrations. The workshop and seminar sessions addressed practical issues and provided an opportunity for delegates to discuss problems in a relatively informal manner with a panel of experts. It is our regret that the information from these sessions could not be collated into a volume such as this, nevertheless we wish to acknowledge the enormous contributions that were made in these sessions to the success of the Congress. Separate topics and contributors were:– Nutrition (Don MacLaren, Ira Jacobs and Bjorn Ekblom), mental preparation (John Syer), surfaces (J. Roberts, B. Hall and B. Williams), football in the community (Joe Patton, Eric Dunning and Alan Sefton), refereeing (Toshio Asami, Geraint Davies and Ron Campbell), management (David Oxley, David Weldrick, Malcolm Cook and Egil Olsen) and match analysis (Mike Hughes). Inspector Keith Wilkinson conducted a valuable workshop on 'football crowd control' and Brian Macasskey (Chicago Bears) addressed the topic 'Coaching and training in American Football'. There was also a workshop on 'preventive football medicine' (Jan Ekstrand and Dennis Wright) to complete a one-day 'football medicine' strand of the Congress. The fundamentals of Australian Rules, Gaelic football and American football were explained by Brian Douge, David Weldrick and Brian Macasskey respectively, in seminar sessions on the opening afternoon so that delegates unfamiliar with these games could acquire a basic understanding of them.

A more concrete demonstration of the football codes was provided at the exhibition games held during the Congress. One afternoon was set aside so that skills and training practices of the various codes were employed. Liverpool FC hosted the demonstrations of soccer and Gaelic football at its renowned Anfield ground. A typical soccer training session was conducted by the professional staff at Liverpool FC. This was followed by a highly entertaining exhibition of Gaelic football skills, orchestrated by Frank Fahey from Hollymount, and a 9-a-side match between the visiting Hollymount (Co. Mayo) team who had travelled from Eire and the local Gaelic football team, John Mitchells (Liverpool). The rugby demonstrations took place at Waterloo Rugby Union Football Club. The Rugby Union session conducted by David Shaw introduced novel modifications to the game, such as mini-rugby and 'new-image' rugby. In

conjunction with this was the demonstration of Rugby League, supervised by Phil Larder, using the current national league championship winners, Wigan RFLC. For many of the delegates who hailed from 45 different countries, these insights into football practice were important.

For promotion and administration of the Congress we are indebted to Helen Latham: without her unstinting devotion to duty the Congress would not have approached the heights it attained. In the months before and during the Congress participants recognized that Helen formed the hub of the organizational machinery and appreciated the calm competence with which their requests were met. Behind the scenes the work of Celia Latham, Elsie Lucas and Leanne Carney was important. The Secretariat was supported during the Congress by the students of Sports Science, Languages, Outdoor and Physical Education, all from Liverpool Polytechnic. We are deeply indebted to our colleagues within the Department of Sport and Recreation Studies at the Polytechnic who boosted our morale on the odd occasion it began to wane.

From the opening addresses at the Albert Dock by Mr John Smith CBE (Chairman, The Sports Council), Mr Philip Carter, CBE (President, Football League), Dr Ken Ridings (Rectorate, Liverpool Polytechnic) and Professor Walter Dufour (representing the World Commission on Sports Biomechanics and ICSSPE) – to the Congress banquet at Goodison Park, home of Everton FC, it was rewarding to see the dreams of the organizing committee being realized. The closing addresses by Dr F. H. Sanderson (Head of Department of Sport and Recreation Studies of Liverpool Polytechnic) and Professor J. M. Greep (University of Maastricht, Netherlands) looked forward to the Second World Congress to be held at Maastricht in 1991. This will ensure that the achievement at Liverpool, the first occasion in which representatives of all the football codes convened in a meeting of minds, will be continued and extended in the future.

Thomas Reilly and Adrian Lees
Congress Organizers

Introduction

There is a wealth of evidence to show that football in one form or another was played in various cultures many centuries ago. There seems to be an atavistic urge in the apparently trivial pursuit of kicking a football around a field. The emergence of organized football can be traced to the latter half of the nineteenth century. Since then the various football codes have become highly professional in their outlook and in their promotions.

From the early years of this century there has been a rich legacy of descriptive literature about football, its joys and raptures, its despairs and disappointments. Later, more incisive analysis of the games has produced a heritage of tactical insights from which training and coaching theories have evolved. In contemporary football much effort is spent in forecasting match outcomes, promoting football teams and the games' image, analysing trends in match play and conducting post-mortems after unexpected defeats. In the world of football fanatics all contributors to the discussion are self-acknowledged experts and agreement in debates is rare.

The worlds of football and of science seem at face value to be poles apart: the former revolves around intuition and emotion, the latter is concerned with facts and verifiable observations. Nevertheless there is increasing awareness among football practitioners that information from scientific endeavours can contribute both to the understanding and solution of problems that confront them. This kind of knowledge can be helpful to the football manager, coach, trainer, medical staff, player and/or match official. This volume contains papers presented at the First World Congress on Science and Football at Liverpool, April 13th–17th, 1987. The Congress itself contained 10 keynote address, 9 workshop sessions, 9 seminars, 9 posters and 113 formal communications. Manuscripts of the presentations were subjected to 'peer review' and where necessary revised and edited. For a variety of reasons it was not possible to publish all of the papers: hopefully those that are published here provide a reasonable flavour of the Congress programme and exemplify the many ways

in which 'science' and 'football' may be linked. We regret that we could not include material submitted after our deadlines, as we had to provide a camera ready copy to the publishers in a reasonable time after the Congress.

The contents are organized into sections or parts, the main division being on a disciplinary basis. This includes not only the scientific disciplines but also medical and management/coaching aspects. Where it was thought appropriate, papers were grouped according to topics which on occasions transcended disciplinary boundaries.

The editors are indebted to those contributors who responded promptly to our queries and quibbles, and at short notice checked the word-processed typescript. We thank also those individuals who willingly acted as referees but who must remain anonymous.

We are grateful also for the encouragement and support of editorial and production staff at the publisher's office. The camera ready copy was prepared at Liverpool Polytechnic to ensure uniformity of typeface among the contributions. That the volume reached completion at all was due to the competence and patience of Margaret, Mary, May, Sue and Val in the Typing Pool who had to endure our endless insistence on instant attention while the book was in preparation.

T. Reilly
A. Lees
K. Davids
W. J. Murphy

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