

The logo for IABSE NEWS. It features a stylized 'A' on the left, composed of a series of parallel diagonal lines. To the right of the 'A' is the word 'IABSE' in a bold, black, sans-serif font. To the right of 'IABSE' is the word 'NEWS' in a large, white, outlined, sans-serif font. The entire logo is set against a black background.

IABSE NEWS

BRITISH GROUP.

NEWSLETTER NO.2 WINTER 1986/7

EXECUTIVE COMMITTEE.

CHAIRMAN. B.P.WEX.OBE. F.ENG. FREEMAN FOX.
VICE CHAIRMAN. PROF.A.R.CUSENS. LEEDS UNIVERSITY.
HON.SECRETARY. R.J.W.MILNE.
HON.TREASURER. G.B.GODFREY.

PROF. J. HEYMAN. F. ENG. CAMBRIDGE.	DR. G. SOMERVILLE. F. ENG. CACA.
MR. D. W. QUINION. TARMAC.	DR. L. S. BLAKE.
MR. A. C. E. SANDBERG. MESSRS. SANDBERG.	MR. R. F. HUGHES. DOE
MR. W. J. R. SMYTH. ARUP.	MR. K. SRISKANDAN. D. Tp.
PROF. E. HAPPOLD. F. ENG. BATH.	DR. G. P. TILLY. TRRL.
MR. W. H. ARCH. CONSULTANT	DR. D. TORDOFF. BCSA.
MR. D. K. DORAN. CONSULTANT.	MR. D. J. LEE. F. ENG. MAUNSELL.
MR. E. V. FINN. F. S. SNOW.	DR. J. B. MENZIES. BRE.
MR. D. J. D. WOOD. HUSBANDS.	DR. J. E. SPINDEL. BRITISH RAIL.
MR. A. GOLDSTEIN. CBE. F. ENG. TRAVERS MORGAN.	

MEMBERS OF HONOUR.

THE LORD HACKING. MR. A. W. HILL. DR. F. G. THOMAS.

EDITORIAL.

The first edition of IABSE NEWS produced favourable comments from some members and we hope you will find something of interest in this edition. The quality of any edition is closely related to the response we get from the membership, so if you have burning issues you wish to see in print then please let us hear from you.

Membership of the British Group has remained fairly static in recent years but we would like to see this increase. If you have any professional colleagues who would like to join us then perhaps you would make an approach to them. Literature and membership application forms are available from the Hon. Secretary. We are sure there are others who could benefit from our international association that covers all aspects of Civil and Structural Engineering.

To improve communications within the British Group Bob Milne will be producing a list of members which will be circulated when ready.

Congratulations to our Chairman Bernard Wex on becoming the first Chairman of the Council of the recently launched Steel Construction Institute. Also congratulations to George Somerville for his Oscar Faber medal for his I. Struct. E paper on Design Life of Concrete Structures.

Incidentally no one produced a solution to the question posed in Ted Happold's 'Opinion Column' in our last edition. The answer was :- Pancho Villa!

EDITOR.

PERSONALITIES.

THE MAKING OF A PRESIDENT - EDMUND HAPPOLD.

For the second year a member of our Executive Committee has become President of the Institution of Structural Engineers. Edmund [Ted to his friends] Happold succeeded David Lee to the Presidency last October.

Born in 1930 Ted read Geology at Leeds and had early aspirations to become a museum curator before turning to the more vigorous pursuits of engineering. His early professional life was characterised by practical experience in contracting with McAlpine and others. The influence of those he met during this period persuaded him to return to Leeds to read engineering.

He was beginning to come under the influence of notable architects and this laid the groundwork for work in the UK, USA and Finland. He has been associated, inter alia, with the Sydney Opera House; Yale Ice Rink; Knightsbridge Cavalry Barracks; British Embassy in Rome; Centre Pompidou and a prize winning Conference Centre in Riyadh. His lengthy association with German professionals prospered in 1967 with further work in Saudi Arabia leading to an Aga Khan award for the most technically innovative design for a decade in the Islamic World.

Design competitions in conjunction with leading architects have featured strongly in his career so it followed naturally for Ted to accept, in 1976, the Chair of Building Engineering at Bath University. Simultaneously he went into partnership under the style of Buro Happold. His work continues at the frontiers of engineering knowledge on tensile and long span structures as does his association with clients in the Middle and Far East.

His glittering career is adorned with awards which include the Guthrie Brown medal; two Oscar Faber medals; a Henry Adams award and an Ian

Murray Leslie medal. His abundant energy has seen him organise many conferences including the last IABSE Symposium held in London in 1981.

In 1983 he was elected to the Fellowship of Engineering and also became a Royal Designer to Industry.

He and his wife Eve have two teenage sons and live in Bath.

Quo Vadis Edmund Happold?

DR. GEORGE SOMERVILLE.

A canny Scot from Dumfries, George is now Director of Research and Technical services at CACA where he has worked since 1961.

A graduate of Glasgow he gained his Doctorate at City University in 1971. He gained his early experience in design and construction of roads and bridges with Local Authorities. He regards his early site experience as essential background to design and research - his education in the art of the possible!

He has served on the Structurals Council several times and has recently been Chairman of the Literature Committee and one of the architects of the Development Plan. His current position as Honorary Secretary leaves him well placed to carry this through to reality.

He has written and presented so many technical papers, that when asked how many, he applies a tolerance of plus or minus ten to a total of eighty! His recent seminal paper to I.Struct.E on Design Life of Concrete Structures provoked the comment from one member that it was, in his view, the best paper since Skempton & McDonald at the Civils in 1956. His other favourites are those on Reinforced Concrete Detailing [Oscar Faber medal in 1972] and an earlier CACA work on the Mancunian Way model test which he claims was more difficult to build than the real thing.

His lecturing skill and ability to distil masses of technical data into succinct papers is in demand worldwide and he has enthralled audiences in N.America; Australia; Sweden; Spain; Denmark; Portugal; Germany; Italy and, curiously, in Scotland.

He now claims to be entering a period of mellow fruitfulness where he is more likely to be asked to Chair a conference session than to give a paper. This he modestly accepts as his contribution to the important task of 'bringing the youngsters' through the system.

A dedicated family man he lives in Old Windsor with his wife Kay. They have two grown up sons. His hobbies include bridge, an erratic game of golf, reading, dog-walking, watching sport and travel.

OPINION. LATENT DAMAGE.

Ted Happold, as a footnote to Opinion in the last News Letter, stated that the Profession had at last started to speak with one voice on the above subject. Unfortunately, during the long intermittent four years of Lord Scarman preparing his report, various groups and individuals were interviewed separately, all expressing different opinions with consequently no unity. This enabled Lord Scarman and Lord Hailsham to claim that they had to take an average of the various opinions expressed.

Lord Hacking at the I.Struct.E./IABSE Liability Symposium in May '85 stated that if the Profession did not speak with one voice, the chances of their having any effect was minimal. Activities since the Symposium did finally produce a virtually unanimous view by the Profession.

Unfortunately, as Lord Hacking has pointed out, the Lord Chancellor was, by the time the debate reached the Lords, determined that it would go through unchanged and to that end Lord Hacking's many amendments were rejected despite support from other Lords. The performance through Parliament was open to much criticism, in that members were nominated to the Committee who had not previously shown interest, whereas others who had spoken were not included. The time to brief members amounted to only a few days, which was inadequate, and even more inadequate if it came to arguments in depth. As a result we have the Latent Damage Act 1986 on which Dr. Powell Smith wrote an article in the Contract Journal headed 'Latent Defects of the Act.'

Some points may be mentioned as follows:

The time from which the various periods run is variable and indecisive, and as freely admitted should provide substantial income for the Legal Profession. One of the definitions for starting date is "the earliest date on which the plaintiff or any person in whom the cause of action was vested before him first had both the knowledge required for bringing the action for damages in respect of the relevant damage and a right to bring such an action."

The 15-year period is too long, particularly if starting from an indeterminate date. The colourful expression "doomed from the start" which to most of us would apply to any structure that will seriously deteriorate within say 10 years, cannot be clarified because Lord Fraser has said that such cases would be exceptional. 'Mistake,' 'deliberate concealment,' 'breach of duty,' 'knowledge tests,' are ill-defined, leaving much to be litigated.

My hobby-horse of the 'Knock-on effect' is not even mentioned, even in its more legal form of the Joint Tort Feasor rule. This was admittedly outside the narrow brief of the Law Reform Commission but is a considerable factor in liability, insurance and totally unfair allocation of blame, and might have at least deserved a mention as requiring consideration in the near future.

This point was made by Lord Hacking who also in a recent paper on the subject stated that the Construction Industry "may, therefore, feel that it needs to press its case harder before it gets a fair deal from our law."

Ted Happold, as President of the Structurals, confirms there is still considerable anxiety on the part of members and is intending to lead a further campaign on this subject. We are lunching at the Athenaeum shortly to discuss the position, no doubt enlivened by the crossfire of dissenting Bishops.

ALEC SANDBERG.

CAMBRIDGE COLLOQUIUM 1986. MOVABLE STRUCTURES.

Organised by a Committee Chaired by MR.DAVID WOOD, this was held in July at Pembroke College. 16 Papers were presented on topics as diverse as Bridges, Tidal Barrier Gates, Cranes and Wave Power Structures. Authors were drawn from the UK, Germany, USA, Holland and Japan.

A joint half day Colloquium with I.Struct.E. will be held on 7 May 87 before which the Cambridge proceedings will be published.

DR. W.G.N.GEDDES was guest of honour at the Colloquium Dinner.

ANNUAL LECTURE 1986.

This was given by Sir Norman Payne CBE, F.Eng.on the subject of "The Engineer as Manager". The lecture was well attended and produced a lively discussion. Many continued the debate at an excellent dinner which followed at the Institute of Directors.

Sir Norman is the Chairman of the British Airports Authority. We hope to publish his lecture in full at a later date.

1986 MEETINGS OF IABSE IN TOKYO.

The annual meetings of IABSE together with a symposium on "Safety and Quality Assurance in Design and Construction" took place in September in Tokyo. There were many meetings of Working Commissions, Technical Committee, Permanent Committee and Scientific Committee. Representation on these Committees had a smaller percentage of European members than usual. Particular efforts were made so that these meetings dealt with as much technical discussion as possible although the organisation of IABSE affairs for the next twelve months necessarily took up appreciable time. In particular, the Technical Committee is keen to see the preparation of a number of multiple opinion booklets (MOBS). In these, representations of different national groups will provide their own brief observations regarding common interest subjects from their national viewpoint. It is intended that there will be one, for instance, on latent defects liability.

The Symposium was attended by about 650 delegates and some ninety accompanying persons. Twelve delegates from the UK were present, seven of whom were accompanied by their wives. The UK had a significant number of delegates compared to other countries and certainly made its presence felt in many discussion periods. The Symposium lasted 2½ days and examined the subject from the viewpoints of theory and practice and those of the client, designer and contractor. It was clear that a number of different attitudes were taken. Perhaps the most important of these was that our Japanese hosts found it difficult to understand why their visitors had so many varying points of view. To them quality is fundamental and is largely the role of self-discipline from the lowest level upwards to produce a satisfactory job. They have developed from quality control in the sense of quality circles to quality assurance in which they assess, before the start of a project, all the elements for which a subjective quality assessment needs to be made. It might be summarised as a self disciplined thoroughness in approaching work. Papers to the symposium were presented by Messrs. Sriskandan, Baker and Quinion. All the present papers are in the published introductory and main reports and the discussions will be included in the final report.

There were two opportunities before the symposium to visit sites. A large cable-stayed bridge was unusual in being S-shaped in plan so that it could carry a motorway from a route between two rivers to one side of the resulting confluence of these rivers. The S-shaped section covered spans of 134 and 220m. The second site was the construction of a new underground station at Tokyo's main terminal. This had been extensively planned by the client to cover the construction as well as the permanent works stages. It was interesting to see the different approaches adopted by each of the five contractors between whom the work was divided on a linear basis.

Following the symposium a Technical Study Tour included a visit to the Honshu-Shikoku bridge system and to the research laboratories of the

Sharp Corporation. Honshu is to be connected to Shikoku by three different bridge systems. As yet only the first of these is under construction and is a massive scheme of bridges and viaducts over a distance of 13.1 km. An upper deck of four lane highway surmounts a lower deck of twin rail tracks. Included in the system are three suspension bridges of 1447, 1611 and 1723 m lengths and two cable stayed bridges each spanning 1420 m. The works were not so much innovative as the result of years of pre-planning and careful design in which account had to be taken of the exposure to high winds and fast currents. We were all envious of the Japanese' opportunity to undertake such an impressive scheme. The visit to the Sharp Laboratories recalled some fifty years of innovation by that company and we were provided with an insight into on-going developments which seem set to continue the tradition of pioneering in sound video systems. We also saw ultra-clean conditions in which laser discs are prepared and checked. A huge investment is being made by that company alone.

Our Japanese hosts had gone to great lengths to make the IABSE visit to Tokyo a success and a happy occasion. I think everyone left feeling very impressed and very grateful to them.

DAVID QUINION.

SITE SAFETY.

Looking at statistics from today and from 50 years ago, there can be a depressing sense of statistical inevitability about accidents on site. Regulations in themselves seem to have had little effect on the rates at which various types of accident occur. The main value of regulations seems to be in providing a codified method of helping in the assessment of who is to blame - after the accident has happened.

Most accidents have small beginnings. Elsewhere I have used the simile of the fall of the next domino to represent the sequence of events leading from that first small 'dangerous occurrence' to the final, sometimes catastrophic event. There is the same statistical chance [13%] of tripping over something at work, whether you work in construction or in manufacturing. Similarly there is the same chance of being hit by something [24%], or of there being a vehicle involved [0.3%]. What is different on site is the much greater risk of that first event escalating to something worse.

A crane is lifting a load, a puff of wind catches the load and the man on the hand line trips and falls. The hand line is freed so the load swings and knocks down something which falls and severs an electric cable. The man rushing to help, having heard the commotion, is electrocuted.

This scenario, and many hundreds of others which could be written, underlines the fact that it is very often the case that the circumstances which caused those next dominoes to fall can be attributed to decisions taken - or not taken - remote from the site and many months earlier.

The first event can be said to have been statistically inevitable. Those which followed were not. It too seldom happens that the designer, sitting at his drawing board, or at his computer keyboard, is looking at his design from the point of view of what can happen to his structure whilst it is being built. Similarly, the planner working out his method statement on how the project is to be built can often leave out some important details of how his method is to be achieved. The site is left to pick up the pieces - and yet the subject is still thought of as 'Site safety' rather than 'Construction safety', or some other title which would emphasise that ALL the parties involved in a project have their own input towards lowering the accident rate when their project finally reaches the stage of construction.

There is a very small chance of anyone being killed as a result of a structural collapse after a project is completed. There is a substantial chance of someone being killed during the construction on site. Until everyone involved in any way with a construction project realises that he or she can be sowing the seeds which will let the next domino fall, there will not be a significant fall in these accident statistics.

It is of no comfort at all to the relatives of that man, electrocuted as a result of a puff of wind, to be told that that the person who underdesigned the holding down bolts had no contractual responsibility towards the driver or owner of the hired crane, or that the cable was feeding power to another contractors plant. No matter how remote is your ivory tower you can still be the cause of the next domino falling in a deadly sequence, instead of the next domino resolutely refusing to fall.

The only way to reduce accidents on site is for everyone on site to constantly think of what might happen. To plan meticulously, to design with reality in mind, to be aware always of what the 'other fellow' may be doing, and how his actions may affect yours. Overall, one third of the responsibility for a victim's accident is that of his workmates. Twice as much is due to the actions - or inactions - of those professionals upon whose skill and dedication, both on and off site, he depends for his safety as he goes about his daily work. They are the ones who can exert the greatest influence towards ensuring that any accident is contained at that first small 'inevitable' event.

HARRY ARCH.

DESIGN LIFE OF STRUCTURES.

Feedback on performance of structures in service, of the type presented by Paterson (1), has indicated deficiencies and defects leading to a shortfall in the performance that was perhaps expected at the initial design stage. This has led to a growing interest in durability, and to major investigations into the factors which have influenced this lack of performance, e.g. the CEB report on concrete(2) . This activity is still going on - indeed, the French Group of IABSE, together with CEB and FIP, is sponsoring a symposium on the subject in Paris next September.

In parallel with these fact-finding activities, some individuals are trying to develop a framework which will permit a better, quantitative approach to durability design in the future. Two such papers have recently been published in the UK (3) and in the USA (4).

The key issues that are emerging from all this activity are as follows:-

- 1) Durability is not something that can be dismissed by designers as being dealt with if certain materials and workmanship specifications are established and met. The design and construction of structures that will perform satisfactorily involves an integrated package that includes : design, detailing, construction (including workmanship), maintenance and management.
- 2) Following on from 1) above, there are really only two fundamental requirements of any structure; these are:-
 - (i) load carrying capacity,
 - and (ii) the ability to fulfill the in-service function satisfactorily for a required "life" period.

These two requirements are interactive. Both require equal care and attention in the design phase, which has certainly not been the case in the past.

- 3) The third, and most important point is what should the required design life period be? Currently this is not stated explicitly in design; in striving for greater durability, designers tend to approach this in an open ended way - usually by introducing more stringent material and construction criteria. While the need to "do better" is fully accepted, the open-ended approach is questionable. It has been agreed (3) that the establishment of nominal design lives for different types of structure is an essential pre-requisite for a more rational design approach in the future. Values for these would be purely notional, representing targets to be shot at by designers, in terms of choosing the best solution from a range of widely differing options, which may be material, design or construction orientated. The analogy is drawn with fire design, where the establishment of notional fire resistance requirements -

expressed in hours - has permitted the development of a range of alternative solutions. The approach has therefore worked in fire design, and could be made to do so in tackling durability. It is important to remember here that nominal design life in this concept is a tool to be used in developing rational design methods. It should not be confused with actual or useful life; amidst the present concern about legal liability, this point was brought out strongly in the discussion to reference 3 (which has now been published (5)).

In short, the recent concern about durability has stimulated activity in the laboratory, in the design office and in the field (both in terms of new construction and in feedback on in-service performance). The information thus generated needs collation and assessment; above all it requires integration into the whole design and construction process, so that, as an industry, we stop repeating the same mistakes leading to the types of defect recorded by Paterson (1) - which was the starting point for this short article.

1. PATERSON A C. The structural engineer in context. (Presidential Address to the Institution of Structural Engineers, 4 October 1984). The Structural Engineer 62A, No 11 November 1984, pp 335-342.
2. 'Draft CEB guide to durable concrete structures'. Bulletin d'Information No 166, Luasanne, Comite Euro-International du Beton, May 1985.
3. SOMERVILLE G. The design life of concrete structures. The Structural Engineer 64A, No 2, February 1986, pp 60-71.
4. HOGNESTAD E. Design of concrete for service life. Concrete International, June 1986, pp 63-67.
5. SOMERVILLE G. The design life of concrete structures. Discussion on reference 3. The Structural Engineer 64A, No 9 September 1986, pp 233-241.

GEORGE SOMERVILLE.

Q. A. SCHEME FOR STEEL.

The British Constructional Steelwork Quality Assurance certification Scheme is now in operation. The Scheme is administered by the British Constructional Steelwork Association but operates under the control and authority of an independent Governing Body having a broad spectrum of interests including the professional institutions, the nationalised industries, government departments and the Federation of Civil

Engineering Contractors. British Standard BS 5750 is used as the base document for the assessment of the quality assurance arrangements existing at a Company and covers all aspects of design, fabrication and erection depending on the range of operations undertaken. Companies who perform design, fabrication and erection of buildings such as power stations, warehouses, hospitals, bridges, etc. will be assessed to BS 5750 Part 1. Where the design has been established, BS 5750 Part 2 is used although limited design work for connections and joints may be included in this category.

Agreement to proceed with BS 5750 Part 1 assessments was reached at the second meeting of the Governing Board on 23 September 1986, agreement for Part 2 assessments having been reached previously.

Application is also to be made for the accreditation of the QA Scheme by the National Accreditation Council for Certification Bodies which is the sole authority for undertaking this activity on behalf of the Secretary of State for Trade and Industry. The object of accreditation is to enhance the authority and status of the Scheme nationally and internationally by virtue of having satisfied the requirements of published criteria covering integrity and technical competency.

All enquiries regarding the Quality Assurance Certification Scheme should be addressed to:

D.S. Trickett
QA Scheme Manager
BCSA Ltd
35 Old Queen Street
LONDON SW1H 9HZ
Tel: 01-222 2254

INTERNATIONAL COMMITTEES.

Are International Committees just a way of exchanging information, or a way of joint study or do they do work of any use to others?

Many, usually those who do not attend them, regard international meetings as a form of expense account tourism. Some of those who are involved find the meetings a useful form of further education and the papers produced, such as model codes, a harmless means of concentrating the mind. Indeed, the production of a model code was described as an "intellectual exercise" by one of its authors. Few appreciate that these exercises have serious implications. The work of the International Standards Organisation (ISO) has always had the effect of becoming a national standard somewhere, but is now far more likely to supersede national standards everywhere. European standards, Euro norms, will, by law, supersede national standards in the near future. Eurocodes are

intended to be used instead of national codes at the discretion of the private client, but, for the public works client, probably at the discretion of the contractor who offers an alternative design.

The work of committees producing these documents, therefore has serious consequences. It requires much care at the committee meetings and support from the profession by comment right from the start.

By the time draft documents are produced it is almost too late to make fundamental changes, however desirable they may be.

The reason lies in the fact that the drafts are almost invariably based on the "intellectual exercises" of the "harmless" committees of international learned societies, and the further fact that some of the people involved are the same in both these activities.

These are the people who have the requisite knowledge and experience in the subject concerned. They can discuss them in a generally understood, even if not correctly used, language (good interpreters are expensive and bad ones a menace). They have the means, or backing, to do the necessary travelling.

They are concerned with drafting standards and codes which are technically right, and to some extent, with defending national or even personal interests - they naturally regard their views, national codes and practices as right

Considering national and personal interests is easy in "harmless" committees: alternative methods are described in the documents so that everybody's particular favourite can be included. When it comes to producing "operational" documents, that is those intended for use, a variety of formulae giving different answers for the same thing is no longer acceptable - satisfying everyone's wish to have his national method included becomes more difficult. So much so, that one experienced member of international bodies sees the only possibility of resolving such differences in applying the results of "new" research to produce new rules. These can then be accepted as better than any of the existing national ones.

Experience on international railway committees shows that there is considerable benefit in an exchange of views on a number of problems and in sharing the work and expense of solving them. This has led to wide voluntary acceptance of the resulting recommendations.

General acceptance followed the European research into the strength of columns - it was simply the best available information. Similar information should be derived from all the work that has gone, and is going, into Euronorms and Eurocodes, provided they are, and are seen to be, right.

The necessary condition, however, is that all international committee work, however "harmless" its product, must be taken seriously.

Dr. J. E. SPINDEL.

INTERNATIONAL REPRESENTATION.

Mr. B. P. WEX.	Vice President of IABSE.
Mr. D. W. QUINION.	Member of Technical Committee.
Mr. W. J. R. SMYTH.	Member of Working Commission One [Structural Performance, Safety and Analysis]
Prof. R. P. JOHNSON.	Member of Working Commission Two. [Steel, Metal and Timber Structures]
Dr. P. E. REGAN.	Member of Working Commission Three. [Concrete Structures]
Mr. D. W. QUINION.	Chairman of Working Commission Four.
Mr. J. KINSELLA.	Member of Working Commission Four [Construction Management]
Mr. D. K. DORAN.	Members of Working Commission Five.
Prof. E. HAPPOLD.	[Design Methods and Processes]
Mr. D. J. LEE.	
Mr. C. W. BROWN.	Member of Working Commission Six. [Informatics in Structural Engineering]
Mr. R. F. HUGHES.	Member of Working Commission Eight. [Operation, Maintenance and Repair of Structures]

CALENDAR 1987.

Thurs. 15 January.	2.30pm.	Joint Colloquium with I. Struct. E. 'Towards better structures for tomorrow.'
Thurs. 7 May.	2.30pm.	Joint Colloquium with I. Struct. E. 'Movable structures'
Tues. 14 & Wed. 15 July		Closed Colloquium on 'Rehabilitation and Renovation. [Pembroke College, Cambridge]

Mon.	31 Aug.	)	Annual Meetings. (Paris)
Tues.	1 Sept.	)	Permanent Committee. (Versailles)
Wed.	2 Sept. [am]	)	
Wed.	2 Sept. [pm]	)	Symposium on concrete structures for the
Thurs.	3 Sept.	)	future. (Versailles)
Fri.	4 Sept.	)	

It is anticipated that Dr. Cedric Brown of British Gas will give the Annual Lecture in late summer 87. This will be preceded by the AGM and followed by a dinner.

PLEASE PASS THIS NEWSLETTER ON TO A COLLEAGUE WHEN YOU HAVE FINISHED WITH IT.

PUBLISHED by IABSE BRITISH GROUP

11 UPPER BELGRAVE STREET. LONDON SW1X 8BH.

EDITORIAL PANEL :

B. P. WEX CHAIRMAN.
D. K. DORAN EDITOR.
R. J. W. MILNE HON SEC.
W. J. R. SMYTH.