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THE LAND OF BRITAIN

ITS USE AND MISUSE

BY

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PREFACE

THIS book is intended to serve a dual purpose. It includes, in the first place, a summary of the work and findings of the field-to-field survey of land use in England, Wales and Scotland which was carried out by the Land Utilisation Survey of Britain in the years which preceded the outbreak of the Second World War—mainly in 1931 to 1934. But, in the second place, it attempts the far more difficult task of analysing those findings and so of evaluating the various factors which have determined the very complex and intricate pattern of rural Britain. Though their relative importance may change from decade to decade or century to century, the influence of those factors is a continuing one and they will as inevitably shape the pattern of future Britain as they have the pattern of the Britain of to-day and yesterday. In this description and evaluation of our national resources of land—part of a national stocktaking—the emphasis is on the lessons which the past, especially the immediate past of 1931–38, may have for the future.

Whilst there is constant reference to the details included in the 92 County Reports of the Land Utilisation Survey and although use has been freely made of the material of the Reports no attempt has been made to summarise, even had it been possible, the contents of their 5,800 pages. The present book is thus entirely self-contained and presents, it is hoped, a connected story—the fascinating story of the Land of Britain.

Though I am grateful for the unstinted help of many friends, the entire responsibility for all statements in this book rests with me. Expressions of opinion must not be taken as representing any views other than my own.

L.D.S.

LONDON

June 1st, 1947

CHAPTER I

THE HISTORY OF THE LAND UTILISATION SURVEY, 1930-47

DESPITE the excellence of the maps on many scales published by the Ordnance Survey on behalf of His Majesty's Government, they give rather less information regarding land use than the maps of many countries. On the most popular series, the One-inch maps, the woodlands are shown and the orchards and on most there is a faint indication of the main areas of moorland but there is nothing to indicate the use of or state of cultivation of the bulk of rural Britain.

The lack of precise information on the distributional aspects of land use became apparent to such pioneer geographers as Mackinder, Herbertson and Mill. Sir Halford Mackinder, then Mr. H. J. Mackinder of the University of Oxford and shortly afterwards to become Director of the London School of Economics, published his *Britain and the British Seas* in 1902 and emphasised the tremendous contrasts between one part of this country and another. Professor H. J. Herbertson looked at world distributions of types of vegetation in his pioneer studies of major regions whilst Hugh Robert Mill (like Herbertson presenting his results before the Royal Geographical Society) stressed the need for detailed regional studies in this country by advocating and preparing a specimen description of a One-inch Ordnance Survey map sheet. The idea of such a detailed study of a small area, with the study and mapping of land utilisation as an essential basis, evolved into the concept of a "regional survey" and is associated with Sir Patrick Geddes and with the Geographical Association which set up a Regional Survey Standing Committee in 1918. The Association published in 1920 a paper by Sir John Russell on Regional Factors in Agriculture and in 1922 two maps giving the results of a survey of about 100 square miles made by the North London Branch of the Association before 1914. About the same time a detailed survey of one and a half square miles made by a group from the London School of Economics was also published.

It was in the spring of 1926 that I resigned from the Professorship of Geography and Geology in the University of Rangoon which I had held for three years and prepared to return to England to become Sir Ernest Cassel Reader in Economic Geography in the University of London—a post tenable at the London School of Economics under the Direction of Sir William Beveridge. When I arrived in England after brief stays in Australia and South Africa, I began to specialise in the detailed geography of the British Isles and soon found what seemed to be serious gaps in knowledge. Even before the institution of an Honours degree in geography in the University of London (the first examination, at which both my wife and I were candidates, was held in 1921) candidates for the Academic and External Diplomas in Geography had been required to prepare a dissertation or thesis on the detailed geography of a small area. Similar work, like the two surveys already mentioned, was often carried out, sometimes as continuous joint efforts over periods of years, by secondary and public schools whilst here and there a local society had organised similar surveys. In these various "regional surveys" it seemed that there existed the detailed material that I needed for the better understanding of the geography of the country. At the request of the Council of the Geographical Association of which Professor H. J. Fleure, F.R.S. was Honorary Secretary, I agreed to become Chairman of the Regional Survey Committee in succession to Sir John Russell, and at the Annual Conference held in January 1929 I attempted an exhibition of Regional Survey work collected from a variety of

sources. This attempt revealed two things : what a small part of the country had been covered and what very different viewpoints were taken in the surveys so that scarcely two produced comparable data. It was, however, at that meeting that I learnt of the interesting survey of a Leicestershire parish by the local school (Ratby, organised by the Headmaster, Mr. W. S. Baker) and the important pioneer work organised by Mr. J. L. Holland, B.A., Director of Education for Northamptonshire. There the Education Authority had provided all the elementary schools with six-inch maps covering the parish and the children were recording whether the fields were grass or arable. Dr. E. E. Field, O.B.E., was commissioned to prepare maps on the scale of one inch to one mile showing the information thus collected. These maps of Land Utilisation were printed in two colours by the Ordnance Survey as three special sheets for the Northamptonshire Education Authority and issued in 1929, thus proving what interesting and useful results could be achieved by the observations of village schools.

The idea began to crystallise in my mind of organising a field-to-field survey of the whole country, covering every acre, and recording its use and then of preparing a report or description of the work. Two main matters had to be settled—the information to be collected and the organisation to be developed.

With regard to the information to be collected, it was essential to draw up a scheme applicable to the whole country so that direct comparison between one area and another would be possible ; it was essential to have a scheme simple enough to be understood and applied by voluntary workers with varied or with little training. For the purpose in mind it seemed unnecessary to devise special symbols or use special colours for features already shown on six-inch maps (e.g. cemeteries). In the spring of 1930 a scheme which promised to be satisfactory was devised and in that summer was tested out in the field by myself and a few helpers drawn from amongst the students of King's College and the London School of Economics—notably A. C. O'Dell and the late H. W. Goddard. When the autumn of 1930 came we had an agreed and workable, satisfactory though simple, scheme of land use classification.

With regard to organisation, the obvious unit to use was the parish, and the parish council or the vicar suggested themselves as starting points. Tentative approaches resulted in every case in the matter being referred to the village schoolmaster. Mindful of the success of the Northamptonshire experiment it then seemed clear that the work, if ever it was to be carried out on a voluntary basis all over the country, would best be done through the educational organisation. This, indeed, had many arguments in its favour. The work of recording land use is a magnificent educational exercise involving accurate observation and map reading, and, being done as part of a national scheme, inculcated an early appreciation of the importance of the unit in a democracy and induced a local pride in achievement. The wisdom of the decision to attempt the survey on a voluntary basis through the schools, colleges and universities of the country has since been proved up to the hilt.

In the summer of 1930 the broad scheme had been thought out and, as a senior member of the teaching staff of the London School of Economics, I made formal application to the Research Fund granted to the School by the Rockefeller Foundation. A grant of £500 was made and, should the scheme fail for the whole country, I undertook the completion of at least the survey of the County of Surrey myself. It was decided to advertise for an Organising Secretary and an Appointments Committee consisting of the Secretary of the London School of Economics (Mrs. J. Mair, O.B.E., M.A., afterwards Lady Beveridge), Professor Rodwell Jones (Head of the Department of Geography) and myself interviewed a number of candidates—most of whom ruled themselves out by declaring their fear for the ambitious nature of the scheme. The appointment was made in October 1930 and the School granted the Survey the use of a

large attic room at the top of a building (shortly afterwards pulled down for rebuilding) at the corner of Houghton Street and Clare Market.

An approach was made to the Ordnance Survey, especially for facilities in the direct supply of maps which were made available at the usual educational discount of 25 per cent. Even so, a *single* set of the six-inch maps of Britain costs about £1,500—a not inconsiderable obstacle when the total grant for the work was £500! Eventually, over £4,000 was expended on base maps alone. The next step was to secure the approval of the Education Authorities to the work being done with the help of the schools. Sir Charles Trevelyan, at that time President of the Board of Education, gave not only his cordial approval, but afterwards his active support by becoming Patron of the Survey in Northumberland. His approval was endorsed by his successors in office, the late Dr. H. B. Lees-Smith and the late Sir Donald Maclean, by Sir Henry Richards (His Majesty's Chief Inspector for England) and Mr. J. W. Peck for the Scottish Education Department. The scheme was also approved by the County Councils' Association, the Association of Local Education Authorities, the Land Agents' Society and other official and unofficial bodies. It is not to be supposed, however, that there was no opposition to the work. On several occasions the Survey and its work have been the subject of questions in the House and it is interesting to note that not one of the Members of Parliament who asked questions had previously been in communication with us before indulging in that interesting sport of government baiting. In the early stages the Government was accused of a "policy of employing school children on Government work"! (Hansard, June 25th, 1931) and Dr. Lees-Smith in a firm reply, emphasised the unofficial character of this work of "great educational value". At a later stage the Government was, of course, criticised for making insufficient use of the survey. Similarly, the columns of *The Times* were used both for flattering comments on the work and criticisms. Elderly school managers discovered in it a subtle and cheap means by which the Government was getting information for taxation so that "this precious survey seems very likely to become a danger to the taxpayer"!

It was felt very strongly that such an independent survey as was contemplated would lose much of its value if it were to be definitely identified with any Government Department so that the Survey initially sought only approval and goodwill. The Forestry Commissioners gave advice on the classification of forest and woodland and made a token grant of £50 to signify their approval; the Ministry of Agriculture granted recognition of the Survey as a research institution entitled to receive certain unpublished statistics without payment; the Town Planning Section of the Ministry of Health through the Chief Technical Officer, Mr. G. L. Pepler, gave general approval. The Valuation Department of the Inland Revenue kindly squashed the taxation boggy.

An Advisory Committee was set up consisting in the first instance of Sir William Beveridge (Director of, and representing the Governors of, the London School of Economics), Colonel G. S. C. Cooke, D.S.O., R.E. (Ordnance Survey), Dr. E. E. Field, O.B.E. (Northamptonshire Survey), Mr. J. L. Holland, B.A. (Director of Education, Northamptonshire, representing the County Councils Association) and Sir John Russell, F.R.S. (Director of Rothamsted Experimental Station). From time to time others were added to the Advisory Committee so that eventually it came to consist of those who are listed on page 450. In one sense it was an ideal committee because it never met as such, though its members individually gave freely of their help in advice and in other ways.

An early decision was made to organise the work on a basis of administrative counties and in the autumn of 1930 every effort was made to secure the help of a prominent local resident to act as County Organiser. The first approach in each county was to the Director of Education,

leaving him free to organise the work as he considered best. In a very large number of counties the Director of Education not only became the County Organiser, but the Education Committee contributed substantially to the funds of the Survey by defraying the costs of the six-inch base maps and the expenses of organisation.

Each County Report gives the names of the County Organisers and the date when the survey was begun and how it was carried out. During that strenuous first year, I spent every moment which could be spared from my regular lecturing duties in travelling about the country, interviewing Directors of Education, talking to Education Committees of County Councils, describing the work to gatherings of head teachers, taking out parties into the field to demonstrate methods, settling knotty problems of one sort and another. In the late autumn of 1930, Miss Betty C. Freeman was appointed as shorthand typist and for many years was the mainstay of the extensive office organisation which grew up. At the time of the great blitz in May 1941 the office files of the Survey contained over 20,000 letters! In 1931, the rebuilding programme of the School of Economics necessitated a move—to the old shop and first floor of No. 18 Houghton Street on the opposite side of the road to the main School of Economics building.

Most of England was organised by the spring or early summer of 1931, much of Wales and Scotland by the autumn of that year or by the spring of 1932. I was constantly touring to watch the progress of events and to encourage the slower workers. Whenever the visits were made by car, my wife was my chauffeur and constant companion and at the height of our activities we were covering nearly 2,000 miles a month.

The instructions to the individual surveyors were contained in a simple four-page leaflet, of which some 40,000 were used. It ran through successive editions, improvements being incorporated as our experience grew. A copy of the fourth edition, dated June 1932, is reproduced exactly on pages 21 to 24.

By the summer of 1931 the work was in full swing and it was decided to issue monthly progress reports. These were cyclostyled and distributed to all county organisers and others actively engaged in the work. The first was called Progress Bulletin for July 1931 and was issued on August 1st, 1931. It contained notes on progress in 41 counties of England, 12 of Wales and 25 of Scotland and a page of replies to queries (such as the treatment of cemeteries and building estates) which had arisen. Bulletin No. 2, for August, recorded that the Ordnance Survey were already carrying out experiments for the production of a One-inch map in six colours. It is a special pleasure to record the interest and long-continued help of successive Director-Generals of the Ordnance Survey—Brigadier H. St. J. Winterbotham and Major-General M. N. Macleod, D.S.O. Bulletin No. 3, for September, was printed and records the amazing progress during the summer—2,800 six-inch sheets already received completed at headquarters and copied by photostat, about 10,000 volunteers already in charge of their home areas—and contains an appeal to all counties which had not yet joined in the scheme. Bulletin No. 4, for October, referred to the resignation of the Survey's first Organising Secretary and Bulletin No. 5, for November, announced the appointment of Mr. (later Dr.) E. C. Willatts to the vacant post. With the appointment of Dr. Willatts began an association between us which was to last the whole of the Survey's existence. The son and grandson of farmers, he had recently completed his three years' course at the London School of Economics by achieving the coveted distinction of First Class Honours at the Examination for the Bachelor of Science in Economics with special subject geography. Bulletin No. 4 also records the appointment of Miss April Hoffman, the first Cartographical Assistant. In this Bulletin was a special note of congratulation to Cumberland, the first major county to complete the field-work (with over 300 six-inch sheets) and a "stop press" page records also the completion of Bedfordshire. Bulletin No. 6 was for

the two months December 1931 and January 1932. Its single page records the tremendous rush of work at that time—no less than 1,500 completed maps received in the two months. In January, some of the field work was exhibited at the Annual Conference of the Geographical Association, as well as a coloured manuscript reduction of Sheet 4, Scotland (the South Shetlands).

At this stage it was felt that a general summary of the position was needed, and the first Annual Report of the Survey was issued on February 1st, 1932. This recalled briefly the history of the survey and records that 3,670 completed six-inch sheets (Kesteven and Clackmannan—the first Scottish county—had been added to the list of completed counties) had been received.

Monthly Bulletins Nos. 7 (February 1932) 8 (March), 9 (April), and 10 (May) followed with the usual details of progress, No. 9 recording a personal tour which I made to all the Welsh counties. No. 11 (June 1932) might be called a special Scottish number as in that month I visited all the Scottish counties with the exception of Orkney and Zetland. Bulletin No. 15 (October 1932) contained an urgent request for all completed field sheets to be sent in so that the whole position might be surveyed. As a result, more than 500 completed sheets were received in November.

New Year's Day 1933 was a red-letter day in the history of the Survey, for on that day, in time for the annual exhibition and meeting of the Geographical Association, were published the first two one-inch maps, printed by the Ordnance Survey. These were Sheet 114 (Windsor and South-west London) and Sheet 142 (Isle of Wight).

The Second Annual Report is dated February 1st, 1933, and contained the map here reproduced. Thirty-one counties in England, Wales and Scotland were shown as complete or nearly complete as against twelve the year before, whilst only one county in Wales and one in Scotland were shown as not having started the work. 8,700 completed sheets had been received.

The issue of monthly bulletins continued. No. 22 for May 1933 records the first collaboration of the Survey in the work of town planning, manuscript one-inch maps of East Suffolk and North Wales being prepared at the request of Professor L. Patrick Abercrombie. To carry out this additional work, Miss Beryl Graves (afterwards Mrs. Priest) was appointed to assist in the cartographical work.

As the field-maps came in they were stamped with the date of receipt and were copied by the photostat process in the Photostat Department of the London School of Economics. Though this added considerably to the general expense, it meant that a duplicate existed in the event of loss and it also enabled originals to be returned to the surveyor when the latter insisted.

The third One-inch map, No. 58 (Cromer) was published in June 1933 and Mr. C. J. C. Ewing, M.Sc., joined the cartographical staff. The first two published maps attracted many favourable comments both in this country and abroad, especially noteworthy being the review in the *Geographical Journal* by Colonel Sir Charles Arden-Close, a former Director-General of the Ordnance Survey and past President of the Royal Geographical Society.

The work of the Survey in combining a valuable educational exercise and a training in citizenship with the production of a survey of nation-wide scope basal to any work of national land planning proved of particular interest in the United States. Dr. Isaiah Bowman, at that time Director of the American Geographical Society and Adviser at Washington, wrote asking if I would be willing and able to pay an extended visit to the United States. At the suggestion of Dr. Bowman and Mr. O. E. Baker, Senior Statistician to the U.S. Department of Agriculture, the Rockefeller Foundation made possible the visit by the grant of a special Travelling Fellowship, and my wife and I sailed on September 23rd, 1933. We were away for nearly a year—certainly one of the most interesting if one of the most strenuous years of my life. Mr. Roosevelt, in the

early stages of the New Deal, was deeply concerned with the appointment of State Planning Officers and the Tennessee Valley experiment was still in its early stages. Out of the 48 states of the Union, I visited 47—only the tragically dry summer of 1934 rendered the conditions in one

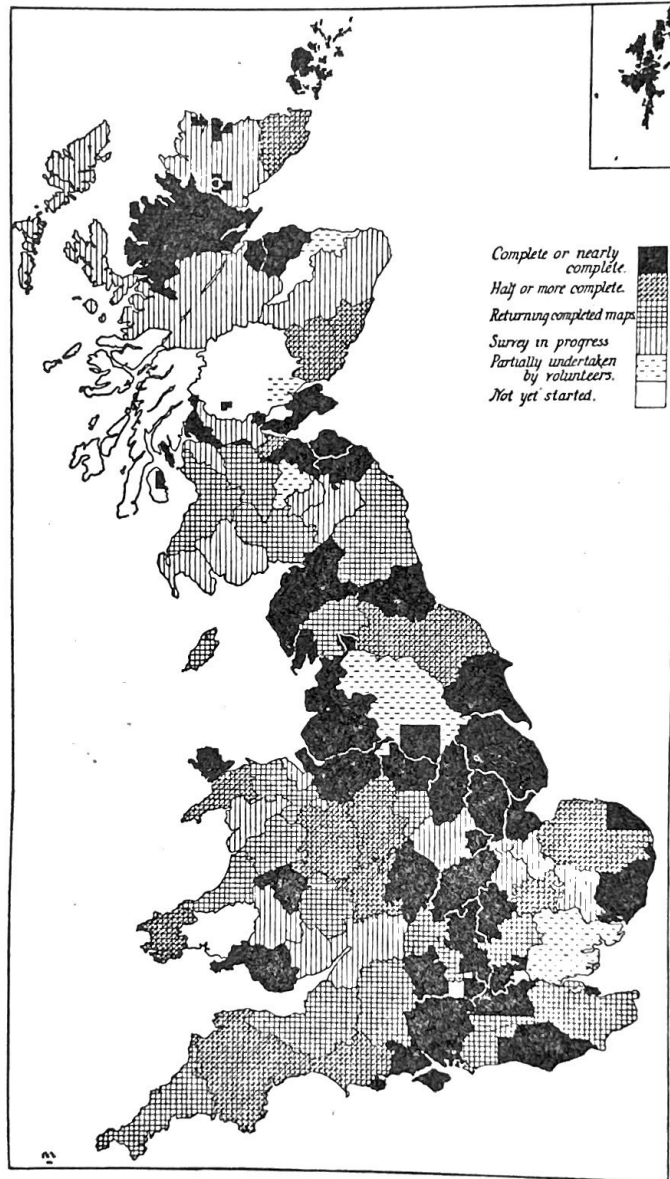


FIG. 1.—The state of the field work of the Survey on January 20th, 1933.

state so abnormal that a visit was regarded as unfair both to the state concerned and to me—and was engaged in a continuous series of lectures and conferences of all kinds. In order to see conditions at first hand we drove ourselves all over the continent—including sections of eastern

Canada and parts of Mexico. The difficulty of doing field work in the American winter allowed time to be taken from mid-January to early April in a visit to Panama and all the South American Republics except Paraguay.

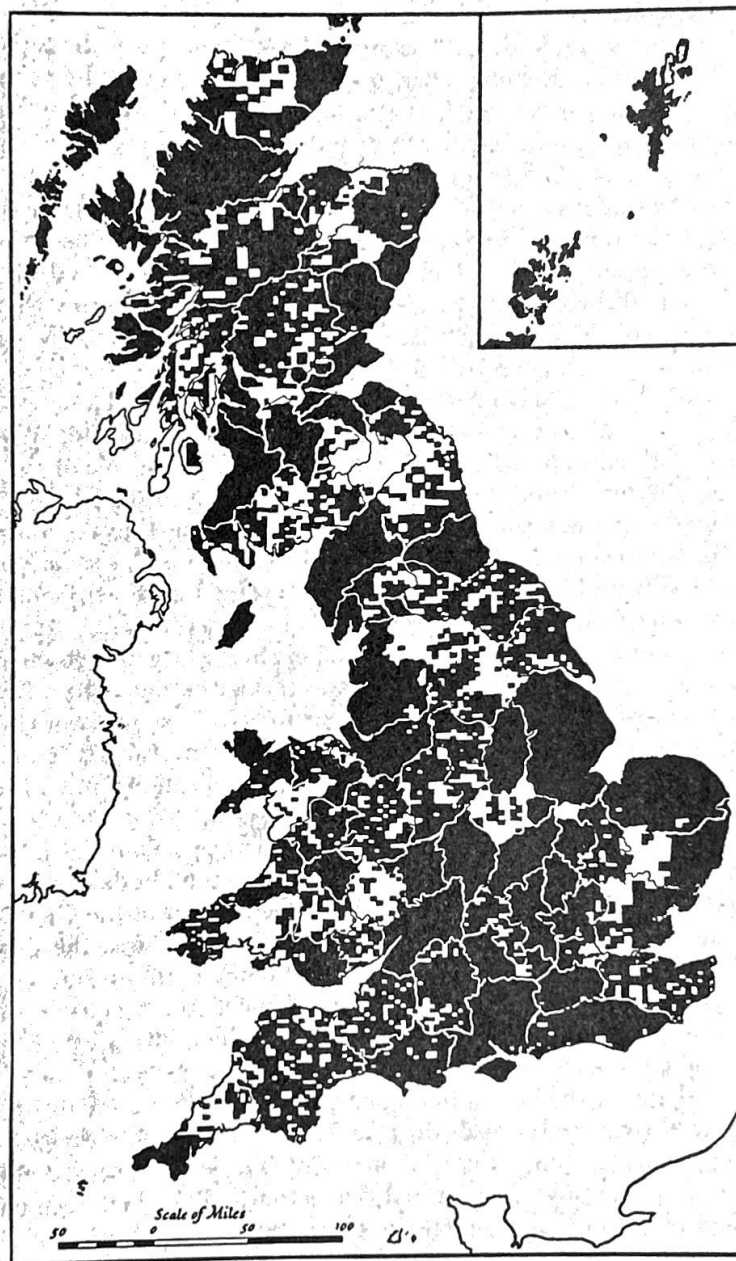


FIG. 2.—The state of the field work on January 20th, 1934.

Before I left for America the stream of completed field maps had become a torrent. A record number of 1,300 was returned in the single month of July 1933, and so much of the country had been practically completed that it was decided to discontinue the issue of the monthly

progress reports with No. 24 (July 1933). A quarterly one, No. 25, was issued to cover the three months of August, September and October, and recorded the publication of the one-inch sheets No. 35 (Liverpool), No. 87 (Ipswich) and Scotland No. 4 (South Shetland) making a total of six published before I sailed.

From September 23rd, 1933, to September 1934 the Survey was in the capable charge of Dr. Willatts. In the Third Annual Report issued on February 1st, 1934, he recorded that 15,000 completed field sheets had been returned, that 36 counties had completely finished the work and 25 nearly so, and a map, reproduced here, was published to show the exact state of the work. The completion of many areas was becoming increasingly difficult for the county organisers and more and more was being undertaken by the universities—whose work included at the same time any revision or checking of doubtful points. Foremost amongst the helpers must be placed the senior students and post-graduates who had passed through the combined Geography Department of King's College and the London School of Economics. Headed by their own colleague, the Organising Secretary of the Survey, it is not too much to say that they made possible the completion of a work, so nobly begun, which had reached a difficult stage. In 1933, one such party of six in the summer vacation completed the intricate Land's End area. It was in the same summer that a party of students and ex-students of Bedford College for Women (University of London) organised and led by Dr. Dora K. Smee, surveyed the whole of the Isle of Mull and neighbouring parts of the mainland. Parallel with similar work in the Sheffield and Leeds area by the respective universities was the grand work in completing the Marlborough sheet (112) by the senior boys of Marlborough College organised by Mr. C. C. Carter, M.A. Two more sheets—No. 12 (Ambleside and Keswick) and Scotland 68 (Firth of Forth)—had been published, making eight up to February 1934, whilst four more were in the press.

The very heavy cost of publication—about £120 per sheet—began to loom as a giant obstacle on the horizon. In one major county the problem was tackled seriously by Mr. (afterwards Dr.) J. E. G. Mosby, D.S.O., M.A., the County Organiser for Norfolk, who sought to interest local residents in the work of publication. Mr. Russell J. Colman, Lord Lieutenant of Norfolk, agreed to become the first County Patron and started the publication fund with the magnificent donation of £50 (afterwards increased to £60).

Two important lines of research were also initiated in 1933. One was a "series of explanatory memoirs . . . to assist . . . in interpreting the information embodied in the printed maps." These were intended at first to be sheet memoirs, after the manner of the Geological Survey, but this was later changed in favour of County Reports. The other was the development of the historical approach—the tracing of land use changes "demonstrating how the present survey can be used as a starting point for a precise study of changes in agriculture" and Mr. Willatts prepared a paper entitled "Changes in Land Utilisation in the South-west of the London Basin, 1840–1932," which was published in the *Geographical Journal*.

Progress Bulletin No. 26, the last to be issued apart from later annual reports, refers to the quarter ending May 31st, 1934, and records the publications of two more sheets—No. 11 (Durham and Sunderland) and No. 95 (Luton)—making ten in all. These ten sheets reached me in America in time to be taken with me on my main United States tour. They had been chosen to illustrate the very varied types of country present in the comparatively small area of Britain—from the wild moorland of the Lake District to the arable corn country of Norfolk and from industrial Durham to the rural charm of the Isle of Wight. To these ten were added a little later No. 67 (Norwich) and No. 72 (Birmingham) and formed together a magnificent teaching series. It was to demonstrate their educational interest that Mr. Willatts and I afterwards prepared the brochure entitled *An Outline Description of the First Twelve Sheets*.

In the summer of 1934, when I was still in America, troubles came thick and fast. The printing bill for the first two maps had been £112 10s. each—based on actual cost plus an agreed profit to the Ordnance Survey—and an agreement had been initialled with the Ordnance Survey that this should be the contract price for the next ten sheets (excluding Shetland). In error, a bill was rendered for the estimated actual cost and one map alone, owing to difficulties which had arisen, was charged at £249. To add to this, the Durham sheet had been published in response to what we understood to be a firm advance order for 200 copies from the County Education Authority. When the map was published the order was not confirmed and, despite our protests as the order had been given to me personally though orally, we were landed with 1,000 copies of the map, a bill for £112 10s. and no sales. As a result, the Survey was rendered insolvent. Cables passed with me in America, all publication was suspended, accounts rendered were held up pending my return.

Such was the state of affairs when I returned to England in September 1934. The matter of the Ordnance Survey account was settled immediately to our satisfaction by the production of the original agreement and we had a little money with which to continue. Up to date, the Survey had been financed mainly from the Rockefeller Research Fund of the London School of Economics which, after the initial grant of £500 in 1930, made grants of £1,000 in 1931 and 1932. The fund itself was a grant made by the Rockefeller Foundation annually for five years to be used for the encouragement of research projects by the members of the School. This annual payment came to an end in 1934 and it was against the general policy of the Foundation to renew such grants. They very reasonably took the view that research initiated with their help should have so demonstrated its usefulness that local support would be forthcoming.

So, in the autumn of 1934 with only 10 per cent. of the field work uncompleted but with the work of publication scarcely begun, the Survey seemed doomed to extinction. It was at that time that the Court of the University of London, headed by the Chairman Lord Macmillan, was paying the official quinquennial visit of inspection to the School of Economics. Ten minutes had been allotted to a glance at the Survey's premises—we were accommodated at that time in the old shop, No. 18 Houghton Street, which had been acquired by the School—and a brief explanation was given of the work. It was Lord Macmillan who, within a matter of seconds, summed up both the achievements and the objectives of the Survey, and asked questions which showed that he had appreciated immediately the outstanding technical difficulties. On being told of the financial position, Lord Macmillan remarked that he thought the work would command the interest of his fellow trustees of the Pilgrim Trust (of which he was chairman). An application was accordingly made to the Pilgrim Trust and in January 1935 the fortunes of the Survey changed. At their meeting held on January 24 the Pilgrim Trustees made a grant of £2,000 to be devoted especially to the preparation of the Report and a publication loan of £1,000 to be used as a Revolving Fund for map publication. A few days earlier, the Executive Committee of the Council of Local Education Authorities had passed a unanimous resolution urging their members to accede to requests for support for the completion of the Survey, each county to defray the cost of completing at least the coloured manuscript map of its area.

Accordingly, the work of reduction and editing was again pressed forward, and seven more one-inch sheets were sent to the Ordnance Survey for printing. These were No. 44 (Northwich and Macclesfield), 55 (Grantham), 66 (Swaffham), 146 (Land's End and Lizard) and the three Scottish sheets covering the Isle of Mull (Scotland 53, 59, 60). For the production of the latter a special loan was made by Dr. Dora K. Smee who had directed the field work. These details were given in the Fourth Annual Report, issued February 1st, 1935.

The Fifth and final Annual Report was issued on February 1st, 1936. It contains abundant

evidence of the result of the stimulus of the Pilgrim Trust's support. The number of published sheets leapt in that single year—February 1st, 1935 to February 1st, 1936—from 12 to 32, representing an expenditure in the year of some £2,500 on the printing of maps alone. Early in 1935 the Director-General of the Ordnance Survey had intimated that the task of printing the maps was threatening to strain the normal resources of the department. An arrangement was reached whereby the Ordnance Survey supplied at an agreed price the base plates (black, contours and water) for printing, leaving the Land Utilisation Survey free to make whatever arrangements it liked with commercial map printers. The work was done under special licence granted by the Controller of His Majesty's Stationery Office and a royalty of £1 per 100 (minimum £4 on each map) was payable to the Ordnance Survey on all maps sold. Estimates were sought from a number of firms and, after the elimination of those above the Ordnance Survey's original figure, a number of firms printed maps—Waterlow (four), Bartholomew (two), Martin Hood and Larkin (one), Greycaine (one), and Messrs. G. W. Bacon & Co. Ltd.

Thus began a long friendly association with the last-named firm which in the next five years—until the destruction of their premises by enemy action in May 1941—printed 69 of the one-inch maps. The change-over from the Ordnance Survey to a commercial firm of printers represented a very considerable saving in the costs of printing maps—a saving of about 30 per cent. on the original contract.

Although the bulk of the field work was thus complete by the end of 1935, it was scarcely realised how arduous, expensive and time-taking was the work still to be done. An average of eight weeks by a skilled cartographer—we found the best plan was to select girls with a good school record including geography up to Matriculation or Higher Schools standard and to train them ourselves—was needed to reduce to the one-inch scale a single sheet and the 235 sheets represent thus some 2,000 man-weeks of work. At that time, the Headquarters staff of the Survey numbered about twelve. Each one-inch sheet we checked in the field, saving up all queries, visiting the areas concerned and a new army, this time of fully trained graduates in geography or allied subjects, was needed. That army was drawn largely from ex-students of King's College and the London School of Economics whose names are briefly recorded in the County Reports, though no praise could be too high for their devoted labours—carried out without thought of reward, without payment and often entirely at their own expense.

By the summer of 1936 another financial crisis developed. The Pilgrim Trust grant was exhausted and the Survey, with its greatly increased staff and numerous forward commitments, was again without visible means of support. Sir William Beveridge, at that time Director of the London School of Economics and under whose directorship the Survey had been born and developed was, not unnaturally, alarmed and to protect the interests of the School had to decree the winding-up of the Survey.

In June 1936 I signed an agreement with the Director of the London School of Economics whereby I accepted complete personal responsibility for the finances and conduct of the Survey, whilst the School continued to provide without charge the accommodation previously enjoyed. I organised the Survey as the wholly owned subsidiary of a small private publishing company and fortunately the profits from my own books published by that company have been sufficient to meet the net annual losses of the Survey. The accounts, kept separately, have been audited annually by public auditors. I will confess, however, that the hardest part of the whole work has been the collection of funds. I should not like to count the number of letters written to prospective patrons, but the kindness and generosity of so many in so many different parts of the country and with so many varied interests have more than repaid the efforts involved. The full list of Patrons and other subscribers is given on pages 452-54.

Seeing the good use being made of the Revolving Publication Fund, the Pilgrim Trustees made a further loan of £500, the late Lord Stamp lent £500 and the Halley Stewart Trustees £1,000. The publication of some 25 or 30 maps swallowed up the whole of the Publication Fund. The £1,500 per annum needed for running the Survey and later the £11,000 or £12,000 to cover the cost of the Report had somehow to be found.

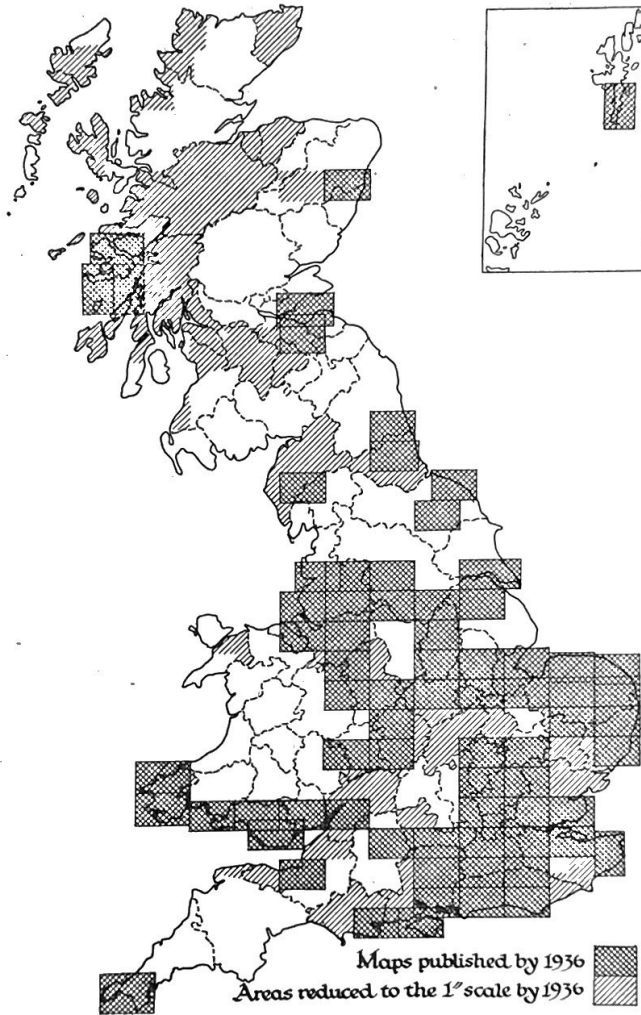


FIG. 3.—The position of the Survey in June 1936.

When the Survey became thus independent in June 1936 we took stock carefully of the position. It is expressed briefly in the attached map. The task still ahead was tremendous. The scheme for County Reports (the original idea was to limit each Report to a maximum of 10,000 words and for each part to sell at 1s.) was still in embryo, but in the winter of 1935-36 Mr. J. Stephenson completed the first report—on Berkshire. It ran to 114 quarto pages, has five folding plates and cost approximately £125 to produce. We had set ourselves a high standard from which we have tried hard not to depart. This part, the first of 92, appeared towards the end of 1936. Fifteen hundred copies were printed of this first part as numbers were distributed

free in order that the whole project might be known. Of later parts the printing was normally 1,000 copies, until the advent of wartime economy and shortage of paper led to a reduction in standard number to 500. This proved to be absolutely too low and many had to be reprinted so that the standard wartime printing was increased to 600 of which 100 were stored in reserve in sheets until after the war.

During 1937 and 1938 there was steady progress in completion and editing of the field work, in reducing the results to the scale of one inch to one mile in manuscript, in publication of maps and preparation of reports. The progress is summarised in the tables on pages 458-63.

The Survey was greatly encouraged during this period by the uniformly warm appreciation of its maps by all sections of the press, both technical and non-technical, by the satisfactory sales of one-inch maps and by the varied use made of them. The normal first edition of a map is 1,000 copies; the South-west London, Luton, Isle of Wight and other sheets had to be reprinted and so had the explanatory bulletin of the first twelve sheets.

In 1937 the rebuilding programme of the London School of Economics necessitated another move, just round the corner, to another old shop acquired by the School. This was No. 12 Clement's Inn Passage which had the advantages of a back room as a draughtsman's office, another on the first floor and a large (albeit somewhat damp and rat-infested) cellar which could be used for the storage of the rapidly accumulating stock of original maps and publications. My own house at Ashtead became a depository for other material; a subsidiary drawing office with two draughtswomen (the late Miss Phyllis Keymer and her sister, Freda Keymer) was opened at 36 Barnett Wood Lane, Ashstead, whilst some work of reduction to the one-inch scale was carried out under the supervision of the local experts at University College, Southampton; University College, Nottingham; King's College, Newcastle (University of Durham); Ratby School, Leicester; Birkbeck College (University of London); King's College (University of London) and elsewhere. Some members of the drawing staff worked at Messrs. G. W. Bacon & Co. Ltd. in Norwich Street, Fetter Lane, E.C. 4, and learned the technique of drawing key plates so that much of the work of drawing both the key plates and the printing plates for the one-inch maps was eventually done by our own staff. For some of the line maps which were used in the first report, a professional draughtsman was employed, but this was very costly and the results unsatisfactory so that a number of our staff took courses in lettering and we developed a uniform style used throughout the later reports. As the reports are illustrated by several thousand line blocks this proved a very large task as did getting the blocks made. This part of the work reflects the greatest possible credit on Miss Eunice Bicknell (afterwards Mrs. Wilson), who, having mastered the intricacies of the work herself, trained others in the same methods.

It is important to record that by this time the whole of the field work, the primary record, was complete with the unimportant exception of a part of the Isle of Arran. Thus the Survey refers definitely to the period before the great changes due to the war.¹

In the summer of 1939 the ominous gathering of the war clouds led to certain plans being made in advance so that we were not wholly unprepared for the outbreak of war in September 1939, though it caused a complete disruption of all the Survey's work. In the first place, the School of Economics was evacuated to Cambridge and all its premises taken over by a Government Department with the result that the Survey was without a home. Reference has already been made to the friendly relations with Messrs. G. W. Bacon & Co. Ltd., and it would be impossible to rate too highly the immense help received from Major W. J. Geddes, O.B.E., the managing director, who placed an office at our disposal in their building in 7-9 Norwich Street.

¹ Northamptonshire was revised after the 1927 survey but not completely re-surveyed. Apart from this the last field was recorded on the last field sheet in the south of the Isle of Arran in September 1941.

This became the office headquarters in sole charge of Miss Audrey N. Blake. For a short while a room in Dr. H. Ormsby's flat in Fetter Lane was used as a drawing office for one draughtswoman (Miss M. V. Coldman, afterwards Mrs. Ullwin) till Dr. Willatts converted part of his house at Horton, Buckinghamshire, into office, stores and drawing office. Many of the original field maps were sent for safety to Horton, to Ashted and to my summer home in Bude, Cornwall. Miss Bicknell arranged to carry on the drawing of black and white maps at her home and the rest of the staff were released for any urgent war jobs.

In the second place an unexpected result of the declaration of war was the receipt of several telegrams from counties asking to borrow our sets of original field maps as a basis for planning the ploughing campaign. We were in a quandary to know our best course and so offered the services of the Survey and all its resources to the Government. The offer was made through a member of our Advisory Committee, Lord Macmillan, at that time Minister of Information, and passed to the Ministry of Agriculture as the appropriate Ministry. The next two or three months were occupied in sending out thousands of our original six-inch field sheets on loan to County War Agricultural Committees and altogether more than 8,000 were loaned in this way—our maps, of course, showed the areas actually ploughed in the years before the war. The counties also found the published one-inch maps very important for their planning of the war effort and others were used by the Service Ministries. The thanks of the Government were conveyed to the Survey by a statement in Parliament which the Minister of Agriculture (Sir Reginald Dorman-Smith) made in reply to a Question.

It had become clear that the Survey could not carry on, however willing, without funds and the time was scarcely propitious for appealing to private donors. In recognition of services rendered, the Minister of Agriculture recommended to the Treasury that a grant of £1,500 be made to the Survey, with permission to apply for its annual renewal. The amount of the grant was fixed by making it roughly equal to the net annual loss (i.e. excess of expenditure over income) in the three years preceding the war. It was made conditional on the Survey continuing to publish with the utmost speed the more important one-inch maps of England and Wales, and completing the series of county memoirs. The grant was made for 1939-40 and renewed in the following years, 1940-41, 1941-42, 1942-43, 1943-44 and 1944-45.

The work of preparing the coloured manuscript maps for publication and getting them printed was pushed on with utmost despatch, together with a generalised map of the whole country on the scale of ten miles to one inch and a Types of Farming Map of England and Wales on the same scale prepared by the Ministry of Agriculture. Difficulties began to mount—shortage of skilled staff, shortage of paper, and air raids were some.

The fear of destruction by enemy action was ever present and for reasons of safety it was decided to reproduce the remaining one-inch maps of England and Wales not already published on one-quarter the scale by the three-colour process. These reproductions have been used as plates to illustrate the appropriate reports. Although the topographical detail and names are difficult to read these plates do give a true picture of land use and in the event of loss of originals they can be enlarged up to the one-inch scale. They were steadily replaced by the publication of the one-inch maps.

A serious loss was incurred when a stock of some 5,000 maps, held by Messrs. Stanfords of Long Acre was destroyed in the raid of April 15-16th, 1941—the same night as my brother, Lord Stamp, was killed. The main blow to the Survey, however, fell with the great raid on London of May 10 of that year when the premises of Messrs. G. W. Bacon & Co. Ltd were completely destroyed. The Survey lost all its current office records, its main stock of some 42,000 printed maps—including all the stock of the ten-mile map (Southern Sheet) just published

and the Types of Farming map, printed but not published—and all the blocks of the quarter-inch plates. Even more serious was the loss of nearly all printing plates (so that the maps could not be reprinted) and, worst of all, the originals and plates in various stages of preparation, of nine one-inch maps then passing through the press.

We found ourselves with a small reserve stock of most of the 96 published one-inch sheets which had been stored on a farm in Berkshire and with the main stock of reports still at our printers, Messrs. A. P. Tayler & Co., or at Western Printing Services, Bristol. Fortunately, we still had all the original six-inch maps or photostat copies of them stored elsewhere and we set to work to repair the damage. Miss Blake turned part of her home at Whetstone into the main office and her memory had to replace office files; Dr. Willatts already had the main drawing office at his home; my house in Cornwall became the storehouse for still more material including reserve stock of all later maps and reports and became also my editorial headquarters. The Government regarded the re-establishment of the work as of major national importance so that insurance claims were promptly dealt with and the work was not hindered by financial troubles. Some plates stored elsewhere were preserved and thirteen sheets were reprinted. Three one-inch sheets were printed, after the originals had been redrawn, by the Baynard Press, and a number by Messrs. W. & A. K. Johnston Ltd., of Edinburgh, but Messrs. Edward Stanford Ltd., of Long Acre became our chief printers.

In the autumn of 1941, Dr. Willatts was released half-time to become Maps Officer to the new Research Section of the Ministry of Works and Buildings. His work there naturally increased and he became full-time in the summer of 1942, remaining as Honorary Secretary to the Land Utilisation Survey. It would be quite impossible even to attempt to assess the real value of his work, over eleven years, as Organising Secretary of the Survey, but the achievements of his régime may perhaps speak for themselves. When his Research Division became part of the new Ministry of Town and Country Planning in the spring of 1943 he had already gathered to his aid former members of the Survey's cartographical staff—including Miss J. Hough (Mrs. Dickinson) and Miss Betty Evans—and I served as Technical Member of the Ministry's Maps Committee, having been from March 1941 to February 1943 a member of the Advisory Panel set up by Lord Reith as first Minister of Works and Buildings.

In the meantime more and more of the work of the Survey was along lines indicated as urgent by the Ministry of Agriculture. Research into the assessment of productivity, fertility and the classification of land which had been initiated in 1937 and indicated as basally significant by the Royal Commission on the Geographical Location of the Industrial Population—to whose chairman, Sir Montague Barlow, the Survey owes much for his encouragement—now became vitally important to the work of integrating the war effort with post-war planning. A preliminary map of England and Wales showing the distribution of ten types of land was exhibited at the Oxford Conference of the Town and Country Planning Association at Easter 1941. In October of that year, at the request of Lord Justice Scott, I became Vice-chairman of the Committee set up under his chairmanship by the Minister of Works and Buildings in conjunction with the Minister of Agriculture to enquire into land utilisation in rural areas. Of the friendships formed during the nine months of the Committee's deliberations this is not perhaps the appropriate place to speak, but amongst the practical steps taken by the Government to implement some of our recommendations was the setting up of a Planning Branch and research organisation under the Ministry of Agriculture. I was appointed in June 1942 Chief Adviser to the Minister in Rural Land Utilisation and it became my pleasant duty to utilise for practical ends in national land use planning the mass of information collected by the Land Utilisation Survey. Miss E. Bicknell (now Mrs. Wilson) became Chief Cartographer to the new research organisation; Miss M. V. Coldman

(now Mrs. Urwin) became a Senior Cartographer, and apart from voluntary and part-time helpers the staff of the Survey was reduced to one—Miss Blake. All the one-inch and other coloured maps were ready for publication and many were in the press, though the editing of many of the County Reports still remained and this final Report still to be written. Such was the position in July 1943.

The Planning Branch of the Ministry of Agriculture and Fisheries set up its London offices at 124 Cromwell Road and the Ministry placed a room at my disposal for the use of the Survey so that I could the more readily supervise the completion of the work at the same time as I was occupied with my advisory duties. It became increasingly difficult to get maps and reports published—the shortage of man-power, the preoccupation of skilled map printers with special orders for the fighting services and the strict paper rationing were some of the obstacles. Nevertheless, the printing and publication of maps was pushed on, though one report dated 1943 and printed in that year was not bound till four months later.

Towards the end of 1943 the Department of Health for Scotland became very active in regard to post-war planning and following conferences in St. Andrew's House, Edinburgh, the Departments of Health and Agriculture asked for the publication of twenty one-inch maps covering the more populous parts of Scotland and the Treasury agreed to a special grant (estimated to cover half the cost) of £2,000 spread over two years for the purpose. The printing of these Scottish maps was undertaken by the Edinburgh firm of Messrs. W. & A. K. Johnston Ltd., and proofs of the first two sheets were available in June 1944 though printing was held up by the paper control. With this encouragement, the Survey itself decided to publish in due course all the remaining one-inch maps of England and Wales and a large batch, including most of the rest of Wales, were put in hand with Messrs. Edward Stanford Ltd. The Survey was determined not to lower its standard and two of the largest of the Reports were issued in 1944—those on Worcestershire and the Highlands of Scotland.

In the late summer of 1943, Miss Jean Morris joined the staff of the Survey to understudy Miss Blake who was released later in the year to become cartographer to the Ministry of Agriculture, but who continued throughout to supervise generally the completion of the Survey's work.

The work of preparing the later County Reports for publication, especially the task of preparing the illustrations, and the work of publishing the one-inch maps went on steadily through the particularly trying period of the flying bomb raids in the summer of 1944 and the period of the assault on London by V2 rockets which followed. In February 1945 the Planning Branch of the Ministry of Agriculture moved to 27 Oxford Square and the Survey was again given accommodation. The summer of 1945 saw the end of the European war, followed unexpectedly shortly by the end of the Japanese war, but the task of the Survey in publication was not entirely complete. Miss Blake was released at the end of September 1945 and again took general charge and in October the London School of Economics returned to its own home at Houghton Street from its exile in Cambridge, and I succeeded Professor Rodwell Jones as Head of the Department of Geography. In November, on the eve of his departure to take up the Lecturership in Geography at Gordon Memorial College, Khartoum, Dr. Howell was able to hand over his completed typescript for the Reports on North Wales and Cardiganshire, and Mr. McPherson of Birmingham (who died with tragic suddenness a few months later) completed his work on Warwickshire. On March 30, 1946, the receipt from Mr. E. B. Dobson of the last section of his Report on Angus completed the whole series of County Reports. A little later, in June 1946, the last page proofs had been despatched back to the printers, passed for press, and these last parts were published on December 12th, 1946.

Relieved of the danger of destruction by enemy action, the 100 copies in sheets of all the Reports printed during the war were despatched from my home at Bude for binding in nine volumes and arrangements made to secure the distribution of these complete sets to overseas Governments and Universities in order that the records made by the Survey might be as widely available as possible.

The grant from the Ministry of Agriculture for services rendered during the war came to an end with the final payment in October 1945, leaving the Survey with the task of financing the last dozen one-inch sheets of England and Wales, the cost of the Scottish Sheets still to be issued having been half-met in advance by the grant from the Scottish Department.

In December 1946 the Survey moved back to its original home—the London School of Economics. With the County Reports finished and many of them already out of print, with all the one-inch maps of England and Wales published or in the press—some 30 sheets already out of print—much work still remained to be done. There were 15 Scottish sheets to be published, the Scottish printers having proved very slow and this final Report to be seen through the press. The publication of the specially prepared Vegetation Map of Scotland, like the Land Classification maps, Types of Farming maps and general Land Utilisation maps all on the scale of 1 : 625,000 or approximately 10 miles to one inch, was undertaken by the Ministry of Town and Country Planning. There remained the problem of making available the results of the Survey not actually published—especially the one-inch maps of the remoter parts of Scotland. It was decided to make fair copies of these and deposit a set in the Royal Geographical Society's map collection. The Society defrayed the cost of making the copies. As far as possible the original six-inch field sheets, or photostat copies, were collected together again and deposited in the Department of Geography of the London School of Economics.

Apart from the reference to the preparation of the first County Report in 1935-36 and its publication in 1936, little has yet been said of the immense task which the publication of the 92 parts inevitably involved. As with the field work, the writing of the reports has been entirely a labour of love ; there has been no payment to any of the authors and in many cases the authors have themselves contributed to the cost of production. In general, each has been written by a native of, or a resident in, the county concerned or one who combined a special knowledge of the local conditions with a sound academic training in the fields especially of geography, economics or agriculture. In the full list of authors given on pages 455-58 it will be noted that a large number, indeed the majority, are marked with an asterisk. All these have been connected, as students or members of the staff, with the joint School of Geography of King's College and the London School of Economics. This in itself is an indication of what the Survey owes, quite apart from the field work, to the enthusiasm of successive generations of graduates who had passed through the joint school whilst the work was in progress. Not a few of the Reports were completed in the most difficult circumstances when their authors were serving in the Navy, Army or Air Force. The task of editing, and in some cases doing a considerable proportion of writing, naturally fell to me but throughout I have had the constant help of Dr. Willatts. Quite apart from his own very substantial contributions to the series, his watchful and critical eye has been cast over nearly all the manuscripts or proofs, and not a few of the authors derived inspiration from the fact that Dr. Willatts himself had been through the same academic mill as themselves. My colleagues in the joint school, Professor S. W. Wooldridge and Mr. S. H. Beaver, have written two of the outstanding reports and helped with several others.

The Survey owes a great debt of gratitude to one whose name appears but rarely in the pages of the Reports. Its debt to Mr. James Fairgrieve is on many counts. Himself a pioneer in the advocacy of regional survey and the field study of land utilisation, he has inspired

many to interest in such work. A large number of the writers of the County Reports came under his tutelage for the final year of their university career, when they proceeded after graduation for their professional training at the Institute of Education and in more than one way their writings bear marks of Mr. Fairgrieve's regard for meticulous accuracy in fact, thought and expression. From the second part to appear, he has reviewed each County Report in the pages of *Geography* and for many years has read every one in proof, thus acting as unofficial editor and enabling innumerable corrections of fact and writing to be made before publication. His wide knowledge of the country and specialist interest in many phases of its geography, especially in meteorology, as well as his participation in the field work in several difficult areas have made his comments always timely and pertinent.

The Survey has had another very good friend in the virile person of Professor Eva G. R. Taylor, D.Sc., until 1944 Head of the Department of Geography of Birkbeck College (University of London). It was with her encouragement that two members of her staff, Dr. H. C. K. Henderson and Mr. Andrew C. O'Dell, carried out pioneer studies in the historical evolution of land use and inspired a number of post-graduate students of the College to follow their lead. Several of the County Reports of the Survey came to be written in this way and Professor Taylor, who was always aware of the acute financial difficulties of the Survey, made possible their publication by securing substantial grants from the Publication Fund of the College.

Finally, the Survey and I owe a special debt of gratitude to my former chief, Professor L. L. Rodwell Jones, Head of the Department of Geography at the London School of Economics from 1925 to 1945. No one can ever have worked under a more tolerant and understanding chief who, throughout the many years of the Survey's labour, arranged lecture programmes and lightened the burden of other academic duties that I might be as free as possible to devote time and effort to the Survey.

Here, then, we are on the eve of bringing to a conclusion an immense piece of work which, beginning almost as an individual effort, has surmounted innumerable difficulties which at times have appeared insurmountable. Those associated with the work have shared with me pride and pleasure at the international recognition of our work and of the warm approval which has been expressed in so many quarters of our efforts to produce a national document, part of an essential national stocktaking, which shall be of permanent value. Characteristically British in many ways it is not least so because such a large proportion of the work has been done by voluntary effort. There were never more than a dozen paid staff—for the most part, young women as cartographers and office workers—and the total cost has been of the order of £53,000. If the work had been carried out by a staff paid at fair market rates its cost, on the basis of man-hours actually consumed, could not have been less than £200,000.

The use already made of their work in the great war effort, in the plans which are being made and the foundations which are being laid for a better Britain of the future, as well as in the creating of a modern Domesday Book, can scarcely fail to thrill those youthful volunteer surveyors of 1931-34, now in their middle twenties or early thirties, who made the whole work possible. It is for them to reap the reward of their labours and to share with their fellow citizens the benefits which must surely come from a fuller knowledge of the land of their country and a fuller utilisation of its possibilities.