THE FIRST HUNDRED YEARS

"*Rerum cognoscere causas*"—Virgil

A CENTENARY HISTORY
of the
BRISTOL NATURALISTS' SOCIETY
1862 - 1962

By

F. COLES PHILLIPS

Issued 10th April, 1962

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This history of the Society, prepared for the Centenary year, is here published in a special issue of the PROCEEDINGS so as to be available at the Centenary Dinner on May 8, 1962.

Part IIIB of PROCEEDINGS for 1961 will contain the normal subject matter and will be issued later in 1962.

—ED.

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THE FIRST HUNDRED YEARS

A CENTENARY HISTORY

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BRISTOL NATURALISTS' SOCIETY

1862-1962

By
F. COLES PHILLIPS

EDITED BY A. J. WILLIS

PRESIDENTS AND SECRETARIES, 1862-1962

1862	William Sanders
1876	Henry E. Fripp
1880	George Forster Burder
1883	John Beddoe
1884	William Ramsay
1887	Thomas Hincks
1890	C. Lloyd Morgan
1893	Adolph Leipner
1894	Sydney Young
1897	S. H. Swayne
1899	C. Lloyd Morgan
1901	Arthur Prowse
1904	C. K. Rudge
1907	James W. White
1910	G. Munro Smith
1913	Miss I. M. Roper
1917	G. C. Griffiths
1919	Ernest H. Cook
1922	H. Womersley
1924	O. V. Darbishire
1927	James Rafter
1930	A. L. Flemming
1931	J. W. Tutcher
1933	F. S. Wallis
1934	O. V. Darbishire
1935	G. E. J. McMurtrie
1938	Macgregor Skene
1942	H. Tetley
1945	Sir Lewis L. Fermor
1948	F. W. Evens
1950	H. H. Davis
1952	W. F. Whittard
1954	J. H. Savory
1956	R. Bassindale
1958	Miss M. H. Rogers
1960	F. C. Phillips
1962	H. H. Davis

1862	Adolph Leipner
1893	H. P. Leonard
1895	Committee of three : C. K. Rudge, S. H. Reynolds, H. J. Charbonnier.
1897	Theodore Fisher
1899	S. H. Reynolds
1906	J. H. Priestley
1911	W. D. Henderson
1912	O. V. Darbishire
1917	Miss I. M. Roper
1935	Miss M. D. Hiley
1937	F. Stenhouse Ross
1940	Miss M. D. Hiley
1945	R. Bassindale
1949	L. R. Moore
1950	Miss E. J. Vinnicombe
1953	C. S. Carlile
1958	A. C. Leach

THE FOUNDATION OF THE SOCIETY

FREDERICK Adolph Leipner, son of a schoolmaster in Saxony, came to England in 1848, at the age of twenty-one, and six years later settled in Clifton as a teacher of German and Natural Science. Bristol at this time was a centre of considerable scientific activity. Though there was as yet practically no teaching of science in schools, biological subjects were, of course, included in the curriculum for medical students. *The Bristol Library Society* had been formed in 1772, the *Bristol Philosophical and Literary Society* in 1808, and the *Bristol Institution for the Advancement of Science, Literature and the Arts* a short while later. The Philosophical Society soon acquired a site at the bottom of Park St. (where the Freemasons' Hall now stands) and erected a building which was opened in 1823. Here the Institution was installed, with a Museum as its principal feature and the Philosophical Society in joint occupation of the building. Other cultural and learned societies also held their meetings here, amongst them the *Microscopical Society* which was founded in 1843 with thirteen original members. Adolph Leipner, an enthusiastic naturalist from early youth and particularly interested at this time in zoology and microscopy, was elected a member on March 12, 1856. He was thus brought into close association with other Bristol residents who shared his interests. Early in 1862 he and six other citizens formed themselves into a provisional committee to investigate the potential support for the formation of a society which should be devoted to the investigation of "every branch of science that finds culture amongst us".

His six associates were:—Stephen Barton, a business man and amateur entomologist who, during earlier residence in Australia, had brought together a vast collection, particularly of Coleoptera; John Beddoe, practising as a physician in Clifton, well-known as an ethnologist; W. J. Fedden, interested in entomology and microscopy; H. E. Fripp, occupying the chair of physiology in the Bristol Medical School, with a special interest in the eye and the optics of vision; C. T. Hudson, who was becoming widely known as an expert on the Rotifera; W. W. Stoddart, public analyst and amateur geologist with wide scientific interests.

In response to these preliminary enquiries, 162 promises of support were received, and " eleven gentlemen of established scientific position consented to be corresponding members". Encouraged by this evidence of enthusiastic interest, Leipner, in the capacity of Provisional Honorary Secretary, issued the following invitation:—

Clifton, April 24th, 1862.

Dear Sir,

You are requested to attend the First General Meeting of the Bristol Naturalists' Society, which will be held at the Bristol Philosophical Institution, Park Street, on Thursday Evening, May 8th.

The Chair will be taken at Half-past Seven, P.M. by the Rev. Canon Mosely, when a brief statement will be made of the organization and progress of the Society.

The Business of the Evening will include the adoption of Rules and Resolutions prepared by the Provisional Committee of this Society, and the Election of Officers.

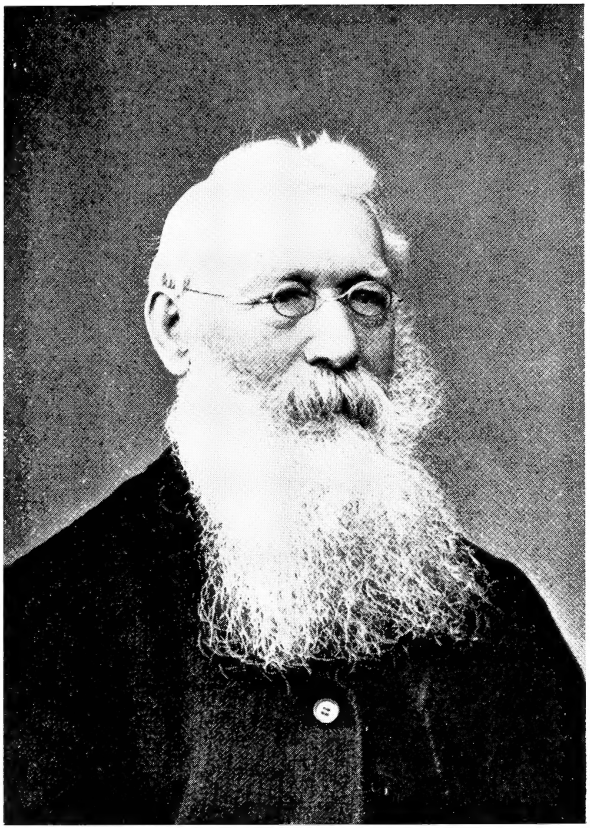
If time permit a short illustrated paper of general scientific interest will also be given.

I remain, dear Sir,
Very truly yours,
Adolph Leipner,
Provisional Honorary Secretary.

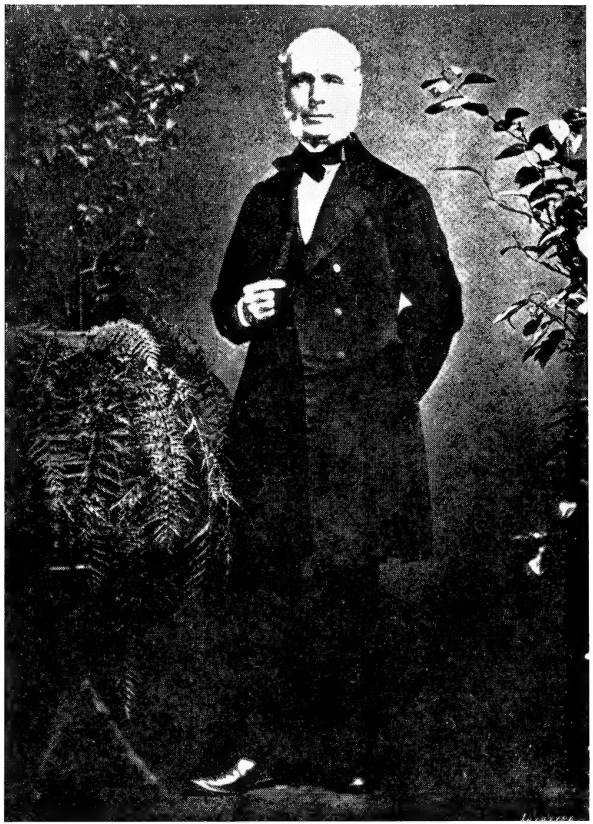
Seventy-nine gentlemen were present at the meeting, and Rev. Canon Guthrie was voted to the Chair in the absence of Rev. Canon Moseley. (In spite of the spelling of his name on the original notice, this was Henry Moseley, Professor of Natural and Experimental Philosophy and Astronomy in King's College, London, 1831–44, and author of a classic paper on the spiral forms of univalve shells, a subject on which he spoke at a General Meeting in 1867. He was later elected a Vice-President of our Society and served in this capacity until his death in 1872.)

The proposed rules were discussed at length and duly adopted. A contemporary newspaper report describes them as similar to those of the existing Microscopical Society " with the exception of there being no compulsory reading of papers with the alternative of paying a fine ". (This fine, set at 2/6 when the Microscopical Society was formed, was raised shortly after to 10/–! A fine was also levied on any member " not present at any meeting at eight o'clock precisely by the Institution Clock ".)

William Sanders was elected first President, and continued in this office until his death in 1875. A corn merchant in Bristol, and a founder member of the Microscopical Society, he had already established a national reputation for his geological work. He had begun geological mapping of the Bristol district about 1835, producing his own base-maps on a scale of four inches to a mile by reducing about 220 parish maps to this scale. Being friendly with De la Beche, he contributed some of his results to the one-inch Geological Survey map Sheet 35 published in 1845. De la Beche persuaded him to



ADOLPH LEIPNER



WILLIAM SANDERS

The first President, WILLIAM SANDERS, 1862-1875, and the first Secretary, ADOLPH LEIPNER, 1862-1893, and President 1893-4.

[*face p. 184*

A. Croome Leach

Howard H. Davis

The President, Howard H. Davis, and the Secretary, A. Croome Leach, in the Centenary year.

continue his large-scale mapping, and he completed his map of "The Bristol Coal Fields and Country Adjacent" in 1862; two years later, the value of his work was recognised by his election to Fellowship of the Royal Society of London. Most of our members will have noticed, close to the entrance of a railway tunnel at St. Anne's Park, a large spherical mass of ferruginous rock set on a pedestal of masonry; this concretion from the Pennant Sandstone was placed there by Sanders, with the Company's permission, at his own expense.

Rev. Canon Guthrie and Dr. A. Day (Honorary Secretary of the Philosophical Institution at the time) were elected the first Vice-Presidents, W. W. Stoddart Honorary Treasurer, and A. Leipner Honorary Secretary. To no other single member does the Society owe as much as it does to the first Secretary. He remained in Bristol until his death in 1894, becoming successively a lecturer at the Bristol Medical School, Lecturer in Botany and in German at University College on its foundation in 1876, and Professor of Botany in 1886. He continued enthusiastically to perform the duties of Secretary to the Society for thirty-one years, until in 1893 he finally yielded to the persuasion of his friends and agreed to be nominated as President; but he died in office within a year. During this long period he was assiduous in promoting the welfare of the Society, and we shall make many references later to other aspects of his contributions; it is clear, too, from the tributes of his contemporaries, that he was a man of great personal charm.

MEETINGS AND EXCURSIONS

The Committee of the Philosophical Institution gave permission for indoor meetings of the Society to be held in their rooms; it was resolved, too, that an important part of the Society's activities should be the setting on foot of excursions during the summer. The Society's first scientific communication was then received from F. Brittan, who " made some interesting observations relative to the anatomy of insects ". At the second meeting, on June 5, 1862, proposals for excursions were discussed and several communications were received, including a " gossipping sketch of a particular slug found largely in this neighbourhood ". With the onset of summer, no further time was lost in implementing the promise concerning excursions, and the first was called for July 8.

"It is proposed to leave Bristol by the Train, starting at 10.50 a.m. stopping at Bath. The Members will then walk to

the Hampton Downs, thence passing Claverton, along the Canal, to the Dundas Aqueduct, and thence to the *Brass Knocker* for refreshments at Five o'Clock".

The second, in August, was to Frocester; entomologists and botanists were informed that they would find the district a very good field for their researches, and the notice concludes :—

" Dinner at the BELL HOTEL, DURSLEY, at Half-past Four o'clock, at a charge of Two Shillings and Sixpence each, including beer and waiting ".

In the notice for the third, and last, excursion of the year, on September 13, an innovation is already evident. In accordance with the expressed wish of many members, the Committee arranged an excursion which would be suitable for ladies, and it was proposed to leave Cumberland Basin by the steamer *Fairy Queen* for Portishead at eleven o'clock, returning at seven o'clock. This concession led to ladies appearing as visitors at indoor meetings in the following winter " whenever the subjects are likely to be of a nature to interest a female audience ". In 1868 it was agreed to admit ladies to membership of the Society as Associates, and soon afterwards an anonymous Lady Associate communicated to the Society *Notes on a novel application of tea leaves*, the paper being read for her by the Secretary. In 1872 ladies were graciously conceded full membership; the first lady to hold office was Miss M. K. Moore, Reporting Secretary 1896–1900, and the Presidential Chair has twice been graced by a lady member—Miss I. M. Roper, 1913–16, and Miss M. H. Rogers, 1958–59.

The *Fairy Queen* was used on other occasions as one means of transport, but disgraced herself in the eyes of members in an incident associated with the first excursion in 1864. On June 17 the party, numbering upwards of seventy including several ladies, proceeded on foot along the course of the Port and Pier Railway to Shirehampton and the marshes, studying geology under the guidance of the President and Treasurer and collecting botanical and zoological specimens. At a quarter-past four the whole party reassembled at Hooper's Hotel, was refreshed by a cold dinner and " after the removal of the cloth " was addressed by Professor James Buckman (subsequently elected a Corresponding Member of the Society). Arrangements had been made for the party to return to Bristol by the *Fairy Queen*, which was to have called at Hooper's slip.

" We very much regret, however, to state that . . . those in charge of the steamer failed in their engagement, and the ladies and gentlemen who had relied on a pleasant voyage home had

the mortification of seeing the *Fairy Queen*—or, as a witty member of the party proposed to re-christen her, the Vixen—steam calmly up the river, leaving them no resource but to walk back to Bristol as they had walked out, the only fly procurable in Shirehampton being, of course, given up to the most fatigued among the ladies ".

We are reminded that conditions of transport in those early days of the Society's existence were very different from the facilities which we accept so readily today. Most of the field meetings at a distance from Bristol involved a morning journey by train, followed by an all-day walk. The geologists in 1875 record their appreciation of the action of the manager of the Bristol and Exeter Railway in having " courteously placed a broad-guage [*sic*] saloon carriage at their disposal " for an excursion to the neighbourhood of Ilminster. On another occasion, the party was able to retain use of its transport and " drive about in a break [*sic*] all the day from quarry to quarry ". Transport must have been a problem for the Honorary Treasurer, too, in dealing with the difficulties he experienced in collecting subscriptions, even with the help of a paid collector. In 1867 he reported, " not, he said, in a grumbling spirit, but with the hope that a full report of what he said would be given in the PROCEEDINGS ", that he expected to have to pay about 1,600 visits in the year if the same unwillingness to pay continued to be shown—" this ought not to be in a society which did not number 300 members ". Even the bicycle was not yet being manufactured in this country, though we later find its invention being blessed " for enabling us to make acquaintance with tracts unserved by any public conveyance, and too remote for the average pedestrian ".

PROCEEDINGS

During the first four years of its existence the Society published no PROCEEDINGS of its own. The only detailed records of its activities are preserved in cuttings from the *Bristol Daily Post*, to which reports were sent by the first Reporting Secretary, W. Lant Carpenter. Offprints of these newspaper reports were distributed amongst the members, and an incomplete set is preserved in the Society's archives. As a consequence of destruction of newspaper files in the city during air raids, there is probably now no complete set available for consultation in Bristol. During the year 1865 the Reporting Secretary received several expressions of a desire on the part of members generally to possess a report of the Society's proceedings in a more permanent form than that of the newspaper

slips. In March, 1866, the experiment was made of printing one month's PROCEEDINGS, and this was so well received that Council agreed that all the PROCEEDINGS from the commencement of the year should be reprinted in pamphlet form, and that future parts should be issued monthly. In this form, the publication was described as New Series; vol. I contained nine parts (omitting July, August, September), vol. II eleven parts, and vol. III again nine parts. By 1869, however, this frequency of issue had been reduced to quarterly on account of the high cost of monthly parts, and shortly afterwards further reduced to annually. After the appearance of vol. VII for 1872, issued in 1873, a further New Series of ten volumes covered the period 1873–1903, and a Fourth Series of nine volumes the period 1904–1943. With the issue of Part I of a new volume for 1944, it was wisely decided, at the suggestion of the Editor, H. W. Turner, to adopt a Whole Series volume number of XXVII, each volume in future to consist of five annual parts. This history is published, however, as Part III A of vol. XXX for the year 1961–62. The device which has long adorned the front cover of each annual part first appeared with Part I of vol. I (New Series) published in 1874, with a note to the effect that the Society was indebted for its design to two members, J. E. Jose and E. B. Tawney (the former was a Bristol merchant, the latter a geologist at that time holding the post of Assistant Curator at the Bristol Museum). Through long use, blocks made from this original design have become defective, and the centenary year has been made the occasion to obtain a new drawing. The gilt and enamel reproduction of the device which is worn as the Presidential Badge was presented to the Society by G. E. J. McMurtrie, President 1935–37.

DISSOLUTION HOAX

A curious incident occurred in 1867. The issue of the *Bristol Daily Post* for Monday, April 29, in that year, carried the notice:—

> BRISTOL NATURALISTS' SOCIETY. We regret to announce that the forthcoming meeting of the Bristol Naturalists' Society will be its last. The society has for some time been in difficulties, and the council have regretfully come to the conclusion that it is hopeless to carry it on any longer, from the want of support given to it by the majority of the members. This is the third society of the kind which has ceased to exist in Bristol during the last two years.

This notice was promptly repudiated by letters from the Secretary and the Treasurer published the following day; the Editor

could only claim, in self-defence, that " the original communication, which inclosed the paragraph, professed to be signed by Mr. Leipner, whose signature was so well forged as almost to defy detection ". In their 5th Annual Report, Council described the attempted hoax as " childish, weak, and wicked ".

THE FORMATION OF SECTIONS

The Sectional structure so characteristic of the organisation within the Society at the present time dates back almost to its foundation. Early in 1864 a letter was received by Council stating that several members wished to pursue the study of entomology in greater detail than would be generally desired, and to meet at intervals for this object. The minutes of a meeting held on May 16, 1864, record that the Council " with much pleasure accedes to the wish of the several gentlemen "; the election of officers and the management of its internal affairs were to be left entirely with the Section itself, though the Rules and the names of its officers were to be submitted to Council for approval. Only members of the Naturalists' Society could belong to the Section, and nothing was to be published in reference to its proceedings without the permission of the Council. The *Entomological Section* was inaugurated on May 12, 1864, and held its first meeting on May 24; it thus has the distinction of being the oldest within the Society, and one moreover which has never ceased to function throughout the 98 years of its existence (though at times continuity has been maintained only by a numerically small group of enthusiasts). Stephen Barton, a founder member of the Society, became first President of the Section (in which office he was, in fact, to remain for nearly 35 years until his death in 1898). Meetings were arranged for the second Tuesday in each month, and on April 24, 1865, the first excursion meeting was held, when the members visited Leigh Woods.

Other groups soon followed the lead given by the entomologists. A *Botanical Section* was inaugurated on August 29, 1864, with the indefatigable Adolph Leipner as President and a civil engineer, T. H. Yabbicom, as Secretary. A *Geological Section* held its inaugural meeting on September 30, 1864, and appointed the President of the parent Society, Williams Sanders, to the presidential office. It was agreed to meet on the evening of the fourth Friday in each month, from October to March inclusive, and to hold geological walks during the remainder of the year. This section, like that of Entomology to which it must concede four months' seniority, has the proud record of having operated without a break

to the present time. On February 25, 1865, a meeting was held by another group working within the biological field, to inaugurate a *Zoological Section*, an undertaking being given to exclude from their studies the Insecta, " which belong to the entomologists ". This section remained active for little more than ten years and has never been revived.

A stimulus to the formation of sections for specialised study within the Society was provided by the proposal, brought forward first by Leipner in 1864, that the Society should make itself responsible for the production of a work on the natural history of the Bristol district. The area to be covered was at first defined as that lying within a radius of nine miles around the city, " the palæontology of the Aust Section, as well as the Natural History of Weston-super-Mare and Clevedon, being given in appendices ". This area was that of Lander's electoral district map, geologically surveyed and coloured by Wm. Sanders, published in 1850 by J. Lavars, Steam Lithographic and Printing Offices, Broad Street Hall.

It was soon agreed, however, to increase the field of operations to that of the President's *Map of the Bristol Coal Fields and Country Adjacent* which had just been published. (The map, on the scale of four inches to one mile, in 19 sheets, carries the date 1862 on Sheet I, though the portfolios in which the sheets are bound is dated 1864. A map on the reduced scale of one inch to the mile was published by Lavars.) No single volume of the kind envisaged in this proposal has ever appeared; we shall notice more fully later, during an account of the scientific work of the Society, the various regional studies which relate to the proposal.

A section which was established third in chronological sequence is, perhaps, rather unexpected within a society of naturalists. On September 27, 1864, there was held the inaugural meeting of a *Chemical & Photographic Section*. W. B. Herapath was elected President, and the section appears to have flourished during the first two years of its existence. The last entry in the minute-book of the Section is the unsigned minute of a meeting held on May 8, 1867. Only four members attended a meeting called for October 9, and under the date of November 14 the Editor announced in the PROCEEDINGS that the Section had ceased to exist. Ten years later, on December 12, 1877, a *Physical & Chemical Section* was inaugurated under P. J. Worsley, manager of a chemical works in St. George, who had been President for a short while of the ill-fated predecessor. This Section had a longer and more successful life; two minute-books covering the period 1877–1903 are in the Society's archives, and the last entry records a resolution passed at a meeting on March 3, 1903, to wind up the Section and hand over the

balance of £4. 7. 10d. to the Treasurer of the parent Society.

Least expected of all is an *Engineering Section*, inaugurated on December 21, 1886, under the presidency of Charles Richardson; it remained active for about eight years. Seven papers read to the Section during its first year of activity, including one on the Severn Tunnel by the President, were published in full in a special 204-page supplement to the PROCEEDINGS! The proposal to extend the field of activities within the Society to cover "Applied Sciences" had been first raised on Council some years previously, and it was even suggested that the name of the Society should be changed to *Bristol Philosophical Society*, or even to *Bristol Scientific Society*, to indicate such enlarged scope, but no action was taken. Probably few present members of the Society would expect to find in earlier volumes of the PROCEEDINGS, authoritative papers on such subjects as sewerage systems, the strength of wrought-iron firebox girder-stays, or draught in marine boilers! These sections devoted to the study of physical sciences rather than of natural history did have, however, some important repercussions on the Society as a whole. There was an increase of membership to about 250, a number which had been reached previously only in the first few years of the Society's existence. For the first nine years the indoor meetings had continued to be held in rooms at the Philosophical Institution kindly placed at their disposal by the Committee. Reports and minute-books afford interesting glimpses of the prevailing conditions. The lime-light, produced by rendering a block of lime incandescent in an oxy-hydrogen flame, was already well established as a source of illumination for the optical lantern; but this was still rather at the ' magic lantern ' stage of development. At first, only mounted natural objects could be projected, and we read of many experiments with a projecting microscope; the progress of photography, however, soon made it possible to prepare photographs suitable for exhibition by projection. Coal-gas was available for general lighting at the Institution, but this must have depended upon the fish-tail and similar burners, for the incandescent mantle was not invented until the Society had been active for some twenty-five years. The gas lighting seems to have been supplemented by oil lamps, for we read of Council sanctioning expenditure on the purchase of further lamps " for the use of Sections during winter meetings ".

In 1871 the Bristol Institution merged with the Library Society to form the Museum & Library Association, and moved to new premises in Queen's Road in which the Society continued to meet. Appreciation of the hospitality of the Institution, and later of the Association, was expressed by an annual donation from the Society's

funds, usually of ten pounds though on occasions this had to be reduced, and by the purchase of fossils as a gift to the Museum. By 1880, however, difficulties had begun to arise because the 'Inner Library Room' in which the Society's meetings were usually held was not a suitable place for the performance of the physical and chemical experiments which were often featured. In 1884 the place of meeting was therefore changed to the adjoining University College, an arrangement which was continued when the University of Bristol was established by charter in 1909. In the early days of the Society many Council and sectional meetings were held in private houses, but with the increasing numbers involved this eventually ceased to be practicable, and at the present time almost all the meetings called by the Society, whether of the parent Society, of Sections, of Council or of committees, are held in accommodation generously placed at the Society's disposal by the University.

The leaning towards physical sciences at one stage of the Society's activities also accounts for the ultimate appearance in the lists of Honorary Members of names which we do not at first associate with natural history. The election of Dr. William A. Tilden of Clifton College as an ordinary member in 1876, of Mr. S. Phillips Thompson in 1877, and of Professor William Ramsay in 1880, mark the Society's first contacts with Sir William Tilden, Professor Silvanus P. Thompson and Sir William Ramsay. It is of considerable interest to follow the gradual unfolding to members of the Society of progress in applied physics. (Progress in some other directions has not been so rapid; ninety-eight years ago the Reporting Secretary explained to members the French metrical system of weights and measures " which it has been proposed to introduce into England . . . in place of the numerous absurd scales in use at present "!) ' The Phonograph invented by Edison ' was demonstrated in 1878, and ' a number of Swan's lamps lighted by means of a battery ' in 1881 (these were carbon-filament lamps, and more than twenty years were to pass before the general introduction of metal filaments). The first steps towards radio-communication are indicated in a paper on " The experiments of Hertz on electromagnetic oscillations " read in 1889; ' some very interesting photographs taken by the Röntgen X-rays ' were exhibited at a meeting in 1896.

The Council, in welcoming the inauguration of the University College of Bristol, commented:

> " An immediate result will be the introduction into Bristol (and partly, we may hope, into our ranks) of a fresh body of workers . . . we hail with pleasure the birth of an institution whose object is so akin to ours, as spreading among the rising generation a knowledge of science ".

As the teaching of science spread in universities, colleges, and schools, the physicists, chemists, and engineers amongst our members gradually transferred their loyalties to their own professional organisations, leaving their biological and geological colleagues to increasing prominence within the Society. Amateur and professional continued to work harmoniously together, and many notable contributions continued to be made by amateurs; but as inevitable specialisation developed it became increasingly rare to encounter a member with the broad interests and knowledge of some of our early members. The Society's first Honorary Treasurer, W. W. Stoddart, an analytical chemist by profession, contributed to a single volume of the PROCEEDINGS three of a long series of authoritative articles on the geology of the Bristol district, a list of the Desmids observed in the neighbourhood, a description of the distribution of the mosses of the district in relation to the nature of the underlying rock formation, and a note on *Ceratodus Forsteri* to draw attention to an exhibit in the Bristol Museum. At a General Meeting during the same period he gave a lecture on the natural history of Spiders.

Though biological science has in fact been catered for continuously by sectional organisation from the Society's earliest days, there have been many changes in the details of arrangements. The *Botanical Section* established in 1864 merged with a newly-formed *Biological Section* in 1891, and a few years previously a *Microscopical Section* had a brief existence. The Botanical Section emerged again in 1896, in the same year that an *Ornithological Section* was first formed. The development of biological teaching in schools prompted the formation of a *Biology Teachers' Section* in July, 1937; it was apparently fulfilling a useful purpose when it was dissolved in 1939 on account of war conditions. In October, 1955, the formation of a *Junior Section* was approved; under the guidance of an Advisory Committee, special programmes of lectures and field-meetings have been organised for Junior members of the Society.

BRISTOL FIELD CLUB AND THE FIELD SECTION

A rather special type of section was established by order of Council in 1926. Since 1920 there had been in existence the *Bristol Field Club*, formed for the " furtherance of the study of natural history in the widest circle ". As implied by the name, the promoters intended to concentrate largely on a programme of open-air work for nine months of the year, and to meet together during

the winter to record and discuss their observations. From the outset it was emphasised that there was nothing antagonistic in their intentions in relation to the work of the Naturalists' Society, in which field-work had evidently fallen to rather a low ebb. Membership of the Society had stood at about 140 for five years, only the geological and entomological sections were active, and there was only one general field meeting each year. The pattern of development of the Club, however, seems in fact to have followed very closely that of the older society. There were soon four sections actively at work, geological, entomological, ornithological, and botanical—the two former seem to have co-operated to some extent from the outset with the corresponding sections of the Naturalists' Society. The Club's General Field Excursion Programme for 1920 sets forth seven excursions between May and October, but there were also eighteen others distributed over the four sections, as well as a " conchological ramble " in search of land shells. The following winter was equally busy with numerous lectures—from the large number of news-cuttings preserved in the Club's minute-books one judges that publicity was excellent.

By the end of 1925, however, enthusiasm seems to have been waning (though, curiously, 200 copies of the Summer Programme for 1926 were printed). The entomological and ornithological sections had lapsed for want of support, and attendances at winter meetings were poor, although the summer excursions during 1926 were quite well supported. Negotiations were therefore opened with the Naturalists' Society, in the hope that

> " the cause of Natural History in Bristol could be strengthened by a scheme which would enable each society to take advantage of the special function of the other without destroying the identity of either".

Towards the end of 1926 an agreement was reached that the Club should be affiliated to the Naturalists' Society as a *Field Section*, the arrangement to take effect from the beginning of 1927. The President (J. W. Tutcher) and the Secretary (Miss M. D. Hiley) of the Club in the last year of its life retained these offices in the new Section (the latter, in the outcome, to continue in this capacity for the entire twenty years of the Section's existence, in addition to carrying out other duties within the Society). The Field Section organised no winter lectures, but summer activities were carried on much as before. The Section organised its own general field excursions, a special annual excursion for the parent Society, and also botanical and ornithological excursions. These changes appear to have infused a new vitality into the Society. Membership

gradually rose from about 145 (less than at the original foundation in 1862) to 250 in 1932. Report of Council for 1928 speaks of the excellent work being carried out by five sections. The Field Section took a firm stand against any tendency for its excursions to develop into " mere rambles ", and in 1930 a resolution was passed to substitute the term *Field Meeting* officially for *Excursion*, because " modern usage of this latter word had given it a different connotation from its original idea ". For some years all the general field meetings in one year were held in one selected area, and the Field Card setting forth the programme also included brief notes on the geology, fauna, and flora of that area.

In 1947, following reorganisation of the financial arrangements within the Society, the *Field Section* as such ceased to exist, its place being taken by a *Field Committee* appointed by Council. This gave the officers who arrange the summer programme the same status as those who arrange the winter programme. The use of motor coaches for transport became commoner (in the early reports of the Field Section the vehicles used are described as " chars-à-bancs "), and it became feasible to travel much further afield. The first all-day meeting recorded was to Chepstow and Tintern, on June 23, 1945, but on this occasion the train was taken at 9.5 a.m. from Temple Meads. The first all-night meeting, to hear the dawn chorus, was arranged in 1956, and winter meetings for the first time in 1958; both these innovations have proved popular.

In all this long history of section-making it is noticeable that there has been no mention of archaeology. The Reporting Secretary's account of the Society's second excursion, on August 20, 1862, describes the arrival of the party at Coaley Hill tumulus—

> " Geology and archæology, as sister sciences, so blend at certain points that it is difficult to apportion the peculiar province of each, and our Bristolians were almost divided into two currents of geologists and antiquarians, the tomb was as a weir across the stream, the latter plunging with professional ardour into the cairn and its traditions; a few even dexterously wriggling their way into the bosom of the tomb itself".

The botanists and geologists, meanwhile, discarding archaeology, " trudged across some turnip fields " in search of their own interests! On many occasions since that day the suggestion has been brought forward for the formation of an archaeological section, or for the modification of the existing geological section to one of geology and archaeology. At least two presidents of the parent Society have spoken strongly in favour of such action. A. B. Prowse, in his retrospect on the occasion of the Diamond Jubilee,

comments that archaeology has invariably been a great attraction within local societies such as ours, and speaks of " ill-judged attempts to exclude it ". G. E. J. McMurtrie, in 1937, mentions his own support for the addition of an archaeological section. Council, however, seems always to have felt that several other societies in Bristol, Gloucestershire, and Somerset already provide ample facilities for active work in this field, though it has been agreed that archaeological subjects might well feature regularly in the programmes of general lectures.

LIBRARY

At a Council meeting towards the end of 1864 Adolph Leipner brought forward a proposal for the formation of a Library, to consist of books relating to Natural History which were beyond the reach of individuals and not possessed by the Philosophical Institution or the Microscopical Society. The proposal was adopted and by the end of the year annual subscriptions and donations were invited. The collection grew slowly at first, but a catalogue printed in 1888 lists about 1,000 items; by 1922 the collection contained three times that number of volumes. During the long period over which separate sectional membership and subscriptions, to which we shall refer later, gave each Section a certain degree of financial independence, all four Sections subscribed to appropriate journals and periodical publications; the parts were circulated among the sectional members, and then presented to the Society's library. Until 1871 the collection was housed with the library of the Philosophical Institution and all the books were available to members of either body. Upon the move to Queen's Road in 1871 the books seem, at least for a time, to have been lodged in the new Museum buildings. There is a statement in the PROCEEDINGS to the effect that for some years at this time the library remained in Leipner's own house; this may well have been so, for in addition to his manifold other duties within the Society he had for some time undertaken those of Honorary Librarian. When the Society changed its place of meeting to the University College, the books were deposited there for a short period; but after a few years another move became necessary. This time, the Society secured a room at 28 Berkeley Square, rented from the Literary & Philosophical Club, which it was hoped might come into use as a reading-room for the Society's members. When the Club moved from no. 28, new rooms were obtained at no. 20, held jointly with the Bristol Microscopical Society, but the cost of the rental seems to have

been a constant cause of anxiety to our Society. An increasingly unsatisfactory financial position was developing at this time, and amongst methods of economising suggested in 1904 was " getting rid of the charge for the Society's rooms at Berkeley Square, either by housing the library elsewhere or by disposing of it altogether ". Fortunately, no such drastic action was taken! When the Microscopical Society was dissolved in 1905, its library of some 250 volumes, including a long series of valuable Ray Society publications, was offered to the Naturalists' Society and gratefully accepted.

In 1922, the Committee and Director of the City Museum generously agreed to place a room in their building at the disposal of the Society, and this has remained the home of the library to the present day, broken only by a period of war-time evacuation. The library narrowly escaped damage when fire destroyed a great part of the City Museum during an air-raid in the early part of the Second World War, but it was deemed advisable to disperse as many of the books as possible to places of relative safety outside Bristol. Generous offers of accommodation were received from country members, and it was possible to report in 1946 that the whole library was available for the use of members once more, undamaged by enemy action; though " it was the fate of one batch of books to be evacuated from Bristol to avoid risk of fire only to suffer ordeal by water " from a defective heating-system.

It is appropriate to quote here the description of the Society's library published in the Honorary Librarian's report for 1945.

> " It is an excellent library of its kind, and contains the best part of 10,000 volumes. It is divided into sections containing books on Geology, Botany, Entomology, Ornithology, General Zoology and General Biology. In addition it contains a large selection of journals of a more general nature, and the Society receives nearly 100 different publications of this type during the course of the year, mostly in exchange for its own *Proceedings*. These come from all parts of the world and include many from the U.S.A. One of the most valuable features of the library is a very representative selection of the journals of local Natural History Societies in all parts of the British Isles, probably the most complete collection of this type of publication in this part of the country. A glance at the recent-addition rack will give some idea of the variety of reading matter pouring into the library ".

The biggest problem which has faced the Society for some years is the enormous increase in the cost of binding. Some generous donations for this purpose have been received from time to time,

and further funds have been raised by the sale of partial runs of certain periodicals and of books for which the Society had little direct use. It remains, however, a spectre which haunts successive Honorary Librarians, who must surely look back with nostalgia to the time when special permission was sought to discontinue certain bindings in half-calf! Overcrowding of the library room was alleviated in 1960 by the transfer of runs of certain foreign periodicals which are rarely consulted to the care of the University Library in Queen's Building.

VARIOUS ACTIVITIES OF THE SOCIETY

Exhibition meetings have figured prominently, from very early days, in the programmes both of the parent Society and of the Sections. Particularly, they have been used as a part of the entertainment offered either to the general public on an Open Night or to a body of visiting scientists on such an occasion as meetings of the British Association in Bristol. The first exhibition of this kind seems to have been arranged for the visit of the Association in 1875, and was laid out in the Museum & Library building, the Society contributing a description of its natural history exhibits to the General Guide issued in connection with the meeting. This must be the first of many exhibitions held, either by the parent Society or by the Sections independently, in the City Museum, where a succession of Curators and Directors have maintained the most friendly relations with the Society. (In the Second World War the Museum of these earlier days was partly destroyed, and the shell of the building was purchased by the University of Bristol and adapted for use as a Common Room and Refectory. The City Museum is at present housed in the Art Gallery building where, under the same roof, separate administration was instituted in 1945.)

Towards the end of 1888 the suggestion was put forward to hold a Soirée. A special committee was appointed to make the necessary arrangements, and its deliberations are recorded in a slim minute-book still in existence. Exhibits were to include, in addition to those concerned with natural history, a number of scientific instruments and three typewriters; great efforts were made to arrange for the loan of a "graphophone", and it was hoped that "Miss Williams would lend curiosities". The great event finally took place in April, 1889; there were more than 420 persons present, so that the publicity value must have been considerable, but unfortunately "the total expenditure was about £12 in excess of the

receipts". A conversazione held in 1903 was attended by 167 persons, and on this occasion the receipts rather more than covered the expenses incurred.

The Jubilee of the Society was celebrated on May 8, 1913, by a reception given by the Lord Mayor and Lady Mayoress and the President of the Society (Miss I. M. Roper) to some 400 people, again in the City Museum & Art Gallery; a large exhibition was mounted later that year in the Great Hall of the University, and was so successful that it was suggested it might become an annual event, though this proved impracticable during the succeeding war years. A notable exhibition of recent years was staged at the Horfield Memorial Ground from July 7 to 21, 1951, as part of the Civic Exhibition entitled "Our Way of Life" during the Festival of Britain celebrations in Bristol. The Society's exhibit was centred around a large coloured picture-map of the Bristol area, on which were marked the places of interest to the various Sections. The whole stand aroused great interest and many members of the public expressed pleasure in it. Four years later another exhibition was arranged in the City Museum, on the occasion of yet another visit of the British Association; at two excellently attended evening receptions for the Association, members of the Society were present to explain their exhibits.

The first Annual Dinner was held in 1928, and was attended by "upwards of 70, almost wholly confined to members of the Society, the result being a very successful but not too formal function". It was hoped that, at a time when it was possible to belong to a Section without being a member of the parent Society, this might be an occasion for members from different sections to meet each other. The following year the experiment was made of inviting a distinguished guest to propose the toast of the Society, and was voted a decided success. The 12th Annual Dinner, held on February 2, 1939, proved to be unavoidably the last for some years. A dinner held in 1946 was attended by 73 members, and the Society has gradually returned to the position in which this is an annual event, a guest speaker being invited to introduce some topic of natural history in the second part of the evening.

MEMBERSHIP

Membership conditions, and subscriptions, have undergone many changes over the hundred years of the Society's existence, and it would be tedious to follow them in detail here. The annual subscription, at first 5/–, had risen to 10/– by 1874, with an entrance

fee of 5/–. When the sections were first formed, each charged an extra subscription of 2/6, but through succeeding years the relation of membership of sections to that of the Society underwent many variations. The Rules of 1876, for example, laid down that "Sectional meetings should be open to all members of the Society, as visitors, without their being enrolled members of any Section"; but in 1923 a very different decision was taken "to permit those who wished to follow up their knowledge of natural history to join one or more sections without membership of the parent Society being required". This affected membership rather disastrously; in 1931, for example, when it was decided to try the effect of suspending the entrance fee, only six Ordinary members had been elected to the Society, whereas more than twenty had joined sections at a very low subscription and no entrance-fee. Eventually, in 1933, the whole structure of membership was re-organised, and sectional members were required in future to become at least Associates of the parent Society by payment of 5/–. To bring about closer co-operation, each Section offered during the winter one meeting open to the parent Society, these open meetings being additional to the general meetings. At about this period, too, a custom was revived of holding an Open Night, for which a lecture was arranged to which the general public was invited by notices in the newspapers.

The year 1946 saw further changes. Sectional membership as such was abolished, and the distinguishing letters B, E, F, G, O disappeared from the lists of members. A new rule permitted the affiliation of school and other natural history societies with our own. In 1960 country membership as existing at that time was abolished; in its place, members resident outside a radius of 20 miles from the City Centre were offered Corresponding membership at a reduced rate if they did not wish to receive the monthly sheets. (This class of membership revives a term which, in the first days of the Society, applied to our present class of Honorary members.) At the present time, Full members and Affiliated Societies pay 25/– annually, members second in household and Corresponding members half this amount, Associate members 10/– and Junior members 5/–.

The printed list of members at the formation of the Society gives 168 names. This increased to just over 250 in the first five years, falling off subsequently and only rising to this figure again during the brief life of the flourishing Engineering Section. A further fall brought the level near 150, which was maintained until 1927 when the affiliation of the Field Club again raised membership above 200. The abolition of independent sectional membership brought about a further rise to 400 in 1947, and a fairly steadily maintained growth

has brought the figure to about 550 at the present time. This figure does not include some 90 Junior members—this group is inevitably subject to heavy fluctuations as young people leave the Bristol district and so have no urge to join the parent Society.

The Officers and Council have never felt satisfied with the numerical strength of the membership in relation to the population of the city. In 1937 the President wrote that a total of 211 could not be regarded with satisfaction in a population of 410,000 and it is little cause for complacency that in this Centenary year we have at least reduced this disparity to some extent. Various reasons have been suggested to account for the failure to attract greater numbers; it would be difficult to date the comment " It is undoubtedly partly due to an unwholesome craving of the younger generation for mere amusements "—an extract, in spite of its up-to-date note, from a retrospect of forty years ago !

In the abnormal conditions of 1939–45 the Society managed to continue to function (as, indeed, it had done during the 1914–18 period), although of necessity in a modified way. The time of General Meetings was at first changed to 3 o'clock on Saturdays to meet blackout conditions, although by 1943 it was considered feasible to revert to evening sessions. The Ornithological Section, in order to avoid the difficulties of moving in the blackout, at first arranged the dates of their evening meetings to coincide with those of full moon, but it was later agreed that " lunar assistance must be regarded as a potential danger "! General and sectional field-meetings were continued, although necessarily limited to selected areas within easy reach of the city; attendances kept up well, the average of five meetings in 1943, for example, being 24. In this way the pre-war organisation of the Society was maintained intact, ready for post-war development.

STEEP HOLM TRUST

An important post-war achievement was the successful conclusion in 1953 of negotiations for a lease of Steep Holm, in conjunction with the Folk House Archaeological Club, the Mid-Somerset Naturalist Society, and the Somerset Archaeological and Natural History Society.

The Steep Holm Trust, of which J. H. Savory has been Chairman and Secretary since its establishment, has as its object the preservation of the historic features and the flora and fauna of the Island, and the fostering of research in this connection. Some reference to studies made on Steep Holm is included in the account of the scientific work of the Sections which follows.

THE SCIENTIFIC WORK OF THE SECTIONS

Entomology

As previously mentioned, the first scientific communication made to the Society, at the Inaugural Meeting, was concerned with entomology. The Section held seven meetings in the year of its inauguration, 1864, and its first field excursion in the following spring.

Holders of the presidential office have been :—S. Barton (1864 to 1898); G. C. Griffiths (1899–1924); C. Bartlett (1925–38); J. W. Norgrove (1939–45); J. V. Pearman (1946–50); A. H. Peach (1951–53); N. A. Watkins (1954–62). The brevity of this list draws attention to the very long periods for which the first three Presidents occupied the Chair. Stephen Barton, a founder member of the parent Society, remained President until his death in 1898. Though as a business man he found little time for original research, it is clear that the vast collections which he had brought back from a visit to Australia played no small part in preserving the continuity of meetings in the first thirty-five years of the Section's life—frequently we read at the conclusion of the minutes of a meeting, at which perhaps only three or four enthusiasts were present, an entry such as " The rest of the evening was pleasantly spent in examining parts of Mr. Barton's fine collection ".

It is perhaps not surprising that one of the first Orders of which detailed information was published is the Lepidoptera. Over the period 1877–83 the PROCEEDINGS contain successive instalments of a Catalogue of the Lepidoptera of the Bristol District by A. E. Hudd (an amateur entomologist described as " leather merchant " when he was elected to the Society in 1864). The Order does not seem to have received any further extended notice in the PROCEEDINGS until 1947, when A. H. Peach published some records and observations. The next year C. S. H. Blathwayt began an annual series of ' Lepidoptera Notes '. The Diptera, as befits one of the largest Orders of insects, have received detailed attention. The first account of the Diptera of the Bristol District, by H. J. Charbonnier, was published in the PROCEEDINGS for 1911. The same Order was treated by H. L. F. Audcent in a series of parts extending over the period 1928–34. The author, a native of Keynsham, was a schoolmaster who taught at Fairfield Secondary School for many years. The published list included about 1,750 species, and the value of this work was recognised by the award of the Honorary Degree of M.Sc. by the University of Bristol in 1939. In the PROCEEDINGS

for 1948 and 1949 a completely revised list, published with the aid of a grant from the Royal Society of London, contained more than 2,200 species (approaching one-half of the known British species). This version has been described as the most extensive and informative regional list of Diptera in existence. Audcent's very large collection, which includes the majority of the British species, as well as some from France, is now held by the Zoology Department of the University of Bristol.

The Aculeate Hymenoptera [ants, bees, and wasps] of Gloucestershire & Somerset were listed by R. C. L. Perkins in 1924, and the Apterygota [Bristle-tails, Spring-tails, and Protura] of the south-west of England in a series of articles by H. Womersley in PROCEEDINGS 1923–27. In 1925 J. V. Pearman contributed a short account of British Psocids [Psocoptera, a little-known Order which includes the common Book-louse]. The Hemiptera-Heteroptera of the district [Plant-bugs and Water-bugs] have been recently listed by M. Ackland in the PROCEEDINGS for 1957.

It is appropriate to mention here the recent production by C. L. Bell (with some outside technical assistance) of two very effective sound and colour films, *The Marsh Fritillary Butterfly* and *Behind the Scenes*.

Ornithology

During the early life of the Society there was no Section specifically devoted to the study of ornithology. Work of this kind was carried out under the aegis of the Zoological Section, which existed from 1865 for some ten or more years, of the Biological Section which succeeded it, or of the parent Society. A paper of great interest by G. Harding in PROCEEDINGS for 1868 records the occurrence in May 1866 of European Bee-eaters at Stapleton. A list of the Birds of the Bristol District, by E. Wheeler, was published in PROCEEDINGS 1875–6, listing 168 species, and over the next twenty years there are occasional ornithological contributions. An *Ornithological Section* was first formed in 1896, under the presidency of C. Lloyd Morgan. At the first meeting " it was decided that the Section should make a list of local Bird Fauna, and record observations made on birds of the neighbourhood ". Attendances at meetings (which were usually held in the Library and Club Room which the Society was then renting in Berkeley Square) were often small. Compilation of the Local List formed the chief business at most of the meetings, and it was published in the PROCEEDINGS for 1899, listing 197 species. The authorship is ascribed to the Section; those chiefly involved in the task appear to have been H. J. Charbonnier (a well-known taxidermist and naturalist, active in other branches

of the Society's work, who had been elected a member early in 1864 and was later an Honorary Member for many years until his death in 1931), H. C. Playne (a master at Clifton College and author of several works on local birds), J. A. Norton, and D. T. Price (Secretary of the Section for most of its life). The entry in the minute-book for the 19th meeting, under the date February 14, 1901, reads : " On this date the Section was formally laid to rest, five members being present."

A new *Ornithological Section* was formed in November, 1922. C. Lloyd Morgan was again appointed President, and later elevated to the office of Honorary President. Presidential duties were carried out by A. L. Flemming, who was for some years described as Acting President; the office of Honorary President was later abolished. Occupants of the Chair have been :—A. L. Flemming (1922–32, 1934); J. H. Savory (1933, 1935–38); H. Tetley (1939–44); J. H. Savory (1945–47); W. R. Taylor (1948–50); A. C. Leach (1951–53); H. H. Davis (1954–56); G. E. Clothier (1957–59); G. Sweet (1960–62).

The new Section, in which Coldstream Tuckett as Hon. Secretary and R. P. Gait, among others, played a leading role, began its work tentatively, pointing out that it was difficult to say exactly along what lines it would develop, though it was intended to be practical rather than popular. It is interesting, too, to note the firm statement that field parties would not be organised except on rare occasions, because it was considered " impracticable for more than three, or at most four people together, to do good observational work at any rate as far as ornithology is concerned " ! Next year it was announced that a start had been made on observational records of migration, and that in order to extend this work it was intended to do some " ringing ". Three members ringed 62 birds in 1924, marking the beginning of planned field-work projects (ringing, nest record cards, surveys of important breeding species, etc.) carried out partly in co-operation with the British Trust for Ornithology; these projects have expanded to become a very important part of the Section's activities. In 1955 eight registered ringers in the Section ringed nearly 2,000 birds during the year. Observations in the Severn estuary, at N. Somerset reservoirs and elsewhere were carried out regularly, providing subject matter for occasional short papers in the PROCEEDINGS by H. Tetley (Curator in Zoology at the City Museum) and others. Such observations have, from 1936, been published annually in the PROCEEDINGS under the title of Ornithological Notes, Bristol District (since 1955, as the Bristol Bird Report). A revision of the 1899 list was undertaken, and a revised list describing 276 species and sub-species, from an area

slightly enlarged in comparison with that of the previous list, was published in PROCEEDINGS for 1947 by H. H. Davis, embodying information largely drawn from records by members of the Section. Our Centenary President, as Honorary Secretary of the Section from 1937 to 1953, compiled all the earlier Ornithological Notes and is joint author of the later Reports. He has been a member of the British Ornithologists' Union for 25 years, and a member of Council of the Wildfowl Trust, Slimbridge, since its inception in 1946.

Though sectional membership has been abolished, members of the Society are nevertheless invited to register with any Section in whose work they may be specially interested; the numbers thus registered with the Ornithological Section have increased steadily to include at the present almost one-third of the total membership of the parent Society. Since its formation, the Section has met for discussions, lectures or films more than 240 times and, in summer, despite earlier objections to organised field parties, there have been many all-day and evening field excursions. Owing to the rapidly increasing attendances, the original practice of meeting in members' houses was abandoned in 1938 in favour of the more spacious University Lecture Theatres. An activity of direct significance to the parent Society has been the organisation by the Section in the last few years, in conjunction with the Royal Society for the Protection of Birds, of public showings of such films as *Highland Birds*, *Sea-Bird Summer*, and *Reserved for Birds*. These showings may be considered as the present-day equivalent of the Open Night lectures of thirty years ago.

Since 1949 the Section has issued its own Field-work Report; in 1958 the title was changed to Field-work Review to denote an experimental broadening of the contents, with the inclusion of articles describing various aspects of field ornithology of general and local interest, with the object of helping those members who have asked for assistance in learning something of the technical aspects of ornithology. Subjects dealt with have included a Census of Rookeries in the City and County of Bristol, and in South Gloucestershire; a Census of Heronries in North Somerset; Buzzard and Lapwing Surveys; Survey of Shelduck on the Severn estuary; and the Status of the Mallard in North Somerset. Following upon the formation of the Steep Holm Trust, various members of the Section, forming the Steep Holm Gull Research Station Committee, have since 1955 carried out valuable work on the island in ringing gulls and other species. Organised duck counts at the reservoirs and on the estuary, sponsored first by the International Wildfowl Research Institute and now by the Wildfowl Trust, have formed a further important part of post-war field-work.

General Zoology

Though the Zoological and Biological Sections had but a brief existence, members of the Society have in fact studied many components of the fauna of the Bristol District in addition to the birds, and we notice here some of the results which have been reported in our PROCEEDINGS.

Once again we have occasion to mention A. Leipner, who contributed in 1874 a list of the land and fresh-water Mollusca of the district, and in the same Part there is an account of Bristol Rotifers by C. T. Hudson. A list of slugs found in the district, by A. D. R. Bacchus, appears in PROCEEDINGS for 1925; the local Barnacles are described by R. Bassindale in PROCEEDINGS for 1957, and a revised list of Lumbricid Earthworms is presented by H. Davies two years later. Two general lists of mammals of the district have been published, the earlier by C. King Rudge & H. J. Charbonnier in 1908, the later by H. Tetley in PROCEEDINGS for 1940.

A short article by L. H. Matthews, giving Notes on the Fauna of the Bristol Channel, published in the PROCEEDINGS for 1923, was designed to draw attention to a subject which would repay closer study. The same author described the Sea Fish and Fisheries of the Bristol District in PROCEEDINGS for 1933. In the number for 1937 there appeared the first of a long series of Studies on the Biology of the Bristol Channel, written mainly by members of the Department of Zoology of the University of Bristol. Nineteen of these Studies have appeared so far (though not all have been published in the PROCEEDINGS of the Society). Professor C. M. Yonge, in an introduction, describes the aim of the Studies as " a full description of the fauna of the estuarine regions of the Channel and of the environment, linking the two with studies on the biology of the animals ". The third of these Studies forms a part of a co-operative Survey of Steep Holm by a group of contributors (PROCEEDINGS for 1938, pp. 438–478). An account of the Dale Fort Marine Fauna, by R. Bassindale & J. H. Barrett (PROCEEDINGS for 1956, pp. 227–328), is greatly appreciated by visitors to the Field Centre.

Botany

The Botanical Section had a somewhat chequered history within the Society. Its first President was A. Leipner, who added yet another to his many services for the Society, but before his death in 1894 the Section had already agreed to " enlarge its sphere by changing its name for that of Biological and by inviting the co-operation of the zoologists of the Society ". By 1897, however, the minute-book is again using the designation Botanical Section.

The list of Presidents reads:—A. Leipner (1864–94); C. Bucknall (1897–1921); O. V. Darbishire (1925–34, latterly with Miss I. M. Roper as Chairman); Macgregor Skene (1935–55, latterly with F. W. Evens as Chairman); I. W. Evans (1956–62).

In the early life of the Section an important occupation was the preparation of a herbarium containing plants of the Bristol district, and one often reads in the accounts of winter meetings: "The evening was largely passed in mounting specimens for the herbarium". In 1874 there came to Bristol a pharmaceutical chemist, James W. White, who was taking over a business at Clifton. Shortly afterwards he joined the Society, and was persuaded to undertake the preparation of a *Flora of the Bristol Coal-field* as the botanical contribution to the survey of the district which A. Leipner so strongly urged upon the Society. This was duly published as a series of annual parts, issued between 1881 and 1887 with successive volumes of the PROCEEDINGS but paged independently, in order that the parts could be ultimately collated into a single volume. After a further twenty-five years of persistent field-work by a group of botanists associated with him in Bristol, he published in 1912 the *Flora of Bristol*, a volume of 700 pages giving an account of all the flowering plants, ferns, and their allies that had at any time been recorded within the district, aliens as well as natives. The book, written in distinctive style, has been generally regarded as one of the most outstanding works of its kind; the author's eminence as a botanist was recognised in 1927 by the award of the Honorary Degree of M.Sc. by the University of Bristol.

It is necessary here to intercalate some historical account of the development of botanical studies in Bristol. The Botanical Section reconstituted in 1897 seems to have been active only for a very few years, and an attempt to re-establish it in 1908 was also unsuccessful. For many years the PROCEEDINGS list C. Bucknall (to whose work we shall refer later) as President, and J. W. White as Secretary, but the reports in the PROCEEDINGS under the heading of the Botanical Section are really White's annual *Notes on Bristol Botany* which he contributed later under that title for many years, and which give important information on plant distribution supplemental to that of the *Flora of Bristol*. (These Notes were carried on from 1935 on the same high standard by Mrs. C. I. Sandwith, latterly jointly with her son, N. Y. Sandwith.) The Botanical Section of the Naturalists' Society was in fact moribund, and active field-work over this period was carried out by a small group not working directly under the auspices of the Society. In 1903 there was founded, at the suggestion of G. Brebner, Lecturer in Botany at the University College, a *Botanical Club*, which was intended to be

an " independent society for past and present students and staff of University College, members and associates of the Bristol Naturalists' Society, and other persons interested in Botany ". Owing to technical difficulties concerning the use of rooms, the name had to be changed from *The Bristol Botanical Club* to *The University College Botanical Club* (later, *The University of Bristol Botanical Club*). Our first Lady President, Miss I. M. Roper, was appointed Honorary Secretary, and the Club held fortnightly meetings during the winter months. J. W. White was President for a period, and from 1916 the Club met at his private house, 18 Woodland Road. In 1922, when only six or eight members were attending, Miss Roper proposed the dissolution of the organisation, but after agreeing to revert to the original name of *The Bristol Botanical Club* the venture was carried on through 1930. The last, unsigned, entry in the minute-books is of a meeting held on October 23, 1930; J. W. White died in 1932, Miss Roper in 1935.

Meanwhile, in 1925, a positive effort was made to revive the Botanical Section within the Society, under the presidency of O. V. Darbishire, Professor of Botany in the University. The first meeting was held on October 20, and we may perhaps justifiably read between the lines of the statement that the new Section " although realizing the importance of good field work, has no intention of confining its efforts to the naming and exhibiting of specimens ". The Report of the Section for the next year considered that results had fully justified re-formation, and from the following year onwards the Field Section co-operated to provide an enlarged programme of activities.

Fungi received early attention. C. E. Broome, in *Notes on Bristol Fungi* in the volume for 1874, pointed out that "An abundant source of amusement and inducement for rural excursions presents itself for ladies or gentlemen, free from the toils of business, in this department of botany ". From 1877, Cedric Bucknall began to monograph the Fungi of the Bristol District, publishing his lists in a long series of parts from 1877–91, with a collective index. He was a native of Bath, who adopted music as a profession and from 1876 to his death in 1921 was organist and choirmaster of All Saints, Clifton. He described 1,431 species, illustrated by many drawings so accurate that they served as the basis of a revision of the nomenclature of Bucknall's list more than fifty years later (see A. A. Pearson, PROCEEDINGS for 1946, pp. 177–180). Broome and Bucknall and their mycologist friends made a number of new records for Britain of the larger fungi from the Bristol district, and the correspondence between Broome and Rev. M. J. Berkeley, now in the library of the British Museum (Nat. History), contains much

of scientific interest as well as other amusing matter. A recent account of the Hypogeous Fungi of the Bristol District by Miss L. E. Hawker is published in the PROCEEDINGS for 1959.

The Mycetozoa, which Bucknall included in his list, later received special attention. A list for the Bristol district, by Miss Agnes Fry, can be found in the PROCEEDINGS for 1913, pp. 74–5; some problems of the group were discussed by F. W. Evens at a General Meeting in 1925, and a revised list by W. R. Ivimey Cook appeared in the PROCEEDINGS for 1929, pp. 110–113. O. V. Darbishire worked both on lichens and on algae; in the PROCEEDINGS abstracts are given of his three Presidential Addresses to the parent Society, including one, for 1925, on *Plants of the Sea*, which gives an account of the zonation of the larger brown seaweeds of the English coast. An important contribution to our knowledge of the freshwater algal biology of Abbot's Pool was made by F. E. Fritsch and Miss F. Rich (PROCEEDINGS for 1908, pp. 27–54), and the algae of this and of three other Somerset pools were listed by Miss A. E. Fitzjohn in the PROCEEDINGS for 1939, pp. 62–5. Charophytes (Stoneworts), with special reference to those of the Bristol district, were the subject of an informative account by Mrs. C. I. Sandwith (PROCEEDINGS for 1918, pp. 76–83), whose paper on the Hornworts or *Ceratophylla* (PROCEEDINGS for 1926, pp. 303–311) is of considerable value in the taxonomy of these submerged aquatic flowering plants.

Mosses of the district were listed by A. Leipner as early as 1868, and we have already mentioned W. W. Stoddart's article in 1874 on their distribution in relation to soil type. We do not find much mention of them later, but they were evidently a favourite subject for study in the Bristol Botanical Club, and some members contributed records to the well-known compilation by W. Watson, *The Mosses of Somerset.*

A short paper by Miss I. M. Roper in the PROCEEDINGS for 1909, gave a scholarly account of the Flower of Bristowe, the Scarlet Lychnis, *Lychnis chalcedonica*, tracing its probable introduction through the port of Bristol during the 16th century. This will be of particular interest to members at the present time, when Council has approved the adoption of this flower as the Society's emblem.

Of studies of an ecological nature, mention may be made of J. H. Priestley's account of the vegetation of the left bank of the Severn (PROCEEDINGS for 1910, pp. 9–25) and H. Stuart Thompson's paper on the vegetation of the Berrow flats (PROCEEDINGS for 1928, pp. 35–40). More recent examples of ecological studies, which come to occupy more and more of the botanists' attention, include the following :—

The Heath Association on Blackdown, Mendip, Somerset. By G. H. Heath, L. C. Luckwill & O. J. Pullen, Proc. for 1937, pp. 348-364.

An Ecological Survey of Dundry Down. By Mrs. G. M. Boley, Proc. for 1938, pp. 479-496.

The Vegetation of Berrow, North Somerset. By Mrs. G. M. Boley, Proc. for 1942, pp. 427-433.
„ 1943, pp. 510-520.

The Plant Ecology of the Gordano Valley. By A. J. Willis & R. L. Jefferies, Proc. for 1958, pp. 469-490.

An important activity in relation to the general public has been the maintenance each season of a table of local wild plants at the City Museum. Miss Roper undertook this work for many years; the display has been continued under the care, amongst others, of Mrs. E. M. E. Bell, Mrs. G. S. Wakefield, F. W. Evens and I. W. Evans.

The sectional Report for 1960 makes special mention of a meeting at which Mr. G. T. Goodman spoke on Coastal Vegetation of South Wales, and the film *Between the Tides* was shown to more than 200 members and their friends—" without doubt the largest audience ever in the history of the Section ".

Geology

Geological contributions to Leipner's proposed Survey began to be made even before the Society commenced publishing its own Proceedings. The Treasurer, W. W. Stoddart, initiated at his own expense a publication entitled *Palaeontologia Bristoliensis*, or The Principal Fossils of the Bristol District named and described. The Society does not possess a copy of this work; two parts, all that were published, can be consulted in the Reference Section of the Bristol Central Library. They are of considerable historical interest as the first published attempt in this country to use photographs to illustrate palaeontology. (At this early date, of course, no printing process capable of reproducing the photographs was available, and the illustrations were the actual photographic prints pasted on the pages of the text.) When the Geological Section was founded in 1864 the obvious choice of President was William Sanders, President of the parent Society; he continued in this office until his death in 1875. The following is a list of Presidents of the Section (dates assigned to some of the earlier names are perhaps not correct, as the available records are incomplete):—W. Sanders (1864–75); W. W. Stoddart (1876–80); W. J. Sollas (1880–2); C. Lloyd Morgan (1883–6); A. C. Pass (1887–1900); S. H. Reynolds (1901–34); A. E. Trueman (1935–7); W. F. Whittard (1938–40); W. T. Gordon (1941–3); F. S. Wallis (1944–5); H. W. Turner

(1946–8); Stanley Smith (1949–50); F. C. Phillips (1951–2); H. Homeshaw (1953); F. Stenhouse Ross (1954–7); C. E. Leese (1958–60); J. W. Cowie (1961–2).

The first field excursion of the Section took place in May, 1865, when William Sanders and W. W. Stoddart led a geological walk along the left bank of the Avon " in order to examine the strata laid bare by the excavations in progress for the Portishead Railway". (We are told that the afternoon was very fine and the attendance good!) In PROCEEDINGS for 1873 Stoddart began a series of general articles on the Geology of the Bristol Coalfield, still incomplete at his death in 1880. Another notable paper of this early period was on the Bone-cave or Fissure of Durdham Down, by E. Wilson, who was Curator of the Bristol Museum from 1884 to 1898.

Towards the end of the last century a rival to the Section showed its head for a brief period. There existed in Bristol at this time an organisation called the *Bristol Sunday Research and Recreation Society*, and when in 1892 a Geological Section was formed within this Society the minutes of the first ordinary meeting commented: " This Society has the honour to be the first formed in Bristol for the investigation of geological phenomena"! Owing to difficulties with the parent Society, this particular organisation lasted only until the end of 1893, but the members immediately re-formed themselves into an independent *Bristol Geologists' Association*. They were soon brought into touch with our own Society, and after protracted negotiations the Association seems to have been absorbed by our Society towards the end of 1897.

The classic paper on local geology appeared in 1906, when A. Vaughan published his account of the Carboniferous Limestone Series (Avonian) of the Avon Gorge, PROCEEDINGS for 1905, pp. 74–168. The paper was illustrated by 15 collotype plates, showing the cuttings and quarries on both sides of the river, prepared from photographs specially taken by S. H. Reynolds. Arthur Vaughan, a graduate of Cambridge and London with high mathematical honours, lived at Clifton 1891–1910, when he was Senior Science Master at an army coaching establishment. It was his association with E. Wilson which turned his attention to the study of the stratigraphical distribution of fossils. S. H. Reynolds came to University College in 1894, as Lecturer in Geology and Zoology, was later promoted to Professor, and became the first holder of the Chair of Geology in the University in 1910. During his 34 years' presidency of the Section he was its mainstay, both as a lecturer and in the field, rarely missing a meeting unless on one of his numerous journeys abroad.

Vaughan wrote in his introduction that he deemed it " more useful to attempt to arouse the interest of the student than to set out a concise disquisition for the delectation of the Carboniferous specialist ". Nonetheless, the paper established a standard zonal succession for the Lower Carboniferous rocks which was generally accepted and used for the next fifty years, and was also a stimulating new departure in stratigraphical studies. So great was the demand for reprints that the paper was again reproduced in PROCEEDINGS for 1935, with some revision and certain additional sections by S. H. Reynolds.

In the period between these two printings our PROCEEDINGS contain many special studies of rocks of this age in other parts of the Bristol district. When S. H. Reynolds was elected President of Section C of the British Association for its meeting at Oxford in 1926, the Report of Council comments that the Society may take it as an honour paid by scientists of the Kingdom to the work on the Carboniferous Limestone and its zones being carried out under his leadership by " the school of geologists labouring at Bristol with such widespread effect ".

Valuable palaeontological studies are also included in our PROCEEDINGS. An early account of the Dundry Gasteropods, by E. B. Tawney, PROCEEDINGS for 1873, is accompanied by beautifully drawn plates recording 20 new species. An example of a paper containing much local detail is the description of Silurian fossils from certain localities in the Tortworth inlier, by F. R. Cowper Reed & S. H. Reynolds, PROCEEDINGS for 1907. The authors had published their general results elsewhere, omitting the detailed lists of fossils from individual localities which were appropriate in our PROCEEDINGS. The Type and Figured Specimens from the Tortworth inlier have been recently listed by M. L. K. Curtis in PROCEEDINGS for 1955, pp. 147–54. In PROCEEDINGS for 1911, F. A. Bather described two Blastoids from Somerset, one being a species new to this country. A paper of great value, though it is also a melancholy reminder of a tragic event, is that on the Plesiosaurs in the City Museum, Bristol, by W. E. Swinton, PROCEEDINGS for 1947, pp. 343–60. On several occasions before the war, the author had the opportunity of examining and measuring these specimens in detail, and, for this purpose, secured a fine series of photographs specially taken by J. W. Tutcher and reproduced in five Plates. With the tragic destruction of the specimens by enemy action in November, 1940, these photographic plates constitute the only accurate memorial to a collection of outstanding importance which included six certain type-specimens.

J. W. Tutcher is another remarkable example of an amateur

geologist who, working in the Bristol district, achieved international eminence. Born in Bristol, he left school at the age of twelve to be apprenticed to the trade of shoe-making, and carried on his father's business in Broad Street until he was 72. He had been an active member of the Microscopical Society and of the Bristol Geologists' Association, and was elected to our Society in 1901. In his case, too, it was probably friendship with Edward Wilson at the City Museum which turned his attention to the study of Jurassic fossils in which he achieved an international reputation (he had taught himself French and German in order to be able to use the foreign literature). Often he would cycle to Dundry Hill before breakfast to collect fossils, returning to his work by 8.30 a.m. He also became an expert photographer of fossils, and supplied the figures for a number of standard works. The University of Bristol awarded him the Honorary Degree of M.Sc. in 1927.

An important part of the Section's activities has been for some time the examination and recording of temporary sections. It must be confessed that, deplorable as may be the effect of excavations for building-sites and new roads on the fauna and flora of a district, these provide excellent opportunities for the geologist to make observations which may not otherwise be possible. Many years ago, acting on a suggestion by J. W. Tutcher, the Section began to compile a notebook of such records, the more important results often being published in PROCEEDINGS.

A different kind of activity occupied members of the Section in 1955 when, under the leadership of T. R. Fry, the overgrown quarries on Dundry Hill were re-excavated, and many fossils collected. The exposures were demonstrated to members of the British Association, who expressed keen appreciation and awarded the Section a small grant towards the continuance of the work; it is now hoped that this classic section may be preserved. Yet another new departure of the last few years has been the organisation of four-day field-excursions to study the geology of regions remote from the Bristol area.

* * * * *

We conclude by reminding members, almost in the words of an early Report of Council, that a Society cannot live on the inheritance of the past. Its existence depends on the self-consciousness of present powers, rather than on the credit of past achievements. Hence it is that a retrospect such as this is valuable in direct proportion to the assurances it may give of present usefulness and of future promise. With the fulfilment of these conditions, such a retrospect may indeed offer every encouragement to perseverance, and the best guarantee of permanent prosperity. Fairly established

in numbers, influence, and scientific position, the Bristol Naturalists' Society prospers; if decay should set in, it will not be by default of those who stood its sponsors, or of those who have later stood in the front array, but rather by the absence of willing recruits to fill the gaps occasioned by lapse of time.

ACKNOWLEDGMENTS

So many members have helped me, during the compilation of this history, by contributing information and in many other ways, that I must ask them to accept a collective expression of my gratitude.

The following references to earlier historical accounts may be useful :—

[Twenty-first Annual] Report for the year ending 30th April, 1883.

Part of a Life History. A. B. Prowse. *Proceedings*, 4th Ser., vol. I, Pt. I (for 1904), pp. 1-13.

Fifty Years of Botany in Bristol. J. W. White. *Ib.*, vol. IV, Pt. I (for 1913), pp. 25-34.

Fifty Years' Entomology in Bristol. A. E. Hudd & G. C. Griffiths. same ref., pp. 35-42.

Bristol Zoology of the past 50 Years. H. J. Charbonnier, same ref., pp. 43-4.

Fifty Years of Geological Research in the Bristol District, 1862-1911. S. H. Reynolds, same ref., pp. 45-54.

The Diamond Jubilee : A Retrospect. A. B. Prowse. 4th Ser., vol. VI, Pt. I (for 1923) pp.24-27.

Historical Sketch of the Society, 1862-1932. J. W. Tutcher. 4th Ser., vol. VII, Pt. V, 1933 (for 1932), pp. 334-40.

Presidential Address, 1937. [The last five years, 1933-37]. G. E. J. McMurtrie. 4th Ser., vol. VIII, Pt. III, 1938 (for 1937), pp. 252-258.

Anyone interested in Natural History may apply to join the Society as a Full member. The annual subscription is 25/–. Members of the household of a Full member and persons residing outside a radius of 20 miles from the City Centre of Bristol may become members for an annual subscription of 12/6d. There are also membership facilities for persons still undergoing educational instruction or still under the age of 21 years at the reduced subscription of 10/–. A prospectus giving fuller details of the privileges of the various classes of membership may be obtained from the Hon. Treasurer :—

P. J. M. Nethercott,
44 Upper Cranbrook Road,
Redland,
Bristol, 6.

Communications not connected with membership should be addressed to the Hon. Secretary :—

A. Croome Leach,
Lower Lodge,
Knoll Hill,
Bristol, 9.