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JOURNAL
OF THE
KEW GUILD

AN ASSOCIATION OF
KEW GARDENERS, Etc.
PAST AND PRESENT

1941 (Published 1942)

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President : 1940-41 :—A. D. Cotton, O.B.E., F.L.S.
 ,, 1941-42 :—W. L. Lavender

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 and **W. M. Campbell**, N.D.H.

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(To whom all remittances should be addressed.)

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F. N. Howes, Kew
B. P. Mansfield, New Zealand
H. Welsh, Hampstead
T. H. Everett, New York

Women Gardeners :

MISS B. M. TARVER

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ARTHUR D. COTTON, O.B.E.

Our President for 1940-41 was born in London in 1879. His interest in botany dates from his schooldays, Johns' "Flowers of the Field" and Hooker's "Student's Flora of the British Isles" being among his favourite books. As generally happens in the case of such youthful studies a dried collection of plants was formed and this was added to for many years. But it was the beauty and interest of living plants which appealed to him, rather than the making of a herbarium, and it was for this reason perhaps that he became early attracted to gardens and garden plants.

Mr. Cotton was educated at King's College School and at King's College, London. He also spent six months at Darmstadt in Germany. For a short time he was a student at the old R.H.S. Gardens, where he studied practical horticulture, but eventually he decided to take up science as a profession and enrolled as a student at the Royal College of Science. Here the Professor of Botany was Professor J. B. (now Sir John) Farmer. It was a special course of advanced lectures by Professor Farmer on the Hepaticae which diverted his attention from flowering plants to cryptogamic botany and led him to specialize on Fungi, Lichens and Algae.

Soon after completing his botanical studies Mr. Cotton was appointed Demonstrator and Lecturer in Botany at the University of Manchester (where he was able to further his studies on Cryptogams), and after three years he was offered a post as assistant to Mr. G. Masee in the Cryptogamic Department of the Kew Herbarium. His first work at Kew was on Lichens and Algae, but, working under an authority on Fungi such as Mr. Masee, he naturally became very interested in these plants and published several mycological papers. He specialized increasingly, however, on the Marine Algae, and for ten years devoted his holidays to their study on the coasts of England, Scotland and Ireland, and always considers, so he tells me, that his best work was done on this group. He published many papers and had in contemplation a Marine Flora of the British Isles, but the appearance of this was prevented by the Great War.

As such a very large proportion of the readers of the Guild's Journal are horticulturists and not botanists, I will deal mainly with those aspects of Mr. Cotton's career which will interest them especially.

In 1915 a small Laboratory for Plant Pathology was opened on the south side of Kew Green, and Mr. Cotton was transferred there in charge of the Mycological department, working with the Board of Agriculture's Entomologist, Mr. J. C. F. Fryer. I personally have many pleasant recollections of the staff of this Laboratory, who frequently consulted me on cultural problems—a happy combination of the scientific and practical, which one wishes was more general. Mr. Cotton was exempted from military service and was appointed Mycologist to a special War body named the Food Production

Department. His duties were to assist the Department to save food crops from damage by plant diseases. Various projects were initiated from the Plant Pathology Laboratory, one of the most important of which was the Plant Disease Survey, carried out with the help of special correspondents and by personal visits. In a recent letter Mr. Cotton writes: "The success of that Survey was largely due to the foresight of your fellow countryman who was our chief, that great agriculturist Sir Thomas Middleton, who gave the staff of the Laboratory a free hand to travel all over the country. There was no Red Tape. We got a first-hand knowledge both of the extent and severity of the diseases of cereals, vegetables and fruit, and of their distribution throughout the country." Annual Reports of the Survey were published. It was during these years, and subsequently, that the Ministry of Agriculture's scheme was being organised for dividing England and Wales into twelve Advisory Provinces, and Mr. Cotton had a voice in the selection of the Mycologists who were appointed and kept in constant touch with them, advising on the nature of local problems and on various matters calling for research. The Advisory work of the Ministry has since developed into an important Service.

To go back a few years: in 1917 our President had been appointed Mycologist to the Ministry of Agriculture (as the "Board" had become), and he was moved to the Ministry's newly opened Laboratory at Harpenden some three years later. As older members of the Guild will remember, supplies of potatoes, a staple food crop, were exceedingly short during the last war. Mr. Cotton gave much attention to this crop and was one of the first to recognise the presence of virus maladies in potatoes in this country and to realize their serious effect in depreciating the yield. He made this subject and the production of healthy "seed" a matter for detailed investigation. It was a subject which also interested me greatly, as I knew something about the mysterious excellence of "northern seed." Mr. Cotton attended the first International Phytopathological Conference in America in 1919, where virus diseases occupied a prominent place, and after the Conference he travelled in Canada and the United States studying the seed-potato problem wherever possible. On his return, he realized the importance of purifying our great "seed" centres, and, in co-operation with the officials of the Scottish Board of Agriculture, visited the seed-potato areas in the north of Scotland and was able to instruct the growers in their own fields on the symptoms of these virus diseases and their serious results; also their multiplication and dissemination by means of infected "seed." The new views were revolutionary to most of us and were much opposed in some quarters, but instruction given on the spot by an expert was of great value not only to the seed grower but to the potato industry. At the International Potato Conference held in London in 1921, Mr. Cotton read an important paper on virus diseases in the potato crops of Britain and explained the part played by the insect vector and the true significance of Scottish seed.

During all these years Mr. Cotton was closely associated with the Ministry's inspectorate which included college trained men and uni-

versity graduates as well as a liberal sprinkling of Kew men and others with a more practical kind of training. The latter he was always ready to instruct and help. His popularity whilst Mycologist to the Ministry was in part due to the fact that he had sufficient practical experience to understand and sympathize with the cultivator.

It was not without a wrench that our President gave up the Pathological work at Harpenden when he was invited by the Ministry of Agriculture to return to Kew as Keeper of the Herbarium and Library in 1922. I will not enlarge on his activities during the past 20 years which should be well known to the present generation of Kew men. The heavy administrative duties in the Herbarium have prevented the carrying out of much research though he has found time for a few papers on plant pathology and in recent years he has worked on the large African Senecios, and more recently still on Lilies. In collaboration with Mr. A. Grove he was responsible for much valuable and detailed work on the latter genus in the new and recently completed "Supplement" to Elwes' "Monograph of the Genus Lilium." His paper on Lily diseases at the R.H.S. Lily Conference in 1933 was very useful to Lily growers.

Although Keeper of the Herbarium, Mr. Cotton has always maintained a keen interest in the Gardens and has repeatedly urged the importance of co-operation between members of the Gardens and the Herbarium staffs. I certainly troubled him often enough. And here I would like to express my appreciation both to him and his staff for their unflinching courtesy on many occasions when I visited the Herbarium and the Library and sought their help.

Mr. Cotton is the oldest of the Kew lecturers to the student gardeners. His first lectures were on General Botany but on Mr. Masee's retirement he took over the lectures on Plant Diseases, a course he has continued ever since. The nature of his subject and his love of plants generally led him to take a personal interest in the student gardeners not only during their time at Kew but also in their subsequent careers, and several owe their present positions to his personal recommendation. He was an examiner for many years for the R.H.S., including the Diploma examinations held at Wisley.

J. COURTS.

ANNUAL GENERAL MEETING 1941.

The Annual General Meeting of the Kew Guild was held in the Lecture Room, Kew, on Tuesday, June 17th, 1941, the President, Mr. A. D. Cotton, presiding, and 40 members signing the attendance roll. Mr. E. F. Coward acted as Hon. Secretary.

The President remarked in opening the meeting that for the second year in succession we were breaking Rule No. 9 of the Guild which laid down that the "Annual General Meeting shall be held in London about the end of May", and that the "Meeting be followed by a Dinner".

The Hon. Treasurer, Mr. L. Stenning, presented the Accounts and submitted his Report, dealing at some length with the present limitation of funds which would have an important bearing on the next issue of the Journal. Sir Arthur Hill, in moving the adoption of the Accounts and the acceptance of the Report, expressed the hope that all Members would show their appreciation of the work carried out on their behalf by the prompt payment of subscriptions, which would do much to help the present financial strain. The resolution was seconded by Mr. Sidney A. Pearce and formally approved.

Arising from the reports, Mr. William Pearce suggested the suspension of the Journal for the present, substituting in its place a leaflet giving only essential details. The President reminded the members that the next issue would embrace the Kew Centenary Year, and whilst he realised the difficulties owing to the shortage of funds, he hoped it would be possible to produce a Journal worthy of the occasion, even if smaller than usual, and he gave an outline of several of the items it was hoped to include. His remarks were supported by Messrs. H. W. Welsh and C. W. Whipps, and eventually Mr. W. Pearce, although maintaining his views, withdrew his proposal.

Miss B. M. Tarver requested information as to the amount of subscription payable by Women Gardeners admitted to the Guild, and it was agreed that this should be on the same basis as for other members.

A discussion took place on the desirability of raising the subscription of all members to meet increased expenditure and to cover the loss of income usually derived from advertisements instead of drawing on reserves, but this did not meet with general support.

Following the recommendation of the Committee, Sir Arthur Hill proposed, and Mr. Sillitoe seconded, the name of Mr. W. L. Lavender as President for the forthcoming year. Mr. Lavender was unani-

mously elected. Mr. L. Stenning was re-elected Hon. Treasurer and Mr. A. D. Cotton was elected Hon. Secretary of the Guild and Editor of the Journal.

Messrs. F. N. Howes, B. P. Mansfield, H. Welsh and T. H. Everett were proposed to fill the vacancies caused by the four retiring members: Messrs. S. A. Pearce, S. W. Braggins, E. Coward and M. Free. It was agreed that Mr. F. G. Selby should represent the Foremen and Student Gardeners still at Kew, and that Miss B. M. Tarver should represent the Women Gardeners.

The desirability of altering the present procedure whereby Life Subscriptions were submerged into the funds of the Guild was raised by Mr. Coward, who contended that these subscriptions should be paid into a separate account and only the interest from that account utilised for inclusion in the current year's income. Some discussion took place on the proposal, and it was agreed that the matter should be left in the hands of the Committee for consideration and report at a later stage.

THE KEW GUILD ANNUAL REPORT, 1940/41.

The Committee beg to submit the Annual Report since the last General Meeting together with the financial statement for the year ending December 31, 1940.

The Annual General Meeting was held in the Lecture Room at Kew on June 4th, 1940 at 6 p.m. when in the absence of the President, Mr. L. G. Godseff, Mr. A. D. Cotton occupied the Chair. Some forty members were present. Owing to the international situation the Annual Dinner was cancelled, though arrangements had been made to hold the function at the Empire Restaurant, London, S.W., on May 22nd.

Four members of the Committee are due to retire, namely Messrs. S. A. Pearce, S. W. Braggins, E. Coward, and Mr. M. Free, and the following nominations are put forward for approval to fill the vacancies: Messrs. F. N. Howes, B. P. Mansfield, H. Welsh, and T. H. Everett. The name of Mr. F. G. Selby is proposed to represent the foremen and the few student gardeners still remaining at Kew. Mr. L. Stenning has expressed his readiness to continue to act as Hon. Treasurer. Mr. G. H. Preston and Mr. C. S. Walsh are recommended as Hon. Auditors for the ensuing year.

The Committee agreed that the Women Gardeners employed at Kew (as a war time measure) should be eligible to be Members of the Kew Guild after 3 months service, and the name of Miss B. M.

Tarver is put forward to represent the Women Gardeners on the Committee in lieu of the usual student gardeners' representative.

Owing to increased duties brought about by the war, Mr. W. M. Campbell has tendered his resignation as Secretary of the Guild and Editor of the Journal. The Committee have accepted his resignation and regret that the encroachments on his time have prevented him from continuing to serve the Guild as Secretary and Editor. Several senior members of the Guild have been asked to undertake this office but none finds himself able to do so. Finally Mr. A. D. Cotton, President of the Guild for 1940-41, agreed to fill the vacancy for a period of one year and his name is therefore put forward for election.

The Committee take this opportunity of reminding Members that with the distribution of the 1939-40 Journal two years subscriptions are due. The receipts of outstanding subscriptions will largely decide whether it will be possible to issue the Journal in 1941.

Mr. R. F. Miles and Mr. J. Redman were successful in passing the final examination for the Royal Horticultural Society's National Diploma in Horticulture and the Committee have approved the refund of their fees from the Educational Fund for this examination.

The capital sum of £50, forming the nucleus of the Matilda Smith Memorial Prize Fund, formerly invested in 5% London County Council Consolidated Stock 1940/60 was recently redeemed at par. The fund has now been re-invested in 3% Savings Bonds.

The Proudlock Tennis Cup Competitions for 1940 attracted 33 entrants and in consequence were carried through successfully. Mr. H. J. Eaton (now serving in the Royal Air Force) was the winner in the men's section, whilst Miss E. A. Bruce defeated Miss P. M. K. Milburn in the ladies' finals. The Competitions have been abandoned for 1941.

Owing to war-time conditions Lectures were discontinued and no prizes have been awarded. The activities of the Mutual Improvement Society and the British Botany Club were also suspended.

Since the issue of the last report, the Committee regret to record the passing of Messrs. W. Bond, A. C. Hartless, H. Green, E. Key, F. J. Longmire and Dr. J. Burtt Davy.

To the Members of the Guild serving in the Forces the Committee extend their good wishes for a safe and speedy return to civil life.

KEW GUILD GENERAL ACCOUNT.

BALANCE SHEET (Year ending December 31st, 1940).

RECEIPTS.		EXPENDITURE.	
	£ s. d.		£ s. d.
Balance from 1939 account ...	165 0 8	750 Manilla envelopes for Journal ...	1 12 6
Annual subscriptions and arrears ...	2 10 0	Printing dinner notices, and supplying Manilla envelopes	1 0 9
Life subscriptions ...	6 0 0	Postage on dinner notices, etc.	2 18 8
Dividends on £300 3% New South Wales Stock 1955-58 (less Income Tax deductions)	5 3 6	Hon. Secretary's postages ...	1 0 0
Dividends on £26 6s. 3d. 3½% War Stock ...	18 4	Hon. Treasurer's postages, and incidental expenses ...	3 7
Interest on Post Office Savings Bank deposit ...	3 18 9	The Proudlock Cup insurance	7 6
		Balance in Bank ...	176 8 3
	<u>£183 11 3</u>		<u>£183 11 3</u>

CAPITAL ACCOUNT

LIABILITIES.		ASSETS.	
	£ s. d.		£ s. d.
203 Life Subscribers at £1 at ½ rate ...	101 10 0	£300 3% New South Wales Stock at par ...	300 0 0
266 Life Subscribers at £2 at ½ rate ...	266 0 0	£26 6s. 3d. 3½% War Stock at par ...	26 6 3
Assets exceed Liabilities ...	153 4 6	Valuation of Journals in stock	15 0 0
		Valuation of Typewriter ...	3 0 0
		Balance in Bank ...	176 8 3
	<u>£520 14 6</u>		<u>£520 14 6</u>

WATSON MEMORIAL EDUCATIONAL FUND.

RECEIPTS.		EXPENDITURE.	
	£ s. d.		£ s. d.
Balance from 1939 account ...	98 9 9	Refund of N.D.H. Examination fees to R. F. Miles ...	4 4 0
Refund of loan from G. Urton	10 0 0	Refund of N.D.H. Examination fees to J. Redman ...	4 4 0
Dividends on £100 at 3½% War Stock ...	3 10 0	Balance in Bank ...	105 19 6
Interest on Post Office Savings Bank deposit ...	2 7 9		
	<u>£114 7 6</u>		<u>£114 7 6</u>

(Assets £100 3½% War Stock at par and Balance in Bank £105 19s. 6d. Liabilities Nil.)

DUMMER MEMORIAL PRIZE FUND.

RECEIPTS.				EXPENDITURE.			
	£	s.	d.		£	s.	d.
Balance from 1939 account ...	8	14	3	Purchase of 1940 Memorial			
Dividend on £70 4% Funding				Prize	2	2	0
Loan	2	16	0	Balance in Bank	9	12	4
Interest on Post Office Savings							
Bank deposit		4	1				
	<u>£11</u>	<u>14</u>	<u>4</u>		<u>£11</u>	<u>14</u>	<u>4</u>

(Assets £70 4% Funding Loan at par and Balance in Bank £9 12s. 4. Liabilities Nil)

MATILDA SMITH MEMORIAL PRIZE.

RECEIPTS.				EXPENDITURE.			
	£	s.	d.		£	s.	d.
Balance from 1939 account ...	9	5	7	Purchase of the 1940 Memorial			
Dividend on £50 L.C.C. 5%				Prize	2	3	0
Stock	2	10	0	Balance in Bank	9	16	10
Interest on Post Office Savings							
Bank deposit		4	3				
	<u>£11</u>	<u>19</u>	<u>10</u>		<u>£11</u>	<u>19</u>	<u>10</u>

(Assets £50 L.C.C. 5% Stock and Balance in Bank £9 16s. 10d. Liabilities Nil.)

THE BENEVOLENT FUND.

RECEIPTS.				EXPENDITURE.			
	£	s.	d.		£	s.	d.
Balance from 1939 account ...	81	15	8	Nil			
Donations	2	11	6	Balance in Bank	86	7	4
Interest on Post Office Savings							
Bank deposit	2	0	2				
	<u>£86</u>	<u>7</u>	<u>4</u>		<u>£86</u>	<u>7</u>	<u>4</u>

THE PROUDLOCK PRIZE FUND.

RECEIPTS.				EXPENDITURE.			
	£	s.	d.		£	s.	d.
Balance from 1939 account ...	1	2	4	Purchase of the 1940 Proudlock			
Dividend on £25 4% Funding				Prize	1	0	0
Loan	1	0	0	Balance in Bank	1	2	6
Interest on Post Office Savings							
Bank deposit			2				
	<u>£2</u>	<u>2</u>	<u>6</u>		<u>£2</u>	<u>2</u>	<u>6</u>

(Assets £25 4% Funding Loan and Balance in Bank £1 2s. 6d. Liabilities Nil.)

THE ROYAL BOTANIC GARDENS, KEW.

By SIR ARTHUR W. HILL, K.C.M.G., F.R.S.

The Royal Botanic Gardens, Kew, which celebrate their centenary as a Government institution this year, have grown gradually to their present size and importance without having been conceived on any premeditated plan, and as they may be seen to-day, they are very largely the result of Sir William Jackson Hooker's foresight and enterprise.

The original Botanic Garden was started by Princess Augusta about the year 1760, and it was after her death, between the years 1772-1820, that so much was done by Sir Joseph Banks, working with George III, in building up the collections by sending out collectors all over the world, in developing the resources of the British possessions overseas, and training men to take charge of the various Colonial botanic gardens. On the deaths of George III and Sir Joseph Banks in 1820 the Gardens gradually fell into a state of neglect and their abandonment was seriously considered, but, thanks to the appointment of a committee, of which Dr. J. Lindley and Sir Joseph Paxton were the principal members, it was finally decided, in 1840, to take them over as a national institution. Sir William Hooker, then Regius Professor of Botany at the University of Glasgow, was appointed Director, and took up his duties on April 1st, 1841.

When Sir William was appointed, the Botanic Gardens consisted of only 11 acres. In the following year, thanks to the interest of Queen Victoria, he was able to get four acres added near the present Main Gate, and two years afterwards Her Majesty granted him 47 acres out of the pleasure grounds and in 1846, 14 further acres were added, which had formerly been the Royal Kitchen Garden. Thus, in the course of five years after his appointment the Garden under his charge had extended to 76 acres.

Not long after this he was given control over the pleasure grounds, which extended as far as the Old Deer Park and included the Queen's Cottage grounds (opened to the public in 1897). The whole area included in the Kew demesne now amounts to a little over 318 acres.

With the acquisition of the extra ground, Sir William Hooker at once set to work to develop the Royal Botanic Gardens. The four acres added near No. 1 House enabled the new entrance gates on Kew Green to be erected from the designs of Decimus Burton, 1845, and with the other additions Sir William was able to put forward his proposals for the building of the Palm House, for which Decimus Burton was also the architect. The Palm House was erected in 1844-48 on a terrace built up partly on the site of the old pond. Nesfield was then called into consultation with regard to the general lay-out of the grounds. He designed the Broad Walk from the Old Orangery to the pond and its continuation at right angles leading to the new Main Gates on Kew Green. The design was centred on

the Palm House, and Nesfield embanked the pond on its present lines, and laid out the parterre between it and the Palm House, and also the formal semi-circular garden enclosed by a yew (now holly) hedge with conical holly bushes on the western side; and he opened up the three vistas into the pleasure grounds towards Sion House, the Pagoda, and the old cedar tree to the north-west.

Though the pleasure grounds were separated from the Botanic Gardens by a light iron fence, which ran from the Unicorn Gate in a semicircle round behind the Palm House to Kew Palace grounds, Sir William was also able to prepare schemes for their general development as part of the Gardens, since, fortunately, he had control over both areas.

He had for some time put forward proposals for the erection of a house for New Holland plants, which resulted in the building of the Temperate House. This, like the Palm House, was designed by Decimus Burton, but only the central portion and the two octagons were completed in Sir William's time, in 1862, and it was not until 1899 that the second of the two wings—the northern one—was erected. The Temperate House is built on a terrace made up of the material excavated from the lake which was partly made by Sir William. As soon as he became Director he opened the Gardens to the public and did all he could to make them instructive and attractive to visitors.

Sir William came to Kew with very clear and definite ideas as to what a national botanic garden should include, and one of these was a museum for the display of the economic products derived from the vegetable kingdom. He was fortunate in being able to interest Queen Victoria in the project, and the Royal Fruit Store, the present Museum No. 2, was handed over to him for the purpose. This was quickly filled with his own collections and with many gifts from outside, and in 1847 the Museum was opened—the first Museum of Economic Botany to be founded in this country. So greatly did the collections in the Museum grow that it became necessary to erect a new building, and No. 1 Museum by the side of the pond was built in 1857. Later, a third museum was added when the Old Orangery became available, after the building of the Temperate House, and this was devoted to a display of colonial timbers in 1862. Since then, a further addition to the museum accommodation at Kew has been made in Cambridge Cottage, the present No. 4 Museum, which was handed over to the Gardens by King Edward VII in 1905.

A herbarium and a library, Sir William also pointed out, were essential constituents of a botanic garden, but Kew possessed neither. Sir William, however, generously placed his own extensive collection of herbarium specimens and books at the disposal of all visiting botanists. It was not until the year 1852, when the Director was given an official residence, that the present Herbarium building, which had formerly been the residence of the King of Hanover, was handed over for the Herbarium and Library. This building, it is interesting to recall, had previously been used by Sir Joseph Banks

for his herbarium, which he bequeathed to the nation. This on his death was moved from Kew and formed the nucleus of the British Museum botanical collection. The Herbarium and Library have grown very greatly since Sir William's day; a wing was built out at the back of the original house by Sir Joseph Hooker in 1877, a second wing to the south was added during the directorship of Sir William Thiselton-Dyer in 1902-03, and the last extension—a large wing with four floors, parallel to the original one—was erected in 1932.

In addition to a herbarium, library and museums, a botanic garden should have a laboratory for physiological and other botanical investigations. This valuable addition was made in the years 1875-76, thanks to the munificence of Dr. T. J. Phillips Jodrell.

The gardens, therefore, have now all the necessary adjuncts for the conduct of the various branches of botanical work.

A very interesting addition was made to the Gardens in 1882, when Miss Marianne North presented her Gallery. She filled it with a remarkable collection of about 850 oil paintings of plants and flowers, which she had made all over the world between 1872 and 1885.

Mention may be made of a few other additions, which are of some historical interest, one being the Tropical Water-lily House, No. 15, which was built in 1852 for the display of the recently introduced *Victoria Regia* water lily. A rock garden was made by Sir Joseph Hooker in 1882, by the old ice well, where the hardy ferns are now planted, and he prophesied that this would no doubt soon become one of the most popular branches of modern horticulture. A few years later the need for a more extensive rock garden was put forward, and thanks to the presentation of the collections of Mr. George Joad of Wimbledon the present Rock Garden modelled on a dry Pyrenean valley, was built. This has been considerably extended, especially at the northern end, in recent years. The stone at the southern end is limestone, while the newer part at the northern end has been built up of sandstone. The Alpine House was erected in 1887—this being an innovation at the time; owing to its popularity it was enlarged in 1891 and re-built on a larger scale in 1939. Two other recent additions are of special note, one being the Sherman Hoyt Cactus House with its painted background of the Mohave Desert, which was presented by Mrs. Sherman Hoyt and completed in 1932, and the South African Succulent House, presented in 1935 in commemoration of the Silver Jubilee of King George V.

The lectures to the student gardeners were started by Sir William Hooker in 1859, and have been continued and much extended since then. Some forty-five student gardeners now come to Kew each year and spend two years completing their training in the practice and theory of horticulture, and pass out to take up important positions on botanic and private gardens and public appointments both at home and overseas.

One must allude to one or two of the more outstanding enterprises with which Kew has been concerned, since they have had such far-reaching effects throughout the Empire. One of these was the introduction of cinchona plants, the source of quinine, from the Andes of South America to the Sikkim Himalaya and to the Nilgiri Hills, India, in 1861; another was the introduction of Para rubber from Brazil to Ceylon and Malaya about 1876. Various other enterprises, less spectacular, but of considerable importance, have taken place since those times. One of the functions of Kew has been to send plants of economic and horticultural value to all parts of the Dominions and Colonies, where conditions might be suitable for their cultivation. Among the most recent of these enterprises has been the collection and sending of wild and cultivated bananas from the East to the Imperial College of Tropical Agriculture, Trinidad, in connection with the work that is being done there in breeding immune types to combat the Panama Disease of bananas, which is so seriously affecting the banana industry.

Kew is not only a place for healthy recreation and enjoyment, but it is also a garden for serious botanical study, and every effort is made to render the collections as educational as may be possible, both in their arrangement and by appropriate labelling. The tropical epiphytic ferns, for instance, have been planted out on tree trunks much as they occur in their native forests; and in the Tropical Fern house the effect of a tropical forest has been fairly successfully reproduced. Then, again, both the Sherman Hoyt house and the South African succulent house display the plants growing among rocks similar in colour and nature to those among which they occur in their native countries.

For the botanical student there are the unrivalled collections in the Herbarium and Library, the specimens in the Herbarium now numbering about 5,000,000; while the Jodrell laboratory offers facilities for students who may wish to carry out physiological and other researches in connection with the specimens growing in the Gardens. In normal times the Herbarium is a Mecca for botanists from all over the world, since there are preserved the valuable "type" specimens brought home from all parts of the world by botanical collectors working in conjunction with Kew.

It should be mentioned that Kew has been responsible for producing the various descriptive "Floras" of the Dominions and Colonies, the need for which was outlined by Sir William Hooker.

The work of Kew, as may be gathered from what has been said, is pre-eminently scientific, but it is also possible for a non-scientific visitor to derive full enjoyment from the general beauty of the Gardens, for, though the trees and shrubs are mainly planted in their proper systematic order, the landscape effect has also been fully preserved.

To quote the words of Sir William Thiselton-Dyer:—"Kew has itself grown and flourished under its past and present Chiefs"

not so much from its dependence upon their merits, but rather because the principles of its administration have been essentially British and practical.

“ It has steadily set itself to do every kind of public work which is connected with botanical science.

“ It was never launched with a theoretically complete equipment and constitution, but it has slowly earned every advantage that has been conceded to it, and, as its labours have been enlarged, so its capacity for their performance has been increased.”

The following testimony, extracted from a speech by Mr. Joseph Chamberlain in the House of Commons on August 2nd, 1898, will show how much, in the opinion of one of the most famous of Colonial Secretaries, the Colonies owe to Kew : “ I do not think it is too much to say that at the present time there are several of our important Colonies which owe whatever prosperity they possess to the knowledge and experience of, and the assistance given by, the authorities at Kew Gardens. Thousands of letters pass every year between the authorities at Kew and the Colonies, and they are able to place at the service of these Colonies not only the best advice and experience, but seeds and samples of economic plants capable of cultivation in the Colonies.”

The whole of this article, together with the excellent photographs accompanying it, is reprinted from the issue of *Country Life* for March 29th, 1941, to the proprietors of which the thanks of the Guild are due.

MEMBERS OF THE KEW GUILD SERVING IN H.M. FORCES.

FOREMEN AND STUDENT GARDENERS.

P. L. Benton, Royal Artillery.
 E. Bird, Royal Artillery.
 A. H. Blowfield, Royal Army Service Corps.
 E. H. Bourner, East Berkshire Regiment.
 J. J. Boyle, Queen's Own Royal West Kent Regiment.
 L. R. Brown, Royal Armoured Corps.
 J. Clark, Royal Air Force.
 G. G. H. Cook, East Surrey Regiment.
 J. D. W. Cramer, Royal Netherlands Brigade.
 P. W. C. Davies, Royal Artillery.
 D. A. Downs, Royal Engineers.
 A. J. Eaton, Royal Air Force.
 F. J. Ford, Royal Marines.
 F. J. Hebden, Royal Engineers.
 D. C. Hollis, Royal Air Force.
 R. A. Hudson, Royal Artillery.
 K. H. James, Devonshire Regiment.
 G. S. Joy, Worcester Regiment.
 D. C. Mackenzie, New Zealand Anti-Tank Unit.
 H. Mason, East Surrey Regiment.
 L. F. McElroy, Royal Artillery.
 J. Middleton.
 R. F. Miles, Royal Air Force.
 J. L. Norris, Royal Navy.
 B. L. Perkins, Royal Air Force.
 A. H. Pettigrew, Royal Engineers.
 C. E. Puddle, Royal Engineers.
 S. W. Rawlings, Royal Artillery.
 T. W. Rayment, Royal Air Force.
 J. Redman, Royal Air Force.
 D. W. Sayers, King's Royal Rifle Corps.
 W. J. Slade, Royal Air Force.
 E. E. Smith, Royal Armoured Corps.
 F. B. Stevens, East Surrey Regiment.
 J. W. E. Stott, Auxiliary Military Pioneer Corps.
 A. G. K. Will, Royal Army Service Corps.
 E. J. S. Willett, Royal Artillery.
 C. J. Wilmot, Royal Artillery.

HERBARIUM STAFF.

Miss E. A. Bruce, Auxiliary Territorial Service.
 A. A. Bullock, Royal Air Force.
 B. L. Burt, Royal Army Ordnance Corps.
 D. G. Collett, South African Forces.
 A. K. Jackson, Royal Air Force.
 E. Milne-Redhead, Royal Artillery.

CONSTABLES.

G. E. Dixon, Royal Artillery.
 T. Elvin, Royal Navy.
 A. C. Johnson, Royal Engineers.
 W. F. Leaver, Royal Fusiliers.
 I. Sinclair, Royal Navy.
 C. A. Sullivan, Royal Navy.
 A. J. Topping, Royal Artillery.
 C. G. Topping, Royal Fusiliers.
 A. F. Waters, Royal Navy.
 G. Maunder, Middlesex Regiment.

LABOURERS, STOKERS AND OTHERS.

G. E. Appleby, Royal Artillery.
 G. Clark, Royal Navy.
 L. C. Golding, Royal Air Force.
 H. J. King, Queen's Royal Regiment.
 V. Smith.
 H. Tindall.
 F. Tweedale.

PAST KEWITES.

J. Aves, South African Forces.
 R. Balch, Royal Artillery.
 G. E. Carr.
 J. D. Coales.
 H. R. Cocker, Royal Air Force.
 J. D. W. Cramer, Royal Netherlands Brigade.
 L. B. Creasy, South African Forces.
 S. Cutting, United States Army.
 J. E. Farmer.
 J. Fisher, Royal Air Force.
 J. L. Glasheen.
 J. G. Gordon, Royal Canadian Air Force.
 F. B. Grinham.
 A. Findlay Gunn.
 H. Hall.
 J. R. Hibbert, Royal Army Ordnance Corps.
 E. G. Hooper.
 G. Hooper.
 F. R. Long, South African Air Force.
 N. Lothian, Australian Army.
 P. F. McCormack, Royal Artillery.
 B. P. Mansfield, N.Z.E.F.
 A. B. Melles.
 P. W. Page, Pioneer Corps.

L. G. Riley, Royal Canadian Air Force.
 W. G. Sheat, N.Z. Anti-Tank Unit.
 F. L. Simmons, Royal Artillery.
 W. J. Slade, Royal Air Force.
 J. Sparrow.
 M. Stanley, Royal Artillery.
 G. Urton.
 R. H. Wildy, Royal Air Force.
 H. H. Willis, Royal Air Force.
 G. Wolstenholme.
 G. T. F. Wyndham, Royal Air Force.

HOME GUARD ACTIVITIES AT KEW.

When the Local Defence Volunteers were first formed after the collapse of France in the early Spring of 1940, many members of the Gardens' Staff joined up, and a Kew Gardens Platoon was formed and attached to the Richmond Company. Headquarters were established in the Iron Room, and a miniature rifle range set up in the Lower Nursery. Sir Geoffrey Evans, the Economic Botanist, was appointed Platoon Commander and Sergeant Sealy, Platoon Sergeant. The response to the call was good and at that time the number of volunteers in the platoon was nearly 60. The Gardens were patrolled by day and night and guards provided for Kew Bridge. Later the L.D.V. became the Home Guard, and the Kew Gardens Platoon lost its identity and became merged in "C" Company of the 63rd Surrey (Richmond) Home Guard. Sir Geoffrey Evans was promoted to the command of this battalion on April 1st, 1941, and remained in command until the end of the year. After the sudden and lamented death of Sir Arthur Hill in November of that year, he was appointed Acting Director of the Royal Botanic Gardens, and the increased work and responsibilities of the new post gave so little time for what was really a whole-time job that he was compelled to tender his resignation of the Battalion Command. He still serves in the Home Guard in a position of lesser responsibility with the rank of Captain.

As was to be expected, the numbers have fallen off somewhat as so many men have been called to the Services, but there are still thirty or forty members of the Gardens' personnel serving in the Home Guard and three members of the Herbarium Staff who have been evacuated. Training and other duties incidental to the Home Guard take up most of the leisure hours that would otherwise be available, and owing to staff shortage the work in the Gardens itself has increased considerably, but the extra strain has been borne by all who volunteered without murmur in the knowledge that something tangible is being done by Kew to help in the war effort.

MUTUAL IMPROVEMENT SOCIETY.

On account of the "Blitz" the Mutual Improvement Society was in abeyance for the winter season of 1940-41, but as things overhead seemed quieter in Autumn a General Meeting for those interested was held on October 16th to discuss recommencing the Society's activities. A proposal "that Meetings of the Society should be held", put forward by Mr. C. P. Raffill and seconded by Mrs. Cooper was carried and after the rules had been read and adopted, the following Officers were elected for 1941-42 :—

Chairman	..	..	..	..	Mr. C. P. Raffill
Vice-Chairman	..	..	..	..	Mr. S. A. Pearce
Hon. Secretary	..	..	..	..	Miss J. M. Watson
Assistant Hon. Secretary	..	..	..	..	Miss B. C. Watts
Committee	..	..	..	}	Miss M. A. Canning
					Miss E. Plummer
					Mr. F. G. Selby

The following syllabus was drawn up :—

Oct.	22.	*" Kew in Colour "	...	...	...	Mr. C. P. Raffill.
Nov.	5.	" Floral Art "	...	...	...	Miss Knight.
"	12.	*" Lilies at Kew "	...	...	...	Mr. Pearce.
"	19.	" Herbaceous Borders "	...	...	...	Mr. Holder.
"	26.	*" Interesting Trees and Shrubs "	...	...	...	Mr. Osborn.
Dec.	3.	" Horticulture in South Africa "	...	...	...	Mr. Werner.
"	10.	" Folk Lore and Plants "	...	...	...	Mr. Dawson.
"	17.	Spelling Bee.				
Jan.	7.	" The Future of Women in Horticulture "	...	...	...	The Curator.
"	14.	" Conifers and their Identification "	...	...	...	Mr. Coates.
"	21.	" Rock Garden Plants and their Environment "	...	...	...	Mrs. Cooper.
"	28.	*" A Tour of Cornwall and the Scilly Isles "	...	...	...	Mr. Franklin.
Feb.	4.	" Horticulture, Past, Present and Future "	...	...	...	Mr. Maunder.
"	11.	" Light and its Relation to Plant Growth "	...	...	...	Miss Lancaster.
"	18.	" Questions and Answers "				
"	25.	" Tropical Propagation "	...	...	...	Mr. Stenning.
Mar.	4.	" Recent Progress in Plant Protection "	...	...	...	Mr. Selby.
"	11.	" Vegetable Forcing "	...	...	...	Mr. Zobel.
"	18.	*" Some Interesting Plants for the Rock Garden "	...	...	...	Mr. Preston.
"	25.	" Impression of Horticulture in Canada "	...	...	...	Miss Plummer and Miss Watts.
April	1.	Secretary's Report.				

*Lantern Lecture.

Mr. Raffill in opening the season on Wednesday, October 22nd, with a lantern lecture, took us on a fine pictorial tour of the Gardens in springtime, and then showed a number of interesting slides of bedding and individual plants. In conclusion he illustrated plants of outstanding value for their autumn colouring.

Miss Knight, in her lecture on Floral Art, touched upon House and Table Decorations, Wreaths, Bouquets, Dress Sprays and Head-dress Sprays, and other aspects of her subject. She discussed the

trends in public taste and emphasized the importance of trying to visualize and respond to a customer's wishes whilst maintaining a sense of what was truly artistic. She gave us a practical demonstration of the making-up of a bridal bouquet of Roses and Maidenhair Fern, together with other examples of floral art, including the Kew crest worked in foliage and Chrysanthemum "petals" sewn on a perforated zinc background.

Mr. Pearce in his lantern lecture on "Lilies at Kew" gave a summary of the geographical distribution of the genus *Lilium*, and then dealt with questions of sites and soils, going on to describe the best methods of planting and propagation. He also outlined the symptoms caused by the most serious pests and diseases of Lilies, and in conclusion showed a series of coloured slides and mentioned some of the characteristic features of the different species.

The paper on "Herbaceous Borders" by Mr. Holder gave rise to a very lively discussion, and everyone seemed to have views and theories about the best plants and colours. The lecturer described the charming kaleidoscopic effect which could be obtained by constructing a semicircular border in a flower garden, and then went on to discuss aspects, backgrounds, and soil preparation and planting. He also gave us some interesting suggestions for colour harmonies and contrasts.

Mr. Osborn in his lecture gave a survey of trees and shrubs which were of outstanding decorative value, beginning with the very early flowering species such as *Cornus Mas* in February and carrying us on throughout the year. He emphasized the importance of choosing suitable backgrounds and mentioned points of cultural interest.

A paper on "Horticulture in South Africa", read by Mr. Werner, a student gardener from King William's Town, was particularly interesting. He gave an outline of the main geographical regions of South Africa and described the type of climate prevalent in each, and then drew a vivid picture of horticulture as pursued in that country, dealing in detail with his subject under headings of: Flower Gardens, Rock Gardens, Greenhouses, Fruit and Vegetable Culture, etc., comparing the methods of South African gardening with those practised in England.

A fascinating subject was chosen by Mr. Dawson, who entitled his paper "Folk Lore and Plants". He told us of the awe inspired by trees in ancient times, and mentioned the use of twigs for water and metal divining. He then went on to speak of plants used in medicine, and entertained us with stories about the Willow Pattern Plate and the Irish Shamrock.

At the "Spelling Bee" on December 17th teams from "The Tropical Departments" competed with "The Rest".

J. M. WATSON,
Hon. Secretary.

CRICKET IN 1941.

A cricket match with mixed teams of men and women gardeners was played on Kew Green on July 21st, the teams representing the Tropical Department versus the Rest. Play commenced at 7 p.m. Though the Tropical Department won the toss the Rest batted first, and after a bad start with 2 wickets down for 0 runs and 5 wickets down for 16 runs recovered to end the innings with a total of 49 runs. Miss Bell and Miss Hutchinson opened the innings for the other side with a partnership of 31 runs and the match seemed over, but the sixth, seventh, eighth and ninth wickets fell with the score at 43. Mr. Stenning, last man in, scored three runs from a good drive and with only four wanted for victory it looked as if the Tropical Department would succeed, but with his partner falling, the innings closed at 46 runs. For the Rest, Miss Watts with 10 runs was top scorer, and Miss Bell and Miss Hutchinson with 14 runs each, scored the bulk of the runs for the Tropical Department.

It was hoped to arrange for a return match, but owing to so many other calls this was not possible. The game was very enjoyable and drew a large crowd of spectators, including our late Director, who remarked that he had never before sat out on Kew Green at 10.30 p.m.

THE REST.	TROPICAL DEPARTMENT.
S. A. Pearce (captain)	L. Stenning (captain)
Miss Tarver	Miss Bell
„ Paine	„ Hutchinson
„ Watts	„ J. Sharps
Mrs. Cooper	„ F. Sharps
W. M. Campbell	„ Horder
F. G. Selby	„ Canning
F. McKinnon	Mrs. Jensen
E. S. Bundy	G. Preston
P. Lacy	H. W. Ruck
J. Weathers	W. Franklin

KEW WOMEN GARDENERS' GUILD

The Kew Women Gardeners' Guild has now completed its first year of existence. Membership consists of all women gardeners at Kew.

The officers for 1940-41 were :—

Miss B. M. Tarver	(Chairman)
Mrs. B. Cooper	(Secretary)
Miss E. V. Paine	
Miss E. Plummer	
Miss B. C. Watts	

The appointment of Miss Tarver to the post of Demonstrator at the Hyde Park Allotments under the Ministry of Agriculture, necessitated a temporary readjustment of the Committee, Mrs. Cooper being appointed Chairman and Miss Paine, Secretary, while Miss M. Lancaster was elected as an additional Committee member.

At the annual meeting held in December, 1941 a new Committee was elected for 1942 as under :—

Miss P. Cornwell	(Chairman)
Miss E. V. Paine	(Secretary)
Mrs. B. Cooper	
Miss O. Bell	
Miss F. Mundy	

WEDDING BELLS.

Mr. Percy W. Page to Miss Alma Mary Hibbert at Oakham, Rutland, on December 31st, 1938.

Mr. T. R. N. Lothian to Miss Ngaio Chaffey at Melbourne, Australia, on August 10th, 1940.

Miss M. Ruth F. Taylor to Mr. Clifford M. Jackson at St. Annes, Kew, on September 14th, 1940.

Mr. Maurice Mason to Miss Doris Marston at Hemel Hempstead, Herts, on September 28th, 1940.

Mr. Roy A. Hudson to Miss Alma V. Lindley at St. Annes, Kew, on October 12th, 1940.

Mr. Frederick B. Stevens to Miss Edith Scoble at St. Brides Church, Manchester, on October 12th, 1940.

Mr. Gilbert G. Cook to Miss Elizabeth M. Connis at St. Mary's Sholing, Southampton, on October 19th, 1940.

Mr. John W. E. Stott to Miss Joan H. M. Stevens at Christchurch, Virginia Water, on November 6th, 1940.

Mr. David C. Hollis to Miss Olive Maxim at St. Paul's, Cambridge, on November 13th, 1940.

Mr. John L. Norris to Miss Mary E. Roofthoofd, at St. Winifred's Kew, on November 30th, 1940.

Mr. George S. Joy to Miss Kathleen I. Cooke at St. Annes, Kew, on January 29th, 1941.

Mr. Bernard B. Wass to Miss E. Ramsbottom at St. Annes, Kew, on February 15th, 1941.

Mr. Frank J. Ford to Miss Gladys E. Kellow, at St. Mary's, Hendon, on June 26th, 1941.

Mr. Arthur H. Blowfield to Miss Betty Sleath at Holy Trinity Church, Roehampton, on August 2nd, 1941.

Mr. Noel J. Prockter to Miss Sybil M. Ball at Crawley, Sussex, on August 12th, 1941.

Mr. Emile Bird to Miss Joan Chalkley at Hertford, on September 16th, 1941.

PERSONAL.

The Assistant Director, Mr. J. S. L. Gilmour, was seconded for service to the Ministry of Mines on June 10, 1940, with the rank of Principal.

With the appointment of Sir Geoffrey Evans as Acting Director (as explained in the Editorial Note), Mr. A. D. Cotton was appointed Acting Assistant Director, retaining at the same time, his post as Keeper of the Herbarium and Library.

In January, 1940, the Curator, Mr. W. M. Campbell, was seconded to the Ministry of Home Security for some months to organise the Horticultural Section of the Camouflage Establishment.

Sir Arthur Hill was awarded the George Robert White Medal of Honour by the Massachusetts Horticultural Society in June, 1940, this being the highest distinction which the Society can confer.

Mr. C. P. Raffill, Assistant Curator in charge of the Temperate Department, reached the retiring age of 65 on April 17, 1941. For the time being he has been permitted to continue his service at Kew.

Friends of Mr. Henry N. Ridley, C.M.G., F.R.S., Director of the Singapore Botanic Gardens from 1888 to 1911 and for many years a resident of Kew and a constant worker in the Herbarium, will be interested to learn that he was married at St. Anne's Church, Kew, on December 13, 1941, to Miss Lily Doran. Mr. Ridley is in his eighty-seventh year, and is in excellent health.

Mr. A. Edwards, Parks Superintendent at Salford, and formerly in charge of the Rock Garden at Kew, has been awarded the British Empire Medal for gallantry in an air-raid, when he assisted, at great risk to himself, in the rescue of nurses trapped in the basement of their quarters.

Mr. K. N. Kaul, M.Sc., of the University of Lucknow, who in 1939 was appointed Botanist for India in the Herbarium for a term of two years, has had his time of service extended.

It was with great regret that news was received that Mr. Eric Smith was posted as "missing" in the Libyan campaign in November. He joined the 11th Hussars in June, 1940, and saw service in the Middle East. Smith was with the Parks Department at Hounslow.

News has been received that Dennis Sayers, who joined the King's Royal Rifles, is a prisoner of war in Italy.

Mr. Wilfred G. Sheat, who joined the 34th New Zealand Anti-Tank Battery in October, 1939, and saw active service in the Middle East, has been invalided out of the Army. He returned to England in December, 1941, and has since been discharged. Mr. Sheat, it will be remembered, was married to Miss G. D. Rockell, who for some years has been shorthand typist in the Curator's Office, in March, 1940.

Captain Edgar Milne-Redhead, who is in charge of the African Section of the Herbarium, and who, being in the Territorial Army, was called to the colours in July, 1939, has lately spent over a year in West Africa. He had already visited South Africa and Northern Rhodesia, and the opportunity of seeing something of the floras of Nigeria, the Gold Coast and Sierra Leone, was as welcome as it was unexpected. "M.R.," as he is known to his colleagues, is at present in this country serving with the A.A. Command.

In July, 1939, Mr. L. G. Riley and Mr. J. G. Mayne left Kew as Exchange Students, the former to the Niagara Falls Parks Commission, Ontario, Canada, and the latter to the Ontario Agricultural College, Guelph, Ontario. Their friends will be pleased to learn that on completing their training in Canada both men joined up in the Royal Canadian Air Force.

Mr. Brendan P. Mansfield, who is a Company Quarter-Master Sergeant in a Forestry Company of the New Zealand Expeditionary Force, and is stationed in the south of England, has been able to visit Kew, attend some of the R.H.S. Flower Shows and visit his Alma Mater, the Glasnevin Gardens, Dublin.

Mr. Johannes D. W. Cramer of Doorn, Holland, who worked in the Royal Botanic Gardens, Kew, as a volunteer from October, 1938, to August, 1940, and later joined the Royal Netherlands Brigade, has been sent overseas.

Mr. F. R. Long, whose enterprising work in connection with the public parks of South Africa is so well known, is now a Captain in the South African Air Force. He has an important post in connection with the Empire Training Scheme.

Mr. Noel Lothian after being discharged from the Australian Army on medical grounds has been appointed to the charge of the Alexandra Gardens, Melbourne.

Mr. J. Lewis, foreman, Temperate House, left to take up an appointment with the Horticultural Section of the Camouflage Establishment in February, and together with another old Kewite, Mr. F. P. Knight, is doing excellent work on this vital form of Civil Defence Camouflage.

The number of candidates sitting for the National Diploma in Horticulture in 1941 was greatly reduced. Two women gardeners sat for the Final and one Student Gardener for the Preliminary, and of these Miss B. Tarver was successful in the Final Examination and Mr. F. Selby in the Preliminary.

It is pleasing to record that the Hastings Borough Council recently confirmed the appointment of Mr. C. E. Cherry, N.D.H., as Superintendent of Parks. Since the death of the late Superintendent, Mr. Haig, he has carried out under great difficulties the duties of Acting Superintendent, and at the Council meeting satisfaction was expressed at the way in which he had conducted the administration of the Department.

Miss B. Tarver, who worked in the propagating pits of the Decorative Department, was released in September, 1941, to take charge of the model allotments in Hyde Park. These come directly under the Ministry of Agriculture and Fisheries, and serve as a valuable form of propaganda in the "Dig for Victory" campaign. Now that the model allotment at Kew has been adjusted to conform with the Ministry's requirements, it will be interesting to compare the results at Hyde Park and Kew.

Miss Betty Judge, for many years shorthand typist in the Director's Office, and later a clerk in one of the Branches of the Ministry of Agriculture, has been seconded to another department, and is now a clerk in the Ministry of Mines.

Miss Eileen Bruce, B.Sc., who has been on the Herbarium Staff for 11 years, joined the A.T.S. in October, 1941. As there was no Treasury provision at that time for Women Civil Servants to serve in the A.T.S., Miss Bruce had to resign from her position in the Civil Service.

Miss Doris P. F. King, for several years shorthand typist at the Herbarium and later a clerk at the Curator's Office, has been seconded to the Ministry of Shipping, and is now stationed at Blackpool, Lancashire.

Miss Isobel M. Davidson, for four years Sub-Assistant in the Herbarium, resigned her position in the Civil Service in April, 1941, and is now Senior Assistant at the Public Library at Failsworth, near Manchester.

Miss Joan H. M. Stevens, who was for four years on the clerical staff at the Director's Office, has resigned her position in the Civil Service. Miss Stevens it will be remembered, married Mr. John W. E. Stott in November, 1940.

Miss Betty N. Shepherd, a shorthand typist at the Herbarium, who was seconded to another Department, is now at Washington, D.C.

Mr. W. C. Worsdell, for many years a voluntary worker in the Jodrell Laboratory and lately Editor for the R.H.S. of the Index Londinensis, which has been prepared in the Kew Library, resigned his position in November, 1940, on completion of the Supplement to that Index.

The death of Dr. A. F. G. Kerr, who was for so many years Government botanist in Siam and who possessed an unrivalled knowledge of the flora of that country, is a further loss to botany. He collected everything in plenty. Sets of his dried specimens were distributed to nearly a dozen of the principal herbaria of the world, and the seeds which he sent home have been raised in the Botanic Gardens of Kew, Edinburgh, Aberdeen and Dublin, and probably in many others. Dr. Kerr was never a member of the Kew Staff, but had been intimately associated with Kew for over twenty years.

1942 (SPECIAL NEWS ONLY).

Shortly after the capture of Hong Kong news was received from the Colonial Office of the death of Mr. F. Flippance, F.L.S. Frederick Flippance left Kew in 1915 for the East and he became Curator of the Botanic Gardens at Penang and subsequently succeeded Mr. Harold Green as Superintendent of the Botanical and Forestry Department in Hong Kong. Flippance was a Captain in the Local Volunteer Force, the conspicuous bravery of which was, it will be remembered, commented on in the press.

Roy A. Hudson, who enlisted in the Royal Artillery, is posted as "missing" from February 15, 1942. It was known that he was in the Far East and it is possible therefore that he is a prisoner of war in Japanese hands.

Though not a Kewite, botanists will be interested to hear that a cable has been received saying that Dr. Geoffrey A. G. Herklots, F.L.S., Reader in Biology in the University of Hong Kong is "safe," but he has been "interned at Stanley" (Hong Kong). Dr. Herklots is a man of wide interests, being an able botanist, an all-round naturalist and an enthusiastic horticulturist.

Information has been received from the Air Ministry that Sergeant R. M. Miles was reported as "missing" on May 11th, 1942. Miles was an exceptionally promising Student Gardener, and had done as well in his flying as he had in his gardening. He completed his flying instruction in U.S.A., and had not long returned to this country.

News has been received that Mr. M. R. Henderson, F.L.S., Curator of Herbarium, Botanic Gardens, Singapore, was ordered out of Singapore on February 11, and taken to Java from whence he reached Cape Town. No news as to the other members of the Singapore staff has been received.

Older members of the Guild will be glad to hear that Mr. W. A. Warry of Guernsey is well and active. He has sent a request through the medium of the Red Cross that his Journal might be held for him till happier days.

Mr. S. McLeod Braggins, formerly Superintendent of Sir Cecil Hanbury's famous garden at La Mortola, on the Italian Riviera, has recently arrived in England with his wife. They have undergone great privations. After leaving Italy they stayed for a time in unoccupied France and then crossed into Spain and eventually managed to reach Lisbon, from whence they were brought home by a Government plane. Their present address is: Rose Cottage, Kingsland, Shrewsbury.

Members of the Guild will be interested to hear that Mr. G. W. Robinson, Curator of the Physic Garden, Chelsea, has been appointed Curator of the University Botanic Garden, Oxford. We offer our heartiest congratulations to Mr. Robinson.

NOTES AND GLEANINGS.

The organisation of A.R.P. arrangements at the Royal Botanic Gardens which includes First-Aid, Fire-Fighting, Fire-Watching, has been under the charge of Sir Geoffrey Evans. A note on the Home Guard activities at Kew will be found on p. 19.

Not a few members of the Kew Guild, including past and present Student Gardeners, have recently obtained Commissions in the Army. To these the Committee offer their congratulations and also extend their best wishes to all members of the Guild who are in the Fighting Forces.

Under the terms of his will Sir Arthur Hill left £500 (free of duty) to the Kew Guild. This has been invested in 3 per cent. Savings Bonds. It is not proposed at present to allot the income derived from this investment to any particular object.

Readers of the Journal will learn with regret but perhaps not with surprise, that the Government have considered it necessary to suspend the publication of the Kew Bulletin for the duration of the war.

The publication of the oldest illustrated botanical journal, the Botanical Magazine, is being continued. The first number was published on 1787. In spite of difficulties, the high standard of excellence is to be maintained, though the parts are not appearing so frequently as hitherto. Mr. A. D. Cotton has succeeded Sir Arthur Hill as Editor.

Kewites residing abroad will learn with regret of the heavy losses amongst the ranks of horticulturists during the winter of 1941-42. In addition to Sir Arthur Hill, we have lost Sir Jeremiah Colman, Mr. Lionel de Rothschild, Lieut.-Colonel G. S. F. Napier, and Mr. Arthur Grove, all of whom were keen gardeners and greatly interested in botanical and horticultural exploration and the introduction of new plants.

The photographs of the five Directors on the Frontispiece have been kindly supplied by Mr. Gerald Atkinson. Thanks are due to Mr. Atkinson for selecting the most appropriate portraits and for his skill in re-photographing and reducing them to a uniform size. For the photograph of the Pond facing page 44 we are indebted to Mr. C. P. Raffill.

In communicating sums from South Africa amounting to £23 15s. 3d. Captain F. R. Long writes: "I am sending you the original letters. Most of them show a wonderful affection for Kew."

Mr. K. E. Toms of St. Helena writes: "I have completed payments to local growers for lily bulbs despatched to England last May, and I am now wondering if we shall be able to send another consignment this year. Making preparations for collecting and packing the bulbs this time a year ago, just after your 'blitz,' seemed very out of place. But it is very heartening because it demonstrated the 'tails-up' attitude of your people at home, and that matters could not be quite so desperate as they appeared to us in this distant spot."

All Kewites know of Mr. Amos Perry by name and many are aware of his energy and enthusiasm. His nursery has been badly bombed, but he is undaunted. In the American Journal "Herbertia" (Vol. VIII) there is a biographical sketch and a portrait, and also a photograph showing a wrecked orchid house with a large bomb crater close by in which Mr. Perry has planted water lilies. They are flowering profusely!

Fine weather in late June and early July (1941) resulted in the hay crop being gathered in without a drop of rain and in excellent condition.

An extremely wet autumn, which affected seed ripening, much reduced the quantities of seed available for distribution. Demands from abroad decreased, and compared with previous years, supplies of seeds both inwards and outwards were very much reduced.

The value of horses in the Gardens has never been more emphasized than during 1941, when petrol restrictions limited the activities of the motor mowers. Heavy rainfall in the latter part of the summer kept the grass growing vigorously. Had it not been for the excellent work done by the five Suffolk Punches it would have been impossible to keep it within bounds.

The Stone Pine by the Director's Office is probably the most familiar tree in Kew, being known all over the world through guide books and photographs of the Gardens. Always more heavily clothed with branches on the southern side, it lost a large branch to the north during the great snowstorm of January, 1926. Since then the tree has shown a definite tilt to the south, and visitors to Kew this spring will notice that the lowermost limb over the path has been supported by a prop in the grass.

One of the features of the Temperate House during late summer was a magnificent display made by seedling plants of *Lapageria rosea*. These were raised in the Temperate House Pits from home-saved seeds. One batch was planted in the border of the Rhododendron annexe and the other in the eastern porchway of the main building. They flowered extraordinarily well and lasted for about two months. Some of the individual growths were 20 feet long and profusely flowering in the upper part. One shoot bore 54 flowers at the end of its pendulous tip, crowded together in a length of 3 feet.

Several large trees had to be taken down in the autumn. These included a Deodar in the Broad Walk which had been sprayed by oil from an oil bomb, and was practically killed, a very large *Quercus pendunculata* just off the Sion Vista near the ash collection (damaged by an H.E. bomb) and a specimen also of the variety *scolopendrifolia* of the same species, a fine old *Pinus Wallichiana* nearby which had been ailing for some years, a large beech at the north end of the Rhododendron Dell and the last of the group of old Horse Chestnuts between the Palace Lawn and the Broad Walk. In addition two specimens of *Quercus Ilex* near the North Gallery were so badly damaged by an H.E. bomb which fell in Kew Road that they had to be removed, and there has been the usual removal of an old beech or two near the Bluebell Walk.

Several Palms fruited well in 1941. All Kew men who have worked in the Temperate House are familiar with *Howea Belmoreana* and *H. Forsteriana* better known under the older name of *Kentia*. Large specimens are seldom seen in this country, but a pair of the former

species bearing large pendulous branches of fruit were to be seen at the south end of the Temperate House and three of the latter species in the central part of the building. Two very large Palms, namely *Rhopalostylis sapida* and *R. Baueri*, from New Zealand and Norfolk Island respectively have for many years fruited well and seeds have germinated in the borders having been carried there by blackbirds who appear to be fond of the scarlet fruits and fleshy outer coats.

The Editor has pleasure in acknowledging the help received from Mr. E. J. Dunk with regard to the advertisements contained in this Number and to Mr. H. S. Marshall for great assistance in proof reading.

KEW IN WAR TIME.

THE GARDENS.

War time conditions have naturally limited the activities at Kew in numerous ways, but continued efforts are being made to maintain the Gardens to the best of our ability, and to keep up a display of flowers and interesting plants. This is in accordance with the stated policy of the Government. It is considered that, if only for psychological reasons, it is advisable to maintain a certain number of Gardens and Parks for recreation and rest, and that these should be kept bright and cheerful. That this policy is appreciated is shown by the fact that no fewer than 825,373 persons visited the Gardens in 1941, which was 2,445 more than in 1940 in spite of the evacuation of considerable numbers of the population of London and its suburbs.

The restriction of long distance travel for holidays and week-ends at the seaside and elsewhere, has meant that people in the London area looked for out-door relaxation nearer home. That Kew is one of the places chosen for such outings was only to be expected. The number of visitors, however, has not been so large as in pre-war years, but this is not surprising as Kew had stood very high in the list of popular places with visitors from all parts of the British Isles and overseas.

With the extra work entailed by the cultivation and maintenance of the food plots and allotments, it has not been possible to give the usual attention to the upkeep of beds, borders, lawns and walks, with the result that at times weeds and ragged edges of verges have been apparent, but generally, throughout all Departments, the endeavour has been to maintain the health and appearance of the collections.

Several times during 1941, abnormal weather interfered with seasonal work. This included a cold, very late spring, a hot, dry spell in June and early July, with very wet weather in August. The latter kept the lawns unusually green during the late summer and autumn, with the mowing machines working at top speed and on overtime to keep the lawns in anything like a presentable condition.

One of the most difficult problems with which the Curator and the Assistant Curators had to deal with was the maintenance of staff. Within a very short time after the outbreak of war most of the Foremen and Student Gardeners had joined His Majesty's Forces. Several ex-soldiers among the Constables and labourers were re-called to the colours, and a few of the younger garden labourers joined up with their age groups. Unfortunately for Kew, the higher wages outside attracted several of our most active and useful garden labourers who were above military age.

But these misfortunes were not without compensations. Two old Kewites, W. Franklin and H. Collin, had to seek other employment, and returned to Kew, where their services are much valued. The former is now Foreman of the Propagating Pits and the latter, Foreman of the Palm House. The presence of other very experienced cultivators who have come to Kew for the first time, also greatly strengthens the Gardens' personnel.

As in the last war, Women Gardeners have been engaged to replace the Student Gardeners. The large number employed will be seen by consulting the staff list. They are at work in all Departments except the Palm House and Temperate House, and show zeal and efficiency.

The change of staff is probably being felt most in the Arboretum, where the work is heavier. Owing to the shortage of young and active men there is a dearth of men suitable for tree climbing and the pruning of large trees. There are, moreover, many young trees to transplant and much thinning out is required, together with the removal of common or worn out specimens. To find men skilled in the use of scythes for mowing—always a problem—is now more difficult than ever.

In the Departments under glass the position as to labour is felt less acutely. But an almost entire change of staff is not good for any collection of plants as it is necessary for the gardener to know details of the previous history of plants under his charge in order to understand properly their present and future requirements. More especially is this the case where there are extensive mixed collections such as those in the T Range (including the Orchids), the Temperate House, Palm House and Tropical Pits.

As was the case during the last war, several of the open lawns in front of Kew Palace have been ploughed up and devoted to vegetable growing. This time, instead of ploughing with horses, a motor plough was hired.

In all, an area of about five acres on the Palace, Sundial, Seven Sisters and Bell-tree Lawns have been cultivated (the first two in 1940 and the last two in 1941 only). During 1941 some two acres were devoted to potatoes, the varieties grown being Majestic, Red Skin, Great Scot, Long Keeper and Dunbar Standard. One interesting fact was very apparent, namely, the increased yield on the ground where the turf was ploughed in as compared with the ground stripped of turf for use elsewhere.

Well-known vegetables grown on areas of 30 rods or more included onions, carrots, beet, leeks, garlic, swedes, Kohl Rabi and dwarf beans for haricot. Hubbard squashes and vegetable marrows were also grown. Some of the latter were trained up pillars and arches to illustrate the value of this method for small gardens in the saving of space.

Very adverse weather conditions prevented the growth of young onions after planting, and many rows had to be made up by re-planting. The dry June which followed and the wet August were exactly what was not wanted, and it was not surprising therefore that the resulting crop was not one of which we could be proud. But other crops were good, especially the Carrots. Some of the latter are being kept for seed, and—probably for the first time in the entire history of Kew—a couple of clumps of carrots may now be seen. They are on the Seven Sisters Lawn. Most of the vegetable crops were sold either to members of the staff or to Brentford Market.

A standard 10-rod allotment with crops, as recommended by the Ministry of Agriculture and Fisheries, has been maintained for the second year in succession on the lawn near the Kiosk and the produce was sent to the Richmond Hospital. On the adjoining Sundial Lawn a number of allotments were provided for the Kew employees. These plots, being in the Gardens proper, created a good deal of interest, and they, together with the Model Allotment, must have proved of considerable help to many visitors, particularly on Saturday afternoons and Sundays, judging by the number of people inspecting and discussing the crops. The ground of the staff's allotments was not good, and a large amount of brickwork was unearthed, some of which probably represented the foundations of Kew House. But by means of hard work "after hours" some very creditable crops were secured from these plots.

The Herbarium Meadow was also given over to allotments, and the whole of the spare ground reaching from the Herbarium and the Imperial Mycological Institute to the fence bounding the official Gardens was devoted to vegetables. This was used by the Gardens' staff and also by the residents of Kew, the latter being allotted plots through the intermediary of the Richmond Borough Council. The ground presented an extremely busy scene during the summer evenings and on Saturday afternoons. The soil here was better than that on the Sundial Lawn, and some exceedingly good crops were grown.

In view of the present demand for medicinal herbs and drugs, a planting of *Atropa belladonna* was made in the Depot Nursery. From this bed a ton and a half of fresh leaves and tops were gathered to be sent to a commercial drug house for drying for medicinal purposes. Foxglove plants were extensively planted in 1941 in various parts of the Gardens, and about 20 lbs. of seeds were collected. The demand for young shoots of *Laurus nobilis* led us to give our Bay trees a heavy and very late summer pruning, but our curiosity was not satisfied as to the use to which these leaves were to be put. In the

autumn of 1940 a considerable number of *Colchicum* corms were gathered by Boy Scouts in certain counties. These were planted at Kew to serve as a small reserve of this useful drug-producing plant. A further supply of corms was obtained in 1941.

A.O.

HERBARIUM.

During 1941 the Herbarium has been working with a skeleton staff. The scientific personnel, which in 1939 numbered just over 20, has been reduced to 7. Of these five men joined the Forces (E. Milne-Redhead, A. A. Bullock, B. L. Burtt, A. K. Jackson and D. G. Collett) and eight are evacuated (W. B. Turrill, V. S. Summerhayes, F. Ballard and C. E. Hubbard to Oxford in early December, 1940, and T. A. Sprague, M. L. Green (Mrs. Sprague), H. K. Airy Shaw and E. Nelmes to Gloucestershire a few weeks later). In 1940 also Mr. C. E. C. Fischer, the Assistant for India, retired under the age limit and Miss Ruth Taylor resigned her position on her marriage. In 1941 Miss E. A. Bruce resigned her appointment and joined the A.T.S. In addition four clerical officers were transferred to other Departments, one of the porters was recalled to his regiment, and the mounting staff has been reduced by three. Visitors, instead of ranging from 15—20 a day averaged by the end of 1941 three or four a day. The contents of Wings B and C of the Herbarium—i.e., about two-thirds of the specimens were also evacuated to the two centres mentioned above, and also about 20 tons of books amounting to half the Library. The Herbarium has at times seemed not much more than a shell.

The disorganization of the work, serious though it is, has not been so drastic as might be expected. The really valuable books were of course sent away or placed in a cellar re-inforced as a place of special safety for herbarium "type" specimens. The other books were selected as far as possible to correspond with the evacuated specimens and the needs of the evacuated staffs. Those left behind have been re-arranged so as to be in the safest part of the building.

Although occasional parcels of specimens still arrive from Africa, and there has been considerable correspondence with America, the war has gradually brought about an almost complete cessation of material coming from abroad. The chief routine concerns the almost daily needs of the evacuated staffs, the looking up of references in books, supplying of copies of descriptions, the sending away on loan of further books and specimens, and, in the reverse direction, the borrowing of books and specimens. Such and similar matters have kept the headquarters skeleton staff pretty busy. Home correspondence showed occasional outbursts of activity; for instance, interest in garden plants and in the British flora, an indication perhaps of a reaction to the study of Nature after the strain of the Blitz. Of more important routine duties the work of compiling the Supplement to the Index Kewensis and Supplement to the Index Londinensis has been continued.

A small amount of research was also possible. This concerned work on the floras of British Guiana and Iraq, the taxonomy and distribution of the *Palmaceae*, and mycological nomenclature. Work on the Botanical Magazine was also continued, since Kew serves as the Editorial centre of that excellent journal published by the R.H.S.

The Herbarium buildings have been guarded against fire every hour of the day since the raids started in July, 1940. The fire squads were manned exclusively from the staff. In view of the great value of the collections (many of which are irreplaceable), every reasonable precaution against fire damage was essential, and the squads (in charge of Mr. V. S. Summerhayes until he left for Oxford) were specially trained and had repeated rehearsals. At least three members were on duty every night and during raids we sometimes mustered seven or eight. Although H.E.s fell as near as the foot of Kew Bridge and the Brentford Gas Works, and bits of oil bomb were flung over the Herbarium roof, no damage beyond broken glass occurred to the building or its contents.

For the first time in its history as a botanical building the smell of tobacco has pervaded the Herbarium and Library. After the raids died down long nights of fire watching became a tedious monotony. Sir Arthur Hill allowed smoking to be permitted in the Wardens' room. No one was stronger than he about the danger of cigarette smoking in any herbarium, and his sympathy and broad-mindedness were therefore specially appreciated.

The Herbarium collections and books evacuated to Gloucestershire have had to be housed in three widely separated buildings. In spite of this handicap the staff have continued much of their normal routine work, and have undertaken researches on special families and genera, besides identifying specimens of economic and cultural importance sent from Kew. In addition to general work on nomenclature and the preparation of the Index Kewensis, Suppl. X, for the press, collections of *Gamopetalae* and *Apetalae* from Borneo were named and studied, and various genera of *Gamopetalae* have been re-arranged according to recent monographs. A revision of the Australian species of *Carex* is now nearly completed, and the nomenclature of certain British species investigated. Various Asiatic plants of special interest have been described for Hooker's *Icones Plantarum*. A detailed systematic and topographical study of the British forms of *Valeriana officinalis* is in progress. In connection with the present scarcity of certain drugs, collections were made of corms and seeds of *Colchicum officinale*. In view of possible danger to the collections from attack by beetles, with which it would be difficult to cope under conditions of evacuation, a methodical inspection of the collections is being made, cover by cover.

The staff at Oxford are much more fortunate in the conditions for working, and once the collections and books were safely housed it was possible to proceed with normal work, including a certain amount

of research. The routine work of naming various plants sent from Kew took up a good deal of time. Descriptions of a number of species of Monocotyledons and Ferns for the *Icones Plantarum* were prepared. Research was continued on various genera of *Liliaceae*, *Ficus*, East African Orchids, West African *Pteridophyta*, and amongst grasses the account of the large genus *Aristida* was prepared for the "Flora of South Africa." Revision of certain genera and critical species of Australian grasses was continued. It was possible also to continue critical studies on British grasses and intensive field studies of local grass populations yielded unexpectedly interesting results. Of published work, a very full account of the relationship between taxonomy and phylogeny was completed and the proof corrected for publication in the United States.

During 1941 two members of the staff have been engaged practically whole-time on special botanical work for several branches of the intelligence service of one of the war departments. It is not permitted to give any further details of this work except to say that it is both varied and interesting, and that it is to be hoped that after the war some of it may be made available in suitable form for scientists in general. The ordinary research alluded to above had naturally to be put on one side. It is, however, gratifying to know that Kew can meet the requests made by the authorities, and that the results have given satisfaction. The work is continuing, and is likely to continue on an increasing scale.

A.D.C.

THE MUSEUMS.

Up to the time of writing (December, 1941), the Museums have suffered little damage from enemy action. Most of the window panes of Museum No. 1 were blown out by a bomb which fell in Kew Road, and the North Gallery shared the same fate as a result of another bomb. Fortunately Miss North's pictures were taken down and stored away as safely as possible, and the gallery closed.

Apart from this the Museums have been able to carry on more or less as usual in their main function, i.e., the exhibition to the public of useful and interesting plant-products from all parts of the world and the distribution of information regarding them. Special exhibits have been staged from time to time in Museum III, which, being near the main gate, attracts most visitors. Colonial troops especially have shown interest in this Museum, which houses a fine collection of Empire timbers.

A large proportion of the work of the staff during the year has been in connection with questions and problems occasioned by the war and involving considerable correspondence.

The shortage of feeding stuffs, including seeds for bird and poultry mixtures, many of which are normally imported from countries now in enemy hands, has led to numerous questions regarding possible substitutes. Many samples of the seed mixtures now being sold,

with requests for identification of the various seeds present, have also been received. In some cases dead birds were forwarded with enquiries as to whether poisonous seeds could be traced.

In order to emphasize the value of seeds of certain weeds and wild plants as bird and poultry food, a special exhibit was maintained in the autumn and winter months, and this proved of great interest to the public. These included canary seed (*Phalaris canariensis*), Italian Millet (*Setaria italica*), sunflower, gold of pleasure (*Camelina sativa*), poppy or maw seed, linseed, buckwheat and certain *Brassicæ*, all of which may be grown in the garden or allotment. Other exhibits were of the Soya Bean and the by-products of the Coconut.

Many medicinal plants normally imported from the Continent were in short supply by the spring of 1941. The assistance of the National Federation of Women's Institutes was obtained to organise collections of native medicinal plants, and arrangements were made for instruction to be given by pharmacy colleges and teaching centres with the necessary technical knowledge, on the collection and drying the plants. Subsequently this work came under the aegis of the Vegetable Drugs Committee of the Ministry of Health, but advice on technical matters in connection with herb-collection is still being given and the scope of the collection is being extended.

It has been known for some time that rose hips are very rich in the antiscorbutic vitamin C. A proposal that they should be utilized for the preparation of a syrup rich in this vitamin was put forward early in 1941, and at the appropriate time a broadcast appeal was made for school-children, scouts, guides and other voluntary organisations to collect the hips and forward them to certain manufacturing firms which had undertaken to prepare the syrup. The appeal met with an immediate response, and a large quantity of rose hip syrup was prepared and put on the market to supplement the vitamin C in the diet of infants and young children. Very little information was available on the vitamin C content of the rose hips of native British roses. With the co-operation of the War Biology Committee and members of the Ecological Society, a survey of the vitamin content of British roses was undertaken. Nearly 20 species of British roses exist, with numerous varieties and hybrids, some of which are very difficult to distinguish. The identifications of the specimens were therefore carried out at Kew and the analyses were made by the Research Staff of Messrs. Vitamins Ltd., of Hammersmith. One of the most striking effects revealed is that the vitamin content of species growing in the north of the country is considerably greater than that of southern species.

The scarcity of sugar and sweetening agents has stimulated interest in the production of sugar beet syrup from home grown sugar beet, and an article outlining the best methods to adopt for making domestic syrup and the precautions necessary was written

for one of the popular gardening papers. The onion shortage has also led to increased interest in the so-called "tree" and "potato" onions as garden crops, and enquiries regarding the wild *Alliums* and their use as substitutes have been received. Enquiries concerning home tobacco growing have been frequent and it has been necessary to point out the restrictions that govern it.

Information has been supplied on the detailed distribution of *Rhamnus Frangula* in Britain, the wood of which is used for the preparation of the charcoal employed in the manufacture of explosives. The bark of this species has a purgative action, and arrangements have been made for the bark to be stripped and supplied to manufacturing chemists.

Early in the winter of 1940, a considerable amount of glass was lost at Kew, mainly from the effects of blast. Fortunately this occurred before the lowest winter temperature had been reached, but there was a very urgent need to replace the lost glass with some substitute other than roofing felt. Some experiments were undertaken, making use of seaweeds, with the object of providing a substitute. After preliminary trials with native seaweed, a source of pure sodium alginate, which is manufactured from *Laminaria* spp., was found. This material is soluble in water, but produces insoluble colourless salts with a number of metals, and the acid itself could provide a transparent and pliable film. Methods of reinforcing such a film, and giving it resistance by treating it with metallic salts were worked out. The material could be made rapidly with inexpensive apparatus and materials, but in the meantime a sufficient supply of glass substitutes became available, and this rendered the preparation of a substitute on the spot unnecessary.

Samples of oil seeds and crude drugs from the comprehensive collection in the Museum have been sent to firms whose own specimens have been destroyed owing to enemy action.

J. H.

JODRELL LABORATORY.

During the past two years several unusual activities more or less in connection with the war have been carried out. Botanical material captured from German sources has been examined microscopically, as have also sundry types of *Ersatz* received from various sources. There has been collaboration with the National Physical Laboratory and with the Chemical Research Laboratory at Teddington with regard to vegetable fibres possessing certain definite mechanical properties, and once again the common nettle (*Urtica dioica*) is proving useful as a fibre plant. Advice has been given with regard to the preparation of special grades of charcoal and elder pith which are in demand in connection with the war-effort, and assistance in connection with the establishment of a small factory for preparing such material has also been given.

C. R. M.

LETTERS FROM THE EVACUATED STAFFS.

A. LETTERS FROM THE MIDDLE-WEST.

The ROYAL BOTANIC GARDENS—KEW—What does it mean to all of us past and present? To many of us it is the focal point of our existence, to others it may convey beautiful gardens in which their knowledge of horticulture has reached maturity, to yet others, a vast botanical institution including collections living and dried, second to none, from all regions of the globe, where their knowledge of botany can be advanced at will, aided by the most extensive library. To all, however, it is those few acres of ground on the banks of the Thames, peaceful, enthralling and all absorbing.

Any idea of "Kew" away from these surroundings could scarcely be conceived. The havoc and barbarism of war, however, know no limits, and the advisability of removing to a safer area, part of the precious Herbarium and Library of this great educational centre had to be considered. The Director had to make momentous and historic decisions. Partial evacuation was decided on. Then—what should go and what should stay?—Who should go and who should stay? and, above all, where should they go? Eventually the cabinets of Wing C. and a contingent of botanists migrated first—early in December; those of Wing B. with other personnel moved a few weeks later to a large country house in "the Middle-West". It is of the latter evacuation only that I write.

Snow, ice, wind and hail greeted the arrival of the botanists in "the Middle-West", two of whom had already found a "little grey home" in the neighbourhood. For some days after our arrival there were anxious moments as there was no news of the collections which had left Kew just after us. Had they been bombed? Then came word that the cabinets had arrived at a small station, so small indeed that they could not be dealt with. Further manoeuvring landed them at a larger station where they were efficiently and carefully received by officers of the Ministry of Works and conveyed in vans to their new home.

The botanists all assembled to greet their old friends and see the cabinets unloaded. It was snowing hard and there were mutterings and expletives.—"Here come the Scrophs!"; "Sheets of *Verbascum* out of order!"; "Take care of this cabinet, its broken!"; "This handle is off!"; Wrap these cabinets in a waterproof sheet!"; and so on. The endless stream of unpacking, sorting, transporting, etc. took several days, but at last all were under cover. Then came a big task for the Ministry of Works—the re-arranging of the cabinets in proper order and making things look Kew-like. In a fortnight or so, the end was in sight, and the botanists began to settle down to work.

A terrible bomb-shell came later. This new home was requisitioned by another Government Department! More communications with the Director at Kew, and more decisions to be taken! Another home had to be acquired. This was far from easy though in the words of one would-be-host, cabinets were preferable to evacuees because "they cannot answer me back". But with the help of friends and the assistance of Government officials two new havens of rest were at length found, which between them could accommodate a large proportion of the collections. The owners of the new homes were more than kind and eventually we settled down again and work began in earnest.

In the neighbourhood there is only one shop, a small though remarkably equipped stores, where most things can be bought from a postage stamp to a toothbrush and hosiery, besides a variety of food-stuffs. A few miles distant is the home of the energetic Secretary of a flourishing "Field Club", a real friend and adviser, who has drawn us all into the folds of the "Club".

But though happily and comfortably placed, we hope that the time is not distant when the collections and we ourselves will be reinstalled at the R.B.G.

Floreat Kew domi atque foris

M.L.G.

Apart from worries, the move westwards has much to be said for it. The district is as secure as can be found, the climate is bracing, the countryside hilly and the flora varied. There are various unusual plants including some not found in the south-east of England. We are on the Oolite, and the vegetation is largely grass-land, with woods of Oak, Ash and Beech. Close by there is an old and large plantation of introduced trees and shrubs, all competing for space and light. We have each devoted part of our spare time to field work and have helped in the collection of herbs and drug plants for Kew. One of the staff has discovered a rare British *Carex* (the true *C. vulpina* L.)—a new county record, a second is continuing his study of the genus *Ulmus* and has found the beautiful Plot Elm (*Ulmus Plotii*), apparently wild and in many fresh localities, whilst a third has made an extensive study of *Valeriana officinalis* which suggests that various named varieties are nothing but stages of an extremely plastic species. We are more impressed than ever with the fact that the ideal British Flora should be written in small instalments by botanists working in the field who have an intimate knowledge of particular species and their habitat.

EXSUL.

It may be worth recalling that in January last year (1940) there occurred in these parts a terrible "ice-storm" almost without precedent in meteorological annals. Exposed trees and those situated on the east side of woods and copses had branches broken and split. They clanked like chains, and throughout the night could be heard crashing to the ground like bombs. Of trees in the open, Poplars

suffered the most, having almost all their branches broken. Ashes were a good second. Elms, Oaks and Beeches were smashed only on the eastern side. They still present, after the repairs of two seasons of growth, an oddly one-sided appearance. Conifers came through nearly unscathed.

This year the tale of snow storms went on through January, February and March, until on 1st April came the last fierce blizzard of the season. After that the weather grew drier though the cold persisted, there being few really mild and no actually warm days, until June. The brighter weather of April and May brought an even more unwelcome visitor than snow—namely, sharp night frosts. The most severe of these occurred on the night of May 15, when the ground temperature approached very near 20 deg. of frost. This completely killed the young leaves of Beeches and even those trees which were surrounded by others had their foliage frosted. The Beeches which received the worst treatment were those growing in valleys about 500 feet above sea-level. At higher levels the trees escaped because the buds had not unfolded. Incredible as it may seem, none of the Elms, Oaks or Ashes was in leaf until the third week of May, hence they escaped the frost altogether.

We are in a wonderful spot for wild violets; both the sweet and the hairy species occur here in profusion and in more colour-forms than we have ever seen before. These were followed later by the wood violet, *Viola sylvestris* whose mauve face is shyly half-open, and a little later by their bluer and more brazen sister, *Viola Riviniana*, with a flatter and more upturned flower to any and every admirer. The Lesser Celandine opened in March but waited for the Greater, and in late May both were seen flowering together in the same hedgerow. Surely a rare occurrence.

ULMUS.

B. JOINT LETTER FROM STAFF AT OXFORD.

At the time of writing we have spent about nine months in this lovely university town, and have quite settled down in our new quarters. It seemed strange at first to be separated from the Gardens but we have become resigned to our temporary banishment and as far as possible carry on our work as before. Of course, we have had our trials and tribulations. As guests of two university departments we have to tread lightly although we have received at all times the most courteous and kindly treatment from our hosts.

Our principal difficulty lies in the fact that the herbarium specimens and many of the books which came with us and which at Kew were always to hand have been deposited for safe keeping in the basement, ten stories down from the roof, of a marvellous modern building some distance from our working quarters. The distance is not great but nevertheless we cannot utilize the specimens to the best advantage. We must acknowledge, however, that the specimens and books could scarcely be stored in a safer place. Well below ground level and protected above by masses of reinforced concrete, little save an earthquake could disturb them.

We arrived here in the middle of a particularly unpleasant winter. Two of our number were fortunate in having relatives within easy reach, but the other two had no such advantage and were obliged to find some sort of billet. Temporary accommodation—found for them by the billeting officer—was indifferent and uncomfortable. However, since those early days matters have improved, though we all find the maintenance of two homes a strain on our financial resources.

We have had our adventures. The installation of the six hundred or so herbarium cabinets involved a good deal of carpentry and although the authorities supplied a certain amount of technical assistance much of the work fell, literally, on our own shoulders. The heaving about of cabinets involved the use of muscles almost atrophied by long disuse. The hand that formerly wielded a dissecting needle now twiddled a screwdriver. Aches and pains developed frequently in strange places but the job was eventually finished and we were able to devote our attentions once more to strictly botanical work.

Our labours are carried out in a large private house in a pleasant residential district of the city. The gardens in the neighbourhood, including those of the University park, abound in interesting trees and shrubs and many old friends have been recognised. The rooms allotted to us are large and cheerful and with Kew furniture and impedimenta, a general herbarium atmosphere pervades the place. Unfortunately we have had no domestic help, and have had to clean the rooms ourselves, assisted at times by our women folk. It is fortunate that we are all old soldiers and have no false pride. One would not perhaps expect to see the botanist in charge wielding a mop or broom, with vigorous if misdirected gusto, but so it was. This same botanist, by the way, has been carrying out a series of sartorial experiments on his own person since we are no longer bound to a formal garb. These have culminated (since the introduction of clothes' rationing) in an ensemble of khaki shirt, shorts, bare legs and boots, an outfit suited perhaps to the Balkan Peninsula but rarely seen in British herbaria.

Much excitement has been caused by the appearance of numbers of mice amongst the precious specimens in the cabinets. Traps were set but these mice were evidently food-faddists, as valuable rationed cheese (toasted to boot) held no attractions for them. Eventually dry oatmeal was used as bait with more satisfactory results. Now and again live specimens were seen and the spectacle of a noted agrostologist wildly chasing a mouse with a vacuum cleaner has to be seen to be believed. Enthusiasm reached its zenith when another member of our band joined in mouse-hunting, aiming vicious and repeated blows at a small dark object, he suddenly realised that the supposed rodent was a broken piece of his colleague's Hoover!

A concession which has been much appreciated is that of smoking. Some of us can concentrate better with a pipe or cigarette, although

as elsewhere there have been difficulties of supply. This latter problem has been partly solved—to his own satisfaction at any rate—by the senior botanist referred to above. A series of strange concoctions have been incinerated in his pipe including coltsfoot and apple leaves, and, it is said, bits of old boots. However great has been his sense of personal satisfaction, the effect upon his colleagues has been demoralising. A counter experiment in cigarettes made from the leaves of *Artemisia vulgaris* ("French Tobacco") failed miserably since the only effect was to induce a feeling of sickness in the smokers and scornful comments from the pipe fiend.

The absence of much of our peace-time routine work has made it possible for us to carry out more research. Taxonomic problems can now be tackled more peacefully and without interruption, a state of affairs we much appreciate. We naturally miss the living collections at Kew and whilst the Botanic Garden here is historically famous, it is small and, so far as we are concerned, of little use.

We must however, acknowledge with gratitude the use we have been allowed to make of the famous libraries of the university. While certain works have to be borrowed now and again from those still at Kew, we have available, at least for consultation, a wide selection of botanical literature. Indeed we have taken advantage of our location and the kindness of the authorities to read and abstract from certain rare books and papers that are not available at Kew.

We have spent a fair amount of our private time in collecting the interesting plants of the surrounding country, and it was a thrill to see *Fritillaria Meleagris* growing in thousands in one of the water meadows not so very far from where we write. We all agreed that we have never seen in England such a wealth and variety of wild flowers as occur in the meadows outside the city. They abound also in insect life and a particularly virulent type of horse-fly added greatly to the excitements of our excursions. Perhaps the most attractive feature of the insect life were the dragon-flies which darted about in hundreds along the banks of the river. On one occasion one of our number, whilst in the act of expounding with his usual loquacity, had an unpleasant surprise when a dragon-fly, in a fit of abstraction, made a crash-landing into his open mouth.

In common with our colleagues at Kew we take turns in fire-watching at our working quarters although it was decided at the outset to join in with the local fire-party. Each of us spends one night a week in the house and has to turn out if the siren sounds. Up to now our duty has been lacking in incidents since the enemy has so far passed over us to targets farther afield. Not that we are anxious to hear again the unpleasant swish of falling bombs but compared with the experiences of last autumn at Kew our fire-watching here has been relatively peaceful.

This account of our evacuation experiences will, it is hoped, be

sufficient to indicate that we have made and are making the best of an unprecedented and unexpected job. We can at least claim to have worked together as a more than friendly team and not yet to have lost our sense of the humorous. Nevertheless we shall be glad to return and work again in our familiar surroundings where we can exchange views with our colleagues on matters taxonomic and nomenclatural. Above all, our wives look forward to resuming once again their normal home life.

B.H.S.T.

PASSING THOUGHTS OF AN OLD KEWITE.

By C. H. Middleton.

One hundred years ! It sounds a long time when you say it slowly, but the years slip by very quickly, especially when one has passed the half century mark. Thirty-five years have passed since my Kew days, but some of the events are as vivid in my memory as if they had happened yesterday, especially the occasion when I scored thirty-five not out on Kew Green—I have forgotten the ducks. I remember, too, the numerous occasions when, having failed in the 6.5 a.m. handicap, I found my clogs awaiting me at the gate at 9 a.m. with a plant of some kind growing in them—does it still happen I wonder? What I ought to remember, of course, is that Kew was the great turning point in my career, the introduction to a more serious and interesting life, and the signpost which indicated the various roads which may be taken—a critical time, when some choose the road which leads to success, while others amble leisurely along the easier tracks which lead to the wilderness. Previous to Kew I had wobbled through that period of indecision when misguided youth so often drifts into unsuitable avenues. I started work in a garden, but I'm afraid my heart was not in it. A village youth joined the police and came home full of swank and swagger, so I decided that the police force was the only life for me; another became a tram conductor and I changed my mind. Then for a time I longed to be a footman and wear nice clean clothes. However, none of these openings came my way, so I went on crocking pots and carrying water, and gradually became interested in it. In fulness of time I arrived at Kew and the way seemed clearer. I have never had cause to regret it, a generous helping of luck compensated me for a lack of ability, and so far I have managed to steer clear of either the workhouse or the prison, and, having developed a peculiar gift of dodging hard work, my gardening life has been very pleasant. It is good to be associated with Kew; to meet old Kewites and recall those happy days; to blow in occasionally and remind my old friend Charlie Raffill of the time when—but perhaps we had better avoid details, it might give information to the enemy! It is interesting,

too, to look through the list of old Kewites, mark their progress, and attempt the impossible task of picking out the 'successes'. I say impossible, for who can define that magic word 'success'? Does it mean making money? Does it mean having achieved great things? Or does it merely mean the attainment of a happy life? Gardeners rarely make fortunes, but is it wise always to measure success in life by monetary values? Must our education system always aim at equipping youth with the kind of mental apparatus necessary for making money? I have met many wealthy people in my time, and most of them are as miserable as sin, but some of my gardening friends, when we meet on R.H.S. Committees, or have a meal together, are as happy a crowd as one may wish to meet. I leave it to wiser heads than mine to offer advice to the young people of Kew, but I would say this:—'Choose if you can the work which you enjoy, and this, with a reasonable measure of security, will bring you the greatest happiness even if you don't make a pot of money. If you can do that, too, so much the better, but it looks as if money won't be of much account for the next twenty years or so—if you make any you won't be allowed to keep it, so why worry?—The man who creates and maintains a beautiful park or garden does more than make money; he brings joy to thousands and satisfaction to himself! Kewites surely have reason to be proud of their association for they are members of a fraternity which has done much for the happiness of mankind, and Kew itself tells the story of achievements of gardeners throughout the ages, of men who have penetrated the jungles, the mountains and the most forbidding corners of the earth in search of floral treasures to enrich our English gardens; men who have tamed the wildings of the forest and, by patience, skill and perseverance, developed them into the wholesome and palatable vegetables on which we now largely depend for our daily food. They have kept pace with the increasing populations and discovered and developed new sources of food-supply to feed them.

Most of our healing medicines and drugs and some of our great industries, such as rubber, owe their origin to the skill of gardeners, and the work is not yet finished. Gardening is as full of opportunities today as ever it was, and Kew is the great starting point.

Since I left Kew I have seen many changes in gardening, some good, others not so good. My earliest recollections are of warm greenhouses, with the smell of the steam rising through the grating from the pipes below, and the atmosphere heavy with the scent of tropical flowers; the stoves at Kew always recall it, but it is difficult to find it anywhere else. I remember too the gardens of hard, tailored design, the shapely beds of geraniums, the statues and the topiary monstrosities which have gradually given way to groups of flowering shrubs, plants as nearly as possible in their natural setting, and the glories of the mixed herbaceous border. It seems to me, perhaps in my ignorance, that many of the Arts such as music, painting and architecture, have moved during recent years from the sublime towards the ridiculous, but gardening, the greatest art of

all, moves steadily in the opposite direction. I cannot remember a decent rockery in my earliest days—there may have been a few, but I didn't see them; the only one I can recall was a shapely, symmetrical pile, mainly composed of shells, damaged marble ancestors, china ornaments and even bedroom requisites, used as receptacles for nasturtiums, creeping Jenny and the like, the sort of things you would not expect to find on the Alps. The aim of the rockery builder of today is to reproduce as nearly as possible a little chunk of Alpine scenery, a sort of home from home for the dainty little mountain plants which are such a delightful feature of modern gardens.—It may be said that there are two types of gardeners, those who merely use plants to conform to some preconceived design or colour scheme, and those who regard their plants as living individuals, who want to see them comfortable and happy, and try to give them their correct environment and make them feel at home. These are the real gardeners, who know the joy of a garden and they are many. The love of gardening has increased by leaps and bounds during recent years, and with it an ever increasing desire for knowledge of the subject; the city man who once felt it rather effeminate on his part to show too great an interest in flowers, now feels rather out of it if he cannot hold his own in a discussion on the varieties of roses or dahlias. A butler remarked recently that he wondered what things were coming to! "At one time," he said, "if you kept your ears open when you waited at table you could often pick up a good racing tip, but now all you seem to hear about is the latest rhododendron and the proper way to propagate it." It is a good sign because gardening produces wholesome people, people who love to get together and help each other, to share their products and their knowledge. My neighbours are particularly good at sharing especially their weeds and bugs, and my lawn mower and shears, and like invalids they love to discuss their garden troubles and the remedies thereof. But we all enjoy it and it makes good sportsmen of us, especially when we gather together at the local show. I saw an old man once at a show standing in front of his vegetable collection which was marked "Third Prize". One of his friends remarked "Rotten bit of judging, Sam, you ought to have had first easy". The old man paused a moment, "Ah well!", he said, "maybe I did, but many's the time I've had first when I ought to have had third and I didn't grumble then." I wish there was a little more of that spirit about today, outside gardening, I mean.

Yes, undoubtedly gardening has advanced in many ways and the love of gardening is making a better nation of us. During the last two years the change has been a violent one, let us hope it is but a temporary setback, but I'm afraid it is bound to affect the prospects of many a young gardener on the threshold of his or her career. Many of the pleasure gardens of yesterday are "munition factories" to-day producing the food the nation so urgently needs and the gardener must perforce adapt himself to the changed circumstances. Ideals are often sublime but unattainable and we must fit ourselves into the scheme of things rather than try to make the scheme conform to

our own preconceived notions. It may be that, to meet the changing times, Kew will have to dig up the old Deer Park Golf Course and make a market garden training centre of it, and the next batch of gardeners leaving Kew will have to concern themselves less with *Anthurium magnificum* or *Mamillaria pseudoperbella*, and give more attention to *Brassica campestris rapa* and *Allium cepa*. But although temporary changes may overtake gardens and gardeners, Kew and its tradition must be preserved unpolluted through the ages, and its sons will still travel the world to spread the gospel of good gardening. The days are dark and dreary now, but the new dawn will break and all our flowers will be there to greet us once more. The days of peace will come again, and so will the Chelsea Show; and the old Kewites will gather together again in the flowery tents, and if I meet any of them there I will stand them a bottle of the best, so don't forget to remind me!

If you have read as far as this you had better blame the Editor, for he it was who paid me the high compliment of asking me to write something for the journal, and I'm afraid I have responded by writing a page all about nothing, but I am honoured, for the Kew Guild Journal is the one publication that I really look forward to every year.

HORTICULTURE AFTER THE WAR.

By W. M. Campbell.

It may appear foolish to try and foresee what the future may hold for those who have adopted horticulture as a profession, particularly in view of the fact that the second anniversary of hostilities has just passed leaving us with a much better position than was ever thought possible immediately after Dunkirk, but nevertheless with a long arduous road to travel before we reach the day of victory.

Many will recall the years that followed the last war when our industry passed through a period of deep depression, when labour exchanges were assailed by queues of men waiting to sign for the dole instead of for work, which was their birth-right and meant their livelihood. With so much unemployment, it was evident that luxury trades must suffer and gardening as a whole suffered as much as any other industry. The large estates were unable to employ the staffs they had had previously and many gardeners had to forsake their profession and adopt some other kind of work. Heavy taxation necessary to pay for the war, crippled land owners to such an extent that many of the finest estates in the country had to be broken up and found their way into the hands of the speculative builder. Thus, with the need to reduce staffs or alternatively to dispense with them

altogether, private service, the finest training ground for a gardener, reached its lowest ebb. Many years passed before prosperity returned to the country, but the balance had been disturbed and very few of our finest gardens failed to suffer both from lack of maintenance and from a shortage of really highly skilled gardeners.

This was the worst of the results of the last war, but fortunately there was a much brighter side that followed. Throughout the country there came a cry for open spaces, for better housing, for a higher standard of education, and generally for those improvements in the standard of living which would help to make brighter the life of the citizens. Municipalities commenced to lay out more parks to provide facilities for bowls, football, cricket, tennis, boating and golf. Playgrounds to take the children off the dangerous streets became a necessity, and with it all came much ornamentation to complete the picture. Trees and shrubs to form the windbreaks, flower beds to please the eye, formal gardens for those who wished for quietude and complete relaxation. Schemes of this kind absorbed labour and were favoured by the Ministry of Health, and so in place of the gardens available only to the favoured few, there arose a chain of gardens all over the land that belonged, as it were, to the people. The development of housing estates on garden-city lines made people garden-conscious and the ownership of a small front and back garden led to a thirst for knowledge of gardening matters. These factors helped to rescue horticulture during the trying times.

Allotments served their purpose well in the last war, but the authorities responsible allowed the land to be taken for housing and other purposes when the need for home grown food appeared to have passed. Experience gained then was not wasted however, as the result of the "grow more food" campaign to-day can testify.

Returning prosperity brought a need of increased scientific investigation resulting in new research institutions being set up or in increased activities of those already in being. The country gained tremendously from the work of the Forestry Commission and agriculture and horticulture in their many branches advanced to a far higher standard wherever the teachings of the research stations were adopted.

What does the future hold for horticulture? If we benefit from past experience we can assure ourselves that when victory is won many years will elapse before it can be paid for. The longer the struggle continues the greater the number of years of heavy taxation. If our economic position is to be sound, the general standard of living will have to fall and this will hit both rich and poor. One can predict then, that the maintenance of large private estates will become even more difficult, and one cannot visualise the return to days of flourishing vinerias, peach houses, fruit houses, stove collections and orchids, such as used to gladden the heart of the born gardener. Produce-sales from gardens of this kind will be of greater importance

than to-day and the need will arise for expert growers of fruit and vegetables combined with cut flowers rather than for all-round experienced gardeners of years gone by. Where it is impossible owing to taxation, for the best of our estates to be maintained, it is to be hoped that the Government will show foresight, and perhaps make special concessions to the owners whereby taxation is reduced, with facilities at the same time for the public to visit and make use of the gardens. An alternative would be the purchase outright by the Government and the setting up of a series of national parks. The chance of introducing such an innovation might be lost if advantage were not taken of the opportunity.

Municipalities will not suffer to the same extent, as though increased rating may be necessary, the need of maintaining facilities for outdoor recreation for the workers is now established and is likely to be deemed of even greater importance in the future. Many public bodies have now become responsible for the cultivation of thousands of acres of land and until things return to normal they will have to continue to serve the public in a dual capacity. War has proved the importance of a knowledge of vegetable and fruit growing to all who decide to embark on a public parks career. The future allotments will largely depend on the lead given by the Ministry, but it is evident that plots so highly valued at the present time will not be relinquished as readily as before. The future therefore should hold for those engaged in municipal work an even more important part in the welfare of the citizens.

The extensive bombing of last winter will necessitate years of restoration and civil authorities will grasp the opportunity of embodying in their new schemes gardens that will make their cities and towns more beautiful. This work combined with renovations of games areas will result in landscape gardeners being busy for some years to come.

Nurseries have been badly hit by the war. Despite all endeavours, collections have suffered and acres of nursery stock have had to be cleared for the production of food. Those left standing cannot be kept free of weeds and lack of attention must finally result in thousands of pounds worth of stock being useless for normal trade purposes. Nurseries, therefore, will be busy making good deficiencies and re-creating fresh stocks to meet the demand which is likely to be greater than ever. Those acquainted with public taste will have discerned in recent years a change in favour of hardy plants, or where glass is available, a reversion to plants that thrive in a cool greenhouse. One need not hesitate, therefore, to foretell an even greater future for trees and shrubs, alpines, herbaceous plants and for the aquatic and semi-aquatic flora that were coming into vogue even before the war.

Commercial greenhouses dealing with tomatoes, cucumbers and the varied assortment of essential crops now cover something like five thousand acres. The value of the crops produced runs into millions

of pounds and despite the lower standard of living that may exist after the war, they will be kept in full production because a market will always be available for their produce.

Research cannot stand still, fresh problems are always arising. Scientific workers and teachers in horticulture can face the future with every confidence, realising that their labours may prove of even greater value than before.

Finally we have the assurance that many lads evacuated to the country will return imbued with a love of open air and anxious to further the knowledge of plant life gained in close relationship with nature at its best. These may well be the gardeners of the future and their training can safely be left in the hands of our Botanic Gardens, nurseries, remaining private estates, public parks departments and such other establishments. Their enthusiasm will no doubt bring about alterations in school curricula so that greater importance will be attached by educational authorities to the teaching of horticulture.

In conclusion then, we can look forward to prosperous times and the realisation that our work will be of inestimable value in healing the many wounds caused by war and that our efforts will assist in brightening the lives of our fellow citizens.

KEW AND THE "BLITZ."

Kew had its share of bombing, but it is clear from letters received from members in distant parts of the Empire that greatly exaggerated reports had been in circulation. In all 18 H.E. bombs, four oil bombs, and one D.A. bomb fell within or on the Gardens' boundaries.

The H.E.'s fell in the following places : in the Rhododendron Dell ; in the Queen's Cottage grounds near the Willows (two) ; on the edge of the Golf Course (two) blowing out windows of Queen's Cottage ; in the Pinetum (six) damaging various pines and the finest specimen of *Quercus Mirbeckii* ; in the Gardens at the junction of Sion Vista and Princess' Walk ; amongst the rose beds west of the Palm House (two) ; on Kew Road near flag staff ; in the *Ericaceae* collection near King William's Temple ; and just off Sundial Lawn near Kew Palace (two). The oil bombs fell on the Malus Mound near the Bell tree ; in the Pagoda Vista near the Temperate House ; and on the west side of the Broad Walk. The only genuine time bomb which fell in the Gardens was one in the Pagoda Vista near the Canal beds. This was railed off and removed after about a week. A liberal sprinkling of incendiaries occurred especially on two occasions.

Before the fire squads became accustomed to the various sounds made by gunfire and bombs, it was a routine of duty to search for time-bombs each morning and on several occasions the public were excluded. This was quite in keeping with what occurred generally where A.R.P. wardens were called out at dawn to search the back gardens of private houses: indignant owners appearing in various stages of negligé and demanding the reason for the fuss.

Mr. Raffill reports that blast from bombs which landed in the vicinity of the Temperate House smashed 7,000 panes of glass. Splinters of glass covered the beds, pots and borders all over the building. These splinters had to be removed by hand. The flying glass cut many plants very badly and as winter came on the plants were exposed to a considerable amount of frost and cold winds. Not a few specimens were lost, but replacements have been made and fresh planting-up, so that after a lapse of a year the damage is hardly noticeable. The Palm House also suffered severely but less glass was broken. The plants being tropical felt the cold more seriously and temporary protection had to be provided at once.

During the summer it has been possible to examine the strange behaviour of bomb blast on both trees and shrubs in the open. The chief characteristic seems to be a check to normal growth and a tendency for many dormant buds to commence growing. Both trunks and main stems are affected in this way.

A splinter from the outer casing of an oil bomb was found embedded in one of the Deodars adjoining the Broad Walk. It had been carried some 120 yards after the explosion and was so firmly embedded in the Cedar that it was not possible to remove it without causing serious damage to the tree. It remains, therefore, as a memento of the times we live in.

KEW IN THE LIMELIGHT.

The year 1941 being the Centenary Year of Kew as a National Botanic Garden brought Kew into a certain amount of prominence.

The first mark of attention was shown by *Country Life*, a special topic in their issue for March 29 being an article on Kew by Sir Arthur Hill, which was illustrated with nine of the excellent photographs for which that journal is celebrated. The article and the photographs, reduced in size, are reproduced in this number.

On the evening of April 1 there was a broadcast on Kew by the B.B.C. Preparation for this had been going on, off and on for weeks, and both from the horticultural and botanical sides much information

had been supplied to the B.B.C. officials. Opinions on the broadcast varied from "Quite good" to "Mighty poor." It was realised that a light touch was desirable, but from the point of view of the manifold and interesting contributions which Kew makes both to horticulture and botany the general opinion at Kew was that the opportunity was not taken advantage of.

Mr. Stephen Potter, the producer, informs us that though he has not himself a high opinion of his own work in the programme, there was in fact an exceptionally appreciative response from the general non-scientific public, and adds that "I believe, or rather hope, that the disappointment at Kew was due to a misconception of the nature of the programme which was aimed to satisfy a large and 'popular' audience." It was given at the peak listening hour.

A few weeks later the *Sporting and Dramatic News* photographer visited Kew and was afforded the customary facilities and shown some of the inner workings of the establishment. The article on Kew came out in that journal's issue for May 9. It included 32 excellent photographs displayed on three double pages depicting all sides of Kew life and work, many of which could not have been portrayed in this way in the public press before. The article was deservedly popular and as portraits of at least 30 members of the staff were included it is not surprising that all copies within a wide radius of Kew were soon sold out.

Several other illustrated papers have published photographs of Kew recently, and the Gardens have had considerably more attention than usual. The chief excitement of the year, however, was the Kew Film, which is dealt with below as a separate article.

THE KEW FILM.*

The beautiful coloured film of Kew was taken by the Spectator Film Company for the British Council. What we all knew but realised as never before was the enormous amount of planning, staging and photography which is necessary before even a short film can be produced. Months of work were involved. Many good shots moreover which were taken had to be cut out. The film though so much reduced—of 12 minutes duration only—was excellent and voted an unqualified success. The arrangement and the continuity of the whole were particularly good. It was first shown informally at a small private cinema under the title of "The World Garden," and shortly

*The Curator was unfortunately absent on camouflage work when the film was being prepared, and it was regretted by all that owing to his retiring nature no picture of Sir Arthur Hill was included.

after, it was released and shown for some weeks at the Leicester Square Theatre and afterwards at many other cinemas.

The film opens with an aerial view of the Gardens from the top of the Pagoda, showing the lawns and trees in their early summer beauty with a few members of the public, and children playing in the foreground. We then see daffodils, cherries in flower, and the bluebells, each lovely in colour but all too short. There is a peep of the Rock Garden with a close-up of *Gentiana verna*. We see visitors strolling about on the lawns admiring the Iris garden, and the sun gleaming on the roof of the Palm House, the water lilies in the out-door ponds, the Rose Pergola with Mrs. Cooper at work tying in the shoots, and the Broad Walk with its early tulips, all of which are very effective.

We are next taken into the houses, where there are some good close-ups both of plants and members of the staff. In No. 4 there is *Strelitzia Reginae* in flower and sprays from a basket of *Fuchsia*. Miss Watts is seen carrying a pot of blue *Hydrangea*. In the tropical department some of the staff are seen at work; Miss J. Sharps is hosing and Miss Bell carefully sponging the leaves of *Victoria regia*. Miss Hutchinson comes walking through the house in a sun suit, and we see her later demonstrating the wonders of the Venus fly-trap and plants of *Drosera*. Then there are excellent views of *Mimosa pudica* showing the sensitive leaves in the act of closing and still more wonderful photographs of *Nymphaea* and *Cactus* flowers slowly opening—beautiful pieces of photographic art. There are interesting views in the Orchid Houses, Lithops in the South African House and other exotic plants.

We next come to the tropical pits where Mr. Stenning is hard at work budding cocoa plants, with Miss Canning as a picturesque figure in the background. Sir Geoffrey Evans comes in to see the result of Mr. Stenning's efficient work. We see later another excellent picture of Sir Geoffrey inspecting a case of cocoa plants for export which has been packed by Ruck with his accustomed skill. A close-up of a *Musa* flower introduces us to the young bananas which are grown from seeds at Kew, and to Mrs. Jensen who looks after them.

Lastly comes the Herbarium. Several preliminary preparations and a final 12 hour day of planning, staging and posing resulted in two minutes of film. This opened with a long shot of Wing A, with glimpses of various members of the staff and was followed by close-ups showing four aspects of the Herbarium work which were chosen by the film director, Mr. R. Carruthers, namely, the mounters at work laying out dried specimens; the Keeper naming some South American plants; Miss Wakefield examining fungi under the microscope; and Miss Ross-Craig painting living specimens for reproduction in the Botanical Magazine. An interesting exhibit by Mr. Sandwith of South American plants, especially desired and prepared, had unfortunately to be cut out.

The final note was of carefree children playing in the Azalea Garden.

A.D.C.

The following communication from Mr. R. Carruthers, the Director of the Film, sent from the cliffs of South Devon by return of post in reply to a letter from the Editor, will be read with interest.

“ It was not easy to put Kew on the screen.

“ On my first few visits I saw only a series of beautiful floral ‘ post-cards,’ and some pictorially unexciting experimental work. I could see no common factor that would bind together the varied activities of the Gardens, that would give a purpose to the making of the film.

“ So I decided to go and sit in Kew, have tea in the sunshine, shelter from rain in the hothouses, to wander and to watch.

“ At Daffodil time the ‘ Blitz ’ was still on, and I began to quite look forward to slipping down to Kew. Within an hour the war was forgotten : things were growing at Kew, people were building instead of destroying : as I watched I realised that governments and systems can rise and fall without disturbing the things that go on in a garden. Here was sanity in a mad world.

“ Thus did I fall under the spell of the Gardens and discover Part I of the film : ‘ at Kew there is a garden where people can rest.’

“ But I had to find out how to portray the Garden. I wandered on. I learned not to throw pebbles on Miss Hutchinson’s floor, I learned not to take a master-key home at night ; I evolved a system of intercepting Mr. Stenning when told he was in No. 10 ; and I came, reluctantly, to realise that even Mrs. Jensen could not foretell exactly when her Cactus flower would open.

“ As I thus dug myself in I began not only to observe but also to understand. No longer was the Cactus House just a museum of shapes, misshapes and, apparently, mistakes. I began to understand what Nature was doing in the desert and in the steaming tropics. I vaguely understood the significance of Alpine plants. I learned where young ferns came from. When some bright flower shone in the sunshine I no longer said ‘ How very beautiful,’ but ‘ How irresistible—to the bees.’

“ Thus did the things that grow in the Gardens begin to fall into a comprehensible pattern ; and here was Part 2 of the film : ‘ The Gardens are as interesting as they are beautiful.’

“ One day I was in No. 10 sheltering from the rain : it looked very dull, for nothing was flowering. A few hours later I sheltered there again : it no longer was colourless. Three blue lilies had opened. I

sat on the edge of the pool—meditating. The plant world appears to be static : apart from the Venus fly-trap and that sensitive Mimosa, I had never seen a plant move. They grow, but the tempo is so slow that we cannot detect it—farmers and gardeners know about it, and that is why they become slow, and so patient.

“ Why not try to reveal also this movement of the plant world : Percy Smith had done so for instructional purposes, but I decided to do it for dramatic reasons. So commenced the tribulations of Mr. Atkinson.

“ We took half his studio. Billy Luff, the cameraman, spent several weeks in designing and adapting the equipment—for the type of work had never before been attempted in Technicolour. We pestered everybody for flowers that would open in less than six hours—flowers that would open in artificial light—flowers that would not wither in the heat of our lamps.

“ After two months’ intermittent work we had some 35 seconds screen-time, of flowers opening. Two months ! But when we hear audiences gasp in amazement we are content.

“ I was left with the Herbarium—the classification of plants—their uses. Here was straightforward factual material, not pictorially interesting : How could it be related to the lives of individuals in the audience ? What possible point of contact could be formed between the Herbarium and cinema-goers all over the world ?

“ ‘ All over the World ’ gave me the clue. Everything at Kew is international. Here I had a common factor that would bind each sequence of the film into a unity.

“ The flora and fauna of the world—the climates of alps, deserts and tropics once again—the Herbarium a world centre of Botany—collections from everywhere, experiments with plants from everywhere, for the benefit of everyone everywhere.

“ Only one objective now remained—to show that this work is not for the moment only, but is planned. There are generations to come.

“ The problem appears simple now, but its solution came only after days of reflection. Yet, it is so simple, now. Children—the people of the Future—playing in a beautiful garden where people work now for the benefit of the Future—and so, with sweeping lyrical music, a perfect ending.

“ I can only hope that those who gave us their time and enthusiasm, and who were perhaps disappointed that much had to be eliminated, will understand. Have I not read somewhere that gardeners, by pruning away some of the buds, make those that are left to grow more fruitfully ? ”

IMPRESSIONS OF KEW—FROM THE WOMEN
GARDENERS

“ Different people 'as different h'opinions—
Some likes h'orchids and some likes h'onions.”—Dean Hole.

To the ordinary woman in ordinary times, whether gardener or otherwise, Kew is in some respects an unknown country. What goes on behind gates marked “ Private ”? How are young plants raised and how do they arrive in their appointed beds? And, most interesting of all, what does it feel like to work at Kew? All this for the outsider is a matter of guesswork, and, for the keen gardener, one of considerable curiosity. True, covered wagons may be seen hurrying to and fro with cargoes of flowering plants; mysterious odours of burning nicotine waft over walls from unseen houses; but these are scattered clues which refuse to be fitted into a coherent whole. The internal workings are well concealed. The Gardens appear almost to progress on their own with the help of Nature, and one can but make speculations.

It struck me, therefore, that a woman entering Kew as a gardener under wartime conditions would have interesting experiences and vivid impressions. And, being wartime, and the *flora kewensis* stretching itself, for once, from the rare orchid to the rarer onion, her field of experience would be wide, and provide reactions worthy of record. I decided, therefore, upon a tour of those Departments where the women gardeners were at work in order to try and discover their inmost thoughts on what it is really like to work at Kew.

I set out accordingly, and, having planned my itinerary from the “ h'orchids ” to the “ h'onions,” called first of all at the Orchid House to find King. I discovered her at length in the potting shed absorbed in a tangle of *Sphagnum* and hunting for specimens of *Xyloborus morigenes*, minute beetles whose larvæ were tunnelling in her precious Dendrobiums. She was so absorbed in this pursuit that I hardly thought it fair to disturb her. It was obvious, however, that she found her work congenial. I proceeded, therefore, to the *Victoria regia* house, where I found Bell struggling with a huge pot in the tank, surrounded by goldfish and with trousers rolled-up in nautical fashion. Sharps, junior, was assisting from the edge. “ Gardens are certainly not made by singing: ‘ Oh, how beautiful, ’ ” I said, misquoting Kipling's lines. “ That's what I have said many times to Cornford,” she replied; “ in fact, we made a Kew-flavoured version of the poem.” Having persuaded them to

let me have a copy* I turned round and entered the Stove. Here Hutchinson was carefully examining the scales on a *Billbergia*—one of those queer "tank-plants" which absorb both water and nourishment from the water-tank formed by the bases of their leaves. She was sent straight here on arrival, and her early feelings were, I gathered, those of pleasure coupled with slight bewilderment at the number of interesting tropical plants she had to look after, but with whose whims and fancies she was not fully acquainted.

Feeling decidedly warm and moist, I emerged through the Cape House, where Cornford was tending a fine batch of *Beloperone*, and found my way to the Rock Garden to be refreshed by alpine scents. I hoped to find Plummer and Thompson keeping their upland-plants free from "low-down" weeds. They were, however, not to be seen. Presently I described two anonymous "aspects," busily at work but impossible to recognise. I cleared my throat and they turned round. "What," I asked, "were your impressions on coming to Kew?" "You must give us time," they answered. "It's difficult to think clearly when you have been standing on your head for a year. We have to bend in half at this job, and the world for us is mostly upside down." Plummer was leaning affectionately over a group of *Erythronium*. "You have no idea how beautiful these can be, unless you have seen them growing wild, as I have, in Western Canada, with *Trilliums* and *Cypripediums*," she said. "I was out there for ten years, and like to be reminded of such a beautiful country—even by a few Canadian plants!"

"My most vivid impression," said Thompson, "was the difficulty I had in balancing on the rocks in my clogs. It seemed unreal also to think that we were really working at Kew, but the public soon brought us to earth. There is a great quantity of public here and at close quarters. "Look at the lady gardeners!" "Employing women now, I see," with a chorus of "Do you like your work?" "And," they added, "since you haven't asked us (for which we are grateful) we *do* like it!" Keen rock gardeners I said to myself. I thanked them and enquired the way to No. 4, where I found Australian Speake appropriately working at the warm end and Canadian Watts at the other, and cooler, end. We stood talking under a dripping basket of *Begonia Lloydii*. "I came in December," said Speake, "and after I had been officially and very charmingly welcomed by the Director I felt quite at home. I realized we should be very much in the public eye, and very soon the public turned up in force, especially during the week-ends, and later on there were ceaseless streams and large queues waiting outside the west door. It is often impossible to do any work, and even watering which in hot, dry weather is heavy, is exceedingly difficult. The public ask all kinds of questions about the growing of flowers and vegetables, and bring bits of plants to be identified. We find people

*The Kew version will be found on page 62

genuinely interested in Kew, and also as to how we women are getting on. They criticise our colour schemes and the arrangements of the plants, which take a tremendous lot of thinking out as the colours are often difficult to harmonize. But, on the other hand, we are often congratulated. Of course there is the lighter side, and I could tell you of many amusing incidents." "Yes," joined in Watts, "the other day a visitor asked us why we tapped the pots." "Why," we answered, "if they sound hollow they need a drink." Whereupon the visitor tapped his friend on the shoulder and said: "Ah! Come with me—you need a Worthington!"

Having seen some of the finished products in the way of plants, I was curious to inspect the nurseries—always one of the most interesting parts of a garden—and to hear Tarver's and Paine's views. So off I went to the "Melon Yard" and invaded the Potting Shed, and was fortunate in finding both. "How did you feel when you first came here?" I asked. "We were two of the earlier ones," said Tarver, "and our first feelings were those of pleasure for the kindness shown us by the staff and men students. Some seemed almost surprised to find us normal human beings. After being taken to the Shed to be rigged out in battledress (aprons and clogs) we clumped back to the Potting Shed to await instructions, and were soon installed in our respective charges. We have been gratified by frequent visits from the members of that world-famous institution, 'The Rogues' Gallery.'* Our work, too, has been considerably lightened by kindly advice". "You don't have outside visitors, I suppose, in this hidden part of the Gardens?" I remarked. "Yes, we do, and we appreciate the friendliness shown by old Kewites who during their flying visits look in to see how we are 'carrying on' with their former work."

"What is your particular job?" I asked. "We help to supply No. 4," replied Paine, "and you have no idea what an amount of stuff is required. Although there are many old-established plants in the centre of the house the stages have to be filled with pot plants all the year round. These are largely raised from seeds or cuttings, some of which take 12 or 15 months before they are ready. A more or less definite plan has to be worked out in advance each year. It would be tragic to run short of flowers or to have gaps! We deal mainly with cuttings—the seedlings are raised in the other houses.

On leaving the Potting Shed I ran into Jensen, a Danish sister who has earned for herself the name of the "Banana Nurse." The idea of raising bananas at Kew with a view to improving the commercial

*This, I understand, refers to a screen in the Curator's Office reserved exclusively for the portraits of eminent horticulturists—EDITOR.

strains of bananas grown in thousands of square miles in the West Indies was to her quite a new function even for a botanic garden. She had nursed many banana plants from babyhood, but most of these, she explained, had now reached the awkward stage of adolescence and become rather lanky.

House No. 18 always strikes me as being in part a sort of dormitory where bulbs can go to sleep during their off-season. There I found Hills amongst a very mixed assortment. "The awkward thing about these bulbs," she said, "is that I am never quite sure if they dry right off in their native haunts and if they want to do the same here or not, and, if they do, when they want to go to rest and how long their rest should be." I had to confess that the water-pot problem with which she was confronted was beyond me.

Penetrating further into the tropical department, I found Canning, Lancaster and Sharps discussing a mysterious *Streptocarpus* which produces two kinds of flowers, and which was bearing the label: 'Milne-Redhead 5022.' Lancaster was looking thoughtful. "Can you spare time," I asked her, "to give me some impressions of being here?" "Some things strike you on first entering Kew," she answered slowly, "but it's only later that you begin to realize what a lot there is to see and the great scope of the Gardens. And you realize, too, that very much depends on yourself as to how much you are going to benefit. There are these big collections of living plants in all the various departments—a complete lifetime study. One would like six months in each department. Then there is the Herbarium with its famous collection of dried plants and its library the experts on nomenclature one hears about, the Laboratory for anatomical and physiological researches, and the economic questions being dealt with in the museums, also the department for fungi and plant diseases. These are, however, not for us. But when you hear about them you come back to your job here and look at things in rather a new light. "Really," she said, sitting down, "it makes you feel quite tired—there is so much to see, so much you would like to know about. Of course one can just do the daily round, but being at Kew is a chance and it is rather frightening to think what one is missing."

All this was but an echo of feelings I had heard expressed in the other departments. "What would you suggest?" I asked. "It sounds as if you need a Kew edition of Mr. Thomas Cook." "Well, not exactly," answered the other two, "we have, most of us, had plenty of book work and lectures in our time. We think it would be helpful to have some informal talks and demonstrations.

We should like also to have a chance to learn something about other parts of the Gardens—a "botanizing" tour now and then

perhaps. This we hope, may be a development of the future. But we have just heard we are going to have a course of lectures on Parks Management and other lectures on subjects varying from bee plants to plant-names and how to reduce fog damage. These we shall greatly appreciate and we feel we are lucky."

I myself would have liked lectures from the Museums and Jodrell Laboratory staffs on their own very specialized subjects. But an atmosphere of the inaccessibility of science always seemed to me to emanate from these buildings—a feeling of:—

" Primroses by the river's brim
Dicotyledons were to him
And they were nothing more."

I never dared do more than look and pass on.

And now my tour was nearly completed. I was nearing the onion plot—unmistakably. Watson, Munday and Cornwell were there, all digging for victory in no uncertain fashion. "What part of the Gardens do you cover?" I asked, "or are you rooted to this particular patch?" They straightened their backs. "You would know where we were if you were here at 6.30 a.m." said Watson. "The vegetable squad setting out sounds like a battalion on the march. We normally operate between the Curator's Gate and the Victoria Gate, doing all sorts of jobs: tidying shrubberies, clipping edges or hoeing vegetable plots." "We can't say we learn very much" remarked one of the others, "but after all our first job is to help look after the Gardens, so we're content." "We get mighty hungry out here on the onion plot" Munday interpolated, "and it's tantalising to see visitors sitting on a seat and enjoying tea at 3 p.m." That was an aspect of a Kew gardener's life that had not before struck me. "After ten o'clock when the Gardens open," added Cornwell, "we are a regular Information Bureau and have to face a barrage of questions about vegetable growing. We can help people sometimes and we've become expert too at our self-imposed task of making the public "vegetable-conscious". "What's going to happen with the Garlic?" I asked. I had never before seen it grown in England as a field crop. "It will be sold for flavouring or medicinal purposes, I suppose. Perhaps you'll taste some of these if you happen to have supper at the Corner House."

I passed by the east side of the Palm House with its wonderful display of summer bedding. The dominant note this year was pale mauve-blue and pink set in a background of deep browns and reds. I thought I had never seen it looking better. How I wished that I had sufficient energy to climb to the gallery of the Palm House where,

so I had been told, one can look down and see the whole bedding scheme laid out like some fantastic geometric embroidery. I should have liked also to learn about the planning of those 54 beds and the 15,000 plants which one had heard were required—most of which had to be raised 12 months beforehand and the plans drawn up long before that. But it was late and there were no gardeners about.

I was left to my summing-up. Even now I had not called on all the twenty-six: Horder and Shallcross caring for Tropical Ferns and who, I was surprised to hear, still found the *Historia Filicum*, published in 1875 by former Curator, John Smith, a great "standby". Clark and Pedgrift of the Flower Garden (what would Kew do without them!); the newcomers, Stent and Knight—and Kelly of the Aroid House, whom, none the less, I heard warbling in the distance.

I had seen enough, however, to draw certain conclusions. (1) Where was the shock I had expected great Kew to produce on the women who were taking part in its upkeep and tending rare plants for the first time? Though a few of the younger ones might be a trifle over-awed, all seemed to have fallen naturally into the jobs allotted to them and to be successful in aspects of gardening varying from stone-breaking for the rock garden to the fine technique of orchid-pollination—one more proof of the adaptability of the female. (2) What sort of welcome had awaited them? Were they regarded as an additional trial in times already trying enough—an added discomfort—a necessary evil? Necessary, however, they felt themselves to be, although it was in fear and trembling that they passed into a new world through the doorway marked "Curator". Their fears had melted like a morning cloud, and I found all were pleasantly surprised at the way in which they had been received and assisted to take root. (3) How about the impressions made by the women upon those in charge? Perhaps no answer can be given, but this much can be said: The Gardens are still flourishing and the women are still working with enthusiasm. It is to be hoped, therefore, that the Kew authorities who have been responsible for opening their gates to women, regard the experiment as a success.

BETTY COOPER.

Now Adam was a gardener, and God who made him sees
That half a gardener's proper work is done upon his knees;
But with Adam gone to fight the foe and only home on leave
The proper one to kneel and plant and grow our food is—EVE!

(KIT CORNFORD).

FLOREAT KEW.

By Constance O. Bell & Kit Cornford,
with apologies to Rudyard Kipling.

The Royal Botanic Gardens, by the river down at Kew,
Has sent a troop of gardeners to fight the War for you,
So to keep the Gardens' glory, that the flowers may not die,
A crowd of women gardeners now meet the Public Eye!

They work about the Rockery, the Houses and the borders,
And every one of them is keen to take Curator's orders,
In breeches or in dungarees, in brown or blue or green,
The girls behind the Men who've gone to Fight may now be seen.

Behind the gate marked Private, along the old red wall,
Are found the propagating pits, which are the heart of all,
The "Dec" pits, and the "Trop" pits, the offices and Store,
Begonias, pelargoniums, and cacti by the score.

'Tis there you'll see the students, the girls and 'prentice boys,
Told off to do as they are bid, and do it without noise!
But, except when pot-boys whistle and throw the pots about,
The jokes that go on in the pits are seldom heard without!

And some can sow the Regia, and some can pull a hose,
While all (we hope!) are fit to trust with anything that grows.
But when Amorphophallus gets hidden in a vent
In expelling smells from houses all Tarver's time is spent!

Then seek your job with thankfulness, as Pearce and Stenning
order,
If it's only catching Mealy Bugs or weeding in a border,
And when your clogs stop hurting, and your foot already hardens,
You'll know you are accepted for the Glory of Kew Gardens.

Our Kew's a lovely garden, and such gardens are not made
By saying "Oh, how beautiful" and sitting in the shade,
But by sweating from 6.30, and watering (with our tears!)
We hope to keep the place O.K. for many happy years.

To those who toil with joy to keep Kew Gardens fair of face
We hope, perchance, the "Powers that Be" extend a little grace,
And plan a future to include for girls a tiny space,
When Victory brings the Men's return to take their rightful place.

SWANLEY AND STUDLEY.

It was thought by the Committee that with the presence of women gardeners at Kew, it might be of interest to have an account of the training given at two of the women's colleges devoted to horticulture, so that the instruction provided could be compared with that given at Kew. Swanley and Studley have been chosen. It is realized that there is a very important horticultural centre at Reading which is open to men and women, but this is a Department of one of the Faculties of Reading University, and stands therefore, in a different category. [Editor].

SWANLEY HORTICULTURAL COLLEGE FOR WOMEN.

The name of "Swanley Horticultural College" presents something of a puzzle at first glance. It is situated not at Swanley, but at Hextable, a village two miles away, and it started its long progressive existence as a college for men. It was founded in 1888 by Arthur Harper Bond, who continued to take an interest in all its doings until his death in 1940. In 1891 a women's hostel was opened, and the infiltration was so complete that in 1902 the men's section was closed down and the women left in sole possession. From that date, when gardening was an unusual pursuit for women, until the present day when it is accepted as normal, Swanley has sent out an ever-increasing number of trained women gardeners to fill all kinds of posts and, both in this war and the last, Swanley-trained women have worked at Kew.

To one who is not acquainted with Swanley, it might be interesting to pay an imaginary visit and to follow the experiences of a student going there for the first time. She would find the College situated in a corner of Kent which is one big market garden: orchards and nurseries or market gardens lie on either side as she travels from Swanley Junction to Hextable and also around the grounds and the main buildings where she is to interview the Principal. Presently she sees College House, a small but beautiful Queen Anne Manor fronted by wrought-iron gates and a long avenue of lime trees. It is flanked by flower-gardens and built on at the back are some strange angular buildings representing laboratories. The various hostels are not far off.

The Principal, an old Swanley student, explains the courses which are available and the possible careers that lie ahead. Posts varying from jobbing gardeners to head gardeners, lecturers in horticulture

and botany, or research workers at scientific institutions and county advisory officers, have been filled by past students, or if she prefers a commercial career the student may go in for market gardening or running a nursery on her own account.

There is the choice of entering for the course for the Degree of B.Sc. Hort. (Univ. Lond.) which covers 3 or 4 years; the College Diploma course of 3 years with which preparation for the N.D.H. examination of the R.H.S. is combined, or the two years Certificate course, either general or commercial. In addition there are several shorter courses some of which include poultry and dairying and bee-keeping.

We will assume our student decides on the Diploma course as she wishes to take up practical horticulture and to specialise in cultivation under glass. She begins her first year and finds herself housed in one of the four hostels with 30 or so other students and wears like them the Swanley uniform of natural coloured shirt and breeches, brown stockings with green tops, brown tweed coat in winter and green linen coat in summer. As the bell rings on the first morning, the Hextable Road is filled with girls in varying degrees of hurry making their way from their hostels to the College where the roll-call and prayers are held in the College Hall, which was once the Saloon of S.S. "Bessemer". She begins term in a small "gang" of students of her own year to work in the orchards which cover 20 acres.

As far as practical horticulture is concerned this year will be spent entirely amongst fruit and vegetables and her "gang" will work alternate fortnights in the vegetable gardens and fruit plantations. She will learn how to select, plan and plant orchard-sites; the details of fruit cultivation from manuring and spraying, to picking, packing, marketing or storing; also intensive culture of fruit, the costs of labour and how to renovate old orchards. She will learn also how to bud and graft, the delights of strawberry picking, and how to prune acres of apples, often a painful process, as knife work is insisted on at Swanley.

The vegetable garden occupies ten acres. It is cropped commercially and includes the intensive culture of salad crops and early vegetables. At the end of her first year the student will know also about the maintenance of private vegetable gardens, the systems of manuring and how to cultivate light and heavy soils (as both are found in the grounds); the rotation of crops, managing frames and pits, blanching and forcing salads—and growing mushrooms which in some years particularly are visited by successions of woodlice which must be kept down.

The practical horticulture is interwoven with the theoretical side and in the first year this will include instruction in Botany, Horticulture, Entomology, Physics and Chemistry. The Botany Laboratory is well-equipped and there are usually about two hours laboratory work to an hour of lecture. Her first year's programme consists

of lectures and practical work on the outlines of the morphology, anatomy, and functions of the root, stem and leaf: on cell-structure, the structure of growing points and secondary tissues including cork-formation and the healing of wounds.—Physiology takes a prominent place since of all branches of botany it is fundamental to a gardener. She learns about absorption of water, salts and gases, the ascent of sap, transpiration, respiration, storage of food, the synthesis of proteins, carbohydrates and the nitrogen cycle and fixes up physiological experiments in the laboratory. Her notebooks begin to assume imposing proportions. Entomology comes next. In the Zoological Laboratory she dissects a worm or other beast and learns the divisions of the insect world, the chief orders and their characteristics, and the general structure of insects, making drawings all along from microscopic slides and actual specimens. She is taught to identify insect pests and to recognise their damage, and the study of their life-histories and habits, and how to prevent and control them. Physics and Chemistry in the first year deal with Soil Science; the relation between plant and soil, soil-formation, the physical properties of sand and clay; soil-acidity and the testing of samples. She learns about organic matter and micro-organisms in the soil, the effect of tillage, and ponders for a few brief hours on the science of meteorology. Friday is “Fish and Physics”—an association always remembered.

A special Swanley feature may be here mentioned. In her first year the student is allotted a genus, or several genera or even a natural order for the special study of its pests and diseases which she must collect and submit at the end of her final year. (I had Chenopodiaceae and how the pests mounted up!) This starts her on “bug-collecting”, and plant pathology and serves as an inspiration for original observation. Stag-beetles for instance are kept as pets in special hutches made in the Carpentry Class, which is held every week and where incidentally the student progresses from making tool cleaners to constructing frames, mending lights and becoming an expert handy-man.

The second year is started with more responsibility and considerably more muscle. Horticulturally this will be spent in the decorative side both outside and under glass. In addition the student must take a short course in the dairy, on the farm, in bee-keeping, poultry or jam-making, and learn to drive the College van if she cannot already do so.

Her outdoor programme consists of learning the management of the flower garden, various types of borders, rock gardens, wall and water gardens, trees and shrubs, including their propagation and pruning, the management of lawns and playing-fields. Under glass she grows many kinds of greenhouse plants and she has a conservatory to provide for—a miniature Kew No. 4. In addition there is the construction of glass-houses, methods of heating and ventilating, mixing of composts and the treatment of stove, intermediate, cool and propagating houses and the use of frames.

At the same time the student continues to attend lectures on the scientific side. In Botany there is a short course on the lower plants, the structure and reproduction of algae, fungi, mosses and ferns, including the processes of nuclear division, reduction-division and fertilization. This leads on to the life-history of the Gymnosperms and thence to the Angiosperms and the detailed structure of flower, fruit and seed. From this she passes to systematic work, touching on the principal families and dealing with the concepts of genera, species and garden varieties and hybrids. Her second year's botany is rounded off with an idea of the relationship of the plant to its environment, plant geography and plant associations. Chemistry assumes more important proportions on the inorganic side, and an insight into organic chemistry also is provided for—hydrocarbons, alcohols, ferments, enzyme-action, plant-acids and proteins. Another subject in this year is Economic Mycology which principally, though not exclusively, deals with the common fungus diseases, modes of dissemination, resistance and immunity in plants and the methods of disease control; as well as principles of soil sterilization.

The use of spraying machines is demonstrated and the outlines of legislation applying to plant diseases explained. She makes drawings from specimens and microscopic preparations and hunts plant-diseases with even greater zeal.

The student then enters her third year and last lap. On the practical horticultural side she specializes on Market work. She works in the sixteen glass houses known as "Market Houses", cultivating grapes, peaches, figs, tomatoes, cucumbers, strawberries, melons, lettuces, all the commercial flower crops which can be grown under glass from Arums to Chrysanthemums, and also bedding plants. She learns more details as to packing, grading and marketing in a special sub-department, from which produce is despatched through agents to the London Markets, or sold directly from the College van ("the travelling shop") to the local residents, an experience she much enjoys. She learns more about the construction of various types of houses, and of boilers and pipes, with their maintenance and repair, stoking (a practical experience) and soil sterilization on a large scale.

On the theoretical side the third year is most interesting of all. She is given a course in surveying and an elementary study of garden design, from the plan to labour costs. She then makes surveys on her own, and sketches of the local landscape for which the trees and the old house—a mixture of Tudor and Stuart—come in useful. She devises a plan of a beautiful garden and grounds with a house after her own heart and works them all out to scale, fit training for that horrible ordeal she has heard of at Wisley!

Her third year's Botany includes three sets of lectures. The first covers genetics, evolution, variation, mutation, hybridization and Mendel's work, selection and methods of plant and animal improve-

ment. Then there is a longer course on classification of higher plants, and thirdly there is applied plant physiology on such subjects as vegetative propagation, ringing, the carbohydrate-nitrogen ratio and its effect on flower and wood-bud formation, self-fertility and inter-sterility, and the technique of seed-testing.

So the student's note-books mount up. She has absorbed a great quantity of knowledge and has much to assimilate and keep in her mind, both theoretical and practical, for the final examinations. Diaries and collections must be given in; there is much reading up and a last minute frenzy of "bug collecting". As the fateful week draws near, the atmosphere becomes tense. At last the papers are given out. The examinations are in progress, and punctually as ever—the bees swarm.

An increasing number of students go in for the London B.Sc. Hort. and some for the N.D.H. but most prefer the Swanley Diploma, and once the student has gained that she feels that she is fully-fledged. But this success only serves to whet her horticultural appetite. She realizes there is still much to learn and much horticultural wisdom to be acquired in the hard school of experience. But she is free to make her choice and to develop along her own lines. If she were not reasonably proficient and capable of making an intelligent start it would not be the fault of Swanley College.

For the duration of the War, Swanley has been transplanted to the Midlands, where it has temporarily joined forces with the Midland Agricultural College, Sutton Bonington, near Loughborough. It has taken over the horticultural department and effected many improvements and additions. Although it has momentarily taken root, it is looking forward to the day when it can return to its native soil in Kent and be once again truly Swanley.

BETTY COOPER.

STUDLEY COLLEGE.

To all women who have passed through Studley College there is a lasting memory of a unique castle-like sandstone building set in the most beautiful surroundings.

Studley College represents the first centre of training in Horticulture and Agriculture for women only in this country. It originated as the Lady Warwick Hostel for women in 1898 at Reading, and was sub-

sequently removed to Studley Castle, Warwickshire in 1903. The estate of 340 acres was purchased outright in 1929. It includes grass and arable land, fine ornamental grounds, gardens, orchards, farm, woodlands and a large lake. A special feature is the very fine avenue of *Sequoia gigantea* leading up to the house. The entire estate is a little larger than Kew. As regards buildings, a new South Wing was built in 1937 adjoining the original and impressive castle-like mansion. This consists of fifty study bed-rooms. A well-equipped Sick Bay was also provided and four Laboratories for the teaching of Biology, Chemistry, Physics, and Bacteriology, the last being used chiefly by the Dairy section of the Agricultural Department. The aerial photograph reproduced herewith (by the kindness of the Studley College authorities) shows the back of the main building. The *Sequoia* avenue leading towards the main road can be seen in the front. The orchards and vegetable gardens and most of the greenhouses are to the extreme right and are not included in the photograph.

The department of Horticulture, with which I am only concerned here, consists of garden, orchards and grounds of some 40 acres. There is a good walled kitchen-garden in which vegetable-growing under a proper rotation is carried out, and the various walls are well covered with choice fruit. There are in addition ten acres of ground used for the growing of vegetables under market garden methods, and for the commercial cultivation of hardy fruit. The orchards are cropped with many kinds of apples, care having been taken to choose varieties suitable for the heavy clay soil and to give a succession of crops and what is almost as important, to secure good pollination results.

The garden also includes thirteen one-hundred-foot-long market glasshouses in which to grow vines, peaches, tomatoes, cucumbers, bulbs, carnations, violets, chrysanthemums and other flowers. There are also store rooms for fruit and vegetables. The frames with hot beds provide scope for carrying out intensive cropping of early salad crops. There is, moreover, a model vegetable garden for the use of third year students, and there are demonstration plots of various kinds, including fruit-stock beds.

The Flower Garden consists of two long herbaceous borders of which all Studleyites are very proud, annual borders, a rose garden, rock garden and a fern and primula garden. The College buildings are surrounded by some large specimens of conifers which include in addition to the *Sequoia gigantea*, *Cryptomeria japonica*, *Pseudotsuga Douglasii*, a very beautiful Dovaston Yew, and fine deciduous trees such as copper beeches, cut-leaved beech, birches and various kinds of oaks, under which in Spring are carpets of violets, winter aconites, primroses and daffodils. There are moreover several shrubberies, comprising an extensive collection of shrubs and an effort is made to introduce the newer species as these become available.

Horticultural students follow one of the following courses :

- a. Studley Certificate Course. 2 years.
- b. Studley Diploma Course. 3 years.
- c. External Degree of B.Sc. (Hort.) of London University. 3 years.
- d. N.D.H. of the R.H.S. (Preliminary examination). 3 years.
(Final examination). 3 years.

There are in addition to the above, special optional short courses on such subjects as Floral Decoration, Garden Design, Bee-keeping, Fruit and Vegetable Preservation.

In the certificate and diploma courses practical horticultural work occupies several hours each day. The work is planned for each student individually so that she may take part in all the garden operations of the seasons during her course of training. The lectures for the certificate course during the first year include Horticulture in many branches, Botany, Chemistry, Physics, Soils and Manures. In the second year Plant Pathology and Entomology are substituted for Chemistry and Physics and in addition there is instruction in packing, and marketing and book-keeping. During the second and third years a certain amount of responsibility is given to the students and the opportunities for supervising and directing the work of others who are engaged in practical horticulture out of doors and under glass.

For diploma students (i.e. those taking a third year) there are more advanced lectures on the same subjects and one on genetics, whilst the reading of recent research papers published from various Research centres is urged and insisted on.

The lectures on genetics are accompanied by practical experiments on the hybridization of various *Primulas*. This stimulates much enthusiasm and gives practical interest to the subject. At the end of the third year each student had to prepare a lecturette on a selected portion of the subject and at the last moment one student out of the class was chosen by ballot to deliver her oration.

The final year also included more detailed work on fruit cultivation of a rather more fundamental nature. Each student was given the task of helping with the "frame-working" of a tree and had to observe and compare the results of older methods of "dehorning" and grafting. Attention was also given to the study of ringing—especially to the results of previous treatments.

The Degree course (B.Sc.) is regulated by the London University syllabus. It includes lectures on Botany, Chemistry, Applied Physics and Zoology and Plant Pathology for the Intermediate Examination, and for the Final Examination, Chemistry and more advanced Botany, Plant Pathology, Entomology and specialised horticulture including economic and commercial. In the B.Sc. course less time is at first spent on practical horticulture, but it is increased during the second and third years.

For the National Diploma in Horticulture students who have followed Course (b) have covered the necessary work and are eligible for the Preliminary Examination in their third year at the College if they comply with the regulation as to age. They are eligible for the Final Examination after a further 3 years spent in practical work and holding a definite post.

The Kew students may be interested to have more details of the botany course. The ordinary two-year student has lectures on general botany including morphology and anatomy with microscopic work and section cutting in the Laboratory. Physiology looms large and this includes the setting up of elementary experiments in the Laboratory. There is also a course on Systematic Botany and Plant Pathology—both lectures and microscopic work. There is much less systematic botany than at Kew and there are no lectures on ecology or nomenclature and of course none on Parks and Administration; more attention is given to physiology and there is more plant pathology and entomology, there being weekly lectures during the entire two-year course—that is about 60 lectures in all—and each lecture is followed by 2 hours of practical work. Students do a certain amount of reading in the evening and write up their notes either in their private study-bedrooms or in the large reference library. The latter contains a good collection of horticultural, agricultural and botanical books which may be borrowed and taken to the studies.

A special feature of the training throughout all courses is the excursion programme. This includes visits to horticultural exhibitions, research stations, private gardens, market gardens, orchards and commercial nurseries. On these excursions students are accompanied by one of their lecturers, and members of the staff of the gardens or research stations visited give talks and demonstrations.

In the Easter vacation two or four students are allowed to spend a week working in a voluntary capacity at the John Innes Horticultural Institution at Merton under Mr. M. B. Crane the well-known fruit geneticist. Here they learn methods of crossing fruit trees under controlled conditions of pot-trees under glass, and are allowed to assist him in emasculating the blossom and in actual pollination. They glean also much valuable information on many subjects from the opportunities afforded them by the variety of work in progress at Merton.

“ Mossing ” and fungus expeditions vary the term’s work, as does dragging the Lake for *Chara* when sundry curious vegetable and animal organisms are brought to the surface as well as common algae such as *Spirogyra* and *Vaucheria*. These are all eagerly examined in the Laboratory as far as time permits.

I have not enlarged on practical horticulture but this includes most of the work that the Kew student gardener learns *before* he comes to Kew. The training at Studley cannot therefore be compared with that at Kew since the majority of the girls come straight

from school (mostly boarding schools) but must have reached the age of 17. Horticulturally therefore most of them start from scratch.

In my time the agricultural and horticultural students were about equal in number. There were about 15 horticultural students in their first year and about 15 taking their second year and about 8 students doing the third year course. Studley believes in a good education and thorough training. The finished product is of course young but is eager and anxious to branch out and specialize. As evidence of the success of its methods it may be added that amongst posts now filled by former Studley students are those of Heads of Training Centres, Lecturers, Instructresses and Landscape Architects. For this training substantial fees are necessary, but considering the high standard set and the ample opportunities afforded for social life and recreation these can be considered moderate.

During the war Studley College is carrying on and continuing the normal courses of instruction since the Governing Body believe that if women take up gardening at all they should be properly qualified so that they can play their part in co-operation with men in horticultural development and reconstruction, including education and research.

“ *Labore vinces* ”.

BARBARA M. TARVER.

NOTE ON THE DOVASTON YEW.

The specimen of Dovaston or Westfelton Yew mentioned in the above article is probably the most interesting tree in the grounds of Studley College. This variety of Yew is usually known as *Taxus baccata* var. *Dovastonii*, and it is characterized by an erect main stem, and widely-spreading, more or less horizontal branches which are clothed with long weeping branchlets.

The Weeping Yew was first described in 1838 by Loudon in his great work, “ *Arboretum et Fruticetum Botanicum* ” vol. 4, p. 2,082) in which he devotes as many as 27 pages to his account of the genus “ *Taxus* ”. Loudon describes the first observation of the tree as being probably about 1777, when it was innocently planted by Mr. John Dovaston in his garden at Westfelton, near Shrewsbury, in order that its fibrous roots might help to bind the light and sandy soil. The original plant he had purchased for 6d. from a cobbler, who had found it in a hedgerow near the village of Sutton in the Westfelton parish. John Dovaston’s son, J. F. M. Dovaston, lavishly describes the tree as having each branch “ *dangling in tressy verdure, downwards, pendulous and playful as the most graceful birch or weeping willow, and visibly obedient to the feeblest breath of summer air.* ” The tree

is given no scientific name, and it is simply referred to as the Westfelton Yew. The description is accompanied by an illustration (Fig. 1990) which was made by "one of the ingenious children" of Dovaston's friend Bowman, and it may perhaps be regarded as being somewhat exaggerated.

A few years later, W. A. Leighton, in his "Flora of Shropshire," described the tree under the name of *Taxus baccata* var. *Dovastoniana*. He dedicates it "to the memory of its rescuer and planter, the late John Dovaston, a self educated gentleman of great ingenuity, talent and science," and he repeats Mr. J. F. M. Dovaston's poetic description and account of its origin. The tree, he says, grew to a diameter of 63 ft. with a single spiral leader of great height. Although the tree was described as monoecious, yet it had one entire branch which produced berries, and from these Mr. J. F. M. Dovaston raised 17 seedlings, and in his account he gives the names of some of the persons to whom they were distributed.

A further account of the Yew, which brought the subject to date, will be found in the "Gardener's Chronicle" for March 10th, 1900 (p. 146) by yet another member of the family, Mr. J. F. E. Dovaston, of Westfelton. A photograph of the original Yew is produced here, the upper part of which shows the pendant branchlets hanging from the main shoots, but the best illustration I have seen of the variety is the beautiful photograph published in 1913, by Count Silva Tarouca, in his book entitled "Freiland Nadelhölzer" (p. 275).

The Dovaston Yew at Studley may be seen on the lawn at the back to the south of the building in the aerial photograph. Its conical habit, so common in weeping trees, is similar to that of the original specimen referred to by Loudon. It is a fine tree, and was always the central figure of our social activities which took place on the lawn in summer.

In a letter to Mr. Cotton, Miss E. H. Ekins, the Principal of Studley, writes: "We have always thought our Weeping Yew was *Taxus baccata* var. *Dovastonii*, and it is labelled accordingly. I measured it yesterday, and the main branches make a circumference of 257 ft. 8 ins. I should say that the height is roughly half the diameter, and the general outline is conical. There is more than one main stem in the centre, looking as if the tree had branched lower down, and some of the horizontal branches have apparently layered themselves into the ground, and grown upwards at the tip and then branched again. It is a male tree. It is believed to have been planted in its present position when the grounds were laid out in 1833, and the story we have is that it was moved from the gardens belonging to the owner who built Studley Castle, as it was a treasured possession. This other garden was about half a mile away."

The Weeping Yew is now found in many private collections, and also at Kew. Having been propagated by seed, the seedlings no

doubt vary a great deal in their degree of weeping, as well as in other characters. But it is also possible that some of the trees have originated from layers which could easily be obtained from the lowermost branches, as Miss Elkins' letter shows. The date of the Studley tree suggests that it may well be one of Mr. J. F. M. Dovaston's seedlings referred to by Loudon, although not mentioned by him.

Correspondence with Mr. Daniel G. Dovaston, the present owner of the Westfelton estate, has disclosed the fact that the original tree is still alive and healthy. Mr. Dovaston (who also supplied some details as to the history of his garden) kindly sent two fine branchlets from the old tree. These showed the weeping habit remarkably well. They were healthy and well clothed with leaves, but the actual stems were slender with little development of xylem. Cuttings have been taken at Kew, some of which we hope to be able to strike. The specimen of var. *Dovastonii* in the Kew Arboretum appears to agree well with the original plant, but the weeping habit is not quite so marked.

With regard to the name, the standard works on trees by Elwes and Henry, Mr. W. J. Bean, Dr. A. Rehder, Dallimore and Jackson, and the Kew Handlist, all refer to it as *Taxus baccata* var. *Dovastonii*, but Leighton's name, var. *Dovastoniana*, published in 1841, appears to be an earlier one.

MARGARET LANCASTER.

THE NATIONAL PINETUM, BEDGEBURY.

By W. Dallimore.

War conditions involving lack of labour and scarcity of money were against any substantial progress being made in the development of the Pinetum during 1941, but by dint of scheming it was possible to get through much of the vital work in both the Pinetum and Forest Plots, though the labour of three men, all advanced in years, did not suffice to do all that was necessary on the 100 acres which comprise the two undertakings. Before the outbreak of war, the 40 acres of Forest Plots were under separate management, but since October, 1939, they have been worked by the Pinetum staff.

At Bedgebury there are two outstanding drawbacks to tree cultivation, one is Honey Fungus (*Armillaria mellea*), the other frost, and both are difficult to fight. Both the Pinetum and the Forest Plots occupy old forest sites, and, when the land was taken over for its present purpose, it was full of tree butts. About the decaying roots Honey Fungus is rife, and it has spread to and killed many a promis-

ing young tree. To try and check the disease many butts have been removed, but young trees are still lost each year.

As to frost, the area appears to be one of the most susceptible in the country, and for the last two years frost has been recorded during every month. Sometimes several degrees may be recorded in low-lying places and little or none on higher ground a few hundred yards away, but even a few degrees in May, June, July and August may do much harm to the young soft growth; in fact, late spring frosts make the successful cultivation of the Chinese Firs (*Abies* spp.) practically impossible. But it is not only spring frosts injuring new growth which have to be considered; we get also very low winter temperatures. Zero Fahrenheit was recorded on two occasions during 1941, but on the night of January 19-20, 1940, the temperature fell to 15 degrees below zero in one low spot and 14 degrees below zero in another. Over 100 trees, mostly species of *Cupressus*—some of them between 30 and 40 feet high—were either killed or badly injured, and in most instances the badly injured ones ultimately succumbed during the cold winds of the spring of 1941. One or two trees of *C. arizonica* appear as though they may recover, and a single specimen of *C. Macnabiana*, growing under similar conditions to others of the same species which were killed, was practically unharmed and is now in the best of health. Why such things happen is one of the mysteries of plant life. But while the true *Cupressus* suffered very badly, varieties of *Chamaecyparis Lawsoniana* and *C. nootkatensis* growing nearby were uninjured. Whether frost was actually responsible for an enervating effect upon large trees of *C. Lawsoniana* I am not prepared to say, but several trees 40 or more years old, growing in the valley, deteriorated in health during 1941. It takes more than one year before the amount of injury caused by excessive cold or sudden water-logging of the ground can be accurately determined. In addition to the losses amongst the Cupresses several Pines suffered severely. There were losses, for instance, amongst trees of *Pinus Armandii*, *P. Taeda*, *P. caribea*, *P. cembroides*, and *P. serotina*.

Apart from the data obtained on species which suffered from excessive frost, there are interesting instances of others which remained uninjured when they might have been expected to have been killed. One of these is *Taiwania cryptomerioides*, a Formosan tree, and another is *Libocedrus chilensis*, a tree from the Andes of S. Chile. True, they are growing in the warmest part of the Pinetum where the ground temperature may have been 10 degrees higher than in the cold valleys, but one would have expected a certain amount of injury. This is another queer fact difficult to explain. All the trees of the well-known favourite *Cupressus macrocarpa* and its varieties growing in the Pinetum were killed, but not more than 5 per cent. of trees of the same species growing in a forest plot were injured. On the other hand, although there was no injury to *Libocedrus chilensis* in the Pinetum, almost every tree growing in a small forest plot was either killed or seriously damaged.

Another remarkable fact that has interested me is the difference in behaviour of young trees, of practically similar age and size of *Araucaria araucana* (= *A. imbricata* Pav.) and *Cunninghamia lunceolata*. Had I been asked which was the hardier I should have unhesitatingly said *Araucaria araucana*, but while the trees of *Araucaria* were killed either to the ground-line or outright, those of *Cunninghamia* were uninjured. Both groups were growing in the valley where 47 degrees of frost Fahrenheit were recorded. There is another interesting point about *Cunninghamia* that might be worth investigation. I have noticed on several occasions that the tips of branches are very susceptible to injury by cold winds and frost in early autumn, but the extent of the injury and method of recovery appear to be different from other Conifers. Injury is confined to a small area about the tips of the shoots, often one to two inches, and there is usually a very decided line between the killed and living portions. The shoot does not die back beyond the frozen area, but forms a healed surface, possibly of wound-cork, from which the dead tip can be broken away (as a leaf from a branch in autumn) leaving a healed scar beneath. Then, the following growing season, a ring of adventitious buds appear about the tip of the damaged shoot and new shoots appear in due course. In other Conifers such as *Abies*, *Picea* and *Tsuga* the injury involves the whole of the new shoot, i.e., the shoot dies back to the base of the current season's growth.

Year after year one is impressed by the value of certain trees for planting in cold and wet places. One of these is the Serbian Spruce (*Picea Omorika*). It begins to grow during late spring, and I have never known it to be injured by frost. It grows rapidly and always appears to be in robust health. It is one of the most effective species in the Pinetum, and has done excellently in the Forest Plots. It is also most useful as a town tree. Several hundreds of young trees planted as an experiment in a cold, wet place in the forest are also growing well. Two other excellent trees for cold and wet places are *Chamaecyparis thyoides* and the hybrid *Cupresso-cyparis Leylandi*.

Natural regeneration of trees has for a number of years been an interesting feature of the Pinetum. Some of the more prominent seedlings are *Pinus sylvestris*, *Chamaecyparis*, *Lawsoniana*, *Thuja plicata*, *Tsuga heterophylla*, *Pseudotsuga taxifolia*, *Larix decidua*, *Abies grandis*, *A. nobilis*, much Birch and Holly. One tree of *Sequoia sempervirens* has been noted, whilst lately some regeneration of *Juniperus communis* and probably *J. formosana* has been seen. On the Forest Plot area there are natural seedlings of *Cryptomeria japonica*. It is interesting to record that 85 per cent. germination was obtained from seed produced by naturally regenerated Scots Pine of eleven years old, a very satisfactory figure for such young trees. These trees had grown remarkably well, some of them being 20 feet high with a trunk diameter of 6 to 8 inches at the base.

It is hoped to carry out some regeneration experiments when times are again normal. The Chairman of the Forestry Commission (Sir

Roy Robinson) has had an area of ground set apart immediately outside the Pinetum fence, on which he wishes to test and encourage the natural regeneration of Scots Pine with groups of any interesting Conifers that will establish themselves from seed. It is possible that seed of certain species will have to be hand sown, but the general idea is to test the amount of regeneration which is natural. There are seed bearing trees of several species in the vicinity.

In order to reduce the acidity of the ground a good deal of lime and basic slag has been used during the last four years. On certain avenues bracken and ling were increasing very rapidly, but both have been checked by the application of lime, and a good grass surface is being formed. On one avenue a strong growth of both white and red clover followed the lime dressing.

European, Japanese, and Eastern North American Larches have grown well from the start of planting in 1925, but for ten years the Western American Larch (*Larix occidentalis*) did not thrive. After trying various expedients to improve the conditions, the whole of the ground about the trees was dug over and limed. This was followed 12 months later by an application of basic slag. Now the Larches look quite healthy and are growing well, and I hope that there will be no further trouble. Maples do not grow well in the Pinetum; I am inclined to think that this also may be due to soil acidity. An interesting and rare little shrub that has become well established in a shady place is *Epigaea asiatica*. It both grows and flowers well and was a source of considerable interest to the late Sir Arthur Hill. At his request we tried *Linnaea borealis* which is growing and it looks as though it may thrive.

A RE-UNION OF KEWITES IN SOUTH AFRICA.

Mr. and Mrs. Catt called at Capetown after a tedious voyage, and there they met Thorns, who served with Catt at Kew some years ago. They enjoyed the beauties of Kirstenbosch, and appreciated the excellent work Thorns is doing. Passing on to Durban they called to see me. As it was necessary for the ship to remain here for three weeks, we planned a trip.

In Durban they met Mr. Wylie, still going strong as the Old Man of Kew, and Marriott, who gave them a great welcome. At Pietermaritzburg they visited Newberry (recently retired) and other gardeners (not Kewites) who made them very welcome.

Then we continued to Johannesburg when van Balen showed us his latest display of development. We arranged a re-union with Arnold, of Boksburg, one of Catt's former acquaintances. Mr. van Balen took us all out to Pretoria, where we met Bruinslich and others.

On our return to Durban, as we still had a few days to spare, we found time to take them to the Zululand Game Reserve, where the wealth of Flora and Fauna is worth seeing. I am connected with a scheme to introduce more local flora with a view to its preservation. A further delay of a day enabled them to meet Squibbs, who is here on leave from the Gold Coast.

It has been a most enjoyable time, and a real Kewites re-union. At any rate, it was much better for their health than having to live on board in port whilst work was being carried out on the ship.

We all contributed seeds and promised to keep in contact. I can assure you that we derived as much pleasure from their visit as they did.

The Gardens in Durban have gone far towards regaining their former position as a Botanical institution, but can never hope to regain the full status without the return of the Herbarium and Library. The collection of plants has increased and the area has been enlarged. I am grateful to many Kewites throughout the world who have responded to my appeal for seeds. We have a large exchange list, and we feel that once again the Gardens are on the map.

By means of broadcast talks and practical demonstrations we are able to help the general public in maintaining their gardens, and much has been done.

It is with great regret that we hear of the damage in your area, and we do hope that you will be spared further raids. It gives us a thrill to know how well the people of England are taking it. We feel so far away and of so little use in the war.

With all good wishes from fellow Kewites in South Africa.

B. ROBERTSHAW, Parks and Gardens, Durban.

THE ASSOCIATION OF KEW GARDENERS IN AMERICA.

The twenty-fourth Annual Meeting and Dinner of this now well established organization was held at Boston, Massachusetts, on Saturday, March 22nd, 1941. Those attending visited the spring Flower Show of the Massachusetts Horticultural Society which was just completing the second most successful exhibition ever held at Mechanics Building. One hundred and eight thousand visitors enjoyed the exhibits and the attendance was only exceeded by that of

the Centennial Exhibition in 1929. The outstanding feature of 1941 was an Australian forest and landscape scene which occupied the stage in Grand Hall. It consisted mainly of Mrs. Galen L. Stone's Acacias and some large trees of *Melaleuca* which were transported from Florida for the occasion.

Our party met in the Brunswick Hotel at 6.30 p.m. Those present were Robert Barton, J. H. Beale, James Brown, Robert Cameron, L. W. Durchanek, Mr. and Mrs. John Ellis, Mr. and Mrs. A. J. Fordham, M. Free, W. H. Judd, Mr. and Mrs. J. Lambert, Mr. and Mrs. H. Riebe, and E. K. Thomas.

Mr. Free took the chair after dinner and saw that time did not become tiresome until we parted at 10.30 p.m. After the secretary had read his report Mr. Free called on various members for remarks. Mr. R. Cameron, who had visited Kew in 1938, said that he did not observe any great changes in the Gardens since he left in 1887 except to notice how much larger the trees in the arboretum had become. Of his contemporaries he only saw Mr. Bean (now long retired). It was apparent that more attention was being paid to-day at Kew to hardy plants of all kinds: the plants under glass did not compare in cultivation with the ones of his time. He believed that part of the cause of this was the fact that so many more people travelled to warmer parts of the world where the greenhouse plants of his early days could be seen growing out of doors and showing to full advantage.

Mr. Lambert, making his first appearance at a Boston meeting and flower show, congratulated the Massachusetts Horticultural Society on staging such a fine exhibition of plants and flowers, especially the beautiful arrangement of Acacias in such a naturalistic setting. He also commented on the excellent display of *Coelogyne cristata* put up by John Ellis which, deservedly, was awarded a gold medal and a cultural certificate.

Mr. Riebe spoke of his pleasure at being again present in Boston after an absence of twelve years. He said that while our wind was cold we at least were free from the snow Philadelphia provided for our meeting there on March 16, 1940.

Considering that in 1942 we shall celebrate our twenty-fifth anniversary it was unanimously agreed that we should meet in New York for our Annual Meeting on Saturday night, March 21, 1942, this being the city in which our first "get-together" was held on April 5, 1917, at Shanley's Restaurant. It is hoped that all Kewites within a reasonable distance of that city will make a determined effort to be present.

WILLIAM H. JUDD,
Secretary-Treasurer.

A JOURNEY TO TURKEY.*

For the first three weeks we had an uncomfortable but uneventful voyage. We left the convoy after two days and proceeded on our own on a northerly course almost to Iceland where the weather was exceedingly rough and cold. After we had turned southward we arrived at length off the W. African coast and called at Freetown (Sierra Leone) where we spent New Year's Day but we were not allowed ashore. The same thing happened at Ascension Island. At Capetown however, we had several hours and managed to see something of the Kirstenbosch Garden and had a long talk with Thorns. We also saw H. G. Davies.

Durban was our first long stop and we were very lucky indeed to find there such people as the Robertshaws. They could not have been kinder had we been close relatives and we stayed with them or with their friends as guests for most of the time we were there. We went to Johannesburg for a few days where we were most hospitably treated by van Balen and Arnold (at Boksburg). We were also taken by van Balen to Pretoria and there had lunch with Bruinslich. Both van Balen and Bruinslich appear to have exceedingly good jobs and the work they are doing, particularly the new work, is first class. I envied them in that wonderful climate.

Other Kew men we met were Newberry at Pietermaritzburg (where we stayed with Mrs. Kidd, the wife of the former Curator there) Marriot, Squibbs (on holiday) and Wylie who is now an old man, having left Kew in 1882, but very vigorous.

Altogether we saw a lot of the country and met many interesting people so that our stay in South Africa was refreshing and informative.

Our next port of call was Aden where we stayed for 12 days and they were days of boredom. We saw all that interested us in the first two days and during the remainder stayed on the ship. Aden itself is a terribly dry, dusty, hot and supremely uninteresting place, but I thought Sheik Osman, the Arab town nearby, had possibilities. There were quite extensive "English Gardens" poorly planned and managed but with a crude irrigation system which showed some purpose and initiative. Aden was however interesting because we experienced in that notably dry and rainless spot the first rain since we left the N. Atlantic. It actually rained on three days.

*The account of this journey by a very unusual route will be read with interest. Mr. Catt left England with his wife towards the end of 1940 to take up a position as British Inspector of Botanical Gardens in Istanbul and they arrived there at the beginning of April, 1941. G. A. Catt finished his time at Kew in 1929 and has since had experience in Honduras, Jamaica, and at several large establishments in this country.—ED.

Port Sudan we visited also and spent four days there, then Suez for two days and through the canal to Port Said. We had the interesting experience while in the canal of hearing a German broadcast announce that the canal was blocked and 600,000 tons of shipping immobilised.

We did not stay in Port Said but went on to Cairo where I had to report to the British Council. We had four days there and saw all the usual sights; then left for Turkey by way of Palestine and Syria.

We were held up at Beyrout as a result of a breakdown in the booking arrangements but after four days proceeded by car to Tripoli where we got on the train for Ankara. We missed a lot of the scenery because we passed through at night but what we saw of Anatolia was not particularly interesting—long tracts of wild and desolate looking country. Ankara is, as you know, a new town forced up in the last twenty years and as yet by no means finished. It has many fine buildings but the general design of these and of the parks, gardens and street plantings showed a strong German influence with all that that implies. We had five days in Ankara and I was glad to leave as I suffered from the strong sunlight, the intensely dry atmosphere, and in addition began to have digestive and intestinal troubles, due I suppose, to the food.

We arrived here on April 10. I liked Istanbul from the first and have found no reason to change my opinion. It is old, often dirty and the buildings in general, with the exception of the mosques, have no form and little substance, being often of wood; but the place certainly has character and the climate till now is delightful.

We live not in Istanbul but about halfway along the Bosphorus at a place called Bebek where there is a large American College and an English speaking community.

The Botanic Gardens are attached to the Biological Institute of the University. The Institute is housed in a fine modern building situated on a hill overlooking the junction of the Bosphorus and the "Golden Horn" the inlet which separates old Stamboul from the newer districts of Pera and Galeta. The Gardens themselves are disappointing in that they are small. They are however attractive; they slope in steep terraces down the hillside and contain a fine collection of plants between 5 and 6,000 species. There is little grass and few trees. I am promised, however, space and money for both greenhouses and a small arboretum, though it is a little doubtful when these will materialize. I am making plans for both.

G. A. CATT

Istanbul, Turkey. 20th May, 1941.

TOUJOURS LA POLITESSE.

We have all heard the stories about the immaculate Englishman who dresses for dinner even when he is camping alone in the desert. Mr. P. K. Rainier tells us in "African Hazard" that he actually came across such a person.

"His name was Dawe and he was Director of Agriculture for Mozambique in East Africa. He travelled de luxe in the bush, says Mr. Rainier, and it took several hundred porters to carry his kit. He dressed for dinner every night, smoking jacket, boiled shirt and all—the only Englishman I ever met who lived up to the legend. His only concession was a pair of mosquito boots.

"Dawe was a 'Sahib' all through. When Mr. Rainier arrived at his camp, Dawe called his house-boy and said, 'Bring champagne for the guest.' When he was told the supply was finished he said, 'Well—send for some.' Then after he had seen a runner start off with a letter, Mr. Rainier asked where he was going to: 'Maccquere, of course, where else can you get champagne in this darned place?' 'But Maccquere is ten days' trek away.' 'What of it? You're in no hurry, are you?' 'I wasn't. That cook-house of his was giving up a fragrance like the kitchen of the Ritz.

"Mr. Rainier stayed with him for a month. There was only one crisis, and that occurred when some elephants arrived in the district. Dawe immediately broke camp, although rain was pouring down and it was in the middle of the night. He had once only just escaped being trampled by an elephant, and had been terrified of them ever since."

The above extract from a recent review of P. K. Rainier's book concerns Mr. Morley T. Dawe, O.B.E., the distinguished horticulturist and agriculturalist who entered Kew as a student gardener some 40 years ago, and has since held important posts at Uganda, Sierra Leone, Mozambique, Colombia, Cyprus and Palestine. Mr. Coutts, who forwarded the extract, writes: "Dawe was at Kew with me, meek and mild enough, but what a change had come over him the first time he came home on leave from Africa."—ED.

In Memoriam.

WILLIAM BOND.

We regret to record the passing of one of our oldest members, Mr. William Bond, on May 13th, 1941, at the age of 88 years. Mr. Bond entered Kew in October, 1874, and left in June, 1876. In 1884 he was appointed gardener to Mr. Charles Beasley, The Cottage, Abbey Wood, a position he occupied for forty years until his retirement in 1924. He died at his home at 66, Bostall Lane, Abbey Wood, S.E.2.

E.G.D.

L. A. BOODLE.

In the death of Leonard Alfred Boodle, Assistant Keeper of the Jodrell Laboratory for 21 years, on August 22nd, 1941, Kew mourns the loss of one of her ablest workers. Boodle was born at Abbey Gardens, St. John's Wood, London, in May, 1865. He was educated at a private school and later at King's College School, and the Royal College of Science, whence he graduated A.R.C.S. He also journeyed abroad for one year to study French and German.

When Boodle went to the Royal College of Science it was with the intention of reading Zoology, which was his first love, but he soon realized that his "make-up" would not allow him to make dissections and the like, so he turned his attention to Botany—the more bloodless pursuit. As proof of his efficiency in the latter subject he was appointed Demonstrator in Botany under the renowned botanist, Dr. D. H. Scott, a post which he held for seven years. The friendship between Scott and Boodle, which started during this period, matured as years went on, and no man had a greater influence in Boodle's life than had his chief whom he always revered and loved. On leaving the Royal College of Science Boodle went to South Africa where he became much interested in the marine flora. At a later date he became private Assistant to Dr. Scott, then Honorary Keeper of the Jodrell Laboratory, Kew, and when the latter retired in 1906 Boodle took charge, and was appointed Assistant Keeper in 1909, a post he held until his retirement in 1930. Naturally his work during this time resulted in many papers dealing mainly with the anatomy of plants (see Kew Bulletin, 1941, p. 236). Boodle carried out his scientific work and his researches with the most meticulous care; he was extremely cautious, and it was much more likely that he would say in reply to a question "in all probability" or "there appears to be nothing against it" than a categorical "Yes" or "No".

Boodle was exceptionally modest and retiring—broadly speaking, he was only really well known to few, but these privileged few found him an excellent companion, witty and highly critical. He did not suffer

fools gladly, but owing to his innate courtesy and marvellous capacity for silence, he usually succeeded in concealing the fact.

In 1912 Boodle married a highly cultured Swiss lady, Mrs. Emery, a marriage which proved to be a perfect partnership. Indeed, it is difficult to think of one without thinking of both. Realizing this our sympathy goes out very deeply to Mrs. Boodle in her great sorrow. Together they travelled extensively on the Continent, where the writer once joined them at Rapperswil, a charming little old-world Swiss town, a special favourite with Boodle, who enjoyed its peace and quietness and lovely surroundings. In such circumstances one caught a glimpse of the true Boodle.

Boodle was very fond of music and enjoyed good concerts, and he had an unusually good ear. In later life he became interested in cross-word puzzles, and scarcely a day went by without one or two being solved. No appreciation of Boodle would be complete without mention of his unselfishness and generosity, but here again these deeds were only known to his most intimate friends. He was a devout Churchman, and always brought his high ideals to bear in his daily life.

M. L. GREEN.

CHARLES SAMUEL CLACEY.

We regret to record the death of Mr. C. S. Clacey on September 2nd, 1941, at the age of 56 years. Before entering Kew on January 30th, 1906, he was employed by General Sir John Watson, V.C., G.C.B., at North Court, Finchampstead, Berkshire. He remained at Kew until April 11th, 1908, when he proceeded to Castle Hill Gardens, Englefield Green, Surrey. In 1913 he became head gardener to Mr. A. Roupell at Spencer's Wood. In 1916 he entered the Royal Navy and served for upwards of two years on H.M.S. "Valiant". On demobilisation he secured a position as head gardener to General Herbert at Finchampstead. Five years later he moved to Reading as head gardener to Mr. E. F. Sutton, remaining there for some six years. Another change, and Mr. Clacey was in charge of the gardens at Colonel Moore's residence at Binfield, where he remained for ten years. It will be noted with one exception, that all his positions were in his native county. He leaves a widow and four daughters, to whom we extend our sympathy in their sad bereavement.

E.G.D.

MRS. J. COUTTS.

Many members of the Kew Guild will learn with great regret of the death of Mrs. Coutts, which occurred at her home at Lasswade, near Woking, on July 23rd, 1941, after a long and trying illness. During

the many years that Mr. and Mrs. Coutts resided at The Gables, their home was well known as a centre of hospitality, and during the last war Mrs. Coutts made a point of keeping open-house for the Lady Gardeners who had come to work at Kew. Many generations of Kew men will look back with pleasure to Mrs. Coutts's kindness and to the warm welcome she always extended to any who called at their house when visiting Kew after they had left.

A.D.C.

JOSEPH BURTT DAVY.

We much regret to record the death of Dr. Joseph Burtt Davy, which occurred on August 20th, 1940. Though known to botanists the world over and a frequent visitor to the Kew Herbarium, Burtt Davy was not a familiar figure in the Gardens though he was one of the oldest Kewites, having been an Assistant in the Director's Office during the year 1891-92.

Burtt Davy was born at Findern in Derbyshire in 1870, and while still in his teens went to California where he began his botanical studies, and to which country he returned after his stay at Kew. In America he held several posts, and in 1896 married a Californian lady, Miss Alice Bolton. He was a most industrious worker in many branches of plant science, including systematic botany, tropical agriculture, ecology and forest trees of the Empire, and published a very large number of papers and some more important works especially in connection with the flora of South Africa. From 1903-13 he was senior Botanist and Agrostologist in the Department of Agriculture at Pretoria, and later he farmed on his own account in the Transvaal. He returned to England in 1919 and worked in the Kew Herbarium at his Flora of the Transvaal. In 1925 he was appointed lecturer in tropical forest botany at the Imperial Forestry Institute at Oxford, a post which he held almost till his death.

Several notices on Burtt Davy's life have been published, namely in "Nature," "Forestry" the "Quarterly Journal of Forestry" and "The Friend". Others will appear in the Linnean Society's "Proceedings" and in the "Kew Bulletin". As all these obituaries can be consulted at the Kew Library a brief further notice here will suffice. He was a member of the Society of Friends, and like most Friends he was a great believer in education. He was a prodigious worker. When he came on visits to the Herbarium he worked regularly until 9.30 p.m., at which hour, in accordance with the custom then prevailing, the night watchman arrived, switched off the current at the main and saw visitors safely out of the building. Burtt Davy returned to his hotel but only to continue his studies until midnight. During voyages across the Atlantic or to South Africa he was, we are told, usually to be found in the writing-room or in his cabin immersed in books and papers.

Throughout his life Burt Davy was a frequent visitor to the Royal Botanic Gardens and being a staunch supporter of the British Empire always had the interests of Kew at heart. He was moreover interested in the Guild and in the welfare of the Kew men who had settled in South Africa, and those who were present at the Dinner of 1924 will remember his speech in which he urged the importance of education and of taking full advantage of such opportunities as Kew afforded.

It is not generally known that he was also fond of gardening. He had a garden in California and others in Africa, and those who knew his home, Shotover Furze, near Oxford, will remember the charming and rather unique patch of rock and water garden which he planned and which Mrs. Burt Davy tended so carefully. Burt Davy was a loyal friend, and was always ready with counsel and help. He was also very generous, and various members of the Guild owe much to his practical sympathy.

A.D.C.

ROBERT CHARLES GAUT, M.Sc.

We record with much regret the death of Mr. R. C. Gaut, who had been Agricultural County Organiser for Worcestershire for nearly 30 years, a position he built up and held with conspicuous success. He was one of the first of the Kew Student Gardeners to obtain a Science Degree. This he achieved by means of his father's help and his own hard work and great enthusiasm.

R. C. Gaut began work under his father, who was Head Gardener to James Watson, M.P. of Shrewsbury, and who had charge of a very large estate. Being a lad of promise his father decided to send him abroad, and he spent a year at a good nursery near Ghent in order to acquire a knowledge of French and extend his horticultural experience. On his return to England he took the Science and Art Department's examinations which were in vogue in those days, and obtained first-class certificates in chemistry and botany. He entered Kew as a Student Gardener in May, 1896, and stayed exactly two years. Soon after leaving Kew he went to Leeds, at his father's expense, in order to study science and agriculture at the Yorkshire College (the present Leeds University). During the vacations he worked on a farm. He remained at Leeds for five years and took the Victoria University B.Sc. degree. In 1908 he took the M.Sc. of the University of Leeds, by examination. After some further agricultural experience Gaut was appointed Assistant Lecturer in Agriculture under the Lancashire County Council and later became Senior Lecturer.

Gaut's enthusiasm and ability, and the knowledge gained from his scientific training, were rewarded in 1914 when he was appointed Agricultural County Organiser for Worcestershire. He set to work

to develop and organise a Department that should be of real value. His evident desire to help the farmer and fruit grower dispelled prejudice and won him friends. Nor did he neglect the market grower and "small man."

I had the pleasure of making his acquaintance about 1920 when engaged in Silver Leaf and Wart Disease work in Worcestershire, and was struck by his thoroughness, wide interests and by the high esteem in which he was held. He initiated a campaign against the ravages of warble fly in cattle in the county, an effort which ultimately led to a national campaign against this pest.

In spite of his many activities Gaut found time to write, and he published a "History of Agriculture in Worcestershire" which will long remain a standard work. He was an ardent lover of cricket and greatly enjoyed watching the county matches. When he retired, owing to ill health, in 1941, he was presented with a gold watch and some silver plate by the N.F.U. He died at Worcester on October 21st. His daughter writes: "My father was never tired of talking about the years he spent at Kew as a student; those were obviously very happy times for him. . . . He was always keen to visit Kew when in London."

A.D.C.

CHARLES GEORGE GIRDHAM.

Kew men of 1897 to 1901 will hear with regret of the death of Mr. Charles G. Girdham on November 5th, 1941, at the age of 65 years, after several months illness.

Previous to entering Kew on April 26th, 1897, Mr. Girdham was employed in two private gardens in Yorkshire and in the nursery of Messrs. J. Backhouse & Son, of York. At Kew he worked in the Temperate House, then in the T.H. Pits, and in September, 1898, was promoted to Subforeman of the Arboretum Nurseries. As he worked at one end of the grounds and I at the other, I became acquainted with our late friend chiefly as a debater at the Mutual Improvement Society when Mr. Wm. Watson, then Assistant Curator, usually occupied the chair. Girdham was a fluent speaker and could always be relied upon to take part. He was awarded the discussion prize at the end of the 1898-99 session. He also contributed papers.

Representing the Subforemen and Student Gardeners on the Kew Guild Committee, Charles Girdham took an active part in the arrangements for the first annual dinner. This was at the Holborn Restaurant on May 22nd, 1900.

One episode I remember while he was at Kew, was the rescue of a man who tried to commit suicide by throwing himself into the pond in front of the Palm House. Mr. W. H. Fishlock (late of the Gold

Coast and now living at Caversham), jumped in after him and, aided by Charles Girdham, got the man out. Girdham applied artificial respiration which proved effective. Both were awarded the Certificate of the Royal Humane Society.

Mr. Girdham married a local lady, Miss M. E. Webb of St. Margarets, in June, 1902. She pre-deceased him by a year or so. He left Kew in January, 1901, to join the staff of Messrs. Clibrans, Ltd., Altrincham, and recently completed 40 years unbroken service. His work with the firm included advertising work and the publication of their numerous and splendid catalogues.

In an account of his death the "Altrincham and Bowden Guardian" indicates that our friend took an active part in local social and political interests. He was Hon. Secretary of the Hale Literary and the Hale Congregational Societies for many years; Hon. Treasurer of the Altrincham and District Mutual Improvement Society; the local Chrysanthemum Society also received his active support. Allotment holders over a wide area of Cheshire and Lancashire remember Mr. Girdham as an enthusiastic, helpful lecturer and adviser. He was moreover a worker and speaker in local politics, being closely connected with the Altrincham and District Liberal Association.

A.O.

HAROLD GREEN.

We much regret to record the death of Mr. Harold Green for many years Superintendent of the Hong Kong Botanic Garden, which occurred at his home at Basingstoke on January 14th, 1941.

Born in 1887 and educated at Queen Mary's School, Basingstoke Hants, Green came to Kew as a student gardener in 1908. His record at Kew was good, and at the end of three years, on the recommendation of Sir David Prain he was appointed Assistant Superintendent of the Botanic Garden and Forestry Department at Hong Kong, under W. J. Tutcher, who had recently succeeded S. T. Dunn as Superintendent. He at once threw himself with great energy into his official duties and also into the life of the Colony. His service was interrupted in 1917 when he was seconded for military duties. He returned to Hong Kong in 1919 and in 1920 was appointed Superintendent of the Botanical and Forestry Departments, a position which he held for 26 years. He was a keen volunteer and was the holder of the Colonial Auxiliary Forces Long Service Medal. He was appointed an official Justice of the Peace in 1922 and in later years was awarded the Jubilee and Coronation Medals.

As Superintendent of the Forestry Department Green's duties involved many planting schemes. Areas under Camphor, *Cunninghamia* and *Aleurites montana* were planted and an extension of the

afforestation to conserve the Colony's precious water supply was carried out. In addition to this there was the planting of Parks and Playing Grounds with beautiful trees and also many miles of roads. The work which he extended and supervised with so much enthusiasm remains as a permanent and pleasant feature of the island. In this connection he had the unusual distinction of having a street named after him. Mr. Chung King Pin, an officer in the Chinese Forest Department wrote to Harold Green after his retirement: "You will see there is a street called 'Green Lane.' It is my privilege to suggest official Chinese names. I have employed the two Chinese characters, which represented your name while you held office here, to commemorate a friend with whom I had worked for 17 long years and for whose kindness I shall never be able to repay."

Another duty which developed under Green's guidance into an important service was the inspection of bulbs grown in China for export to the United States. In one year it is said that 11,000 cases containing 1½ million bulbs were despatched. His interest in his first love, gardening, was always maintained and he did much to encourage the development of gardens in Hong Kong and the growing of beautiful shrubs and flowers.

Among his multifarious duties he did not underrate the value of the Herbarium, which had been largely built up by S. T. Dunn, and which was under his charge. One of his last visits to Kew was to consult me about a species of *Lilium* the characters and beauties of which he thought had not been adequately and accurately described.

A.D.C.

NORMAN LAURENCE HARDING.

Great sympathy was felt by members of the Kew staff with Mr. and Mrs. Laurence H. Harding, who received news last summer of the loss of their son Norman.

Though he was not a member of the Kew Guild, Norman Harding had been brought up at Kew, and as a boy of 19 was employed in a temporary capacity (from November 1st, 1933, until March 31st, 1934) in the Library of the Herbarium, where he did some useful work and showed himself willing and intelligent. His bright and cheerful manner made him a favourite.

On leaving the Library Norman Harding after several temporary posts took an appointment as a clerk in a Government contractor's office. He volunteered for service as soon as war broke out in 1939, and on being called up joined the Royal Air Force. He became a Sergeant Wireless Operator and Air Gunner, 18th Squadron, and it was after an attack by Blenheim bombers on shipping off the French coast on July 23rd, 1941, that he was reported as missing from operations and later as presumed killed in action.

A.D.C.

AMOS C. HARTLESS.

News has reached us of the death of Mr. A. C. Hartless, one of the band of Kewites who served in India for many years. Mr. Hartless entered Kew on June 8th, 1888, and left on March 9th in the following year. He proceeded to the Royal Botanic Gardens, Calcutta, where he served with the late Mr. G. T. Lane, Messrs. R. L. Proudlock and H. J. Davies. In 1900 or thereabouts Mr. Hartless became an Assistant in the Government Cinchona Plantations at Mungpoo; in 1903 we find him Superintendent of the Government Gardens at Poona and some three years later he was again transferred, this time to the charge of the Government Gardens at Saharanpur. He remained at Saharanpur until 1920 when he retired from the Indian Colonial Service, and returned to this country to settle down at Wimbledon. Later he moved to the more genial climate of Southbourne, Bournemouth, Hants. He wrote many articles with particular reference to Indian horticulture.

E.G.D.

ALFRED JAMES HARTLESS.

Mr. A. J. Hartless died on February 24th, 1939, from cerebral haemorrhage at his home at Hitchin. He received his early horticultural training under the tuition of his father, Mr. I. J. Hartless at King's Walden Bury, Hitchin, and later under Mr. Edwin Beckett at Aldenham House, Elstree. He came to Kew on April 14th, 1903, and left on June 17th, 1905, to take up an appointment under the London County Council at Ravenscourt Park, London, W. He was subsequently gardener to Lord Rothermere and Lord Marcus Beresford. On the retirement of his father he returned to take charge of the gardens at King's Walden Bury. During the Great War (1914-18) he served with the Essex Regiment, and later with the North Staffordshire Regiment in France.

He interested himself in many local activities at King's Walden, and was a regular and very successful exhibitor at the local horticultural shows, and was held in high esteem among a wide circle of friends and acquaintances.

E.G.D.

FREDERICK JOSEPH LONGMIRE.

Mr. F. J. Longmire died on February 3rd, 1941, at his home at East Sheen. He was born on April 16th, 1883, and before entering Kew received his early horticultural training at Messrs. Robert Neal's nurseries at Wandsworth. He held the Royal Horticultural Society's first-class certificate for practical horticulture. He entered Kew on September 7th, 1903, and remained until June 2nd, 1906, when he left to take up an appointment at Blenheim Palace, the residence of the Duke of Marlborough. Drastic staff changes resulted after he had been there only six months or so and he secured a position at Elvedon Hall, Thetford (Lord Iveagh's estate) where he remained for upwards of three and a half years. There being little prospect of

promotion Mr. Longmire decided to enter for the London County Council entrance examination for the Parks Departments. He was successful in this venture and remained in this department until his death. He was a frequent visitor to Kew and was well known to many members of the staff there.

E.G.D.

EDWIN MATTHEWS.

The sudden death of Edwin Matthews on November 21st, 1940, removed from the ranks of old "Kew Men" living in the United States of America one we could ill afford to lose. His genial personality and ready smile are for us a memory.

Born near Penzance, Cornwall, in 1879 he started his gardening career on the estate of Mr. T. B. Bolitho, at Prewidden. He first acquired a working knowledge of trees and shrubs in that favoured atmosphere of the English Riviera, and for this retained a fond affection for the rest of his days. Kew, which he entered in March, 1902, gave him a firm foundation on which to establish his future. Leaving Kew in May, 1904, for Philadelphia, Pennsylvania, he secured employment in the greenhouses of Mr. John Pepper, of Jenkintown. After establishment in the New World he moved in 1906 to the celebrated nursery of Thomas Meehan at Germantown, another outstanding Kewite who had died in 1901 after having emigrated here in 1848, and who since 1853 had conducted the largest and best nursery of trees and shrubs in the United States. Here Mr. Matthews remained until 1920 working with the plants he loved. He then started in business for himself having as a partner another Kewite Mr. Ernest Hemming who likewise was at Meehan's. They established what was known as "Outdoor Arts" and grew all kinds of hardy plant material. This Mr. Matthews successfully conducted until his death.

Mr. Matthews was active in civic affairs and for twenty years acted as Secretary of the Germantown Horticultural Society which after his demise raised a fund of \$150, the interest to be used as a prize for the best display of ornamental fruiting trees and shrubs at their fall Dahlia Show as a token of esteem for his services. At one time he was Secretary of the Philadelphia Nurserymen's Association and was also a constant exhibitor at the Annual Spring Flower Show of the Pennsylvania Horticultural Society usually securing one of the premier awards. As a lecturer he was in much demand at garden clubs and his contributions to the horticultural press were frequent. I can only add:—

A good man never dies—
 In worthy deed and prayer
 And helpful hands, and honest eyes,
 If smiles or tears be there :
 Who lives for you and me—
 Lives for the world he tries
 To help—he lives eternally.
 A good man never dies.

W. H. JUDD (Arnold Arboretum).

CHARLES WATTS MAYHEW.

It is with profound regret that we record the death of Mr. Charles Watts Mayhew on November 15, 1941, at the age of 60 years.

C. W. Mayhew was born in London, but spent his early days at Crockham Hill, Kent. It was in that district he started his gardening career, leaving Wheatlands near Edenbridge to enter Kew in March, 1906. At Kew he was very popular, taking an active part in the various functions of Kew life. He was a keen sportsman and an exceptionally good footballer, being Secretary of the Royal Botanic Gardens' Football Club for the season 1906-07, the second season of the club's existence, and a regular active playing member.

He left Kew in 1908 spending one year in one of the London parks, and while there in 1909, sat for the examination of the Employees of Public Parks conducted by the Royal Horticultural Society, when he headed the list and thus gained the Silver Medal.

In 1909 he was appointed Inspector of Plant Diseases for the Hunts. County Council, which position he occupied until 1912, when he was appointed Horticultural Instructor for Northumberland County Council, where he remained until 1939; although in 1938, owing to ill health, he was granted twelve months leave, but, as there was no improvement, he retired in 1939. He gradually weakened and passed away as stated.

He did good work during his time in Northumberland and was very popular. He made that part of the country his home, and although he might have made a change, he was too interested even to think of doing so. For some years he wrote weekly articles in the "Newcastle Journal" under the nom-de-plume of F.R.H.S., and was a frequent writer to gardening papers.

As already mentioned, he was a sportsman (and that in the best sense of the word) and a great lover of nature, but there is no doubt his main interest was his work. His holidays were usually what is termed "a busman's holiday", for he got much pleasure looking round a garden. For my part I always looked forward to seeing him, and we always made a point of meeting whenever possible, and had spent many happy hours in each other's company since we worked together in the Herbaceous Department at Kew, and had looked forward to spending many more. He was very attached to Kew and would go there whenever possible, always enjoying a visit, and would often speak of his Kew days as some of his happiest; and many of his colleagues of those days will learn with regret of his passing. He was a kind, sympathetic and lovable man, and had endeared himself to many. We who knew him well will miss him, knowing we have lost a loyal friend.

The funeral took place at West Road Crematorium, Newcastle. He was very happily married, leaving a widow and three sons, to whom our deepest sympathy goes out in their great loss.

F.G.P. (Cambridge).

I came to know Mayhew very well during 1918-1921, especially in connection with an outbreak of onion smut in Northumberland (a formidable but fortunately very rare disease in the county). He was greatly interested in plant diseases and was always most generous in giving me of his time and valuable experience.

Ed.

WILLIAM WALKER.

We record with great regret the death of Mr. W. Walker who was for eleven years a clerk at Kew, first in the Herbarium and then in the Director's office. William Walker was born on July 22nd, 1894. He joined the Army at the outbreak of the Great War 1914-18, and was drafted to the R.A.O.C. in September, 1914. He first saw service overseas in France and was later sent to Egypt. After his discharge on July 12th, 1919, he went into business for a few years. He joined the Ministry's staff in 1923. Later his health broke down, probably as a result of hardships experienced in his overseas service, and after a long period of sick leave he was transferred to Kew in 1929, where it was thought that the clearer atmosphere would be to his advantage.

Walker was extremely conscientious and always gave of his best; he was a careful, steady worker, neat and tidy in his methods and the fortunate possessor of a very good memory. His reliability and extreme carefulness which were so valued in the heavy clerical duties of peace-time work in the Herbarium were greatly appreciated also in the Director's office to which he was transferred during the first half of 1939.

In manner Walker was very quiet and reserved, but those who worked with him realized his many fine qualities, and the courage and determination which enabled him to carry on till the very last day of his life.

During all his service at Kew his health was a constant anxiety to him, though he rarely mentioned it. In 1937 he was forced to take another long spell of sick leave. He eventually returned to Kew and struggled bravely for another three years against continued failing health. He died on January 25th, 1941, and leaves a wife and two children, and the sympathies of the staff go out to them in their bereavement. In his passing Kew has lost an efficient and trusted servant.

M. C. PRIOR.

CHARLES HENRY WRIGHT.

Members of the past and present Kew staff and many generations of Student Gardeners will learn with regret of the death of Mr. C. H. Wright, A.L.S., which occurred at his home at Seaton on June 21st, 1941. Mr. Wright was born at Oxford in June, 1864, and before coming to Kew was an assistant in the Herbarium and Library of the Botanic Garden at Oxford. He was appointed to the Kew Staff in 1884, and during his long tenure of office in the Herbarium specialized on the Mosses, Ferns, Petaloid Monocotyledons and Palms. On these he published several important papers and wrote the text for a number of families of the great African Floras published from the Kew Herbarium—namely, the "Flora Capensis" and the "Flora of Tropical Africa".

Wright was always noted for his attention to detail and for his meticulous accuracy, and on account of this he had various other duties entrusted to him in addition to his ordinary botanical work. The most important of these was the checking and reading of the proofs of the African Floras mentioned above. The amount of care and concentration required for this type of work can only be understood by those who have had some experience of its exacting nature. But Mr. Wright never flinched and appeared almost to enjoy it. In addition he had charge of the very large collection of drawings, illustrations and photographs of plants which is preserved in the Herbarium—an experience which gave him a wide knowledge of plants in general. He was lecturer on Systematic Botany to the Student Gardeners for twenty-six years (1904-1929), and one of the features of his course was an annual visit by the Students to the Herbarium and Library. In 1896 he was awarded the distinction of being elected an Associate of the Linnean Society, an honour of which he was very proud.

In August, 1929, Wright retired but he continued to lead an active and useful life at Seaton with his wife and two of his daughters. He took great interest in the local Flora and wrote the Chapter on Flowering Plants for E. J. Burnham's Guide to Seaton and District (1934). He was most gratified to see the appearance in 1939 of the new and excellent "Flora of Devon", published under the auspices of the Devonshire Association. A fuller account of Mr. Wright's botanical work will be found in the "Kew Bulletin" for 1941 and in the Proceedings of the Linnean Society.

A.D.C.

KEW STAFF LIST (JULY 1st, 1941).

(The Names of Life Members are preceded by an Asterisk).

		<i>Entered</i>
Director	*Sir Arthur W. Hill, K.C.M.G., M.A., Sc.D., D.Sc.(Adelaide), F.R.S., etc.....	<i>Kew.</i> 1907
Assistant Director	J. S. L. Gilmour, M.A., F.L.S.	1931
Economic Botanist	Sir Geoffrey Evans, C.I.E., M.A.,	1938
Assistant Botanist	§B. L. Burt, B.Sc.	1931
Clerk (Higher Grade)	S. F. Ormsby.....	1923
Shorthand Typist	Miss P. M. K. Milburn	1939
Clerical Assistant	Miss J. H. M. Stevens	1937
Keeper of Herbarium and Library	*A. D. Cotton, O.B.E., F.L.S.	1904
Deputy Keeper	Thomas A. Sprague, D.Sc., F.L.S.....	1900
Botanist	*Miss Elsie M. Wakefield, M.A., F.L.S.	1910
"	William B. Turrill, D.Sc., F.L.S.	1909
"	§A. A. Bullock, B.Sc.	1929
"	V. S. Summerhayes, B.Sc.....	1924
"	Miss M. L. Green, B.A., F.L.S.....	1912
"	F. Ballard, B.Sc.....	1929
"	N. Y. Sandwith, M.A., F.L.S.....	1924
"	C. E. Hubbard, F.L.S.	1920†
"	§E. W. B. H. Milne-Redhead, M.A. ...	1929
"	H. K. Airy Shaw, B.A., F.L.S.	1925
Assistant Botanist	*J. R. Sealy, B.Sc.	1927
"	§Miss E. A. Bruce, B.Sc.	1930
Botanist for India	K. N. Kaul, M.Sc.	1939
"	" South Africa	Vacant.
Botanical Artist	Gerald Atkinson.....	1922
Assistant Botanist (Library)	Ernest Nelmes.....	1920†
"	Miss C. I. Dickinson, B.A.	1929
Sub-Assistant	Miss Mabel I. Skan.....	1919
"	Frederick C. Woodgate.....	1922
"	Miss S. K. White.....	1929
"	H. S. Marshall.....	1932
"	R. A. Blakelock, B.Sc.	1937
Assistant (Temporary Technical)	§A. K. Jackson.....	1930
Artist	Miss S. Ross-Craig	1929
Clerical Assistant	Miss R. L. Burford.....	1922
"	Miss S. Wilson	1924
"	Miss M. C. Davey	1918
Clerical Officer	H. R. Middlemost	1937
Typist	Miss M. J. Kierans	1934
Preparer (Herbarium)	E. E. Knowles.....	1924
"	A. W. Olding	1925
"	D. Saville.....	1920†
"	T. P. Flynn	1928
"	Miss M. W. Tanner	1936
Keeper of Museums	John Hutchinson, LL.D., F.L.S.....	1904†
Botanist	F. N. Howes, D.Sc.....	1926
"	R. Melville, B.Sc., Ph.D.	1934
Preparer	Laurence J. Harding.....	1913
Typist	Miss E. K. C. Thompson	1936
Jodrell Laboratory, Assistant Keeper	C. R. Metcalfe, M.A., Ph.D.	1930
Laboratory Assistant	F. R. Richardson.....	1934

† Formerly a Student Gardener at Kew.

§ Serving with H.M. Forces.

		<i>Entered Kew</i>
Curator of the Gardens.....	W. M. Campbell, N.D.H.	1922†
Assistant Curators :—		
Herbaceous Department	G. H. Preston	1934†
Arboretum	*Arthur Osborn, A.H.R.H.S.....	1899†
Decorative Department	S. A. Pearce	1937†
Tropical Department.....	Lewis Stenning.....	1925†
Temperate Department.....	*Charles P. Raffill, A.H.R.H.S., V.M.H.	1898†
Clerk (Higher Grade)	Arthur Hearn	1932
Clerical Officer	Ernest G. Dunk.....	1914†
Clerk	Miss D. P. F. King.....	1935
„	Miss M. G. Flew	1939
„	C. F. Norman	1927
Shorthand Typist	Miss G. D. Rockell	1928
Sergeant-Constable	G. E. Williams.....	1906
Packer and Storekeeper.....	Harry W. Ruck.....	1907†

† Formerly a Student Gardener at Kew

FOREMEN.

<i>Department.</i>	<i>Name.</i>	<i>Entered Kew.</i>	<i>Previous Situation.</i>
Rock Garden	L. R. Brown	20 Sept., 1937	Hyde Park, London.
Ferrieres.....	§B. L. Perkins	4 May, 1936	Manchester Parks Dept.
Palm House	§R. A. Hudson	16 Nov. 1936	Parks Dept., Leeds.
Herbaceous Dept.	§P. L. Benton	27 Sept., 1937	Hillside, Llandaff, Cardiff.
Flower Garden ...	§S. Rawlings	20 July, 1936	Parks Dept., Salford.
Decorative Dept. *§A. H. Pettigrew ...	18 Mar., 1935	Parks Dept., Swansea.	
	F. G. Selby	29 Nov. 1937	Antony Estate Gardens, Torpoint, Cornwall.
D. Dawson		25 Aug., 1941	R.H.S. Gardens, Wisley.
Propagating Pits §D. W. Sayers	18 May, 1937	Abbotsford Gardens, Bur- gess Hill, Sussex.	
Temperate House §E. Bird	22 Aug., 1938	Westmore Gardens, Leigh- ton Buzzard.	
• Pits			
Arboretum	Charles F. Coates ..	25 Sept., 1915	Manor Park, Potton, Beds.
Orchids	*Walter E. Everett	12 Sept., 1938	Messrs. Sanders, St. Albans.

ACTING TEMPORARY FOREMEN.

<i>Department.</i>	<i>Name.</i>	<i>Previous Situation.</i>
Ferrieres.....	R. Holder	Samares Manor, Jersey, C.I.
Palm House	H. Collin.....	Forestry Commission, Gravetye.
Tropical Pits	W. Franklin ...	Parks Department, Southend-on-Sea.
Temp. House	E. Avery.....	Les Glaciels, Golfe Juan, A.M., France.
Temp. House Pits	H. Zobel	Southwood Gardens, Hildenborough, Tonbridge.
Rock Garden	E. F. Bundy ...	Barrow Court Gardens, Barrow Gurney, near Bristol.

STUDENT GARDENERS.

<i>Name.</i>	<i>Entered Kew.</i>	<i>Previous Situation.</i>
§Arthur H. Blowfield.....	28 Dec., 1938	Devonshire House, Roehampton.
§Eric H. Bourner	24 April, 1939	The Dell, Wheathampstead, Herts.
§James Clark	28 Dec., 1938	Cambridge Botanic Garden.
§Gilbert G. Cook	5 Sept., 1938	Parks Dept., Southampton.
§Philip W. C. Davies ...	24 April, 1939	Parks Dept., Fleetwood.

<i>Name</i>	<i>Entered Kew</i>	<i>Previous Situation</i>
§Denis A. Downs	27 Mar., 1939	Luton Hoo Gardens, Luton.
§Horace J. Eaton	4 April, 1938	The Nurseries, Borrowwash, Derby.
§Frank J. Ford	25 Oct., 1937	Parks Dept., Margate.
§Francis J. Hebden	15 Nov. 1937	Cambridge Botanic Garden.
§David C. Hollis	9 May, 1938	Llandaff, Cardiff.
§Kenneth H. James	15 Mar., 1939	Messrs. Aish & Son, Dunstable, Beds.
§George S. Joy	27 June 1938	Hillside, Llandaff, Cardiff.
§Dugald Carr Mackenzie.	27 Feb., 1939	Wellington Botanic Gardens, New Zealand.
Frank H. Mackinnon ...	15 May, 1939	Lord Wandsworth Agric. College, Basing- stoke.
§Maurice Mason	16 May, 1938	Rotherfield, Chesham Bois, Bucks.
§Leonard F. McElroy ...	30 May, 1939	Knap Hill Nursery, Woking.
F. G. Maunder	21 July, 1941	The Cemetery, Bury, Suffolk.
§James Middleton	20 Mar., 1939	Parks Dept., Dudley.
§Reginald F. Miles	30 May, 1938	Hall Gardens, Winscombe, Somerset.
§John L. Norris	23 Aug., 1937	Royal Hospital Gardens, Chelsea.
§Charles E. Puddle	24 July, 1939	Parks Dept., Manchester.
§Thomas W. Rayment ...	7 Nov. 1938	Backhouses Nursery, Beecroft, N.S.W.
§James Redman	13 Mar., 1939	John Innes Hort. Institute, Merton, S.W.19.
§Walter J. Slade	26 June 1939	The Gardens, Trent Park, Herts.
§Eric E. Smith	20 Feb., 1939	Parks Dept., Hounslow, Middlesex.
§Frederick B. Stevens ...	21 Nov. 1938	Parks Dept., Manchester.
§John W. E. Stott	30 May, 1938	Tresco Abbey, Scilly Isles.
H. F. Werner	31 Dec., 1940	John Innes Hort. Inst., Merton, S.W.19.
§Alistair G. K. Will	4 Sept., 1939	Parks Dept., Blackpool.
§Edward J. S. Willett ...	6 Feb., 1939	Messrs. Secrett, Walton-on-Thames.
§Cyril J. Wilmot	15 Mar., 1939	Parks Dept., Folkestone.

§ Serving with H.M. Forces.

WOMEN GARDENERS.

<i>Name.</i>	<i>Entered Kew</i>	<i>Previous Situation.</i>
Kelly, Eileen Fergusson...	26 Aug., 1940	Botanic Garden, Glasnevin, Dublin.
Cooper, Betty	26 Aug., 1940	Correvon et Cie, "Floraire," Geneva.
Plummer, Eileen	26 Aug., 1940	Seedsman and Florist, Oxford.
†Tarver, Barbara M.	2 Sept., 1940	Swanley Horticultural College.
Clark, Violet M.	23 Sept., 1940	Ewell Castle Gardens, Ewell, Surrey.
Pedgrift, Jessie F.	23 Sept., 1940	Ewell Castle Gardens, Ewell, Surrey.
Paine, Victoria E.	30 Sept., 1940	Battle, Sussex.
Watts, Brenda C.	1 Oct., 1940	Bidston, Denham, Bucks.
†Canning, Mary A.	2 Oct., 1940	Knights Bridge House, Newbury, Berks.
King, Eunice B.	7 Oct., 1940	Swanley Hort. College (Student).
Lancaster, Margaret H.	16 Dec., 1940	Southlands Training Coll., Wimbledon.
Speake, Myrtle V.	16 Dec., 1940	St. John's Nurseries, Polegate.
Bell, Constance O.	23 Dec., 1940	Manor House School, Limpsfield, Surrey.
Sharps, Frances A.	28 Dec., 1940	Sefton Park, Liverpool.
Thompson, Jean M.	17 Feb., 1941	Quarry Wood, Burghclere, Newbury, Berks.
†Hutchinson, Diana A.	17 Feb., 1941	Trehmunin by Arden, Lochlomond.
Cornford, Kathleen D.	17 Feb., 1941	Chaplin Bros., Waltham Cross.
Jensen, Else M.	24 Feb., 1941	Denmark.
Sharps, Jean E.	8 Mar., 1941	Women's Land Army, Lancaster.
Shallcross, Netta	10 Mar., 1941	Mount Avenue, Hutton, Essex.
†Hill, Minnie M.	31 Mar., 1941	British Vacuum Company, Leatherhead.
Holder, Olive	30 June, 1941	Leighton Buzzard.
Mundy, Freda... ..	7 July, 1941	Lea Green, Nr. Matlock, Derbyshire.
Cornwell, Phyllis	14 July, 1941	Newnham College, Cambridge.
Watson, Joyce M.	21 July, 1941	Madresfield Court Gardens, Malvern.
Stent, Helen J.	29 Sept., 1941	Auxiliary Territorial Service.
Knight, Kate M.	6 Oct., 1941	Auxiliary Territorial Service.

† Have left Kew.

ADDRESS LIST OF OLD KEWITES.

(The Names of Life Members are preceded by an asterisk).

Abbreviations :—H.G., Head Gardener ; F., Foreman ; N., Nurseryman ; M.G.; Market Gardener ; C., Curator ; D., Director ; M., Manager ; B.G., Botanic Gardens S., Superintendent, etc.

<i>Name.</i>	<i>Left Kew.</i>	<i>Present Position and Address.</i>
Abbing, J.....	Nov. 1936 ...	Beauweu Park, P.B. Grahamstown, S. Africa.
*Abbot, James M.....	Sept. 1898 ...	F., Park Farm, Woking Village, Surrey.
Adams, R.....	April 1903 ...	St. Joseph's Hospital, Burlington Lane, Chiswick.
Adamson, John.....	July 1909 ...	N., Moniaive, Dumfriesshire.
Addison, G. H.....	May 1938 ...	Botanic Gardens, Singapore, S.S.
Agate, C. J.	April 1926 ...	21, Hayden Avenue, Great Neck, Long Is., N. Y., U.S.A.
*Aikman, Miss M. G.....	Nov. 1924 ...	40, Mortlake Road, Kew, Surrey.
Airey, J. E.	May 1939 ...	Land Settlement, Ass. Home Farm, Potton, Beds.
*Alcock, Mrs. N. L., M.B.E. F.L.S.	Nov. 1918 ...	61, Holywell, Oxford.
Alcock, R. M.	Mar. 1930 ...	H. G., Hailey, Ipsden, Oxon.
*Allen, C. E. F.	Feb. 1904 ...	G12, Du Cane Court, London, S.W.17.
Allison, B. W.....	Jan. 1930 ...	Asst. Supt., Parks Dept., Salford, Lancs.
*Allt, W. S.....	Jan. 1911 ...	Address unknown
Alston, A. H. G., M.A.	June 1925 ...	British Museum (Nat. Hist.), S.W.7.
*Anderson, A. W. C., N.D.H. (N.Z.)	Feb. 1926 ...	S., Parks and Reserves, Timaru, N.Z.
Andrews, C.....	Oct. 1922 ...	F., Tresco Abbey, Scilly Islands.
*Arden, Stanley.....	June 1900 ...	"Bintang", Gerald Road, West Worthing.
*Arnold, T. A.	Jan. 1931 ...	Supt. of Parks, Boksburg, Transvaal, South Africa.
Ashlee, T. R., B.S.(Ed.)	April 1910 ...	R.F.D. 2, Box 24, Bremerton, Wash., U.S.A.
Atkins, L. G., N.D.H.....	Oct. 1931 ...	The Lodge, Kings Court, Forty Lane, Wembley Park.
*Aubrey, A. E.	April 1910 ...	The Woodhouse Gardens, Tettenhall, Wolverhampton.
Aves, J.J.	Aug. 1939 ...	84, Storeben Street, Pretoria, S.A.
Bachelor, Philip, L.....	Mar. 1935 ...	c/o Education Committee, 54, Old Stein, Brighton
*Badgery, R.....	Aug. 1906 ...	Smallack Drive, Crown Hill, Devon.
*Baggesen, Niels.....	Dec. 1900 ...	Hardy Plant Nursery, Pembury, Tunbridge Wells.
*Bailey, A. G., M.A.....	Oct. 1914 ...	Education Dept., Nairobi, Kenya Colony.
*Baker, A. F.	April 1920 ...	Supt. of Parks and Fst., Box 288, Kings Park, Bloemfontein, South Africa.
*Baker, E.....	Oct. 1920 ...	Supt., Parks Dept., Hackney, N.
Baker, G. A.....	Jan. 1911 ...	N., Buller Road, Laindon, Essex.
Baker, Wm. G., A.H.R.H.S.	Dec. 1887 ...	C., Bot. Gardens, Oxford.
*Balch, Robert W.	April 1939 ...	c/o Parks Dept., Hastings, Sussex.
*Balen, J. C. van	Mar. 1919 ...	Ass. Dir. Parks & Estates, Johannesburg, Union of S. Africa.
*Band, R.	Oct. 1908 ...	P.O. Box 524, Accra, Gold Coast Colony.
*Banfield, F. S., F.L.S.	May 1927 ...	"Bukit Atas," 24, Howard Rd., Coulsdon, Surrey.
Banks, G. H., A.H.R.H.S.	Mar. 1906 ...	C., Botanic Gardens, Glasgow, W.2.
Barham, F. A.	Mar. 1928 ...	The Nursery, Kensington Gardens, W.
Barham, V. G.....	Mar. 1928 ...	"Invermark," Sutton-at-Home, Dartford, Kent.

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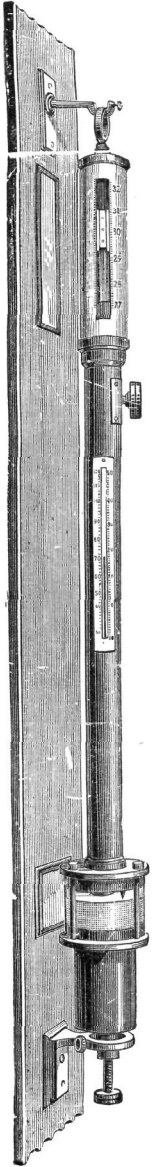
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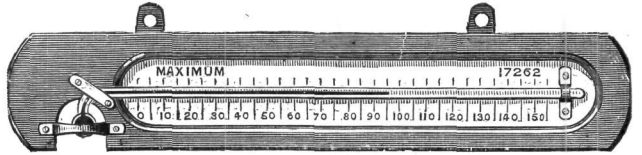
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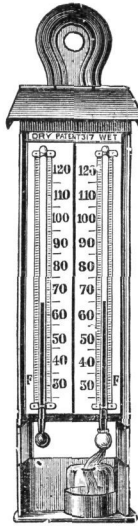
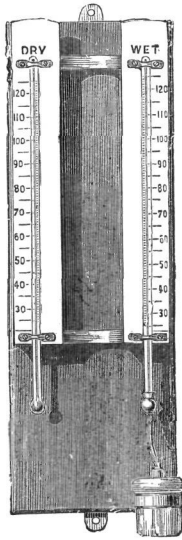


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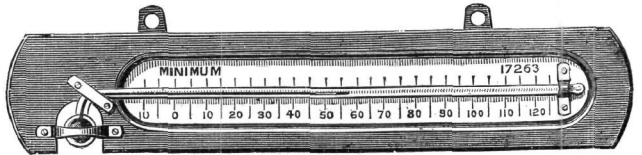
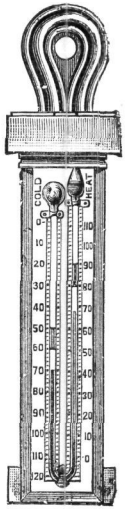
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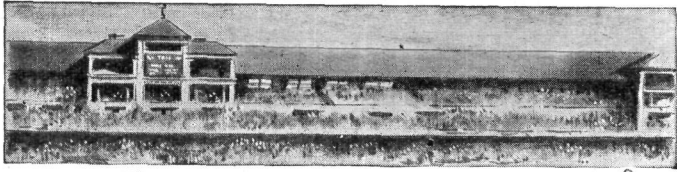
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