

INSECTS IN HAMPSHIRE, 1933

By F. H. HAINES

THE summer of 1933, remarkable for drought and the amount of long-continued sunshine and heat, reacted on insects, especially *Lepidoptera*, on the whole favourably. Times of appearance were very early, migrants numerous, and species normally single or double-brooded often produced an extra brood. But many, such as dragonflies, were soon over. February was wet, April dry, but June had one very heavy storm here (1.59ins. in 24 hours). The absence of rain was particularly noticeable later in the year: in August, November and December.

Orthoptera (Earwigs, Cockroaches, Crickets and Grasshoppers). The species of *Ectobia* were abundant and early, as was *Nemobius sylvestris* F., and grasshoppers: *Pholidoptera griseoptera* De G. in the New Forest in August, *Metrioptera albopunctata* Gz. near Ringwood, *M. brachyptera* L., *Conocephalus dorsalis* Latr., *Meconema thalassinum* De G. and *Leptophyes punctatissima* Bosc. in the Forest. *Tetrix subulatus* L. was common, and hibernated. *T. bipunctatus* L. was met with here very early. *Gomphocerus maculatus* Thunb. was everywhere in the wild, dry places around through summer and autumn, its colour, as usual, varying endlessly with that of its surroundings. The large *Mecostethus grossus* L., not uncommon in the forest bogs, and usually on Linwood Bog, was strangely, conditions being so favourable, not found here this year. *Omocestus rufipes* Zett. was not nearly so common on the heath as was *O. viridulus* L. on the grass. It was still abundant, basking in the sun on the woodwork of the house here, and elsewhere, late in October. *Stauroderus bicolor* Charp. was ubiquitous in all open places. *Chortippus elegans* Charp. was rarer than the very common *Ch. parallelus* Zett. on the somewhat drier ground.

Psocoptera. (Book-lice, Lesser Death-Watches.) This is a small Order of small, obscure, archaic insects, our nearest representatives of the termites, or white ants, of the tropics. The Greater Death-Watches are beetles (*Anobium*, *Xestobium*) and produce a somewhat different ticking from that of these insects, through repeated strikings of their heads against their foothold. *Amphigerontia bifasciata* Latr., *Psocus longicornis* F., *Stenopsocus immaculatus* Steph., *Graphopsocus cruciatus* L., *Mesopsocus unipunctatus* Mull., *Elipsocus westwoodi* McL., *Peripsocus phaeopterus* Steph., and *Caecilius flavidus* Steph. are very common in the Forest. *C. fuscopterus* Latr. was abundant in woodland last July.

Ephemeroptera (Mayflies). *Ephemera danica* Mull. was out on the Avon, near Breamore, on 28th May.

Paraneuroptera (Dragonflies). There was a large "hatch" of the little red dragonfly, *Pyrrhosoma nymphula* Sulz., on our pond, the insects spreading widely over the adjacent area on 27th April. Similar "hatches" of *Agrion puella* L., *Libellula depressa* L. and *L. quadrimaculata* L. occurred on 19th May, when the first *Calopteryx virgo* L. was seen near Dockens Water. *P. nymphula* was watched hawking at the small moth, *Laspeyresia ulicetana* Haw. at Bratley Marsh on 20th. *Calopteryx virgo* was in numbers on Ober Water on 22nd, and *P. nymphula* was seen with a living Alder-fly caught by the neck. It settled near, as though it found the mouthful heavy. Here, on June 3rd, an individual hovered in front of a web of a small *Epeira* and took it. *Agrion mercuriale* Charp. was numerous on marshy ground by Ober Water, but it and the former were over much earlier than usual. *Gomphus vulgatissimus* L., *Orthetrum caerulescens* F., *Platychnemis pennipes* Pal. and *Pyrrhosoma tenellum* Vill. in numbers, were out on Ober Water on 4th June. The last was seen on 18th July with a small yellow chironomid as prey. A visit to the *Ischnura pumilio* locality showed it to be also on the wing. *Gomphus vulgatissimus* and *P. pennipes* were very abundant on 5th. *Gomphus* is soon over. It is so local and rare that a record of three specimens on the Sussex Arun on the 4th June may be cited. Many full-coloured *O. caerulescens* were flying. Next day, *Cordulegaster annulatus* was seen at Matley. There was no sign of *Ischnura pumilio* on 12th July, or later, when very careful search was made in its special haunt. It is an earlier species than *I. elegans* Lind. Many *O. caerulescens* and *C. annulatus* were still on the wing, and the dark female varieties of both species of *Pyrrhosoma* were common. All specimens of *P. tenellum* were affected with red mites. It lasted much later than *P. nymphula*. *Oxygastra curtisii* Dale was apparently very early this season at Hurn, and over by 14th July, or sooner: the bright, hot weather well suiting this southern species. Such insects as *Libellula depressa* L., *L. quadrimaculata* and *L. fulva* Mull, which usually accompany it in this locality, were almost over too, from the same cause. *Aeschna juncea* L., *O. caerulescens* and the two species of *Calopteryx* continued common to this date. *Platychnemis pennipes* Pall. was by far the most numerous and prominent dragonfly in the locality. It is difficult to check the broods of dragonflies, as the times of appearance of so many are often long and variable, and they may be nymphal for more than one year. A female or immature male of *Sympetrum striolatum* Charp. was seen at Hurn on 17th July, and full-coloured red males were becoming abundant on 4th August.

A specimen was sunning itself by a door, here, on November 1st, and I once saw it at Galton in Dorset, after a very mild autumn, on a warm day in December. *Sympetrum scoticum* Don. was just emerging at Hurn on 17th July. It was interesting to note that, although so much further north, I had already seen the species on the wing on the Culbin Sands, Elgin, on the 2nd July. *Aeschna grandis* L. was seen at Hurn on 1st August: it was very common in Kent in July. *Ischnura elegans* was common at Sowley Pond on 3rd August, and at the ponds on Hengistbury Head on 13th. It undoubtedly prefers to breed in pools and ponds, and *I. pumilio* in bogs. *C. virgo* was still about on 4th August. *Aeschna cyanea* Müll. was seen on this date, as was *Libellula depressa* at Appleslade, a very unusual date, pointing to a most abnormal emergence for this early insect.

Hemiptera. (1) HETEROPTERA (Bugs). *Chilacis typhae* Perr. was abundant on the pond in the heads of *Typha latifolia*, but not on *Typha angustifolia*. This is a new record for Hampshire. Butler (Biol. Brit. Hem.-Het.) calls it rare and records it from only eleven counties. It has been said to occur chiefly in the year-old heads, but it was not so here. (2) **Homoptera** (Froghoppers, Plant-lice and Scale Insects). *Cicadetta montana* Scop. was not found by me although the summer was ideal for it, but an informant had heard it singing near its old locality.

Neuroptera (Alder-flies, Snake-flies, Lacewing flies). *Sialis lutaria* L. was out on Dockens Water on 9th May, and *S. fuliginosa* was seen on 24th. Numbers of *Chrysopa perla* L. and the click beetle (*Athous haemorroidalis*) were observed like a dancing swarm round a decayed beech in Berry Wood on 1st June. The same curious sight was seen in Highland Water Enclosure on 2nd. There *Osmylus flavicephalus* Scop. was out.

Trichoptera (Caddis-flies). Of our approximately 190 species I have no special note, save the occurrence, commonly, of *Chaetopteryx villosa* F. on Dockens Water in January, November and December. I never found this insect in Dorset.

Lepidoptera (Butterflies and Moths). A Brimstone was seen on 29th March, and others soon followed. Peacocks were in some number on 25th, and a Small Tortoiseshell on 26th. A Small Garden White was seen on 3rd April. One was recorded by De Worms for 26th March in the New Forest. A Wood Argus was noted on the 9th April, and the species was plentiful here by the 13th. The Green-veined White appeared here on 26th, and the Holly Blue on 27th. An Orange Tip was out on 1st May, as were Small Coppers, recorded by De Worms on 16th April. They were abundant throughout the season into October, emerging in

several broods, due largely to the fine weather, but an invasion of immigrants has been reported in July. The Dingy Skipper, Wall Butterfly, Pearl Bordered Fritillary and Small Heath were noted on 10th, and the Green Hair-streak, soon to be very common, on 13th. The Red Admiral and Painted Lady were seen on 21st May. Does the former migrate by night, like some birds? It comes to sugar then, and a migratory Peacock has been thus recorded. *Tyria jacobaeae* L. was in numbers, and the Large White seen on 22nd May. The Small Pearl-bordered Fritillary was very early for this neighbourhood, being met with in May, and the Common Blue was out on 28th. Sixteen larvae of *Plusia orichalcea* F. (*Chryson* Esp.) were found on *Eupatorium* in the Test Valley on 27th May, by Mr. Poore, where several moths had already been found at light and hovering over *Nicotiana* in mid-July in 1928. He says the larva breaks the mid-rib of a leaf, which hangs down, and it is quite easy to find if the surrounding stems are carefully searched. Fourteen more larvae were found on 28th. All had spun up by 10th June, and a large proportion had emerged by 1st July. A *Eupithecia satyrata* Hb., very like the Perthshire ab. *callunaria* Dby. and *Arctia plantaginis* L. were taken on chalk downs near Romsey, on 28th May. *Euclidia mi* Cl., *Leptomeris strigillaria* Hb. (1 male), *Panemeria tenebrata* Sc. (*arbuti* F.), *Xanthorhoe ferrugata* L., *Loxostege verticalis* L. and several *Eriogasta rubi* L. were seen on 13th May. They were abundant. *Deilephila elpenor* L. was over flowers at dusk, and at light, and three *Plusia pulchrina* Hw. were taken on 6th June. *Plusia tripartita* Hufn. was over flowers at dusk on 7th June. *Metrocampa dolobraria* L. was netted on 8th June, and at a later date found in the house. *Rusina tenebrosa* Hb. was taken over flowers at dusk with *C. elpenor* and *P. pulchrina* in some plenty, as usual, on 9th June. *Mysticoptera sexalata* Retz. was bred from a larva found on sallow in the previous September, on the 10th June. *Salebraria palumbella* F. and *Erastria fasciana* L. were found on 11th June. *Plemyria hastata* L., flying with special freedom at 3 p.m. (S.T.) and *Bupalus piniaria* L. were both plentiful on 2nd June, when *Macroglossa stellatarum* L. was reported from Linwood. It was also noted in Ringwood in September. The earlier would probably be a migrant, and the latter a British-bred descendant of an earlier immigrant swarm. I have known of a living specimen being found in a house in Kent in December. It is queried now as a normal resident, but there are several winter occurrences on record. The Silver-washed and High Brown Fritillaries were recorded from the New Forest on 12th June in *The Entomologist*. I saw the latter on 4th June. The Meadow Brown was flying on the 5th June and *Plusia gamma* on 7th. The Large Skipper was in numbers at Farley Mount on 8th June. The Duke of Burgundy Fritillary was

met with in Pignal Enclosure on 10th June. This species is curiously scarce in the Forest : it was local in Dorset, but extending its range there, as perhaps here. Local migrations occur : I noted cases of extension of range due to this cause in *Melitaea aurinia* Rott. and *Pararge aegeria* L. in Dorset. *Deilephila porcellus* L. was found at Rockford on 12th, a Comma was seen at Appleslade on 8th of July, reported from Hayling Island and near Portsmouth later in the month, and several were recorded from Ringwood in the autumn, with Red Admirals, Tortoiseshells and Small Coppers. A fresh Brimstone was seen at Burley on 12th July, and White Admirals were very common in the Forest and at Hurn on 14th when many newly-emerged Gatekeepers and Silver-studded Blues were on the wing. A fresh Red Admiral was flying on the 16th. The sober coloured *Hadena maura* was very common in July, and appeared gregarious in the house, as many as six resting together and returning to the same place if disturbed. Ringlets were frequent on the 17th, entering a greenhouse. Graylings were out on 18th, and Dark Green Fritillaries were more plentiful than usual in some Forest localities. Fresh Tortoiseshells were common on 19th, and coming indoors for hibernation on 30th. A fresh Clouded Yellow and Painted Lady were seen on 19th, and both insects rather commonly, later on. The former had been noted near Winchester, 23rd May. The summer brood of Wall butterflies was well on the wing on 29th, and the species continued into October, suggesting a further brood. *Ab. chrysanthemi* Hb. of *Zygaena filipendulae* was recorded near Winchester on 20th. The Burnets are less specialized moths, as shown by the number of free joints in the pupa. When single cells, as in Protozoa, became colonial, as in Porifera, there was quantitative development, but when each part of a colony became specialized in its function and mutually interdependent, development came to consist in numerical reduction, but a qualitative improvement of parts. Hence a retention of fuller segmentation indicates inferiority. *Alucita hexadactyla* L., so abundant here, was crowding in for hibernation on 3rd August, and a *Scoliopteryx libatrix* L. came in on 30th. *Nomophila noctuella* Schiff. was found in numbers in Appleslade Inclosure on 8th. Was this a fresh, or were the moths descendants of an earlier invasion? It is very migratory and cosmopolitan, and not usually considered a normal native. *Acherontia atropos* L. has been unusually abundant in the county, and the larva was found at Linwood on 8th. Silver-studded Blues were about till the end of September, perhaps a second brood. *Plusia gamma* was seen, too, very late. Many larvae of *Eriogaster rubi* L. were met with on 1st October. The scarce, but now established immigrant, *Caradrina musculosa* Hb. was reported from Micheldever in July.

Coleoptera (Beetles). Tiger Beetles were seen on 8th March. Many *Donacia* spp. were noted in May: *aquatica* L., *bicolora* Zsch., *simplex* F., *semi-cuprea* Pz., *Plateumaris sericea* L. and *discolor* Pz. *Chrysomela hyperici* Fo. was met with on Farley Mount on 9th June. *Halitica palustris* Wei. occurred here on 23rd August, *Melandrya caraboides* L. on 20th May, numerous *Pyrochroa coccinea* L. on 13th, and *Tomoxia biguttata* Gy. in mid-June, occurred in the Forest. *Anaglyptus* (*Clytus*) *mysticus* L. which has not been much recorded from the Forest, was taken on 23rd May. A *Cantharis* (*Telephorus*) *rustica* Fn. was watched on 28th May in Ober Water, trying to reach the bank by means of leaves and stems which swung to and fro in the current. It was interesting to see the reason calculation of the insect as it left one support to catch another. It soon safely landed. A species of *Elater*, like the very rare *pomona* Steph., was seen in Bolderwood Walk on 23rd May. *Cryptocephalus aureolus* Su. was taken on *Hieracium* at Farley Mount on 11th June. The fine beetle *Prionus coriarius* L. was found at Linwood on 22nd July, and at Appleslade on 24th. It lasted into August, rather commonly in the Forest district. A specimen was found at North Gorley on 17th. The carabid *Amara aulica* Panz. was noticed as specially attracted by the flower heads of *Centaurea nigra*. Glow-worms, which were very common here in June, the females on the heath round, and the males indoors, at light, disappeared very early, and neither the imagines nor the larvae were seen later: presumably the drought did not suit the species nor its hosts. A newly recognized species of *Tachys*, *piceus*, Edm., was found in mid-April in a New Forest bog. Edmonds comments on the fact that this particular bog has recently produced two new species, found nowhere else, of the genus, both closely allied to two coast species. He suggests that they are the relics of an ancient fauna, still surviving in a particularly favoured locality, having by reason of isolation developed differences which have become fixed, being better adapted to a bog life than the coast life usually associated with the genus. He says he took five species in a few days in Hampshire and Dorset, yet never saw the genus in Devon: a curious fact in distribution.

Diptera (Flies). *Bombylius major* L. was in numbers in a copse here on 11th April and earlier. At about 9 a.m. (S.T.) on 19th May large numbers of *Simulium* were entering the house, chiefly by an eastern window. The day was very hot and sunny, with a slight S.E. wind. Bar., 30.2 ins. *Calliprobola speciosa* Rossi. and *Brachypalpus bimaculatus* Mcq. were out in Mark Ash on 20th May, as was *Therioplectes tropicus* Mg. var. *bisignatus* Jaen. *Leptis scolopacea* L. and *Empis tessellata* F. were becoming abundant

by this date. The curious courtship habits of the *Empidæ* have lately been much investigated. A presentation of prey, or other gift, is made by the male to the female in some species. The enlarged fore-tarsi of *Hilara* have been shewn to contain glands which secrete a silk to form the small ball which is presented by the males to the other sex. *Xylota lenta* Mg. was in some plenty in Wood Crates on 2nd June. *Microdon mutabilis* L. was frequent at the beginning of June in Matley and other bogs, presumably associating with the local bog ant, *Formica picea* Nyl. or other species of *Formica* or *Acanthomyops*. (See Donisthorpe, *Guests of British Ants*, p. 126.) In the middle of the month *Microdon eggeri* [Mik. occurred near decayed trunks inhabited by other species of *Formica* in Old Bratley and other Forest woods where decayed trees abound. *Ensina sonchi* L., very commonly, *Eurina lurida* Mg. and four species of *Pipunculidae*, those curious flies with large heads that are "all-eye," were found at Mudeford on 7th June, among them *P. furcatus* Egg. They are beautiful hoverers, and when netted can hover in any space left to them in the net. *P. littoralis* Beck. was also found there on 13th August. *P. varipes* Mg. was met with on damp ground at Appleslade where it occurs freely, on 26th August. *Syntomogaster fasciata* Mcq.; a very rare tachinid, was found in numbers by Messrs. Collin and Wainwright on *Euonymus* at Farley Mount on 8th June. *Volucella inflata* F. which had been earlier in large numbers on *Pyrus*, was still to be found, now chiefly on *Cornus*. At the end of June and in the following months, the large, bristly, tachinid fly, *Echinomyia grossa* L., was in great abundance, frequenting *Heracleum* flowers. Probably it had parasitized the larvae of the Fox Moth which had been so numerous and late in the preceding season. Obviously it had not seriously depleted the numbers, as records show. Some species of *Sarcophaga* were also very common. Although usually feeding on dead matter, some attack dying larvae, a habit which would tend to complete and real parasitism in time. A few *Theriopectes montanus* Mg. occurred at Hurn on 14th July, and continued for a week. The species was just emerging in Inverness at the end of June. A specimen of *Senecio jacobaeae* with a monstrously distorted capitulum (appearing like a hybrid with *Mentha aquatica*!) was found on 3rd August. It was suggested that the teratology was due to larval injury of the stem affecting nutrition, but apparently it was caused by the larvae of the gall-gnat, *Diplosis jacobaeae* Lw. which gall the flower-heads. The rare *Psilopus laetus* Mg. was met with at Hengistbury Head on 4th August. *Eristalis abustvus* Coll. was noted as absent then, and on 13th. Was last year's abundance due to a migratory swarm? *Syrphidae* often migrate in swarms consisting of several species. *Theriopectes distinguendus* Verr. lasted into September, perhaps

owing to hurried metamorphoses due to the hot season or a second brood. *Arctophila mussitans* F. was seen here on *Scabiosa succisa* on 20th September.

Hymenoptera (Sawflies, Ichneumon-flies and Aculeates).
Hive-bees were moving, more or less, from the very beginning of January, and at the end of the month were quite active. Many Humble-bees, *Bombus lucorum* and others, were round the willows on 13th March. A queen wasp was prospecting here on 8th April. *Pompilus viaticus* was about on 20th May. A queen hornet was "house hunting" on 21st May. The spring bee *Anthrophora pilipes* F. was early, and was very common by the 23rd May. *Mutilla europaea* L. was out in Wood Crates on 2nd June, and a female was crawling up our house on 28th September. *Odynerus spinipes* L. and *Entomognathus brevis* Lind. were in numbers on Hengistbury Head on 7th June. *O. laevipes* Shuck. was also present, and was making burrows in a sand-bank, with a tubular entrance like that of *O. spinipes*, as is usual with the sub-genus, *Hoplopus*. The statement that it rests in bramble-stems seems to be wrong. The rare *Pachyprotasis variegata* Kl. was caught at Farley Mount on 9th June. The saw-fly, *Tenthredo maculata* Geoff., was caught carrying *Polietes lardaria* F., as prey, at Farley Mount on 11th June. There is an inexplicable case of mimicry, not noted by me before, between the ichneumon, *Hericospilus ramidulus* L. and *Cantharis* (*Telephorus*). Both were abundant on a bog by Ober Water on 20th July, and strangely alike at a first glance. Hornets became numerous by 21st July, and two nests close together were located in a hollow oak, before quoted as a popular site for birds' nests. The colonies, though almost touching, were quite friendly. On September 10th, workers could be seen against the darkening sky at 7.15 p.m., still toiling hard, as they did on moonlight nights. They had a habit of biting off small pieces of bark from young fruit trees to suck the sap. The oozing from a tree attacked by a bark fungus apparently originating the habit here, under the influence of the drought. If one wound was tarred over, another was inflicted. The oozing burrows of *Cryotorynchus lapathi* in osiers were also popular, and on one willow trunk a large patch was bared. A bee-line was made from the nest in a most methodical way to these feeding-grounds, though *Angelica* flowers were also appreciated. To this slight extent, the insect may be said to be injurious, but its insect-feeding habits make it beneficial. Many things were attracted to the sap: *Diptera* (*Lucilia*, *Chrysochlamis*), and on 11th September, some freshly emerged very brilliant Commas of both sexes were seen on the tree. These were pursued by the hornets, as was a Red Admiral, but none were caught. The hornets were working up to quite

5.30 p.m. on 18th October. After some frosts there was considerable deterioration of the colonies by the 29th, but an examination showed one colony to be still alive: five workers coming to the entrance on the slight disturbance, and one worker was even abroad quite late in a last attempt to feed the brood. There were hornets round the ruined mouth of the crumbling colony, which was full of dead, chilled and starved larvae on 1st November. I fancy the nest had been attacked by a bird, but the insects were still working, in a sleepy half-numbed way, to repair it. All the workers were dead by the 7th November. The drones were over earlier, and the young queens had long before gone into hibernation. Supplies of food had become quite unobtainable, the queen, worn out, had ceased to lay. She and such workers as remained had all become torpid, and died when the cold nights came. After watching all the marvellous activities of these handsome and friendly insects, it was well to feel that the last scene was painless, restful and benign. A pupa of *Pieris rapae* L. from a preceding day's larva, still soft, was seen attacked by the ichneumon, *Hemiteles melanarius* Gr. She appeared to puncture it quite twenty times, the pupa contorting violently. It was interesting to note how instantly the soft, vulnerable condition of the pupa was recognised by the parasite. Two or three weeks later, about twenty of the parasites emerged through separate small holes over the pupa. The saw-fly, *Sirex gigas* L., occurred at Linwood on 23rd August. A *Pimpla*, like the very rare *pictipes* Gr., was seen prospecting a dead flower head of *Gentaea nigra*, and frequently inserting its long ovipositor for a considerable distance. The plant was microscopically examined, but no host larva could be found. Does an ichneumon sometimes make a mistake? A young queen hornet was reported from Linwood about 27th November, and hive-bees were actively moving on 20th, perhaps working ivy blossom. The badger is a great enemy of our ground-building wasps. All ground nests are dug up by them at Appleslade. A nest of *Bombus latreillellus* in a hole on level ground was found at the end of July by Mrs. Lea, and shown to me later. As the queen was quite fresh it would seem that she was a queen of the year, but owing to the fine weather, instead of hibernating normally, had founded her colony at once. Twelve wax cells were present, some empty, evidently the cocoons of the twelve original larvae hatched from the first eggs laid. The common larval cell-mass gradually segregates itself into separate cocoons. These, when found, had evidently produced a few workers, and the queen was laying another batch of eggs to hatch into another mass of larvae which would similarly develop, and gradually isolate into separate cells of pupal bees. This process is repeated with every egg-batch laid. It was observed that a large layer of wax had been spread over the whole actual colony,

which was amply covered by moss. This covering of moss the bees increased, but the extra wax shelter is unusual. The species is subterranean and probably the dry, hot summer caused the more superficial position of the nest. After fourteen days the little moss-covered dome measured about ten inches diameter at the base and some five inches high. The nest had a considerable population of workers and several queens had been bred, when I saw it on 9th September. A drone, too, emerged, and flew off while I was watching. The young queens, once flown, hardly come back at all to their birth-place, but, when fertilized, go at once into hibernation. Nor do the drones return much, but wander without homes until they die. Sladen says ("The Humble Bee") that queens and drones are soon produced in *Bombus latreillellus*, the colony not growing as large as that of some species, so that this Humble-bee does well in a short season. A fresh worker of the species was sunning itself on a step, here, on 9th October.

The many heath fires of the summer draw attention to the grave menace to fauna and flora which our great stretches of pure heath cause. These fires destroy all the deciduous growth, whether thorn, birch, willow, hazel or timber saplings, and burn out a great part of the best constituents of the soil, leaf mould and nitrogenous matters. They produce an abnormal tract that is unnaturally poor and only heathy. A heath that is never burnt becomes pleasantly diversified with other growth and forest. This may be recognized if a heath land be left and protected, and the result noted in a few years' time, or by seeing a tract that has never thus been impoverished. I lately saw large burnt areas in Scotland reduced to such poor artificial moorland: even a single young pine could scarcely be found.

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BIRDS IN HAMPSHIRE, 1933

By F. H. HAINES.

LAST year notes were invited. If received yearly from all the seven ornithological districts into which Hampshire can be divided, a completer review of the subject would be possible. My own notes are largely from the New Forest district (No. 5), where many records are curiously late, or wanting.

Fieldfares were numerous in flocks at Appleslade on 2nd January. Goldfinches and Starlings were present in large numbers, and a Thrush was singing, the weather being very warm, on 3rd. The Green Woodpecker's cry was marked on 20th, Dr. B. N. Blood reported that two or three Wheatears were wintering in the Highcliffe neighbourhood: a very exceptional occurrence (see Witherby, *Practical Handbook*, p. 429).

A Skylark was singing at Ringwood on 4th February, and a Chaffinch at Appleslade on 4th March. Snipe were drumming over Linwood Bog on 6th. Mr. W. R. G. Bond (*Proc. Dorset F.C.*, Vol. LIV, p. 195) points out that the drumming is a double sound, a musical note qualified by a tremolo effect, and concludes that it consists of a note produced by the vibration of the two outer tail feathers at a rate of about 400 times a second, this note being qualified by a tremolo effect due to these feathers being fanned by a quivering of the wings at a rate of some 400 times a minute.

Curlew were seen over Appleslade and on Ibsley Down on 13th. The Chiffchaff arrived here on 29th, and the Blackbird was heard on 31st. The Meadow Pipit was singing on 1st April. An early Swallow was seen at Linwood on 3rd, and the Willow Warbler was heard at Appleslade on 5th. A cock Reed Warbler was on the marsh and Wood Pigeons were cooing in the wood on 8th. Mr. Bond (*Proc. Dorset Field Club*, Vol. LIV, p. 198) denies that, when a Pigeon "smites," the wings come together over the back, and is certain that the sound is produced by the sudden arrest of the downward wing-stroke, suggesting as a parallel the flicking of a handkerchief or the cracking of a flag in the wind, the sudden change of movement producing a vacuum which the air rushes in to fill.

A Sedge Warbler was heard at Blashford, and a Cuckoo heard and seen at Linwood on 11th, while a Cuckoo was calling all day and until late on 12th here, where a Swallow was twittering on 14th, when the "water-bubbling" cry of the female Cuckoo and the *cuck-cuck-oo* of the male bird were heard: unusually early. The weather was very sunny and hot by day, but the nights were still very cold. The Grasshopper Warbler was heard at Appleslade, and Willow Warblers were very plentiful everywhere by the 18th April. A Swallow was seen at Ringwood and a Buzzard near home. A Sedge Warbler was singing on 19th. One of a pair

of Grasshopper Warblers that had apparently nested for years in the same spot, was brought in by a cat, and a Tree Pipit was seen and heard on 26th. Snipe bred in considerably smaller numbers than in former years here, and Cuckoos were less numerous. A Buzzard was over Appleslade, the Wryneck heard, Grasshopper Warblers were "whispering" in the marsh at home, and the Nightingale was heard at Fordingbridge and Breamore on 30th. The cries of the Wood Warbler and Wryneck and the song of the Whitethroat were heard on 1st May, when two Buzzards were seen overhead, the House Martin and Sand Martin noted, and Swifts were back at Ringwood. The Garden Warbler was heard in Pinnick, the Blackcap in Redshoot Wood and the Turtle Dove at Appleslade on 4th. The Nightjar was churring here on 5th and 6th. How is the "smiting" of this bird's wings produced? The Spotted Flycatcher was seen on 13th. A Barn Owl, probably two, was seen at Linwood on 25th, perhaps nesting behind thick ivy on an oak. The Blackcap at first seemed late in arriving or singing, and sparse in numbers. Later it became normally numerous. A pair of Oyster-catchers were about a pond at Burley for some days. Four pairs of Redshank were seen below Hengistbury Head, which, judging from their behaviour, had young, on 7th June. A Chiffchaff was singing in New Burley Enclosure on 12th July, and a rather broken Blackcap's song was heard at Hurn on 19th. The Grasshopper Warbler continued its notes from 21st July to 3rd August (after 9 p.m. S.T.) and intermittently till 11th September when a second bird was killed by a cat. A Willow Warbler was singing, and Swifts were still at Appleslade on 29th July: their last appearance. The nest of a Nightjar was found outside Hasley Enclosure with one unfledged nestling on 8th August. I once found two eggs on Winfrith Heath, near the River Frome at the end of April, and flushed a bird on a November afternoon from a sheltered garden: very abnormal dates. In *British Birds*, Vol. XXVII, p. 135, there is a record of two "chipping eggs" found at Hindhead, Surrey, on 2nd June, 1933, at 500 feet above sea-level. A Montagu's Harrier was seen over Linwood on 18th, on Broomy Plain on 25th, and here on 3rd October, and a Peregrine Falcon on 23rd. A flock of Sand Martins, a flock of 14 Curlews, numbers of Ringed Plover, a Dunlin (in immature, autumn plumage) pecking about by itself and very tame, were seen near Hurst Castle on 24th. The only Redbacked Shrike seen here this season, a young bird, occurred on 28th. The autumn songs of a Chiffchaff and a Blackcap, towards evening, were heard in Redshoot Wood on 15th September, when Reed Buntings still frequented the marsh. A flock of about fifty Jackdaws was seen at Linwood on 1st October and a Swallow on 11th. A Barn Owl of immature appearance was reported at Linwood on 25th of December.

The magazine *British Birds* records : a Puffin caught at Swanmore in December, 1932, a Gannet in second year's plumage, picked up alive at Blackmoor, in north-east Hampshire on 23rd of August, and a Dipper seen on the Itchen, near Twyford. This species nested at Trigon, near Wareham, in Dorset. Grey Phalaropes are reported from pools and marshes on the Solent and at Hengistbury in September and October.

The following birds have also been recorded locally : the Crossbill as still scarce, but seen in south-west Hampshire in January, and again in later summer ; the Great Grey Shrike, near Ringwood, and Blackstarts near Bournemouth, last winter ; a Hoopoe on Hengistbury in August ; a Light-breasted Brent Goose near Ringwood in January ; a Shoveller at Christchurch in February, also a Velvet Scoter in January ; several Gannets and Great Northern Divers off the coast last winter ; Red-throated Divers at Christchurch and Beaulieu, in February, and Sanderlings at Christchurch last winter.

Dr. C. R. Haines sends the following notes from the Petersfield neighbourhood : fifty Pied Wagtails together, with one or two Grey Wagtails, seen one September. The Grey species breeds near Petersfield regularly : its earliest appearance here 6th March (1920). 1933 was a bad, late year for migrants, and scarcely a Flycatcher was seen about the gardens. Tree-creepers and Wry-necks have become much scarcer of late years : the latter has been heard as early as 10th March, and the Willow Wren noted on 17th March (1921), and on 19th (1929). Wood Owls are far less common than formerly. Wheatears occasionally occur on Butser Hill in the breeding season, and always on migration. Here, and on other spots near, the Stone Curlew regularly breeds. Small flocks of Fieldfares have been present, but Redwings less commonly. On 10th July (1920), a Green Sandpiper was seen on Stanfast Brook. The latest date for the arrival of the Common Sandpiper is 12th April : it breeds (beyond the Hampshire border) on Hasting Pond (cf. Borrer, *Birds of Sussex*, p. 239). A Hoopoe was seen in Durford Wood on 1st May, 1931. Great Crested Grebes occur every year, but they have only nested once (1923). Redshanks appeared about 1920-25, and are now always to be seen. A Bittern was seen near the Rother in January, 1928. A female Golden-eye Duck was seen on the pond in December (1928). A Pied Flycatcher was seen on the Rother on 14th May (1929) and a Grey Phalarope in 1930. Frequented nests of the Turtle Dove were noted on 16th of August, and of Goldfinch and Greenfinch on 26th, 1930, and a fresh Starling's egg was found on 28th August, 1931. A Crossbill was seen at Homewood Steep on 30th June (1921), and a Brambling Finch was in the garden in December, 1929. A small flock of Terns was on the Rother on 6th April,

1925, and one later on the pond. A Rose-coloured Starling was seen on 10th of April, 1925, and a Snow Bunting near Liphook in February, 1926. A Redstart was near the Rother in November, 1925.

Mr. Geo. Marples, A.R.E., A.R.C.A., of Sway, has sent me notes of his experiences in trapping birds to study "homing" and other movements. He soon became aware that certain birds made a hobby of being trapped, appearing in the trap three or four times a day. To dispose of one of these, a Blue Tit, he was carried half a mile away. Two hours later he was again in the trap. In further experiments birds were freed at different points and at various distances from the trap, some having to return with the wind, others across and some against the wind. The birds released were chiefly Blue Tits, with several Great Tits and one Marsh Tit, at distances of from half to a mile. From the full tables sent to me by him detailing the results it can be seen that out of twenty-six liberations only five birds failed to return to the trap, and that five that returned did so promptly, the time of absence from the trap varying from one to 142 hours. Mr. Marples says that the cause of this "homing" would seem to be the possession of a strong remembrance of a plentiful supply of food; and a determination to return to it. He asks whether the cause is the same as in homer Pigeons: is it food or love of home? In further experiments he used in addition to Tits, House Sparrows, Robins, Blackbirds and Hedge Sparrows, with results even more striking, especially as it is unlikely that birds would be trapped immediately they returned home. A Blue Tit and two Great Tits returned from a distance of $3\frac{1}{2}$ miles, the Blue Tit in 6 days and the Great Tits in 13 and 15 days respectively. Two House Sparrows came back from a distance of 3 and 6 miles, respectively, being freed in towns and having to traverse forest, moorland and fields. A certain number of birds failed to return. Mr. Marples states, as a possible explanation, that they were "birds of the year" and were probably passing on to their winter quarters when captured. Birds, evidently, taken on passage are not caught again until nine to twelve months, or more, afterwards. This, he points out, seems to indicate that the birds, present in his grounds during the winter, go away for the breeding season, returning the following winter. With three exceptions, the birds were winter visitors, trapped from November to February, and recaptured in one of the winter months, usually November or December, approximately 12 months later. The shortest time noted between the initial capture and recapture is 8 months 8 days, and the longest 16 months 28 days, and the average time of absence in 38 cases being 10 months 13 days. Mr. Marples' natural disinclination to trap breeding birds, lest it should cause them to desert their nests, has prevented him from

learning yet, so fully, whether the summer residents, the breeding birds, return the following year to breed.

Migration. The chief migration routes of European birds will subdivide into definite lines across the several countries through which the migratory streams pass. In Great Britain there appears to be mainly an eastern and western coastal route. Some birds will follow inland river valleys if available. Hampshire will have its own minor paths : chosen by migrants according to their habits of life : upland birds along the uplands, lowland birds along marshy valleys and woods, all courses as modified by habits of the past, and present necessities for food and shelter. Exceptions to the north and south tendency will be furnished in Hampshire by birds which go west to winter in the mild south-west or take the Portland to Cherbourg and Channel Islands route : routes, probably, being approximately reversed on return. Some birds would fly *via* the Isle of Wight, but many in the autumn appear to travel eastwards along the coast to the narrower seas before turning south. Hampshire will be altogether out of the line of migration of some species that go either east or west of the county. When many species choose the same line of flight a migration route can be defined. Some species keep to strict paths, others are more erratic ; still others, like the Sand Grouse, appear quite haphazard to our limited knowledge.

The theories on migration published by Herr Gätke in 1893, after fifty years of intensive study of the subject in Heligoland, were soon criticised by W. Eagle Clarke and F. B. Whitlock, especially as regards the height and velocity of migration. Gätke insisted strongly on an east to west flight in autumn, on a front as deep as the longitudinal range of the species, as dominant over a north to south flight. Birds would certainly find western Europe milder than the eastern parts, and thence they at times go thither and linger until a cold spell turns them southwards. But so broad and unbroken a front is impossible. Gätke also maintained that there was a physiological migratory excitation which caused an extraordinary rapidity of flight, crediting even the Hooded Crow with flying 108, the Blue Throat 180, and the Virginian Golden Plover 212 miles an hour, holding (wrongly) that normally migration was at a height far beyond human observation—not less than four miles—rarefied air and absence of cloud and fog helping the flight, though the energy required for the ascent would be indeed vast. Only abnormal migration was observable by us. Justification of the criticisms has been given in recent years by observations made by airmen. Colonel R. Meinertzhagen and others (*Ibis*, 1919-21) find that it is exceptional to meet with birds above an altitude of 5,000 feet, and that most migration is below 3,000 feet. Only 32

were above 5,000 in hundreds of records. But under exceptional conditions higher altitudes are noted. Waders have been recorded at 12,000, ducks and geese at from 3,000 to 8,000, while storks and cranes, crossing the Himalayas, have been placed at 20,000 feet above sea-level. Capt. Ingram has notes of ducks and lapwings up to 8,500 feet, geese to 9,000, sandpipers to 12,000, and small birds to 10,000 : the latter observation being exceptional. Birds have been seen at from 24,000 to perhaps 29,000 feet, crossing high mountains. These are extreme cases. On hot sunny days our forest Buzzards circle at great heights, currents of warm air make soaring easy. Strong wind, mist and rain arrest migration, and cause birds to fly low, as experience at our lighthouses shows, and our ears can tell from the cries heard. The speed of migration estimated by instruments and aeroplanes, has been shown to be, for crows from 31 to 45 miles per hour, smaller perching birds from 20 to 37, ducks from 44 to 59, and falcons from 40 to 48. Common swifts can fly from 70 to 100 and certain other swifts from 171 to 200 miles per hour. Small birds migrate by night to escape attack and to secure food as soon as possible : feeding before they start in the evening, they can find food and rest at once at daybreak after the sea passage, when their organs are empty, for digestion is rapid. The time chosen will so be correlated with their usual habits : shade-loving, hiding and skulking birds, *e.g.*, warblers and rails, will choose night-time. Rapid and strong flyers, such as hawks and cranes, will go by day. Night-feeders and birds that can feed as they travel, like ducks and geese, go by day or night. Gulls and waders are able to halt to feed. Crepuscular birds (nightjars) favour day-time. A strong wind behind, that ruffles the plumage and upsets the balance, is bad, as is a strong head wind. A somewhat side-wind will be chosen. Migrants in foggy lands do not get lost, which suggests that the direction sense, developed so unequally in us, but so strongly in savage tribes, is strong in them. Hereditary influence, sky, sea and land marks and impressions, guidance given by experienced birds of the same or other species, when so many birds are going the same way under the same impulse at the same time, may all assist. There may be no old homing instinct in the matter at all : just ebb and flow to where more favourable conditions exist, for the purpose in view at the moment : south for food, north for space for breeding : the instinct originating as much in the south as in the north. How precise space sense is in birds is shewn by the fact that a long distance migrant may rest in the very same small thicket, year after year, when on its travels. Scarcely any species breeds both in its northern and southern limits of range. When this does occur, a different set of individuals is involved, even tending occasionally to form a distinct race.

"Territory" : this theory has come into notice and popularity through Eliot Howard's fine work in the last twenty-five years, and is still vigorously debated. It had been slightly indicated by Gilbert White in 1772, by Goldsmith, curiously, in his "Animated Nature," in 1774, and more precisely by Mr. C. B. Moffat in 1903. Messrs. Lack in a paper "Territory. Reviewed" (*British Birds*, Vol. XXVII, p. 266) have well stated the case against it. Eliot considers "territory" a universal law of bird life. A male bird isolates himself in a defined area in spring, and here asserts authority : by fighting, song or other "display." Hither he attracts a mate; and nests. The habit is claimed to have various advantages : providing a mate for the stronger males, a definite feeding ground for the young, and, distributing a species more equally over a district. Fighting is largely past before other calls are made on the energy of the male. But birds are often mated before the break-up of the winter flocks, and the same pair will nest in the same spot year after year. The theory is applied, too, even to the social species, though the conditions are hardly in accord with the definition of "territory" : the space then occupied is used for nesting only, not feeding nor "display." Sea birds evidently nest gregariously by preference, for many good situations are unoccupied outside the colonies : isolation, if it occur, is because of rarity, as with Birds of Prey.

The following considerations show how variable must the theory be in its application. In Lairig Ghru Pass, Inverness, last June, I saw a solitary Golden Eagle, but its vast domain was owing to an Eagle's rarity. Grebes and waders do not keep to their "territories" for feeding, food being found in common waters or grounds. Some birds use them entirely for courtship, *e.g.* the Ruff. The Common Sandpiper appears with us rarely. It was breeding plentifully round the Scotch lochs and its nest found in June. Actively happy, it ran from stone to stone, flitting its tail, uttering its soft piping notes, and trilling as it mounted to hover, then descending to make polite bows to the intruder. No fighting was seen, but the many pairs were well spaced out. The *female* Cuckoo will appropriate an area, but only for laying in. A rookery is considered a unit with its own "territory," yet its constitution is the negation of the territorial idea. Jourdain is quoted (*l.c.*) as stating that it is against Rook-law to nest outside the colony. Many social birds are songsters, and in these cases it seems an attempt to fit the facts to the theory to call it "sub-song." Finches, Buntings, Warblers and Nightjars hold "territories," yet trespassers for food are not inevitably driven off, or even resented. Robins, which sing in winter, a habit correlated with "territory," and some other birds, are said to hold winter territories, but various writers point out that the areas held are

very vague and even communal. Only one flock of five Goosanders was seen in Scotland, amid many possible breeding places, but countless Oyster-catchers. Why? Few birds, and those of very special habit, can fail to breed for want of space in Britain. A colony of House-martins is restricted to a small section of sea-cliff near East Lulworth, with miles of untenanted cliff each side. Certain polygamous birds (Pheasants) are strongly territorial; so is the monogamous Moorhen. Birds at times change their territory, with or without compulsion, and its maintenance occasionally appears to depend on individual temperament. If the food supply of a tract where strict spacing occurs be examined, botanically or zoologically, according to the nature of the food of the birds quartered on it, no relation between supply and population is even roughly apparent. Food supply, normally, is not often short. Fighting is caused early in the season by sex jealousy, and later the pair will repel any creature which is likely to injure the young. Economic reasons are too abstract for a bird's comprehension. If graminivorous, it cannot foresee the crops to come, nor, if insectivorous, can it estimate the insect supply which constantly varies through weather and season. Struggles for definite nesting places, especially in the same species, seem rather infrequent, except for holes in trees and similar rarer sites. Scarcity of these, and of the species too, cause the sparse spacing-out of Kingfishers along a brook. A parallel study of mammals would be interesting and informative. Fighting moods are often controlled by gregarious instincts and the necessity for collective hunting. Nesting pairs of Reed Buntings and Grasshopper Warblers observed here confine themselves to special areas, but the reason seems a random habit of the past. Three pairs of Magpies have nested of late years close together in a small wood, attracted by the protection given, without ado. Usually a small wood or a spinney apiece is required, as with Nightingales. On the other hand, one pair of Jays would not allow a second in the area. Curlews nest in Dorset and Hampshire, where they are scarce in widely separated pairs, but a large colony may occur in Devon where they are more frequent. Here, Greenfinches are rare, and their nests are scattered, but in Kent and Dorset they occurred in colonies in gardens. It is certain that social and colonial birds succeed as well in the struggle for existence as others.

In his last book (*Evolution of Habit in Birds*, 1933), E. Selous pleads with grim humour for fewer museum specimens, less classification and more study of mentality and habits. But the collector takes little toll compared with industry and ruined haunts, fashions and sport. Selous has already written on "thought-transference" in birds: the communication of the impulse which makes hundreds of birds collect, and sets them in motion on a

common course. What is the force behind those understandings which exist between birds in all their relations? Selous traces, in the present book, much of the mock-fighting (*cf.* certain human duels!) of male birds to an atrophy of the fighting impulse by natural selection. Real combat, with ensuing death or mutilation, would be too injurious to the race. Routine habits are formed through generations of experience. Nest-building arises from actions of courtship by which at first hollows are made in the ground, or grass is torn up. Sex and other associations elaborate these and other tendencies into corresponding instincts. "Display" and bright colours are brought about by sexual selection under physiological reactions. Selous supports the "territory" idea, but rightly admits that it is clearly impossible that any abstract conception of "territory," as *its own*, can be in the mind of any bird. There is recognition of the actual possession of a mate, young, nest, and a certain jealously guarded region around. Afterwards a memory of these things exists to serve as next season's title-deeds. Domestic cleanliness is brought about by a nutritive impulse, and the habit of taking care of the young will develop as associated with the parents' own feeding instincts, the constant demand of the nestlings, and "thought transference." Song is a form of "display": at times alluring, or challenging, or, if a rival be repelled, triumphant. At last, it may be poured forth for its own sake and the pleasure of the music. Selous attributes the strange storing of acorns by one of the woodpeckers to an inherited habit, which has become almost a blind and useless instinct. Once done for food, then repeated, owing to pleasurable gustatory and mechanical association, until its very banality gave satisfaction: an experience not unknown to skilful craftsmen and adepts at our own games and sports. Some of the above theories, if applied to explain habits, of surely the same origin, in the Mammalia, and even in insects and other Classes, are not convincing, *e.g.* squirrels and dormice make nests for their young, and also as winter refuges. Badgers have a very elaborate sanitary system. On the other hand, could not "play," that outlet for overflowing energy, account in part for some of the mock-fighting and "display," as amongst quadrupeds, where a seeming very savage fight which may be between either males, females or young, will not cause the slightest abrasion on either combatant?

Much gratification will be felt by bird-lovers at the passing of the last Bird Protection Act.

My warmest thanks are due to several friends for very valuable and interesting notes and other communications, especially to Dr. C. R. Haines, M.A., of Petersfield, Mr. H. Lea, of Linwood, and Mr. George Marples, A.R.E., A.R.C.A., of Sway.

HAMPSHIRE PLANT NOTES FOR 1932 AND 1933

Compiled by PATRICK M. HALL, F.L.S.

THE following records of plant occurrences in Hampshire are the outcome of field-work during the two seasons—1932 and 1933—which have elapsed since the last series of Notes in these *Proceedings*. These notes have been condensed from a larger mass of material with the object of excluding reference to stations already recorded. Except, therefore, in a few cases, where the continued existence of a plant in a particular station appears to be of especial interest, these records are either of new stations for plants already known to occur within the county or of definite additions to the county flora.

For the purpose of recording the topographical distribution of British plants, the late H. C. Watson propounded a system by which England, Wales and Scotland are divided into 112 vice-counties. Hampshire and the Isle of Wight comprise three of these Watsonian vice-counties, *viz.* :—v.-c. 10 Wight, v.-c. 11 South Hants and v.-c. 12 North Hants. S. Hants comprises Townsend's botanical districts I, II, III, VI (2), VII (2), VIII and that part of IX lying South of Petersfield. N. Hants comprises districts II (the small detached northern portion), VI (1), VII (1), that part of IX lying north of Petersfield, X, XI and XII.

The following list of records includes no less than fifteen new county records, six for S. Hants v.-c. 11 and nine for N. Hants v.-c. 12. Of the fifteen, five are additions to the Flora of the whole county, while one is an addition to the Flora of mainland Hampshire. These additions are tabulated below for the convenience of readers who may not wish to go through the whole of the notes in detail :—

New Records for S. Hants v.-c. 11.

Viola contempta Jord.*Viola monticola* Jord.*Alchemilla minor* Huds.*Sorbus pinnatifida* Ehrh. New to Hants.*Zannichellia pedunculata* Reichb. New to Hants.*Poa bulbosa* Linn. New to mainland Hants.

New Records for N. Hants v.-c. 12.

Viola alpestris Jord. New to Hants.*Viola Lloydii* Jord.*Potentilla verna* Linn. New to Hants.*Tillaea muscosa* Linn.*Callitriche vernalis* Linn.*Valerianella carinata* Lois.*Mentha piperita* Linn.*Hydrocharis Morsus-ranae* Linn.*Potamogeton trichoides* Cham. and Schlecht. New to Hants.

In addition, *Chenopodium glaucum* Linn. and *Potamogeton panormitanus* Biv.-Bern. are here recorded for N. Hants : neither of the plants is recorded in Townsend's Flora or Rayner's Supplement thereto, though both are given for v.-c. 12 in Druce's *Comital Flora of the British Isles*.

This comparatively large number of additions in such a short space of time is a matter of great encouragement to those who are engaged in mapping the County's flora and leads one to the reasonable hope that there are many other interesting discoveries awaiting us. It might have been thought that an area such as Fleet Pond, which has been intensively explored by many distinguished botanists over a long period of years, would not be productive of additional records. Yet within the last two years *Ranunculus Lingua*, *Hydrocharis Morsus-ranae*, and *Potamogeton trichoides* have all been found there for the first time, besides other plants such as *Wahlenbergia hederacea* which, though known to be plants of the district, have not until now been actually recorded from that locality. In this connection it should be borne in mind that the floras of such sheets of water as Fleet Pond and Sowley Pond are peculiarly liable to change owing to importations by wildfowl.

Most of the additions in North Hants are due to the observations of Lieut.-Colonel G. A. R. Watts, who in migrating from Tiverton to Fleet has proved a powerful reinforcement to the ranks of Hampshire field-botanists. Mr. G. W. Pierce moved in 1932 from Owslebury to West Wellow, with the result that he is already beginning to make discoveries in his new district. Assistance in the form of plants, notes or guidance has also been given by Lieut.-Colonel W. A. Payn (Andover), the Hon. W. J. L. Palmer (Blackmoor), the Right Hon. H. T. Baker (Sparsholt), Mr. F. Escombe (East Meon), Mr. W. Simpson (Andover), Mr. J. Staley (Hayling), and many other ladies and gentlemen. I am also indebted for the naming of critical specimens to the authorities of the British Museum (Natural History) and Kew, Mr. W. H. Pearsall, Mr. J. Fraser and the late Dr. Drabble, whose lamented death will be an especially heavy blow to botany in the Isle of Wight.

In the following notes the symbol ! indicates that I have seen specimens from the recorded station, and !! that I have seen the plant *in situ*. The numbers are those of the *London Catalogue of British Plants*, Eleventh Edition.

12. *Adonis autumnalis* Linn. VI (1). Harewood, near Andover, Simpson!
13. *Myosurus minimus* Linn. VIII (3). Castle Farm, Southwick, Hall.
17. *Ranunculus heterophyllus* Weber. XI. Fleet Pond, Watts.
- 17c. Ditto, var. *submersus* Bab. VI (2). Lockerley, Payn.
20. *R. sphaerospermus* Boiss. and Bl. XI. Canal near Odiham, Watts and Hall.
26. *R. sceleratus* Linn. VIII (3). Farlington marshes, Hall. XI. South of Fleet, Watts.

- 28b. *R. Flammula* Linn. var. *radicans* Nolte. XI. Fleet, Watts.
31. *R. Lingua* Linn. IV (1). My note in the *Proceedings*, Vol. XII, p. 82, stating that the Freshwater plant was var. *glabratus* Wallr. should be deleted. The late Dr. Drabble has shown that the hairs in this species are caducous. My note was based on specimens gathered late in the season which had become nearly glabrous. Specimens gathered in an earlier stage this year were found to be strongly pubescent. XI. Fleet Pond, Watts! an important record, only the second for N. Hants, the other being in district VII (1).
38. *R. parviflorus* Linn. VIII (2). Roadside at Hill Head, Hall: first record for sub-district.
65. *Papaver Argemone* Linn. XI. Fields near Crookham, Watts.
- 83b. *Fumaria officinalis* Linn. var. *elegans* Pugsley. VIII (3). Garden weed, Park Farm, Hambledon, Hall.
90. *Nasturtium sylvestre* R. Br. XI. Waste ground, Fleet, Watts.
91. *N. palustre* DC. XI. Fleet Pond, Watts.
95. *Barbarea intermedia* Bor. VII (2). Chicken-run by West Meon Station, Watts: first record for district.
96. *B. verna* Aschers. XI. Waste ground, Fleet, Watts: first record for district.
104. *Cardamine amara* Linn. VI (1). Longparish, Payn: first record for sub-district.
- 117b. *Erophila verna* E. Meyer var. *majuscula* (Jord.). XI. Canal bank, Fleet, Watts, teste Drabble.
130. *Sisymbrium Columnae* Jacq. VI (1). Andover (2). Dunbridge Station, Payn.
131. *S. Sophia* Linn. VI (2). Lockerley, Payn.
134. *Erysimum cheiranthoides* Linn. XI. Fleet, Watts.
155. *Lepidium ruderalis* Linn. VI (2). Lockerley, Payn.
157. *L. sativum* L. VI (2). Alien, Dunbridge Station, Payn. According to the British Museum authorities this may be var. *latifolium* DC., which, if confirmed, would be an addition to the British List.
161. *Thlaspi arvense* Linn. VIII (3). Arable field on Portsdown above Porchester, Hall. XI. Near Fleet, Watts.
165. *Iberis amara* Linn. XI. Oakley, Basingstoke, Payn.
166. *Teesdalia nudicaulis* Br. XI. On and near Bramshot Links, plentiful, Watts. !!
- *Neslia paniculata* Linn., a cruciferous alien not previously recorded from the county. VI (2). Dunbridge Station, Payn. XI. Crookham, Watts.
172. *Raphanus Raphanistrum* L. V (2). Lower Yard, Godshill, Hall: the yellow-flowered form which is var. *flavus* Druce or more correctly var. *flavus* Schub. and Mart.
176. *Reseda Luteola* Linn. XI. By Fleet Station, Watts.
184. *Viola palustris* Linn. XI. Near Fleet, Watts.
- 187b. *V. Riviniana* Reichb. var. *diversa* Gregory. II. Blagdon Hill, Hall.
- 189b. *V. canina* Linn. var. *ericetorum* Reichb. VII (1). Itchen Stoke Down, on chalk, Hall.
- *V. contempta* Jord. VIII (1). Near Shedfield, Hall, teste Drabble: first record for S. Hants. XI. Silchester, Miss E. S. Todd. !
- Ditto, var. *patula* Drabble. XI. Near Crookham, Watts, teste Drabble.
- 193b. *V. variata* Jord. var. *sulphurea* Drabble. VII (1). Micheldever, Hall, teste Drabble.
- 193c. *V. monticola* Jord. VIII (3). Horndean, Hall, teste Drabble: first record for S. Hants.
- *V. alpestris* Jord. VII (1). Near Alresford, Hall, teste Drabble: first record for Hants.

195. *V. Lloydii* Jord. XI. Near Crookham, Watts, teste Drabble : first record for N. Hants.
- 195b. *V. Lejeunei* Jord. XI. Near Crookham, Watts, teste Drabble.
210. *Polygala calcarea* F. Schultz. VII (1). Ichen Stoke Down, Hall.
255. *Moenchia erecta* Gaertn. XI. Bramshot Links, Watts.
268. *Arenaria tenuifolia* Linn. XI. Old Basing, Watts. !
297. *Claytonia alsinoides* Sims. X. Blackmoor, in Lord Selborne's Pinetum, Palmer. !! Not recorded in Townsend or Rayner but given for N. Hants in Druce's *Comital Flora*.
298. *C. perfoliata* Donn. XI. Fleet, plentiful, Watts.
299. *M. fontana* L. VIII (3). Hayling Island, Staley. !
301. *Elatine hexandra* DC. XI. Fleet Pond, still plentiful, Watts. !!
327. *Malva pusilla* Sm. XI. By canal between Fleet and Aldershot, Watts, teste Drabble.
343. *Geranium pyrenaicum* Burm. fil. VI (2). Near Ashley, Baker and Hall.
- 352b. *Erodium cicutarium* L'Hérit. var. *pimpinellaefolium* (Sibth.). XI. Sandy fields round Fleet, plentiful, Watts.
372. *Genista anglica* Linn. XI. Near Fleet, Watts.
374. *G. tinctoria* Linn. XI. Near Fleet Polo Ground, Watts.
414. *Trifolium agrarium* Linn. XI. Pondtail, Fleet, and as a garden weed, Watts. !!
- 415b. *T. procumbens* L. var. *majus* Koch. XI. Sandy field near Bramshot Links, Watts. !!
418. *Anthyllis Vulneraria* Linn. XI. By Fleet Station, Watts.
431. *Ornithopus perpusillus* Linn. XI. Sandy ground near Fleet, plentiful, Watts.
- *Spiraea tomentosa* Linn. XI. Quite naturalized in a copse near Crookham, Watts.
595. *Geum rivale* Linn. XI. Fleet and Crookham, Watts.
598. *Potentilla norvegica* Linn. XI. Roadside between Fleet and Aldershot, Watts, possibly the station described as "near Aldershot" in Rayner's Supplement.
600. *P. verna* Linn. VI (1). Railway bank, Micheldever Station, Watts. !! First record for Hants. This is a limestone plant, whose nearest known habitat is at Bristol : it has presumably been transported to Micheldever by the agency of the railway.
603. *P. procumbens* Sibth. VIII (2). Henwood, E. Meon, Escombe.
611. *P. palustris* Scop. XI. Fleet Pond and marsh near Brooke House, Watts.
617. *Alchemilla minor* Huds. VI (2). Near West Wellow, Hall and Pierce : first record for S. Hants.
628. *Agrimonia odorata* Mill. XI. Bramshot and Crookham, Watts.
630. *Poterium polygamum* Waldst. and Kit. VIII (2). Henwood, East Meon, Escombe.
631. *P. officinale* A. Gray. II or III (1). Near Burley, Miss Hardcastle.
- *Sorbus pinnatifida* Ehrh. = *S. Aria* × *Aucuparia*. VI (2). Ashley, Hall and Baker, teste Wilmott : first record for Hants.
- *Crataegus Crus-galli* Linn. VI (2). Mottisfont, Payn.
- *Amelanchier canadensis* Med. VI (2). Near West Wellow, Pierce. !! XI. Canal bank near Fleet, Watts. This handsome flowering shrub or small tree is now widely planted in gardens and is becoming naturalized in many places, presumably bird-sown.
726. *Tillaea muscosa* Linn. X. Blackmoor, Palmer !! : first record for N. Hants. Occurs in several places in the sandy parts of Woolmer Forest and it is rather remarkable that it should have been overlooked in a district where its occurrence was to be expected.

746. *Myriophyllum spicatum* Linn. XI. Basingstoke Canal, Watts and Hall.
748. *Callitriche vernalis* Koch. VIII (3). Farlington marshes, Hall. XI. Near Brook House, Fleet, Watts. First definite record for N. Hants for the segregate. Both teste Pearsall.
752. *C. obtusangula* Le Gall. XI. Near Fleet, Watts.
753. *Pepelis Portula* Linn. XI. Near Fleet, Watts.
756. *Lythrum Salicaria* Linn. XI. Fleet Pond and Basingstoke Canal, Watts. !!
764. *Epilobium roseum* Schreb. VIII (3). Garden weed, Fareham, Hall.
765. *E. tetragonum* Linn. VIII (2). Henwood Copse and Down, East Meon, Escombe.
766. *E. obscurum* Schreb. VIII (2). Rookham Copse and Henwood, East Meon, Escombe.
771. *Ludwigia palustris* Elliott. III (2). I have seen this plant for the last three years growing in a station south-east of Lyndhurst, in great abundance. It was also discovered in an entirely new station several miles further south by Mrs. Tindall in 1932, and again independently by Mrs. Ashby in 1933, in considerable quantity. Thus, although it seems to have become very scarce or to have disappeared entirely from Highland Water, there is no immediate cause of alarm for the safety of this rare species.
772. *Oenothera biennis* Linn. XI. Railway bank near Fleet, Watts.
- 839b. *Heracleum Sphondylium* Linn. var. *angustifolium* Huds. VIII (2). East Meon, Escombe.
841. *Coriandrum sativum* Linn. VI (2). Dunbridge Station, Payn.
880. *Valeriana dioica* Linn. XI. Fleet Pond and Basingstoke Canal, Watts.
888. *Valerianella carinata* Lois. XI. Wall, Old Basing, Watts !: first record for N. Hants.
900. *Aster salignus* Willd. XI. Fleet Pond, Watts, teste Kew.
901. *A. Novi-Belgii* Linn. XI. Fleet Pond, Watts.
- *A. Tradescantii* Linn. XI. Fleet Pond, Watts, teste British Museum.
904. *Erigeron canadense* Linn. XI. Waste ground near Fleet, plentiful, Watts.
910. *Filago minima* Fr. var. *supina* Rony and Camus. XI. Pondtail, Fleet, Watts and Hall, teste Drabble.
928. *Bidens tripartita* Linn. XI. Fleet Pond, Watts.
- 985d. *Cnicus arvensis* Hoffm. var. *setosus* (Bess.). VI (2). Dunbridge Station, Payn. XI. North side of Fleet Pond, Watts.
987. *Silybum Marianum* Gaertn. XI. Near Bramshot, one plant, Watts.
1007. *Cichorium Intybus* Linn. XI. Between Fleet and Aldershot, Watts.
1008. *Arnoseris minima* Schweigg and Koerte. XI. Near Bramshot Links, abundant, and Crookham, Watts. !!
1009. *Lapsana communis* Linn. var. *pubescens* Koch. XI. Fleet, Watts.
1017. *Crepis biennis* Linn. XI. Winchfield, Watts.
1295. *Wahlenbergia hederacea* Reichb. XI. Fleet Pond, Watts. !
1301. *Campanula rapunculoides* Linn. VI (2). Near West Wellow, Pierce. !!
1386. *Menyanthes trifoliata* Linn. XI. Fleet Pond and Basingstoke Canal, Watts.
- *Lappula echinata* Gilib. XI. Bramshot, Watts.
1408. *Myosotis sylvatica* Hoffm. XI. Quarry near Upton Grey, presumably not native but well-established, Watts.
1424. *Solanum nigrum* Linn. var. *luteo-virescens* (Gmel.). II. Mudeford, J. W. Long.
1427. *Datura Stramonium* Linn. II. Mudeford, J. W. Long.
1428. *Hyoscyamus niger* Linn. XI. Fleet, Watts.

1435. *Verbascum Blattaria* Linn. VI (2). Near West Wellow, Pierce. !!
 1437. *Linaria Elatine* Mill. VIII (3). North Farm, Catherington, Hall.
 1438. *L. spuria* Mill. VIII (2). East Meon, peloriate form, Escombe. !
 1446. *Antirrhinum Orontium* Linn. XI. Bramshot, and between Fleet and Crookham, Watts.
 1452. *Mimulus Langsdorfii* Donn. VIII (2) or (3). Oxenbourne, Escombe. XI. Fleet Pond, Watts.
 1471. *Veronica officinalis* L. VIII (3). S. Hayling, E. S. McEuen. !
 1491. *Euphrasia anglica* Pugs. III (1). Near Lyndhurst, Herb. Druce, teste Pugsley. Appears as *E. Rostkoviana* Hayne in Rayner's Supplement.
 1527. *Utricularia major* Schmidel. IV (1). Easton marsh, flowering Sept. 1933, Hall. Correctly recorded as this species in Rayner but Townsend gives *U. vulgaris*, which is incorrect. I think only one species is found there.
 1536. *Verbena officinalis* Linn. XI. Canal bank near Odiham, Watts. !!
 1541. *Mentha piperita* Linn. XI. Crookham, Watts, teste Fraser: first record for N. Hants.
 1544. *M. rubra* Sm. XI. Near Winchfield Station, and between Winchfield and Odiham, A. L. Still: first record for district.
 1545. *M. gentilis* Linn. VIII (2). East Meon, Escombe, teste Fraser.
 1547. *M. arvensis* Linn. and forma *hirtipes* Fraser. VIII (2). East Meon, Escombe, teste Fraser.
 1559. *Melissa officinalis* Linn. XI. Waste ground near Hook Station, Watts.
 1563. *Salvia verticillata* Linn. XI. By Bramshot Links, Watts.
 1571. *Marrubium vulgare* Linn. IX. Waste ground near Petersfield, Watts: first record for district.
 1585. *Lamium amplexicaule* Linn. XI. Crookham, Watts.
 1594. *Teucrium Botrys* Linn. VI (1). Harewood, Simpson, ! an interesting extension of range.
 1601. *Ajuga Chamaepitys* Schreb. VI (1). Still near Harewood, Simpson. !
 1619. *Amaranthus retroflexus* Linn. VI (2). Lockerley, Payn.
 1621. *Chenopodium polyspermum* Linn. IV (4). Garden weed, Fishbourne Ferry, Hall. XI. Crookham, Watts.
 1632. *C. rubrum* Linn. XI. Laffan's Plain, close to canal, Watts: first record for district.
 1634. *C. glaucum* Linn. XI. Laffan's Plain, close to Canal, Watts: not recorded in Townsend or Rayner for the mainland of Hants, but Druce's *Comital Flora* gives it for North and South Hants.
 1667. *Polygonum minus* Linn. XI. Fleet Pond, Watts.
 1668. *P. laxiflorum* Weihe. XI. Fleet Pond, Watts.
 — *P. cuspidatum* Sieb. and Zucc. XI. By Aldershot Club, abundant, Watts.
 — *P. polystachyum* Wallich. XI. Between Fleet and Crookham, plentiful and quite naturalized, Watts.
 1715. *Euphorbia Cyparissias* Linn. XI. Roadside, Fleet, casual, Watts.
 — *Cannabis sativa* Linn. VIII (3). South-east corner of Portsea Island near the Hayling Ferry, Palmer, a single ♂ plant. !!
 1779. *Hydrocharis Morsus-ranae* Linn. XI. Ditches of Fleet Pond, Watts: first record for N. Hants.
 1785. *Listera cordata* Br. III (1). Further details are now available of the discovery of this species near Brockenhurst by Mr. R. Findlay in 1929. Five plants were discovered among heather, on open heath, about 200 yards from a plantation of Scotch Fir. Two specimens were seen in 1930 but none in 1931 or 1932.

1797. *Epipactis latifolia* Sw. VI (2). Wood near Sherfield English, Pierce. !! Specimens, which were rather withered, were sent to the British Museum for naming and it was suggested that this plant might be *E. leptochila*, but this was not the case.
1810. *Orchis praetermissa* Dr. $\times$ *Gymnadenia conopsea* Br. VII (2). One specimen of this hybrid at Cheesefoot Head, 1932, Rev. R. Quirk, teste Kew.
1813. *O. Fuchsii* Dr. $\times$ *G. conopsea* Br. VII (2). Eleven specimens of this hybrid at Cheesefoot Head, 1932, Rev. R. Quirk, teste Kew.
1833. *Crocus officinalis* Huds (*vernus* All.). X. Near Holywater, Palmer, !! with *Ornithogalum* and *Galanthus*. See note in Flora.
1853. *Polygonatum multiflorum* All. XI. Near Fleet Polo Ground, Watts.
1856. *Convallaria majalis* Linn. VI (2). Wood at N. Baddesley, Purefoy Fitzgerald.
1874. *Ornithogalum umbellatum* Linn. X. Holywater, Palmer and Hall : first record for district. XI. Near Bramshot Links, Watts.
1891. *Juncus tenuis* Willd. VIII (2). East Meon, Escombe. ! XI. Pond-tail, Fleet, and Laffan's Plain, Watts. !!
1947. *Potamogeton alpinus* Linn. var. *Palmeri* Dr. XI. Canal at Odiham, Watts and Hall, teste Pearsall.
1963. *P. obtusifolius* Mert. and Koch. XI. Canal between Fleet and Aldershot, Watts.
1964. *P. Friesii* Rupr. XI. Canal at Odiham, Hall and Watts, teste Pearsall.
1967. *P. panormitanus* Biv.-Bern. XI. Fleet Pond, Hall and Watts, teste Pearsall. Has been previously recorded for N. Hants, though not given in Flora or Supplement.
1969. *P. trichoides* Cham. and Schlecht. XI. Fleet Pond, Hall and Watts, teste Pearsall : first record for Hants.
1974. *Ruppia rostellata* Koch. VIII (3). Brackish ditch at East Stoke, Hayling, Hall.
1976. *Zannichellia pedunculata* Reichb. VIII (3). Farlington marshes, Hall, teste Pearsall : first record for Hants.
1987. *Eleocharis acicularis* Roem. and Schult. XI. Fleet Pond, Watts. !!
1991. *Scirpus pauciflorus* Lightf. III (1). Holmsley Bog, A. L. Still. !!
1994. *S. fluitans* Linn. XI. Fleet Pond and Basingstoke Canal, Watts.
2003. *S. sylvaticus* Linn. XI. Near Crookham, Watts.
2066. *Carex pallescens* Linn. VIII (2). Henwood and Rookham Copse, East Meon, Escombe.
- 2088b. *C. riparia* Curt. var. *gracilis* Coss. and Germ. XI. Canal bank Dogmersfield, Watts.
2090. *C. vesicaria* Linn. XI. Fleet Pond, Watts.
2166. *Catabrosa aquatica* Beauv. X. Waggoner's Wells, J. E. Lonsley : first record for District X.
2175. *Poa bulbosa* Linn. VIII (3). South Hayling, Staley 1932, seen by me in 1933 but in great danger from the parking of cars : first record for the mainland of Hants.
2195. *Glyceria rupestris* E. S. Marshall. VIII (3). North Hayling, Hall.
2328. *Azolla filiculoides* Lam. II. Mudeford, J. W. Long.

A NOTE ON THE GENUS *SPARTINA*

By PATRICK M. HALL, F.L.S.

THE genus *Spartina*—Cord-grass—is of particular interest to Hampshire botanists for the reason that ours is almost certainly now the only county in which all three British species can be found and one of them, moreover, actually originated on the shores of Southampton Water. It is therefore hoped that a short account of the history, distribution and characteristics of the species representing the genus in Britain will be of interest to the members of this Club. At the exhibits meeting held at Winchester early in October, 1933, I displayed a number of dried specimens of plants of interest to Hampshire botanists, among them examples of the three *Spartinas*, together with a short descriptive note: at the request of one or two members that note is published here in a slightly extended form.

The three British species of *Spartina* are:—

1. *S. stricta* Roth.; a native plant of the south and east coasts of Britain. With the exception of Dorset this species has been recorded from all the littoral counties from S. Devon eastwards and northwards to Lincolnshire. The earliest British record is in Merrett's *Pinax*, 1666, where it is recorded from Crixey Ferry, Essex. The first Hants record is in the *Hampshire Repository*, 1799, near Portsmouth Harbour. It is clear from the list of habitats given in Townsend's *Flora of Hants* that it was at one time common along the coasts of S. Hants and the Isle of Wight, wherever salt-marshes and estuarine mud-flats suitable to the plant's growth were to be found. But it has now been practically exterminated in the county by the third species to be mentioned below. At the present time it is doubtful whether this species is to be found on the mainland of Hants, but it occurs in considerable plenty in one or two saltmarshes in the Isle of Wight. This species has a wide distribution in Western and Southern Europe, N. Africa and N. America.

2. *S. alterniflora* Lois.; this species is believed to be of N. American origin and to have been accidentally introduced from that country to the estuary of the Itchen, whence it was recorded by Bromfield on August 8th, 1836. Thence the plant spread in such a manner that we find the following records in Townsend's *Flora*:—

- “profusely on the mud-flats of the Itchen river (1850)”;
- “mud-banks on the Hamble, abundant (1871)”;
- “abundantly at Hillhead (1872)”;
- “now (1879) abundant by the Itchen.”

Since the paper on *Spartina* has been printed it has come to my knowledge that *S. stricta* does still exist in at least one station on the mainland of Hampshire. By the kindness of Mr. N. D. Simpson of Bournemouth I have been able to see a good colony of this species on Hayling Island.

P. M. H.

September 17th, 1934.

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The range of the species in Hampshire extended ultimately from Lymington in the west to the mouth of the Meon in the east. Outside Hampshire the only British record for this species is from Thorney Island in the extreme west of Sussex, and it is very doubtful whether it is still to be found there. In Hampshire, as far as is known, this species is now confined to two stations, in the estuaries of the Itchen and Test respectively, where it contrives to maintain a rather precarious existence. This species was also introduced from N. America to France and N. Spain.

3. **S. Townsendii** H. & J. Groves. The origin of this plant is unknown, but it is now generally considered to be a hybrid resulting from the crossing of the two foregoing species. It was first recorded by Messrs. H. & J. Groves from mud-flats near Hythe in 1878. From this point it must have spread for a time more or less slowly, because in the second edition of the *Flora* published in 1904 it was still possible for Townsend to describe the plant as "rare." It had by that time extended to Lymington estuary, the Medina (1895), Langstone Harbour and Hayling Island (1900). It had appeared in West Sussex sometime before 1903, as it is given for that county in the First Supplement of *Topographical Botany*. From the Second Supplement of the same work it appears to have been recorded from Dorset (1905), North Somerset (1918) and West Gloucestershire (1923). In recent years the plant has increased in the most remarkable manner and having practically submerged its two presumed parents, it has occupied the whole of the mud-flats of the creeks, estuaries and harbours of South Hampshire and the Isle of Wight. It has extended eastwards to Sussex and Kent, westwards to Dorset, and north-westwards to the estuaries of the Severn and Mersey.

Townsend (*Flora*, 2nd Edition, p. 481) was strongly of the opinion that the plant was a species: the discoverers of the plant originally described it as a variety of *S. stricta*, but subsequently (*Journal of Botany*, 1882) they described it as a species. In more recent years the theory has been gaining ground that this plant was of hybrid origin and this theory has been greatly reinforced recently by cytological study, that is by investigation of the structure and growth of the cells of tissue of which the plant is composed. It will be generally known that hybrids are usually variable: this arises from the imperfect fusion in varying degrees of the gametes of the two parents, so that the offspring vary more or less in their resemblance to one or other parent. Very occasionally such complete fusion takes place that the offspring contains the whole of the elements of both parents: this process is known as "allopolyploidy." Normally hybrid offspring are sterile as well as variable: the offspring resulting from allopolyploidy, known as polyploid

hybrids, are exceptionally vigorous, uniform, and fertile, they breed true and behave in every way exactly as true species. A well-known example of a polyploid hybrid is the garden hybrid *Primula Kewensis*. It has been found that the number of chromosomes in the growing cell of *S. Townsendii* is 126, which number is the sum of the chromosome-numbers of *S. alterniflora* = 70 and *S. stricta* = 56. *S. Townsendii* therefore fulfils all the requirements of a polyploid hybrid and this theory of its origin explains how it has obtained the vigour which has enabled it to spread and supplant its parents. Incidentally it may be said that both theories of the origin of the plant were in a sense correct : it is at once a hybrid and a species.

This plant has also appeared in N. France and is believed there to have been of similar spontaneous origin. Owing to the rapidity with which the plant establishes itself on bare mud and forms islands by holding up silt, it has been used extensively in East Anglia and Holland for experiments in the reclamation of land.

The principal characteristics, by which the three species may be distinguished, are as follows :—

Habit.

<i>stricta</i> .	Short and very rigid, 1-2ft.
<i>alterniflora</i> .	Taller and much more graceful, up to 3ft. or more.
<i>Townsendii</i> .	Rigid, 1-4ft.

Spikes.

<i>stricta</i> .	2-3 pressed closely together.
<i>alterniflora</i> .	6-8 loosely pressed together.
<i>Townsendii</i> .	4-9 rather spreading.

Rachis (*i.e.* the central stem of the spike from which the spikelets branch off).

<i>stricta</i> .	Scarcely extending beyond the last spikelet.
<i>alterniflora</i> .	Produced beyond the spikelets and flexuose.
<i>Townsendii</i> .	Produced beyond the spikelets and flexuose.

Outer glumes.

<i>stricta</i> .	Hairy.
<i>alterniflora</i> .	Glabrous except on the mid-rib.
<i>Townsendii</i> .	Slightly downy.

Leaves.

- stricta*. Jointed to the sheaths, broadest below the middle but **narrowing to the actual base, breaking off very easily at the joint with the sheath.**
- altcrniflora*. Not jointed to the sheaths but continuous, broadest at the base and **very long, tapering and slender, equalling and often overtopping the flowering spikes ; the leaves are erect and parallel to the stems.**
- Townsendii*. Jointed to the sheaths but not breaking off as in *stricta*, broadest at the base where prominent **auricles or shoulders project on either side** beyond the outline of the stem ; **the leaves stand away at a considerable angle from the stem.**

NOTE.—The characteristics of the leaves alone are quite sufficient for the identification of the three species, which can be very simply told apart by attention to the characters emphasized above.

BOTANICAL RAMBLE IN HAYLING ISLAND

Director : REV. H. PUREFOY FITZGERALD, F.L.S.

ON 13th June, 1933, a party of about fifty members met near the Ferry in Hayling Island to explore the marshy swamps and the sand dunes. The weather at first looked threatening, but it cleared up and we were fortunate in having no rain at all. Owing to the exceptional season, some plants, which should have been in bloom, were over, and others were not advanced sufficiently ; but there were a great many flowers to be found which were unknown to many of the members, including several that are not to be found except in this and similar seaside localities.

Permission to wander over the Golf Links was kindly arranged for ; in the morning the marshy ground yielded many interesting plants, and after lunch the party wandered at will over the extensive Golf Links to find a totally different flora on the sand dunes.

The members met for tea, after which the Director talked for a short time about the most interesting of the plants that had been found, dealing especially with the strange life-history of the *Spartina* (cord-grass); this has been fully dealt with in these *Proceedings* by Mr. P. M. Hall.

Most of the members then went off to the Mosquito Control Institute, at the invitation of Mr. J. F. Marshall, where we were shown mosquitoes of all kinds and in all stages, and many interesting photographs. Our visit here was very enlightening and of great interest, and a hearty vote of thanks was passed to Mr. Marshall and his assistants.

The following is a list of the most noteworthy finds :—

Horned Poppy	..	..	..	..	<i>Glaucium luteum.</i>
Sea Rocket	..	..	..	..	<i>Cakile maritima.</i>
Smith's Cress (Field Pepperwort)	..	..	..	..	<i>Lepidium Smithii.</i>
Common Scurvy Grass	..	..	..	..	<i>Cochlearia officinalis.</i>
English Scurvy Grass	..	..	..	..	<i>Cochlearia anglica.</i>
Sea Heath	..	..	..	..	<i>Frankenia laevis.</i>
Dyer's Rocket	..	..	..	..	<i>Reseda luteola.</i>
Sand Spurrey	..	..	..	..	<i>Spergularia rubra.</i>
Greater Spurrey	..	..	..	..	<i>Spergularia marginata.</i>
Common Stork's Bill	..	..	..	..	<i>Erodium cicutarium.</i>
Sea Stork's Bill	..	..	..	..	<i>Erodium maritimum.</i>
Upright Rest Harrow	..	..	..	..	<i>Ononis campestris.</i>
Clovers	..	..	..	..	<i>Trifolium arvense, subterraneum, suffocatum, striatum, procumbens.</i>
Bird's Foot	..	..	..	..	<i>Ornithopus perpusillus.</i>
Evening Primrose	..	..	..	..	<i>Oenothera biennis.</i>
English Stonecrop	..	..	..	..	<i>Sedum anglicum.</i>
Biting Stonecrop	..	..	..	..	<i>Sedum acre.</i>
Sea Holly	..	..	..	..	<i>Eryngium maritimum.</i>
Parsley Water Dropwort	..	..	..	..	<i>Oenanthe pimpinelloides.</i>
Samphire	..	..	..	..	<i>Crithmum maritimum.</i>
Heath Bedstraw	..	..	..	..	<i>Galium saxatile.</i>
Creamy Hybrid Bedstraw	..	..	..	..	<i>Galium verum var maritimum.</i>
Sea Aster	..	..	..	..	<i>Aster Tripolium.</i>
Slender Thistle	..	..	..	..	<i>Carduus pycnocephalus.</i>
Sea Bindweed	..	..	..	..	<i>Convolvulus soldanella.</i>
Sheep's Bit	..	..	..	..	<i>Jasione montana.</i>
Bitter Sweet Nightshade	..	..	..	..	<i>Solanum Dulcamara.</i>
Speedwell	..	..	..	..	<i>Veronica officinalis var. glandula.</i>
Vipers Bugloss	..	..	..	..	<i>Echium vulgare.</i>
Sea Milkwort	..	..	..	..	<i>Glaux maritima.</i>
Thrift	..	..	..	..	<i>Armeria maritima.</i>
Sea Lavender	..	..	..	..	<i>Statice Limonium.</i>
Sea Plantain	..	..	..	..	<i>Plantago maritima.</i>
Sea Blite	..	..	..	..	<i>Suaeda maritima.</i>
Glass Worts	..	..	..	..	<i>Salicornia, various.</i>
Sea Beet	..	..	..	..	<i>Beta maritima.</i>
Asparagus	..	..	..	..	<i>Asparagus officinalis.</i>
Cord Grass	..	..	..	..	<i>Spartina Townsendi.</i>

FUNGUS FORAY

A FUNGUS Foray was held at Selborne on Thursday, September 7th, 1933, under the leadership of Mr. E. W. Swanton, A.L.S. The party (about thirty-five) met at Queen's Hotel and proceeded to the Common by way of the famous zig-zag path. Permission to explore for fungi had been given by Major Hampden Chawner, Hon. Secretary of the National Trust Committee for Selborne Common.

At the foot of the hill the leader read a paper concerning Gilbert White's interest in mycology, whilst members stood in the shade of a large sycamore tree whose leaves were badly attacked by the black spot fungus, *Rhytisma acerinum*.

The long-continued drought made conditions most unfavourable for field mycology and less than forty species were noted, the most conspicuous being *Polyporus giganteus*, which occurred in abundance, though imperfectly developed, at the base of several large beech trees; *Ganoderma applanatum*, a deadly parasite of beech; *Boletus pachypus*, and *Boletus luridus*.

After tea at Queen's Hotel, the "finds," also some species brought to the meeting by members, were exhibited, and commented upon by the leader.

Gilbert White's interest in Mycology.

Gilbert White, the zoologist and ornithologist, was a good botanist, and interested in cryptogams as well as phanerogams. The majority of his botanical observations are to be found in the *Garden Kalendar* and the *Naturalist's Journal*. White's serious interest in botany dates from 1765: he was then 45. In that year he bought Hudson's *Flora Anglica* and marked in it with a cross no less than 439 species of wild plants noted by him within the Parish of Selborne. Writing to Davies Barrington thirteen years later (see Letter XL), he emphasized the importance of the study of economic botany, the student "should be by no means content with a list of names . . . instead of examining the minute distinctions of every various species, the botanist should endeavour to make himself acquainted with those that are useful."

Before commenting on White's records of fungi, we will note what he has to say concerning one of the Mycetozoa or Fungus-animals. The Mycetozoa are not true fungi, they constitute a remarkable group of organisms having affinities with the animal kingdom.

In September 1765, White records, in the *Garden Kalendar*, finding around his melon frames something "of the fungus kind that seemed rather to be poured over the ground than to vegetate: it was soft and pappy, and about the consistence of thick milk, and of a very ill savour. . . Where I wounded it with a stick it sent

out a sort of bloody Ichor, and soon hardened into a dark substance, and is now turn'd into a fine impalpable dust." He remarks that he does not remember seeing the substance on other matrix than tan, so we may conclude he had come across *Fuligo septica*, the so-called "flowers of tan," a very abundant and cosmopolitan mycetozoon frequently found on heaps of spent tan in tanyards.

In 1893, James Britten enumerated, in the *Journal of Botany*, the fungi seen by Gilbert White. He listed thirteen species, overlooking *Peziza acetabulum*, *Boletus albus* and *Helvella mitra*, which are recorded in the *Naturalist's Kalendar*. The manuscript of the *Kalendar*, in six volumes, is in the British Museum, a careful examination of it may result in finding records additional to the sixteen here noted.

Agaricus cantharellus. It is the common Chantarelle (*Cantharellus cibarius*), a species highly esteemed as an article of food in France, Germany, Austria and Italy. It is golden yellow in colour and smells like ripe apricots.

Agaricus integer. Possibly *Russula integra* or a neighbouring species.

Agaricus lactifluus. Doubtless one of the many species of *Lactarius* that exude white "milk" when broken or cut.

Agaricus campestris. The common edible Field Mushroom (*Psaliota campestris*). White noted its appearing on June 26th and again on August 30th, 1785. In September of that year he informed his niece in London that he intended to have made some catchup for her and her father, "but the mushrooms fail again, as they did last year, to such a degree that we have not been able to raise half a pint." The summer of 1785 was very dry, for, in a previous letter to her (June 25th), White remarks that "the drought begins to be very serious and stubborn." White cultivated mushrooms. We read in the *Garden Kalendar*, September 1755, how a ridge was prepared and planted with mushroom spawn. An amusing note is added to the record: "N.B. I planted the S.E. side and Thomas the N.W." Apparently there was a friendly contest of skill between him and his gardener, Thomas Hoar.

Agaricus verrucosus. Possibly *Amanita pantherina* or an allied species with warty pileus.

Boletus versicolor. In the early days of mycology all the tube-bearing fungi, whether of fleshy or woody texture, were placed in the genus *Boletus*, and the gilled species were lumped under *Agaricus*. To-day the genus *Boletus* comprises putrescent soft species. White's *Boletus versicolor* is now known as *Polystictus versicolor*. It is a very common leathery species forming small zoned and imbricated flaps on dead stumps and branches.

Boletus igniarius. The "touchwood Boletus" of White's time and the *Fomes igniarius* of modern text-books. Hard amadou or touchwood, for use in tinder boxes with flint and steel, was prepared from it, but the best amadou was provided by a closely allied and equally frequent species, *Fomes fomentarius*. The genus *Fomes* comprises perennial species with stratose tubes, a new layer of tubes being added annually to the hymenial surface of the previous year. *Fomes igniarius* is a not uncommon wound parasite causing white "heart-rot" of various deciduous trees.

Boletus luteus. The name has not been changed. This Bolet is a very common inhabitant of fir woods and copses.

Boletus albus. White noted its arrival on August 14th. Which of the white-capped species was before him I cannot say.

Phallus impudicus. The common Stinkhorn, a very foetid frequenter of fir woods and often a nuisance in gardens and shrubberies. It appears early in summer. White records it under June 12th and July 23rd.

Clavaria pistillaris. A large and uncommon club-like species. I found it growing abundantly under beech trees on the steep slopes of the hanger near the Zig-zag in September, 1924.

Clavaria ophioglossoides. It may have been a *Geoglossum*, or perhaps a *Cordyceps*.

Lycoperdon tuber. In his short list of the more rare plants of Selborne communicated to Daines Barrington (see Letter XLI), White mentions "Lycoperdon Tuber; Truffles, in the Hanger and High Wood." It is the common Truffle, *Tuber aestivum*. In White's day truffle hunting was an industry in Kent, Sussex, Hampshire, and Wilts. (There is an interesting chapter upon it in M. C. Cooke's *Edible British Fungi*.) White refers several times to "these peculiar plants which have neither roots, nor branches, nor stems." He records that in the month of August "a truffle-hunter called on us, having in his pocket several large truffles found in this neighbourhood. He says these roots are not to be found in deep woods, but in the narrow hedgerows and the skirts of coppices. Some truffles, he informed us, lie two feet within the earth, and some quite on the surface; the latter, he added, have little or no smell, and are not so easily discovered by the dogs as those that lie deeper. Half-a-crown a pound was the price which he asked for this commodity. Truffles never abound in wet winters and springs. They are in season, in different situations, at least nine months in the year."

Lycoperdon bovista. The Giant Puffball. White notes its appearance on June 17th and September 3rd, and refers to a large specimen found near Alton which measured 37 inches in girth and weighed $7\frac{1}{2}$ lbs. There are later records of much larger ones. Here we may fittingly quote White's observations on "fairy rings" in pastures, a phenomenon of perennial interest to him. "The cause, occasion, call it what you will, of fairy rings subsists in the turf, and is conveyable with it; for the turf of my garden-walks, brought from the Down above, abounds with those appearances, which vary their shape, and shift situation continually, discovering themselves now in circles, now in segments, and sometimes in irregular patches and spots. Wherever they obtain, puffballs abound; the seeds of which were doubtless brought in the turf." In this observation White partly anticipated Withering, who, sixteen years later, in 1796, definitely associated fungi (*Marasmius oreades*) with these rings. The puffball usually found on "fairy-rings" on Downs is *Lycoperdon caelatum*, and very likely it was this species that appeared on the turf of White's garden walks. It may be noted that many species of fungi parasitic on grasses cause "fairy-rings" to appear. In each ring there is an outer and an inner zone of dark green grass separated by a light-coloured zone of grass killed outright by mycelium. In the outer and narrower green zone there is but little mycelium present, and this mycelium stimulates the grass for a time in the early stage of attack. The grass of the broad inner zone is very vigorous in growth because that zone had been well manured by dead fungi and plant remains. It is curious that White does not record the association of the Fairy-ring Champignon (*Marasmius oreades*) and the St. George Mushroom (*Tricholoma gambosum*) with "fairy-rings" in his district, for these two common species must have come under his notice during his walks on the Downs.

Helvella mitra. An autumnal ascomycete recorded in the *Journal* on November 16th. Two or three species may have been included, viz. *Helvella crispa*, *H. lacunosa* and *H. elastica*.

Peziza acetabulum. The *Acetabula vulgaris* of modern text-books. A not uncommon vernal ascomycete recorded in the *Journal* under January 23rd. It usually appears in March or April.

The above sixteen species is but a meagre list, yet we gather from it that White's interest in fungi was maintained throughout the year, and not confined to autumnal months when fungi are usually very abundant.

E. W. SWANTON.

REPORT ON FIELD ARCHAEOLOGY,

1932—1933

1. **Barrows at Walbury.**—Dr. Henry Robinson, of Woolton Hill, reports five small ditched round barrows within the camp about halfway between the track and the southern corner. They are about 15ft. to 16ft. in diameter within the ditch and stand $2\frac{1}{2}$ to 3ft. above it. The ditches are about 8 inches deep and 4 feet in diameter.

There are also six small circular holes and one larger one containing water south of the barrows.

A few years ago two very perfect Bronze Age urns with overhanging rims, now in the possession of Mr. Edmund Parsons, of Andover, were dug up at Walbury, but I understand outside the camp. The whole of the area of Walbury has been cultivated in recent times.

2. **Cottington's Hill.**—I have been able to trace the outline of a camp on Cottington's Hill, no doubt one of the two mentioned in Gough's *Camden*, as being on the hill above Kingsclere. It is least destroyed in the hedge on the south side where the bank is 3ft. high and has a drop of 8ft. to the field outside.

There is also a univallate cross-dyke west of the plantation running from the steep northern slope for 300 yards and facing west. It has a C.D. vert. of 6ft. in one place.

The present existence of a right of way to and through the trees has been under discussion at the District Council this year.

3. **Pit Dwellings at Blackgang.**—The *Isle of Wight County Express* of April 22nd, 1932, reports the exposure of an occupation site of late Bronze Age with much pottery during the making of the Niton—Blackgang Road. It was under investigation by Mr. F. Mew and Mr. G. C. Dunning and will be fully reported on.

4. **Ingersley Camp.**—There being some doubt as to whether this was a peninsular camp or a complete enclosure, I examined it this Spring before it was obscured by growth. It is on a similar spur of the Bracklesham Beds to Chilworth Ring Camp and does not reach to the end of the spur. The southern bank crossing the nose is by far the most obvious, but the enceinte can be perfectly well traced enclosing a short oval of about two acres on all but the S.W. side, where it is somewhat obscured by a carriage drive. It is a small and feeble camp (C.D. vert. 4ft.) of the Woodland Ringwork class.

5.—The coarse red pottery found near the shore at Warsash last year is reported to be identical with that found in the Red Hills of Essex, generally considered to be Salterns of Roman date. Mr. Fred Fox is preparing a report on the discovery.

6. **The Roman pit at Swanwick.**—The Bursledon Brick Co. in December 1932 exposed a shaft 4 to 5ft. in diameter sunk about 15ft. into the clay at their Swanwick clay pits. At the bottom was a square frame of oak slabs notch-jointed at the corners without top or bottom. This was reported to Mr. Fred Fox. A broken false Samian patera and a perfect New Forest ware unguent vase were found in the upper part of the shaft. Accompanied by Dr. Cyril Fox and Mr. Ashby of the Bursledon Brick Co., Mr. Fred Fox and I visited the spot and the whole shaft was cleared out under Mr. Ashby's directions. About 2ft. from the bottom were found many broken pieces of hard Romano-British pottery and three nearly perfect globose, handled and spouted vessels which Dr. Cyril Fox dates in the second century A.D. It is evident there must be a Roman building, and not a very poor one, close at hand. A full note of the discovery by Dr. Cyril Fox will appear in the *Proceedings*. The Club will fully appreciate the care and trouble so kindly undertaken by Mr. Ashby.

7. **Early Farm Site at Soberton.**—The discovery of a well and evidence of occupation in the edge of a wood near Southend Farm, Soberton, by Mr. Arthur Arnold two or three years ago and the possible identification of the site with the Hall of Harold, led Mr. Stevens of Oxford to make trial trenches in the field last autumn. These revealed evidence apparently of some very early farm buildings, and a silver penny of one of the early Henrys was found. Mr. Stevens hopes to continue his investigations this autumn, and by examining the documents in the hands of Winchester College, the owners of the land, to clear up the identification of the site; but it is feared that the main buildings lie within the wood. A preliminary note will appear in the *Proceedings*.

8. **Longstock Dock.**—A gale of wind last year brought down a large elm tree growing in the N. hedge of the meadow at Longstock now used as a cricket ground. The bank of the hedge is rounded and consolidated with a ditch to the N. and is evidently an old protective bank—C.D. vert. now 4ft. and overall horizontal 34ft. It runs in from the N. end of the extension of the dock alongside the river and is faintly marked in my plan. Under the roots of the elm were the bones of a skeleton, evidently buried on the inner side of the bank and not under it. The bones were those of a big strong man and bore no marks of violence; they were mineralised and easily broken. They were too much disturbed for the position to be determined. Sir Arthur Keith reports that the skull may be Saxon or Danish.

9. **Powderham Castle.**—This mound, in the grounds of the County Council School in the Parish of Crondall, has been considered to be a Norman motte though of a somewhat peculiar

form, but it very closely resembles in size and plan a Roman watch tower. Some members of the Surrey Archaeological Society obtained permission from the County Council to examine it. A grave-like excavation in the bottom of the ditch brought to light some fragments of a large earthenware vessel of undoubtedly Norman type, thus shewing Norman occupation if not construction. Further excavation of the mound itself would be very interesting. No Roman watch tower has yet been recognised in this part of England, and the position is admirably suited for a signal station.

10. **The Hamble River Wreck.**—Interest has again been roused in the supposed Viking ship in the Hamble River by a paper read at the Society of Antiquaries which suggested a possible mid-nineteenth century date. This is impossible for various reasons, of which one will suffice: the hull of the vessel is too big to get through Bursledon Bridge, which was opened in 1800. Our member, Mr. R. C. Anderson, with Mr. F. C. P. Naish and Mr. M. Prynne, has made some observations this Spring which he will submit to the Society of Antiquaries. From her construction he has reason to believe that the vessel is the *Grace Dieu* built at Southampton in the reign of Henry Vth in 1418. She was docked somewhere near Bursledon in 1434 and burnt there in 1439. She cannot be later than 1525.

J. P. WILLIAMS-FREEMAN,
Subject Secretary for Field Archaeology.

FIELD NOTES. BASINGSTOKE DISTRICT.

J. R. ELLAWAY, G. W. WILLIS.

THE results of the continued search for prehistoric evidence in the form of flint implements for the years 1931—1932 are as follows:—

	1931	1932
Arrow and Spear Heads ...	15	21
Polished celts and fragments ...	11	20
Chipped celts and fragments ...	44	76
Scrapers	170	270
Fabricators and punches ...	22	28
Pygmies	4	13
Palaeoliths	12	4
Miscellaneous	72	138
Total	<u>350</u>	<u>570</u>

A welcome item in these lists has been an appreciable addition to the number of local high-level palaeoliths, especially from Holybourne Down, 730 O.D.

They vary greatly in patina from a very pale yellow to the deepest red-brown of plateau gravel. Many, though not all, shew abundant indications of extreme exposure and of considerable rolling, which is very difficult to explain on any basis of water transport seeing that they are found on a watershed.

Opinions are inclining to the identification of the "clay with flints" formation as a true boulder clay, by which the implements of pre-Glacial man were swept across the country—uphill as well as down—subsequent denudation leaving isolated patches on the higher grounds. There is, however no local record of any implements having been found in the "clay with flints": they are invariably found among a sprinkling of deep reddish-brown gravel lying on the clay.

Two tumuli have been recorded for eventual insertion in the Ordnance Survey Maps in Sheephouse Copse, south of Long Sutton. One is near the junction of two old trackways, the "Drift" and the "Drove," on the southern edge of Sheephouse Copse, and the other and larger one is on the eastern edge of an old chalk pit in the centre of the copse. Both have evidently been "investigated" in ruthless fashion.

Attention has been drawn to a field on the "Lord Wandsworth" Estate at Long Sutton known as "Court Gardens." Now under plough, it is strewn with fragments of tile and a few pieces of rough pottery. Some of the latter has been provisionally identified as 12th century. Other details, such as dressed stone, suggest a much later date, and it appears probable that the site was once that of a dwelling, that from Norman times at least had occasionally changed its form and been brought up to date.

A crescentic earthwork in the field also presents problems of date which may one day be solved by the existence of a definite line of burnt earth, including fragments of yet underterminate pottery, that underlies the earthwork at the original ground level.

Mr. P. Parsons who recently excavated the Roman villa site at Lodge Farm, North Warnborough, has discovered further Roman traces in a field on Cholsey Farm. A trial hole brought to light the usual pottery and bone fragments, with several coins and one distinctive piece of Roman glass that inspires hope of a nearby building with some claim to the amenities of civilized life.

**SUBJECT SECRETARY'S REPORT—
ARCHITECTURE, 1933**

DURING the past twelve months Bishop Fox's famous Mortuary Ghests in the Cathedral have been repaired and the coloured decorations have been cleaned and fixed by Professor Tristram. The process has led to a thorough examination of the chests and of the earlier coffers (of about 1450) which were preserved in two of them.

The two early coffers have not been replaced, and glass cases have been made for their preservation. Henceforth they will be seen in the north transept. This work has been done as a memorial to the late Sir William Portal.

Another work of somewhat similar character is the reconstruction of the fragmentary figure sculpture in the Cathedral. After being thrown down at the Reformation or during the Commonwealth from the niches which they originally occupied, many statuettes, about 4 feet high, were converted into building material. The process of preparation was as follows: The heads were first knocked off and then the trunk was sawn into three pieces for more convenient handling. They thus made cubes of stone measuring about a foot each way, excellent for building into walls. The backs of the statues, being flat, were generally placed outwards and thus the admirably sculptured drapery was saved from the weather and in some cases even preserves traces of its coloured decoration. These fragments have, I believe, been found at various times during the reconstruction of garden walls in the Close, and have since been preserved in the Cathedral. It has been found possible to sort out most of them and fit the proper bodies on to the legs which originally supported them. That having been done, the pieces have been dowelled together. Unfortunately none of the heads have been found. We have indeed a number of heads of great interest and several of them are of remarkable beauty, but they do not belong to the bodies which have survived. There is, of course, the one exception of the well-known Madonna and Child—but that is only a torso. Almost all this work belongs to the fifteenth century, with the possible exceptions of two or three of the early sixteenth, and one of the late fourteenth century. It is impossible to fix upon the position which any of them actually occupied. There were at least twenty groups or classes of statues to which they may have belonged and probably quite two hundred statues.

These remarks do not apply to the famous draped figure now standing near Langton's Chapel. That is indeed like the others

in being headless, but it is of a different school, being, in fact, of the latter half of the thirteenth century. It is different also in another respect, namely, that its original situation is positively known: it occupied one of the niches in the porch of the prior's house, now the Deanery. That being so, it is much to be regretted that it is not to be replaced in the position which it occupied for three hundred years.

Hersent House, in Cheeshill Street, is known to most of us as a rather ordinary red brick late Georgian building. Those who are familiar with the inside have probably noticed certain old door frames of early sixteenth century character, showing that the house has a long history. The property has lately been acquired by Dr. Dunderdale, and the improvements and decorations which she has been carrying out have revealed some interesting features. Perhaps the most notable of these is a piece of painted panelling bearing the date 1609. The part on which the painting is preserved is some 8 feet square. The painting, which consists of a scroll of conventional foliage, is remarkable for its huge scale. The woodwork is not panelling in the ordinary sense—not a veneer covering a solid wall. It is a timber partition consisting of wide and very thin studs, the intervals between them being filled with wood panels. This form of partition is a characteristic of the building. A fragment of stone fireplace has also been uncovered, and agrees in character with the date recorded on the panelling, or perhaps falls within the previous century. Altogether the house is well worthy of a thorough investigation as a good example of a burgess's home, and the Field Club is to be congratulated on its having fallen into the hands of one who appreciates it so well as Dr. Dunderdale.

During the last few weeks an important addition has been made to the plan of Beaulieu Abbey Church. The renewal of a gatepost just outside, and to the west of the church, revealed some foundations. Lady Montagu was away from home, but Sir Thomas Troubridge immediately recognized the significance of the discovery and proceeded to investigate. It proved to be, as he expected, the remains of a narthex or western porch, such as existed at Fountains and some other, probably almost all, Cistercian churches. The wall is 1 foot 10 inches thick, and enclosed a porch 13 feet 6 inches wide, and extended across the whole width of the building, aisles as well as nave; that is 72 feet.

REPORT ON FIELD ARCHAEOLOGY, 1933-34.

(1) Mr. J. B. CALKIN, of Wychwood School, Bournemouth, writes that he has been getting a great deal of archaeological material in the Bournemouth area, including eight Beakers, mostly of late types. He asks for information as to other Hampshire Beakers, and offers a list of recent finds for publication in our *Proceedings*.

(2) Mr. P. L. PARSONS, of Lodge Farm, North Warnborough, last summer reported to Miss Liddell that he had found archaeological indications on his farm at Cholesley, and kindly suspended farming operations on the spot for her to investigate them.

This resulted in the excavation of half the ditch of a fine Disc barrow, the discovery of two or three hut circles a quarter of a mile away—one of frying-pan plan with the wall of the passage built up with flints and of much pottery. Air photography reveals several sites in the field and the indications are that there was a considerable British village there and an important Roman house close by. Once more archaeology has to thank Mr. Parsons for his keenness of observation and kindness in facilitating investigation.

(3) Mr. J. P. PRESTON has excavated three Late Bronze Age barrows in the New Forest. The account of them in the *Antiquaries Journal* of October, 1933, by him and Mr. CHRISTOPHER HAWKES gives a full account of them and of late Bronze Age burials generally.

(4) Two keen Winchester College boys, Mr. STEWART and Mr. BIRKBECK, and their friends did some excellent digging last summer on Twyford Down, and intend to go on again this summer. Nothing spectacular rewarded them, but several hut circles were found, as well as a bivallate ditch and lynchets. A certain amount of pottery was found both of Iron Age A and C, and it may be possible to distinguish between the occupation belonging to these two periods. I hope at the end of this year's work they will send us a Report.

(5) An air photograph of the Down included the double-banked ditch which runs across the fairway of the golf course. The indications are that this is not a simple cross-ridge ditch as I had supposed, but formed one side of an enclosure which is hardly recognisable without the aid of photography.

(6) I take this opportunity of putting on record that the late Mr. W. J. ANDREW wrote to me that there was undoubted evidence of Belgic occupation at Otterbourne.

(7) Mr. C. E. STEVENS, of Magdalen College, Oxford, persevered last year with his very difficult search on the supposed site of the Hall of Harold in Soberton Parish. There is little doubt he has found very early farm buildings, and I only hope the Hall itself is not inaccessible in the thick wood adjoining.

(8) Perhaps the most important event of the year for Field Archaeology is the publication by the Ordnance Survey last month of the first of six sheets of the promised Map of Salisbury Plain, giving all the features revealed by Air Photography and confirmed by examination on the ground by their Archaeology Officers' Department. It gives all the linear earthworks—wandering ditches—that were already known, joins up disconnected fragments and adds new lengths : over 24 miles in all are shown on this one sheet. Besides this, it shews every British village and every Celtic field of the many areas of ancient cultivation that cover this part of the Plain, some of which lies in our county.

Field Archaeologists are by no means all agreed as to the purpose of these ditches, the trouble being that hardly any two thoroughly know the same ditches. With this map we shall be able to join issue on a well surveyed field and I feel sure that before long we shall have made a great advance in our knowledge of the civilization of Celtic times.

Long Barrows.

(1) A new Long Barrow was discovered by Major G. Allen flying over the Downs between Whitchurch and Kingsclere on 6th June, 1933, and immediately photographed. A vertical photograph taken afterwards on 16th February, 1934, by the R.A.F. also shows it as a Long Barrow. The situation is a field called Barrow Field on the Tithe Map, in the Parish of Whitchurch, $\frac{1}{4}$ mile S.W. of Twinley Farm, near Paul's Heath Copse (Hants 17 N.W.). Lat. $51^{\circ} 15' 45''$, Long. $1^{\circ} 19' 0''$. The same site had already been noticed by Mr. G. Bull of Kingsclere in 1926, who reported the ploughing up on it of an iron sword about 1918. Mr. Bull did not, however, recognize it as a Long Barrow. The iron sword was doubtless associated with a secondary interment of Saxon age, though there is no mention of any bones or other objects being found at the same time. (O.S. air-photograph, "Whitnal" 02643.)

(2) Another probable Long Barrow 300 yards S.E. of the farm called Willesley Warren (Hants 17 N.W.) in the Parish of Overton was revealed by O.S. air-photograph "Whitnal" 02671 taken 16th February, 1934. It is not quite so certain as the preceding, and shows on the photograph as a white mark, the shape

of a grain of wheat rather broader at the S.E. end. It stands in the corner of a more or less square Celtic field. The same photograph shows two new round barrows north of the farm, and a regular system of Celtic fields and ditches. (Lat. $51^{\circ} 16' 11''$, Long. $1^{\circ} 16' 23''$.)

Celtic Fields.

Apart from those in North Hants revealed by the Whitnal Mosaic, a very fine system of Celtic fields and associated earthworks and ditches has been revealed by a series of photographs taken 27th March, 1934, by the R.A.F. A particularly thick region is the field three-quarters of a mile E. N.E. of Micheldever Station, due south of Popham Barrows (Hants 25 S.E.).

REPORT OF ARCHITECTURE SECRETARY

(Presented 25th April, 1934)

I HAVE only two items to record this year. For both of these I am indebted to our member, Mr. Walter Troke. The first is the discovery of a medieval hall in French Street, Southampton. The building measures 37 feet by 25 feet, and appears to date from the 15th century. It had been cut up into tenements and stores, and had lately been condemned to destruction under a slum clearance scheme. Fortunately Mr. Troke was on the spot, recognized the character of the building, and made some drawings which he has presented to the Club. The hall retains its plain but well-constructed medieval roof. More important still, Mr. Troke was able to convince the representative of the Corporation that the building is of value, and it is to be preserved as a hall for an adjoining school. A building next door to this hall has a medieval vaulted cellar, which is also to be preserved.

The second item is the Old Town Hall at Newtown, Isle of Wight. This building has lately been repaired by Mr. Troke and Mr. Macgregor and has by now, I hope, passed into the keeping of the National Trust.

T. D. A.



HAMPSHIRE FIELD CLUB

AND

ARCHÆOLOGICAL SOCIETY

1934

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 Powell, Miss D. P., M.A., Librarian, University College, Southampton.
 Powell, Mrs. E. W., Tantany, Lyndhurst, Hants.
 Pring, Miss Kathleen, St. Denys, Alresford, Hants.
 Pyne, H. B., Northbrook, Farnham, Surrey.

Quirk, Roger, Southgate House, Winchester.

- Rainbow, Herbert N., 100 Worting Road, Basingstoke, Hants.
 Ramsay, Mrs. John, Cams Hall, Fareham, Hants.
 Ravenscroft, William, F.R.I.B.A., F.S.A., Briantcroft, Milford-on-Sea, Hants.
 Ray, Mrs. Eveline, Fernleigh, Swift Road, Woolston, Southampton.
 Rayner, J. F., F.R.H.S., 3 Cumberland Park, Acton, W. 3.
 Rew, Miss Gladys, Hill House, Appleshaw, Andover, Hants.
 Rew, Miss Phyllis H., Hill House, Appleshaw, Andover, Hants.
 Reynolds, The Rev. E. K. R., Fyfield Rectory, Andover, Hants.
 Reynolds, Miss D. M., Fyfield Rectory, Andover, Hants.
 Richardson-Griffiths, Mrs., Norlands, Compton, Winchester.
 Ridley, H. D., 373 Portswood Road, Southampton.
 Rhodes, Arthur, Kingswood, Hordle, Hants.
 Rhodes, Mrs. Arthur, Kingswood, Hordle, Hants.
 Ringrose, Bernard, J., Farley, Harbridge, Ringwood, Hants.
 Ringrose, Mrs. B. J., Farley, Harbridge, Ringwood, Hants.
 Ringwood, Miss Emily F., Island Heron, Wolverton Common, Basingstoke, Hants.

XXXV

Roberts, Charles Betton, Paymaster-Commander, R.N., Kennett Lodge, Hambledon, Hants.

Roberts, Kenneth A. B., Kennett Lodge, Hambledon, Hants.

Robins, F. W., F.R.G.S., 4 Harewood Avenue, Pokesdown Hill, Bournemouth.

Robinson, Miss H., 113 Alma Road, Southampton.

Rodda, E. C., Hathersage, Wilton Road, Shirley, Southampton.

Ross, E. Athole, M.D. CANTAB., M.R.C.P. LOND., Westacre, Sleepers Hill, Winchester.

Ross, Mrs. Athole, Westacre, Sleepers Hill, Winchester.

Routh, Mrs. R., 8 Compton Road, Winchester.

Sandall, Miss E. M., 44 Winn Road, Southampton.

Sanford, J. B., Hordle Dene, Hordle, Hants.

Sanford, Mrs. J. B., Hordle Dene, Hordle, Hants.

Sargeant, Lieut.-Col. H., Ashley, King's Somborne, Hants.

Sanders, Ingaltan, F.R.I.B.A., 122 Romsey Road, Southampton.

Sawyer, H. S., M.C., F.R.I.B.A., Queen Anne's Chambers, Winchester.

Sclater, W. L., 10 Sloane Court, London, S.W. 3.

Selwyn, Mrs. E. G., The Deanery, Winchester.

Sercombe, E. I., 91 St. Michael's Road, Aldershot, Hants.

Seward, Mrs. O. G., Weston, Petersfield, Hants.

Seymour, Mrs. Adelaide, Berweeke House, Winchester.

Shaw, Edward Philip, M.A., Boundary House, Upper Bassett, Southampton.

Shenton, Mrs. Percy, Buriton House, Chesil Street, Winchester.

Simmons, S. C., Plaitford House, near Romsey, Hants.

Simmons, Miss A. F., Plaitford House, near Romsey, Hants.

Simpson, Dr. Faulkner, Parkham, Whitchurch, Hants.

Simpson, Mrs. Faulkner, Parkham, Whitchurch, Hants.

Simpson, W., M.B., B.S., D.P.H., The Ivies, 3 Adelaide Road, Andover, Hants.

Sims, Miss Mary, M.A., 29 Abbots Way, Southampton.

Sloane-Stanley, Captain R. C. H., Paultons, Romsey, Hants.

Smith, J. Arthur, F.R.I.B.A., Lingdale, Nately Hill, Hook, Hants.

Smith, Miss W., 7 Padwell Road, The Avenue, Southampton.

Spencer, Miss E. J., Pelham Villa, Spring Crescent, Portswood, Southampton.

Spittal, Miss, 5 Ranelagh Road, Winchester.

Stevens, C. E., Magdalen College, Oxford.

Stewart, Douglas Milne, Little Ridge, Old Bursledon, Hants.

Stilwell, Miss Mary E., Thriftswood, Yateley, Hants.

Stilwell, Miss Joan, Thriftswood, Yately, Hants.

Stirling, F., Greenways, Oakley, Basingstoke, Hants.

Stirling, Mrs., Greenways, Oakley, Basingstoke, Hants.

Stock, Miss Ellen, The Laurels, Appleshaw, Andover, Hants.

Stote, Rev. A. W., M.A., F.S.G., The Vicarage, Colehill, Wimborne, Dorset.

Streat, Kenneth, Elwood, 16 Portland Terrace, Southampton.

Straker, Mrs., The Croft, Burghclere, Newbury.

Stubington, Miss C., Oaklands, Rowlands Castle, Hants.

Sturgess, E., Faberstown, Ludgershall, Andover, Hants.

Summer, G. Heywood, B.A., F.S.A., Cuckoo Hill, South Gorley, Fordingbridge, Hants.

Swayne, T. Gatton, Northdown, Warwicks Bench, Guildford.

Tanner, W. A., Icart, Northbrook Avenue, St. Giles Hill, Winchester.

Tarbat, the Rev. J. E., M.A., 1 Romsey Road, Winchester.

Taylor, Rev. B. C., M.A., Whitchurch Vicarage, Hants.

Tebbutt, A., O.B.E., J.P., Pilgrims, Compton, near Winchester.

Thatcher, T. C., Long Mead, Four Marks, Alton, Hants.

Thicknesse, Mrs., Medecroft, Winchester.

- Thistle, Rev. Thos., M.A., F.S.A., Vicarage, Eling, Southampton.
 Thorne, Henry Lewis, 7 Landguard Road, Southampton.
 Thorneley, R. M., Elm Grove, Kingsclere, Hants.
 Thorp, Harry Liscombe, M.R.S.T.; Compton, Ophir Road, Portsmouth.
 Thorp, Miss M. N., Mapledurwell, Basingstoke, Hants.
 Tindall, Mrs. K. B., West Downs, Winchester.
 Tozer, G. A., Mallards, Buckler's Hard, Beaulieu, Brockenhurst, Hants.
 Trendell, P. G., Danesmead, Golden Hill, Hordle, Hants.
 Troke, Walter E., 31 Malmesbury Road, Southampton.
 Troke, Mrs. M. A., Fairlight, 31 Malmesbury Road, Southampton.
 Troubridge, Capt. Sir Thomas H. C., Bart., F.S.A., Old Ways, Beaulieu, Brockenhurst, Hants.
 Turner, W. Gilbert, M.I.E.E., 44 Blenheim Avenue, Southampton.
 Turner, Miss Evelyn, Ashe House, Overton, Hants.
 Turner, Mrs. Maurice, Ashe House, Overton, Hants.
 Twining, Miss, The Mount, Basingstoke, Hants.
 Tyte, Miss Dora, Green Hedges, Tichborne Down, Alresford.
- Urmson, Miss M. F., Monks Hatch, Winchester.
 Urmson, Miss C. F., Monks Hatch, Winchester.
- Vacher, Herbert P., Wayford, Edgar Road, Winchester.
 Varley, Rev. Telford, M.A., B.Sc., Abbotsacre Lodge, Winchester.
 Vickers, Mrs., Arlington, Burgess Road, Southampton.
- Walton, Rev. T. H., M.A., Preston Candover, Basingstoke, Hants.
 Wansborough, Rev. H. A., M.A., South Warnborough Rectory, Basingstoke, Hants.
 Ward, Mrs., Burghclere Manor, Newbury, Berks.
 Warren, F., J.P., F.S.A., Danesacre, Worthy Road, Winchester (*Joint Hon. Secretary*).
 Watkin, Professor G. L., The Nook, Douglas Crescent, West End, near Southampton.
 Watson, V. G., Claremont, 12 Edgar Road, Winchester.
 Watson, Mrs. J. E., Claremont, 12 Edgar Road, Winchester.
 Watson, Miss F. E., Cradock, Fairhaven, 26 Surrey Road, Bournemouth.
 Watson, William D., 43 Desborough Road, Eastleigh, Hants.
 Weeks, George, 32 Cranworth Road, Winchester.
 Weeks, Mrs. A., N.T.S.C., 32 Cranworth Road, Winchester.
 Weigall, Mrs. G. E., 3 Christ Church Road, Winchester.
 Wells, Lady, Houghton Lodge, Stockbridge, Hants.
 Westropp, A. S. A., Arnewood Manor, Sway, Hants.
 White, H. T., A.M.I.C.E., 140 Station Road, Hendon, N.W. 4.
 Whittaker, E. W. C., J.P., 3 Portland Street, Southampton.
 Wilde, Mrs., Milesdown, St. Giles Hill, Winchester.
 Williams, Lewis, Rivermede, Romsey, Hants.
 Williams-Freeman, Capt. F. H. P., R.N., Beechcroft, Curdridge, *via* Southampton.
 Williams-Freeman, J. P., M.D., J.P., Beechcroft, Curdridge, *via* Southampton (*President*).
 Williams-Freeman, Mrs., Beechcroft, Curdridge, *via* Southampton.
 Willis, G. W., 2 Wote Street, Basingstoke, Hants.
 Wills, Mrs. Arnold, Middleton House, Longparish, Hants.
 Wilson, Miss A. J., 19 Bembridge Crescent, Southsea.
 Winchester, Corporation of the City of, per F. W. Pepper, F.L.A., Public Library, Guildhall.
 Wood, Miss, Shalden Cottage, Alton, Hants.

Wood, Miss Edith M., Warnford Cottage, Warnford, Bishop's Waltham, Hants.

Wood, Dr. J. Arthur, Lymington Road, Milford-on-Sea, Hants.

Wood, Arthur B., Lieut.-Commander, R.N.V.R., Heckfield, Milford-on-Sea, Lymington, Hants.

Woods, Geo. T., Redvers, Grove Road, Sandown, I.W.

Wright, Miss K. M., Cotswold House, Christ Church Road, Winchester.

Yeldham, Col. Ernest, The Old Farm House, Oakley, Hants.

Yeldham, Mrs. Ernest, The Old Farm House, Oakley, Hants.

Errors, or omissions from the above list should be notified to : The Hon. Secretaries, Hampshire Field Club, Staple Garden, Winchester.

Past-Presidents.

- 1885—1888 F. DE CHAUMONT, M.D., F.R.S. (the late).
 1888—1891 W. WHITAKER, B.A., F.R.S., F.G.S. (the late).
 1891—1893 W. E. DARWIN, B.A., F.G.S., J.P. (the late).
 1893—1895 THE VERY REV. THE DEAN OF WINCHESTER (THE VERY REV. G. W. KITCHIN, D.D., F.S.A.) (the late).
 1895—1896 W. WHITAKER, B.A., F.R.S., F.G.S. (the late).
 1897—1898 B. W. GREENFIELD, M.A., F.S.A.
 1898—1900 THE RIGHT HON. THE EARL OF NORTHBROOK, G.C.S.I., D.C.L., F.R.S. (the late).
 1900—1902 WILLIAM W. PORTAL, M.A., F.S.A. (afterwards SIR WM. W. PORTAL, BART.) (the late).
 1902—1904 J. H. OGLANDER, F.S.A. (the late).
 1904—1906 W. F. G. SPRANGER, J.P. (the late).
 1906—1908 THE MOST NOBLE THE MARQUIS OF WINCHESTER.
 1908—1910 SIR WILLIAM W. PORTAL, BART., M.A., F.S.A., D.L. (the late).
 1910—1912 THE RIGHT HON. THE EARL OF NORTHBROOK (the late).
 1912—1914 THE RIGHT HON. THE LORD MONTAGU OF BEAULIEU (the late).
 1914—1916 SIR WILLIAM W. PORTAL, BART., M.A., F.S.A., D.L. (the late).
 1916—1918 C. E. KEYSER, M.A., F.S.A., D.L., J.P. (the late).
 1918—1920 DR. DUKINFIELD SCOTT, F.R.S., F.L.S., F.G.S., LL.D., D.S.C. (the late).
 1920—1922 THE RIGHT HON. THE LORD MONTAGU OF BEAULIEU (the late).
 1922—1924 THE RT. HON. BEATRICE COUNTESS OF PORTSMOUTH.
 1925—1926 THE RT. HON. THE EARL OF NORMANTON (the late).
 1926—1929 DR. J. P. WILLIAMS-FREEMAN, M.D., J.P.
 1929—1932 SIR CHARLES CLOSE, K.B.E., C.B., C.M.G., SC.D., F.R.S.
 1932— DR. J. P. WILLIAMS-FREEMAN, M.D., J.P.

The Editor will welcome contributions relating to the subjects dealt with by the Society ; and review copies of books dealing with Hampshire and the Isle of Wight. Address : Rev. F. N. Davis, Rowner Rectory, Lee-on-the-Solent, Hants.

The Rev. F. N. Davis is County Correspondent for The British Archaeological Association, and would be very glad to receive news of local finds and any other archaeological information with a view to passing it on to the central authority.

**Rules as Revised and approved at the Annual Meeting,
Wednesday, April 25th, 1934.**

Name and Objects.

Rule 1.—The name of this Society is "The Hampshire Field Club and Archaeological Society," and the object of the Club is the Study of the Natural History and Antiquities of the County.

Headquarters.

Rule 2.—The headquarters of the Club are at Winchester.

Members.

Rule 3.—The Club shall consist of ordinary members and of honorary members.

Rule 4.—Scientific persons of distinction, non-resident in the County, may be proposed and elected as honorary members of the Club at any meeting of the Council.

Rule 5.—Ladies are eligible for election as members and officers of the Club.

Rule 6.—Candidates for membership must be proposed and seconded by two members of the Club. The proposer must be personally acquainted with the candidate. Candidates thus proposed and seconded shall be elected to the Club by the ballot of the Council. Three black balls to exclude.

Rule 7.—The proposer of any candidate is required to state the particular branch of Natural History or Antiquities in the study of which any candidate for admission into the Club is engaged or is interested, or any other qualification, or special line of study.

Officers.

Rule 8.—The Officers of the Club to be elected at the Annual Meeting shall consist of a President, 4 Vice-Presidents, Treasurer, Editor, Secretary or Secretaries, and Chief Subject Secretary. Also the Local Secretaries shall be elected by the Council. If at the Annual General Meeting the number of nominations for the posts of President, Vice-Presidents, Members of Council or any of the Hon. Officers of the Club exceeds the vacancies, the election in each case shall be by ballot. Members cannot vote unless all their subscriptions have been paid including that for the then current year.

Rule 9.—The President and Vice-Presidents shall not hold office for more than three years consecutively.

Hon. Editor.

Rule 10.—The Editor shall, if possible, publish a volume of the *Proceedings* in each year which shall contain the reports of the Subject Secretaries and an account of the Meetings and Excursions of the Club and such other matters as the Editor thinks desirable.

Rule 11.—The publications from other societies which are received in exchange for those of the Hants Field Club shall be regarded as the property of the Club.

Hon. Secretaries.

Rule 12.—The Hon. Secretary or Secretaries shall be responsible for the non-financial business and correspondence, for the arrangements for the General and Council Meetings, and for the sending out of Notices of Field Meetings and other events to every Member.

Hon. Treasurer.

Rule 13.—The Treasurer shall be responsible for the collection of Subscriptions and the Annual Financial Report and Balance Sheet. Payments to be made by cheque signed by the Treasurer and one other Member of the Council.

Local Secretaries.

Rule 14.—Local Secretaries shall be appointed by the Council for any parts of the County that seem to them desirable. They shall watch the interests of the Club in their respective districts, investigate any matters to which their attention shall be called by any member of the Club and report any matters of interest to the Hon. Secretary or Secretaries.

Subject Secretaries.

Rule 15.—There may be appointed by the Annual Meeting, Subject Secretaries to represent the following and other interests :—Archaeology (including Field Archaeology), Architecture, Botany, Entomology, Geology, Heraldry, Historic Records, Mycology, Numismatics, Ornithology, Paintings, Photographic Records and Engravings.

Rule 16.—The names of such Subject Secretaries shall be printed in the *Proceedings* and their function shall be to foster an interest in their respective subjects, receive communications from other members and make an Annual Report of work done to the Chief Subject Secretary, who shall report further to the Hon. Editor.

Subscriptions.

Rule 17.—The Annual Subscription for ordinary members shall be as follows :—(a) For members elected after the Annual Meeting on Wednesday, April 25th, 1934, 15s. ; (b) for members elected before the Annual Meeting on Wednesday, April 25th, 1934, 10s. 6d. Subscriptions are due in advance on the 1st January, and from new members on admission, with an Entrance Fee of 5s. The names of persons newly elected shall not be entered on the List of Members until their Subscriptions and Entrance Fees have been paid.

Rule 18.—The *Proceedings* of the Club shall be sent to those members only whose Subscriptions are paid for the year for which such *Proceedings* are issued, and whose names appear, or should appear, in the printed list of members contained therein.

The name of a member whose Subscription for any year is in arrear at the end of June of the following year shall (subject to the discretion of the Council) be removed from the list.

Council.

Rule 19.—The Government of the Club is vested in a Council to be elected at the Annual Meeting and to consist (ex-officio) of :—the Past Presidents, the Officers for the time being, and not less than six other Members.

Rule 20.—Five shall be a quorum of the Council.

Rule 21.—A Council Meeting may be called at the discretion of the Secretary or Secretaries, or shall be held within 21 days on the written request of not less than 5 Members of the Council.

Annual Meeting.

Rule 22.—An Annual Meeting for general purposes shall be held in the early part of each year, on a date to be decided by the Council, at which the Secretary or Secretaries shall submit a Report, and the Treasurer his Financial Report and Balance Sheet.

Field Meetings.

Rule 23.—Not less than six ordinary Field Meetings shall be held in each year.

Rule 24.—A Meeting of the Council shall be held at least a month before the Annual Meeting to receive suggestions for the Field Meetings, and to draw up a list to be submitted to the members at the Annual Meeting.

Rule 25.—The organization of the Field Meetings (including the limitation, if necessary, of the numbers of members and visitors who can be accommodated) shall be in the hands of the Hon. Secretary or Secretaries who will receive such financial grants for the expenses as the Council shall decide.

Rule 26.—Subject to Rule 25, each member of the Club shall be at liberty to introduce one visitor to each ordinary meeting of the Club. A fee of 2s. 6d. shall be payable for every such visitor, as a minimum Subscription towards expenses.

Rule 27.—Members of the Club who do not attend any meeting after having given notice of their intention to attend, shall be liable for their share of the expenses which may be incurred by the Council in connection with such meeting.

Preservation of Natural Objects and Antiquities.

Rule 28.—The Club shall discourage the practice of removing and rooting up rare plants from their characteristic locality, and the extermination of rare birds, and also use its influence with landowners for their protection.

Rule 29.—The Club shall use its influence to promote the preservation of objects of antiquity.

Alteration of Rules.

Rule 30.—No alteration or addition shall be made to the foregoing rules except at an Annual General Meeting ; and fourteen days notice shall be given of any proposed alteration or addition to the rules.

ANNUAL REPORT OF COUNCIL FOR 1933

(Presented to the Annual Meeting on April 25th, 1934.)

Membership.—During the past year there has been a gratifying increase in the membership of the Club. At the time of the last Annual Meeting the number of Members was 396; it is now 429.

Obituary.—The Society during the year has lost the services of several of its most prominent members:—Dr. Dukinfield Scott, F.R.S., F.L.S., LL.D., D.Sc., President 1918—1920, eminent as a palaeo-botanist, and one whose death was a great loss to the scientific world. He was an active member of the Council of this Society, a constant attendant at its field meetings, and a leader of botanical meetings.—The Right Hon. The Earl of Normanton, President 1925—1926, who always took a keen interest in the work of the Council.—Mr. W. J. Andrew, F.S.A., an expert numismatist, whose personality and wide general knowledge of archaeology the Society will greatly miss; he was a frequent contributor to *Proceedings* and a valued and active member of the Research Committee.—Captain George Self, who died at the age of 93, was elected an Honorary Member of the Club on attaining his 90th birthday.—Others who have passed on include Mr. W. H. Myers, D.L., J.P., and Mrs. Julius.

Field Meetings.—Apart from the Annual Meeting, nine Field Meetings were held, including one Geological Meeting and one Botanical Day, in addition to a Fungus Foray. A Loan Exhibits Meeting was held at the end of the season, at The Castle, Winchester. There were Palaeolithic, Neolithic, Bronze Age, Iron Age, Romano-British, and miscellaneous sections, and good collections of botanical and mycological specimens were displayed in a second room. Altogether the Loan Meeting was well supported by the members, and it is hoped to hold a similar meeting on a future occasion. The number of visitors present at the Field Meetings was greater than ever before.

Publications.—During the year Part 2 of Vol. XII of *Proceedings* was published, under the Editorship of the Rev. F. N. Davis, M.A., B.Litt., F.S.A. The Society also published a reproduction of Isaac Taylor's Map of Hampshire, 1759; it was issued in six sheets and in three-quarters of the original size; the reproduction was made, by permission, from the copy in the possession of the Royal Geographical Society. Some 286 members of the Society availed themselves of the opportunity of acquiring free of cost a copy of this interesting map.

Excavations.—Further excavation of the site on Meon Hill, Stockbridge, was carried out on behalf of the Research Committee, under the direction of Miss Dorothy Liddell, F.S.A. The excavations of 1933 disclosed further remarkable groups of pit dwellings, and good types of Hallstatt pottery, haematite-coated and with chevron decoration, and much other material. Miss Liddell's further report of the excavations will appear in *Proceedings*, of which Vol. XII, Part 3, will be issued later in the year.

The Research Committee has had to postpone until 1935 the proposed excavation of pit dwellings outside Danebury Rings.

Visit of Wiltshire Archaeological Society.—The Wiltshire Archaeological Society held a three days' meeting at the end of July, with Winchester as a centre. Officers of the Hampshire Field Club were glad to be able to co-operate with the Wiltshire Society in carrying out their programme.

Supplement to Townsend's "Flora of Hampshire."—The Council on behalf of the Society has acquired a number of copies of the Supplement to Townsend's *Flora of Hampshire* (published price 6s.), by Mr. J. F. Rayner, F.R.H.S. Mr. Rayner was for many years Botanical and Mycological Subject Secretary for the Society, and the Council take the opportunity of bringing the book to the notice of all members interested in Botany.

FIELD MEETINGS, 1933.

Verwood, Watton Ford, and Castle Hill, Burley.

The first Field Meeting was held on Tuesday, May 16th, with Mr. Heywood Sumner, F.S.A., as Director. Meeting at Ringwood Market Place, the Director led the way to Verwood. Walking on to Boveridge Heath, he explained the origin of such hillocks as Mount Ararat, on the sandy-clay Bagshot beds. He also showed the methods of clot-planting with Scotch pine for the afforestation of the area.

Picnic luncheon was taken on the sandy hillocks at Watton Ford, overlooking the Avon. Afterwards the party assembled at Castle Hill, Burley, an ancient earthwork roughly circular and consisting of a single bank and ditch. Mr. Sumner recalled the finding of twelve bronze palstaves at Shappen Pits, a mile from that spot.

Dr. Williams-Freeman said that they had no evidence for the dating of that camp, but they might put it down as a concentration camp of the Iron Age "A" type, i.e. of the period down to 100 B.C.

Dead Man's Plack, Bury Hill, Abbott's Ann, Goodworth Clatford.

A Meeting was held in the Andover neighbourhood on Tuesday, May 30th. A visit was first paid to the water meadows near Upper Mill, Longparish, where the riverside plant *Cardamine amara* may be found. Owing to the early season, the plant had finished flowering when the visit was paid.

A visit was paid to the Dead Man's Plack monument in Harewood Forest, set up by Col. Iremonger in 1825. Here the President told the traditional story of King Edgar, and the slaying of Earl Ethelwold who had perfidiously married the beautiful Elfrida, intended bride of the King.

The members travelled on to Bury Hill Camp, by way of the Anna Valley. The camp is one of the most perfect of the ancient hill camps in the district. Dr. Williams-Freeman spoke on defensive camps, and pointed out that Bury Hill had an annexe thrown out, enclosing an extra eight acres, and Danebury had a similar feature.

A visit was paid to Abbott's Ann Church, where the Rev. H. E. W. Steedman described the present church which dates from 1716. He pointed out the curious white paper garlands or crowns, the earliest dated 1740 and the latest 1921, which were carried at the funeral of a maiden and afterwards hung in the church. He quoted Ophelia, in "Hamlet," who "is allowed her virgin Krantz" (crown). To the crowns are attached white paper gloves or gauntlets, the challenge to disprove the good reputation of the maiden.

Goodworth Clatford, next visited, provides a good example of the growth of a parish church from the latter half of the 12th century. The nave piers are Transitional Norman and Early English; the chancel is Early English, and the font Transitional Norman. There are interesting votive crosses and mason's marks on the nave pillars, and the figures in the modern glass of the windows are in most instances portraits of the Iremonger family.

Botanical Day at Hayling Island.

A Botanical Day was held at Hayling Island on Tuesday, June 13th, with the Rev. H. Purefoy Fitz-Gerald, F.L.S., as director. (See page 301.)

Isle of Wight Meeting.

A Geological Day was arranged by Mr. G. W. Colenutt, F.G.S., on Wednesday, June 28th, in the Isle of Wight. This was the 57th Field Club Meeting arranged by Mr. Colenutt. Assembling at Cowes, a halt was first made at Mersley Down to note the view northwards across the syncline of the Solent Valley to the Portsdown Hills.

The well-arranged geological museum at the Sandown Library was visited, and Mr. Jackson and Mr. Colenutt gave talks on the geology of the Island. In Shanklin Chine Mr. Colenutt explained the action of water and of blown sand in the formation of chines. After luncheon, the party motored to Ventnor and along the Undercliff to Niton, and then by the new road to Chale; the opportunity was taken of observing more of the geological features of the Island.

Bramley, Bulls Down Camp and Strathfield Saye.

Under the direction of Mr. G. W. Willis, Hon. Local Secretary, a Meeting was held in the north of the County on Wednesday, July 26th. Bramley Church was first visited, and the many interesting features of this late Norman Church were explained by the Vicar, the Rev. G. R. Macaulay, M.A. There are interesting wall paintings of the 13th to the 17th centuries, and the subjects include the murder of Becket, painted within fifty years of the event, and a St. Christopher opposite the old entrance. There are also the Brocas family transept with its fine Flemish glass; a transitional Norman font; 14th century glass; and other features.

At Bull's Down Camp a paper by the President, Dr. Williams-Freeman, was read, describing the camp with its three banks and two ditches between; it was situated in the thickest, swampiest and most impenetrable forest in Hampshire. The stronghold corresponded exactly with the "oppida" that Caesar encountered in his wars. They did not know whether Bullsdown was constructed by the Atrebates of the first century B.C. or by their predecessors.

Col. Karslake, F.S.A., said that, until the contrary was proved by excavation, he thought the camp could be placed within the second period of La Tène, or Iron Age "B." He pointed out the considerable bulge in the roughly oval shape of that and other camps which might well be the wheeling place for the chariots.

After picnic luncheon Strathfield Saye Church and House were visited by permission of the Marquess of Douro. The pictures and many relics of the Iron Duke were noted with much interest.

Britford and Salisbury Close.

The members spent a day in the neighbouring County of Wiltshire, on Wednesday, August 16th. The Church of S. Peter, Britford, was first visited and the party was welcomed by the Vicar, the Rev. J. B. Jackson. A paper describing the many interesting features of the building and the unique details of the Saxon arches was read by Dr. A. R. Green, F.S.A.

On arrival at Salisbury the party were met by Mr. H. Messenger, Diocesan Surveyor of Salisbury, who had obtained permission for a visit to some of the remarkable houses in the Close, including: S. Anne's Gate, Mompesson House, Hemynsaby, The Wardrobe, No. 68, and Archdeacon Carpenter's garden in the North Canonry. The opportunity of a visit to these beautiful private houses and gardens was much appreciated.

Heckfield, Yateley and Farnborough.

Dr. J. H. Gibson of Aldershot was the Director for the Meeting on Tuesday, August 29th. At Heckfield Parish Church, Miss Martineau read a brief paper on the church : its ancient bells, two of the 14th and 15th centuries ; its good brasses, and 13th century oak chest, and much other of interest. At Yateley, Dr. Gibson read a paper on the architectural details, and described the famous crystal cup of the time of Elizabeth. The church contains many other features of interest, and the instruments of the former church orchestra were noted.

At Farnborough Abbey the party was welcomed by Father Delaney, on behalf of the venerable Lord Abbot. All assembled in the Memorial Church, beneath which is a crypt containing the tombs of Napoleon III, the Empress Eugénie, and the Prince Imperial. The golden rose was shown, given by the Pope to the Empress Eugénie, in 1856, the year of the birth of the Prince Imperial, to whom the Pope was godfather. Dr. Gibson gave a short paper on the history of these papal golden roses, dating back to the 9th century.

The party afterwards visited for the first time Batt's Hog Sty, an earth-work below Caesar's Camp and near the Aldershot Tattoo ground in Rushmoor Bottom. Dr. Williams-Freeman said it was unique so far as he knew, in England ; it was half an acre in extent, square in shape, but with rounded corners, four banks and three ditches. Its origin and use were conjectural.

Fungus Foray at Selborne.

On Thursday, September 7th, a Fungus Foray was held at Selborne under the direction of Mr. E. W. Swanton, A.L.S. (See page 303.)

Meon Hill, Stockbridge.

The last Field Meeting of the season was held on Tuesday, October 3rd. A visit was paid in the morning to Meon Hill, Stockbridge, where excavations had been carried out by the Club, for the second year in succession, under the direction of Miss Dorothy Liddell, F.S.A. The excavation work of 1932 was described in *Proceedings*, Vol. XII, Part 2. Miss Liddell explained the works laid open by excavation in 1933, which seemed to centre round a large, deep pit in the centre, 7ft. 2ins. below the modern surface. The large central pit was divided into two, and round it were four kidney-shaped pits. The finds included much haematite-coated ware of the Hallstatt—La Tène I period, with chevron and other decoration, and of excellent quality. There were also many traces of a later level of occupation in the La Tène II period. The excavations will be the subject of a paper by Miss Liddell in a subsequent number of *Proceedings*.

Loan Exhibits Meeting.

A Loan Exhibits Meeting was held at the Castle, Winchester, on the afternoon of Tuesday, October 3rd. This was a new feature in the Club's programmes, and was arranged because there was found to be neither time nor space for exhibits at the close of the Annual Meetings. There was a good response to the request for exhibits, which were arranged under the headings : Palaeolithic, Neolithic, Bronze Age, Iron Age, Romano-British and Miscellaneous.

An interesting botanical section was arranged by the Rev. H. Purefoy FitzGerald, F.L.S., and Miss Spittal, and in the same room Mr. Robert Blockay deputised for Mr. E. W. Swanton, A.L.S., in arranging a display of freshly gathered fungi. The Rev. H. Purefoy FitzGerald also contributed a display of fungi from the Chandler's Ford area.

Talks were given by the President, on the exhibits generally, and by Mr. G. W. Willis on flint implements. Canon O'Farrell added a few words on his Aldershot collection of flints.

FINANCIAL STATEMENT for the Year ended 31st December, 1933.

RECEIPTS.			£	s	d	£	s	d
To Balance brought forward from Year 1932			88	13	10			
Add Cheques outstanding			5	0	0			
,, Cash in hand			3	13	6			
						97	7	4
33	Entrance Fees					8	5	0
33	1 Subscription for 1930		10	6				
33	7 Subscriptions „ 1931		3	13	6			
33	37 „ „ 1932		19	8	6			
33	347 „ „ 1933		182	3	6			
33	12 „ „ 1934		6	6	0			
						212	2	0
33	Isle of Wight Meeting					10	0	
33	Visitors' Fees for year					15	17	0
33	Sale of <i>Proceedings</i>					1	16	11
33	Sale of St. Catherine's Hill Volume					2	10	10
33	Interest on Deposit Account					1	6	10

(Signed) L. M. BURNETT,
36 & 38 Above Bar, Hon. Treasurer.
Southampton.

Audited and found correct,
(Signed) E. W. C. WHITTAKER, F.S.A.A.,
Southampton. Incorporated Accountant,
21st March, 1934. Hon. Auditor.

£339 15 11

PAYMENTS.			£	s	d	£	s	d
By Subscriptions to :—								
S.E. Union of Scientific Societies ..				7	6			
Congress of Archaeological Societies			3	0	0			
The Society for Protection of Ancient Buildings			1	1	0			
English Place-Name Society			15	0				
Royal Society for Protection of Birds			1	1	0			
Commons and Footpaths Preservation Society			1	1	0			
						7	5	6
33	Hon. Secretary's Expenses for Organising Meetings					11	5	
33	Hon. Secretary's Postages					4	1	4
33	Hon. Editor—Out of Pocket Expenses					3	8	8
Miscellaneous :—								
33	Hire of Council Room					1	18	0
33	Hire of Room for Exhibition					2	5	0
33	Printing, Addressing, Postages, etc.		44	0	0			
33	Printing Subscription Ledger and Two Receipt Books		2	15	3			
33	Printing Volume XII, Part II		134	10	2			
33	Sending out <i>Proceedings</i> XII, Part I, May, 1932 ..		2	2	0			
33	<i>Proceedings</i> Account					1	13	3
33	Isaac Taylor's Map		62	1	4			
33	Duplicating Annual Report					12	6	
33	Reports for 1930 and 1931 from Congress of Archaeological Society					4	16	0
33	Official Year Book					8	6	
33	Clearing Rampart at Bury Hill		1	10	6			
33	Printing Balance Sheet, 1932, and additional 1931		1	11	6			
33	Excavations at Meon Hill		50	0	0			
33	Cheque Book					5	0	
33	Balance at Bank—Deposit Account		N	1	L			
	Current Account		14	0	0			
						14	0	0

£339 15 11