

The Bird Pests of British Agriculture in Recent Centuries

By E. L. JONES

"I found during my daily walks that the study of the agrarian topography and history of Kingham was quite compatible with that of its birds."—W. Warde Fowler, *Kingham Old and New*.

A FEW years ago Colin Tubbs and the present writer were able to open an article with the pronouncement that "little work which falls squarely and designedly under the head of ecological history has been carried out in Britain."¹ The assertion would no longer ring true. Public concern about pollution and interest in conservation of the environment threatened to engulf the news media and many scientific journals during the late 1960's. Professional historians have been slower to take an interest in the emergence of severe environmental damage—decades or even centuries ago in the developed countries—but the historical interests and professionalism of ecologists have very much increased.

The concern of the present paper is to examine the successive bird-pest problems which changes in habitats and farming systems have created in Britain since the seventeenth century; the programmes to control different types of pest which were put into operation; their consequences; and to suggest some analogies with the problems generated by the intensification of agriculture in less-developed countries which are now striving to attain high incomes under environmental conditions even more sensitive, perhaps, than in the British case.

I

Man's activities during the centuries of vigorous agricultural development in Britain repeatedly created new habitats and opportunities for birds—novel niches into which some species forcefully imploded. The evolving mixes of crops and stock, which changing relative prices brought into being, were subject to depredations by now one, now another, group of species which therefore rose from the status of a mild irritant to the farmer to that of a major pest. Eradication campaigns necessarily changed direction and emphasis in attempts to cope with the emerging pests of altering agricultural ecologies; and the

¹ 'Vegetation of Sites of Previous Cultivation in the New Forest', *Nature*, 198, 1963, p. 977. I am grateful to Dr E. J. T. Collins for offering to read the present paper at the B.A.H.S. Conference on Agriculture and the History of the Environment in November 1970, and to him, Dr Bruce Campbell, and Messrs L. R. Lewis and C. R. Tubbs for commenting on a draft.

success of these campaigns is not unimportant in helping to explain the increase of British agricultural output, or the reduction of losses, during the recent centuries. These matters have not figured in the writing of agricultural history commensurately with their importance to the economy as it sought to minimize depredations on its production of food for man and his farm animals, that is to reduce the 'untaken harvest' lost to competing species.

Birds are not, of course, the sole competitors with agricultural man. Insects are often serious pests; but insectivorous birds do act as biological control agents over them. Rodents are a major menace and we shall touch briefly on their depredations. The damage they do may be gauged in that almost one-third of India's grain production is lost annually to rats.¹ But once again, in Britain, birds (barn owls) were encouraged as agents of biological control over rodents. And in the world as a whole birds may rival or outclass rodents, or locusts, as crop pests.

Agriculture is an ordering of ecosystems by man to divert the energy flows of plant production to his own ends, including the needs of his beasts of burden and meat and dairy animals. In temperate zones this has involved reducing the number of plant species growing on any one plot and in the case of crops other than grass usually cultivating them in rows. In Britain, recent centuries have seen more and more of the land surface come under more carefully tended crops, including grass, as the 'waste' (often low-intensity grazing land, sometimes partly wooded or scrub-grown) has been transferred by enclosure from communal ownership to private hands and broken up for crop-growing on rotation. Although there have been set-backs during arable depressions, when large expanses of land reverted to rough grazing and scrub, reclamation was the secular trend. It had a direct impact on the composition and density of bird populations, which respond sensitively to shifts in the mix of food supplies, nesting sites, and roosting cover available. The very long-term trend towards simpler agricultural environments with more of the land surface under a limited range of crops, subject to increasingly standardized management practices, *may* have diminished species-variety among birds while, by providing exceptionally favourable conditions for a handful of species (emergent pests), increasing their total biomass. The requirements of the market make it difficult to control the burdensome few bird species which are classified as 'pests' under any one agricultural system by amending the cropping pattern so as to render it unfavourable for them. For instance, effective though it has been shown to be, starving wood pigeon flocks by reducing the acreage of the clover on which they depend at critical periods in winter might well defeat one of the objects

¹ Jules Janick *et al.*, *Plant Science*, San Francisco, 1969, pp. 302-4. See also *The Sunday Times*, 27 October 1968.

of farming.¹ Direct measures of control, killing bird pests by any available means, were necessarily favoured.

In a historical review we must leave aside the problems of a discrepancy between heavy but often very seasonal agricultural damage by birds and the ultimate financial loss. Data are not available, at least not at all readily, but we can observe that physical losses may well have been offset for the farmer by a rise in prices following a reduction in the output to be marketed. Similarly, we must leave aside the growing conviction during the nineteenth century that severe, blanket measures of bird control were not justified because some species were instrumental in keeping down insect or rodent pests and most species at least fed their young on insects thought to be injurious to agriculture.² Practising farmers were probably less open to these doubts about the harmfulness of birds than agricultural writers were.

We may be sure that agricultural change gave rise to bird communities as artificial as the landscape in which they lived. It is true that rather few species caught the eyes (or shotgun pellets) of early naturalists or so-called sportsmen. Most birds adjusted to shifting land-uses and farm methods far too subtly for their fortunes or fate to appear in the patchwork of early ornithological records. The more conspicuous species to the naturalist, the farmer, or the sportsman must stand proxy for them and for their changing response to agricultural development. Birds labelled as 'pests' naturally stand out among these 'indicator species'. The outstanding indicator species of change during the late seventeenth and early eighteenth centuries are birds which were very heavily persecuted, like the kite, buzzard, and raven which preyed on farm poultry and young livestock, and the bullfinch and jay which stripped fruit buds. The indicator species whose response to increasing cultivation of their preferred habitat can be documented include the great bustard, the stone curlew, and the wheatear. And the conspicuous indicator species which were given the chance to swarm by the emergence of the more intensive mixed farming systems of the eighteenth and nineteenth centuries were those pests the wood pigeon, rook, skylark, and house sparrow. In the minds of agriculturists these

¹ Cf. I. Newton, 'Some Aspects of the Control of Birds', *Bird Study*, 17, 1970, pp. 183-5.

² H. Stephens noted in his *Book of the Farm*, 4th edn, 1891, III, p. 110, that whereas once it was thought that "every bird consumed seeds to support their young . . . Now it is known beyond doubt that most birds feed their young on animal, and not on vegetable, food." Charles Waterton had denounced a concerted campaign against the rook in Scotland in the second quarter of the nineteenth century on the grounds that the rook as an eater of grubs was of net benefit to agriculture.—*Essays on Natural History*, London, 1857, pp. 167-75. See also Samuel Copland, *Agriculture, Ancient and Modern*, London, 1867, II, pp. 616-17, and the investigations of R. T. Gunther in the First World War, *Report on Agricultural Damage by Vermin and Birds in the Counties of Norfolk and Oxfordshire*, O.U.P., 1917, and in the Second World War by James Fisher described in his *A History of Birds*, London, 1954, p. 141. The pros and cons of various species from the farmer's viewpoint were discussed in leaflets issued free by the Board of Agriculture and Fisheries during the first decade of the twentieth century. See *Leaflets Nos 1 to 100*, London 11th edn, 1913.

formed a second generation of pests: one might sum up by saying that each farming system got the pests it deserved.

II

Soon after the Restoration a major campaign against bird pests was initiated. This onslaught concentrated firstly on raptors and corvids—kite, buzzard, and raven, which preyed on farmyard poultry and on weak lambs or damaged the hides of dead and dying sheep, and secondly on species, mainly bullfinches and jays, which stripped whole orchards of buds. The protection of poultry, young stock, and fruit loomed large at this period because as distinct from Tudor and early Stuart times grain had become plentiful. England was becoming a substantial exporter of wheat to western Europe. There was room at home to vary diets with more protein. Poultry probably increased in numbers, sheep certainly did, and specialized fruit production grew in response to this demand and in order to buffer farm incomes against weakening cereal prices.¹

Kites and ravens had been protected scavengers in late medieval and early modern London. Clusius reported as many kites there in 1571 as in Cairo, but by the eighteenth century London kites were rare. There is admittedly no conclusive evidence as to whether these birds were red kites (*Milvus milvus*) or black kites (*M. migrans*) but although there is an overlap in range, habitat, and behaviour between the two species, the black kite is the chief street scavenger and was probably the London kite, whereas the red kite tends to become a specialized poultry feeder and was probably the bird of the countryside.² London kites may have decreased to the point of extinction because the streets were cleansed by a large-scale scouring for manures to sell to agriculturists; rural kites came under severe attack as vermin. Ravens, too, lost their privileged status, according to R. S. R. Fitter, "some time between the reigns of Elizabeth and George III."³ Robert Smith, author of *The Directory for Destroying Rats and other Kinds of Fourfooted and Winged Vermin* (1768) claimed to receive as much for killing ravens as for kites and hawks. They had all acquired a bad name for killing young chicken, ducklings, and rabbits, which more than offset their value as scavengers. London ravens were visiting country rabbit warrens, where they were identifiable by the dirty brown of their plumage contrasting with the jet-black of the country ravens.

These species lost their protected status quite abruptly in Charles II's reign,

¹ The causes of this switch in emphasis are still inadequately understood, but see E. L. Jones, *Agriculture and Economic Growth in England, 1650-1815*, London, 1967, pp. 159 ff.

² See M. L. Grossman and John Hamlet, *Birds of Prey of the World*, London, 1965, pp. 232-3; James Fisher, *The Shell Bird Book*, London, 1966, p. 312; A. E. Keys, *History of Eastington, Glos.*, privately printed, 1953, pp. 56-64; and R. Meinertzhagen, *Pirates and Predators*, Edinburgh 1959, pp. 85-6.

³ R. S. R. Fitter, *London's Natural History*, London, 1945, pp. 51-2, 86-7.

when Acts of Henry VIII (1532-3) and Elizabeth (1566) mainly directed against corvids preying on grain were widened in scope and made really forceful. Perhaps individual enterprise could earlier be relied on to combat depredations against precious cereal crops; perhaps heavy losses had been acceptable as part of the natural order. Now the Acts became so interpreted that the churchwardens of each parish could pay head-money for many species of birds and mammals, not simply those inimical to grain production. The churchwardens' accounts for Tenterden in the Weald of Kent for 1626-7 to 1711-12 record payments of head-money for many bird vermin. The kite was not mentioned until 1654-5 and from then until 1675-6 an average of little over two per annum were paid for. But "in the following year there began . . . an intensive campaign for the thinning out of vermin."¹ This campaign lasted about fourteen years, during the first ten of which 380 kites were paid for, 100 in 1684-5 alone. Although there is no evidence of a slackening of effort, the number of kites killed dropped from thirty-five in 1686-7 to thirteen and two in the following two seasons. Thereafter no more than twelve are included in the accounts for any one year. No large raptor's population could withstand such a drain on its numbers, taking place as it was during an era of forest clearance in Kent and elsewhere. A similar campaign was mounted against the buzzard and raven, and other pests, with the result that heads paid for in the peak years 1680-1 to 1689-90 totalled 8,557. Before 1676 only fourteen ravens and three buzzards appear. Very large numbers of ravens, magpies, and crows, but very few kites, stand in the accounts for 1688-9. The larger birds could most easily be procured from the nest partly fledged, which is what repetitive entries relating to lots of two, three, or four heads suggest was the mode of capture. This is supported by the occurrence of nesting-season dates for such entries as are dated. It is especially interesting that a sparrow hawk always realized twopence, so that there was no inducement to palm off its head as that of one of the larger raptors which fetched less.

Specific campaigns against the larger bird pests show up against the figures of mammals killed—foxes, polecats, weasels, stoats, and hedgehogs—which appear in fairly steady annual numbers, except that one or the other usually increased in the years when special action was being taken against the birds. The greatest concerted effort, that starting in 1676, shows a rapid and unbroken rise in the total of bird and mammal heads paid for, to a peak of 2,100 in 1683. Then, for seven years, although with annual fluctuations, the average was approximately 1,600, dropping suddenly to 212 in 1691-2. From then until 1697 no crows, rooks, magpies, or jackdaws at all are listed, the price on their

¹ N. F. Ticehurst, 'On the former abundance of Kite, Buzzard, and Raven in Kent', *British Birds*, 14, 1920, pp. 34-7, and 'Rewards for vermin killing paid by the churchwardens of Tenterden, 1626 to 1712', *Hastings and East Sussex Naturalist*, 5, 1935, pp. 69-82.

heads having apparently been removed. The campaign had seemingly reduced pest populations to levels below those where it was worth the community offering a reward. But in 1697 another drastic thinning-out began and for the next few years large sums were expended, the total take of individual species ceasing however to be distinguished. Only two owls were ever paid for—their true worth was understood—and no payment was made for house sparrows. That was to come.

An explanation of this impressive drive might be that the chief local agriculturists who would figure disproportionately among the churchwardens or could influence them had decided to reduce these particular overhead costs of farming. They were, in effect, securing themselves a subsidy out of the public purse. All ratepayers would have to contribute to the cost of the campaign but the farmers would benefit most, as with the later 'roundsman' system of paying for the employment of pauper labour. The earlier pest control payments would be more acceptable since most people in the countryside would keep poultry and it was on these which the main objects of the campaign preyed—witness a Dorset landowner's note in 1697, "yesterday I by chance rescued one of my chicken from the Kite."¹

Available sources do not permit us to demonstrate that the campaign in the Weald was at first national in extent. Indeed, this is unlikely. Kites, buzzards, and ravens resisted the persecution in some degree and were only gradually driven to the far west, the final pressure coming from the Victorian gamekeeper. Nevertheless the pressure was on, and the red kite, for example, was uncommon by the early nineteenth century in lowland Britain. John Knapp of Alveston, Gloucestershire, who was born in 1767 could recall a chance capture of fifteen kites when he was a small boy, since when he had seen the bird only in pairs or singletons until by 1829 it had become a rare transient in the district, driven away to bigger woods and lonelier spots and made so shy of man that it only approached the skirts of villages to collect nesting material. Its once considerable numbers were "greatly on the decline."² The national population was down to a reported five individuals in mid-Wales by 1905 and the black kite had quite gone, with only five *records* since 1866. There are indications of campaigns contemporaneous with that at Tenterden, for instance at Great Budworth, Cheshire, 1s. 4d. each was paid for 4,470 crow (i.e. rook) heads alone between 1699 and 1703 until in the last-mentioned year the vestry resolved to offer no more payment for them or for fox or hedgehog heads.³ At Crosby, Lancashire, in the first years of the eighteenth century Nicholas

¹ W. B. Barrett, 'The Pepys of South Dorset', *Proc. Dorset Nat. Hist. and Antiquaries Field Club*, xxviii, 1907, p. 41.

² Anon [J. L. Knapp], *The Journal of a Naturalist*, London, 1829, pp. 230-1.

³ A. W. Boyd, *A Country Parish*, London, 1951, pp. 25-6.

Blundell recorded, "I shot one Kite and 13 Crows . . . Betty Swift sent me a Mare to lay to shoot Kites at," i.e. a carcass for bait. When he had given up shooting, his Disbursements Book maintained regular entries "for killing Kites and Hawks."¹ Larger raptors were persecuted wherever sheep were central to the farming system. In Borrowdale a rope was kept especially for raiding golden eagle eyries every year. Adult eagles, and ravens, were killed and the vermin payments recorded in the parish registers.²

The second major target of post-Restoration pest control were species which eat the buds of fruit trees. An increase in orcharding took place in the late seventeenth and early eighteenth centuries as one feature of diversification of agriculture.³ The expansion of the specialized orchard habitat gave scope for the focusing on, and probably the increase of bud-stripping by, bullfinches and jays. Bullfinches in particular occur in churchwardens' accounts as the occasion of substantial 'vermin' payments. Under the obsolete names 'maupe' and 'malpe' many more bullfinches seem to have been killed at Totherne, Wilmslow, and Weaverham in Cheshire than could be found in the locality today. For Great Budworth the entry was made on 11 April 1678, "pd Raph Shawcross for 43 Moaps 00.01.04." At Eastington, Gloucestershire, bullfinches appear in accounts running from the early seventeenth to the early nineteenth centuries only between 1721 and 1755.⁴ At Tenterden in Kent there were only sporadic mentions of jays during the first fifty-three years of the accounts, but four years after the start of the big vermin campaign the numbers shot from two in 1679-80 to 192 in 1681, and in the following nine years 2,273 were paid for. With the general slackening of effort evident in the slaughter of birds of prey, the numbers fell from 271 in the 1689-90 season to thirty in 1691-2, three the next year and none the year after that. The entries for bullfinches are exactly parallel. The species was not mentioned for fifty years (from 1628-9), but thirteen were accounted for in 1679-80, thirty-nine in 1680-1, and 1,408 in the succeeding nine years. Thereafter the numbers fell from 200 in 1689-90, to twelve in 1691-2, and three in 1694-5. Like the jay, payments for bullfinches

¹ Margaret Blundell (ed.), *Blundell's Diary and Letter Book, 1702-28*, Liverpool U.P., 1952, pp. 142-3, 188.

² William Rollinson, *A History of Man in the Lake District*, London, 1967, p. 130n.

³ For the West Midlands see R. C. Gaut, *A History of Worcestershire Agriculture*, Worcester, 1939, p. 193; P. Morgan, 'George Skyppe's Catalogue of Books,' *Trans. Woolhope Club*, xxxv, 1955, p. 27; T. W. M. Johnson, 'The Diary of George Skyppe of Ledbury,' *ibid.*, xxxiv, 1952-4, p. 56; E. Ball, 'Fruit Trees Planted by George Skyppe and his son at Upper Hall, Ledbury,' *ibid.*, xxxiv, 1952-4, p. 268; Notebook of Richard Hopton, 1724-48, Hereford City Local Collection, Deeds, 9329; Diary of John Holder of Taynton, Glos., 1691-1730 (copy in possession of M. A. Havinden); H. P. R. Finberg, *Gloucestershire Studies*, Leicester, 1957, pp. 176-9; for Kent see C. W. Chalklin, *Seventeenth-century Kent*, London, 1965, pp. 90-1; for Lancashire see Blundell, *op. cit.* pp. 183-4.

⁴ A. W. Boyd, *The Country Diary of a Cheshire Man*, London, 1946, p. 14; Keys, *op. cit.* pp. 56-64.

became once again sporadic and trivial.¹ It is noteworthy that both the jay and the bullfinch had always fetched comparatively high *per capita* rewards and continued to do so; the wave of extermination revealed by the figures does represent a calculated campaign to protect fruit production.

III

One of the more paradoxical features of English agricultural history was the reclamation of land previously only grazed or summer-grazed which took place simultaneously with the post-Restoration expansion of livestock (and fruit) production. This was partly due to the development of intensive mixed farming systems and partly the result of contrary regional shifts in land use. After the middle of the eighteenth century the increases in population and the prices of basic foodstuffs produced a much less ambiguous re-emphasis on cereal production, with, in the latter part of the century, at least, further and very extensive reclamation. From the ornithological point of view there were important associated modifications to habitats, notably the planting of miles of new hedgerows, the establishment of whole new farmsteads out in the enclosed fields or former 'waste', and the draining of wetlands.

The process of extending mixed farming on to former sheep-down may be seen in miniature in the work of one Cotswold family, the Trinders of Holwell, Oxfordshire. Two brothers made a legal agreement in 1672, "to purchase, take, and buy for their joint and equal benefit all such estates as can be procured . . . in Holwell . . . And likewise to procure the Common downs or as much thereof as they can to be ploughed and sown with corn." This they did. The entire family were oddly agreed, part Protestant, part Roman Catholic, and another brother who fled to Flanders in 1689 may have come back with some notions from its advanced agriculture, for in 1693 another agreement was made to plough up 400 acres of pasture, fence it with quickset (probably hawthorn) or walls, and sow much of it with "St Foyne, Great Clover, Hop Clover, Rey Grass, Lucerne, or other seeds of Forreine grasse" for hay. In 1725 or 1727 a big barn, Godfrey's Barn, was built on the family's largest parcel of newly enclosed fields. It had a cat hole in the door² and in 1969 contained a barn owl's feather and pellets.³

The Trinders had replaced the wold grazing with rotations of cereals and fodder crops, and the store they had built would be subject to depredations

¹ N. F. Ticehurst, 'On certain other species of birds and their former status in Kent', *British Birds*, 14, 1920, pp. 86-7.

² By the mid-eighteenth century cats, of whatever colour, were deemed lucky, whereas previously they had often been feared as 'familiars' of witches. The last witch was burnt in Britain in 1722.—Brian Vesey-Fitzgerald, *The Domestic Cat*, London, 1969, pp. 53-4.

³ A. S. T. Fisher, *The History of Broadwell, Oxfordshire*, privately printed, 1968, *passim*, and site inspection. I owe the reference to Rev. David Peck.

from rats and mice. Barn owls were a form of biological pest control: they would keep down the rodents. Stylistically similar barns on the Cotswolds, as elsewhere, often possess owl holes presumably dating from the eighteenth and nineteenth centuries. (A cat hole could be cut in a wooden door at any time and is not so obviously dateable.) Rodent control became crucial as a defence against the invasion by the brown rat, the so-called Norway rat, which began about 1730. William Morris, writing from Holyhead in 1762, said that, "on Monday last, I had three men reaping all my corn, and not a little trouble did we have; Norwegian rats devoured it standing."¹ Rodent depredations were, however, worst on stored grain. "RATTS IN THE REEK" warranted an entry in block capitals in the farm accounts of Francis Prior of Ufton Nervet, Berkshire, in 1777.² Gilbert White, sheltering at the only farm out on the downs between Andover and Winchester in 1787, reported that despite the isolation, it was "much annoyed with Norway rats."³ Indeed the granaries of Hampshire farms were raised up on staddle stones to keep out rodents during the grain shortages of the Napoleonic wars; staddles were "fast gaining ground" in 1809.⁴ But birds as well as rodents were a pest of stored grain. The agricultural commentator on Derbyshire at the same period noted that it was usual to tuck in all straw ends on ricks to a depth of four or five inches so that the straw would be too tightly compressed for birds to peck and pull it.⁵

The emergence of a new ecosystem involving more extensive cereal-growing and attendant habitat changes produced its own new wave of avian pests, but it is as conclusively identified by the decline of the birds of a wilder landscape. Seventeenth-century descriptions of the chalk uplands refer to large, central blocks of plateau grass, mostly bare of trees and scrub, close-bitten by huge flocks of sheep. Birdlife was rather scarce on these open downs, but the community included great bustards, partridges, skylarks, and wheatears. One account written between 1673 and 1694 (but probably after 1680) explains that Salisbury Plain possessed "a Turfe as fine and more sweet than a silken carpet," where the fowlers trapped "Larks and little Wheatears" and where the bustard persisted.⁶

From the late seventeenth century the artificial steppes of the downs and comparable dry upland pastures experienced a transition to cereal and fodder-crop rotations, made technically possible by the introduction of grasses, 'seeds', and roots to feed arable sheep flocks which were walking manure carts, and

¹ Quoted by Brian Vesey-Fitzgerald, *The Vanishing Wildlife of Britain*, London, 1968, p. 97.

² Frederic Turner (ed.), *A Berkshire Bachelor's Diary*, Newbury, 1936, p. 44.

³ Walter Johnson (ed.), *The Journals of Gilbert White*, London, 1931, pp. 299-300.

⁴ Charles Vancouver, *General View . . . Hampshire*, London, 1810, pp. 58-70.

⁵ J. Farey, *General View . . . Derbyshire*, London, 1813, II, pp. 112-13.

⁶ H. C. Brentnall, 'A Longford Manuscript', *Wiltshire Archaeological Magazine*, LII, 1947, pp. 1-56.

without which the thin soils could not be kept in heart. With this contraction of the open grasslands their largest bird species, the great bustard, ceased to nest in Britain. Other species also decreased, but they were able to recover during arable depressions when the land tumbled down to rough pasture.¹ The steepest decline of the bustard seems to have come during the 1770's and 1780's. According to J. Swayne, about 1785 or 1786, "I often heard conversations amongst farmers . . . [on Salisbury Plain] about the scarcity of bustards on the Down, which they attributed to the heath, etc., being broken up and converted to tillage, and to the corn being weeded in the spring, whereby the birds were disturbed and prevented making their nests."² While Gilbert White was sheltering on the downs between Andover and Winchester in 1787 he learnt from the carter that "about 12 years ago he had seen a flock of 18 bustards at one time on that farm, and once since only two."³ The bustard, which had inhabited open parts of eastern Scotland and eastern England in the seventeenth century, had gone as a breeding species from southern England before Waterloo; it lingered longest on the Yorkshire and Lincolnshire Wolds (until the 1820's) and in Norfolk and Suffolk (until the 1830's).

Certainly, hunting and shooting as well as agricultural activity were responsible for the great bustard's decline. One seventeenth-century Earl of Pembroke used to hunt bustards with a greyhound pack and the shepherds chased them with their dogs. The prodigious bills of fare at medieval feasts had been supplied by the cross-bow and not until 1533 do the accounts of the L'Estranges of Hunstanton (1519-78) record an ominous technological advance: "Itm a watter-hen kyllled wt. the *gun*," and swiftly afterwards a crane, another crane, a mallard, and a wigeon were gunned down. These and other Norfolk accounts record a gradual increase in the use of guns to shoot birds during the sixteenth century, while the development of the light flintlock by the end of the seventeenth century, of 'shooting flying' after the Restoration, and in the nineteenth century the production of breach loaders and percussion caps all greatly stepped up the pressures.⁴

Nevertheless, reclamation for agriculture was the major force changing bird populations. One element, better recorded than most, was the draining of

¹ See E. L. Jones, 'Birds and Land-Use in North-West Hampshire' in Edwin Cohen (ed.), *Birds of Hampshire and the Isle of Wight*, Edinburgh, 1963, and 'The Lambourn Downs' in M. C. Radford (ed.), *The Birds of Berkshire and Oxfordshire*, London, 1966, with sources cited; for Wiltshire see A. C. Smith, *The Birds of Wiltshire*, Devizes, 1887, pp. 339 ff.; and for Yorkshire see E. W. Wade, 'Birds of East Yorkshire' in T. Sheppard (ed.), *Handbook to Hull and the East Riding of Yorkshire*, London, 1922, pp. 343-6.

² J. Swayne, 'The Bustard', *Wilts. Arch. Mag.*, II, 1885, p. 212.

³ Johnson (ed.), *op. cit.*, pp. 299-300.

⁴ Thomas Southwell, 'On the Ornithological Archaeology of Norfolk', *Trans. Norfolk and Norwich Naturalists' Soc.*, I, 1870-1, pp. 18-19; A. C. Smith, 'Memoir of Mr John Legg of Market Lavington, an advanced Ornithologist of the 18th century', *Wilts Arch. Mag.*, XXVIII, 1894, p. 12.

wetlands in Lincolnshire and Norfolk. Thomas Southwell's 1879 edition of Richard Lubbock's *Observations on the Fauna of Norfolk* (first published in 1845) remarks (p. iii), "the changes during the past thirty years have indeed been great, perhaps greater than during any like period in the history of our Island. Railways, steam draining mills, and improved cultivation have changed the quaking bogs, where once the Gull placed her procreant cradle, into green pastures where herds feed in safety; the 'wavy swell of the soughing reeds' has given place to the bending ears of golden corn; and the boom of the Bittern, the scream of the Godwit, and the graceful flights of the glancing Tern are sounds and sights altogether of the past." Lubbock himself, in a note, referred to similar changes between 1816 and 1847 and by report during the second half of the eighteenth century, concluding that "oats are grown where seven or eight years back *one hundred and twenty-three* Snipes were killed in one day by the same gun."

Reclamation entered its last impressive phase during the nineteenth century. Albert Pell, in 'The Making of the Land in England: a Retrospect',¹ described a Midlands parish of 1,648 acres enclosed in Elizabethan times but where roads, fences, and hedges were made in the nineteenth century and 1,600 acres drained (not necessarily profitably). There, private diaries showed that as late as 1808 the squire had commonly taken in draw-nets snipe, dotterel, and woodcock which were hardly ever seen by the 1880's. The apogee of Victorian reclamation came during the 1850's. We may cite the instance of Grunty Fen near Littleport, Cambridgeshire, which had been a thistle-grown swamp, "a paradise for goldfinches in the summer and fairly attractive for snipe in the winter." In a second article Pell quoted a written account by the landowner who had set about organizing its reclamation in 1857 and who, on the final day before cultivation work started, shot thirteen couple of snipe.² Or we may mention the final onslaught against the royal forests, the disafforestation and carving into fields and farms of 1,970 acres of forest in Wychwood, Oxfordshire, between October 1856 and January 1858, to the accompaniment of a communal slaughtering of the wildlife.³ Such examples may be multiplied.

The new agricultural environment was in some ways richer in birds than before. Professor Hoskins has observed that the thousands of miles of new hedgerows, and the canals, in the Midlands added to the small-bird population and its variety, while noting the extermination of larger predators like the kites ("a process that is abundantly recorded in the churchwardens' accounts or the

¹ *J.R.A.S.E.*, 2nd ser., XXIII, 1887, p. 362.

² Albert Pell, 'The Making of the Land in England: A Second Retrospect,' *J.R.A.S.E.*, 3rd ser., x, 1899, pp. 138-9.

³ C. Belcher, 'Reclaiming of Waste Lands as Instanced in Wichwood Forest', *J.R.A.S.E.*, XXIV, 1863, p. 274.

field-reeves' books of Midland villages") and the loss of heathland species.¹ Recently Dr Norman Moore and others have reviewed the history and ecological function of hedgerows as background to a study of the consequences of their present speedy destruction by farmers.² They show the great dependence of the existing bird fauna on hedges by the neat device of comparing census transects of the surviving open fields at Laxton, Nottinghamshire, with ones along the hedges of neighbouring enclosed land. The average density of birds per 1,000 yards of transects which included hedges was considerably higher (20.5) than in those which had none (8.3); land with hedges was also richer in numbers of species. More plantations, fox and game coverts, windbreaks, and even rural houses introduced a greater variety into the former habitats of open fields or barren heaths and wolds. There is a famous passage in Macaulay in which he starts by describing the untamed state of England in 1685 and concludes that, "it seems highly probable that a fourth part of England has been, in the course of little more than a century, turned from a wild into a garden."³ Yet garden does not convey quite the correct impression where bushy pastures and reedy fens had been converted into comparatively uniform arable fields.

IV

A particular range of species—pests—prospered greatly in the new environment. Unfortunately, although many parish histories quote instances of payments for vermin killed they seldom provide enough data for analysis. The largest collection of information seems to be J. S. Elliott's *Bedfordshire 'Vermin' Payments* (Luton, 1936), where there are breakdowns by species and parish, occasionally from Elizabethan times but mostly from the eighteenth and nineteenth centuries. For all the detail, the extreme difficulty of deducing patterns from scrambled and discontinuous summaries of payments stands revealed. Most begin too late for comparison with the Kentish campaign against predators and bud-eaters. The last payments for mammals are from the 1830's, for birds (house sparrows) from the 1870's.

With the house sparrow we reach the rise of a new wave of pests on cereal crops. Sparrows increased in numbers in the countryside with the spread of mixed farming. The Bedfordshire parish payments suggest the heaviest slaughter from c. 1800 to c. 1830. It is only to be expected that the threatening food scarcity at the turn of the eighteenth and nineteenth centuries would have produced a sharper reaction against the pests of grain crops. An increase in the bounty on sparrow heads was advocated by one agricultural writer about

¹ W. G. Hoskins, *The Making of the English Landscape*, London, 1955, p. 153.

² N. W. Moore *et al.*, 'Hedges. 1. Introduction and Reconnaissance Studies', *Journ. Applied Ecology*, 4, 1967, pp. 201-20.

³ Lord Macaulay, *Works*, 1898 edn, pp. 326-8.

1790.¹ James Wright brought out his *Observations upon the important object of preserving wheat and other grain from vermin* in 1796. William Cobbett's private farm accounts for Botley, Hampshire, include an agreement of 1808 with a Mr Cowherd to pay very high prices for vermin of all kinds—and Cobbett did pay.² Not long afterwards, however, the exercise was starting to seem redundant. John Knapp of Alveston in the Severn Vale protested in 1829 that the parish still paid for vermin heads, observing that while this may once have been necessary to keep down predators in a thinly populated, wooded district, the clearing of the woodland by the axe and the plough, with intensive gamekeeping, meant that "our losses by such means have become a very petty grievance." He was particularly incensed by a recent payment in the churchwardens' accounts for 17 dozen tomtits' heads.³ As the nineteenth century advanced it was increasingly recognized that birds were less universally harmful and sometimes, through eating insect pests, positively valuable, so that any cost-benefit analysis became most complicated.

Nevertheless, even the incomplete Bedfordshire records show that millions of house sparrows were killed and tens of thousands of eggs taken during the eighteenth and nineteenth centuries. At Moggerhanger in Blunham, as an example, payments for sparrows start in 1720-1 (in accounts which begin in 1709-10) but became really sizeable after a Vestry Meeting in 1784. At Harlington sparrows had been on the black-list in 1685 and again in 1699, and although Vestry orders evidently exempted them in 1734 and 1737 they were once more doomed in 1743, becoming an annual charge until all payments stopped in 1831. At Eaton Socon rewards were first paid for sparrows in 1768 and although the records are described as "chaotic" some 250,000 were accounted for between 1782 and 1855. At Stanbridge, where the accounts run from 1733 to 1839, sparrows were killed from the start but no great toll was exacted until 1767. According to the species' monographer, records of payments begin in Warwickshire in 1744,⁴ and Ticehurst concurs with a mid-eighteenth century start in Kent. The new habitat of farms out in the fields provided the house sparrow with breeding and roosting stations—as was reported, it "becomes immediately an inhabitant of the new farm house, in a lonely place or recent enclosure"—⁵while more extensive grain-growing provided much more food. It is not surprising that the bird became a numerous

¹ Anon., *The Complete Farmer*, 4th edn, n.d. [c.1790], under 'Sparrow'.

² Nuffield College MSS. XIII, Farm Account Book, 1810-12.

³ Anon. [J. L. Knapp], *op. cit.*, pp. 163-4.

⁴ D. Summers-Smith, *The House Sparrow*, London, 1963, p. 217. The species was accused of often taking almost every grain for yards around the perimeters of fields, of following the sowers, the reapers, the threshers, and the poulterers to rob them.—J. M. Wilson, *The Rural Cyclopaedia*, Edinburgh, 1852, II, p. 635.

⁵ Anon. [J. L. Knapp], *op. cit.*, p. 218.

pest which farmers attempted to reduce. During the nineteenth century, many parishes formed sparrow clubs. Details of organizing a club were given in leaflet 84 of the Board of Agriculture and Fisheries in 1908. Clubs were active during the First World War, and apparently one or two survive. They may not have been very successful, although a good naturalist attributed an increase of sparrows on Humberside in 1872 to the cessation of paying 'sparrow money'. An earlier authority thought that the problem was exaggerated; that although house sparrows threatened the bread grains in autumn they were easily netted at their communal roosts, or shot and trapped through the winter in dozens in the chaff by the barn door, thereby keeping the breeding population down to an even level.¹ But on balance farmers were probably correct in thinking that the species consumed more grain than weed seeds. Farmers near towns were subjected to autumnal plagues of sparrows and were obliged to grow coarse-bearded wheat, the long awns of which baffled the birds as they clung trying to peck out the ears but the quality of which was inferior.

Rooks were looked on as the old arch-enemies. The scale of depredation feared from them—one can put it only as a fear—is summed up in the jingle about dibbling:

"Four seeds in a hole:
One for the rook, one for the crow,
One to rot and one to grow."

The crow referred to was probably the rook by another name. In other versions the wood pigeon is linked as a culprit. The Bedfordshire accounts show sizeable parish payments for field-keepers' wages, guns and their repair, powder and shot, and there are plenty of cases of payment for 'crow-keeping' or 'crow-scaring'.² Down the east coast the related hooded crow was numerous enough as a winter visitor in the early eighteenth century to threaten sown grain, and the farmers hired boys to drive them away until the crop had sprung.³ But it was mainly the colonial nesting rook, so often confused with the resident carrion crow in observation and nomenclature, which exercised cereal-growers. The Giles of Robert Bloomfield's poem *The Farmer's Boy* (1800) was described as a bird-scarer at Euston, Suffolk, in the spring. He thought little of setting scarecrows—"harmless riflemen of rags and straw"—but recommended placing dead rooks prostrate on the ground, moving them at evening or morning from place to place, so that "death shall terrify the pilfering race."

In practice nothing worked except constant thinning and relentless scaring, dependent on an ample supply of cheap boy or pensioner labour, which popula-

¹ Anon. [J. L. Knapp], *op. cit.*, pp. 216-17.

² Elliott, *op. cit.*, pp. 19-20.

³ John Lewis, *The History and Antiquities . . . of the Isle of Tenet [Thanet] in Kent*, London, 2nd edn, 1736, p. 24.

tion growth in the late eighteenth and nineteenth centuries did produce.
 "William May's Little Boy end'd Bird Keeping

6 weeks	6.0
1 day	2
	6.2"

runs a typical farm account entry.¹ The task was long, lonesome, weather-blown, and mechanical.² Yet it was considered vital, and the farmer's own sons were expected to take a toll of possible bird pests.³ Highly organized committees existed in Dumfriesshire and Forfarshire by the mid-nineteenth century to kill rooks.⁴

A new scourge was arising at the end of the eighteenth century and during the nineteenth century in the form of wood pigeon flocks, a scourge brought into existence by shelter belts and plantations, which the species found preferable to deep woods for nesting, and by the availability of clover leys, vetches, turnip and swede greens, and young corn.⁵ Until the seventeenth century the wood pigeon had been a thinly scattered woodland species. By 1775 Hayes in *A Natural History of British Birds* reported that it was abundant in Buckinghamshire where there was especially plentiful beech mast, but that it was generally found flocking in winter to raid the turnip fields. Francis Prior's Berkshire farm accounts noted on 19 May 1788 that, "several Gent etc. met for shooting at Pigeons at Mr. Case's ye 8 mile Stone from Reading."⁶ By 1835 Selby regarded turnips as the main winter food and thought, as the New Statistical Account of Scotland was shortly to do, that the species was increasing in proportion to the extent of that crop and of new plantations for nest sites. By 1850 wood pigeons had so increased in the Cotswolds that in places vetches could no longer be sown for feed. More than one authority thought the species

¹ Turner (ed.), *op. cit.*, p. 75.

² See Anon., *Stubble Farm*, London, 1880, I, pp. 220 ff, 229, or W. H. Hudson, *A Shepherd's Life*, London, 1936 edn, pp. 5-6, 123-34.

³ For example, as a boy in the 1870's Joshua Lamb of Sibford Grounds Farm in Oxfordshire accounted for some 1,250 of various species, according to his notebook seen at the farm by courtesy of Mrs Lamb. The toll included 'buntlarks', the local name for the corn bunting, regarded as harmful to ricks and interestingly called the 'stocking-weaver' by Wilson, *op. cit.* II, p. 634. Bundles of corn buntings were sometimes to be seen hanging among the skylarks in poulterers' shops.—C. F. Archibald, 'Wild Birds Useful and Injurious, II' *J.R.A.S.E.*, 3rd ser., v, 1894, p. 74.

⁴ Edward Jesse (ed.), *The Natural History of Selbourne*, London, 1851, p. 398, notes added by Sir William Jardine, 1850.

⁵ M. L. Anderson, *A History of Scottish Forestry*, London, 1967, II, p. 297; R. K. Murton, *The Wood Pigeon*, London, 1965, pp. 45-8; Anon. [H. H. Dixon], *Field and Fern*, 1865, p. 117; Copland, *op. cit.*, II, pp. 619-20; John Bravender, 'Farming of Gloucestershire', *J.R.A.S.E.*, XI, 1850, p. 175; Jesse (ed.), *op. cit.*, p. 398; and Jones, in Radford (ed.), *op. cit.*, p. 19; It should be noted that the wood pigeon and the bullfinch are the chief bird pests of agriculture in Britain today, both doing damage of a costly but highly seasonal nature.—Newton, *loc. cit.*, pp. 184-5.

⁶ Turner (ed.), *op. cit.*, p. 75.

commoner in the south than the north of Britain, although its depredations were serious in the arable East Lothian and at Galashiels in Selkirkshire. There it had been a very rare bird at the end of the eighteenth century, but by 1850 an association formed by an agricultural society in East Lothian had killed 8,000 birds (counting two eggs as equalling one surviving adult). By 1862 the United East Lothian Agricultural Society offered 1d. for each head and paid out for 130,440 between December 1862 and June 1870. The increased sowing of clover was blamed for the plague in 1865 and it was the clover which was really punished. Further, the wood pigeon is so heavy that merely by alighting on wheat, beating its wings, it threshed the grain, most of which fell through the straw and was lost to the bird as well as to the farmer. The mid-Victorians became so alarmed that a clockwork pigeon-scarer, firing blanks at regular intervals, was devised.¹

Another species the numbers of which had swollen in the new arable habitat until reckoned a pest was the skylark. Like the wheatears trapped on autumn passage by shepherds on the south coast downs as delicacies for the London market, the skylark had long been netted. It had also long been taken at lures, glinting whorls of glass which attracted the bird down from its song-flight. Aubrey recorded this practice and it had been mentioned by Shakespeare.² The catch was toasted as a gourmet's delight; lures and toasters are still found in museums. Before the First World War 20,000–30,000 larks were often displayed in the London markets.³ The skylark had come to be loathed as damaging to shallow-sown sprouting grain and boys were widely employed to scare it with clappers and rattles. In Victorian times guns and poison were added to the nets to take them, presumably to the no small danger of "the epicures of the metropolis."⁴ Before 1850 partridges were being picked up dead in parts of Hampshire from the arsenic in which local farmers were steeping their seed wheat.

This does not exhaust the list of persecuted species which had responded to the opportunities of mixed farming by increasing dramatically. The agriculturist had changed the ecology of Britain—it has been observed that "all forms of life modify their contexts"⁵—and was obliged to be more energetic in protecting his new crop-mix from avian depredations on a new scale.

¹ During the French Revolutionary or Napoleonic Wars—like the third quarter of the nineteenth century, a period of tightening labour markets—"bird clacks" on poles, turning automatically in the wind to frighten off birds, had appeared in the Brailsford district of Derbyshire.—Farey, *op. cit.*, III, 1817, pp. 646–7.

² John Aubrey, *Natural History of Wiltshire*, Newton Abbot, 1969 edn, p. 64.

³ Gunther, *op. cit.*, p. 39.

⁴ Copland, *op. cit.*, II, pp. 622–3; Jesse (ed.), *op. cit.*, p. 398; C. A. Johns, *British Birds in their Haunts*, London, 1882 edn, apparently written 1860, pp. 178–9n.

⁵ Lynn White, Jr, 'The Historical Roots of Our Ecologic Crisis', *Science*, 155, 1967, p. 1203.

V

A broad analogy may be made between the problem of crop pests which reared up to face British farmers during the eighteenth and nineteenth centuries and that confronting farmers in developing countries today. The modern problem does, however, seem more severe. The Anti-Locust Research Centre now regards the menace of the black-faced dioch as a crop pest over two million square miles of Africa as serious enough for it to transfer resources from insect control to studying the 'feathered locust' as this species is called. The dioch is a sparrow-sized weaver finch which may be the commonest bird in the world and definitely seems the most destructive. Its immense flocks, drawn from a total population of perhaps 100,000 million, consume vast quantities of the millet, guinea corn, wheat, and rice of twenty-five nations. Slaughter by high explosives at roosts (in Senegal) or poisoning by spraying from aircraft (in South Africa) may wipe out 100 million of the species per annum. But pruning even by these drastic means serves merely to expand the breeding space and *per capita* food supply for the survivors. North American wildfowl production for sport is based on similar, though deliberate, manipulation of duck and geese bags to ensure future stocks. A population will collapse very fast once a critical threshold is reached, which evidently is not being reached with the black-faced dioch. Much of the tropical world still uses child labour to pull the strings of rattles in attempts to keep weaver birds off the ripening cereals.¹ Conceivably, Chinese efforts against the tree sparrow (the replacement species for the house sparrow) were concerted enough to reduce that pest of cereals in more temperate latitudes to tolerable levels. During the first half of the winter of 1955-6 2,800,000 sparrows (so-named) were killed in Shantung Province alone, and one Manchurian lad so distinguished himself as to be designated a "sparrow-killing activist."²

A latent function of attempts to control the pests of farming in Britain was the securing of protein for the denser population of the countryside, and of London, in the late eighteenth and nineteenth centuries. Rooks, wood pigeons, skylarks, and house sparrows were not noxious like the carrion eaters which had been the first object of post-Restoration control. The best example of the use of a crop pest itself as food for the human population comes with the stepping-up of the campaign against the house sparrow during the middle of the eighteenth century. From the start of the seventeenth century at least until the mid-nineteenth century, unglazed earthenware pots, probably introduced from the Low Countries, were hung under house eaves for sparrows to nest in,

¹ See, e.g., Cyril Alliston, *Threatened Paradise: North Borneo and Its Peoples*, London, 1966, p. 57.

² Summers-Smith, *op. cit.*, p. 231.

to divert them from burrowing into the thatch and to ensure a supply of fledglings to eat. When the species became a major pest, its kill could be supervised since it took place in the evenings around houses and buildings at the roosts in ivy or thatch, and by 'bat-fowling' along the hedgerows of the village lanes. This was a kind of team game; descriptions are common in countryside histories.¹ It limited the risk of labourers poaching in the game preserves of open country.² Farmers could also encourage the practice in the belief that they were using their men's spare time to keep down a serious pest while allowing them to supplement low real wages with a protein supply. With rook control the best was again made of a bad job and the young birds shot at the rookeries were made into 'rook-pie'. Wood pigeons and skylarks were sent to market as well as being eaten in the countryside in the form of 'squab-pie' or toasted larks. These dietary supplements were the more necessary in that the growing numbers of rural poor had less and less access to wild birds or animals as food with the shift in property rights from communal to private ownership of land and freshwater, quite apart from the conversion of 'waste' to farmed land. And the social system which gave birth to the adamant protection of reared game dealt a final blow to chances of hunting for the pot. This is not to assert that before the Restoration wild birds and mammals formed a substantial part of rural diets. For most people agriculture had no doubt represented a better investment of time and energy,³ but more supplement to diets from 'natural' sources was obviously available than one or two centuries later. Intensive arable husbandry had one advantage: it had "modified its context" so as to produce graminivorous pests which could be eaten by man. This consumption raised the dietary standards of the farm workforce while lowering overhead production costs to the farmer.

The emergence of more intensive agriculture, the increase of crop pests, and their simultaneous reduction and use as food for the poor, forms an ironic illustration of the principle of the harmony of interests. Nevertheless, it was one aspect of the growth path of Britain's agricultural economy, a path which, with due amendments for different and harsher ecologies, has yet to be trodden by the developing countries. It is more perfect irony that as those lands begin to move along this way, the advanced countries have started upon a further route,

¹ E.g. Maude Robinson, *A South Down Farm in the Sixties*, London, 1938, p. 63; Anon., *Stubble Farm*, *op. cit.*, II, pp. 85-6, 145 ff; Keys, *op. cit.*, pp. 56-64; and Sid Knight, *A Cotswold Lad*, London, 1960, pp. 57-60.

² An indication of the growing pressure of human populations on game and presumably feral birds is that from 1701-60 there were six Acts against poaching small game, but 33 similar Acts between 1760-1816.—Charles Chenevix Trench, *The Poacher and the Squire*, London, 1967, p. 124.

³ Guatemalan Indians use wild birds for food to a negligible extent, since although the birds seem to be 'free goods', hunting them diverts valuable time from farming.—Sol Tax, *Penny Capitalism*, Washington, D.C., 1953, pp. 29-35.

into 'industrial agricultures' where pesticides and herbicides may create a thalidomide-like ecosystem: where

"The sedge is wither'd from the lake,
And no birds sing."

Note added in press. The suggested identification of the London kite as the black kite (*Milvus migrans*) instead of the red kite (*M. milvus*) seems to be wrong. According to E. M. Nicholson, 'The British Approach to Ornithology,' *Ibis*, 101, 1959, p. 39, it would be plausible but for an observation in William Turner's *Avium Praecipuarum*, published at Cologne in 1544. Turner stated that he knew two kites. The kite common in England, as an urban scavenger, was rufous. The other kite was smaller and blacker, and Turner did not recall seeing it in England.

NOTES AND COMMENTS *continued from page 106*

In his report Mr Ordish noted that membership now stood at 764, a net increase of sixteen since last year. The Society had had another active year. The Winter conference on the historical background to the European Common Agricultural Policy had proved most interesting, although the attendance had been disappointing. The Society had published Mr J. G. Brewer's booklet on the bibliography of enclosure and work was proceeding well with the translation of Professor Abel's *Agrarian Crises and Economic Fluctuations* which will be the Society's next publication.

The Treasurer presented the accounts and reported that the Society's finances were still healthy, but that the sharp rise in printing costs over the past three years meant that the subscription would have to be raised if the Society's publications were not to be curtailed in future. He would raise the matter at the next AGM or at an emergency general meeting in the autumn if this proved possible.

The meeting ended with votes of thanks to Wye College and to the Kent Record Office for staging a delightful exhibition of early estate maps during the conference.

VETERINARY HISTORY

The Veterinary History Society is holding a meeting on Wednesday, 18 October, at the Wellcome Institute of the History of Medicine, 183 Euston Road, London N.W.1 (opposite Euston Station) at which all members of the

B.A.H.S. will be welcome. The programme is as follows: 2 p.m., G. E. Fussell, 'Animal Husbandry in Tudor and early Stuart times'; 3.15 p.m. Tea; 3.30 p.m. F. G. Clegg, 'Lead Poisoning of grazing animals: an ancient problem of husbandry'.

FRENCH ANIMAL HUSBANDRY

A new society has just been formed in France called the Société d'Ethnozootechnie which is interested in the evolution to the present day of animal husbandry and its associated equipment, buildings, etc. Its president is Monsieur R. Laurans, Centre d'Enseignement Zootechnique, Rambouillet, France, and the secretary is Mlle Ducrot, Pâtre, 114 rue de Bercy, 75 Paris 13e. The society would welcome contact with any members of the B.A.H.S. having similar interests.

ROMANIAN AGRICULTURAL HISTORY

Romania recently produced two volumes of agrarian history called *Terra Nostra*, which were widely circulated abroad. An important step has since been taken towards coordinating research in agrarian history. At a conference held in November 1971 in Yassy the subject matter of agrarian history was discussed, a programme formulated, and the decision was reached to set up a Society for Agrarian History in Romania. As a result *Terra Nostra* may become the society's journal on a permanent basis.