

## SHERD MOVEMENT IN THE PLOUGHSOIL

### PHASE V

#### THE MODERN CONDITION

The implementation of this new phase was first reported in the 1987 Year Book (Reynolds 1988). The purpose is to provide a complementary data base to that of Phase IV based entirely upon a modern agricultural regime where all the different operations of today's agricultural practice can be exerted upon the movement of sherds in the ploughsoil. This will have an immediate relevance to modern fieldwork and be of considerable value in assessing not only a site potential but also site damage in the sense of evidence dispersal.

The location and its nature has already been described along with the results of a single ploughing event (1987 Year Book). Below are published the resulting sherd positions after the second full agricultural season immediately following the post-harvest cultivation. The first full season is reported in the 1989 Year Book (Reynolds 1990). The survey was carried out in late October 1990.

The agricultural processes which affected soil movement since the second survey in October 1989 were as follows:-

Field left fallow during October, November and December.

Cultivated with 13 tine cultivator to depth of 450mm.

Cross-ploughed north-south and east-west. January.

Power-harrowed (rotating tines) to a depth of 230 - 250mm.

Planted with potatoes.

Bulked up into ridges.

Inter-ridge cultivated three times with three tine cultivator to a depth of 150 - 200mm.

Rebulked into ridges. March.

Harvested with potatoe spinner. September.

Ploughed with four furrow turn-over plough to a depth of 150 - 160mm east - west.

Power-harrowed to a depth of 80 - 100mm.

Drilled with autumn wheat.

Harrowed. October.

Of the one hundred and twenty one sherds in the ten metre square matrix, a total of one hundred and nine were relocated and their positions recorded. The co-ordinates and spatial attitudes from the inception of Phase V are presented in Table 1 below. A few of the sherds were broken, usually the plastic resin having cracked, and these were replaced with new ones. In these cases a new number has been allocated with the old number indicated in brackets. The subsequent analyses are based on the data in Table 1.

Table 1.

This table presents the field data as collected for both 1988 and 1989 as well as the original co-ordinates. Measurements are taken from the western and southern grid lines respectively and recorded in centimetres. When a figure is preceded by a + the measurement tracks in the opposite direction. For example, under the heading SOUTH, +145 means the measurement is 145 centimetres to the south of the southern grid line. The depth recorded in centimetres is taken from the surface of the ploughsoil to the centre of the arteficial sherd. The capital letter S indicates that the sherd is on the surface of the soil. The Spatial Attitude column designates the lie of the sherds in the soil. H = Horizontal; V = Vertical; ` = Angled; N.E.S.W. represent the points of the compass and are used to designate the line of the bar magnet in each sherd; U indicates sherd is face-up; O that the sherd is face-down. If a sherd is set vertically in the soil these symbols are not used.

Sherd	West	South	Depth	Spatial	Attitude	Year
52	000	000	5	H	N-S U	1987
	030	+007	15	V	E-W	1988
	021	+145	3	H	N-S O	1989
	035	+214	8	H	N-S U	1990
116	100	000	5	H	N-S U	1987
	129	+026	20	H	N-S O	1988
	184	+115	13	`NE-SW	NW-SE O	1989
	222	+230	3	H	N-S O	1990
24	200	000	5	H	N-S U	1987
	300	010	16	H	E-W U	1988
	547	+075	14	`NW-SE	NE-SW O	1989
	554	+185	S	H	NE-SW O	1990
14	300	000	5	H	N-S U	1987
	329	000	10	H	NW-SE O	1988
	231	+113	S	H	E-W U	1989
	247	+180	6	`N-S	N-S O	1990

55	400	000	5	H	N-S	U	1987
	Not relocated						1988
	120	+080	10	`E-W	N-S	U	1989
	295	+070	10	`E-W	E-W	U	1990
26	500	000	5	H	N-S	U	1987
	480	021	19	H	NE-SW	O	1988
	480	+090	5	V	N-S		1989
	402	+100	8	`NW-SE	N-S	O	1990
53	600	000	5	H	N-S	U	1987
	578	024	11	V	E-W		1988
	609	+103	15	H	N-S	O	1989
	625	+122	3	`N-S	E-W	U	1990
12	700	000	5	H	N-S	U	1987
	Not relocated						1988
	726	000	20	H	E-W	U	1989
	721	024	16	H	N-S	U	1990
10	800	000	5	H	N-S	U	1987
	770	035	5	H	N-S	O	1988
	790	+100	16	`S-N	E-W	U	1989
	848	+193	5	`N-S	E-W	O	1990
34	900	000	5	H	N-S	U	1987
	925	087	5	H	E-W	O	1988
	870	+089	8	H	E-W	O	1989
	900	+114	5	`W-E	N-S	U	1990
46	1000	000	5	H	N-S	U	1987
	Not relocated						1988
	1020	+075	10	`E-W	E-W	O	1989
	1060	+083	5	H	NE-SW		1990
96	000	100	5	H	N-S	U	1987
	028	080	10	H	E-W	O	1988
	080	+012	15	H	N-S	O	1989
	168	+070	5	H	E-W	O	1990
101	100	100	5	H	N-S	U	1987
	130	007	12	H	E-W	O	1988
	131	+044	11	`N-S	N-S	U	1989
	+020	+172	5	H	NE-SW	O	1990
119	200	100	5	H	N-S	U	1987
	Not relocated						1988
	330	+070	19	H	N-S	O	1989
	322	+063	16	H	NW-SE	U	1990
81	300	100	5	H	N-S	U	1987
	339	044	4	`SE-NW	NW-SE	O	1988
	376	+063	12	H	E-W	O	1989
	400	+100	3	`E-W	N-S	O	1990

90	400	100	5	H	N-S	U	1987
	412	084	13	H	NW-SE	U	1988
	428	+084	16	H	N-S	U	1989
	458	+080	16	H	N-S	O	1990
117	500	100	5	H	N-S	U	1987
	532	070	9	`S-N	N-S	O	1988
	530	+100	8	V	N-S		1989
	Not relocated						
86	600	100	5	H	N-S	U	1987
	639	067	5	`W-E	E-W	O	1988
	725	+095	8	`SW-NE	NW-SE	U	1989
	754	+165	5	`W-E	N-S	O	1990
84	700	100	5	H	N-S	U	1987
	Not relocated						1988
	580	+103	12	V	NW-SE		1989
	600	+119	8	`E-W	E-W	O	1990
118	800	100	5	H	N-S	U	1987
	806	100	14	V	N-S		1988
	800	+067	12	H	N-S	O	1989
	825	+091	5	H	N-S	U	1990
82	900	100	5	H	N-S	U	1987
	935	245	5	V	N-S		1988
	985	160	21	H	NE-SW	O	1989
	989	193	18	H	NE-SW	O	1990
22	1000	100	5	H	N-S	U	1987
	1040	148	S	H	E-W	U	1988
	1033	+005	12	V	NW-SE		1989
	984	072	S	H	E-W	O	1990
17	000	200	5	H	N-S	U	1987
	044	163	15	`E-W	N-S	O	1988
	200	062	15	H	E-W	O	1989
	224	+010	12	`E-W	N-S	O	1990
91	100	200	5	H	N-S	U	1987
	130	147	3	V	E-W		1988
	170	059	14	H	N-S	U	1989
	228	030	13	H	E-W	O	1990
83	200	200	5	H	N-S	U	1987
	Not relocated						1988
	212	012	8	H	N-S	U	1989
	245	+050	8	`S-N	N-S	O	1990
87	300	200	5	H	N-S	U	1987
	326	176	8	V	E-W		1988
	330	026	S	V	N-S		1989
	134	160	13	H	NE-SW	O	1990

100	400	200	5	H	N-S	U	1987
	430	171	6	V	E-W		1988
	486	030	8	`N-S	E-W	O	1989
	500	+079	S	H	N-S	O	1990
111	500	200	5	H	N-S	U	1987
	544	213	26	V	E-W		1988
	550	124	16	H	N-S	O	1989
	566	134	5	`N-S	E-W	U	1990
129	600	200	5	H	N-S	U	1987
	630	193	5	`S-N	N-S	O	1988
	Not relocated						1989
	Not relocated						1990
128	700	200	5	H	N-S	U	1987
	745	164	3	H	NW-SE	U	1988
	765	+046	13	H	E-W	O	1989
	782	+047	8	`N-S	N-S	U	1990
11	800	200	5	H	N-S	U	1987
	845	144	S	H	NW-SE	O	1988
	900	+160	14	H	N-S	U	1989
	937	+136	20	`SE-NW	NW-SE	O	1990
80	900	200	5	H	N-S	U	1987
	1000	250	S	V	E-W		1988
	Not relocated						1989
	Not relocated						1990
54	1000	200	5	H	N-S	U	1987
	1046	293	7	H	N-S	U	1988
	1040	170	20	H	NE-SW	O	1989
	1045	185	8	`NE-SW	NE-SW	U	1990
143 (19,123)	000	300	5	H	N-S	U	1987
	022	264	15	`E-W	E-W	U	1988
	046	140	15	H	E-W	U	1989
	017	135	5	V	E-W		1990
69	100	300	5	H	N-S	U	1987
	132	247	15	H	E-W	O	1988
	133	216	18	`NE-SW	NE-SW	O	1989
	128	200	16	H	E-W	O	1990
102	200	300	5	H	N-S	U	1987
	236	236	5	H	E-W	O	1988
	220	092	8	`NE-SW	NE-SW	O	1989
	270	107	11	V	NE-SW		1990
51	300	300	5	H	N-S	U	1987
	300	271	14	H	N-S	U	1988
	362	122	10	H	N-S	U	1989
	450	252	3	`S-N	N-S	O	1990

60	400	300	5	H	N-S	U	1987
	429	263	7	H	N-S	O	1988
	520	086	20	V	NE-SW		1989
	515	094	12	V	NE-SW		1990
108	500	300	5	H	N-S	U	1987
	535	254	20	V	N-S		1988
	585	144	5	`SW-NE	NE-SW	U	1989
	600	000	18	H	NW-SE	U	1990
77	600	300	5	H	N-S	U	1987
	617	251	13	H	NE-SW	U	1988
	650	225	16	V	N-S		1989
	652	238	16	V	N-S		1990
67	700	300	5	H	N-S	U	1987
	Not relocated						1988
	820	236	15	`E-W	E-W	O	1989
	814	274	5	`SW-NE	NE-SW	U	1990
127	800	300	5	H	N-S	U	1987
	835	256	5	H	NW-SE	O	1988
	854	120	S	H	E-W	U	1989
	1000	420	S	V	E-W		1990
107	900	300	5	H	N-S	U	1987
	Not relocated						1988
	1102	240	15	`SE-NW	NE-SW	O	1989
	1137	363	S	V	E-W		1990
21	1000	300	5	H	N-S	U	1987
	1057	346	9	H	E-W	U	1988
	1060	275	22	V	NW-SE		1989
	1000	320	20	`S-N	E-W	U	1990
13	000	400	5	H	N-S	U	1987
	030	349	10	H	N-S	O	1988
	020	227	3	H	N-S	U	1989
	+160	379	13	H	NE-SW	U	1990
79	100	400	5	H	N-S	U	1987
	Not relocated						1988
	+200	064	24	`E-W	E-W	O	1989
	+195	033	18	H	NW-SE	U	1990
103	200	400	5	H	N-S	U	1987
	236	390	25	V	E-W		1988
	220	288	2	H	NW-SE	U	1989
	241	284	10	V	E-W		1990
93	300	400	5	H	N-S	U	1987
	336	376	12	V	E-W		1988
	390	296	22	H	NW-SE	U	1989
	334	346	5	V	NW-SE		1990

88	400	400	5	H	N-S	U	1987
	432	350	16	H	NW-SE	U	1988
	450	283	25	V	NW-SE		1989
	455	300	19	H	N-S	O	1990
89	500	400	5	H	N-S	U	1987
	532	376	18	`NE-SW	NE-SW	U	1988
	573	176	16	`E-W	E-W	O	1989
	616	153	S	H	N-S	U	1990
105	600	400	5	H	N-S	U	1987
	622	368	15	V	NW-SE		1988
	626	224	S	V	NE-SW		1989
	782	100	11	H	N-S	U	1990
126	700	400	5	H	N-S	U	1987
	725	360	16	H	E-W	O	1988
	635	210	19	`S-N	E-W	U	1989
	647	160	S	H	NW-SE	O	1990
144 (99)	800	400	5	H	N-S	U	1987
	830	356	5	H	E-W	O	1988
	875	220	S	V	E-W		1989
	900	303	9	V	N-S		1990
124	900	400	5	H	N-S	U	1987
	Not relocated						1988
	791	320	S	V	E-W		1989
	Not relocated						1990
98	1000	400	5	H	N-S	U	1987
	1054	400	10	H	E-W	O	1988
	1056	100	18	`E-W	E-W	O	1989
	890	+006	S	H	NE-SW	U	1990
110	000	500	5	H	N-S	U	1987
	020	456	10	`S-N	N-S	O	1988
	076	320	10	H	N-S	U	1989
	045	324	7	`N-S	N-S	U	1990
122	100	500	5	H	N-S	U	1987
	135	407	10	H	E-W	U	1988
	098	210	12	`S-N	E-W	O	1989
	055	220	9	`NE-SW	NE-SW	U	1990
74	200	500	5	H	N-S	U	1987
	Not relocated						1988
	184	088	24	V	N-S		1989
	212	075	5	`N-S	N-S	O	1990
132	300	500	5	H	N-S	U	1987
	320	475	21	`S-N	N-S	O	1988
	330	435	16	`E-W	N-S	O	1989
	295	460	13	`NE-SW	E-W	O	1990

40	400	500	5	H	N-S	U	1987
	449	488	10	\W-E	E-W	U	1988
	500	245	8	H	NE-SW	O	1989
	412	272	S	H	E-W	U	1990
41	500	500	5	H	N-S	U	1987
	533	440	5	V	N-S		1988
	544	253	3	H	N-S	O	1989
	572	345	5	H	N-S	U	1990
68	600	500	5	H	N-S	U	1987
	621	475	10	\N-S	N-S	U	1988
	690	333	12	H	N-S	O	1989
	654	354	12	H	N-S	O	1990
106	700	500	5	H	N-S	U	1987
	725	463	8	H	E-W	O	1988
	800	417	15	\S-N	E-W	U	1989
	725	433	16	\S-N	E-W	O	1990
131	800	500	5	H	N-S	U	1987
	830	495	10	H	NE-SW	O	1988
	786	310	8	H	NW-SE	U	1989
	759	388	4	H	N-S	U	1990
154 (123)	900	500	5	H	N-S	U	1987
	955	575	5	V	E-W		1988
	885	562	10	H	N-S	O	1989
	Not relocated						
48	1000	500	5	H	N-S	U	1987
	1040	540	5	H	N-S	U	1988
	1082	337	24	H	N-S	U	1989
	1044	416	14	H	NW-SE	O	1990
85	000	600	5	H	N-S	U	1987
	Not relocated						1988
	+010	355	26	H	NE-SW	O	1989
	+012	355	27	H	N-S	O	1990
121	100	600	5	H	N-S	U	1987
	138	553	10	\W-E	E-W	O	1988
	090	379	17	\N-S	E-W	U	1989
	089	418	S	H	N-S	U	1990
72	200	600	5	H	N-S	U	1987
	265	533	10	\W-E	E-W	U	1988
	291	450	19	\S-N	N-S	U	1989
	248	477	12	H	E-W	U	1990
42	300	600	5	H	N-S	U	1987
	014	551	14	H	N-S	U	1988
	000	433	13	\N-S	N-S	U	1989
	+015	425	15	\N-S	N-S	U	1990



35	400	600	5	H	N-S	U	1987
	449	588	10	`W-E	E-W	U	1988
	478	362	15	H	E-W	O	1989
	460	388	12	H	E-W	O	1990
70	500	600	5	H	N-S	U	1987
	530	580	8	H	E-W	U	1988
	544	467	8	V	NE-SW		1989
	561	369	S	H	E-W	U	1990
37	600	600	5	H	N-S	U	1987
	640	592	5	V	N-S		1988
	633	395	14	V	N-S		1989
	607	415	15	`N-S	E-W	U	1990
33	700	600	5	H	N-S	U	1987
	724	585	10	H	NW-SE	U	1988
	1107	890	S	V	E-W		1989
	868	948	17	H	NE-SW	U	1990
92	800	600	5	H	N-S	U	1987
	830	557	3	H	NW-SE	O	1988
	975	380	10	H	NE-SW	U	1989
	954	388	2	H	NE-SW	O	1990
38	900	600	5	H	N-S	U	1987
	945	648	12	H	E-W	O	1988
	910	522	5	`S-N	E-W	U	1989
	890	550	19	`E-W	E-W	O	1990
57	1000	600	5	H	N-S	U	1987
	1045	627	20	V	E-W		1988
	1120	500	15	`NE-SW	NE-SW	O	1989
	1113	569	12	V	E-W		1990
18	000	700	5	H	N-S	U	1987
	029	674	S	V	N-S		1988
	053	586	20	H	N-S	O	1989
	049	582	20	H	NE-SW	O	1990
104	100	700	5	H	N-S	U	1987
	135	641	5	V	E-W		1988
	+116	493	8	`N-S	E-W	U	1989
	+015	645	16	`N-S	N-S	O	1990
97	200	700	5	H	N-S	U	1987
	249	628	15	H	E-W	U	1988
	288	150	17	H	N-S	U	1989
	230	193	5	H	NE-SW	U	1990
75	300	700	5	H	N-S	U	1987
	323	696	15	`E-W	N-S	O	1988
	404	562	8	V	NW-SE		1989
	300	671	11	H	E-W	U	1990

65	400	700	5	H	N-S	U	1987
	432	675	10	`S-N	N-S	O	1988
	438	496	8	H	N-S	O	1989
	410	518	17	V	NE-SW		1990
29	500	700	5	H	N-S	U	1987
	530	693	20	`N-S	E-W	O	1988
	632	617	23	H	E-W	U	1989
	527	635	25	H	NE-SW	U	1990
28	600	700	5	H	N-S	U	1987
	Not relocated						1988
	560	540	5	H	N-S	O	1989
	540	547	18	H	E-W	O	1990
25	700	700	5	H	N-S	U	1987
	Not relocated						1988
	775	545	14	H	N-S	O	1989
	754	605	2	H	N-S	O	1990
36	800	700	5	H	N-S	U	1987
	780	640	5	H	E-W	O	1988
	1012	470	5	V	NE-SW		1989
	961	490	13	H	E-W	U	1990
120	900	700	5	H	N-S	U	1987
	970	784	21	V	NW-SE		1988
	Not relocated						1989
	Not relocated						1990
71	1000	700	5	H	N-S	U	1987
	Not relocated						1988
	Not relocated						1989
	Not relocated						1990
56	000	800	5	H	N-S	U	1987
	034	738	5	`S-N	N-S	U	1988
	+011	608	6	H	E-W	O	1989
	+045	679	8	H	N-S	O	1990
76	100	800	5	H	N-S	U	1987
	124	796	15	`E-W	E-W	O	1988
	280	790	17	V	N-S		1989
	245	790	21	`W-E	E-W	U	1990
20	200	800	5	H	N-S	U	1987
	223	788	5	V	E-W		1988
	214	610	5	H	NE-SW	O	1989
	140	542	16	V	E-W		1990
39	300	800	5	H	N-S	U	1987
	309	795	12	V	E-W		1988
	277	438	10	H	NW-SE	U	1989
	265	455	13	V	N-S		1990

45	400	800	5	H	N-S	U	1987
	450	790	25	H	NW-SE	O	1988
	556	618	5	`N-S	E-W	U	1989
	534	688	6	H	N-S	O	1990
23	500	800	5	H	N-S	U	1987
	510	805	18	V	N-S		1988
	526	440	14	H	N-S	U	1989
	515	465	16	H	NW-SE	U	1990
78	600	800	5	H	N-S	U	1987
	925	838	S	H	E-W	O	1988
	867	762	S	H	NE-SW	U	1989
	780	788	2	H	N-S	O	1990
63	700	800	5	H	N-S	U	1987
	741	732	3	H	N-S	O	1988
	742	400	10	H	E-W	U	1989
	785	584	S	H	E-W	U	1990
109	800	800	5	H	N-S	U	1987
	828	775	S	H	N-S	O	1988
	835	676	25	V	NE-SW		1989
	818	623	27	V	N-S		1990
47	900	800	5	H	N-S	U	1987
	1036	870	10	V	E-W		1988
	1045	810	20	V	NE-SW		1989
	1035	765	15	H	NE-SW	U	1990
125	1000	800	5	H	N-S	U	1987
	1060	797	14	`N-S	E-W	U	1988
	1070	415	18	H	E-W	O	1989
	1070	333	22	H	NE-SW	O	1990
27	000	900	5	H	N-S	U	1987
	000	900	5	`S-N	N-S	O	1988
	035	770	21	H	N-S	O	1989
	030	754	18	`N-S	E-W	U	1990
49	100	900	5	H	N-S	U	1987
	126	863	10	`E-W	E-W	O	1988
	129	785	17	`E-W	N-S	U	1989
	116	775	17	V	E-W		1990
58	200	900	5	H	N-S	U	1987
	Not relocated						1988
	Not relocated						1989
	Not relocated						1990
59	300	900	5	H	N-S	U	1987
	373	911	5	`N-S	N-S	U	1988
	345	780	S	`E-W	E-W	U	1989
	300	728	11	`NE-SW	NE-SW	O	1990

32	400	900	5	H	N-S	U	1987
	346	844	12	`E-W	E-W	O	1988
	335	630	S	H	NE-SW	O	1989
	674	807	1	V	NE-SW		1990
66	500	900	5	H	N-S	U	1987
	463	825	5	V	N-S		1988
	448	635	5	H	E-W	U	1989
	100	775	S	H	E-W	O	1990
113	600	900	5	H	N-S	U	1987
	600	917	15	H	NW-SE	U	1988
	600	816	10	`N-S	E-W	O	1989
	560	700	11	V	E-W		1990
112	700	900	5	H	N-S	U	1987
	740	875	10	V	E-W		1988
	755	804	10	H	NE-SW	O	1989
	624	803	S	H	N-S	U	1990
31	800	900	5	H	N-S	U	1987
	Not relocated						1988
	Not relocated						1989
	Not relocated						1990
94	900	900	5	H	N-S	U	1987
	910	905	20	H	E-W	U	1988
	905	854	21	H	N-S	U	1989
	890	882	17	H	E-W	O	1990
64	1000	900	5	H	N-S	U	1987
	1025	885	22	`W-E	E-W	U	1988
	1010	800	18	`NE-SW	NW-SE	U	1989
	983	866	5	`NW-SE	N-S	O	1990
50	000	1000	5	H	N-S	U	1987
	000	1000	5	H	N-S	U	1988
	034	905	S	H	NE-SW	O	1989
	+012	962	15	V	E-W		1990
115	100	1000	5	H	N-S	U	1987
	100	1000	5	H	N-S	U	1988
	Not relocated						1989
	220	910	22	H	E-W	O	1990
158 (15)	200	1000	5	H	N-S	U	1987
	200	1000	5	H	N-S	U	1988
	000	860	25	H	E-W	O	1989
	+010	839	22	`NE-SW	NE-SW	O	1990
181 (61)	300	1000	5	H	N-S	U	1987
	300	1000	5	H	N-S	U	1988
	280	844	22	`NW-SE	NW-SE	U	1989
	280	844	22	H	E-W	U	1990

159 (30)	400	1000	5	H	N-S	U	1987
	433	987	S	H	N-S	O	1988
	404	887	20	H	E-W	U	1989
	388	886	22	`N-S	E-W	O	1990
130	500	1000	5	H	N-S	U	1987
	705	932	15	H	N-S	O	1988
	710	805	21	`SE-NW	NE-SW	U	1989
	707	823	20	H	NE-SW	U	1990
95	600	1000	5	H	N-S	U	1987
	855	1010	8	`E-W	E-W	O	1988
	932	740	7	V	E-W		1989
	865	844	13	V	NW-SE		1990
62	700	1000	5	H	N-S	U	1987
	788	975	S	`E-W	E-W	O	1988
	820	915	22	`S-N	E-W	O	1989
	830	940	19	H	E-W	O	1990
43	800	1000	5	H	N-S	U	1987
	Not relocated						1988
	Not relocated						1989
	Not relocated						1990
44	900	1000	5	H	N-S	U	1987
	Not relocated						1988
	Not relocated						1989
	Not relocated						1990
114	1000	1000	5	H	N-S	U	1987
	Not relocated						1988
	Not relocated						1989
	Not relocated						1990

This second season of full cultivation has undeniably been one of maximum perturbation of the soil. It is also extremely modern both in terms of crops, potatoes, and the machinery employed in cultivation. For example, the power harrow which uses a system of rotating tines literally shakes the soil down into a seed bed and little or nothing escapes the effect of the tines. In addition the inter-ridge cultivation involves a non uniform operation. Its purpose is to loosen the soil in the furrows and to deter weed growth. In effect, it stirs the soil in parallel strips. Prior to the survey, because of this extended cultivation pattern, it was decided to increase the search area at least ten metres beyond the confines of the original square. The normal search is limited to a five metre wide perimeter band around the square. This extra search failed to reveal further sherds. In fact, the square is still relatively well defined by the sherds.

Of the ten sherds not recovered in 1989 only one was relocated in 1990, the remaining nine are still unaccounted. A further three sherds were not relocated in this survey leaving a total of twelve presently lost against the ten of the preceding survey. The actual distances travelled by the sherds for the past three years are shown in Table 2. Despite the massive and more frequent soil disturbance of this year, including an extremely deep ploughing episode, the average distance travelled was less than half that of the preceding year (Table 3).

Table 2.

Distances travelled by individual sherds 1988.										
31	35	58	42	59	49	nf	39	71	0	nm
40	97	61	62	nf	99	61	69	24	45	nm
102	nf	nf	74	38	nf	94	87	26	nf	nm
29	69	36	29	44	33	291	23	11	74	nm
nf	20	43	48	60	51	61	41	51	78	36
29	45	47	59	41	69	37	31	11	83	218
33	51	31	51	39	33	41	nf	328	17	258
nf	nf	57	nf	48	43	29	nf	80	48	93
47	7	72	57	53	31	52	64	38	nf	nf
92	149	112	nf	nf	93	66	109	154	11	nf
nf	64	103	75	54	57	53	nf	60	29	nf

  

Distances travelled by individual sherds 1989										
152	106	187	126	123	148	245	91	138	134	105
104	51	97	31	451*	201	181	292	157	77	nf
263	215*	188*	146	104	412*	87	479	178	nf	245
148	113	149	161	97	42	119	156	359	133	157
293*	168	151	197	70	248	227	179	209	215	104
111	170	89	120	205	187	114	128	365	191	126
131	185	nf	43	143	156	197	165*	96	101	281
27*	235*	210	137*	195	90	490	171*	331	73	54
137	167	309	137	142	190	229	289	100	nf	nf
185	99	nf	213*	136*	72	131	nf	61	52	nf
77*	154	123	72	300	208	148	nf	381	86	nf

  

Distances travelled by individual sherds 1990										
70	106	76	29	237	31	3	7	79	17	77
121	200	66	17	31	45	39	182	35	16	152*
110	11	73	211	22	32	51	73	100	nf	23
69	44	239	157	77	44	17	150	21	69	00
174	30	109	8	18	92	31	37	77	385	16
80	nf	19	143	48	96	99	108	28	387	19
25	75	nf	13	199	42	33	21	92	123	123
25	26	16	39	51	77	247	64	189	132	27
110	35	44	333	87	82	23	55	57	nf	nf
38	33	nf	129	nf	nf	35	nf	46	34	nf
41	91	18	75	199	88	70	nf	82	71	nf

All numbers are in centimetres. Numbers refer to deposition locations, i.e. 152 = distance travelled by sherd no. 52, 106 to sherd no. 96 etc. nf = not found. nm = not moved by plough. A number followed by \* means that that sherd was not found in the previous survey.

Table 3.

Average Distance Travelled

1988	63.1cms
1989	166.0cms
1990	80.1cms

This, in itself, suggests that 1989 was an extraordinary year when perhaps a combination of soil condition and weather led to greater movement of the matrix. Certainly the 1990 average is more in line with all previous results. Nonetheless each and every sherd this season was affected to a greater or lesser extent. In order that the average movement can be put into a simple context, Table 4 presents the number of moving less than one metre, more than one but less than two metres, more than two but less than three metres and over three metres.

Table 4.

Frequency of sherds per metre distance travelled

Year	0-99cms	100-199cms	200-299cms	300cms +
1988	87	6	3	1
1989	23	60	19	9
1990	81	18	7	3

The sherd distribution by depth in the soil is presented in Table 5. The percentage of the total sherds in the soil appearing on the surface is 15.6%. This figure agrees in general with the findings from the earlier phases where an average of 16% +/- 5% are regularly found on the soil surface. Otherwise the distribution of sherds through the soil profile is more evenly spread with a clear reduction of those below the 200mm level. Given the machinery used in modern farming it seems unlikely that any of the sherds will actually sink below the level of the ploughzone.

Table 5.

Sherd depth in the ploughsoil

Depth	S	1-50mm	51-100mm	101-150mm	151-200mm	200mm+
1987	0	121	0	0	0	0
1988	11	22	26	22	10	7
1989	14	9	25	25	24	16
1990	17	21	13	24	24	10

The spatial attitude of the sherds clearly shows the rolling action of the soil under cultivation. The detailed movement pattern of each sherd can be seen in Table 1. A simple analysis of their attitudes is presented in Table 6. Very few sherds remain unaffected by the cultivation process.

Table 6.

Sherd attitude

Year	U	O	V
1987	121	0	0
1988	27	45	26
1989	45	46	22
1990	42	48	19

U = Face-up    O = Face-down    V = Vertical

Finally, given the theory that 1989 was an unusual year, it will be extremely interesting to compare the results from the 1991 season when the area will only be subjected to post-harvest ploughing and probably power harrowing before the survey takes place. This year's wheat crop in all likelihood will be followed by cereals for two further years. In which event the preparations will be similar as should the resultant sherd movements.

Acknowledgements

I am deeply indebted to Mr Wilson Atkinson of Lower Farm, East Meon for allowing me to exploit an area of his land for this research programme.