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SOIL REPORT ON BURIED SAXON SOIL AT LANGHAM ROAD, RAUNDS, NORTHAMPTONSHIRE.

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Summary

Thin section analysis of a locally sealed 7th Century Saxon soil and the underlying gleyed clay subsoil showed that the Saxons may have occupied a moderately virgin site. Occupation was succeeded by ploughing which reworked the occupation materials which appeared to be more sandy in texture. Continued Saxon and Medieval occupation and ploughing formed a loamy headland deposit about 1 metre in thickness. The study is supported by 5 colour plates.

Author's address :-

Department of Human Environment
Institute of Archaeology
31 - 34 Gordon Square
London WC1H 0PY

01 3876052 x33

SOIL REPORT ON BURIED (7TH CENTURY) SAXON SOIL AT LANGHAM ROAD, RAUNDS, NORTHAMPTONSHIRE (1984)

R I MACPHAIL, BSc, MSc, Ph.D. 1987

In the autumn of 1984 the Raunds excavations (Director Graham Cadman) were extended to Langham Road (site supervisor, Michel Audauy) by the Northamptonshire Archaeology Unit to investigate middle Saxon (7th century) dwellings. The site was buried by a later Saxon and Medieval ploughsoil headland. At the base of the south section, an area of buried soil of Saxon date effectively sealed a middle Saxon occupation/ploughsoil over the natural soil (Plate 1). This primary Saxon deposit and its associated natural "subsoil" were sampled to ascertain the nature of the site usage and to see how this had effected the natural soil, and to investigate whether any earlier "events" were recorded in this subsoil.

Undisturbed "Kubiena" box samples were taken for thin section analysis (Bullock et al, 1985; Courty et al in prep.), together with bulk samples for grain size, pH, and loss on ignition studies (Avery and Bascomb, 1974).

Results. These are presented in the Soil Profile Description, Table 1, the Micromorphological description and Plates 1-5.

Discussion. The B(t)g subsoil horizon developed in weathered but still alkaline clay from the oolitic Cornbrash Limestone (Jurassic) (Sutherland, 1982) forms the basal part of a pelo-stagnogley soil (Denchworth Association, Ragg et al 1983) which covered the area in Saxon times. It is therefore necessary to differentiate this earlier "heavy clay" (56% clay) subsoil (Plates 4 and 5) from the "lighter" later Medieval and present day typical brown calcareous earth (Evesham 3 Association) cover (silty clay loam to loamy fine sand). The Saxon

soil (Ap4) is already somewhat lighter (36% clay) and although the upper soil may have had a more sandy component from drift (Sutherland, 1982) the micromorphology suggests the soil was lightened by local importing and plough mixing of locally derived sandy limestone and sandy soils. Thus, the 7th century Saxon soil can be regarded as being "heavy" originally.

Examination of this clay subsoil show little disturbance, other than rare inclusiion of charcoal in the coarse porosity, and very minor washing-in of soil from above. This suggests that the site may have been virgin prior to Saxon occupation and ploughing (some of which probably truncated and mixed up the surface soil horizons). The neglect of clay soils until Saxon and Medieval times when technological advances allowed them to be successfully cultivated is well known in the literature (Macphail, in press), but it is worth noting that clay soils on the Jurassic Limestone of the Cotswolds were cultivated as early as the Neolithc (Macphail, 1986).

There is little doubt that Ap4 is a combination of ploughsoil and occupation. In thin section (Plates 2 and 3) not only is wood charcoal and burned soil/daub present but fine charcoal has been worked into the soil as evidence of occupation; but the heterogeneous character, the rounded (transported) soil fragments, the intercalations and dusty clay coatings-leading to overall high birefringence - are all evidence of ploughing (Courty et al in prep.).

In short, the site was occupied, and occupation materials became involved once ploughing took place. The burial by a burned soil layer (floor ?), stone line, and plough headland accumulation sealed this Ap4 horizon off from biological activity, before any real re-working could take place.

Acknowledgements

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SOIL PROFILE DESCRIPTION: RAUNDS 1984, SOUTHERN SECTION.

LANGHAM ROAD. (BST) AREA B

Plough Headland. (Modern and Medieval)

Typical brown calcareous earth (Evesham 3 Association) over a pelo-stagnogley soil (Denchworth Association)

Cornbrash Beds limestone, Jurassic.

Interfluve, 2°W; grassland. c. 60m OD.

horizon, depth cms.	
Ap 0-23	Very dark greyish brown (10YR3/2) firm loamy fine sand, very few very small stones; well developed coarse granular; moderately humic; common fine and medium roots; common earthworm casts; gradual, smooth boundary.
Ap2 23-60 layer 2A	Dark brown to brown (10YR3/3) firm silty clay loam; few small to medium stones; well developed medium blocky; moderately humic; common medium roots; frequent charcoal, frequent manganese nodules; few earthworm burrows; gradual, smooth boundary.
Ap 3 60-90 layer 2B	Dark greyish brown (10YR4/2) firm silty clay; well developed fine prisms; moderately low humus; few medium roots; frequent charcoal, frequent manganese nodules; sharp, smooth boundary.
(? burned floor?) (90-93)	Discontinuous reddish brown (2-5YR4/4) to very dark grey (5YR3/19 "soil" layer; clear, smooth boundary.

Ap4 90-114	Dark brown (10YR3/3) firm clay (Table 1) with few brown (10YR4/3) clay fragments, and very faint medium mottles; few medium (limestone) stones; moderately little humus; rare roots; frequent charcoal; frequent manganese; rare clay coatings; clear, wavy boundary.
b B(t)g 114-130+	Strong brown (7.5YR5/6) weak, plastic clay (Table 1) with abundant coarse distinct (olive, 5Y15/3) mottles; stone free; low humus; few manganese, rare clay coatings.

TABLE 1

Raunds Analytical Data.

Soil	pH	LOI.	Clay	FZ.	MZ.	CZ	Silt	VFS.	FS.	MS.	CS.	VCS.	Sand	texture
b Ap4.	7.9	13.0	39	11	8	5	24	19	6	7	4	1	37	Clay
b Btg.	8.3	9.7	56	6	8	6	20	10	5	6	2	1	24	Clay

RAUNDS MICROMORPHOLOGICAL DESCRIPTION

Ap4. 90-114cms

Structure: coarse blocky, coarse blocky microstructure. Porosity 30%, very dominant fine planar cracks with frequent fine channals and vughs. Mineral limit 10um. C:F 40:60. Coarse dominant silt and fine size quartz sand, frequent decalcifying limestone fragments; few fine iron nodules-sharp edge, flints. Fine dark yellowish brown, speckled (PPL), moderately high birefringence, pale yellowish brown, speckled (OIL). Organic Matter Coarse many charcoal, rare plant fragments. Fine many amorphous organic matter and charcoal; phytoliths present. Groundmass, porphyric/embedded, grano-striate (minor crystallitic) b-fabric. Pedofeatures Excrements occasional coarse mineral, probable earthworm, excremental faunal channel infills. Textural occasional thin (30um) very dusty clay void coatings. Rare fragments of thick (350um) "pan-like" extremely dusty, poorly birefringent clay, with abundant charred organic matter, occasional intercalations. Depletion very dominant weathering (decalcification) of limestone (oolitic/fossiliferous). Amorphous abundant diffuse iron impregnation (ferro-manganiferous). Fabric very complicated. Many inclusions of a) very humic, charcoal rich "topsoil" worked into cracks. Also more birefringent humic brown soil rounded fragments; burned soil fragents also.

Interpretation. This heterogeneous deposit shows physical mixing of plant and charcoal fragments, a variety of transported soil inclusions, and incorporated charcoal and humus rich topsoil with evidence of crusting (soil lamina), all with the generally organic rich clay soil. Mixing has also been accompained by slaking of the fine material causing coatings and intercalations. These features all suggest this level is a ploughsoil deposit. The inclusion of burned soil

(burned daub) also suggests local domestic occupation sites were involved in the ploughed area.

B(t)g. 130-137+cms

Struture. Coarse prism coarse prismatic microstructure. Porosity 10%, very dominant zig zag planar voids, few, fine intra-ped vughs and channels. Mineral coarse/fine 15:85. Coarse very dominant silt and fine sand size quartz; few decalcifying coarse sand size to small stone size limestone, fragment (calcareous limestone contains fine sand) - calcite, and occasional aragonite? - fossil inclusions, rare flint. Fine very pale yellow to orange brown (mottling)(PPL), moderately high to moderate birefringence; very pale yellow dirty yellow to dark yellow. Organic Coarse rare coarse wood charcoal in coarse cracks rare fine (ferruginised) amorphous organic matter. Fine rare (ferruginised) organic matter, occasional charcoal. Groundmass porphyric, open, grano/poro-striate b-fabric. Pedofeatures. Depletion moderate (iron) depletion from centre of peds. Amorphous ferruginous (ferro-manganiferous) impregnation of particularly ped edges (crack faces). Textural rare dusty clay coatings. Fabric shrink and swell birefringence around coarse mineral grains and ped/crack faces. Occasional soil inclusions - charcoal rich, "Ap" soil inclusions.

Interpretation. This subsoil clay horizon is gleyed (poorly drained), but shrink and swell had caused cracking and soil and charcoal from above have become included in very small amounts. The soil was very little affected by the ploughing and ploughsoil accumulation above, with rather minor amount of clay being washed down profile. This may suggest that after truncation of this soil the main event was the ploughsoil and occupation soil accumulation above.

CAPTIONS TO THE PLATES

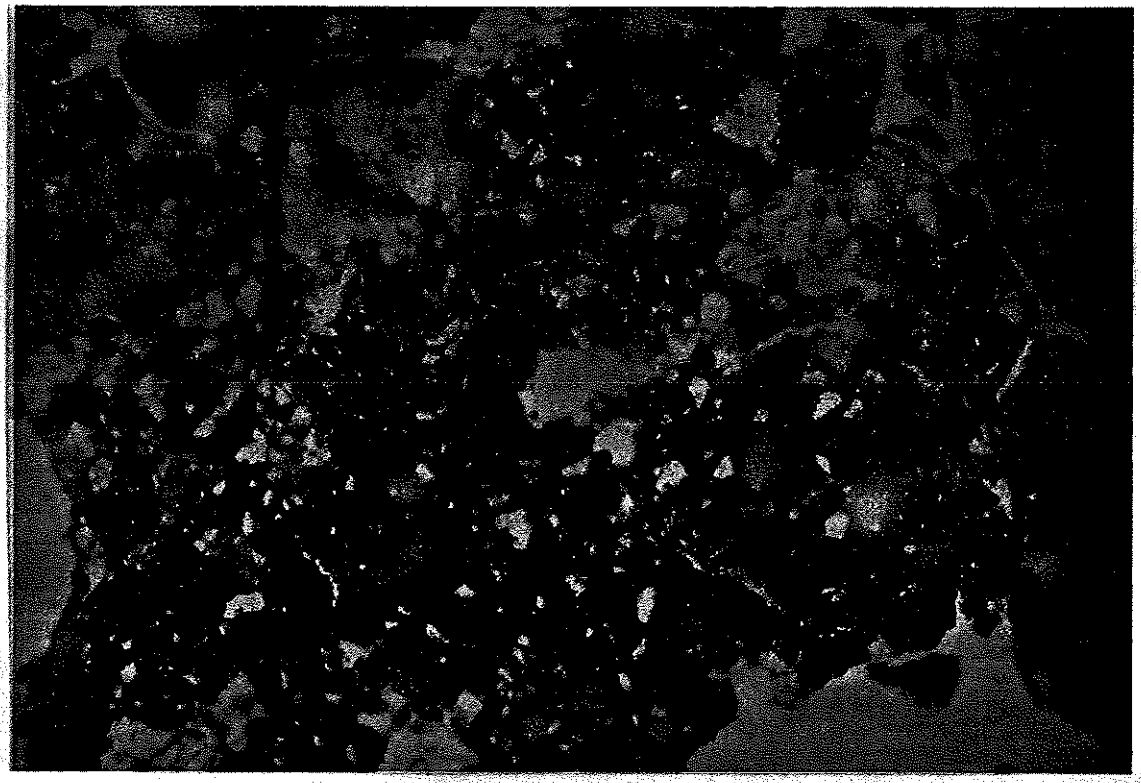
Plate 1. Location of "Kubiena" samples of the Saxon occupation/ploughsoil (Ap4), beneath burned surface; and the natural subsoil (bBtg).

Plate 2. Photomicrograph; Ap4; included oolitic limestone, coarse and fine charcoal, rounded soil inclusions, dusty clay intercalations and in fills. Plane Polarised Light (PPL), frame length 3.3mm.

Plate 3. As 2; Crossed Polarised Light (XPL); note high birefrigence typical of ploughsoil undisturbed by biological activity.

Plate 4. B(t)g; dense, mottled (iron and manganese staining) clay with few fine sand size quartz; little disturbed gleyed subsoil. PPL; frame length is 3.3mm.

Plate 5. As 4; XPL.



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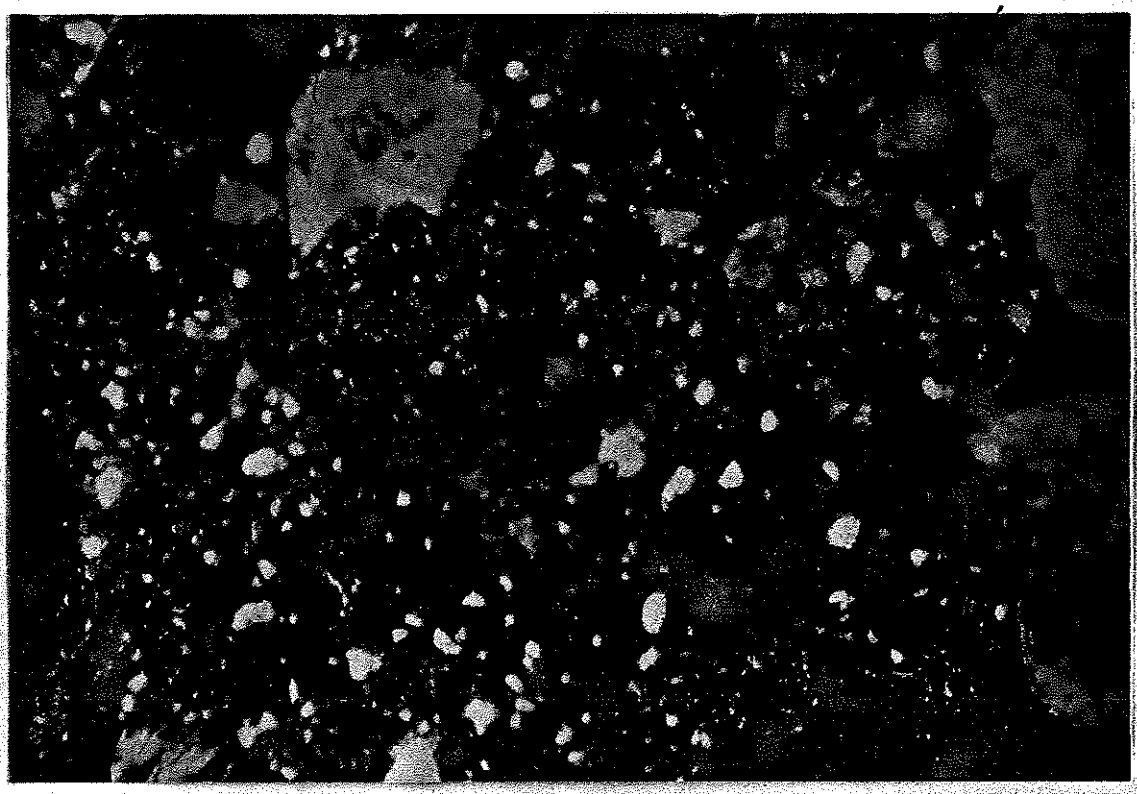

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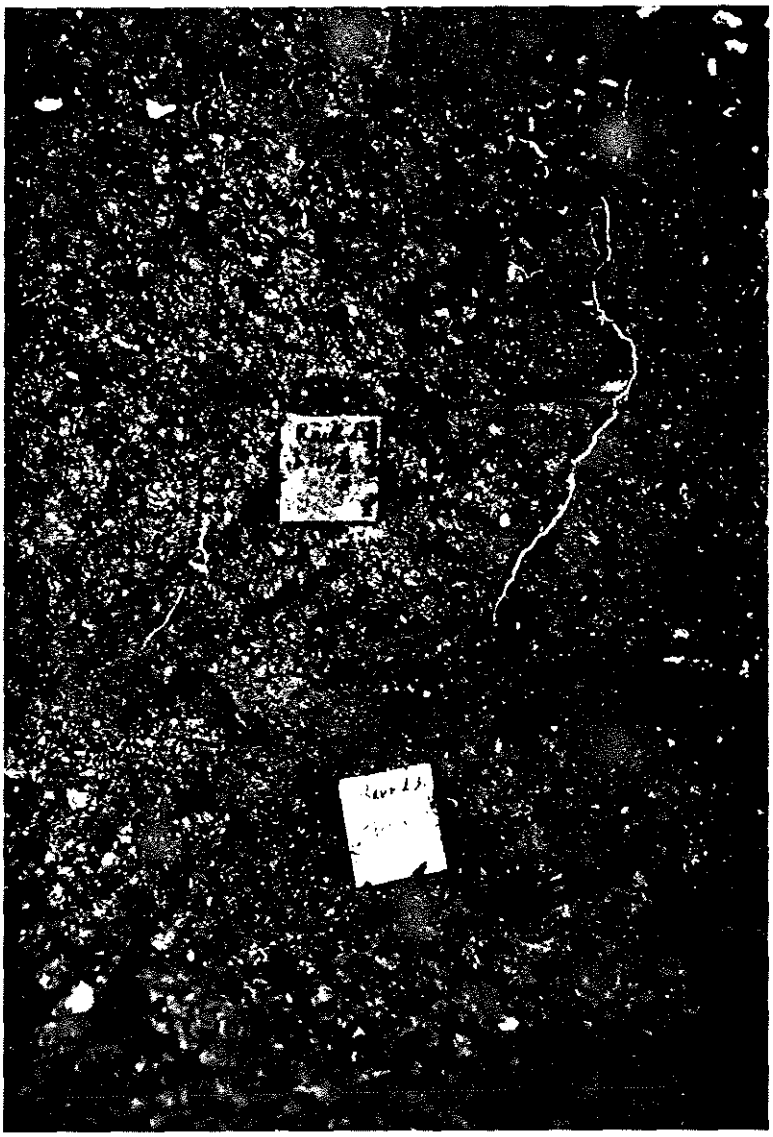

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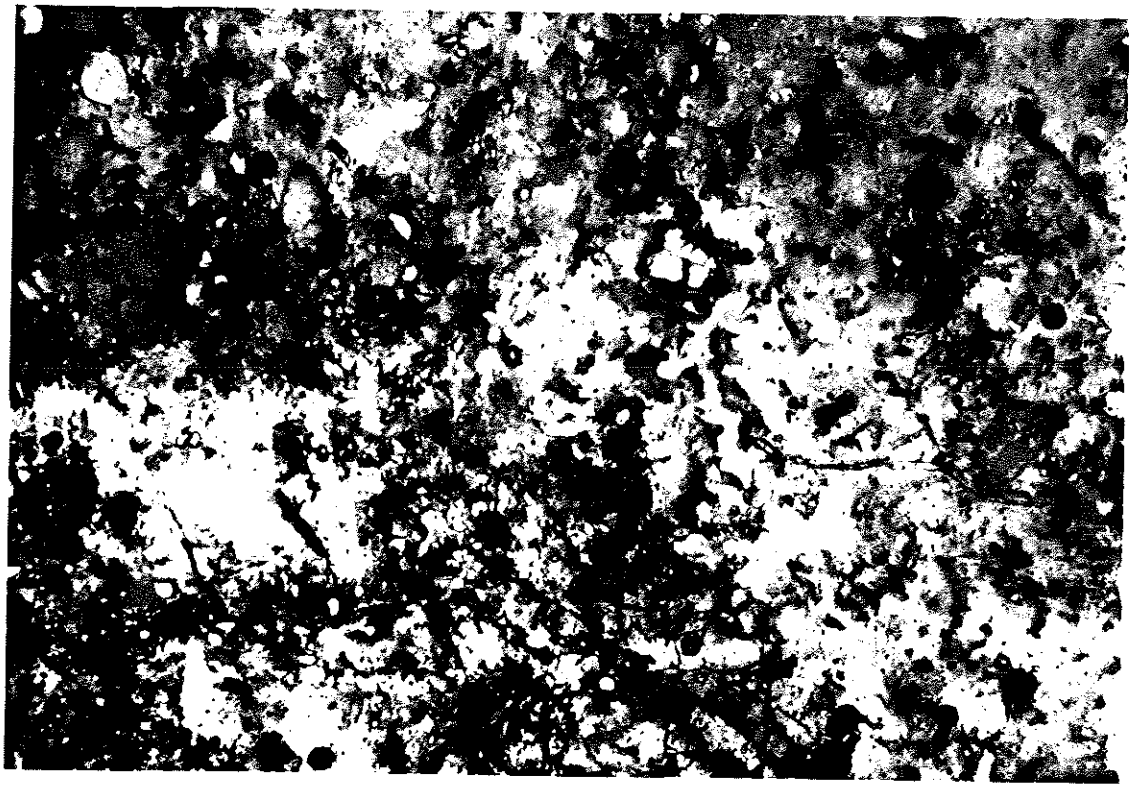

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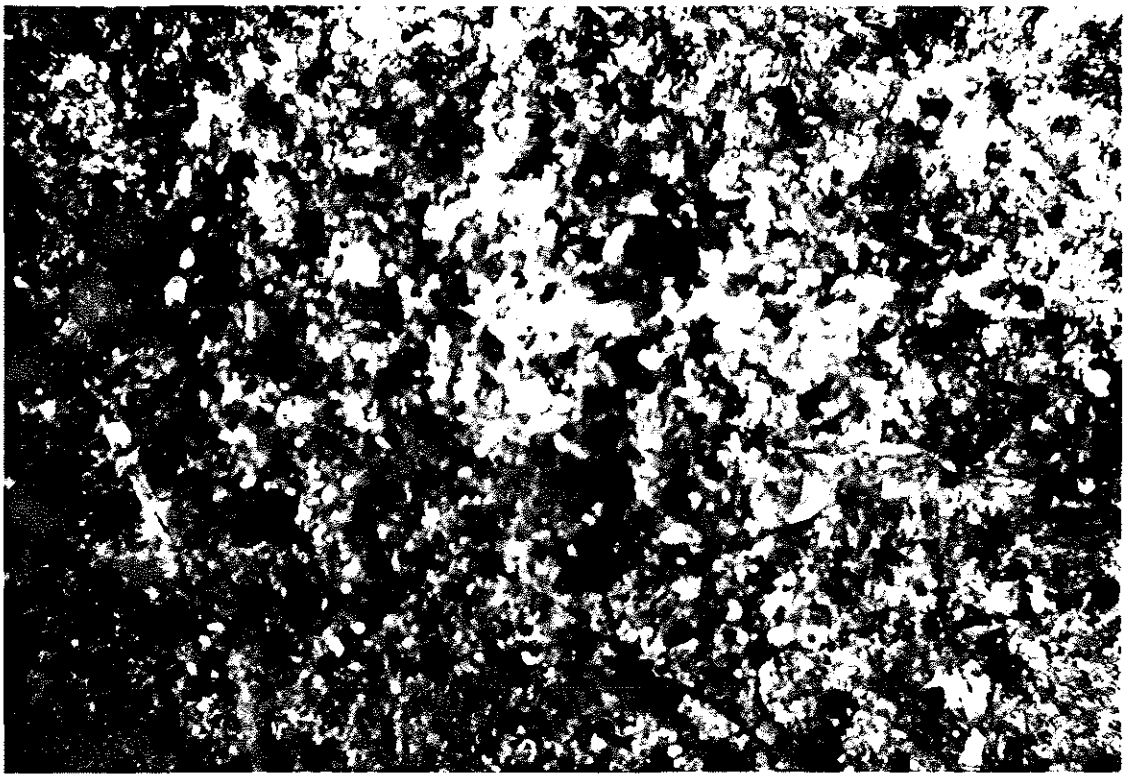

Plate 5. As 4; XPL.