EXAMINATION FOR SPHEROIDAL GOLD IN GLACIAL TILL CONCENTRATES FROM THE MIKWAM PROJECT

by

W. Mueller

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INTRODUCTION

At the request of J. A. Coope,[1] a sample believed to contain spheroidal gold grains was examined to locate spheroidal and other gold grains to classify their morphology and to determine the elemental composition. This sample No. 14832 is from the Mikwam Project, 200 km northeast of Timmins, Ontario.

The Mikwam property covers an area of very few outcrops, where one of the leading exploration techniques for gold is overburden drilling, with subsequent examination and analysis of the nonmagnetic heavy mineral fractions collected from glacial till horizons.[1]

Sample No. 14832 assayed 166 ppm Au and was the nonmagnetic fraction from tabling and heavy media separation.

SUMMARY

The amount of sample available for examination was very small (<0.1 g) and only zircon and pyrite could be confirmed by XRD scans. Other phases are present.

The metallic elements indicated by XRF are major Zr and Fe and a trace of Zn.

The sample consisted mostly of subangular to subrounded, well graded grains approximately 0.05 mm to 0.1 mm. The particles are generally spherical to somewhat elongated. Some spheres (pyrite or marcasite, gold) as well as one cube (pyrite) were also observed.

A total of twenty gold-containing particles were located and classified into five morphological groups, as follows:

Particle Groups	Number Observed
Spheres	6
Blades	3
Spherical Grains	4
Particles with "Cleavage" Steps	3
Metallic-Appearing Flakes and Chips	4

Particle size of gold-containing grains ranged from approximately 0.03 mm (30 µm) to 0.13 mm, with the "blades" having lengths of 0.2 to 0.3 mm.

The twenty examined particles are gold (17) or electrum (3), with an abundance of other elements. Other elements frequently detected were Ti, Fe, Ni, Cu and Zn. Less common but also detected were Cl, Ca, Cr and Si. The distribution of these elements, or their occurrence as included particles, was not determined during this examination. This geochemistry is concluded to be very complex for a native gold/electrum occurrence and atypical for previously examined occurrences.

Additional study would be required to explain the origins, provenance and geochemical variations posed by these gold particles.

SAMPLE DESCRIPTION

The amount of sample available was very small (<0.1 g), and when spread on double stick tape covered an area approximately 5 mm in diameter. The XRD-XRF scans were not optimum due to the small sample size, but they do confirm the presence of zircon and pyrite. Topaz may also be present, but could not be positively identified. Other phases are also present, but could not be keyed out from these XRD scans.

The metallic elements indicated by XRF are major Zr and Fe, and a trace of Zn.

The sample consisted of well-graded grains that are mostly approximately 0.05 mm to 0.1 mm in size and subangular to subrounded. The particles are generally spherical to somewhat elongated (Fig. 1). The elongated grains frequently show crystal faces. Some spheres were observed. Most of these were iron sulfides (pyrite or marcasite), and some were gold (Fig. 2). One well-formed and essentially preserved iron sulfide cube (pyrite) was also observed during the microprobe evaluation.

SAMPLE EXAMINATION

An ETEC microprobe with wavelength and energy dispersive spectrometer (EDS) was utilized in the evaluation for gold-containing particles.

Both Zr and W were present in this sample and they produced considerable interference for the major gold lines. Consequently, the gold L line was utilized for the elemental gold mapping search procedure. Interference still existed from the W, but this was not nearly as objectionable as that from the Zr, which was very abundant in zircon. Any gold would now appear as pronounced or more pronounced than the W.

Initial scans for gold (and tungsten) were conducted at 45X, utilizing the longest scan interval available (9 minutes). Each of these searches would locate approximately 5 to 15 Au- or W-containing particles. Each of these would then be evaluated via the EDS, which shows distinctive spectra for Au and W. This EDS evaluation would generally locate 1 to 3 gold particles per 45X field. A complete EDS spectra would then be collected for each Au particle, recorded, and is presented in Table I. Each gold particle was photographed for morphological characterization. Selected images of these particles are presented as Figures 2 to 8.

Twenty gold-containing particles were found in approximately 75% of the sample.

TABLE I

Information on Mikwam Project Gold Particles

Group	Particle No.	Particle Morphology and Comments (Listed by Groups)	Au	Ag	Cl	Ca	Ti	Fe	Ni	Cu	Zn	Cr	Si
			Detected Elements by EDS (Peak Intensities*)										
Spheres	1	Sphere - Some surface pitting, has a "groove".	100	8				8	2	28	2		
	4	Sphere - With minor pitting and possible inclusions.	100	23	9		3	12	2	12	4		
	8	Sphere - Some surface imperfections.	100	7			2	3		38			
	10	Sphere - Some surface imperfections.	100					2					
	14	Sphere - With surface pitting.	100					3	10	23	3		
	2	Pitted Sphere - With inclusions (dark areas).	100					4	3	8	1		
Blades	16	Rounded Blade	100	2			2	8	11	21	5		
	11	Bent Rounded Blade	100	6			1	2	13	20	6		
	13	Well Rounded Subprismoidal - With surface grooves. Approaches the morphology of a small gold nugget.	100	15						24	3		
Spherical Grains	16	Subrounded Spherical	100	4			3	4					
	17	Subangular Spherical	100	2				3					
	12	Angular Spherical	100	6			2	9		11			
		Repeated	100	8			15	23		11			
	20	Angular Subprismoidal	100				2	12	9	19	5		15
"Cleavage Steps"	5	Subrounded Tabular - Fairly large, close to a grain in appearance, some areas more rounded than others, some "cleavage steps".	100	85				4	2	27	8		
	3	Angular Equant - Showing "cleavage steps".	100				3	6	11	25	7	2	
	18	Angular Semitabular - Showing "cleavage steps".	100	8				9		42	6		
Metallics	9	Metallic Flake	100	7			3	4			1		
	19	Metallic Flake	100	6				8					
	7	Metallic Chip	100	25		1	4	14		33	5		
	15	Metallic Chip	100	11				1		28	4		

* Peak intensities are differentially influenced by particle morphology and location of surrounding particles.

Gold : Silver – relative (more or less)
Other values are qualitative. No standards
Compared with Au, Fe, Ni, Cu, Zn numbers, probably relatively low.

PARTICLE MORPHOLOGY

The twenty recorded gold particles were divided into five morphological groups, as follows:

Particle Groups	Number Observed
Spheres	6
Blades	3
Spherical Grains	4
Particles with "Cleavage" Steps	3
Metallic-Appearing Flakes and Chips	4

Five of the particles designated as spheres, two of the blade particles, and two of the particles with "cleavage" steps have very specific morphologies that are readily observable. However, the distinction between particle morphologies for the remainder of the particles was, in some instances, somewhat arbitrary and subject to reinterpretation.

No botryoidal gold grains were observed.

Particle size ranged from approximately 0.03 mm (30 μm) to 0.13 mm (130 μm), with the "blades" having lengths of 0.2 to 0.3 mm.

Spheres

The spheres were all quite uniform in appearance, with relatively smooth surfaces marked by minor surface imperfections (Fig. 2). Sphere size ranged from approximately 30 μm to 60 μm.

The pitted sphere was of a similar size and perfection of sphericity, but differed with pronounced surface pitting and inclusions of unidentified phases (Fig. 3).

Blades

The blades show the most unique morphology, with no resemblance to any other particles in this sample. Particle No. 16 appears to be a gold crystal (Fig. 4).

Particle No. 13 is the least blade-like in this group and approaches the morphology of a small gold nugget. Mechanical deformation in the form of grooves and edge rounding is well developed.

Spherical Grains

The spherical grains have morphologies similar to subangular to subrounded sand grains. Except for the gold content, they are not morphologically distinguishable from the majority of the other grains (Fig. 5).

"Cleavage" Steps

These particles are characterized by having a very distinctive step-like feature, similar to cleavage in some minerals. In a crude way, some of this material even appears micaceous (Fig. 6). This morphologic feature is possibly created by a tearing action. Smaller fragments of material similar to this may account for some of the "metallic" particles.

Metallics

The metallics particles somewhat resemble flakes and chips produced during a machining operation (Fig. 7).

The spherical grains, "cleavage" steps and metallics particles could all represent similar origins, with varying degrees of mechanical distortion (Fig. 8).

PARTICLE COMPOSITION

The twenty gold particles encountered included 17 particles of gold and 3 of electrum (>20% Ag). In addition to the Au and Ag an abundance of other elements was also detected (Table I). The most frequently detected other elements were Ti, Fe, Ni, Cu, and Zn. Also detected were Cl, Ca, Cr, and Si, though these were uncommon and only one observation of each was made in four different particles (see Table I).

These particles of gold and electrum have the greatest chemical complexity of any native occurrences previously examined by this investigator. It should, however, be noted that no placer gold has previously been examined and that all previous gold was examined in polished mounts.

All formerly examined gold-electrum occurrences have contained only detectable Au and Ag. As an example, the Mikwam core sample DDH A-8 @255'[2] contained electrum with approximately 30% Ag, and with a detection limit of approximately 1-2% no other elements were noted by the EDS system.

Silver content for these particles ranges from not detected to as much as approximately 50% in particle No. 5. In the remainder of the particles, Ag contents are approximately 25% or less.

Contents of the other elements range from not detected to greater than 10%. The peak intensities from the EDS scans are presented in Table I. These intensities were usable only as crude qualitative indicators of the amounts of elements present. Lack of suitable standards and limitations imposed by the sample morphology precludes any detailed element quantification at this stage of study.

There appears to be no correlation between particle morphology and composition. The distribution of chemically complex particles versus chemically simple appears to be apportioned among all of the particle types classified in this study.

Fig. 1. An overall view showing the general particle morphology. The particle 1 gold sphere is in the center of the view. 225X.

Fig. 2. A very regular gold sphere (particle 1) with a groove. 900X.

Fig. 3. A pitted gold sphere (particle 2) showing depressions and inclusions (darker areas) (A) designates the gold spheres and other gold particles. 450X.

Fig. 4. A gold blade (particle 16), which probably is an elongated gold crystal. 450X.

Fig. 5. Angular spherical gold grain (12) very similar in appearance to the remainder of the sample. 900X.

Fig. 6. A relatively large particle (8) showing the "cleavage" steps. 450X.

Fig. 7. A metallic flake particle (19). 900X.

Fig. 8. Particle 5 with "cleavage" steps showing mechanical deformation. The morphology is close to that of a <u>grain</u>. 450X.

DISCUSSION

The composition of these particles is strikingly different from previously examined primary gold occurrences, where only Au and Ag have been detected. Except for iron in ferruginous oxide coatings in oxidized gold occurrences, no elements such as Ni, Cu or Zn have previously been found associated within elemental Au or Ag.

Sulfide minerals such as pyrite, chalcopyrite, arsenopyrite and sphalerite are frequently associated with primary elemental gold and could be mechanically trapped within some of these grains.

Newsome and McIvor favor an epigenetic in situ formation of gold, transported in solution and precipitated under favorable conditions.[3] One morphologic feature demonstrated in at least some of the particles they investigated was a microcrystallite surface structure which was visible at a magnification of approximately 4000X. Microcrystallite structures can be formed by crystallization of droplets from a melt or by chemical precipitation.[4] The microcrystallite surface structure is, of course, a key feature in this postulated origin. as per fire assay

For the conditions employed during this study, magnifications above 1000X were not employed. Therefore, the presence or absence of microcrystallite structures was not evaluated. However, an additional origin that should also be considered is the possibility that spheres may be artifacts created during drilling operations or rounded during glacial movement.

Two major differences are noted between these particles and those examined by Newsome and McIvor.[3] The particles in this study were smaller (30 to 60 µm) than those of Newsome and McIvor (100-150 µm). The Newsome and McIvor grain composition was Au, Ag, Cu and Se, whereas grains in this study generally contained Au, Ag, Ti, Fe, Ni, Cu and Zn.

Much additional study is required to explain the origins and geochemical implications posed by these particles. In future studies it is recommended that some of these or similar grains be evaluated in polished sections. This would eliminate orientation response variants and possible neighbor grain interferences. Additionally, the composition could be examined as a function of depth within these particles. In conjunction with such future studies, it may also be appropriate to examine placer gold nuggets, as well as fire assay beads. Preparation of suitable standards should also be conducted.

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2. Hausen, D. M. and Mueller, W., "Preliminary Mineralogic Examination of Drill Core Specimen from Mikwam Property, Abatibi Belt, 200 km Northeast of Timmins, Ontario," Memorandum to J. A. Coope, April 10, 1985.

3. Newsome, J. W. and McIvor, D. F., "The Occurrence and Significance of Spheroidal Gold Grains in Glacial Sediments," Paper 9, "Till Tomorrow" 1984 (copy included).

4. DiLabio, R. N. W., Newsome, J. W., and McIvor, D. F., "Gold Spheres in Surficial Sediments," Episodes, Vol. 8, No. 1, March 1985, p. 39 (copy included).

THE OCCURRENCE AND SIGNIFICANCE OF SPHEROIDAL GOLD GRAINS IN GLACIAL SEDIMENTS

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While conducting overburden reverse circulation drilling during the 1982 field season in the Abitibi Clay Belt region of northeastern Ontario, an anomalous gold-bearing horizon was encountered in a basal till approximately 14 to 20 feet above the bedrock surface. Heavy mineral concentrate (H.M.C.) assays from this unit returned values of 1226 ppm Au, 87 ppm Ag, and 209 ppm Cu.

Initial binocular microscopic examination of the non-magnetic 1/4 split fraction of the H.M.C. revealed numerous individual spheroidal gold grains as well as several botryoidal gold aggregates. A few spheroidal gold grains were also found to be hosted in a dark green silicate-appearing matrix. Further examination of the gold grains employing an ISI scanning electron microscope indicated a microcrystallite surface morphology on near perfect spheres ranging in size from 100 to 150 microns (Plates 1-5). S.E.M. analytical methods also yielded a grain composition of Au, Ag, Cu, and Se, in varying amounts. Crude zonations of silver enriched rims (1-2 microns) and isolated pockets of selenium (5-10 microns) were also indicated. X-Ray Diffraction analysis of the silicate-appearing matrix host grains revealed them to consist of euhedral chromite and euhedral clarkeite set in a highly fractured amorphous material of indeterminate composition. Subsequent overburden drilling operations in other regions of the Abitibi Clay Belt have resulted in additional discoveries of this type of occurrence and suggests the processes responsible for these occurrences are not isolated or restricted to any single area.

Several hypotheses for the occurrence, morphology and composition of these spheroidal gold grains may be postulated which necessitate a re-thinking of the genesis of gold occurrences in glacially derived sediments. These include (a) a mechanical transport of spheroids from a here-to-fore unrecognized primary source (i.e. bedrock); (b) mechanical transport of gold as colloids formed in a secondary environment and later deposited under favourable conditions; and (c) epigenitic in-situ formation of gold, transported in solution and precipitated under favourable conditions. Due to the shape, texture and composition of individual spheroidal gold grains and their aggregates, an in-situ origin is favoured, although the processes of transport (i.e. either in solution or as colloids) is still debatable. If the in-situ origin is acceptable, the ramifications of this discovery suggest the classical concept of delineating dispersal trains of ore minerals in an up-ice direction must be modified. Close scrutiny of the nature of the gold mineralization responsible for anomalous gold values in overburden samples is imperative to determine the processes responsible for the anomaly. An understanding of regional groundwater flow patterns may become as important as an understanding of the regional glacial flow patterns when attempting to trace anomalous gold values in overburden to source.

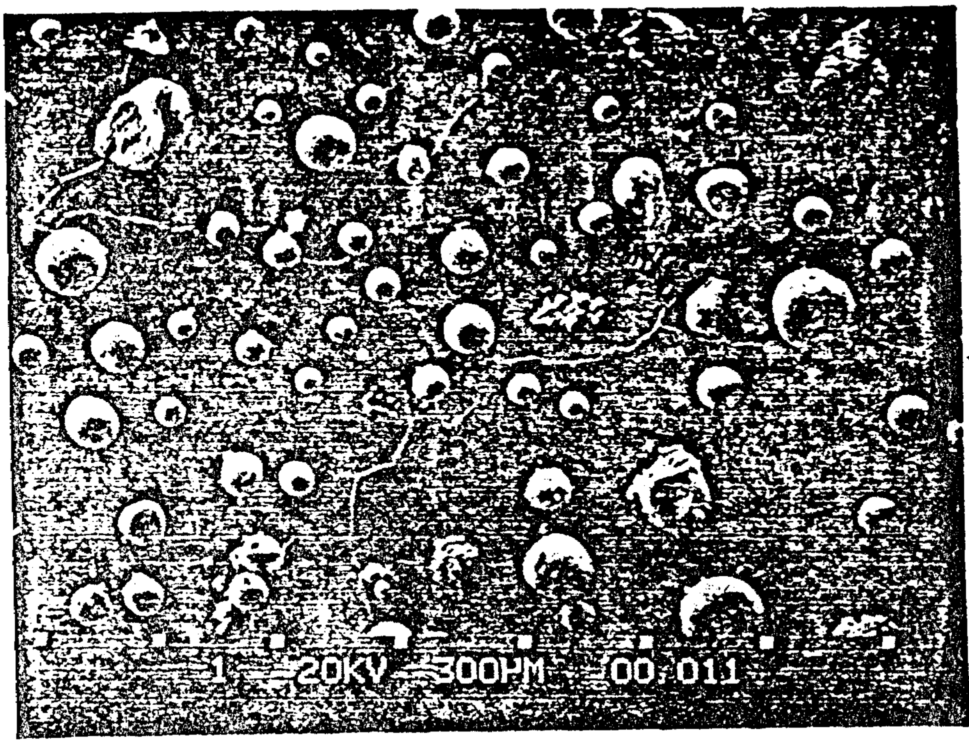

Plate 1: Several Au-Ag-Cu-Se grains
(Note scale separation of 300 microns)

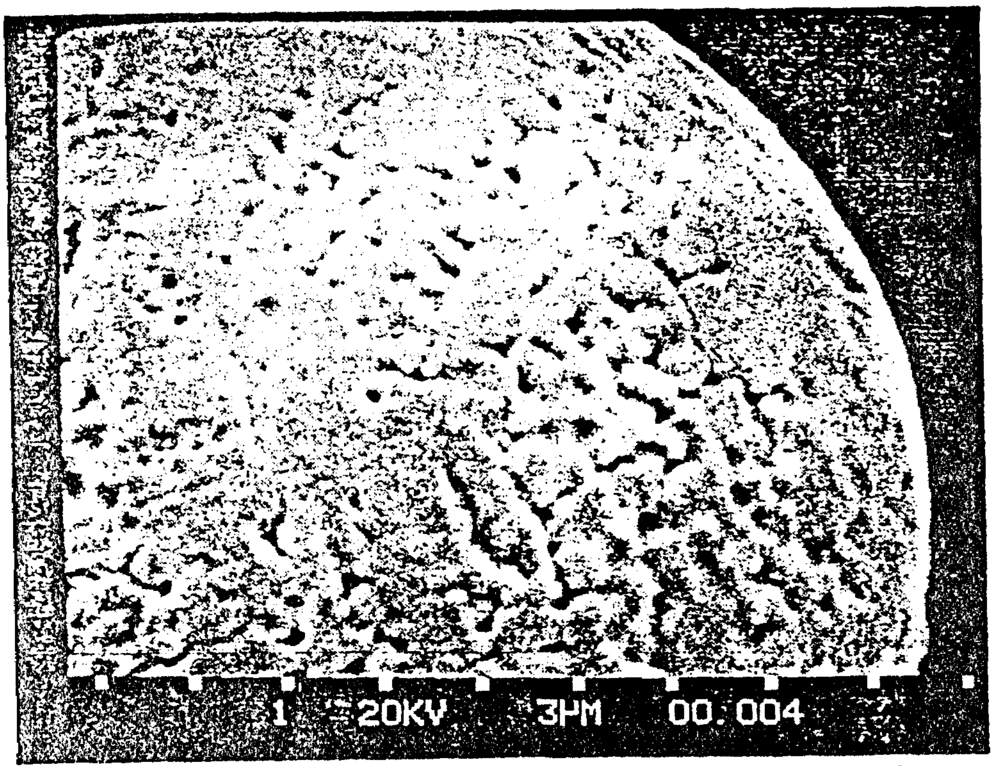

Plate 2: Detailed microcrystallite structure in an Au-Ag-Cu-Se grain
(Note scale separation of 3 microns)

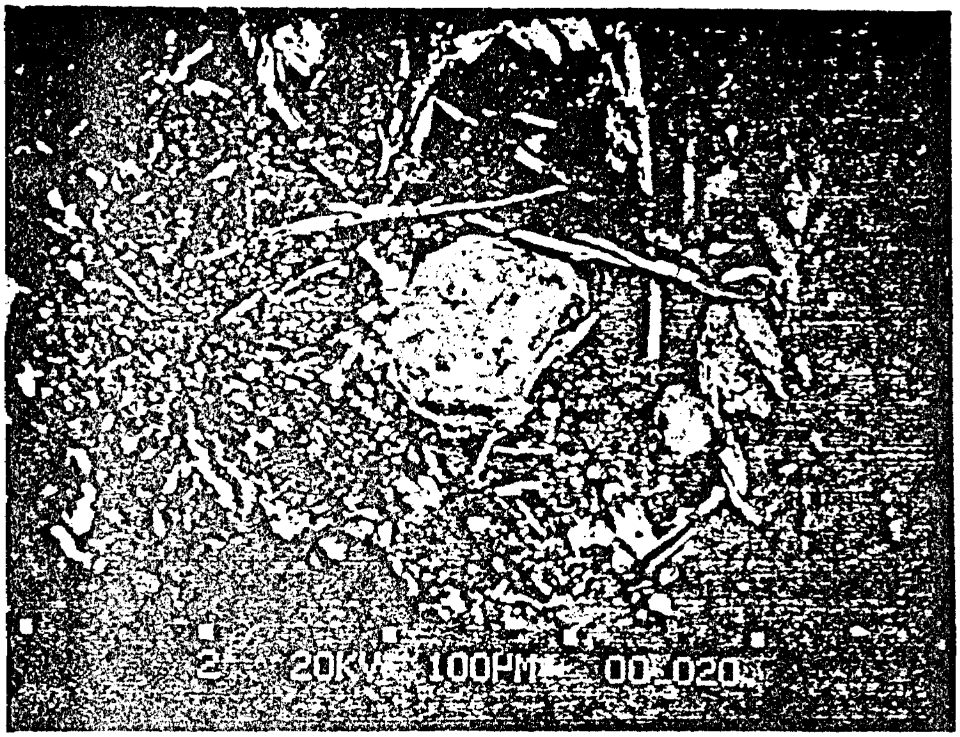

Plate 3: Au-Ag-Cu-Se spheres set in a crystalline matrix of Cr, U-Ca, and indeterminate amorphous minerals. (Note scale separation of 100 microns)

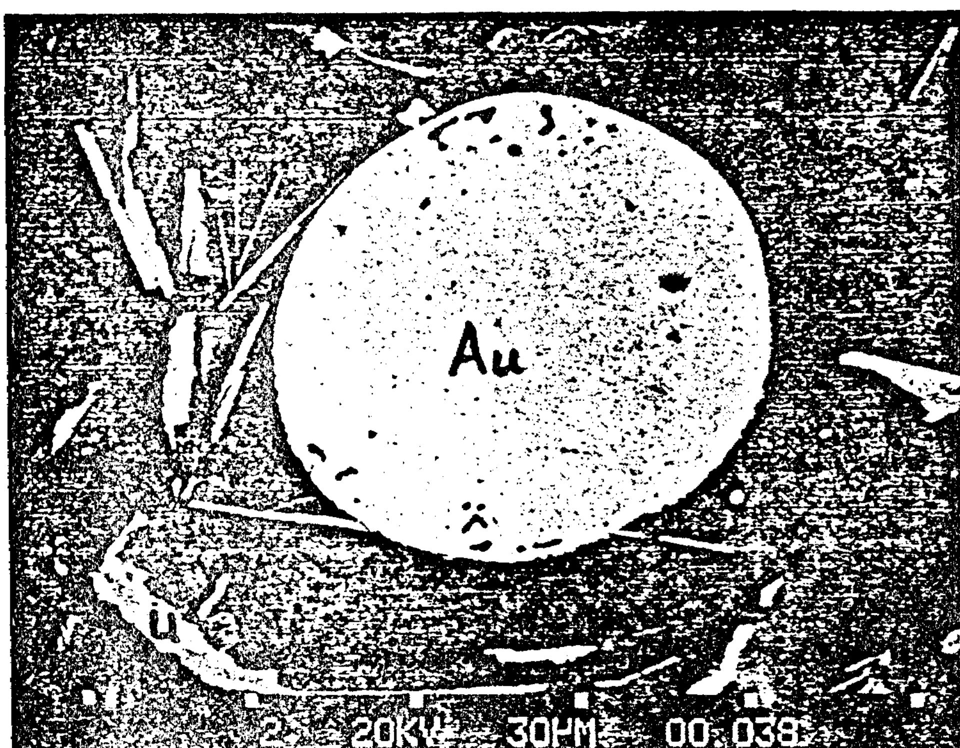

Plate 4: Cut section through a gold sphere and crystalline matrix of Cr and U-Ca minerals set in a dark, amorphous indeterminate mineral matrix (Note scale spacing of 30 microns)

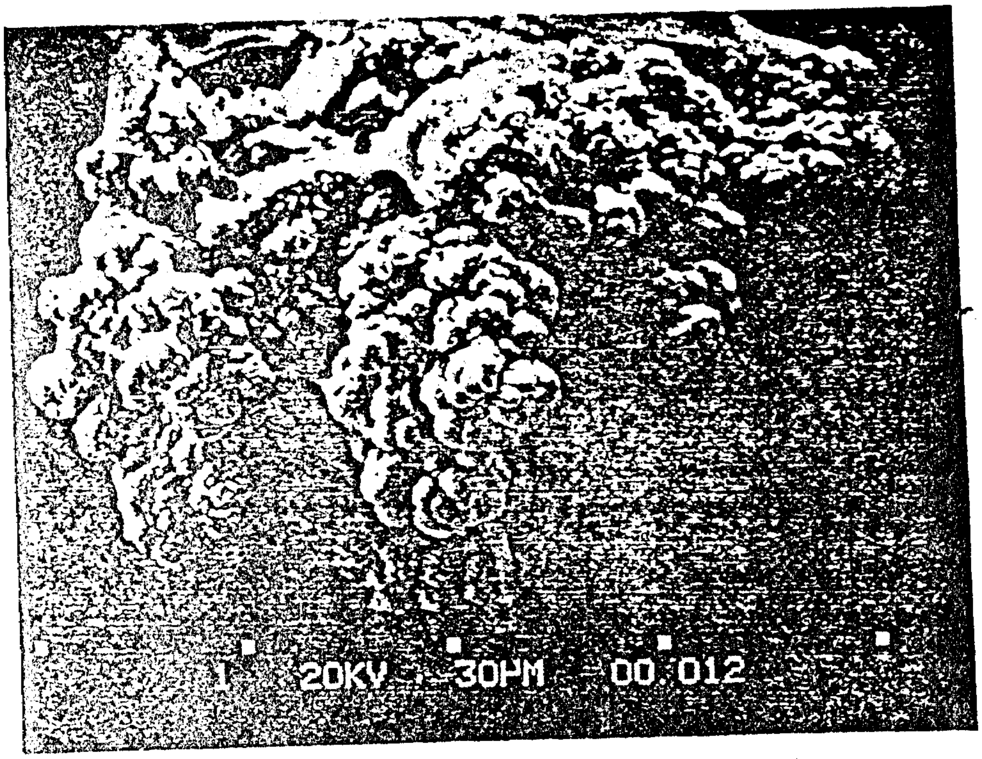

Plate 5: Botryoidal gold grain
(Note scale spacing of 30 microns)

Don
For your info. Some of these may start on bacterial cell walls as were shown in Denver? W C Park 5/10/85

NEWS REPORTS

Gold Spheres in Surficial Sediments

Support for an origin of some placer gold by chemical precipitation comes from a recent find of gold spherules (0.05 - 0.2 mm in diameter) in glacial till from the Abitibi Clay Belt of northeastern Ontario. Heavy mineral concentrates made from samples of a deeply-buried discontinuous horizon contain up to 1226 ppm Au and 87 ppm Ag. SEM studies of the spherical gold grains and accompanying dendrites (see cover photo) indicate a surface and internal structure composed of tightly packed lozenge-shaped units with a "cobble stone" appearance commonly referred to as microcrystallites by meteorite specialists.

The grains contain gold, silver, copper and selenium in varying amounts; some have Ag-rich rims (0.001-0.002 mm thick) and internal pockets of Ag-Se enrichment that may be eucairite, a Cu-Ag selenide. Some of the gold spheres were embedded in a soft dark-green matrix consisting of highly fractured amorphous material, which also contains 0.001-0.01 mm chromite euhedra and blades of clarkeite. The amorphous material has a Si-Al-Ca-Na-Fe-U composition in which the sum of the oxides in electron microprobe analysis totals less than 75%, indicating significant contents of light elements such as carbon. In addition, SEM energy dispersive spectrometry shows a high background spectrum characteristic of organic materials.

Gold spheres in glacial sediments have now been found elsewhere in the Belt, and a search of placer gold samples in the National Mineral Collection in Ottawa has uncovered spheres in a sample of gold dust from the Naraguta tin mine in Nigeria. The only other locality known to the authors where gold spheres have been found is in the Lakekamu gold field of Papua New Guinea where spheres occur in an Fe-Mn oxide crust in fractures in weathered bedrock (P. Lowenstein, personal communication).

Metallic spheres with microcrystallite stuctures can be formed either by crystallization of droplets from a melt or by chemical precipitation. Although these gold spheres do resemble meteoritic metallic spherules and fire assay beads, a melt origin is rejected because of the unique composition, the worldwide distribution, and careful re-checking of the laboratory procedures involved. An in situ origin is favoured involving low-temperature precipitation, although bedrock sources and the processes of transport of the gold are unknown. Organic material and iron-manganese oxides are believed to be important in precipitating the gold, because they are powerful reducing agents and are present in most of the samples.

If the in situ origin is correct, then the classic concept of delineating glacial dispersal trains of gold in an up-ice direction must be modified where spheres are found in till. Where they are found in placers they should not be considered as detrital, and an understanding of the groundwater flow pattern should be sought so as to map the distribution of chemically precipitated gold or to find its bedrock source. The spheres may be related in origin to the large secondary nuggets found in lateritic terrains in Brazil and Australia. Indeed, they could be considered "proto-nuggets" for many gold grains in placer deposits.

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IUGS and Marine Geology

The structure and evolution of the shallow parts of the crust under oceans and along continental platforms were the focus of marine geosciences in the late 1960s and early 1970s. More recently, methods have been developed that study deep crustal structures and processes, as well as history of marine depositional environments. Brand new fields of marine geoscience such as paleoceanography have evolved recently, shifting some of the centers of activities for the marine sciences.

CMG has taken an active part in these developments for many years now, largely through the sponsorship of symposia, workshops and conferences. Many of its activities in 1984 were founded upon the recommendations of the Third International Workshop on Marine Geosciences held in 1983 under the title "Whither the Oceanic Geosciences?" (see Episodes 1983/2, p. 31-32). During this meeting, the entire field of non-living resources of the oceans was discussed at great length, and the Commission decided to establish its own subcommission on the topic. B. ul Haq (U.S.A.) is now in charge of this group and is presently formulating its membership.

Among the more active constituent bodies of IUGS is its Commission for Marine Geology. CMG is charged with the responsibility of promoting the advancement of knowledge in marine geoscience. This branch of geoscience has gone through a phase of specialization in the last decade, during which there has been rapid progress in our understanding of the geological history and structure of sediments and rock under ocean basins, continental margins and epicontinental seas.

Marine geosciences had been trailing the "continental geosciences" for many decades, but since the advent of sea-floor spreading and plate tectonics models some 20 years ago, the former have advanced much more rapidly than their continental counterparts. On the initiative of land geologists, marine geoscientists have developed into an independent group of researchers employed by academic institutions, government organizations, and industrial enterprises. These groups demand an increasing share of human and financial resources spent for the development of the Earth's mineral resources and for the protection of the global environment.

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Petrography and Whole Rock Geochemistry of 1985 Mikwam

Diamond Drill Core

by
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June, 1985

NEWMONT EXPLORATION OF CANADA LIMITED

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Appendix

Figures

PETROGRAPHY AND WHOLE ROCK GEOCHEMISTRY
OF 1985 MIKWAM

Diamond Drill Core

Introduction

24 representative thin sections and 183 whole rock samples were collected from the C area drill holes (DDH's B1, B2, B3, B5, B7, B9) and 198 whole rock samples were analysed from the B area (drill holes A1, A2, A3, A5, A7, A8). No thin sections from area B have been prepared.

In most cases samples were collected at 10 to 15 metres intervals in felsic schists and conglomerate units and sporadically in argillaceous units to obtain data for comparison. In holes A6, A8 rejects of original assay splits were used to obtain whole rock information.

Mag susceptibility readings on all core were taken every 10 feet with a portable susceptibility meter (model JH-8) from Urtec Ltd.

Data collected from the above has been used to better define the stratigraphic morphology and correlate units along strike. To a lesser extent the data has indicated which stratigraphy units and alteration features are associated with gold mineralization.

Representative specimens collected from a field trip to the Inco-Golden Knight Property were analysed for WRA and corresponding thin sections were prepared. The results are included here for comparative purposes.

Results (Geochemistry) and Petrophysics (Mag Susceptibility)

The results of the WRA on core sections is included in Appendices Ia, Ib. Mag susceptibility results are found in Appendix II. Data is presented in table form for each hole: each element and the mag susceptibility are represented graphically, against depth in the drill hole. Major rock units are also represented in Appendix I.

Rock compositions are also illustrated in Figures 4 to 15.

Petrography

To date thin section examination of specimens has been restricted to representative rocks from drill holes in Area C. Specimens are mostly restricted to volcanic rocks and felsic schists and conglomerates that were thought to have a dominant volcanic component. Representative textures are presented in Plates I to XIX.

In general the stratigraphy is represented by a southern unit of felsic to intermediate volcanic rocks and reworked volcanic tuffs and pyroclastics overlain by chert, cherty tuffs and sulphide or magnetite iron formation. This unit is overlain by argillaceous sediments with tuffaceous interbeds that are in turn overlain by andesitic to intermediate volcanics and tuffs that have associated disseminated to massive volcanogenic sulphides generally barren of base or precious metal values.

The southern volcanic unit is comprised mostly of felsic to intermediate tuffs and volcanic conglomerate units of variable thickness. Clasts of the conglomerate are mostly volcanic in origin comprising chert, quartz feldspar porphyry, feldspar porphyry (Plate IIIa) and andesite. The matrix (Plate IIIb) appears similar to section of tuffaceous felsic schist as in Plates I and II.

Overall the conglomerate units may represent volcanic debris flows or lahars.

The felsic to intermediate schists except for DDH-85-B-6 are likely dominantly tuffaceous comprising angular quartz and feldspar grains in a fine grained quartzo feldspathic matrix (Plate I and II).

Alteration and deformation is variable in the above rocks. More deformed (well foliated) rocks show abundant sericite foliations (Plate II). Carbonate is generally ubiquitous though in varying proportions. Ankerite is abundant.

Sections from hole 85-B-6 show the best preserved volcanic features with remnant euhedral plagioclase phenocrysts and quartz eyes being prominent in volcanic sections (Plates VI, VII, VIII). Least altered samples show carbonate alteration but only minor sericite (Plate VI). Primary compositions indicate a Na rich intermediate affinity. With increasing amounts of sericite some addition of K20 is evident (Plate VIII).

Deformation (highly schistose sections) and alteration in some instances has been very intense (Plate VIII).

Volcanic rocks in the hole B-6 area show better preserved relict textures and likely represent the genetic parent of felsic schists to the east. Hydrothermal alteration (ankerite and sericite) have been locally intense.

The cherty tuffs and Fe formation (magnetite bands; Plate Va or sulphide bearing foliations; Plate Vb) are represented in Plates IV and V.

Textures are very fine grained and granular. Locally about 50% of the rock is represented by grains of carbonate (Plate IVb) mostly ankerite? as the CaO content of the unit is very low. Carbonate in the cherty units may be primary as it occurs as discrete individual grains unlike the patchy alteration of the underlying "volcanic" units.

Chemically the unaltered cherty tuff units are distinguished (in the absence of a high magnetic signature) by very low Na_2O, CaO and Fe_2O_3 (pyrite or ankerite) and where pure chert, low Al_2O_3.

Chemical compositions of respective rock types are illustrated in Figures 10 to 15.

Figures 1 and 2 are included as being illustrative of rock type fields.

Similar chemistry in the A6, A8 holes illustrates the continuity of felsic to intermediate schists (tuffs) as a continuous stratigraphic unit.

High gold values appear related to cherty tuff units (Figs. 12, 13). High Fe_2O_3 in these mineralized units appears related to ankerite and pyrite ($\mp$ arsenopyrite). Megascopic cataclastic and/or deformational textures are characteristic of the mineralized zones.

Overlying the cherty units is a thick sequence of argillite and greywackes with interbedded tuffaceous units. Only representative specimens were taken from the units however the compositions suggest a more volcanic than clastic genesis ie., compositions fall in chemical fields represented by the volcanic conglomerate and sericite schists (tuffs). See figures 6, 9, 10a, 14, 15.

Overlying the argillite sequence are a series of andesite to dacite flows and tuffs, the base of which contain narrow Po, Py massive sulphide bands with thicker sections of disseminated sulphides. This unit is extensive and can be traced from hole B5 to A7. (Plates XVII, XVIII, XIX).

The volcanics vary from andesite (porphyry) flows, (Hole B5, Plate X), andesite tuffs, (Plate XIII, XI), to dacite tuffs (Plate XIVb, XII) with less common dacite flow material. (Hole B9, A7, Plate XIVa, XV). Chlorite alteration in the andesites is common. Deformation is prominent however the intensity is variable. More intensely deformed zones have abundant sericite foliations and carbonate alteration (usually calcite rather than ankerite) (Plates XIVa, b, XVI). Foliations are likely the product of folding (axial plane cleavage) as minor folds are rarely observed with axis 11 to foliations (Plate XI).

The northerly volcanic unit can generally be distinguished from the southern units by higher TiO_2 and Zr contents though porphyritic dacites in hole B9 resemble these in hole B-6.

Discussion and Conclusions

Three broad stratigraphic units can be defined in the B and C areas that can be textural and chemically correlated. These comprise a south felsic to intermediate volcanic unit with lensoid interbeds of chert, cherty tuff, magnetite and sulphide Fe formation. The volcanics comprise tuffaceous units and feldspar porphyry or quartz feldspar porphyry flows (only observed in hole B6-latered equivalents to the east are tuffs) with interbedded units of volcanic conglomerate (laharic or debris flows). Ankerite is locally abundant. Abundant sericite is evident where the rocks are well deformed.

Texturally and compositionally the above unit strongly resembles the gold bearing hosts at the Inco-Casa Berardi deposit, though the rocks of hole B6 have the greatest similarity with the main ore zones. Characteristics of holes A8, A6 etc. resemble Au bearing localities at the Inco deposit in cherty units.

A northern volcanic unit of mafic (andesite) to intermediate tuffs and flows hosting disseminated volcanogenic sulphides with local narrow lenses of massive sulphide is separated by a thick unit of tuffaceous argillaceous sediments.

Mineralization

Au mineralization is most prominent in holes A8 and A6 though anomalous values do occur in holes A5 and B1. The host rock in the A holes appears to be a sericite schist whose chemical composition suggests the host to be a cherty tuff with disseminated pyrite and arsenopyrite. The mineralogy of the mineralized zone in A8 has been described in detail by Coope (Summary Progress report April 1985). The compositions of the host unit compare well with those of unaltered chert-Fe formation units (Hole B1, B2, B6).

Anomalous Au, As values are also encountered in the volcanic conglomerate unit in Hole B1.

Mineralization in holes A8, A6 is very similar to that hosted by cherty-Fe formation units at the Inco-Golden Pond deposit.

Comparison with Inco-Golden Pond Deposit

Overall the southern felsic-intermediate "volcanic" unit is comparable on a gross scale with the ore hosting stratigraphy of Inco-Casa Berardi Au deposit. At this time comparison has been made on the basis of textural and chemical compositions.

Similarities include-similarity of the Mikwam volcanic conglomerate with the pyroclastic and volcaniclastic conglomerate at the Inco deposit and abundant ankerite and sericite alteration. Thin section photos of representative specimens are shown in Appendix III.

Approaching the ore zones at the Inco East Zone cataclastic/deformational textures become more pronounced. The ore is hosted by altered volcanic rocks (carbonate-sericite) referred to as tuffs by the Inco people however relict feldspar phenocrysts suggest the original rock may have been a volcanic porphyry flow. Chemistry (Table I) of the altered rocks at the Inco East Zone suggest the ore is hosted in a basaltic to andesitic volcanic. High loss of ignition (LoI) after 247 m in hole 71742 is indicative of the high carbonate content of the rocks. Additional alteration features include increases in A1203 and K20, minor loss of Na20 and loss of T102 near the ore zones.

Overall the host rock of the Golden Pond East Zone appears to be an altered mafic volcanic and associated quartz vein. Hydrothermal alteration is prevalent in the form of carbonate (high Co2-LoI) sericite (K20 addition) and A1203 addition.

Favourable areas so far detected on the Mikwam property that have similarities with the Inco deposit include the hole A8 Au bearing cherty horizon, the hole B6 area, because of indications that hydrothermal alteration and possible volcanic source rocks (porphyries) are more common here, and the mafic volcanic sulphide bearing horizons intersected in holes A5, A7 etc. The above mafic horizon may represent a favourable target however the strong ankeritic and sericitic alteration detected in the Inco deposits have so far not been intersected.

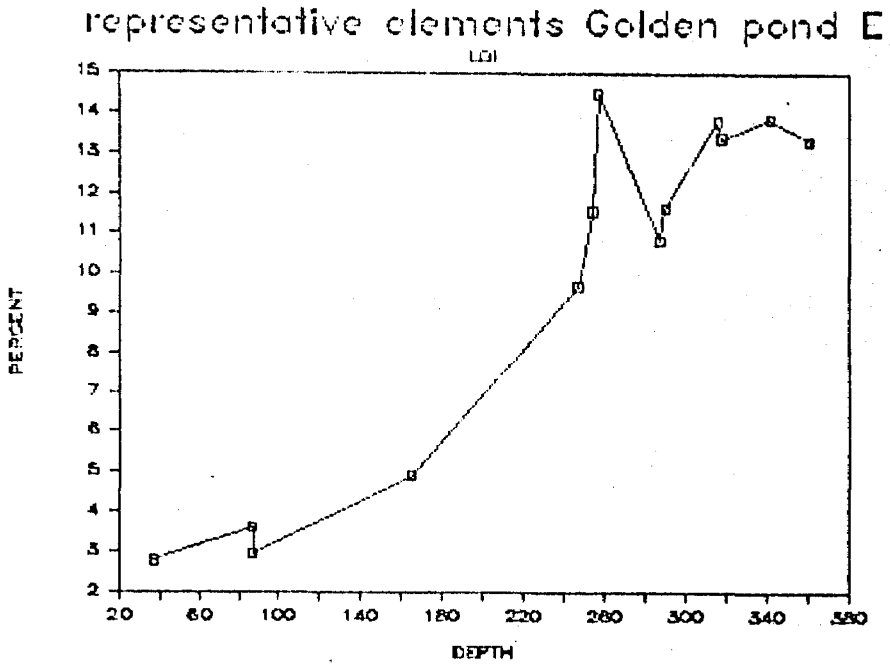
TABLE I

Representative Specimens Inco-Golden Knight East

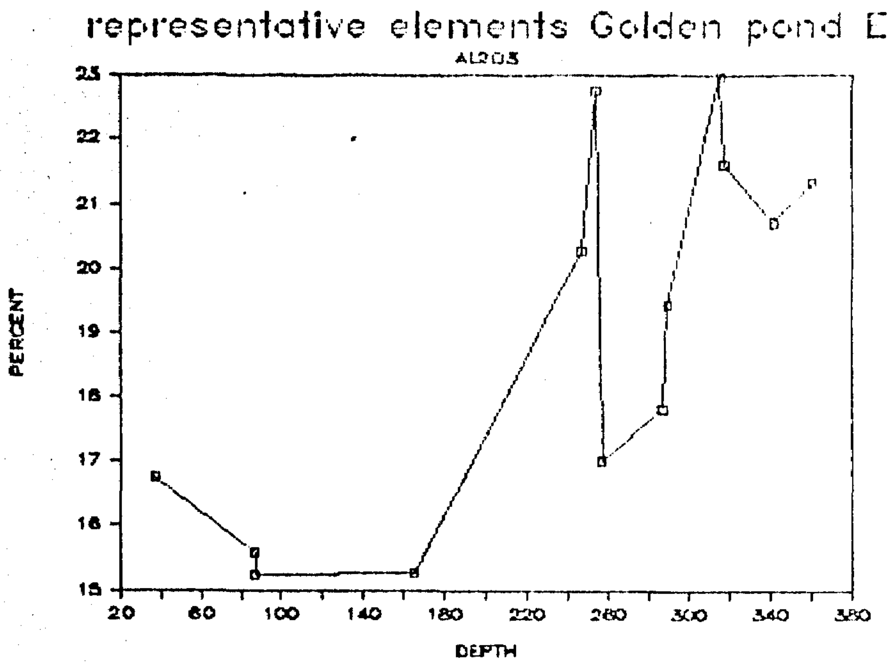
SAMPLE	DEPTH	DESC	SIO2	AL2O3	FE2O3	CAO	MGO	NA2O	K2O	TIO2	MNO	P2O5	BA	SR	ZR	LOI	Au	As	Sb	Pb	Zn
28003	37	cngl	66.22	16.76	5.82	2.23	2.68	3.38	2.11	0.53	0.11	0.15	484	272	112	2.77	25				62
28004	87	Por.fr	67.55	15.53	4.33	3.97	1.97	4.37	1.55	0.44	0.12	0.12	398	371	76	3.6	20				35
28005	87	cng.mtx	68.15	15.24	6.04	2.14	2.94	3.46	1.27	0.54	0.1	0.12	393	250	104	2.94	10				48
28006	165	cngl	67.64	15.23	5.68	3.32	2.72	2.65	1.85	0.55	0.18	0.14	440	276	120	4.93	15			19	37
28007	247	cng.ank	53.43	20.28	8.96	6.99	3.33	3.67	2.07	0.93	0.11	0.18	269	254	74	9.63	25	40			32
28008	254	tuff.ank	51.69	22.76	5.67	8.25	2.95	5.72	2.18	0.53	0.12	0.13	269	423	74	11.55	15	80			33
28009	257	tuff	50.12	17	11.44	9.31	7.65	2.57	0.73	0.91	0.17	0.09	79	245	62	14.43	10	30			40
28030	287	tuff.lx	52.19	17.81	13.24	6.51	5.01	1.23	2.17	1.42	0.22	0.11	260	193	66	10.84	30	50			100
28031	290	tuff	50	19.44	11.88	8.16	4.41	2.21	2.36	1.13	0.27	0.13	269	264	74	11.65	20	<10			
28032	316	ser	50.66	22.96	7.11	9.58	3.33	4.02	1.39	0.7	0.12	0.11	170	318	72	13.70	5	110			109
28033	319	catacl	52.82	21.61	8.03	8.65	3.29	2.64	1.83	0.85	0.12	0.13	236	219	113	13.37	175	70			33
28034	342	bx.ser	51.04	20.73	8.17	9.21	5.46	1.62	3.01	0.55	0.16	0.04	341	246	67	13.37	35	128			44
28035	361	catcl.tuf	50.25	21.33	6.86	9.69	4.44	3.36	3.34	0.55	0.12	0.06	259	231	69	13.3	15	110			42
28036	[illegible]	maf.sed	64.61	14.14	12.15	2.73	1.66	2.25	1.64	0.52	0.08	0.16	467	253	118	3.37	10	<10			27
28037	257	cngl	68.11	16.66	5.33	1.07	2.38	3.6	2.09	0.54	0.08	0.18	523	302	163	3.02	15	<10			40 31

conglom (28003–28008); mafic w/ (28009–28035)

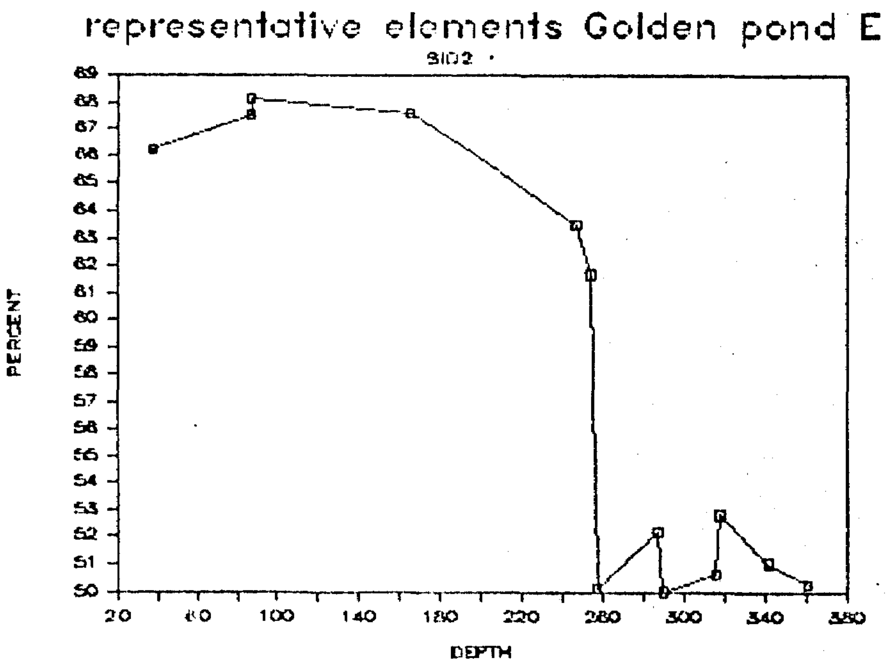
3m above hi Au zone (28034); Pg As (28034)



representative elements Golden pond E
LOI
PERCENT
DEPTH



representative elements Golden pond E
Al2O3
PERCENT
DEPTH



representative elements Golden pond E
SIO2
PERCENT
DEPTH

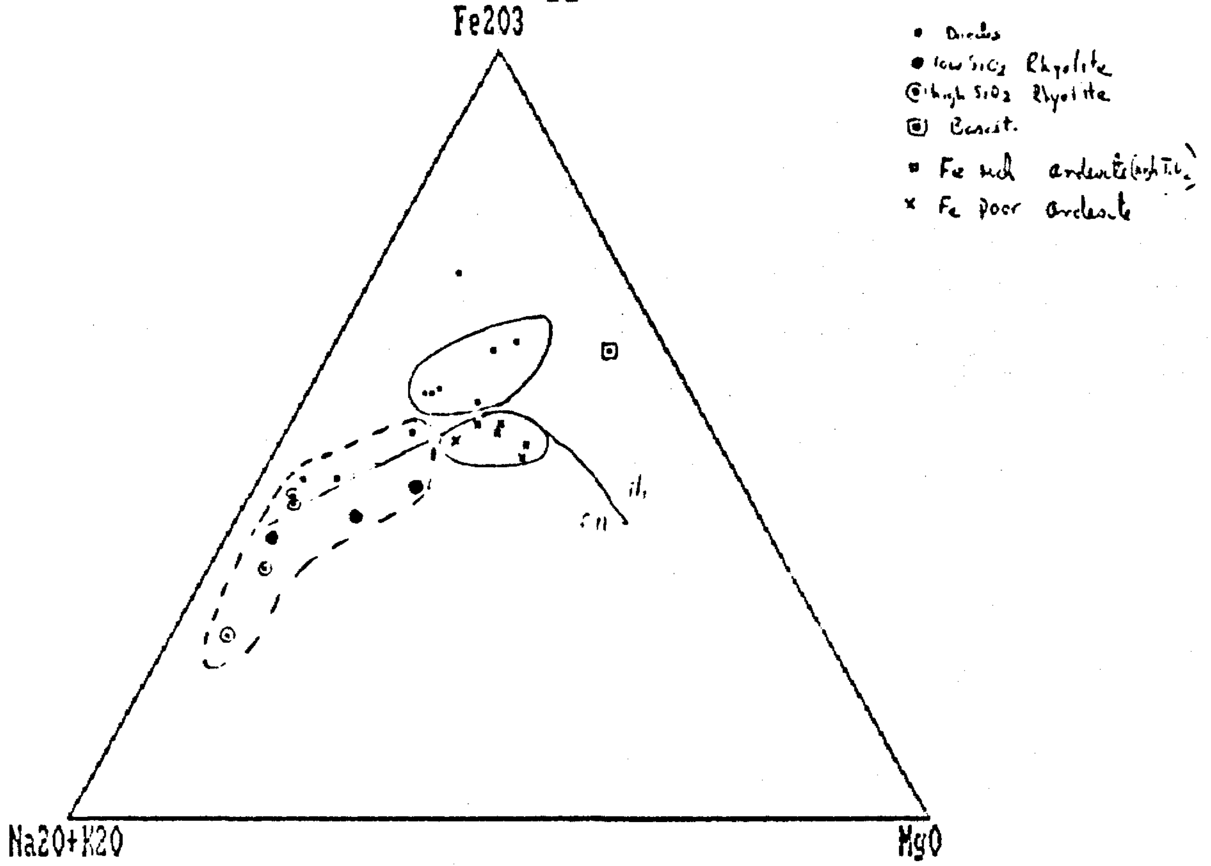


Fig. 1 Distribution of representative Noranda Volcanic Rocks. Data from Spence, 1976.

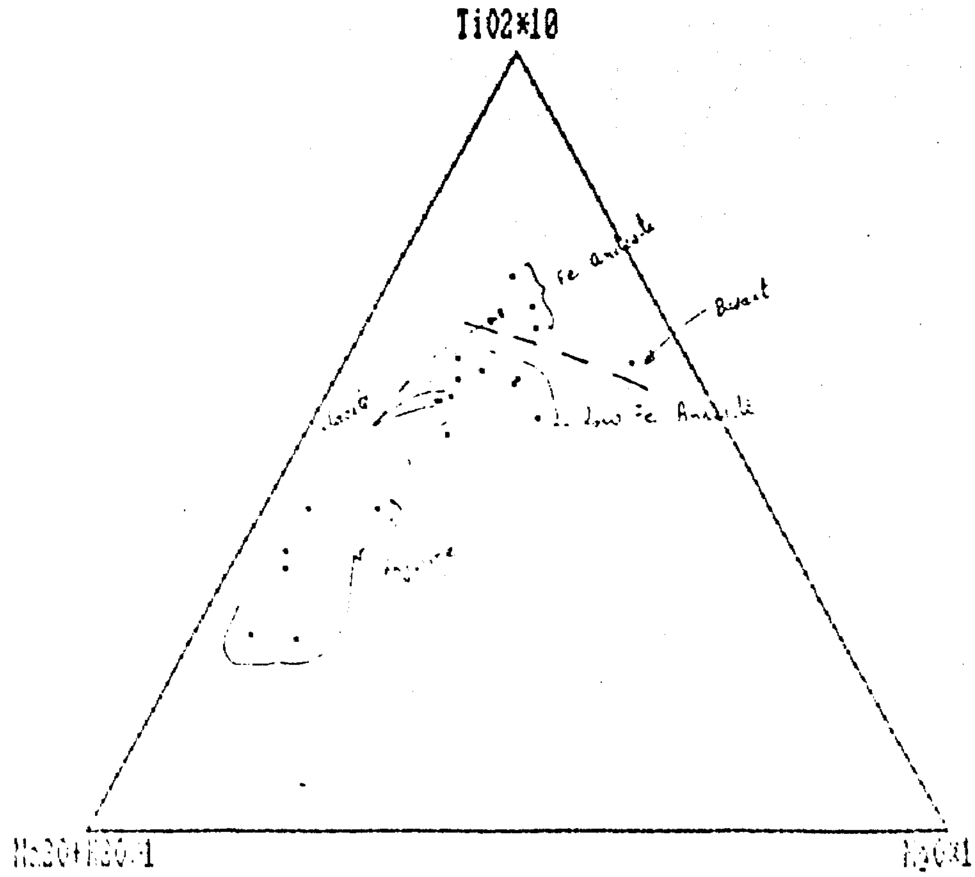


Fig. 2 Distribution of representative Noranda Volcanic Rocks. Data from Spence, 1976.

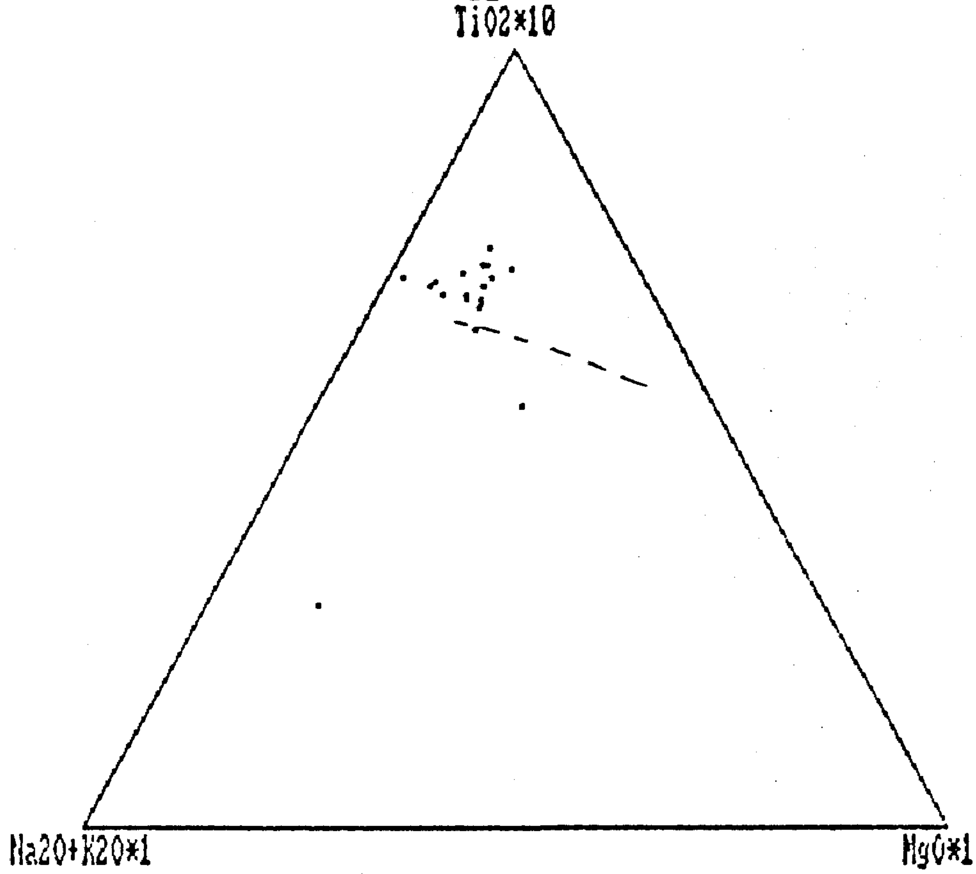


Fig. 3 Representative samples from DDH 85-B-5.

Bs

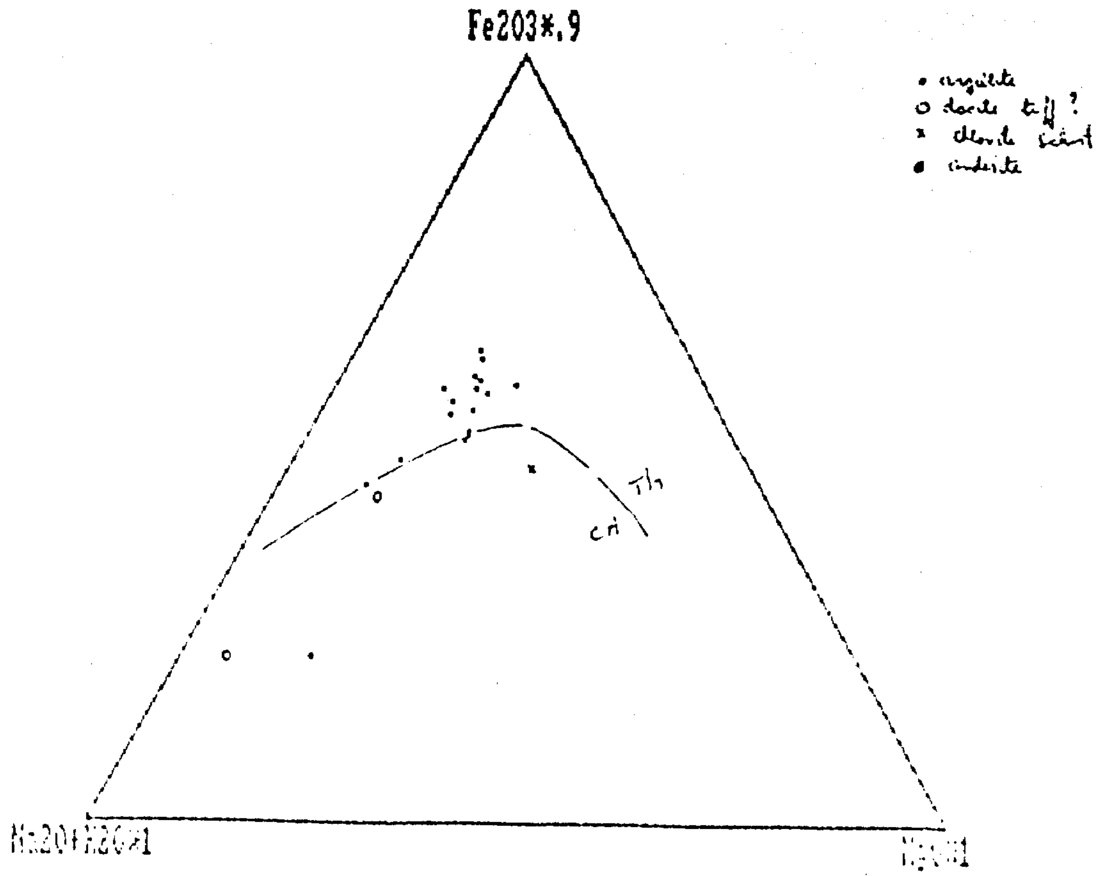


Fig. 4 Representative samples from DDH 8-B-5.

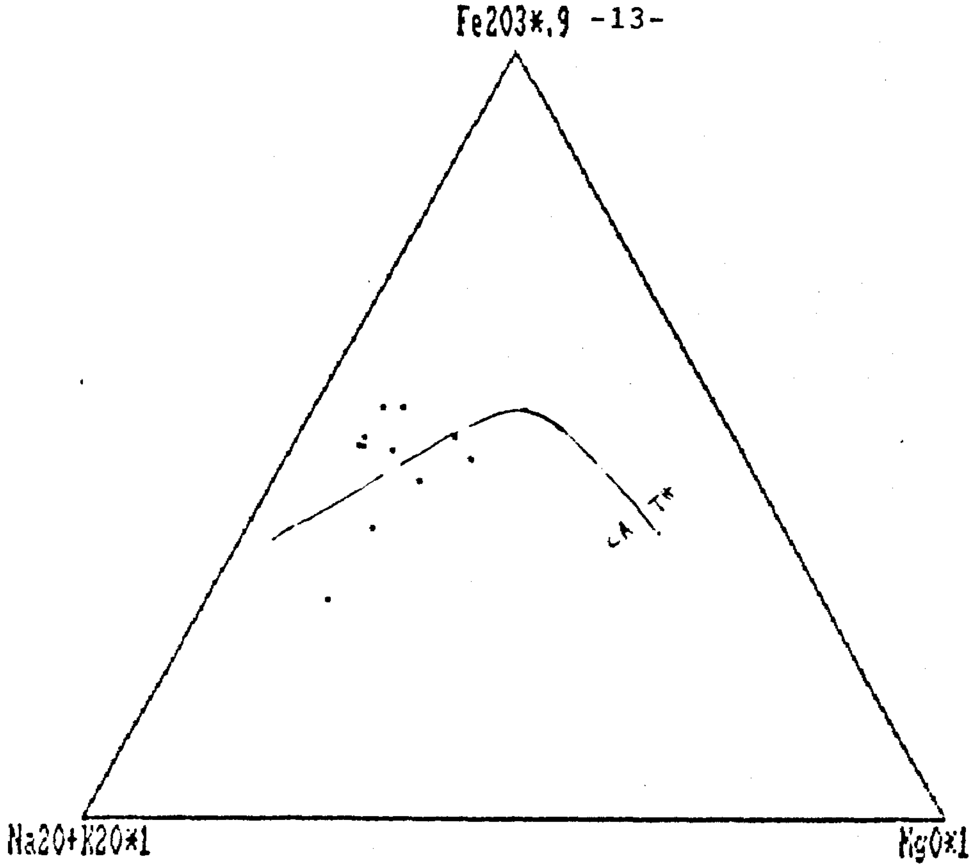


Fig. 7 Representative samples of rock types from DDH 85-B-7.

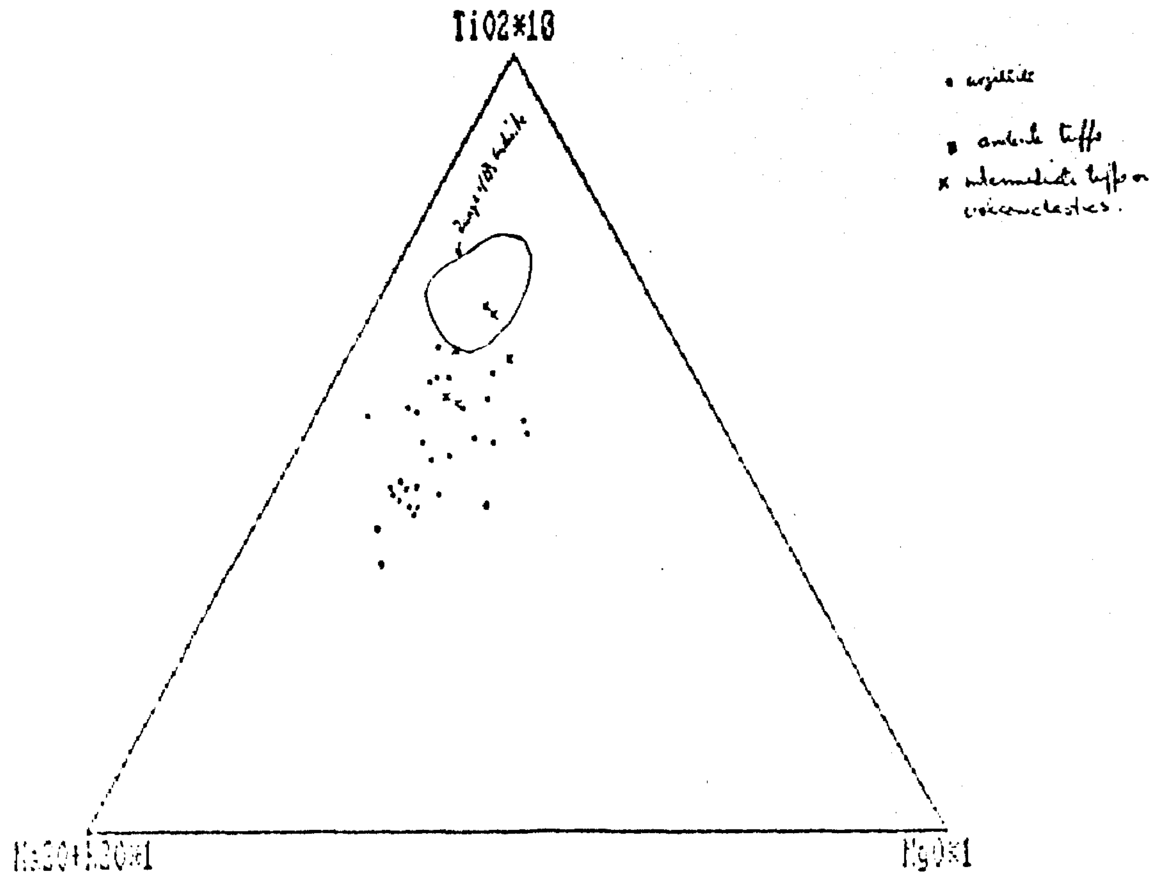


Fig. 8 Representative samples of rock types from DDH 85-A-7.

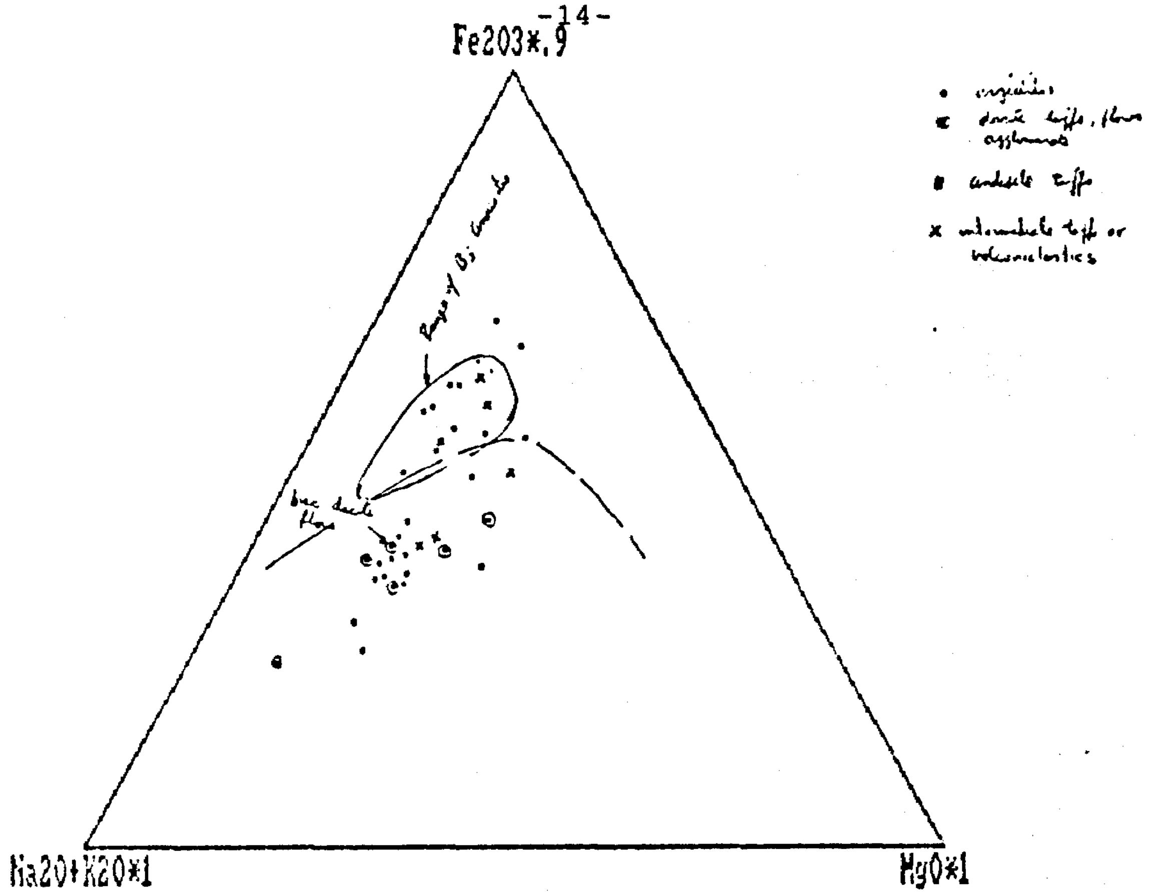


Fig. 9 Representative samples of rock types from DDH 85-A-7.

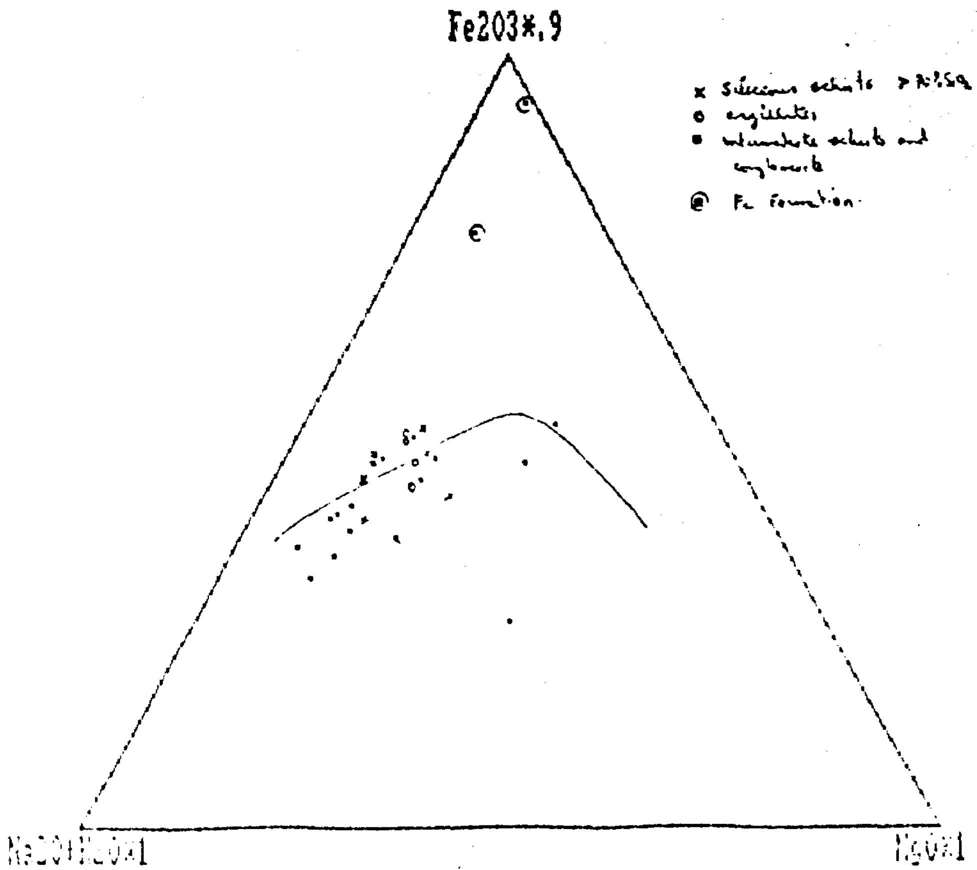


Fig. 10a Representative samples of rock types from DDH 85-B-1.

B1

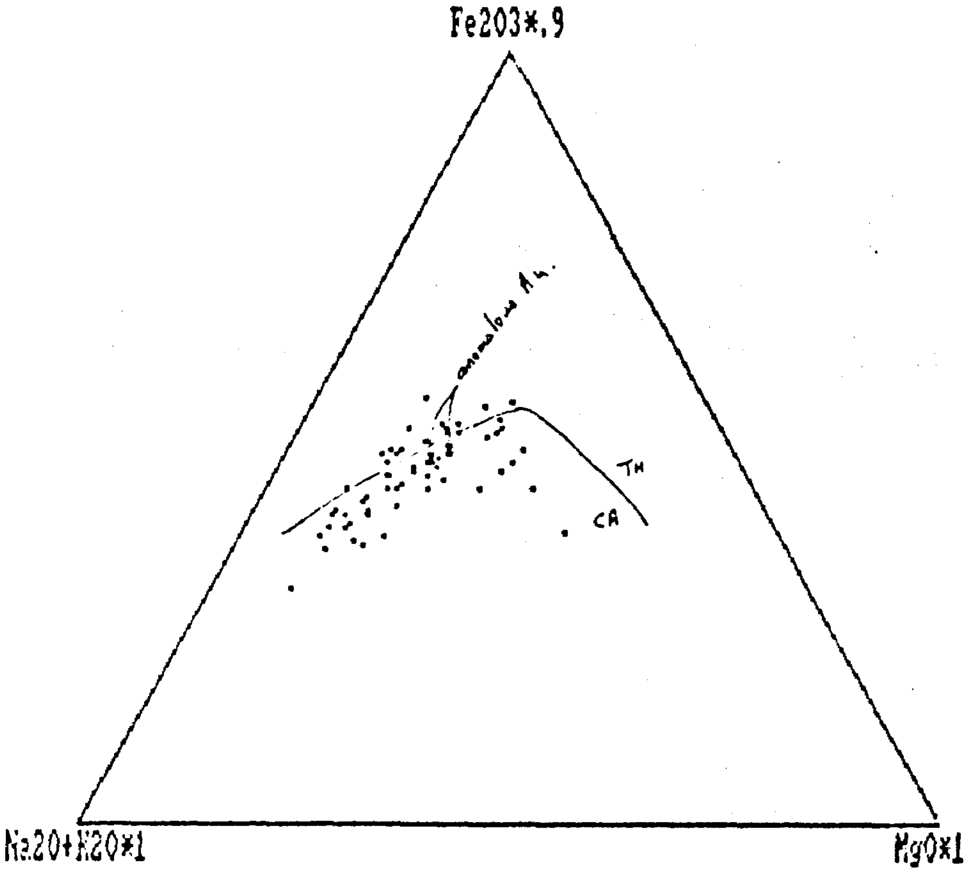


Fig. 10b Conglomerate and felsic schists DDH 85-B-1.

B6

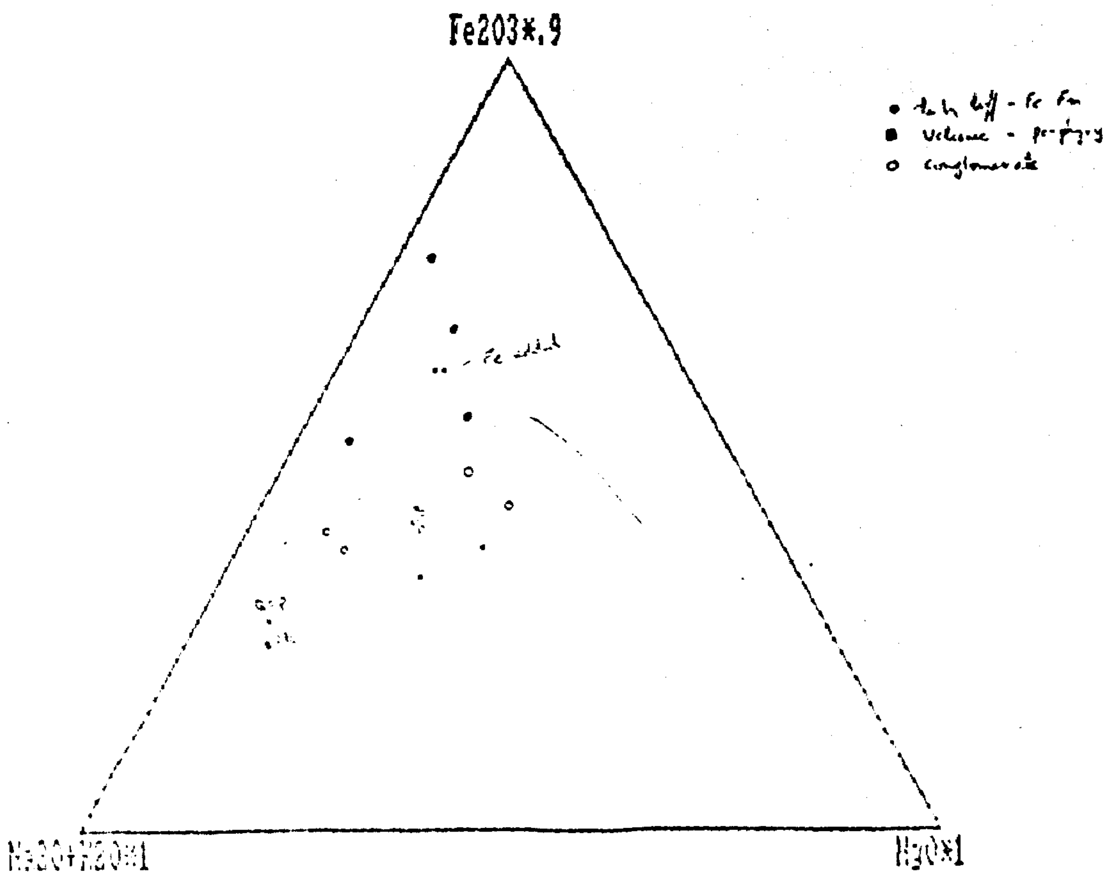


Fig. 11 Representative samples of rock types from DDH 85-B-6.

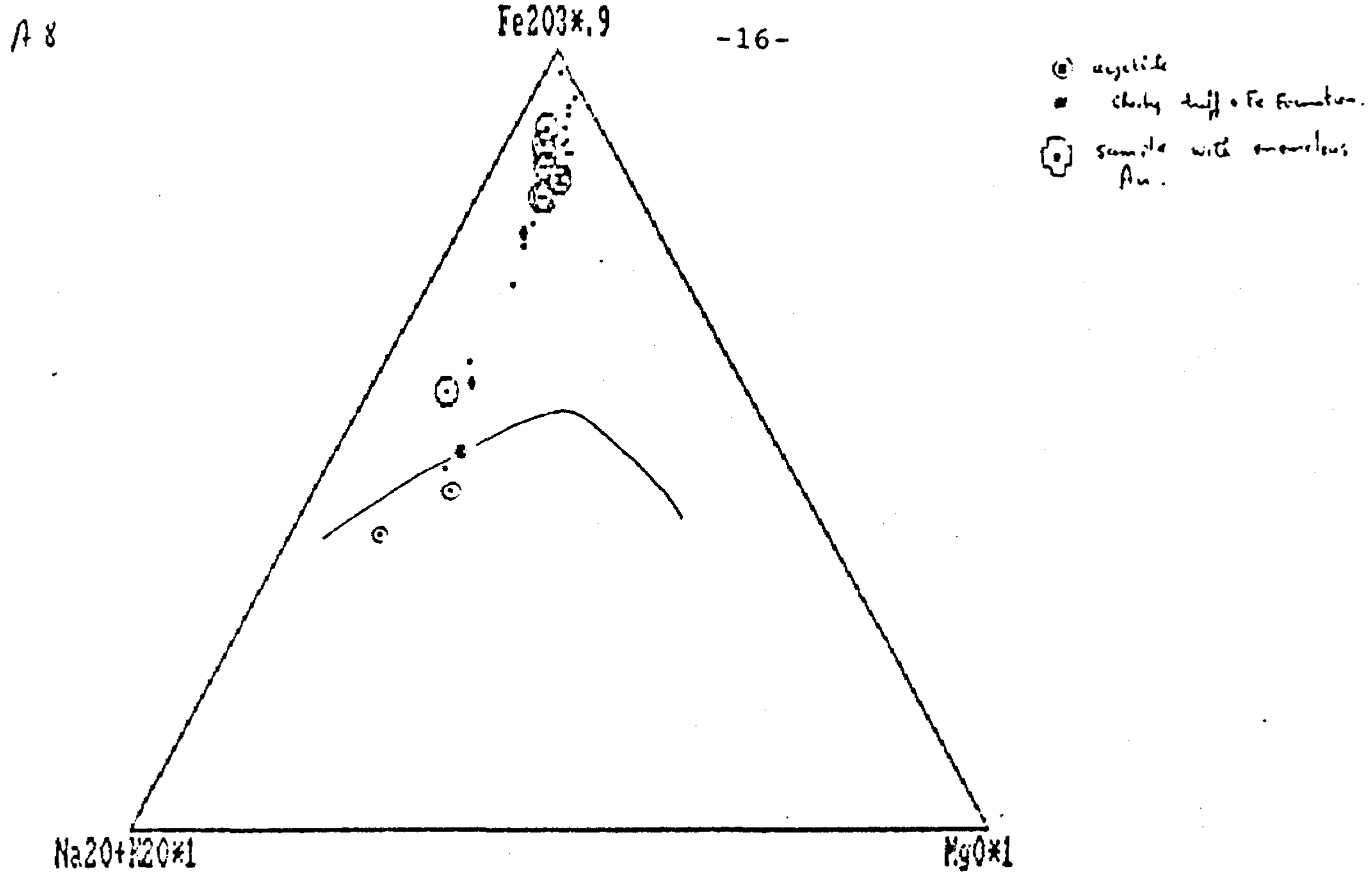


Fig. 12 Compositions of core sections from DDH 85-A-8.

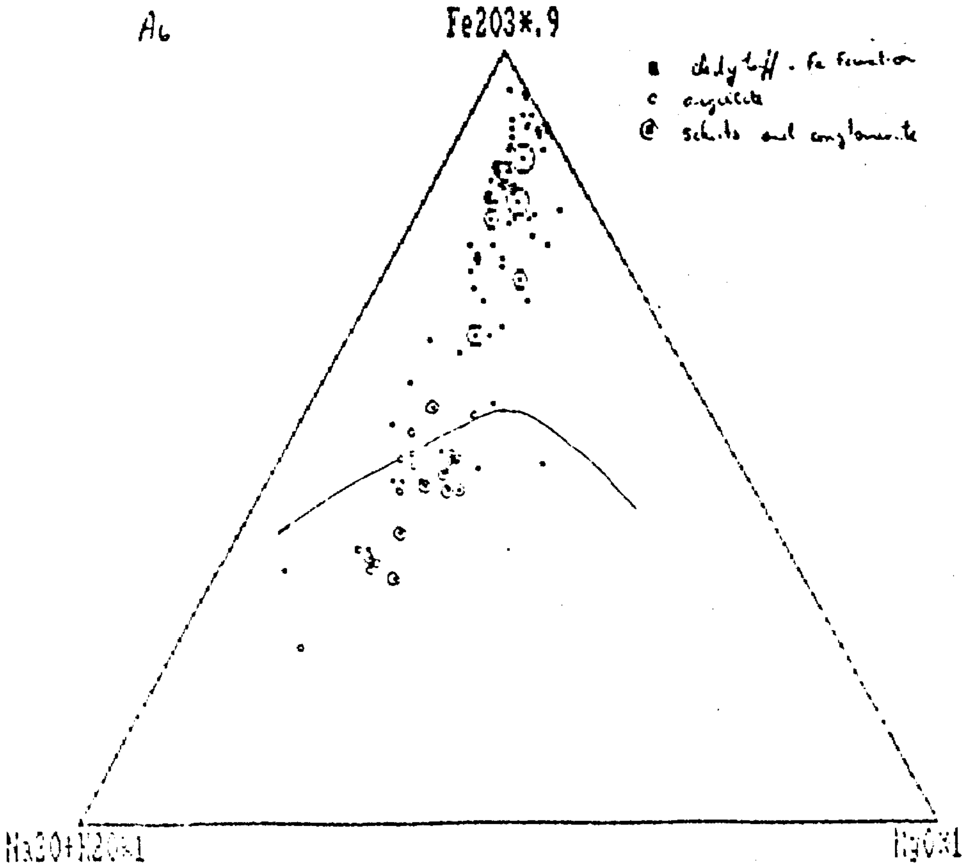


Fig. 13 Compositions of core sections from DDH 85-A-6.

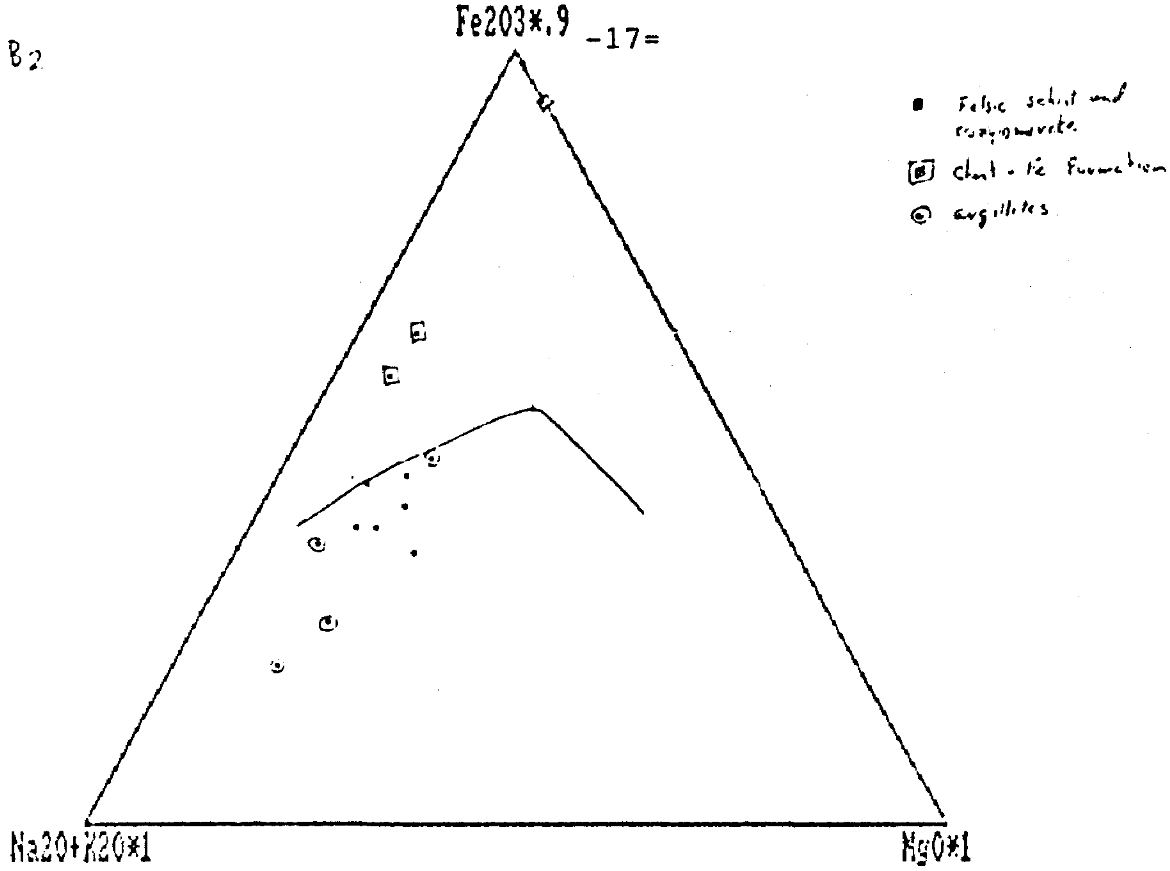


Fig. 14 Representative samples of rock types from DDH 85-B-2.

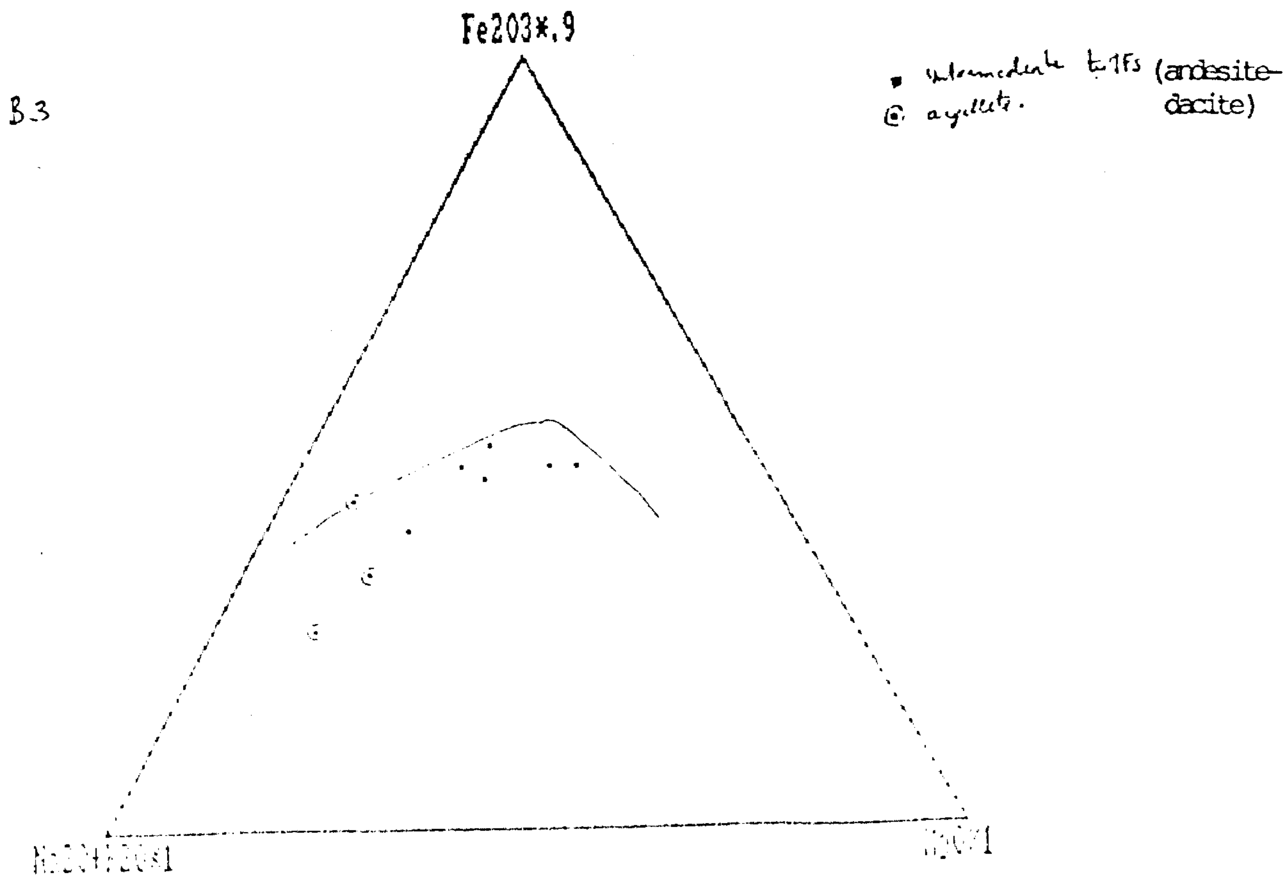
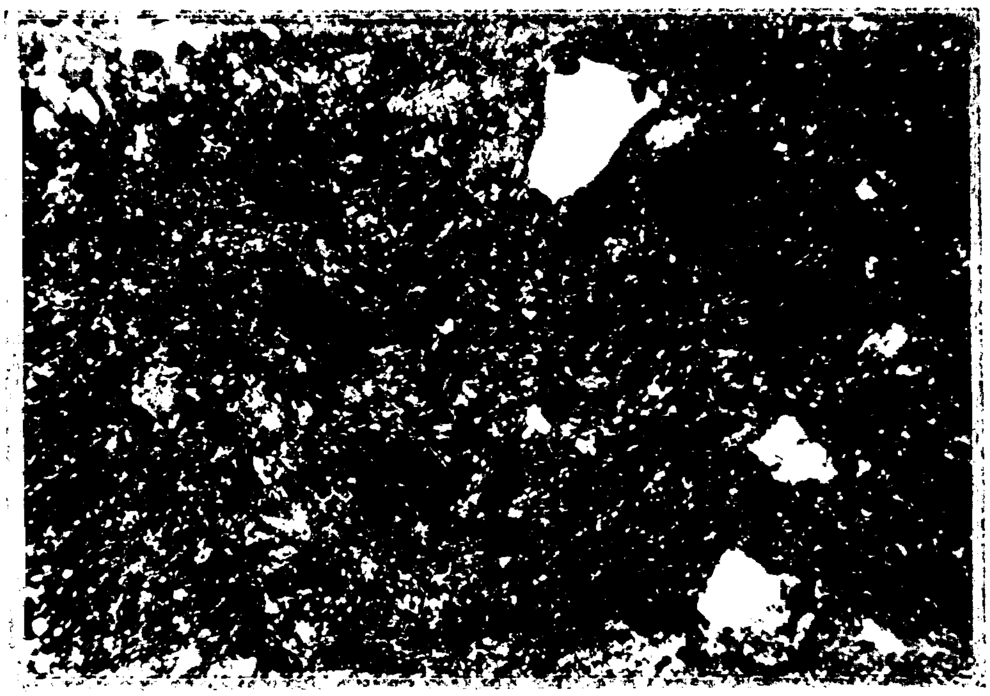


Fig. 15 Representative samples of rock types from DDH 85-B-3.

magnification 70x

Plate I

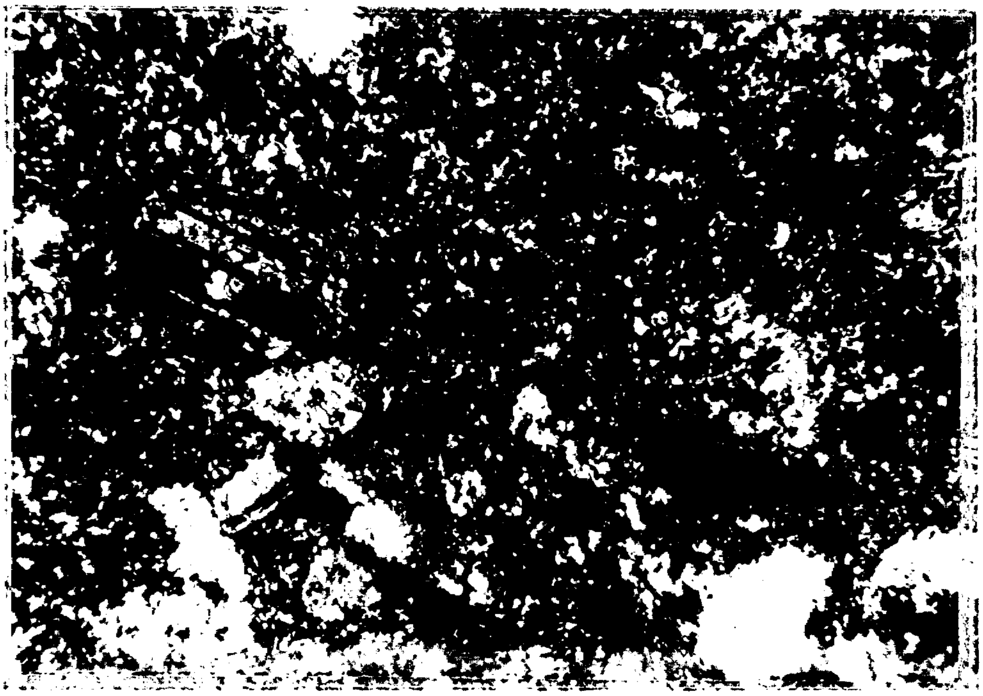
DDH 85-B-1; at 463 feet: WR#7808
Volcanic tuff - broken quartz and feldspar phenocrysts carbonate (buff colored mineral) abundant



magnification 70x

Plate II

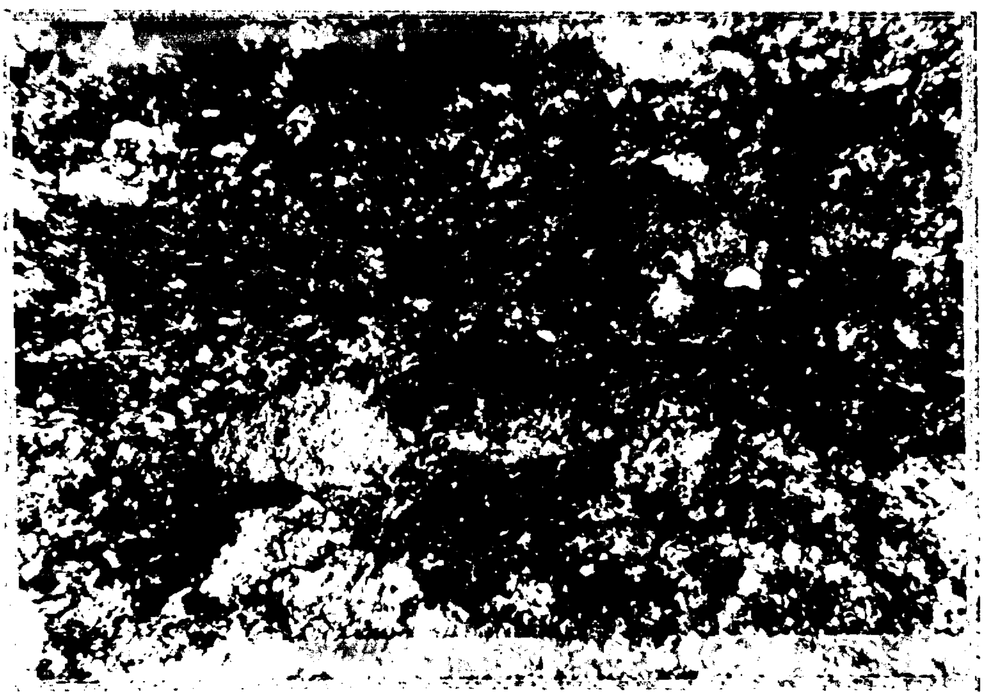
DDH 85-B-1; at 995 feet: WR#7827
Volcanic tuff - as above, more deformed-more sericite - t te deformed (kinked) ser cite bands



magnification
70x

Plate IIIa

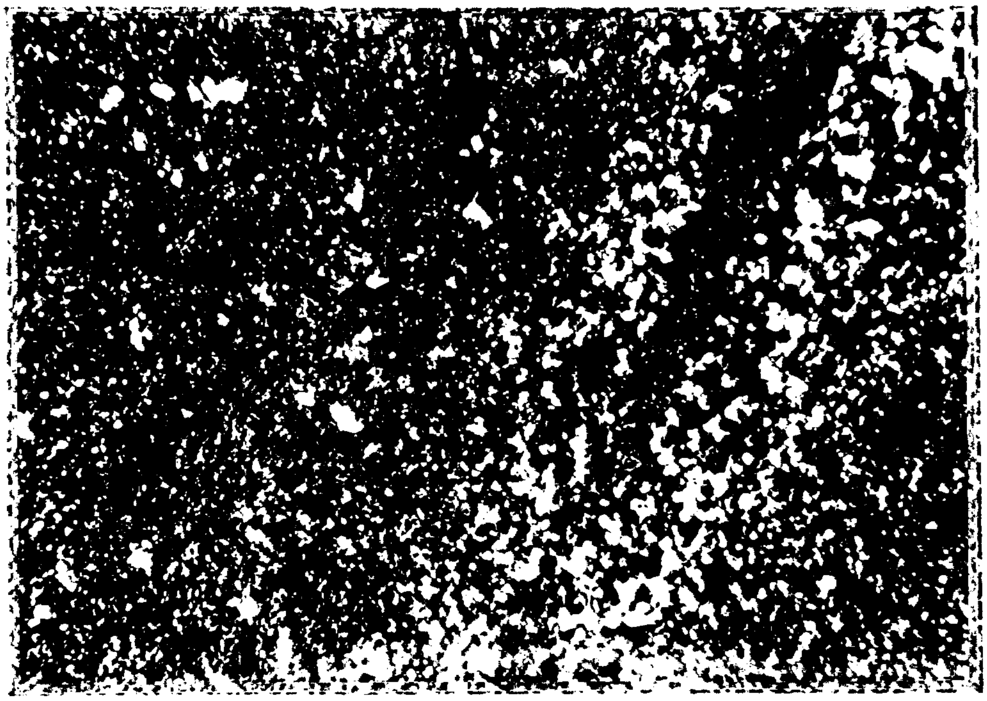
DDH 85-B-2; at 891 feet: WR#7843
Conglomerate - Porphyry fragment (andesite?)



magnification
175x

Plate IIIb

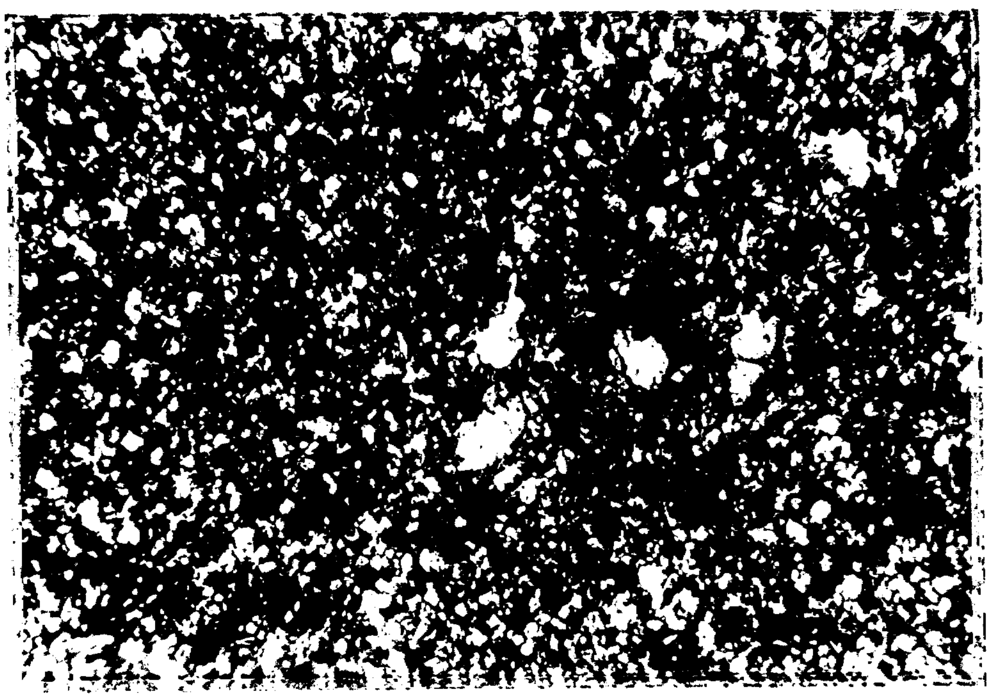
DDH 85-B-2; at 891 feet: WR#7843
Conglomerate - matrix - angular quartz & feldspar grains similar to tuffs in Hole B1. Abundant sericite and carbonate



magnification
70x

Plate IVa

DDH 85-B-6; at 354 feet: WR#19427
Chert - aphanitic quartz-carbonate rock with coarser recrystallized bands



magnification
175x

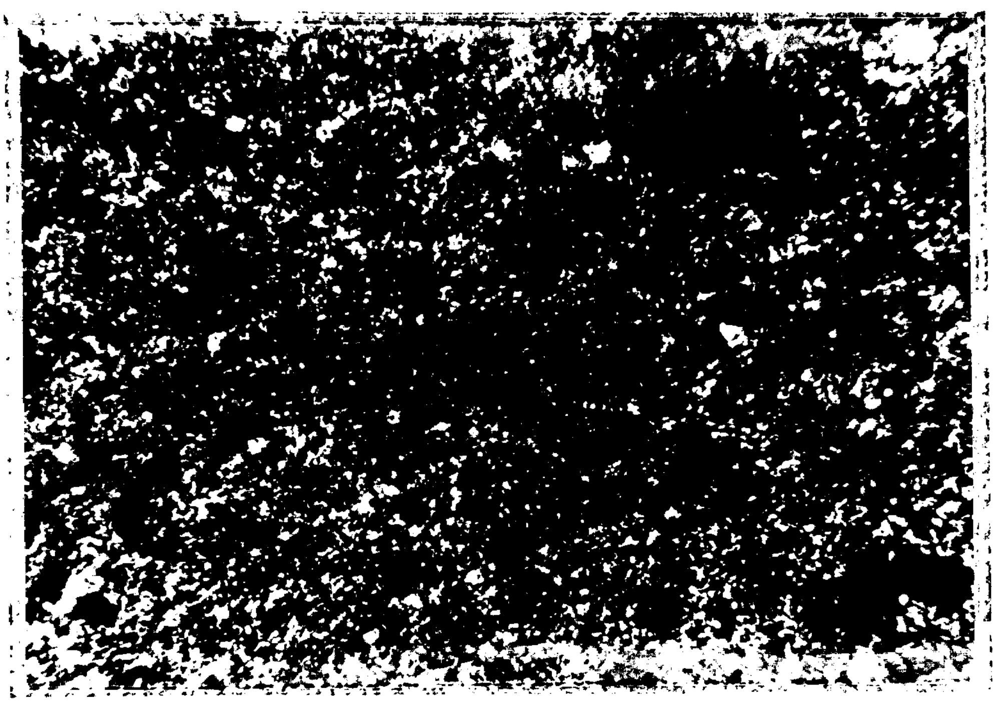
Plate IVb

DDH 85-B-6; at 354 feet: WR#19427
Enlarged from above - carbonate as grains (buff) intergrown with silica & feldspar grains. Primary?

magnification 70x

Plate Va

DDH 85-B-6; at 372 feet:
Chert-Fe formation. Laminated magnetite band showing graded bedding



magnification 175x

Plate Vb

DDH 85-B-6; at 372 feet: WR#19428
Cherty tuff band-with elongate grains of (1°) sulphide. Prismatic colorless amphibole (tremolite?) common. Carbonate common.

magnification
70x

Plate VI

DDH 85-B-6; at 455 feet: WR#19430
Feldspar porphyry: altered-carbonate and sericite common (40% carbonate). Sericite abundant in phenocrysts 1-2% qtz. phenocrysts of 20-30% total phenocryst count

magnification
70x

Plate VII

DDH 85-B-6; at 817 feet: WR#19438
Feldspar porphyry-45% plagioclase phenocrysts, 5% quartz phenocrysts-phenos broken and rotated-carbonate and sericite alteration common

magnification 70x

Plate VIIIa

DDH 85-B-6; at 726 feet: WR#19436
Sericite schist. Well deformed-relict quartz eyes.
Kink banded sericite foliations (60%)

magnification 70x

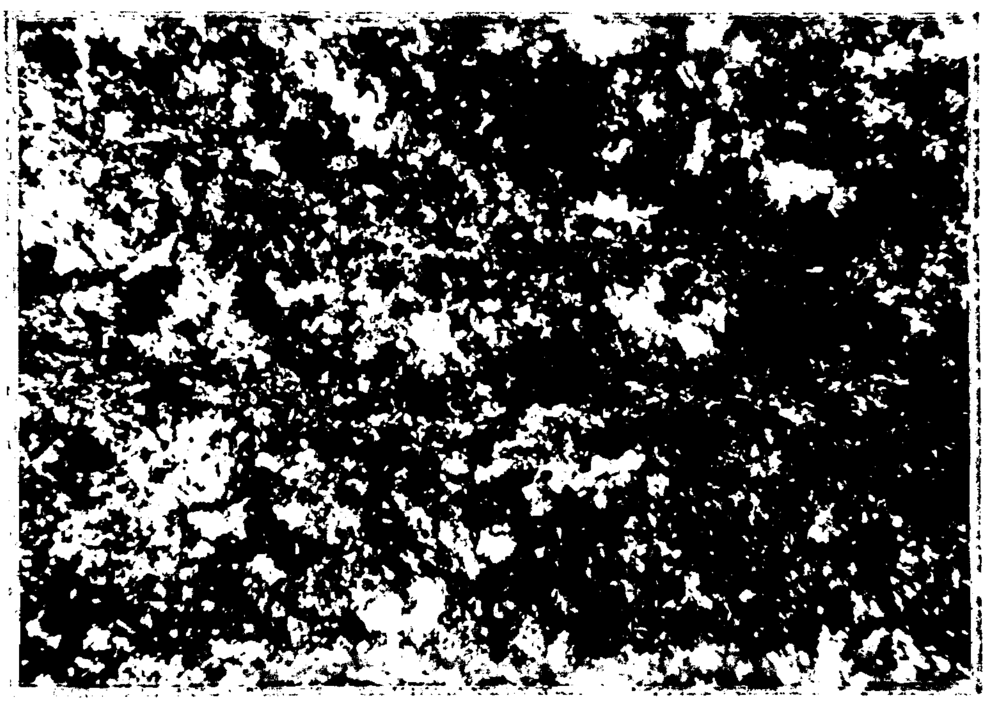
Plate VIIIb

DDH 85-B-6; at 726 feet:
Sericite schist as above note rotated, broken and recrystallized quartz eye. ~15% carbonate.

magnification 70x

Plate IXa

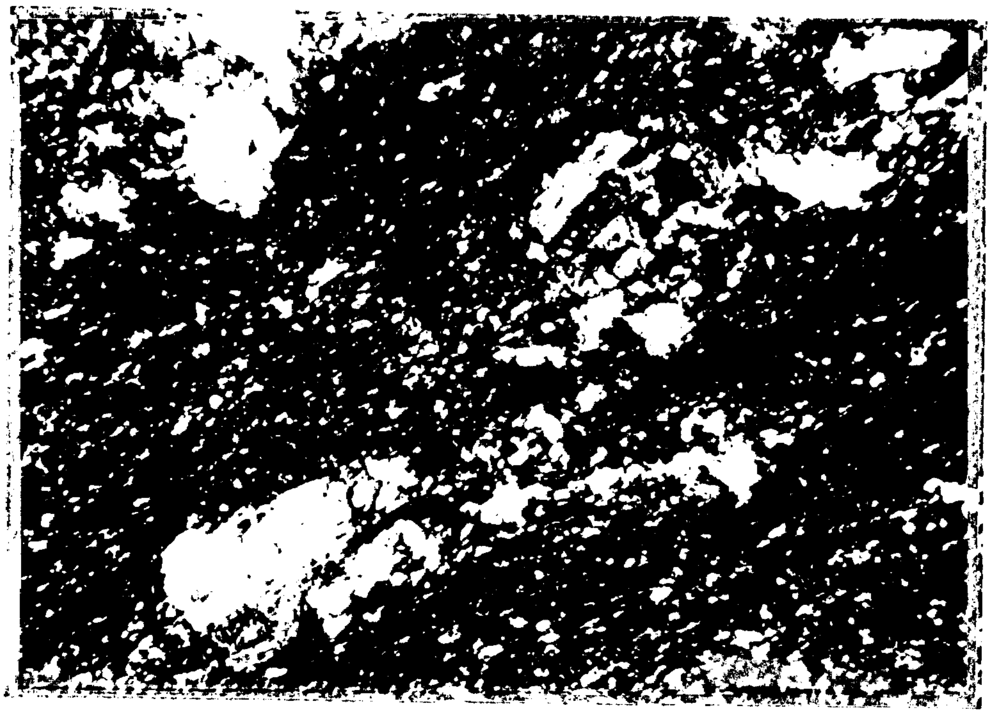
DDH 85-B-6; at 856 feet: WR#19440
Recrystallized felsic volcanic-trace of relict spherulites-carbonate and sericite alteration common



magnification 175x

Plate IXb

DDH 85-B-6; at 856 feet: WR#19440
As above. Foliations outlined by sericite (deformation fabric)



magnification 70x

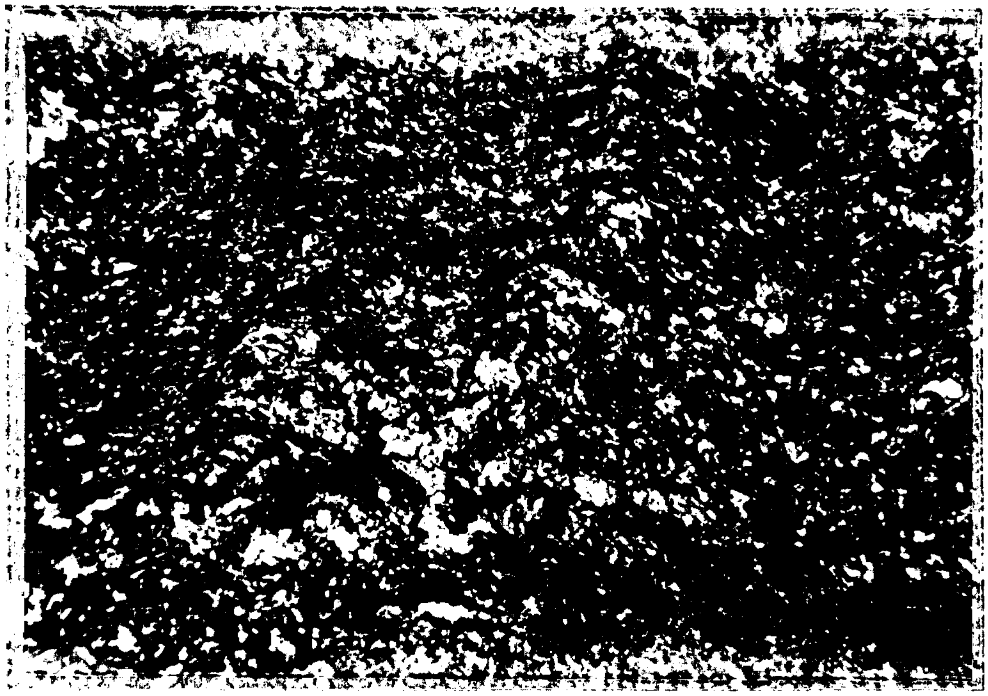
Plate X

DDH 85-B-5; at 522 feet: WR#19416
Feldspar porphyry-foliated fine grained mafic rock with abundant plagioclase phenocrysts-phenos rotated-possible flow texture

magnification 175x

Plate XI

DDH 85-B-5; at 603 feet: WR#19419
Kink fold of quartz feldspathic material in andesite tuff fold axis parallel to foliation - chlorite and epidote common - some carbonate



magnification 70x

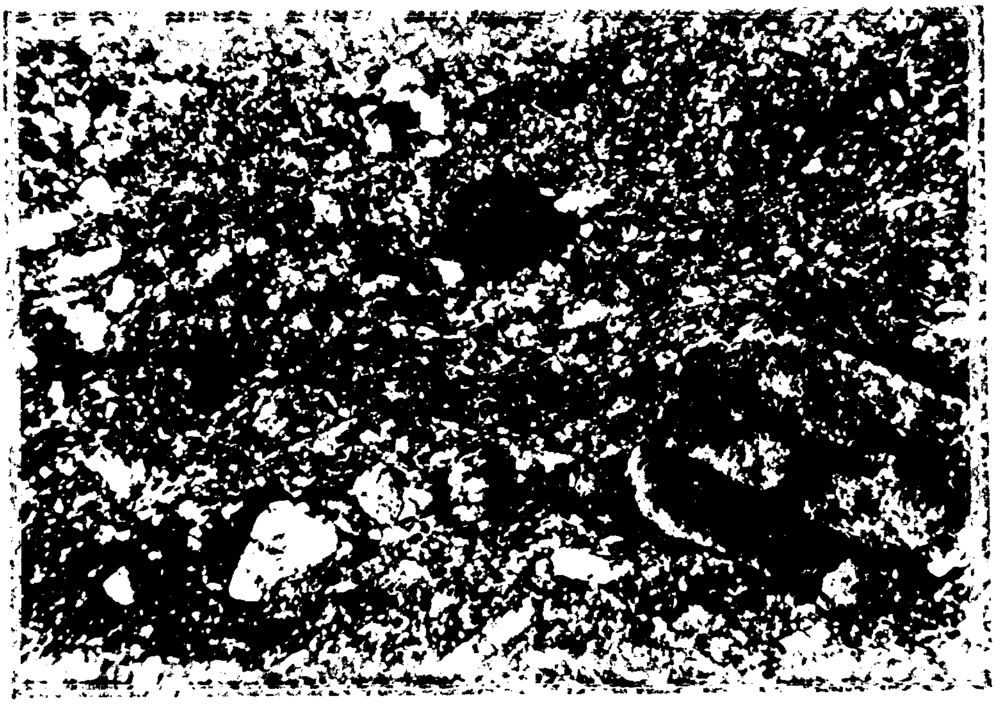
Plate XII

DDH 85-B-7; at 216 feet: WR#19445
Sericite schist: sericitic foliations-kink banded.
Carbonate common quartz feldspathic matrix

magnification 70x

Plate XIII

DDH 85-B-9; at 174 feet: WR#19457
Chlorite schist: wel foliated - alternate quartz-feldspathic (with carbonate) and chlorite bands



magnification
70x

Plate XIVa

DDH 85-B-9; at 225 feet: WR#
Feldspar Porphyry: a few quartz eyes: many phenocrysts broken. Sericite common-minor carbonate. Sericite outline foliation.

magnification
70x

Plate XIVb

DDH 85-B-9; at 225 feet: WR#
As above-note many angular grains (broken phenocrysts) possible ash or debris flow.

magnification 70x

Plate XV

DDH 85-B-9; at 369 feet: WR#19463
Feldspar porphyry; a few quartz eyes; aphanitic quartz-feldspathic matrix-chlorite common.
Saussuritic-sericite alteration of feldspar phenocrysts.

magnification 70x

Plate XVI

DDH 85-B-9; at 457 feet: WR#19465
Feldspar porphyry: deformed and recrystallized phenocrysts broken and rotated. Sericite bands (30%) common.

magnification 70x

Plate XVII

DDH 85-B-9; at 749 feet: WR#19473
Feldspar porphyry-tuff? A few relict plagioclase phenocrysts in recrystallized quartz-feldspathic groundmass. Sulphide bands or lenses. Carbonate & minor sericite.

magnification 70x

Plate XVIII

DDH 85-B-9; at [illegible]29 feet: WR#19476
Tuff: well-foliated lenses and disseminations of sulphide. Alternate sericite (kink folded) and quartzo-feldspathic laminae.

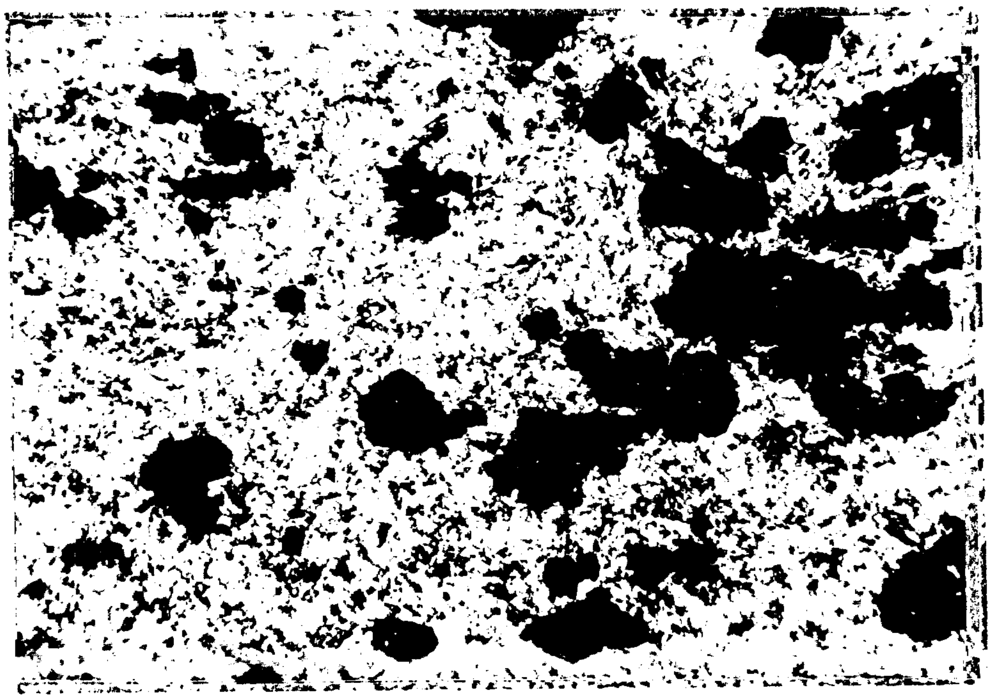


Plate XIX

DDH 85-B-9; at 888 feet: WR#19479
Sericitic tuff: carbonate sericite-common.
Disseminated sulphides.

APPENDIX Ia

Geochemistry of Area C

DDH's B1, B2, B3, B5, B7, B9

Original in April Monthly Rep.

SUMMARY LOG

DDH 243-85-8-1, Revisions

FOOTAGE	DESCRIPTION
0 -112	-OVERBURDEN
112 -373.0	-ARGILLACEOUS GREYWACKE
373.0-432.0	-CHERT, FE FORMATION -up to 8% sulphide
432.0-617.0	-FELSIC SCHISTS (TUFF) -fine grained - small quartz eyes -minor disseminated pyrite - ubiquitous -(intermediate to felsic composition) -ankerite common
617.0-834.9	-VOLCANICLASTIC CONGLOMERATE -clasts of chert, carbonate in felsic matrix -after 700' argillaceous component more common
834.9-879.8	-FELSIC SCHISTS (TUFF) (RHYOLITIC) -small quartz eye common
879.8-934.2	-VOLCANICLASTIC CONGLOMERATE -similar to previous
934.2-937.0	-FELSIC SCHISTS (RHYOLITE TUFF)

SUMMARY LOG

DDH 243-85-8-2, Revisions

FOOTAGE	DESCRIPTION
0 - 85.0	-OVERBURDEN
85 -633.2	-ARGILLACEOUS GREYWACKE -1-3% sulphide
633.2-722.0	-CHERT/FE FORMATION -up to 5% sulphide locally
722.0-833.1	-FELSIC SCHISTS (TUFFS) -1-3% sulphide (intermediate)
833.1-976.0	-VOLCANICLASTIC CONGLOMERATE (RHYOLITIC) -cherty clasts - abundant ankerite

SUMMARY LOG

DDH 243-85-8-3, Revisions

FOOTAGE	DESCRIPTION
0 -162.0	-OVERBURDEN
162.0-347.0	-INTERMEDIATE TUFF ~~AND VOLCANI-CLASTIC CONGLOMERATE~~ AGGLOMERATE -some sections quite chloritic -disseminated sulphide common -sulphide bearing section 324-347 -this unit is equivalent of zone in holes 8-5, 6, 7
347.0-645.0	-ARGILLACEOUS GREYWACKE

SUMMARY LOG

DDH 243-85-8-5, Revisions

FOOTAGE	DESCRIPTION
0 -126.0	-OVERBURDEN
126.0-145.0	-FOLIATED-CHLORITIC SCHIST-ARGILL-ACEOUS?
145.0-324.7	-FOLIATED ANDESITIC TUFF OR FLOW -up to 5% sulphide
324.7-[illegible]	-ANDESITIC FLOW -some feldspar phenocrysts variolitic and/or spherulitic textures locally - fine grained pale green -[illegible] tuffaceous interbeds
[illegible]-724.4	-ANDESITIC TUFF -pale green - locally foliated -quartz eyes, locally -disseminated sulphide common
724.4-743.3	-ANDESITIC BRECCIA -up to 5% pyrite -[illegible] pyrite on beds over last 5 feet
743.3-814.0	-ARGILLACEOUS GREYWACKE

SUMMARY LOG

DDH 243-85-8-6, Revisions

FOOTAGE	DESCRIPTION
0 -124.0	-OVERBURDEN
124.0-299.4	-ARGILLACEOUS GREYWACKE -1-3% sulphide
299.4-392.0	-CHERT-MAGNETITE/FE FORMATION -up to 10% sulphide locally -alternate bands of chert, felsic tuff and magnetite -minor argillaceous component
392.0-463.7	-QUARTZ-EYE ~~TUFF~~ (PORPHYRY?) Flow or dyke. -1-3% disseminated sulphide -minor ankerite
463.7-497.2	-VOLCANICLASTIC CONGLOMERATE -clasts of quartz eye volcanic, chert and carbonate -ankerite common. Matrix of quartz-eye tuff
497.2-543.0	-INTERBEDDED QUARTZ-EYE TUFF AND VOLCANICLASTIC CONGLOMERATE
543.0-638.6	-VOLCANICLASTIC CONGLOMERATE -as before
638.6-833.6	-QUARTZ EYE ~~TUFF~~ Porphyry -as before but argillaceous or graphitic component more common -sulphides up to 5%
833.6-1003	-VOLCANICLASTIC CONGLOMERATE -similar to previous section but argillaceous sections and clasts common

SUMMARY LOG

DDH 243-85-8-7, Revisions

FOOTAGE	DESCRIPTION
0 -178.0	-OVERBURDEN
178.0-353.6	-ANDESITE TO DACITE TUFFS AND REWORKED TUFFS
353.6-534.0	-INTERMEDIATE TUFFS -abundant disseminated sulfides -pale grey to white fine grained volcanic -possibly more brecciated near lower contact, 5% sulphide
534.0-726.0	-ARGILLACEOUS GREYWACKE

SUMMARY LOG

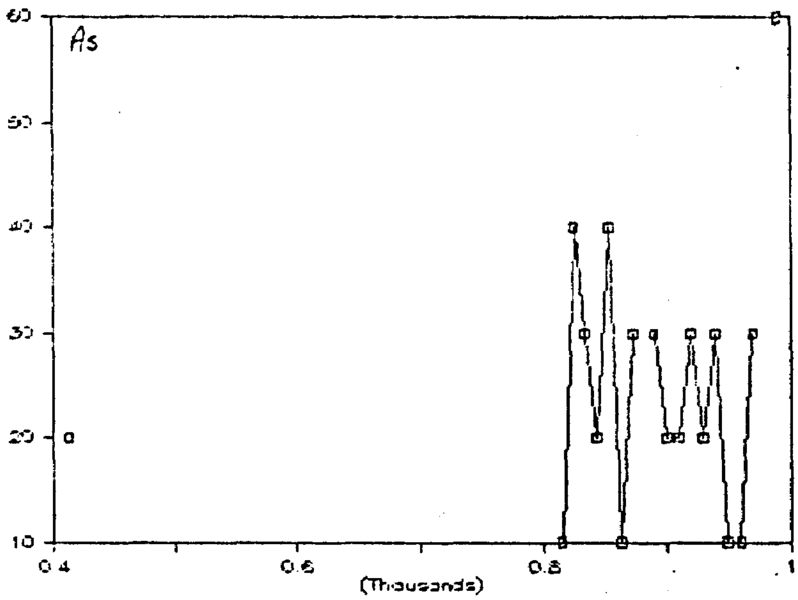
DDH 243-85-8-9, Revisions

FOOTAGE	DESCRIPTION
0 -158	-OVERBURDEN
158 -195	-FOLIATED-CHLORITE SCHIST-MAFIC TUFF
195 -715	-SERICITE SCHIST -intermediate ash flow tuffs and feldspar porphyry -varies from fine grained massive zones with feld phenos to foliated-quartz-feld and feld porphyries - frequently bleached white - calcite common
715 -833	-SERICITE SCHISTS -silicified common grey -foliated to massive volcanic -[illegible] - heavy sulphide -[illegible] - brecciated - last 10' felsic tuff
833 -920	-ARGILLACEOUS SEDIMENTS -volcaniclastic well laminated -felsic tuff interbedded with graphitic argillite

Detail.

Sample	HOLE#	FROM	TO	Unit	SiO2	Al2O3	Fe2O3	CAO	MGO	NA2O	K2O	TiO2	MnO	P2O5	Ba	Sr	Zr	AU	LOI	AS	ZN
19421	m-a25-81	420.7	413	felsic schists	62.63	17.59	7.86	4.42	1.43	2.79	2.63	0.39	0.11	0.27	545	784	223		7.45		122
19422		413	423		63.56	17.36	6.73	3.76	1.63	2.98	2.32	0.93	0.08	0.2	529	734	173		6.03	20	74
19423		423	431.5		62.67	15.94	6.27	4.56	1.75	3.25	2.2	0.52	0.11	0.19	729	861	155		7.65		156
19424		435.5	445		64.96	19.98	3.64	3.64	0.99	3.91	2.5	0.65	0.03	0.25	1020	1478	146	10	4.81		125
19425		445	455		69.72	15.9	4.24	3.3	1.13	2.78	2.22	0.46	0.04	0.12	695	960	121		5.3		121
19426		455	468		68.46	15.29	4.24	4.72	1.71	2.29	2.29	0.46	0.06	0.13	973	1037	123		7.47		123
19427		468	478.7		69.76	14.23	4.14	4.63	1.54	2.32	2.13	0.42	0.05	0.12	803	602	108		7.08		129
19428		472.1	482		66.21	14.36	5.56	5.65	2	2.92	2.3	0.53	0.07	0.16	802	976	123		7.97		148
19429		482	492		65.97	14.56	4.75	3.38	1.32	2.54	2.45	0.55	0.06	0.16	891	879	141		5.56		124
19430		492	504.7		65.3	14.77	5.13	4.21	1.56	2.9	2.17	0.53	0.07	0.15	983	956	130		5.02		117
19491		507.4	520		69.55	15.24	4.72	3.59	1.13	2.78	2.59	0.52	0.06	0.15	973	911	113		5.24		113
19492		525	535		69.85	14.75	4.93	4.02	1.03	2.93	2.46	0.51	0.06	0.16	942	898	113		5.56		98
19493		535	545		68.37	15.03	4.78	4.24	1.01	2.99	2.48	0.51	0.06	0.16	990	666	113		5.78		30
19494		545	555		67.4	15.9	4.69	4.28	1.05	3.42	2.61	0.48	0.07	0.15	865	879	100		6.1		76
19495		555	565		67.22	16.26	4.81	4.86	1.03	3.24	2.59	0.48	0.07	0.15	886	911	110		6.28		120
19496		565	575		67.77	16.05	4.29	4.21	1.15	3.19	2.6	0.47	0.06	0.15	832	955	120		6.54		71
19497		575	584.7		68.73	15.36	5.03	4.07	0.77	2.11	2.57	0.51	0.09	0.16	958	10.7	112		5.93		62
19498		586	595		69.1	15.68	4.13	3.93	1.35	2.23	2.79	0.5	0.07	0.15	936	975	111		5.97		65
19499		595	604		68.3	15.5	4.66	4.41	1.44	2.28	2.63	0.51	0.08	0.15	774	889	109		6.89		122
19500		604	614.7		71.4	15.32	3.93	3.44	1.15	1.68	2.34	0.49	0.06	0.15	642	800	111		5.7		77
19751		615.5	625	volcanic conglomerate	67.06	13.97	6.89	5.24	2.13	1.98	1.89	0.49	0.14	0.16	563	625	101		8.3		64
19752		625	635		62.31	16.79	6.81	5.11	2.45	2.49	2.54	0.62	0.13	0.2	761	652	119	25	8.16		68
19753		635	645		64.28	15.94	7.01	4.45	2.53	2.41	2.38	0.67	0.11	0.17	745	532	107		7.47		59
19754		645	655		64.22	15.63	6.6	4.39	2.59	2.93	2.24	0.56	0.12	0.17	723	495	103		7.72		65
19755		655	665.7		64.33	14.94	6.87	5.19	2.84	2.69	2.26	0.52	0.12	0.18	648	470	98		7.79		46
19756		669	675.5		68.58	14.74	6.51	3.03	2.27	1.81	2.13	0.58	0.07	0.19	622	382	110	250	5.43		67
19757		678.6	689		66.35	15.37	6.67	4.51	2	1.57	2.12	0.58	0.09	0.10	667	648	124		6.72		65
19758		689	699		62.65	14.61	5.39	8.95	3.93	1.6	1.55	0.55	0.14	0.2	559	634	82		12.21		72
19759		699	709.5		63.17	16.81	5.46	7.83	2.65	1.56	1.95	0.65	0.1	0.2	757	784	111		10.29		32
19760		717	727		62.32	13.72	5.17	10.24	4.68	1.42	1.65	0.46	0.13	0.17	668	731	122		13.6		93
19761		727	735.3		63.5	14.58	6.12	8.35	3.16	1.49	1.87	0.59	0.12	0.17	627	791	95		11.7		36
19762		736.7	747		62.22	15.07	6.36	8.94	3.29	1.59	1.62	0.56	0.13	0.18	666	871	98		11.2		70
19763		747	757		65.12	14.34	7.52	6.44	2.39	1.07	1.71	0.55	0.13	0.17	656	747	90	25	10		69
19764		757	767		65.05	14.9	7.06	6.32	2.75	1.05	1.97	0.54	0.13	0.18	748	868	99	5	9.41		54
19765		767	777		64.66	14.54	6.93	7.67	2.84	1.2	1.77	0.56	0.11	0.17	700	930	92	10	9.66		95
19766		777	787		63.87	15.38	6.85	6.81	2.77	1.3	2.06	0.62	0.11	0.18	743	881	94	25	9.34		70
19767		787	797		63.35	15.43	6.31	7.15	2.81	1.37	1.64	0.57	0.12	0.2	710	759	101	30	10.29		56
19768		797	805		67.39	17.04	4.89	4.76	1.62	1.69	1.52	0.7	0.07	0.16	759	746	115	250	7.49		53
19769		805	815	felsic schist	72.91	14.72	3.8	3.97	1.27	1.64	1.82	0.53	0.34	0.15	590	672	114		6.72		142
19770		815	825		69.44	14.44	5.16	5.7	1.73	1.58	1.21	0.49	0.06	0.13	644	625	89	10	7.33	10	229
19771		[illegible]	[illegible]		65.37	13.52	7.06	7.65	2.41	1.49	1.57	0.47	0.08	0.14	615	550	108		10.29	47	213
19772		833.6	840.3		71.45	14.47	4.31	4.51	1.33	1.51	1.68	0.46	0.05	0.17	624	600	175		7.24	30	154
19773		840.3	853		71.57	13.68	4.52	4.76	1.56	1.37	1.6	0.47	0.06	0.15	583	529	172		7.47	20	138
19774		853	863		72.93	14.64	4.19	3.45	0.94	1.41	1.69	0.49	0.04	0.15	616	583	122		5.35	40	167
19775		863	873		72.14	15	3.96	3.32	1.28	1.45	1.34	0.43	0.04	0.13	621	593	173		6.07	10	157
19951		873	880		70.51	13.15	5.44	5.56	1.54	1.25	1.74	0.45	0.03	0.13	535	576	134		7.74	20	226
19952		880	890	congl	67.61	15.42	6.29	5.5	1.29	1.29	1.31	0.57	0.09	0.2	612	547	239		7.16		159
19953		890	900	felsic schist	70.74	15.23	4.71	3.92	1.13	1.39	2	0.55	0.07	0.16	683	535	123		5.93	20	177
19954		900	910		72.27	13.9	3.59	4.24	1.23	1.4	1.32	0.41	0.06	0.13	540	529	96		6.62	20	126
19955		910	920		70.29	14.82	4.32	3.93	1.1	1.23	1.51	0.52	0.05	0.14	532	525	132		5.56	20	223
19956		920	930		67.74	13.66	5.98	6.72	1.9	1.24	1.75	0.46	0.03	0.12	516	551	120		9.53	0	218
19957		930	940		71.15	15.53	4.14	3.59	1.11	1.41	2.05	0.5	0.05	0.13	625	620	115		6.24	20	149
19958		943	950		70.33	13.94	4.1	4.56	1.3	1.26	1.31	0.45	0.05	0.16	561	618	333		7.05	20	193
19959		950	960		72.41	14.82	3.71	2.36	1.1	1.15	2.12	0.44	0.04	0.12	625	651	78		5.75	10	241
19960		960	970		74	14.33	3.43	3.22	0.9	1.16	2.27	0.47	0.04	0.13	678	705	110		5.35	10	154
19961		970	975.9		74.56	12.52	4.24	4.03	1.21	0.71	1.97	0.44	0.05	0.12	553	645	111		6.12	30	221
19962		980.2	986.6		67.94	13.28	5.34	4.57	1.32	1.15	2.30	0.52	0.07	0.13	717	803	113		6.41		225
19963		989.5	997		62.74	13.89	6.98	9.75	3.57	0.77	2.35	0.46	0.12	0.14	582	821	182		13.2	60	310

+ carbonate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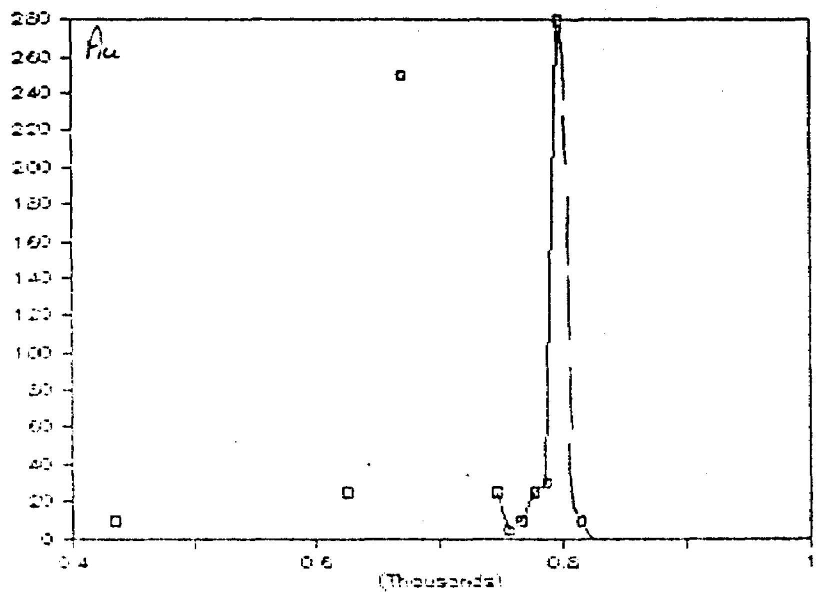
(Thousands)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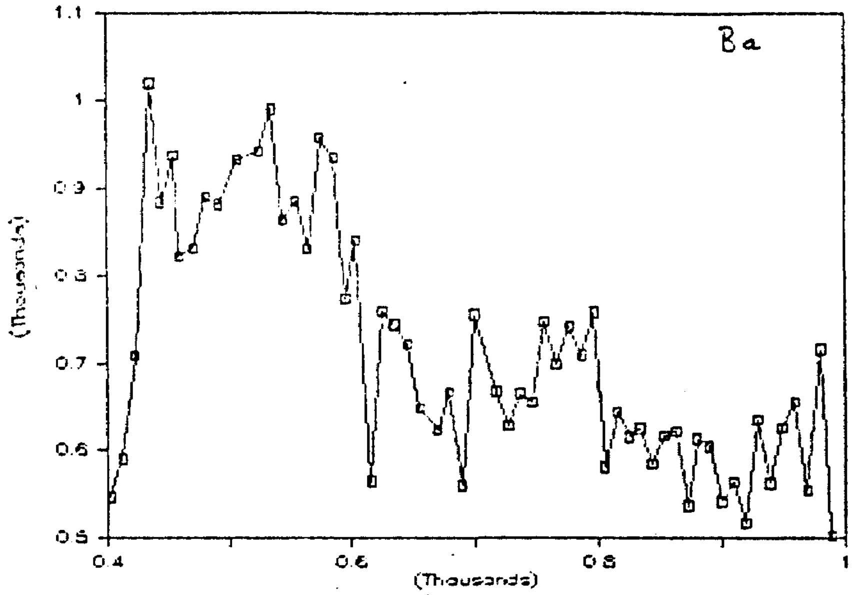
(Thousands)


Ba
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0.6
0.5
(Thousands)
0.4
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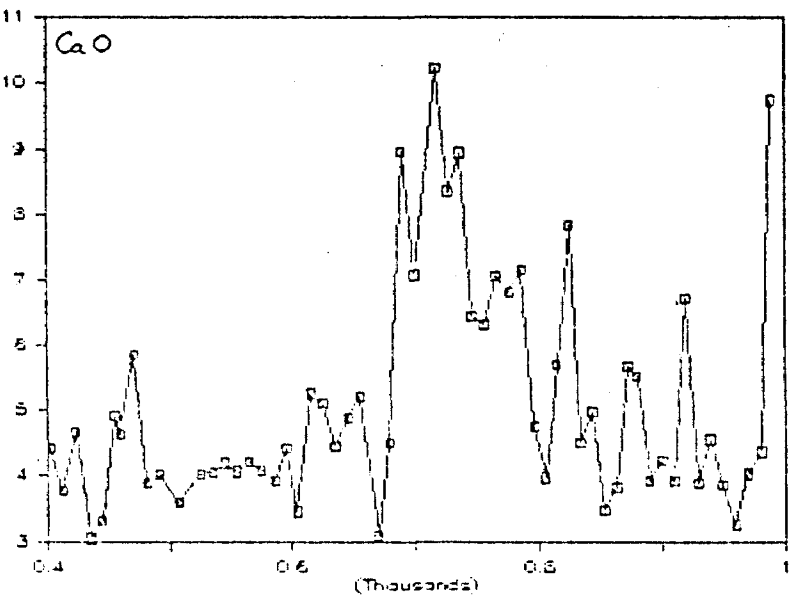
(Thousands)


CaO
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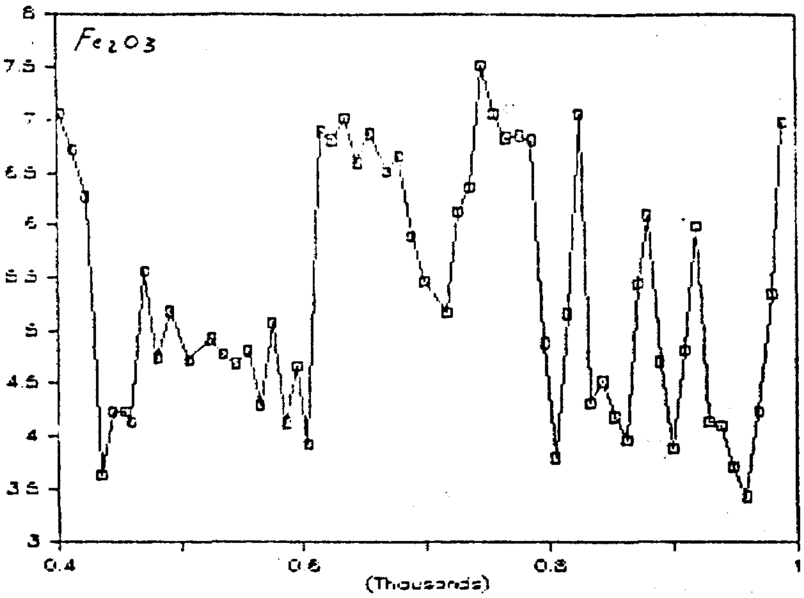
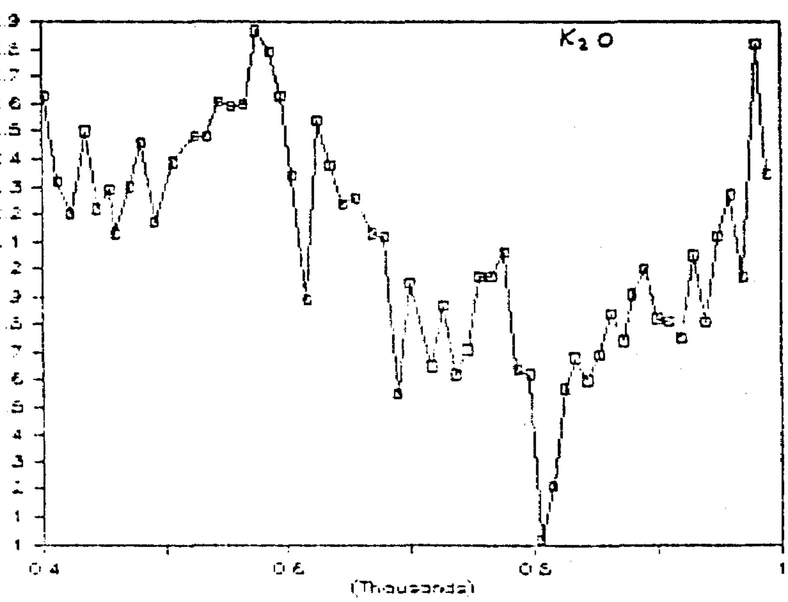
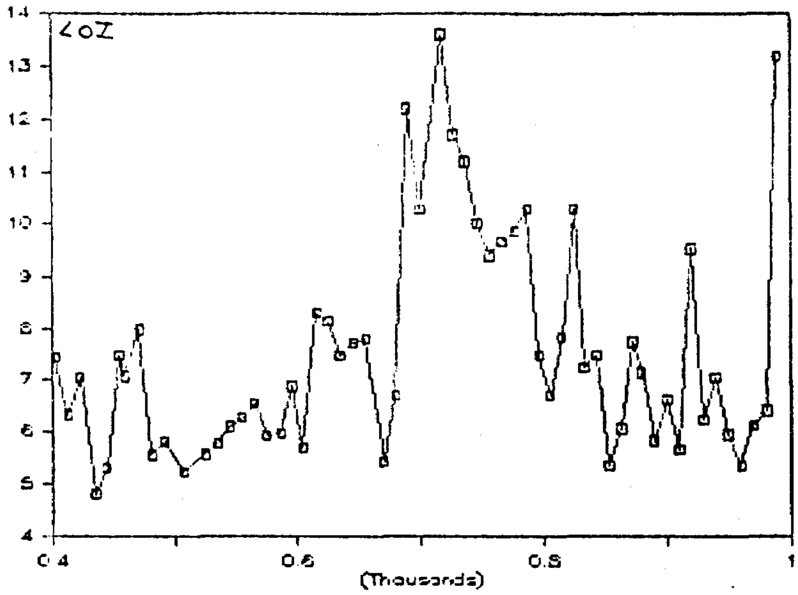
10
9
8
7
6
5
4
3
0.4
0.6
0.8
1
(Thousands)



Fe2O3
8
7.5
7
6.5
6
5.5
5
4.5
4
3.5
3
0.4
0.6
0.8
1
(Thousands)



K2O
2.9
2.8
2.7
2.6
2.5
2.4
2.3
2.2
2.1
2
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1
0.4
0.6
0.8
1
(Thousands)


LOI
14
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12
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7
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5
4
0.4
0.6
0.8
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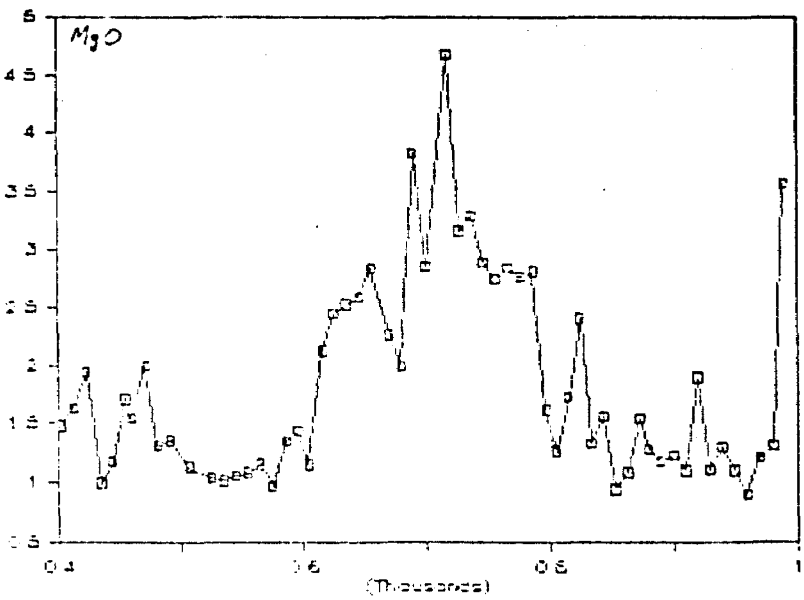
(Thousands)


MgO
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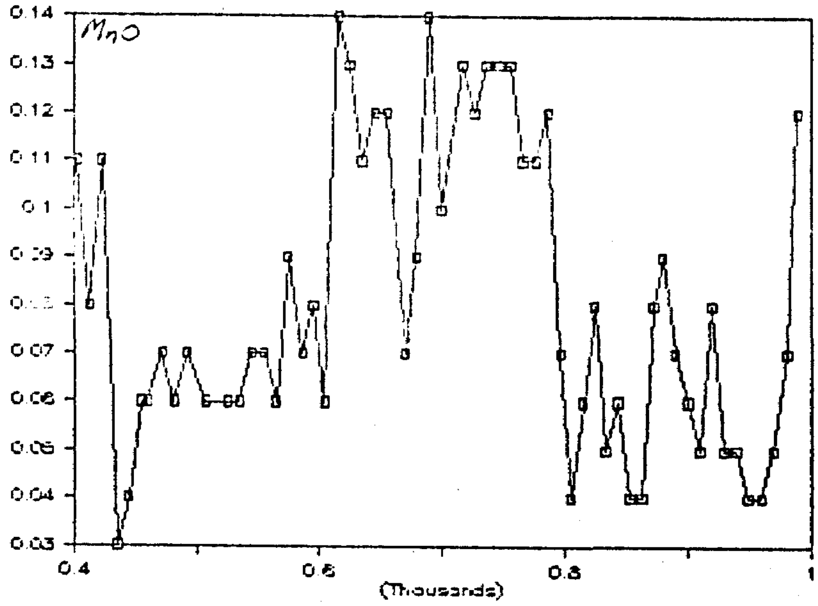
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0.4
0.6
0.8
1
(Thousands)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0.12
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0.1
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0.06
0.04
0.03
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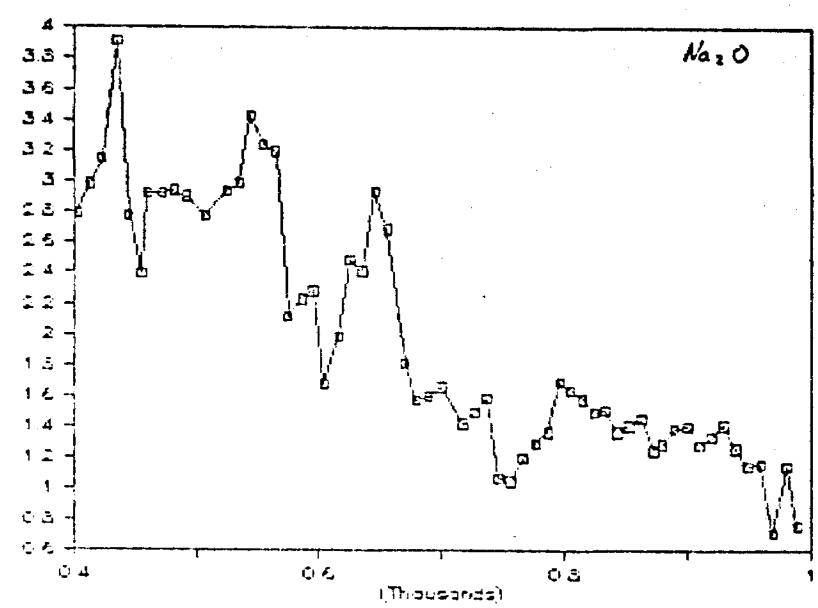
0.8
1
(Thousands)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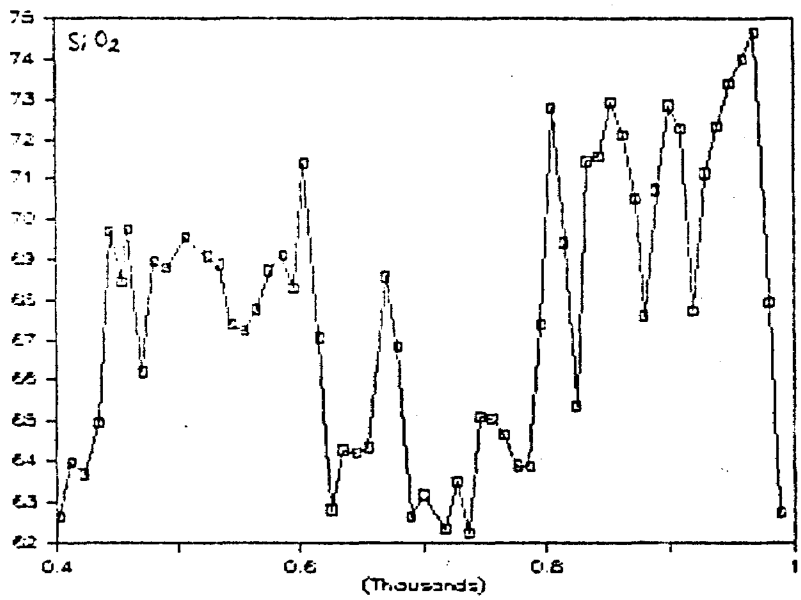
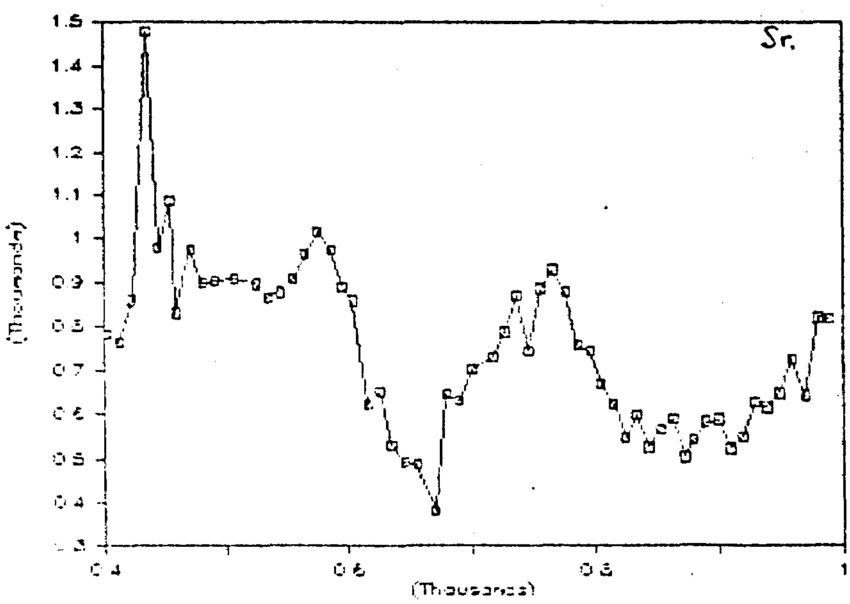
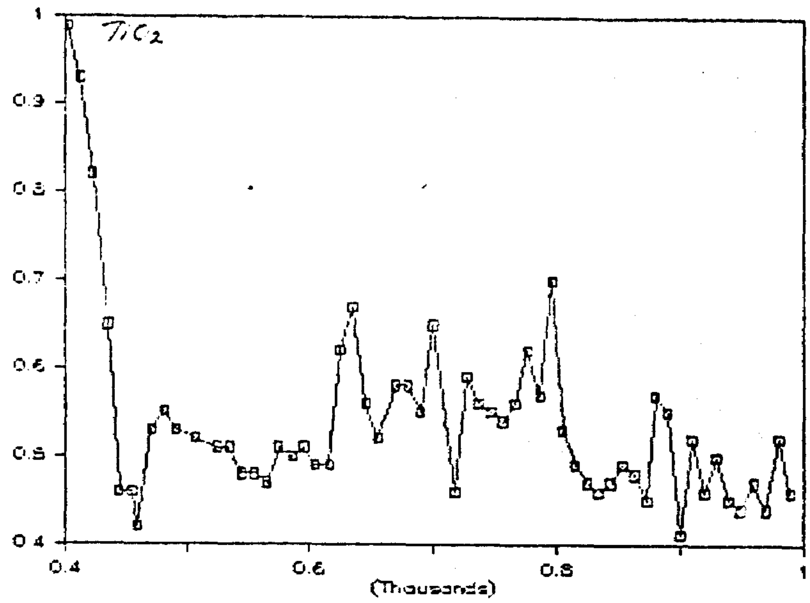
3.4
3.2
3
2
1.4
1.2
1
0.4
0.6
1
(Thousands)



SiO2
75
74
73
72
71
70
69
68
67
66
65
64
63
62
0.4
0.6
0.8
1
(Thousands)



Sr.
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
(Thousands)
0.4
0.6
0.8
1
(Thousands)


TiO2
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0.8
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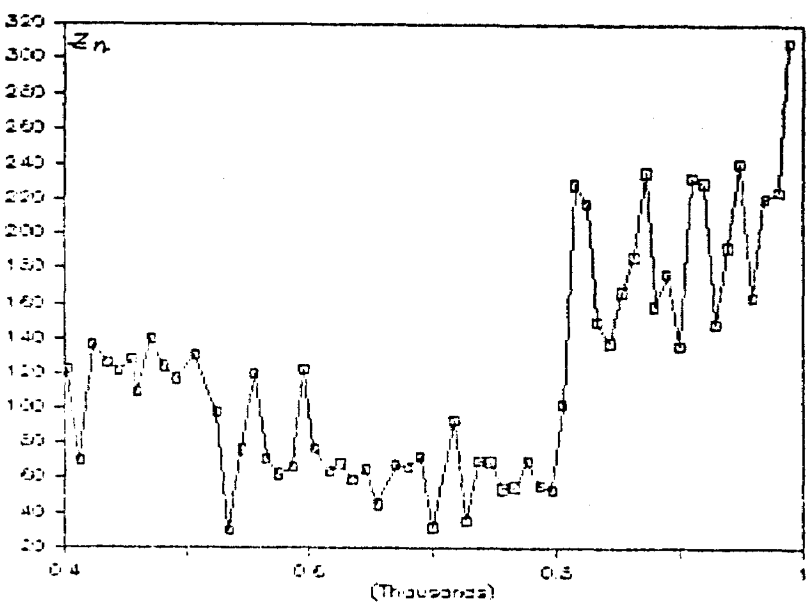
0.6
0.5
0.4
0.4
0.6
0.8
1
(Thousands)


Zn
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300
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260
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200
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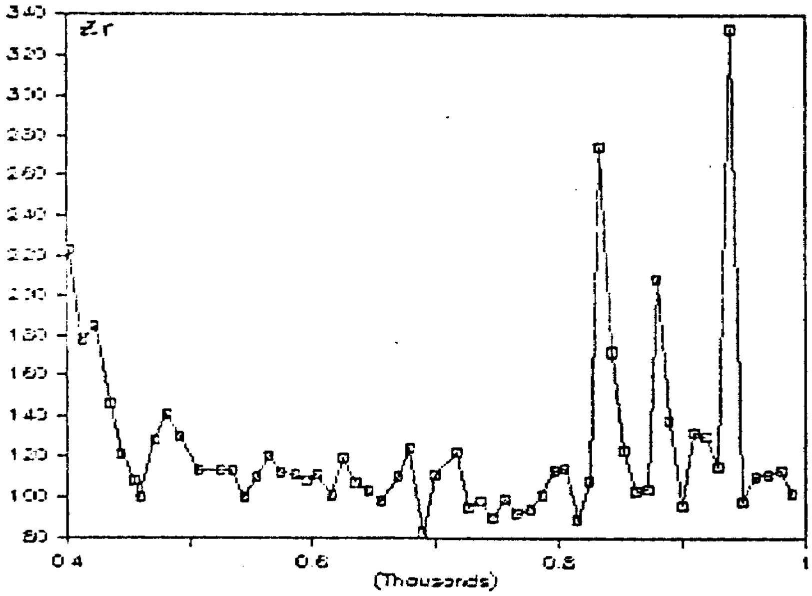
140
120
100
80
60
40
20
0.4
0.6
0.8
1
(Thousands)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3.00
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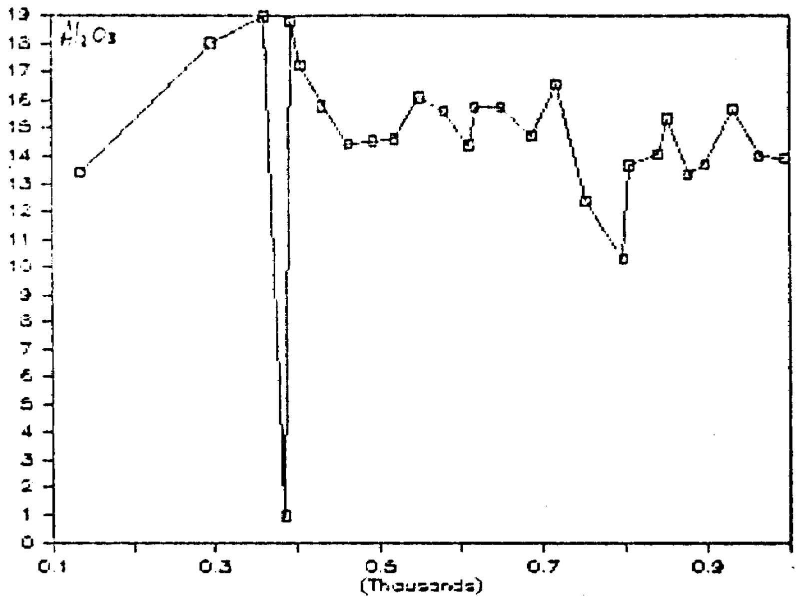
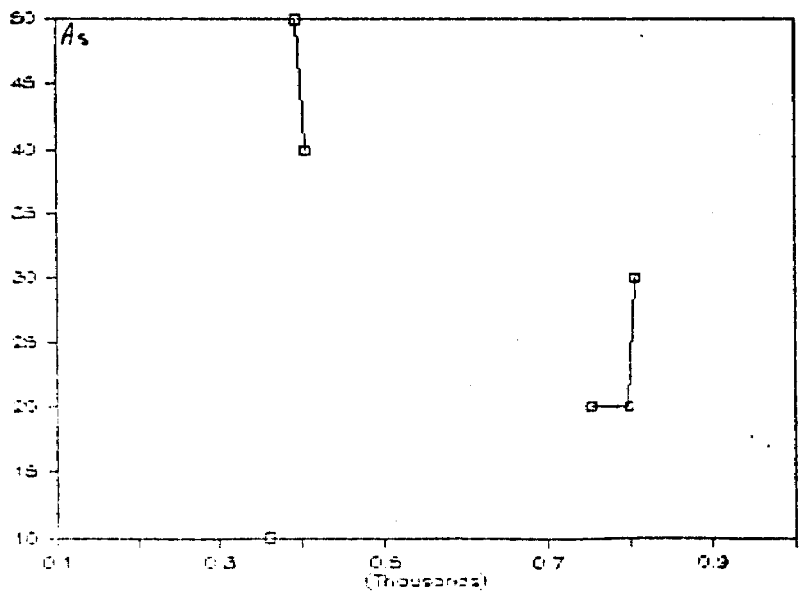
2.60
2.40
2.20
2.00
1.80
1.60
1.40
1.20
1.00
.80
0.4
0.6
0.8
1
(Thousands)

SAMPLE	HOLE#	DESC	DEPTH	SIO2	AL2O3	FE2O3	CAO	MGO	NA2O	K2O	TIO2	MNO	P2O5	BA	SR	ZR	LOI	K/NA	CA/MG	FE/MG	AU	AS	ZN
7801	B-85-1	argillite	136	71.2	13.43	7.37	0.46	1.73	2.98	1.83	0.68	0.13	0.15	366	203	102	2.72	0.61	0.27	3.83			53
7802			295	62.37	18.03	8.32	1.96	2.42	3.81	2.13	0.67	0.03	0.17	501	273	141	3.79	0.56	0.31	3.09			72
7803			360	62.11	19	7.3	2.01	2.52	2.56	3.29	0.88	0.03	0.2	501	284	191	4.41	1.29	0.80	2.61		10	95
7804		chert-Fe Fm	385	59.91	0.96	33.81	3.08	1.68	0.05	0.22	0.03	0.09	0.1	45	92	0.0001	15.4	4.40	1.83	18.11			30
7805			393	53.42	18.83	20.19	1.01	1.83	0.51	3.08	0.84	0.02	0.23	361	212	131	5.22	6.04	0.55	9.93		50	[illegible]
7806		felsic tuff	424	63.94	17.26	4.92	4.97	1.51	3.9	2.77	0.46	0.08	0.14	493	659	76	7.2	0.71	3.29	2.93		40	50
7807			430	67.06	15.82	6.4	3.16	1.39	2.88	2.00	0.86	0.11	0.19	742	724	134	4.89	0.72	2.27	4.14			134
7808			462	73.12	14.45	3.07	2.85	0.92	2.29	2.61	0.45	0.03	0.16	978	795	85	4.27	1.14	3.10	3.00			75
7809			492	69.27	14.55	5.21	3.53	1.24	2.94	2.42	0.54	0.06	0.18	898	793	113	4.87	0.82	2.85	3.70			132
7810			519	69.85	14.64	4.86	3.4	1.06	2.72	2.69	0.5	0.06	0.18	953	831	90	4.83	0.99	3.21	4.13			120
7811			550	66.14	16.12	5.3	4.49	1.1	3.19	2.89	0.47	0.08	0.17	955	870	130	6.1	0.91	4.03	4.34			53
7812			590	70.91	15.65	3.81	2.84	0.68	2.33	2.99	0.5	0.04	0.18	1024	1002	101	4.19	1.28	4.18	5.04			70
7813			611	66.15	14.4	6.04	6.69	2.01	1.38	2.55	0.46	0.1	0.17	837	904	155	9.33	1.85	3.33	2.70			119
7814		v. conglomerate	619	66.17	15.77	6.91	4.11	1.71	1.96	2.45	0.55	0.11	0.21	733	693	202	6.2	1.25	2.40	3.64			81
7815			651	64.36	15.8	6.93	4.31	2.4	2.72	2.54	0.6	0.11	0.18	808	424	101	6.72	0.93	1.80	2.60			57
7816			638	74.47	14.73	2.94	2.83	0.85	1.66	1.74	0.51	0.04	0.18	644	730	102	4.63	1.05	3.33	3.11			43
7817			718	64.46	16.6	3.02	7.31	3.78	1.77	2.03	0.7	0.09	0.18	1019	807	97	10.4	1.15	1.93	0.72			[illegible]
7818			753	64.29	12.4	6.49	9.55	3.46	1.14	1.87	0.44	0.15	0.18	616	674	71	12.7	1.64	2.76	1.69		20	35
7819			799	64.36	10.32	7.51	10.89	3.81	1.06	1.36	0.33	0.16	0.15	489	473	172	13.5	1.28	2.86	1.77		20	52
7820		felsic schist	807	70.72	13.67	4.1	5.85	1.91	1.63	1.42	0.43	0.06	0.16	542	627	79	8.62	0.87	3.06	1.93		30	93
7821			841	75.09	14.03	3.76	2.73	0.74	1.31	1.59	0.46	0.03	0.16	658	550	193	4	1.21	3.69	4.57			116
7822			853	73.1	15.36	3.76	2.97	0.78	1.42	1.89	0.48	0.03	0.15	735	591	93	4.71	1.33	3.81	4.34			133
7823			879	72.12	13.32	4.93	4.76	1.23	1.28	1.63	0.46	0.08	0.12	522	543	103	7.06	1.27	3.87	3.61			174
7824			899	71.71	13.72	4.57	4.88	1.41	1.3	1.71	0.46	0.08	0.11	544	572	97	7.43	1.32	3.46	2.92			137
7825			934	70.69	15.7	4.51	3.85	1.01	1.46	2.06	0.5	0.05	0.12	685	639	114	6.31	1.41	3.81	4.02			172
7826			965	74.43	14.03	3.15	3.41	0.97	1.14	2.18	0.44	0.03	0.11	654	705	105	5.93	1.91	3.52	2.92			165
7827			975	72.96	13.93	3.29	4.04	1.48	1.08	2.45	0.53	0.05	0.14	583	710	123	6.97	2.27	2.73	2.00			201

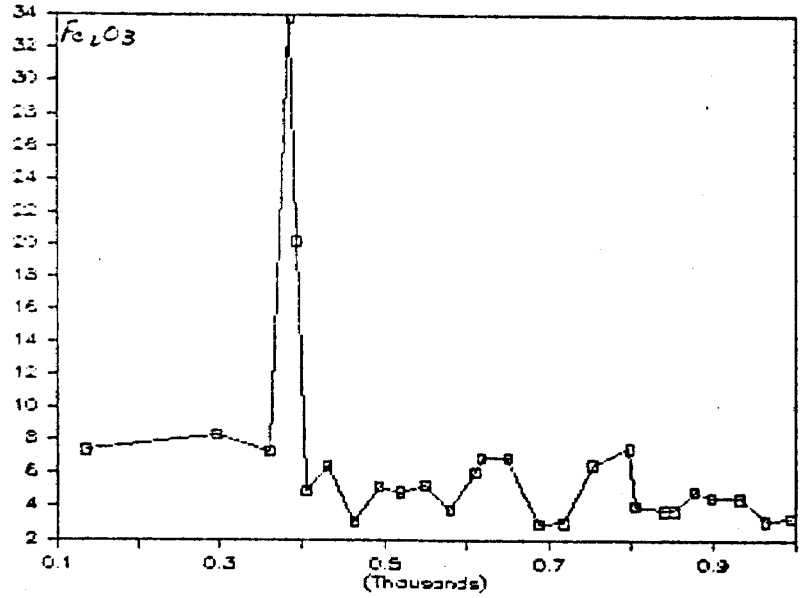
-42-



Al_2O_3
(Thousands)



As
(Thousands)



Fe2O3
34
32
30
28
26
24
22
20
18
16
14
12
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8
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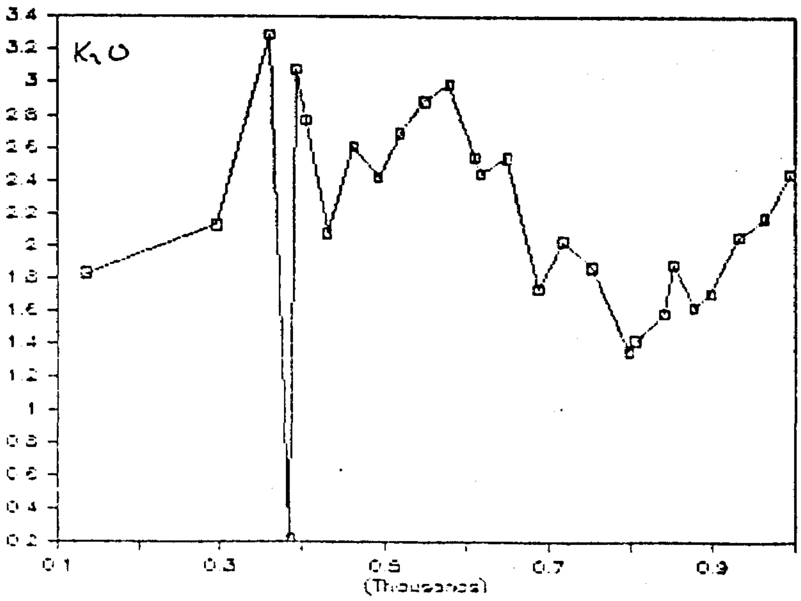
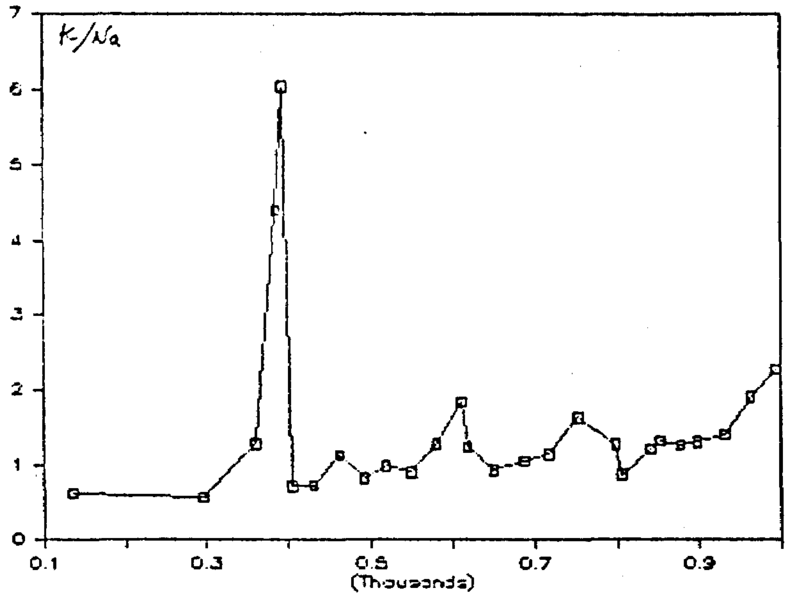
0.1
0.3
0.5
0.7
0.9
(Thousands)



K2O
3.4
3.2
3
2.8
2.6
2.4
2.2
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0.1
0.3
0.5
0.7
0.9
(Thousands)


K/Na
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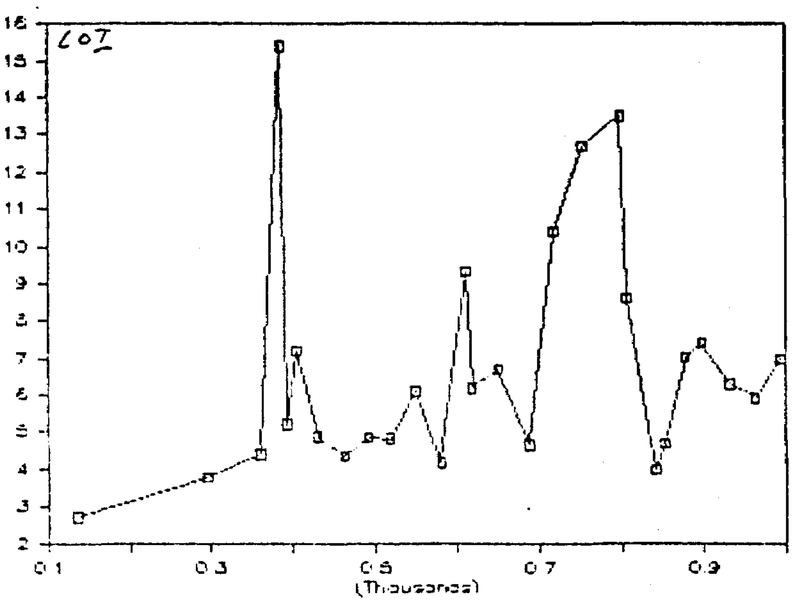
1
2
3
4
5
6
7
0.1
0.3
0.5
0.7
0.9
(Thousands)


2
3
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5
6
7
8
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10
11
12
13
14
15
16
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0.3
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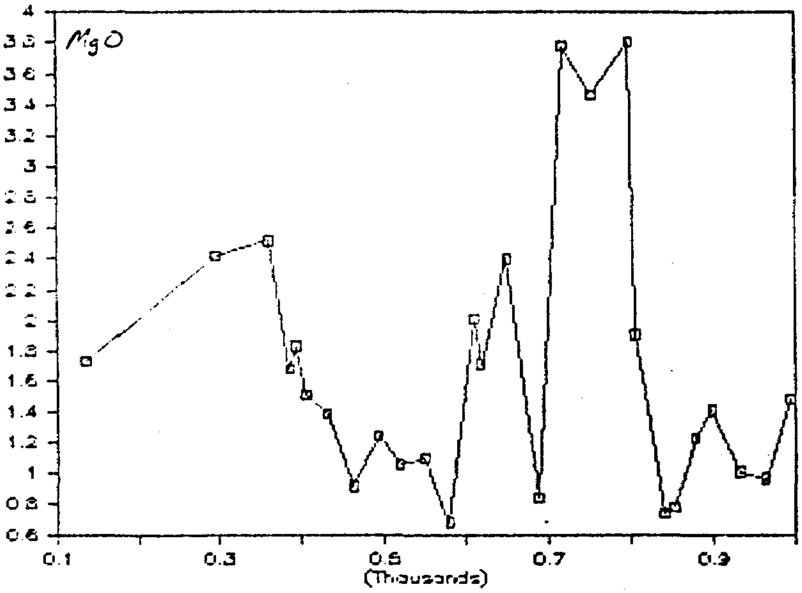
0.7
0.9
(Thousands)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3
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2.6
2.4
2.2
2
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1.6
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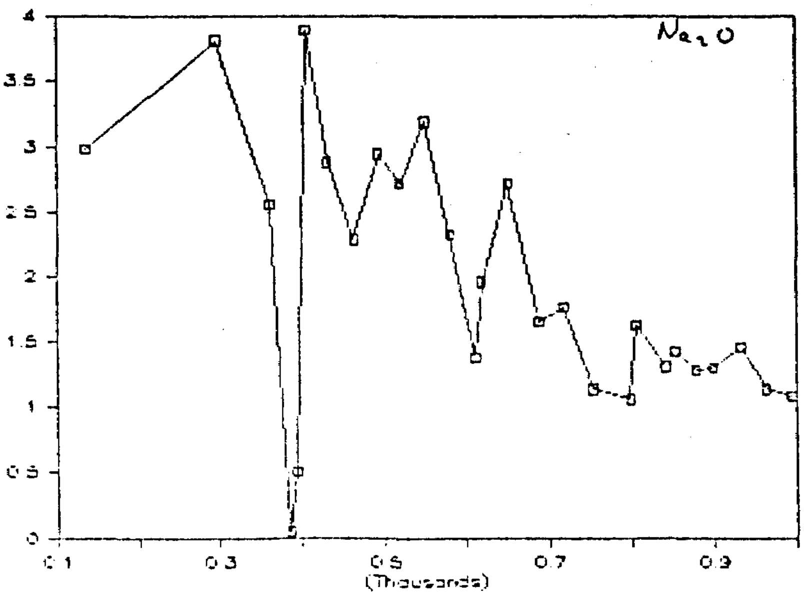
1.2
1
0.8
0.6
0.1
0.3
0.5
0.7
0.9
(Thousands)


Na2O
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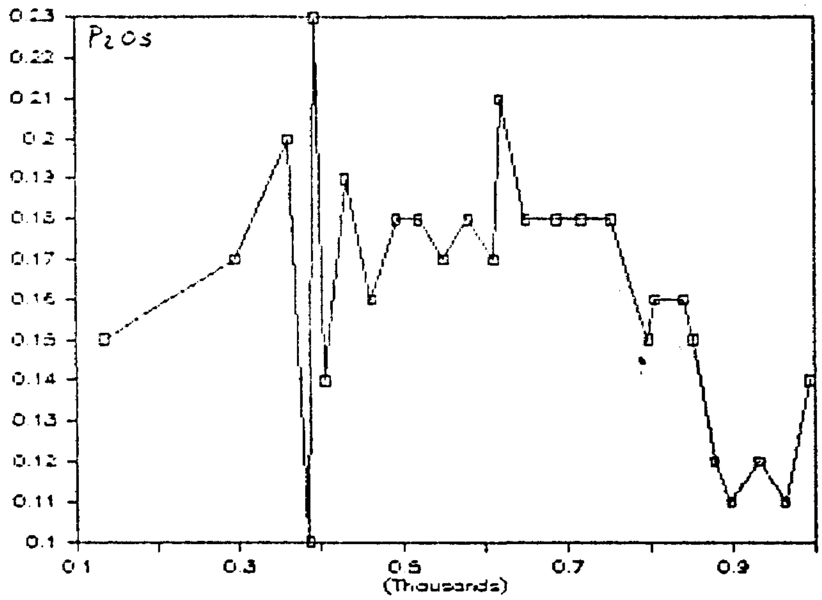
3.5
3
2.5
2
1.5
1
0.5
0
0.1
0.3
0.5
0.7
0.9
(Thousands)


P2O5
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0.22
0.21
0.2
0.19
0.18
0.17
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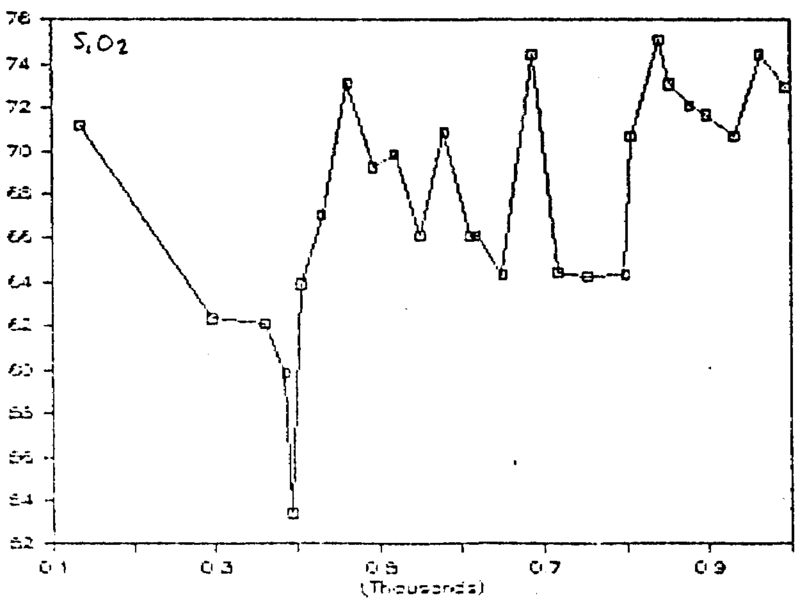
0.15
0.14
0.13
0.12
0.11
0.1
0.1
0.3
0.5
0.7
0.9
(Thousands)


SiO2
76
74
72
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68
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62
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56
54
52
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0.3
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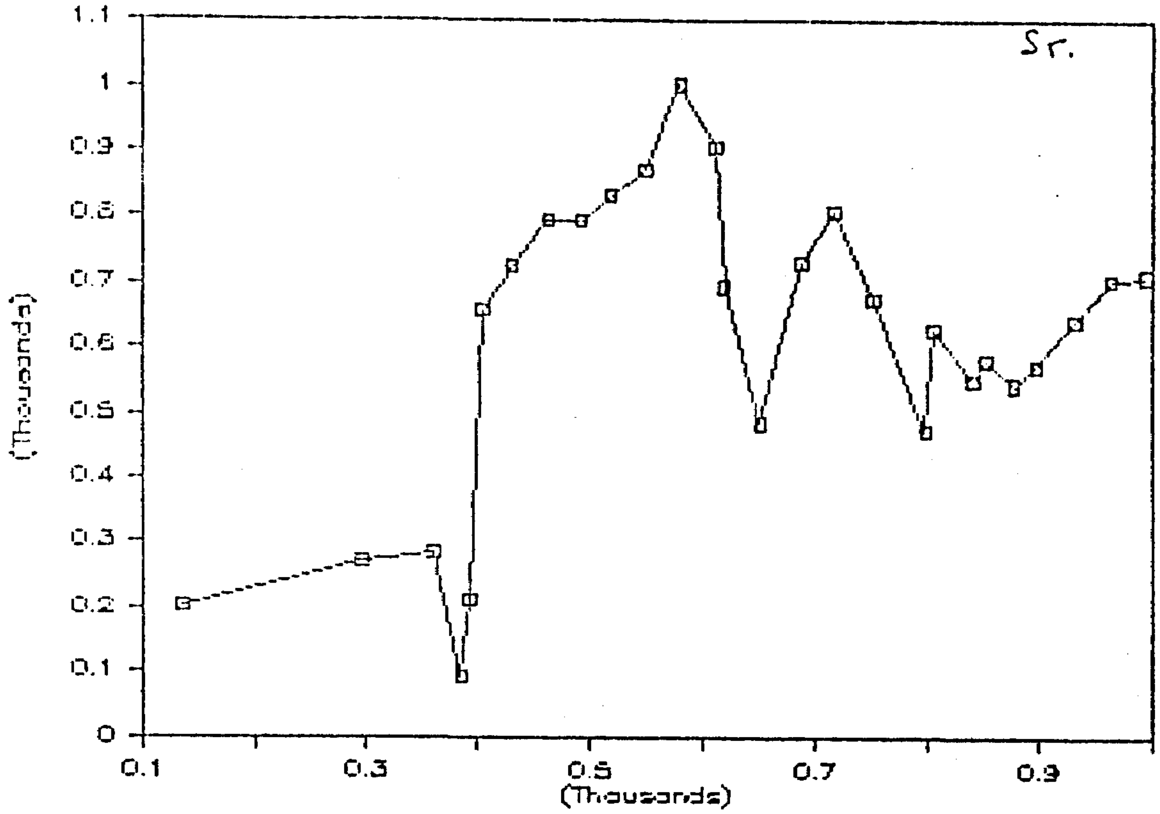
0.9
(Thousands)


Sr.
1.1
1
0.9
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0.7
0.6
0.5
0.4
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0.2
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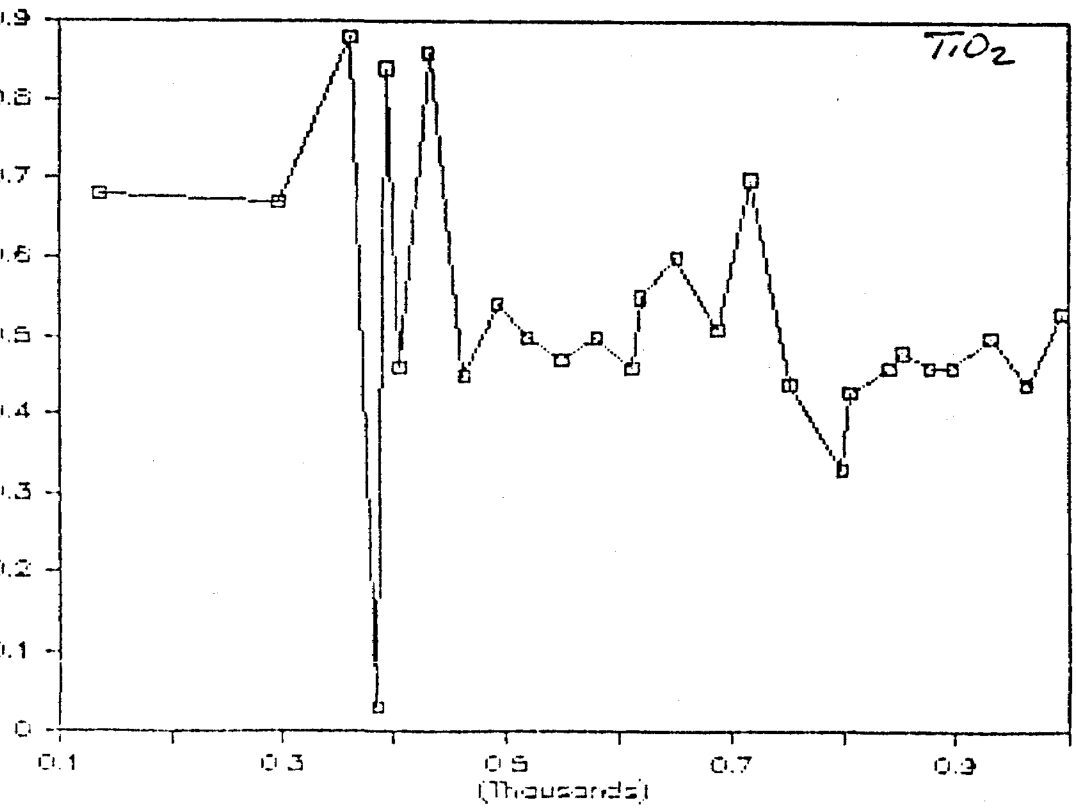
0
(Thousands)
0.1
0.3
0.5
0.7
0.9
(Thousands)


TiO2
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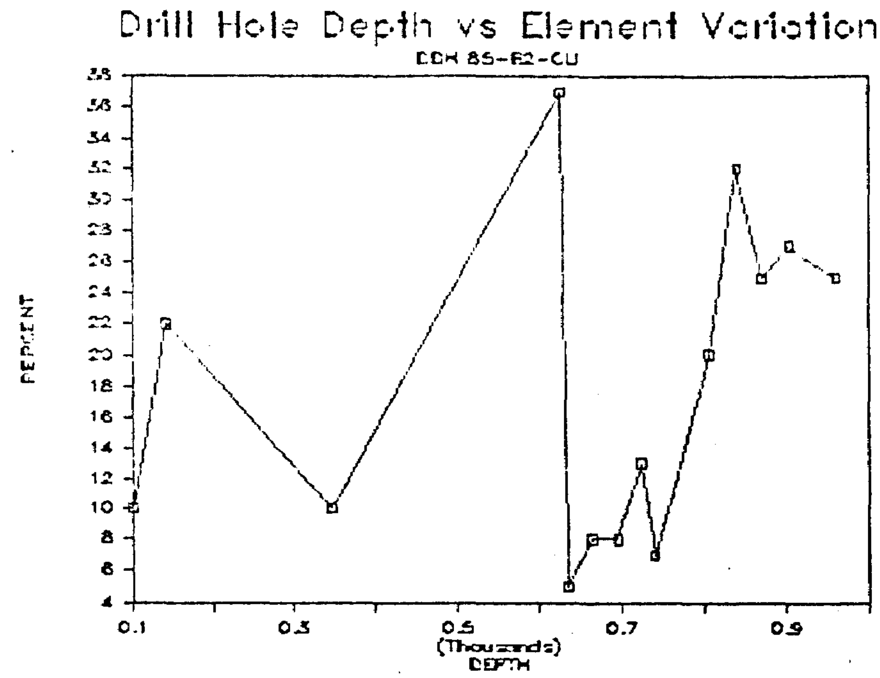
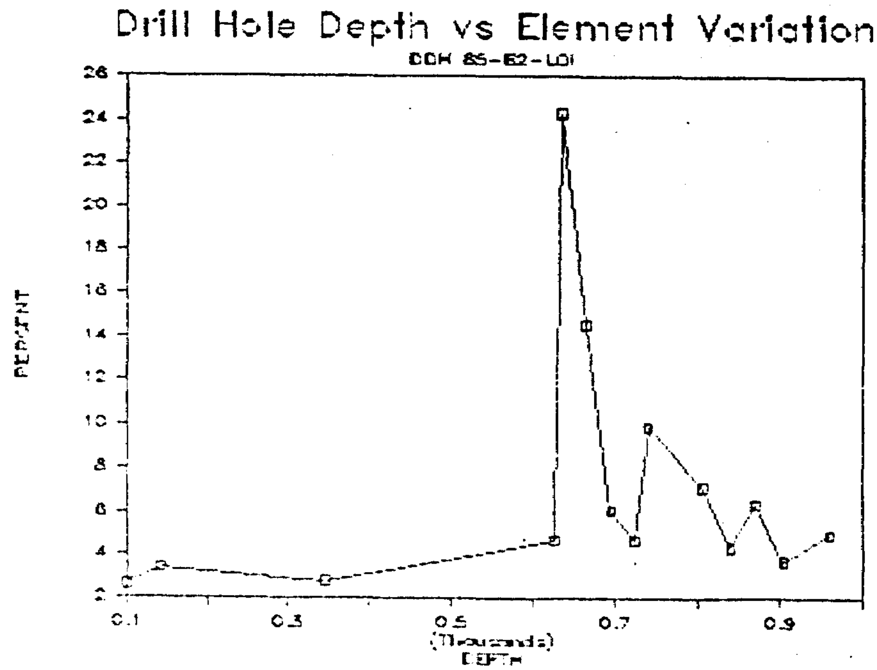
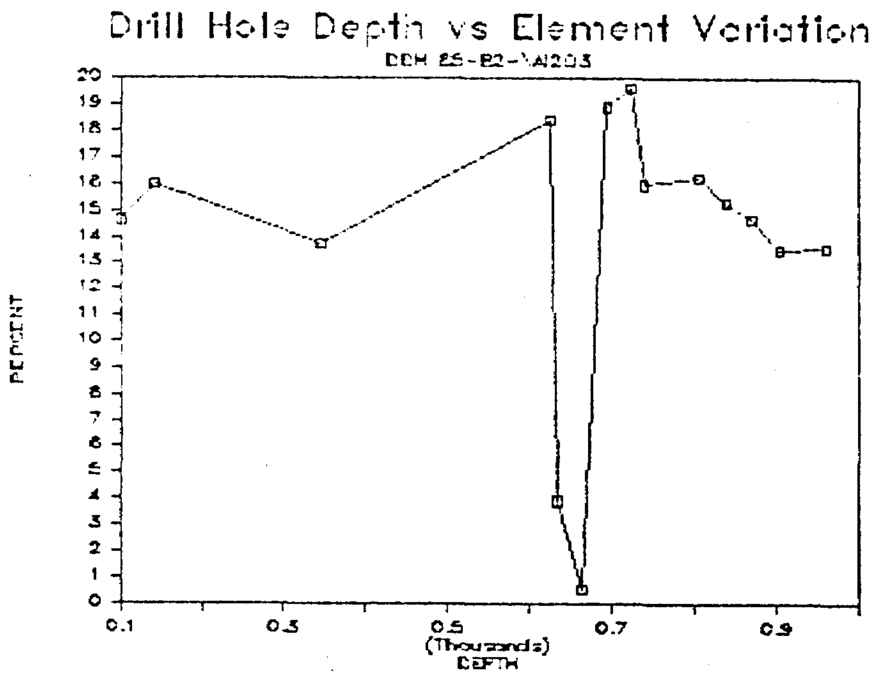
0.5
0.4
0.3
0.2
0.1
0
0.1
0.3
0.5
0.7
0.9
(Thousands)

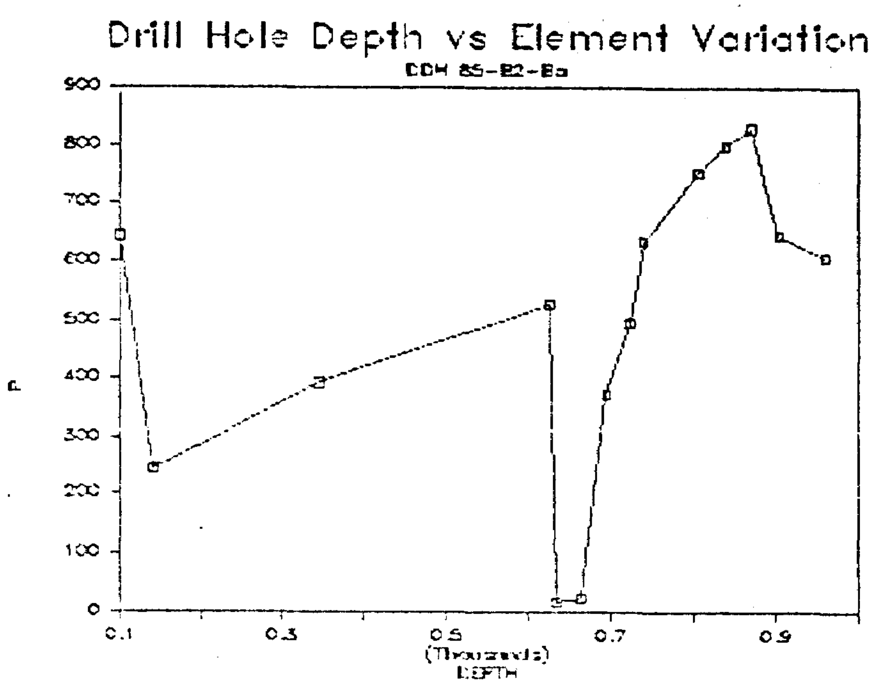
7328 D-85-2		121	74.25	14.63	1.96	2.09	1.04	3.19	2.51	0.22	0.02	0.06	644	415	97	2.58	0.79	2.01	1.70	45	10
7329	argillite	142	65.71	15.99	4.65	4.23	1.06	4.98	1.43	0.67	0.1	0.14	243	422	132	3.38	0.29	3.99	3.95	77	22
7330		145	75.26	13.71	2.59	1.45	1.37	2.88	2.36	0.21	0.03	0.07	393	165	97	2.76	0.62	1.05	1.70	46	10
7331		226	62.59	16.07	7.79	1.8	2.5	1.89	3.51	0.87	0.07	0.16	526	273	150	4.66	1.86	0.72	2.80	89	37
7332	chert-Fe.Fm	[illegible]	26	3.91	64.02	1.56	3.95	0.0001	0.0001	0.17	0.09	0.23	17	65	26	24.3	1.00	0.39	14.59	31	5
7333		[illegible]	62.55	0.49	37.59	0.57	0.56	0.0001	0.0001	0.02	0.01	0.16	22	34	0.0001	14.6	1.00	1.02	60.41	24	8
7334		695	61.25	18.91	11.67	2.23	1.14	0.21	4.82	0.05	0.04	0.17	374	226	153	6.03	22.95	0.25	9.37	44	8
7335	felsic schist	723	62.94	19.62	8.39	1.96	0.66	2.62	2.06	1.15	0.1	0.27	495	1167	175	4.66	0.79	2.28	8.78	106	13
7337		740	63.36	15.96	4.77	6.73	2.52	3.24	2.16	0.6	0.07	0.23	635	949	116	9.91	0.67	2.67	1.70	55	7
7338		875	65.56	16.21	5.37	4.98	1.94	2.77	2.21	0.7	0.07	0.16	754	829	136	7.14	0.80	2.57	2.49	105	20
7340	conglomerate	848	78.86	15.3	4.92	2.37	1.11	2.23	2.38	0.55	0.06	0.16	800	706	126	4.35	1.07	2.14	3.99	93	32
7341		672	72.79	14.67	4.07	3.64	1.33	1.84	2.65	0.51	0.05	0.16	829	836	107	6.37	1.44	2.78	2.65	82	25
A 7343 TS		925	74.77	13.49	3.74	1.94	1.07	2.16	2.16	0.44	0.04	0.13	645	618	104	3.68	1.00	1.81	3.15	82	27
7344		961	73.64	13.57	4.47	2.7	1.31	1.3	2.28	0.47	0.07	0.15	608	759	101	4.94	1.75	2.06	3.07	50	25
																	ERR	ERR	ERR		
7345 D-85-3		172	67.01	14.25	5.04	5.09	1.97	4.75	0.57	0.95	0.1	0.23	121	178	193	4.27	0.12	2.58	2.30	341	23
7346		204	61.76	14.26	7.14	6.42	4.43	2.4	0.53	0.78	0.1	0.15	151	243	126	3.89	0.22	1.45	1.45	38	28
7347	intermediate	242	61.12	17.16	7.18	6.01	4.03	2.73	0.69	0.75	0.12	0.15	219	264	131	3.44	0.25	1.49	1.60	42	23
7348	tuffs	282	60.65	16.52	8.04	5.55	2.99	3.82	0.52	1.28	0.1	0.28	107	337	163	2.22	0.14	1.86	2.42	115	29
7349		306	62.66	16.94	6.7	4.9	2.96	3.83	0.53	1.11	0.07	0.23	181	339	156	2.43	0.14	1.66	2.04	140	19
7350		331	62.13	17.35	7.8	3.17	2.84	3.88	1.32	1.14	0.1	0.24	226	261	147	3.17	0.34	1.12	2.47	104	19
19401		360	65.45	15.48	4.03	6.69	1.66	4.39	1.42	0.59	0.1	0.13	243	410	110	5.45	0.32	4.03	2.10	57	12
19422	argillite	453	71.64	15.32	2.62	2.99	1.1	3.63	2.13	0.37	0.04	0.11	500	333	110	3.41	0.59	2.72	2.14	41	16
19423		555	57.36	19.81	8.14	3.16	1.44	7.9	0.59	1.04	0.1	0.43	117	348	253	2.39	0.07	2.19	5.09	94	15


Drill Hole Depth vs Element Variation
DDH 85-62-CU
PERCENT
0.1
0.3
0.5
0.7
0.9
(Thousands)
DEPTH


Drill Hole Depth vs Element Variation
DDH 85-62-LOI
PERCENT
26
24
22
20
18
16
14
12
10
8
6
4
2
0.1
0.3
0.5
0.7
0.9
(Thousands)
DEPTH

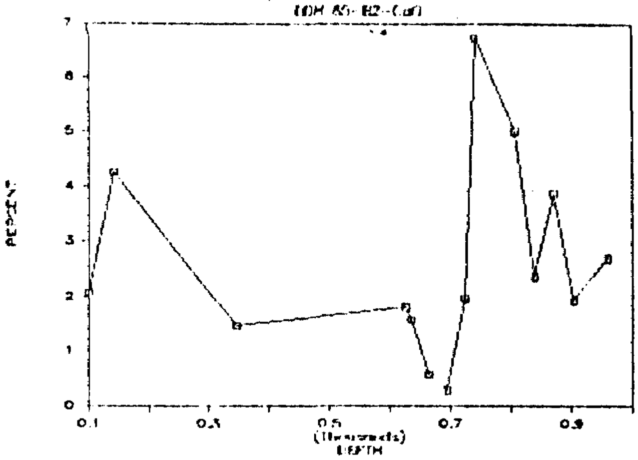


Drill Hole Depth vs Element Variation
DDH 85-B2-Al2O3
PERCENT
0.1
0.3
0.5
0.7
0.9
(Thousands)
DEPTH

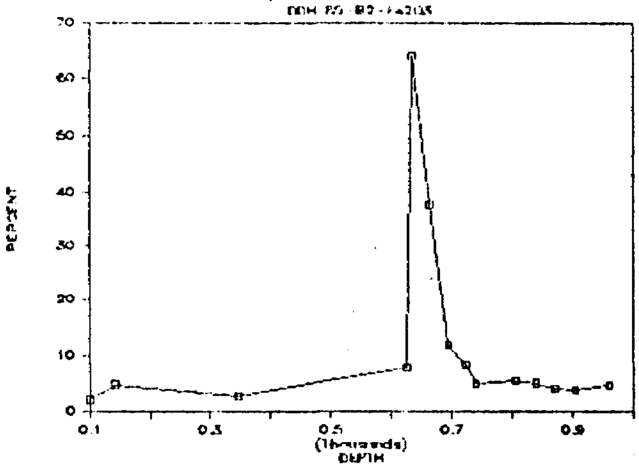


Drill Hole Depth vs Element Variation
DDH 85-B2-Ba
0.1
0.3
0.5
0.7
0.9
(Thousands)
DEPTH

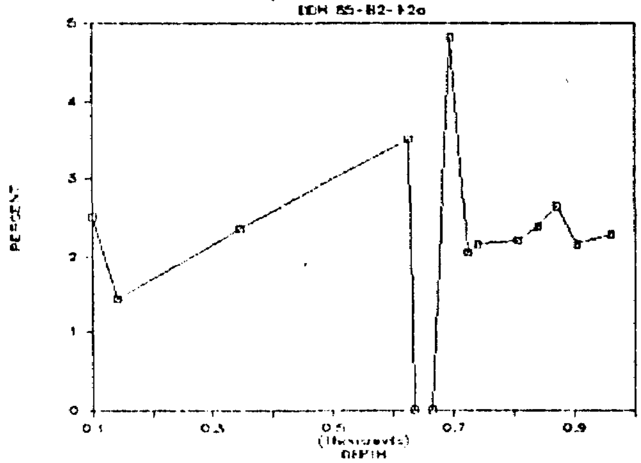
Drill Hole Depth vs Element Variation

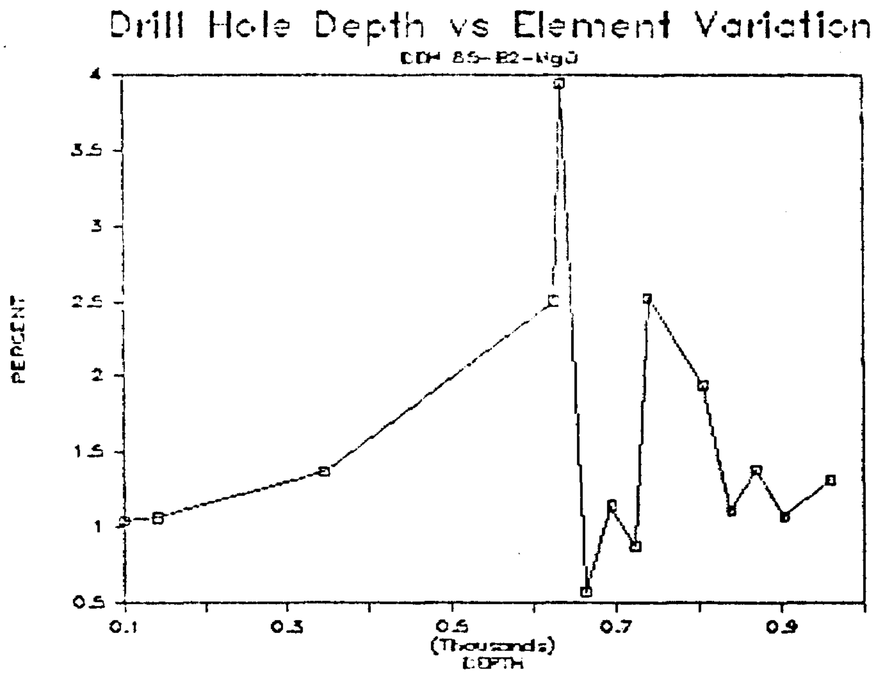


Drill Hole Depth vs Element Variation

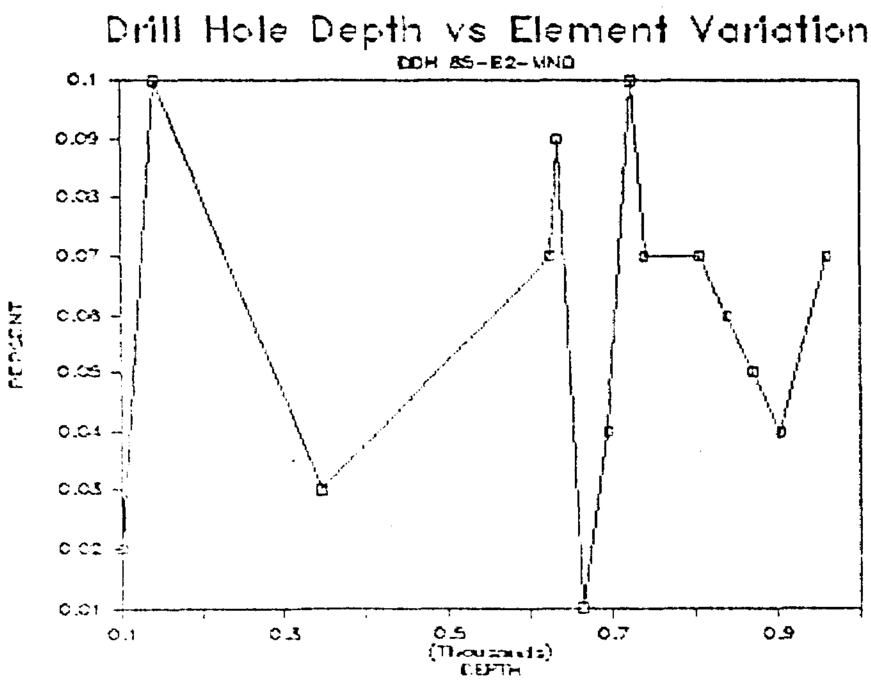


Drill Hole Depth vs Element Variation





Drill Hole Depth vs Element Variation
DDH 85-B2-MgO
PERCENT
4
3.5
3
2.5
2
1.5
1
0.5
0.1
0.3
0.5
0.7
0.9
(Thousands)
DEPTH



Drill Hole Depth vs Element Variation
DDH 85-E2-MNO
PERCENT
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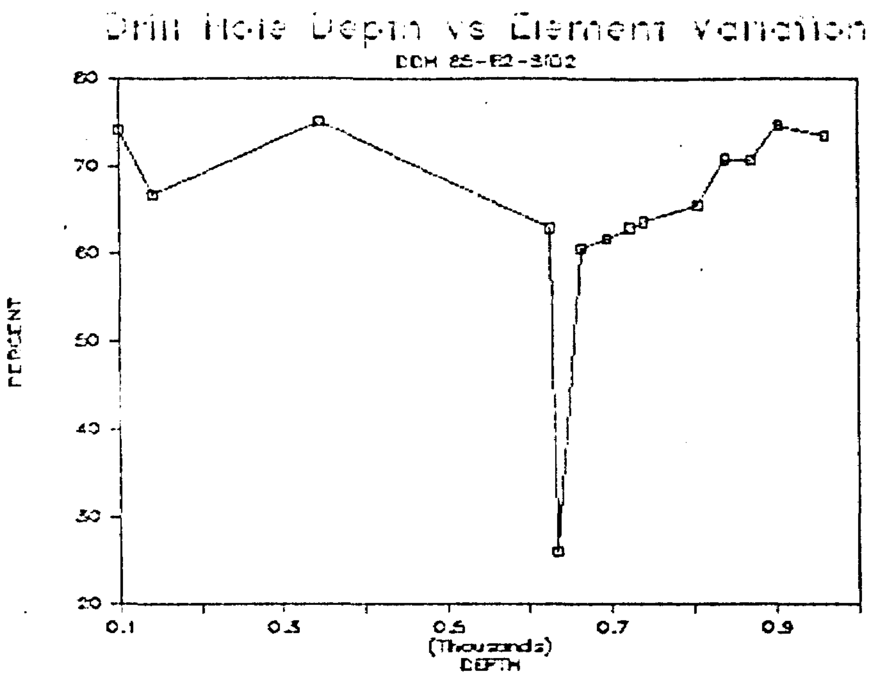
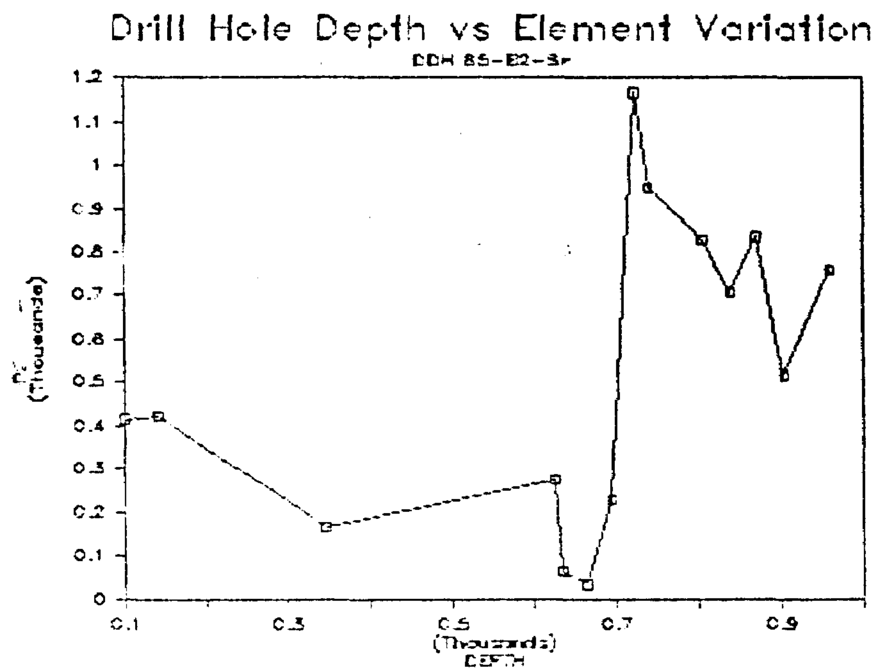
0.09
0.07
0.03
0.01
0.1
0.3
0.5
0.7
0.9
(Thousands)
DEPTH


Drill Hole Depth vs Element Variation
DDH 85-E2-3102
80
70
60
50
40
30
20
PERCENT
0.1
0.3
0.5
0.7
0.9
(Thousands)
DEPTH


Drill Hole Depth vs Element Variation
DDH 85-E2-3
1.2
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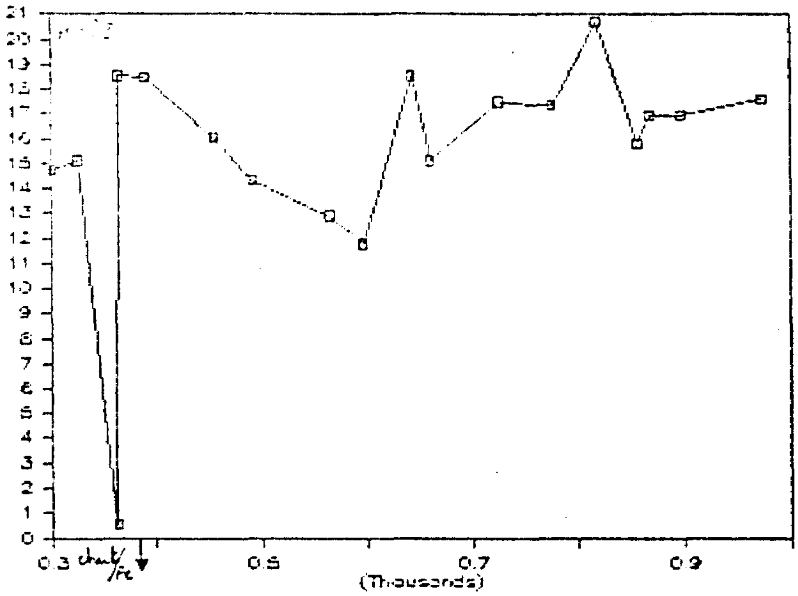
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
(Thousands)
0.1
0.3
0.5
0.7
0.9
(Thousands)
DEPTH

Sample	Unit	Depth	SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO	Na_2O	K_2O	TiO_2	MnO	P_2O_5	Ba	Sr	Zr	LOI	K/Na	Ca/Mg	Fe/Mg	As	Zn	Cu
19425 B-85-6	Chert + Fe Fm	292	67.39	14.77	7.96	3.28	2.43	0.34	3.36	0.25	0.06	0.13	1509	442	93	6.64	9.88	1.35	2.95		27	1
19426		326	60.93	15.11	14.92	1.12	2.35	0.09	4.85	0.35	0.05	0.18	1399	244	118	9.68	53.89	0.48	5.71		23	8
* 19427 TS		363	59.41	0.52	39.82	0.45	0.53	0.0001	0.1	0.01	0.02	0.11	32	15	0.0001	15	1000.00	0.85	65.92	10	13	7
* 19428 TS		385	59.42	19.55	16.63	0.13	0.85	0.09	4.4	0.74	0.03	0.12	1021	122	144	6.16	43.39	0.15	17.61	20	31	17
19429		390	64.73	13.51	5	3.02	1.51	2.59	3.75	0.54	0.03	0.29	655	478	115	6.1	1.45	2.02	2.66		[illegible]	5
* 19430 TS	QFP	455	62.07	16.05	5.4	5.3	3.47	5.67	0.92	0.64	0.08	0.34	739	1442	109	0.47	0.16	1.53	1.40		52	[illegible]
* 19431 TS	congl.	492	64.45	14.35	7.5	5.06	3.2	2.97	1.62	0.52	0.1	0.18	607	563	120	8.67	0.55	1.59	2.11		64	[illegible]
19432	QFP	564	69.1	12.29	5.51	4.72	2.22	2.76	2.04	0.49	0.08	0.15	505	539	154	7.33	0.74	2.13	2.23		52	15
19433	conglomerate	596	62.74	11.77	6.84	9.56	4.1	2	2.25	0.4	0.13	0.15	629	644	105	13.1	1.13	2.33	1.58		93	21
19434		642	63.48	18.55	6.18	2.36	2.78	3.08	2.67	0.59	0.03	0.24	708	429	198	5.43	0.87	0.85	2.08		27	41
19435		660	62.99	15.13	6.29	6.71	2.58	2.78	2.67	0.52	0.07	0.18	004	550	133	8	0.96	2.60	2.19		274	41
* 19436 TS	QFP	725	64.67	17.47	8.38	3.13	1.59	1.42	2.08	0.91	0.09	0.21	537	824	167	3.63	1.46	1.97	4.74		81	11
19437		775	58.62	17.35	7.22	10.8	1.27	1.91	1.24	1.06	0.15	0.33	405	1706	183	8.83	0.65	8.50	5.12		51	21
* 19438 TS		817	63.35	20.73	3.59	2.92	0.96	5.77	1.8	0.52	0.02	0.29	755	1266	143	4.02	0.31	3.04	3.07		44	73
* 19440 TS		856	58.93	15.83	6.81	6.47	4.75	4.74	1.05	0.8	0.11	0.46	822	971	122	9.1	0.22	1.36	1.29		61	5
19441	congl.	868	65.71	16.93	4.45	5.68	0.93	3.18	2.23	0.55	0.09	0.21	619	1015	100	5.08	0.70	6.11	4.31		23	21
19442		893	57.21	16.96	6.8	8.49	2.89	4.29	2.01	0.87	0.11	0.32	686	1025	156	10.9	0.47	2.94	2.12		51	11
19443		974	64.42	17.62	6.32	4.68	0.65	1.78	3.14	0.83	0.18	0.33	729	679	183	4.56	1.76	7.20	8.75	40	135	7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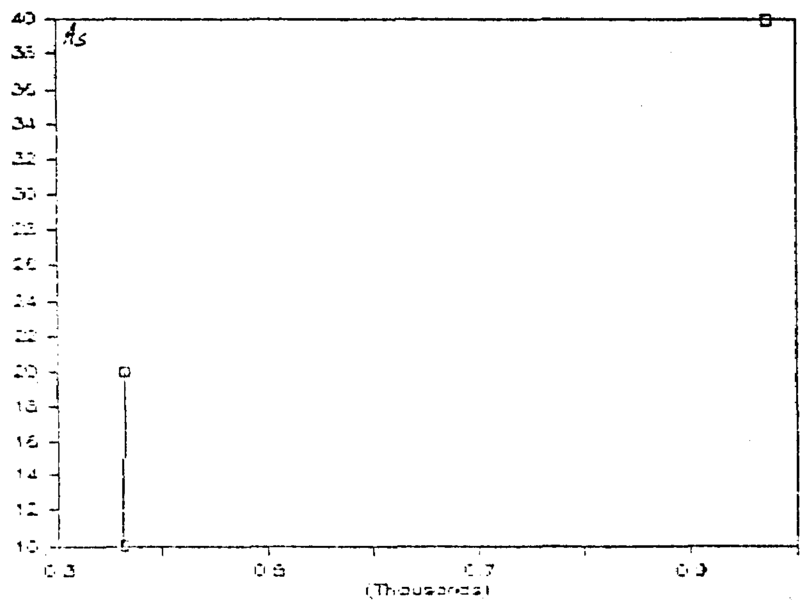
0.9
(Thousands)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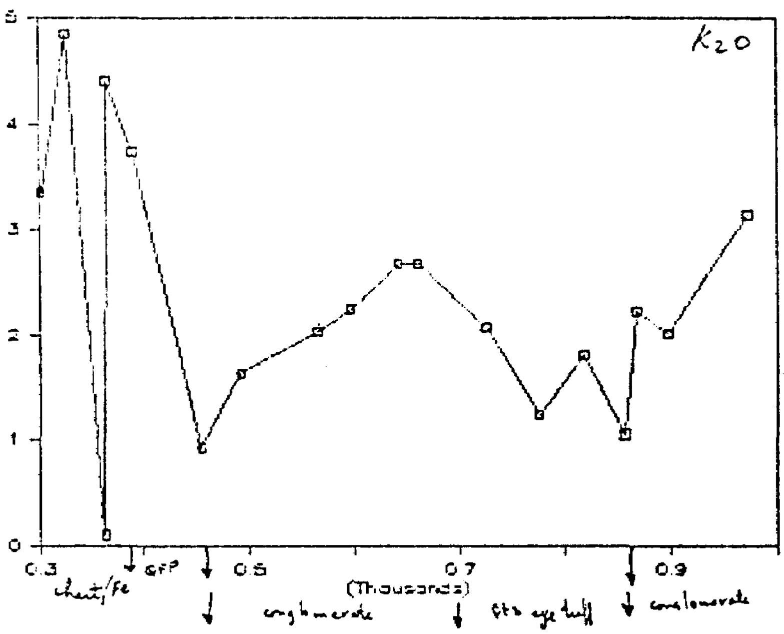
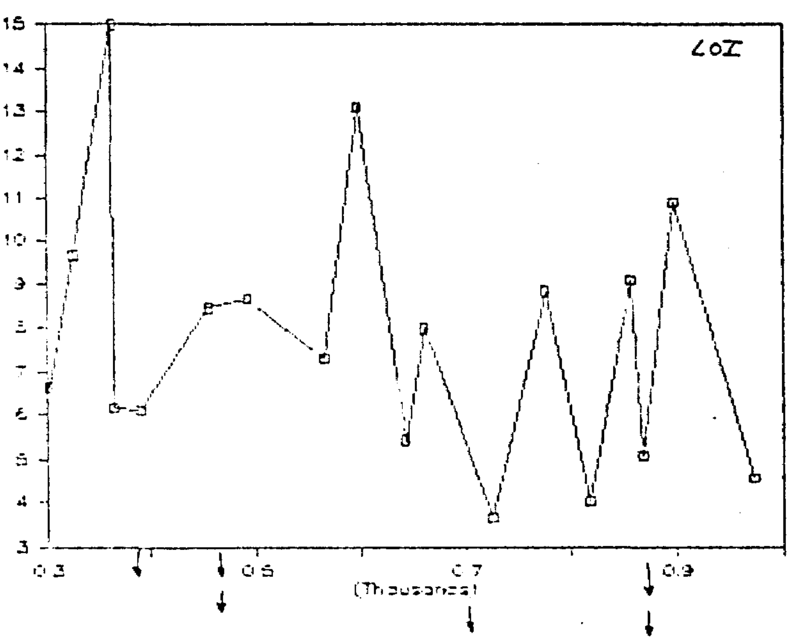
(Thousands)


K_2O
0
1
2
3
4
5
0.3
0.5
0.7
0.9
(Thousands)
chert/Fe
QFP
conglomerate
Qtz eye tuff
conglomerate


LOI
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4
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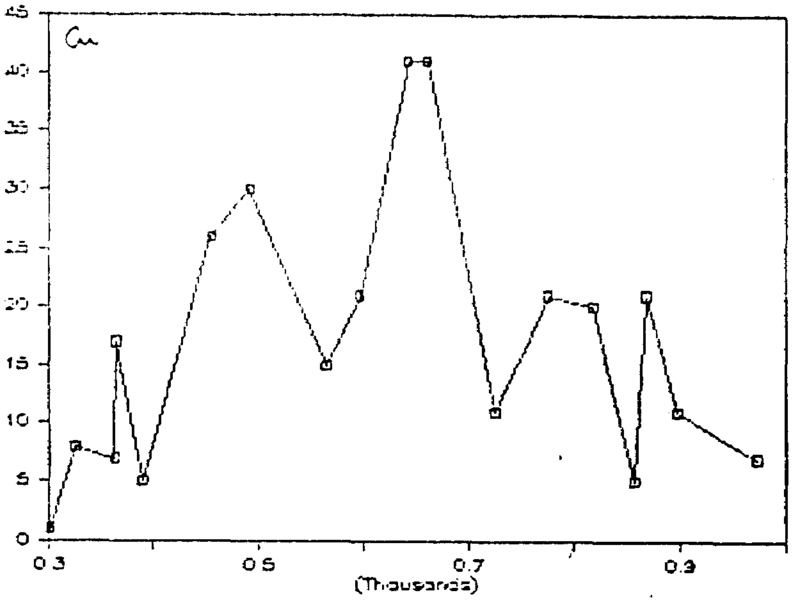
13
14
15
0.3
0.5
0.7
0.9
(Thousands)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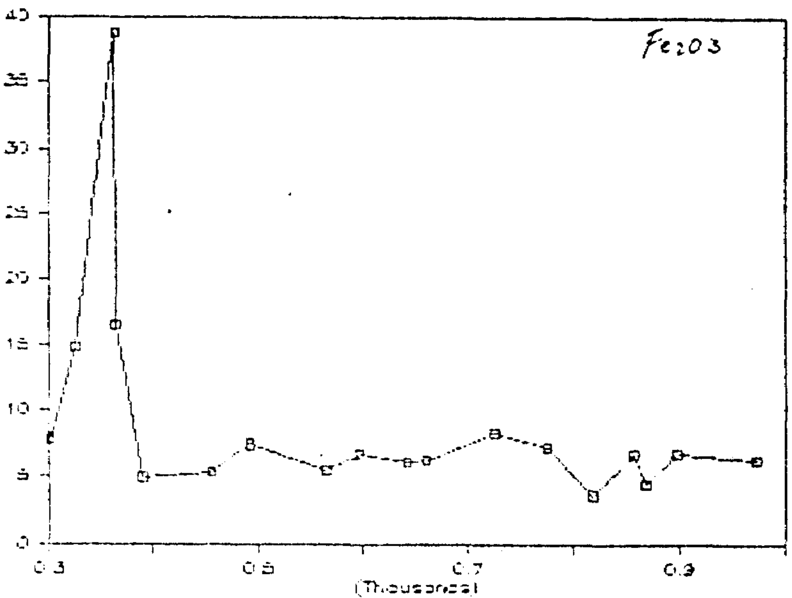
0.9
(Thousands)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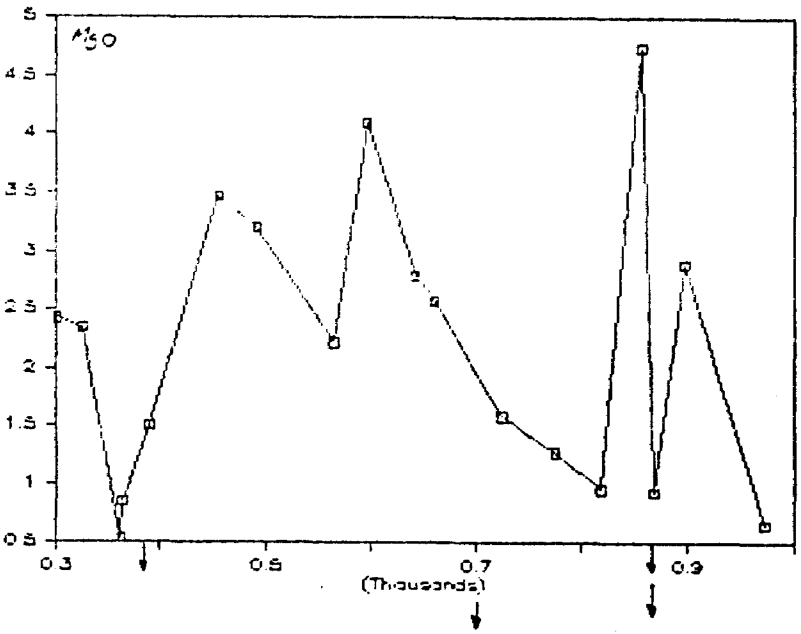
(Thousands)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1
0.5
0.3
0.5
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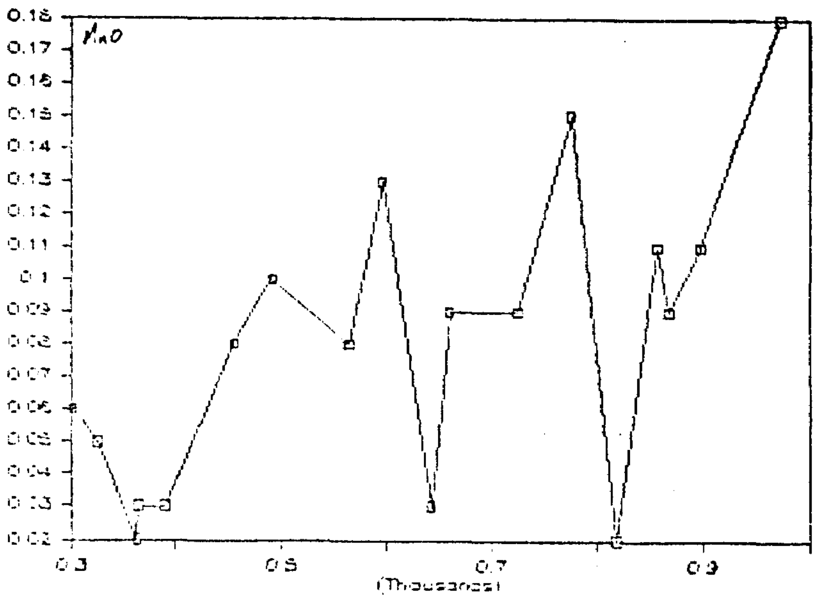
0.9
(Thousands)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0.09
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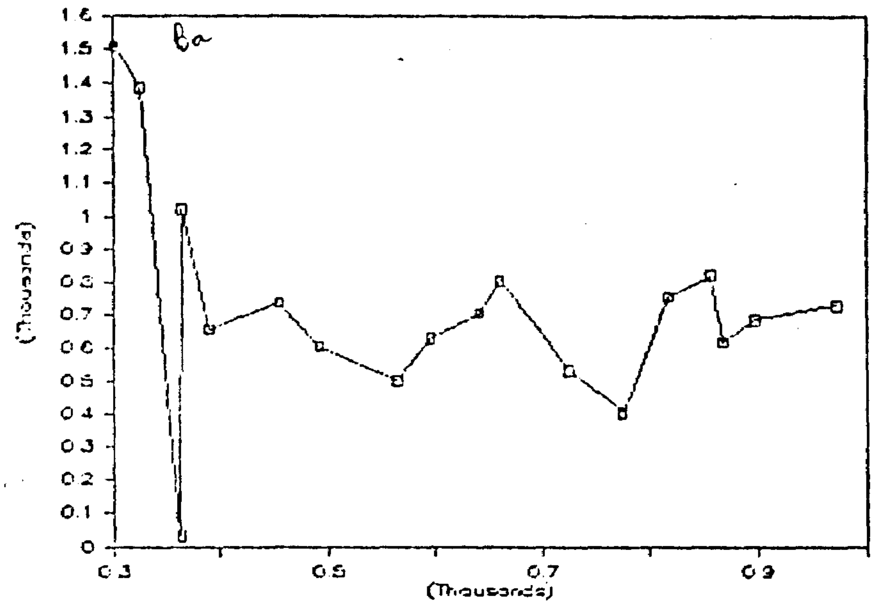
0.04
0.03
0.02
0.3
0.5
0.7
0.9
(Thousands)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1.6
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
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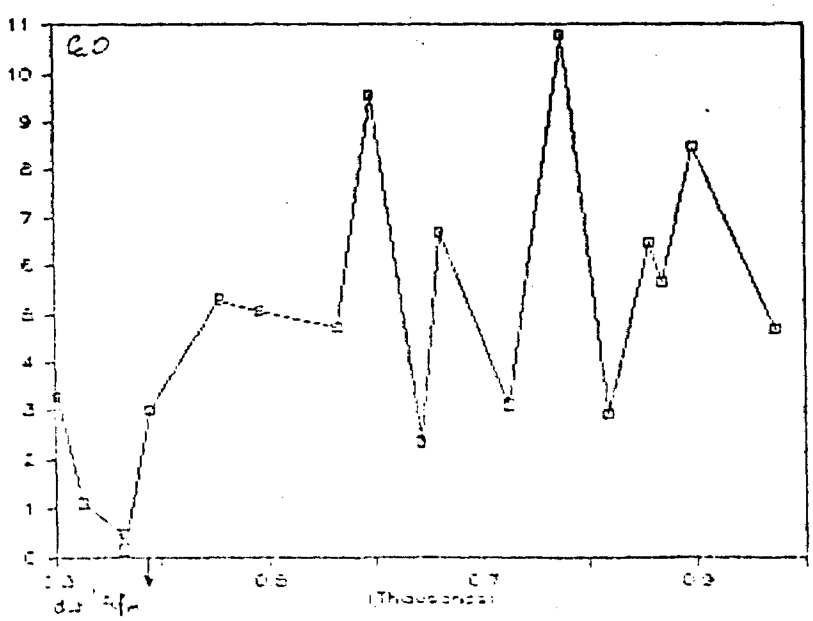
0.4
0.3
0.2
0.1
0
(Thousands)
0.3
0.5
0.7
0.9
(Thousands)


Co
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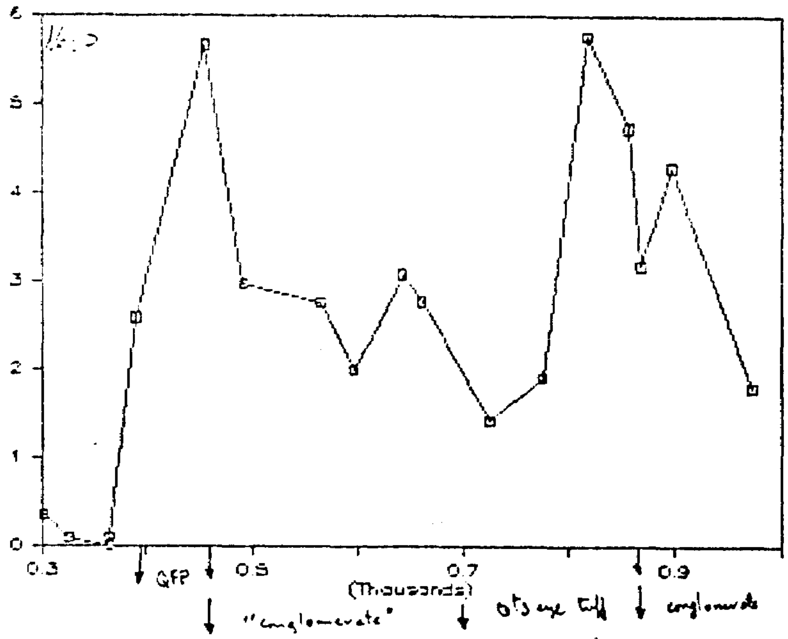
0.3
0.5
0.7
0.9
(Thousands)


6
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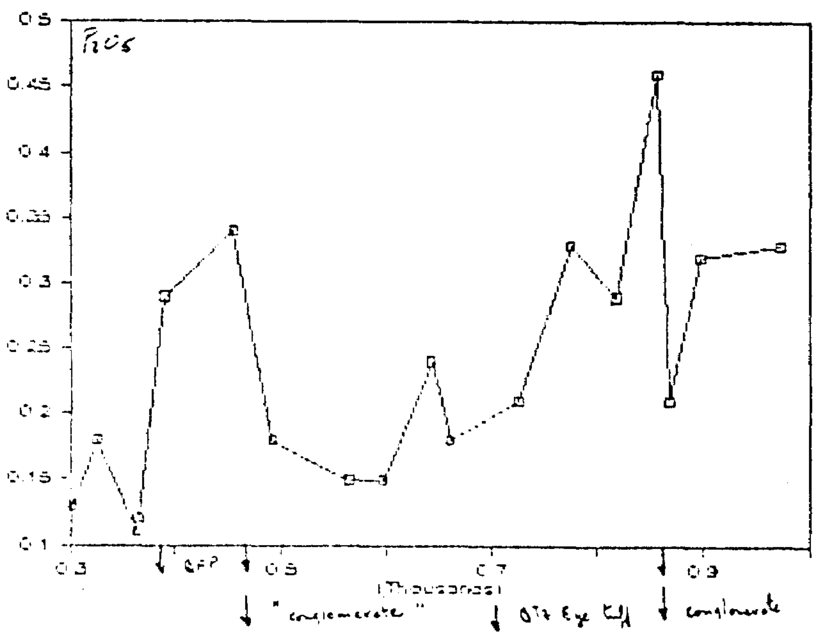
3
2
1
0
0.3
QFP
0.5
0.7
(Thousands)
0.9
"conglomerate"
conglomerate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0.3
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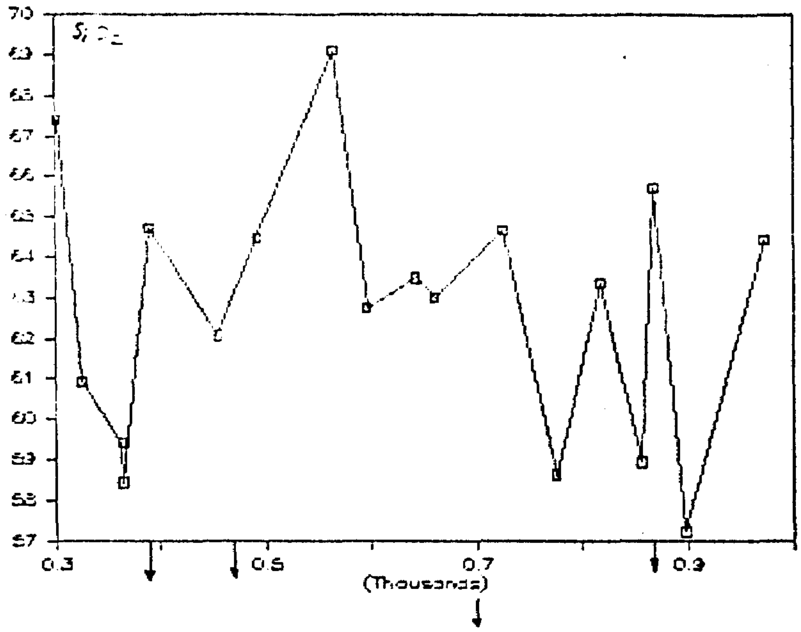
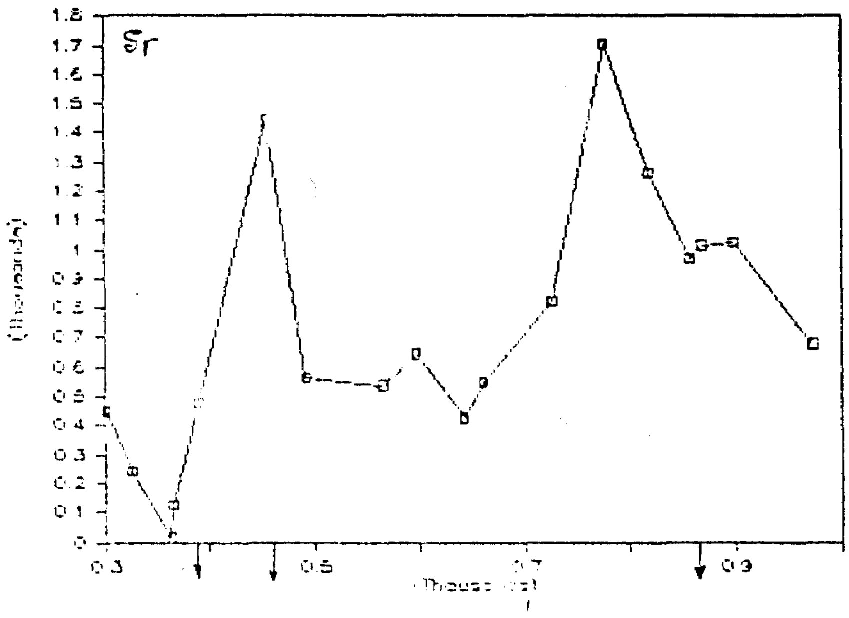
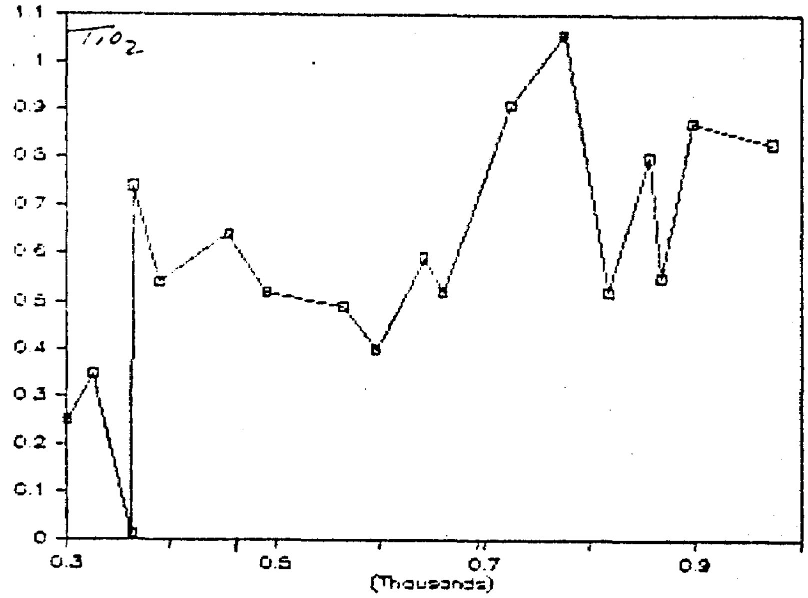
0.15
0.1
0.3
0.5
0.7
(Thousands)
0.9
"conglomerate"
conglomerate


SiO2
(Thousands)


Sr


TiO2
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1
0.9
0.8
0.7
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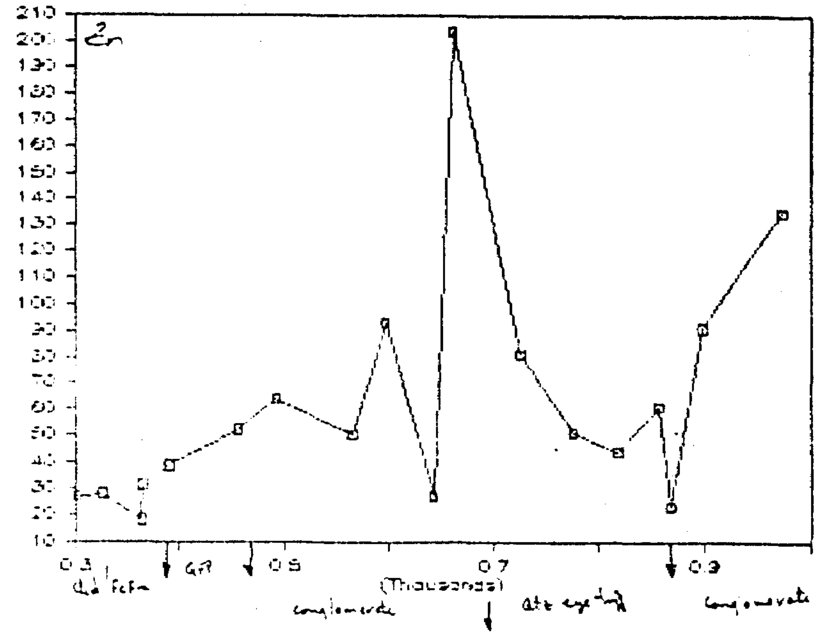
0.5
0.4
0.3
0.2
0.1
0
0.3
0.5
0.7
0.9
(Thousands)


Cr
210
200
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180
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160
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140
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110
100
90
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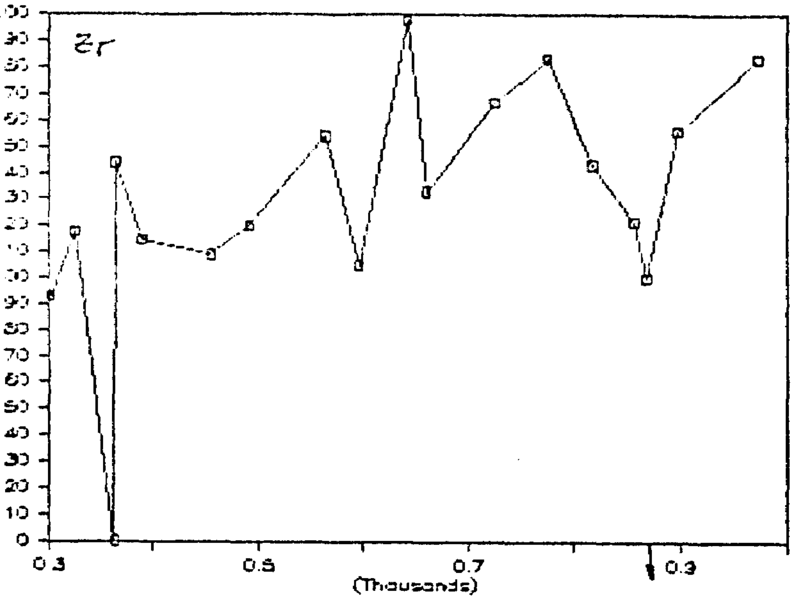
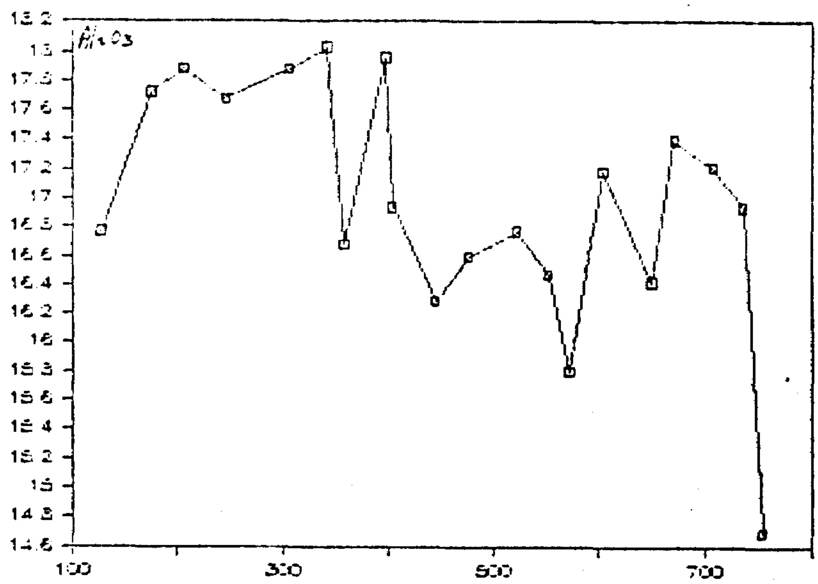
20
10
0.3
0.5
0.7
0.9
(Thousands)
conglomerate
conglomerate


Zr
2.00
1.90
1.80
1.70
1.60
1.50
1.40
1.30
1.20
1.10
1.00
90
80
70
60
50
40
30
20
10
0
0.3
0.5
0.7
0.9
(Thousands)

19404 E-65-5	123	dacite	61.4	16.77	6.97	6.38	3.79	2.42	1.13	0.86	0.07	0.17	273	287	99	5.43	0.47	1.69	1.66		42	39
19405	176	Foliated	57.93	17.72	9.73	6.23	2.31	3	0.95	1.61	0.17	0.3	236	319	158	4.31	0.32	2.70	3.79		24	98
19406	225	andesite	57.67	17.33	9.91	4.62	2.06	4.08	0.67	1.61	0.15	0.3	171	290	166	4.31	0.16	1.62	3.12		27	92
19407	[illegible]		56.57	17.67	9.13	6.55	3	4.45	0.51	1.63	0.13	0.32	93	261	160	5.14	0.11	2.18	2.74		20	147
19408	325		56.27	17.68	10.65	3.76	2.64	2.28	2.12	1.62	0.32	0.41	332	114	204	5.04	0.93	1.42	4.31		14	76
19410	342		59.65	18.23	6.41	6.1	1.34	4.12	1.96	1.7	0.23	0.4	329	107	209	5.12	0.48	4.55	4.31		24	57
* 19411 TS	363	andesite	59.83	16.68	9.18	7.55	2.09	2.84	0.48	1.59	0.14	0.37	180	272	203	3.46	0.17	3.61	3.95		25	66
19412	397	Feld. Por.	64.59	17.96	2.2	5.79	0.44	4.23	2.55	1.73	0.06	0.39	740	168	219	2.95	0.60	13.16	4.50		13	21
19413	423	+	59.24	16.94	5.53	5.47	2.73	3.73	0.21	1.59	0.14	0.36	126	238	240	3.02	0.06	2.00	3.14		12	83
19414	444	vesiculites	62.1	16.29	9	6.27	1.8	2.85	1.51	1.53	0.26	0.34	179	114	185	5.89	0.53	3.48	4.50		15	73
19415	476		59.24	16.6	9.37	6.83	2.35	3.75	0.0001	1.58	0.15	0.34	0.0001	273	195	3.13	.00	2.91	3.59		19	67
* 19416 TS	502		60.75	16.77	8.52	4.66	2.76	4.4	0.17	1.46	0.10	0.27	56	281	170	2.54	0.04	1.69	2.78		25	79
19417	552		61.11	16.47	8.36	6.55	2.73	2.57	0.32	1.43	0.13	0.27	125	357	158	3.26	0.12	2.40	2.76		20	68
19418	571	Andesite	65.28	15.8	4.87	6.4	1.14	3.58	1.11	1.37	0.14	0.26	278	278	149	4.16	0.31	5.61	3.84		34	52
19419	603	Some	53.57	17.18	10.3	4.33	2.46	5.11	0.0001	1.64	0.2	0.35	0.0001	279	202	2.3	.00	1.78	3.77		12	78
19420	649		60.87	16.42	8.74	4.19	2.96	4.97	0.0001	1.4	0.11	0.27	.22	227	154	3.19	.00	1.42	2.66		29	80
19421	671	glz agg.	62.96	17.4	6.9	3.86	1.63	4.27	1.04	1.5	0.09	0.31	247	304	165	2.66	0.24	2.37	3.81		14	98
19422	708		57.65	17.21	10.32	5.55	2.73	4.44	0.0001	1.64	0.13	0.36	32	287	290	3.76	.00	2.03	3.40		22	68
19423	736		62.41	16.94	7.84	4.92	2	3.13	1	1.29	0.09	0.33	143	235	206	4.65	0.32	2.46	3.53		12	90
19424	754	dacite	73.74	14.69	2.12	2.15	1.26	2.78	2.02	0.27	0.03	0.09	528	262	148	3.91	1.01	1.71	1.51		12	37

-65-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17.8
17.6
17.4
17.2
17
16.8
16.6
16.4
16.2
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15.8
15.6
15.4
15.2
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14.8
14.6
100
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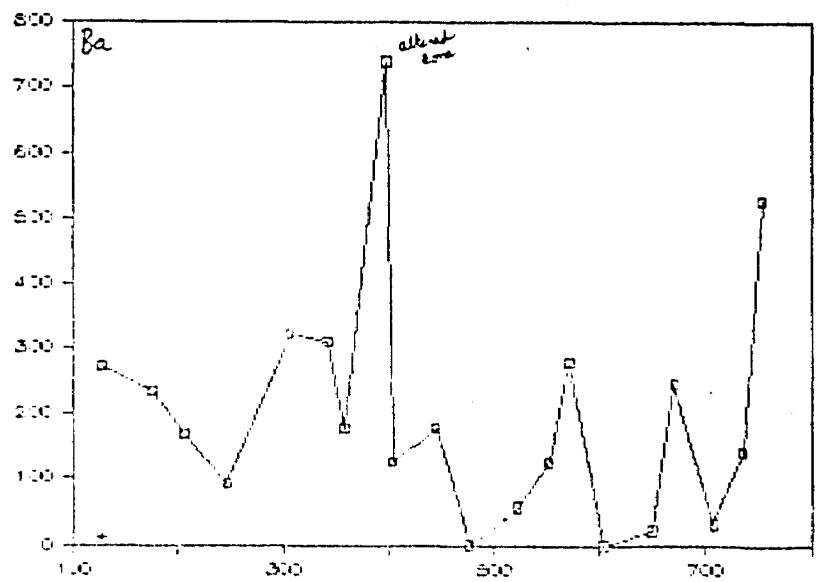
500
700


Ba
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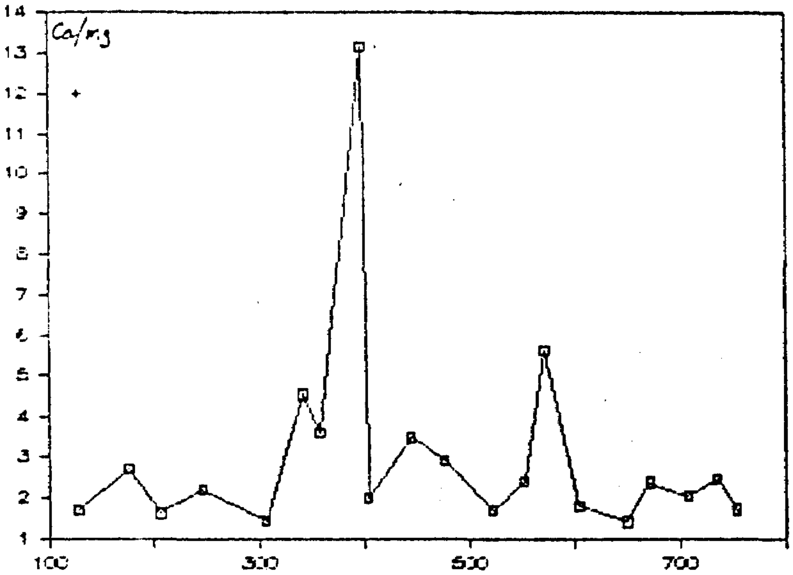
100
300
500
700


Ca/mg
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4
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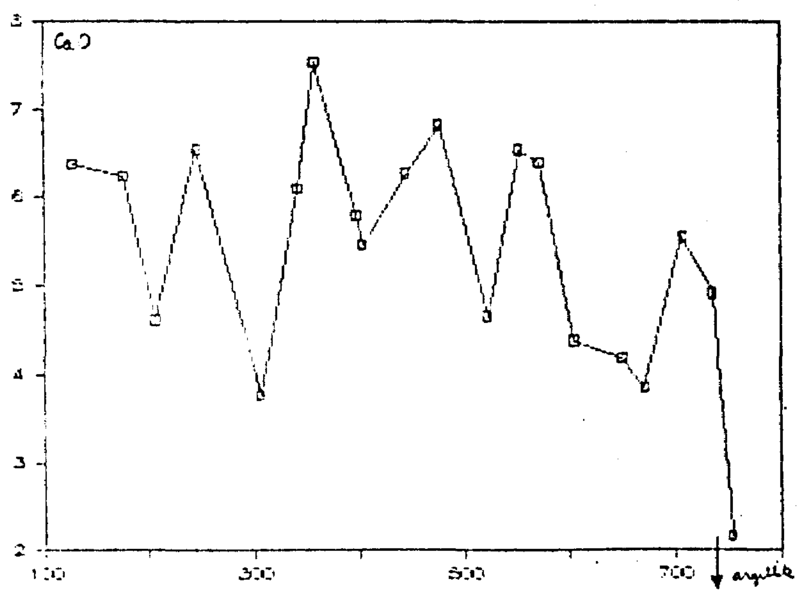
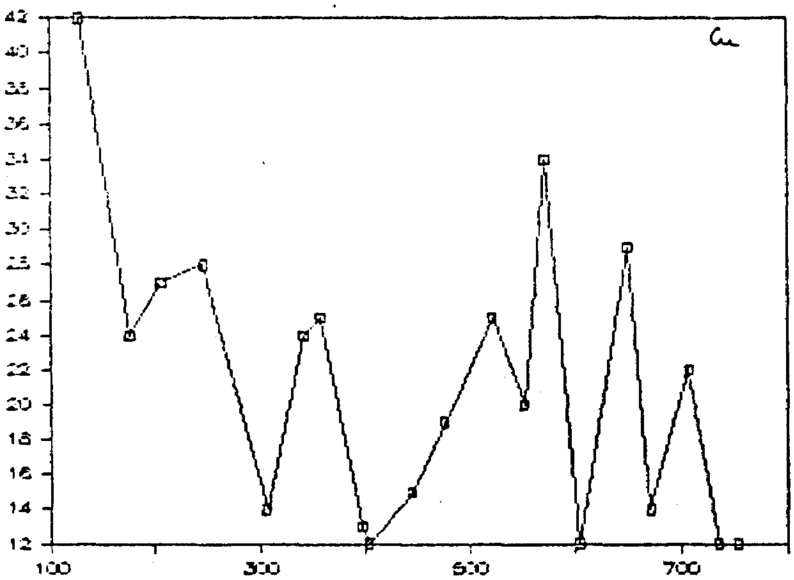

CaO
8
7
6
5
4
3
2
100
300
500
700
argile


Cu
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12
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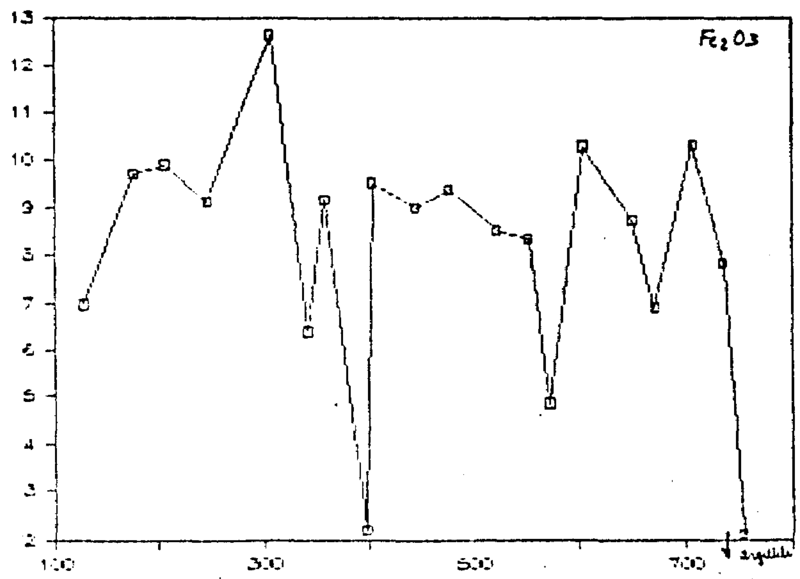
Fe2O3
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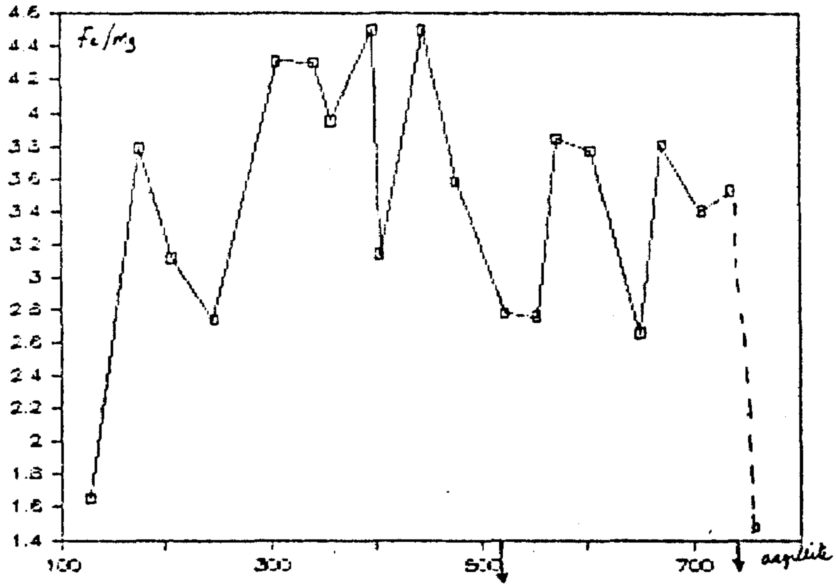
Fe/Mg
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4.4
4.2
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3.8
3.6
3.4
3.2
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100
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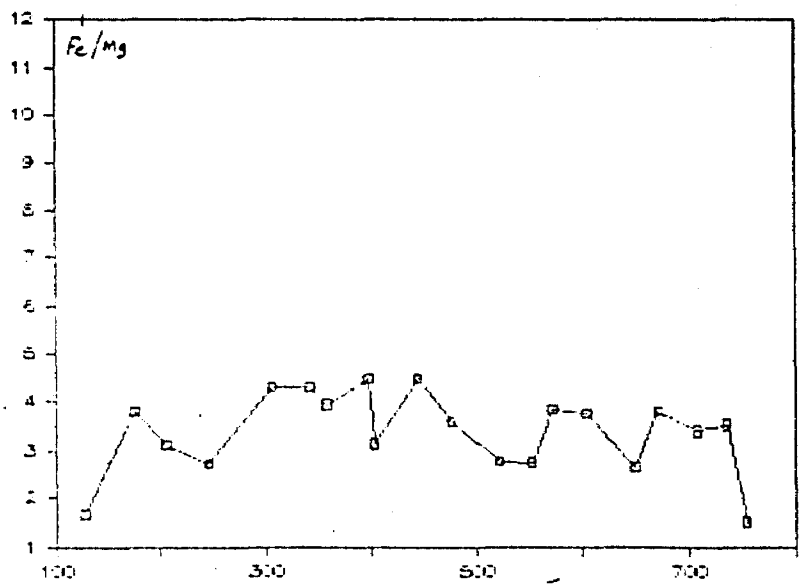
aaplite


Fe/Mg
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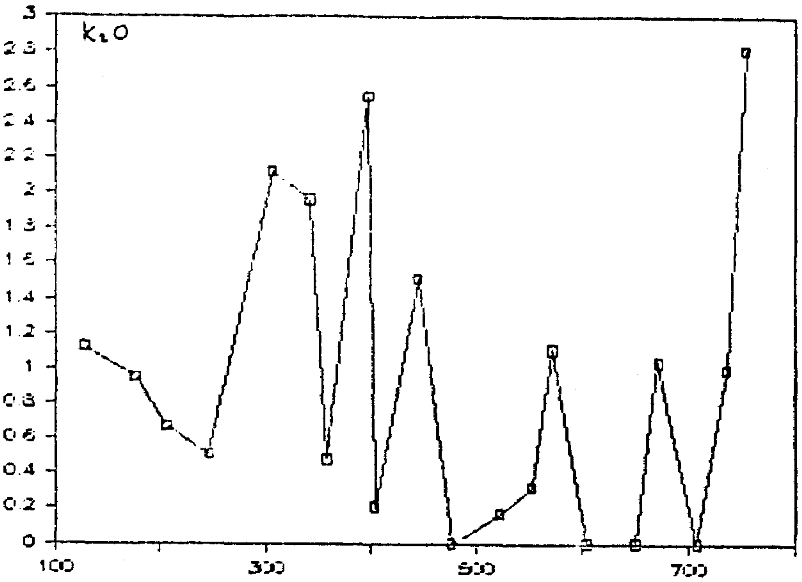
K₂O
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2.6
2.4
2.2
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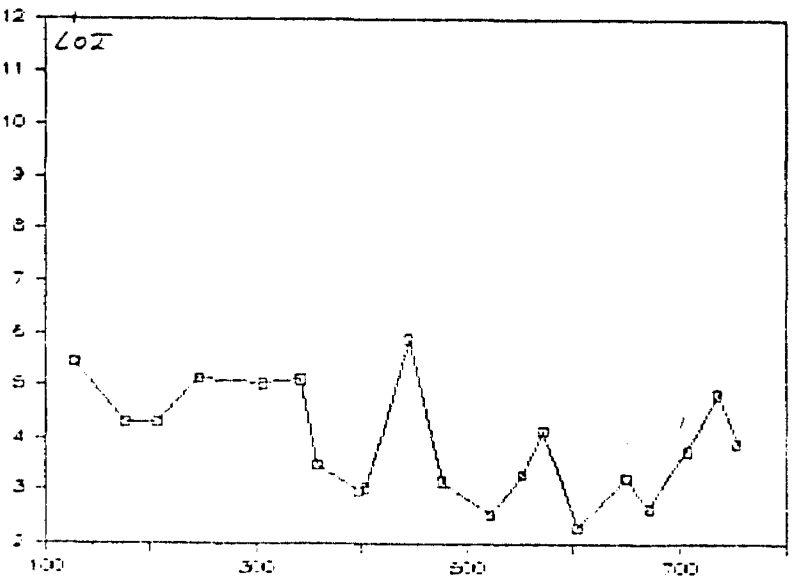
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
100
300
500
700


LOI
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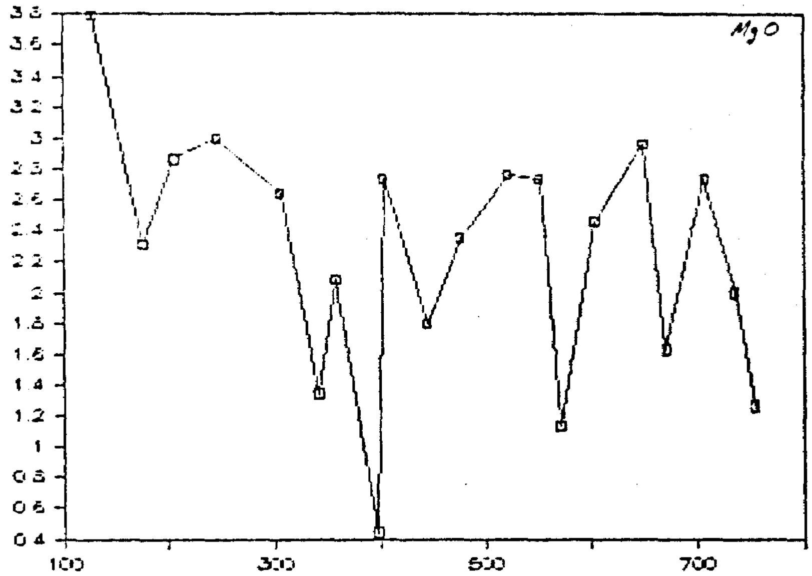
MgO
3.8
3.6
3.4
3.2
3
2.8
2.6
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1.6
1.4
1.2
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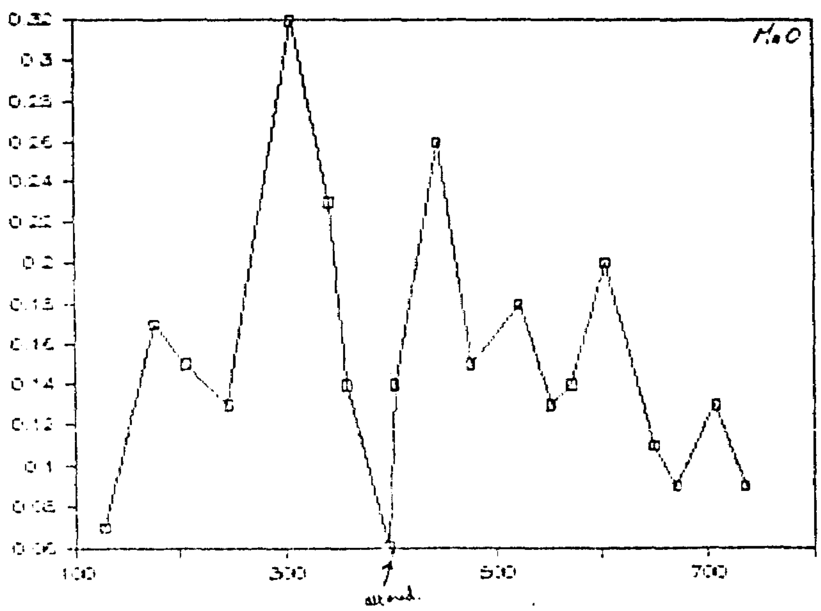
MnO
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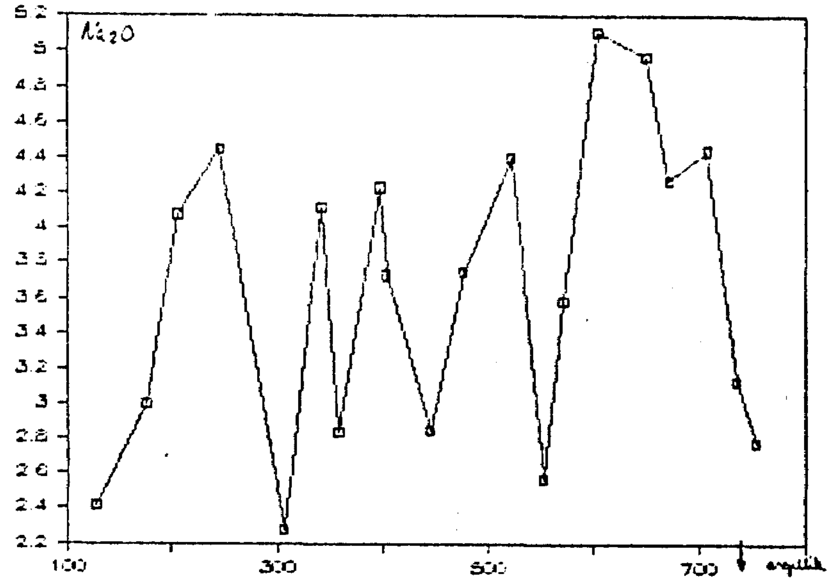
altered.


5.2
5
4.8
4.6
4.4
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2.4
2.2
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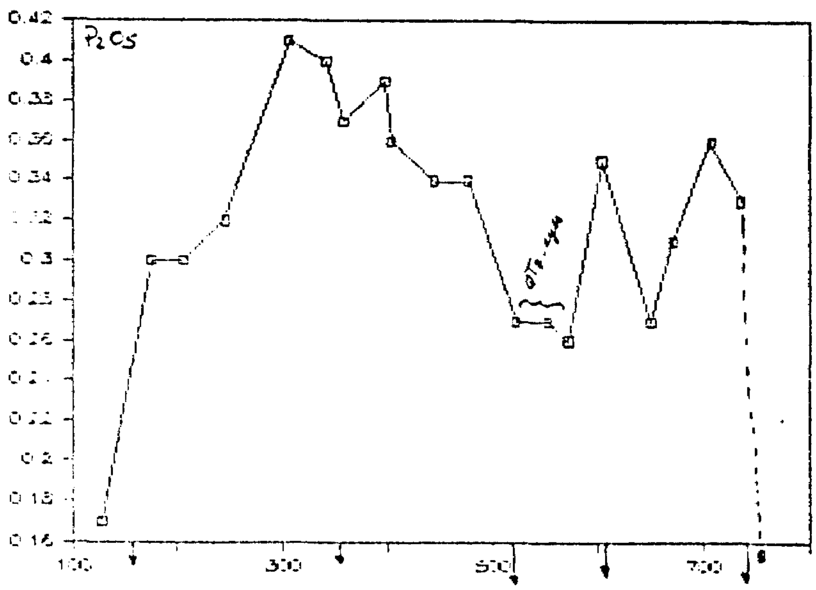
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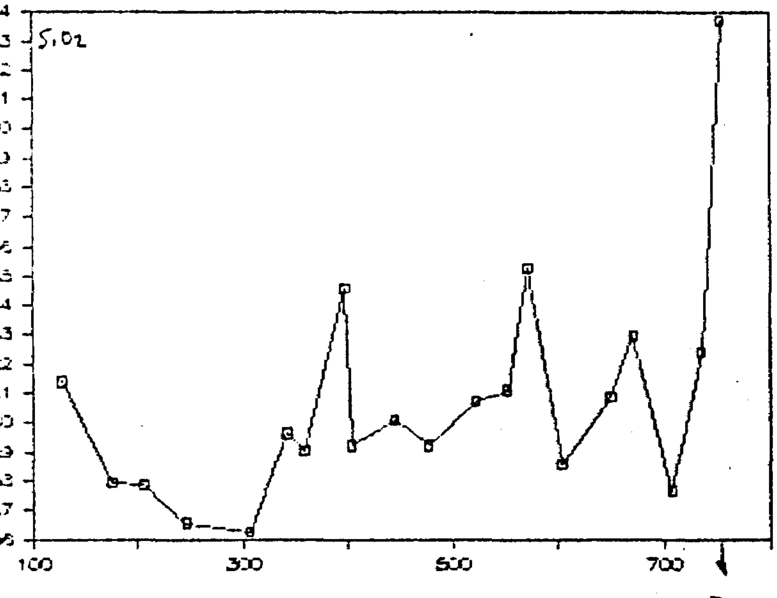
SiO2
74
73
72
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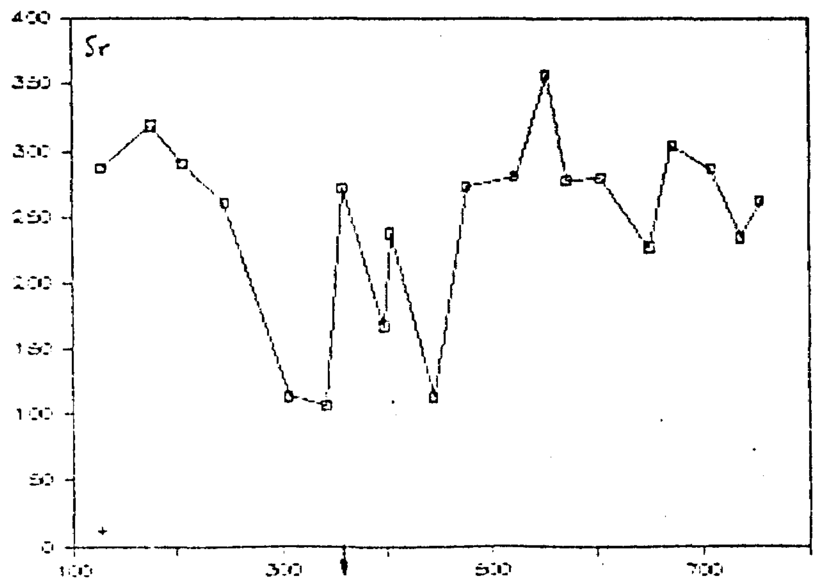
Sr
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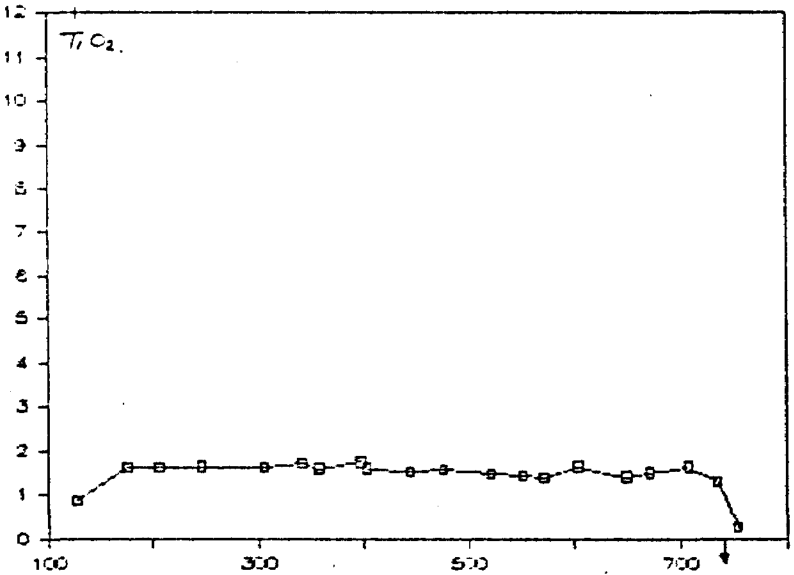
700


TiO2.
12
11
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7
6
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2
1
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300
500
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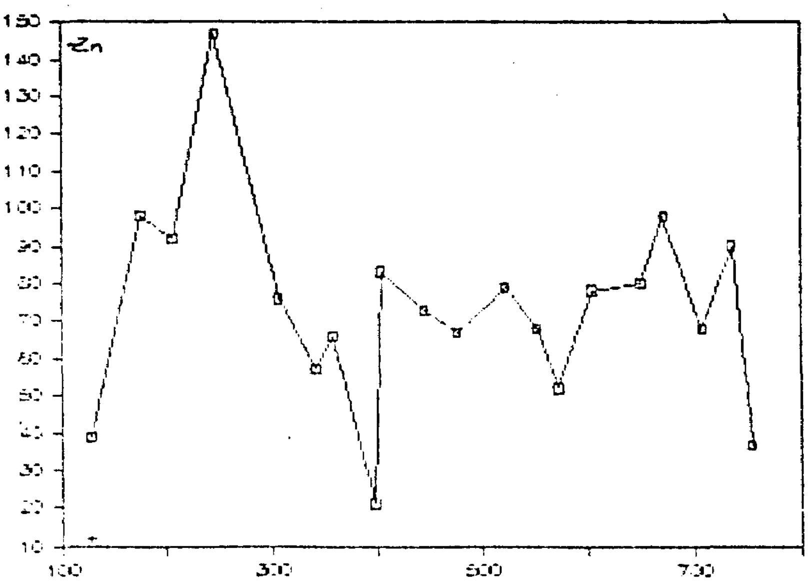
Zn
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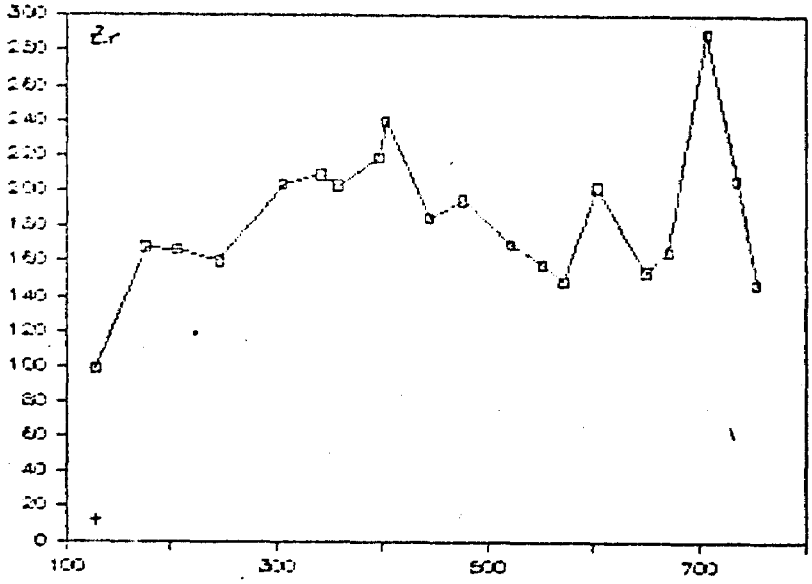
700


Zr
300
280
260
240
220
200
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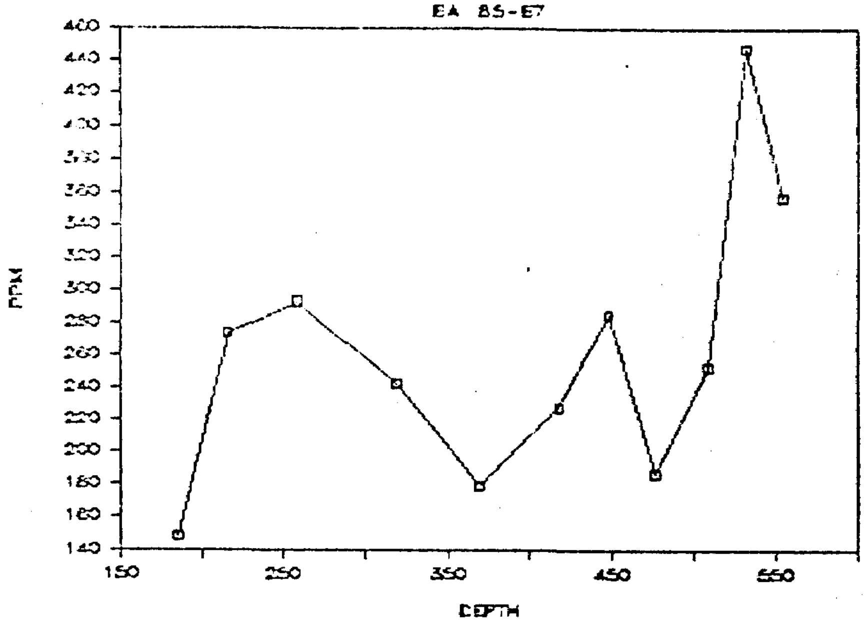
160
140
120
100
80
60
40
20
0
100
300
500
700

19444 B-85-7	Int. Tuff	186	60.49	16.27	7.43	6.9	3.12	3.4	1.14	0.86	0.12	0.2	148	144	139	7.03	0.34	2.21	2.14
* 19445 TS		216	64.45	15.66	6.49	6.02	0.99	3.07	2.14	0.66	0.18	0.3	274	134	229	5.41	0.70	6.03	5.89
19446		258	66.42	15.9	6.67	4.6	0.93	1.66	2.69	0.67	0.12	0.29	293	105	236	5.7	1.62	4.95	6.45
* 19447 TS		319	61.51	17.61	6.61	5.47	1.5	3.7	1.36	1.66	0.12	0.42	243	187	222	5.41	0.37	3.65	3.97
19448	flow on tuff + orgflide	369	65	18.86	6.04	3.35	0.87	2.7	2.03	0.78	0.05	0.32	179	254	296	3.1	0.75	3.25	6.15
19449		418	64.57	18.53	6.29	3.37	0.89	2.71	2.43	0.78	0.04	0.33	228	247	287	2.6	0.30	3.79	6.36
19450		448	61.59	16.7	8.04	5.56	1.4	2.03	2.84	1.42	0.03	0.34	285	201	344	3.72	1.40	3.97	5.17
19451		477	53.77	17.4	9.54	3.59	3.17	4.92	0.61	1.51	0.11	0.32	187	250	183	3.17	0.12	1.13	2.71
19452		509	62.01	15.95	7.42	4.61	2.61	5.21	0.75	1.07	0.1	0.23	253	236	142	3.63	0.14	1.77	2.56
19453		533	63.26	18.95	5.35	3.6	1.89	3.95	2.17	0.6	0.07	0.15*	448	339	149	3.11	0.55	1.94	2.55
19454	argillite	555	71.69	14.8	3.03	3.05	1.35	3.32	2.17	0.38	0.06	0.11	357	276	105	3.35	0.65	2.26	2.02

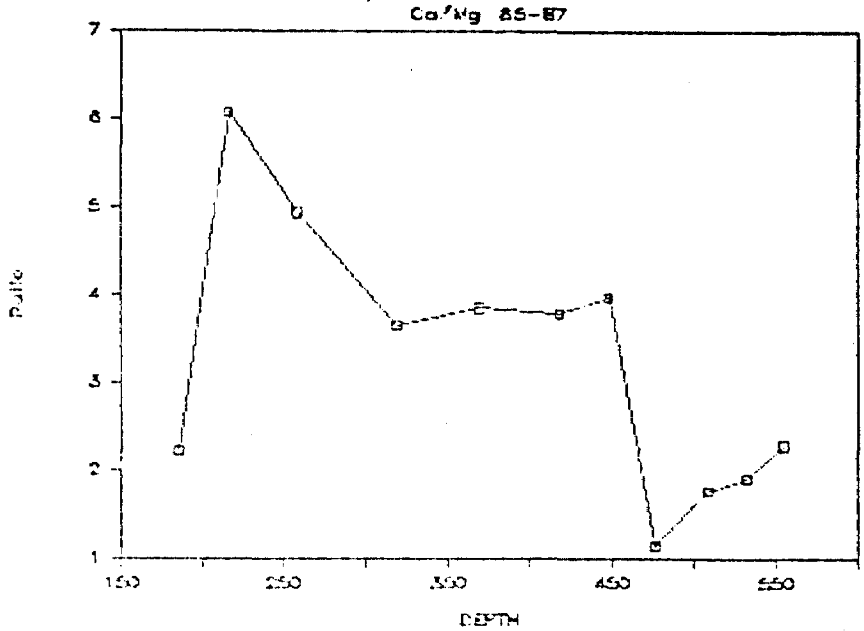
Drill Hole Depth vs Element Variation

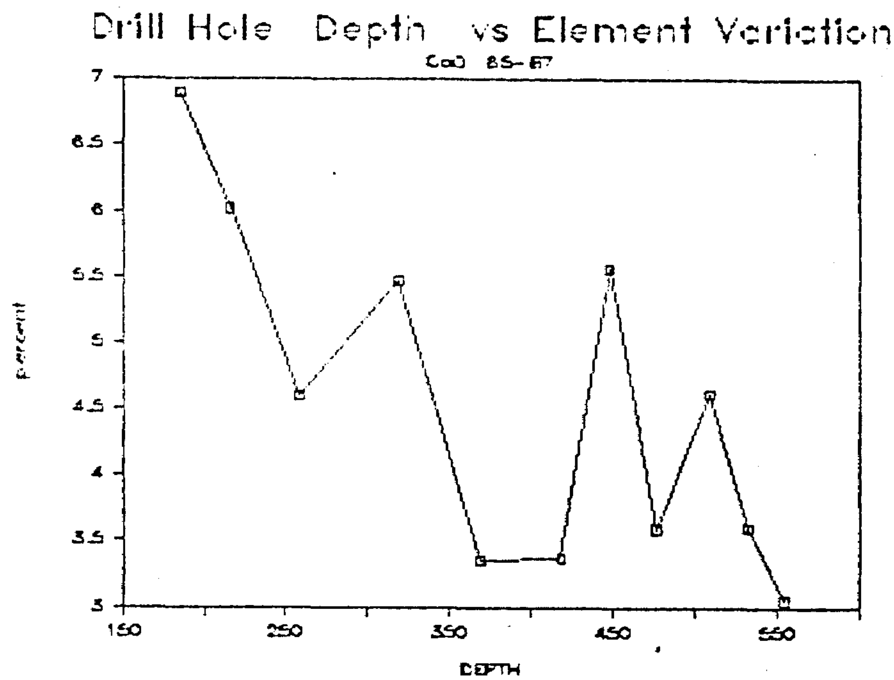
EA 85-87

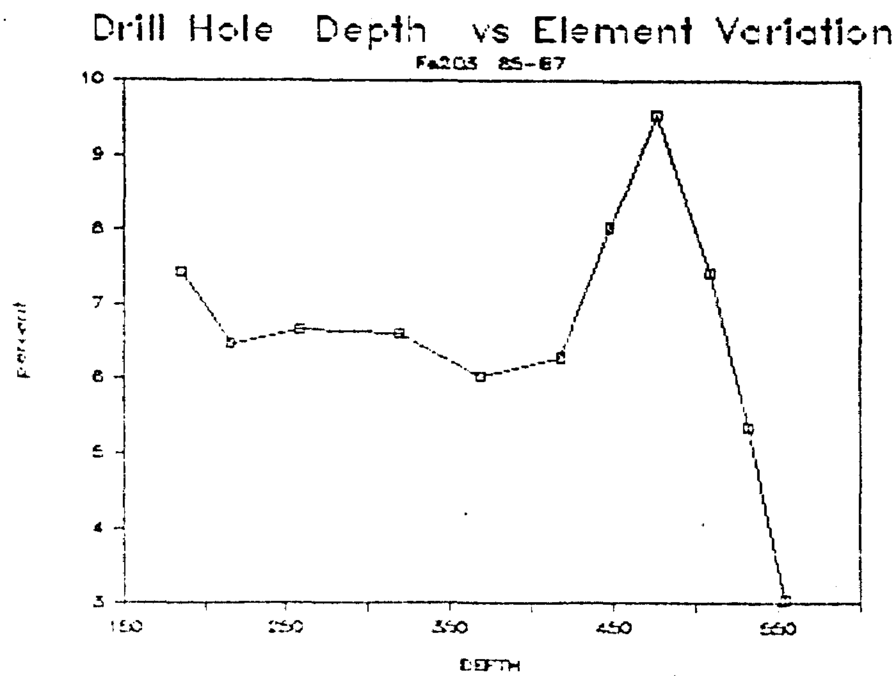


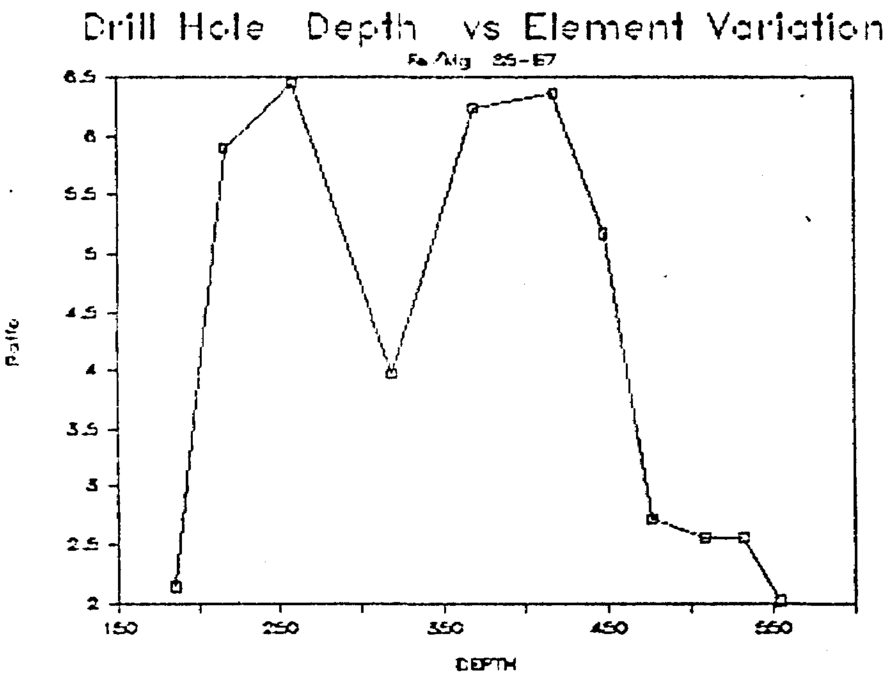
Drill Hole Depth vs Element Variation

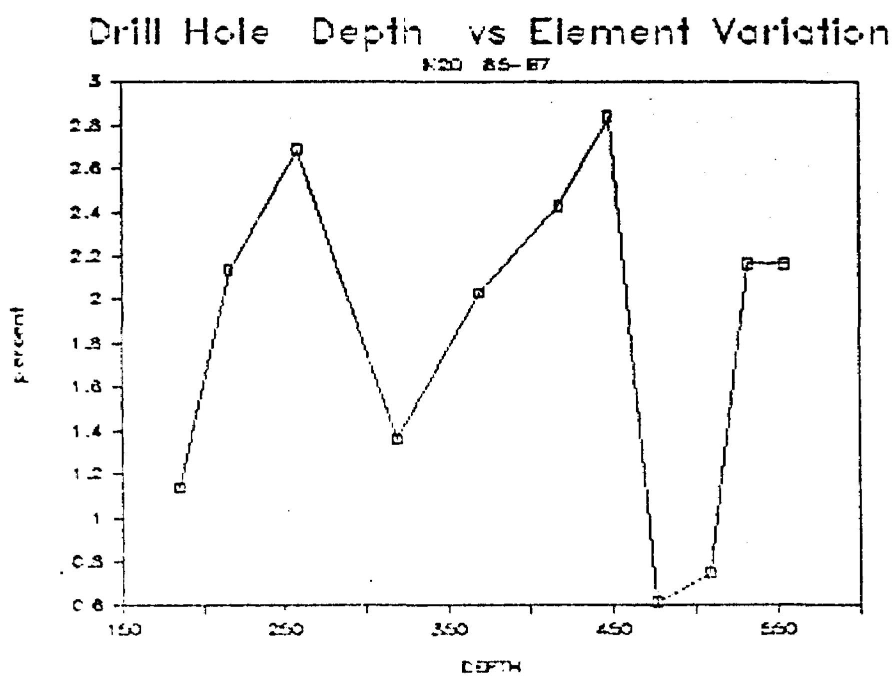
Ca/Mg 85-87

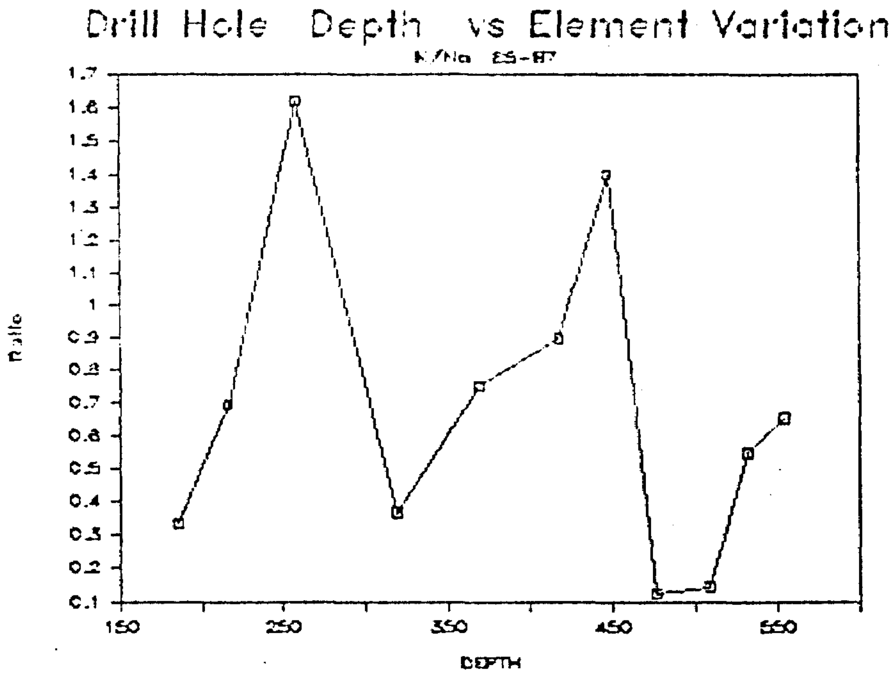


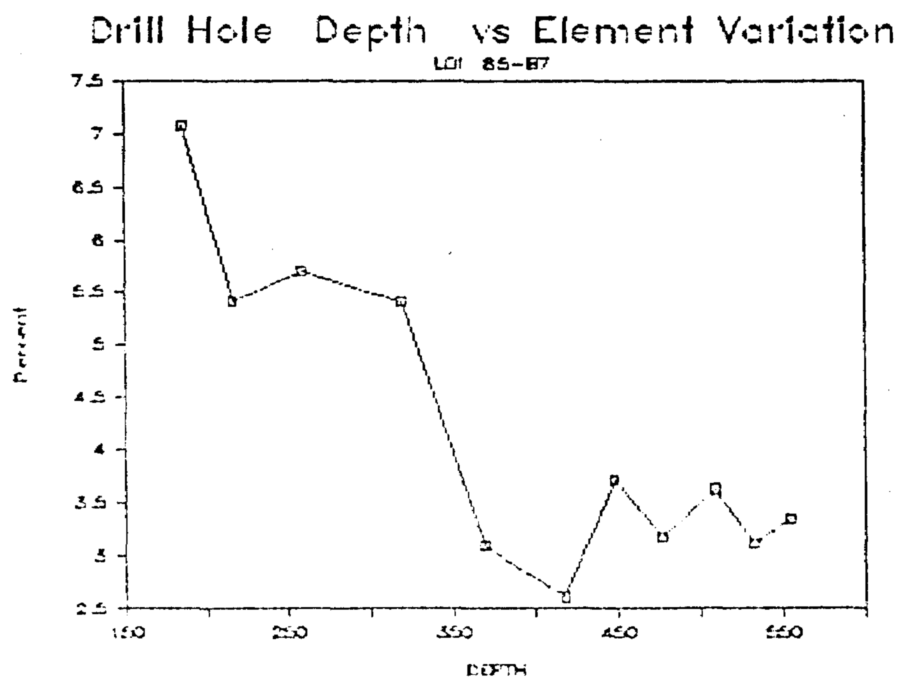

Drill Hole Depth vs Element Variation
CaO 85-67
percent
DEPTH
7
6.5
6
5.5
5
4.5
4
3.5
3
150
250
350
450
550

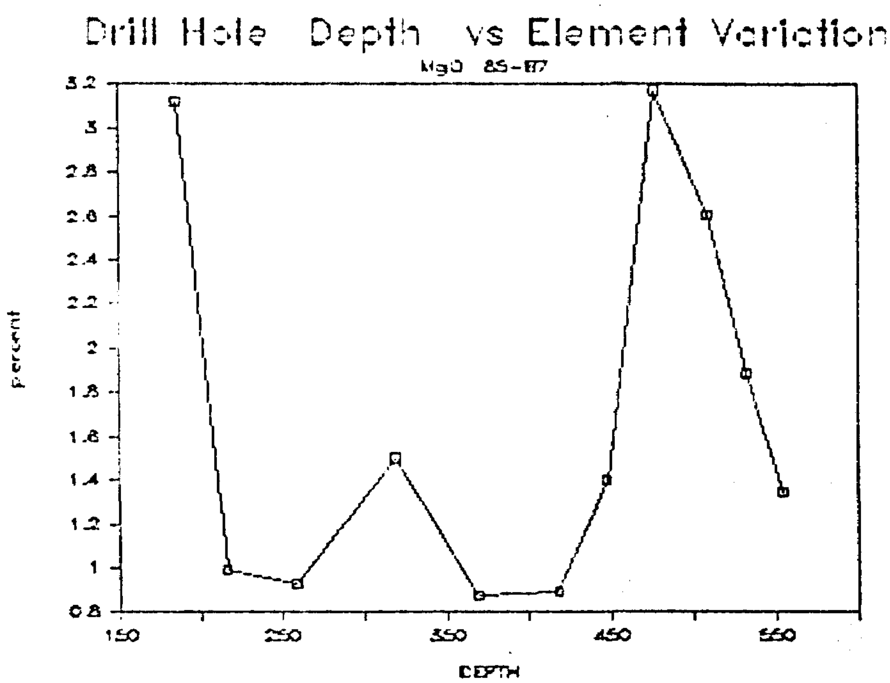

Drill Hole Depth vs Element Variation
Fe2O3 85-67
percent
DEPTH
10
9
8
7
6
5
4
3
150
250
350
450
550

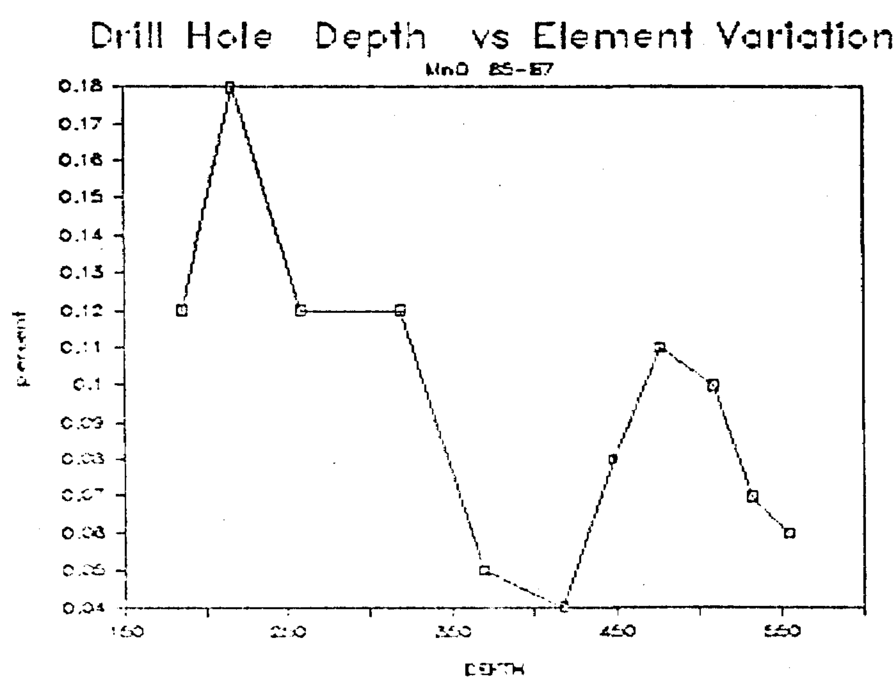

Drill Hole Depth vs Element Variation
Fe/Mg 85-E7
Ratio
DEPTH


Drill Hole Depth vs Element Variation
K2O 85-E7
percent
DEPTH

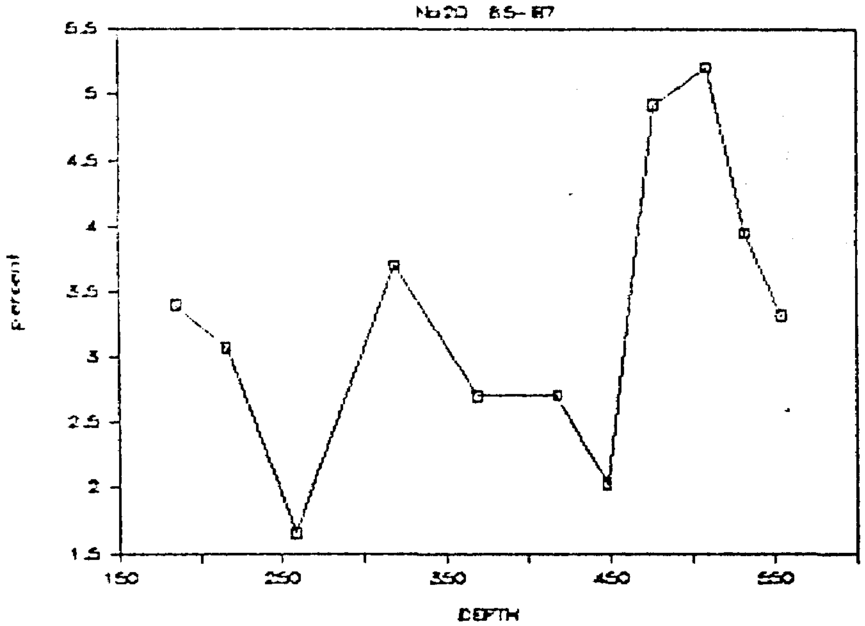

Drill Hole Depth vs Element Variation
K/Na 85-87
Ratio
DEPTH
150
250
350
450
550
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1


Drill Hole Depth vs Element Variation
LOI 85-87
Percent
DEPTH
150
250
350
450
550
7.5
7
6.5
6
5.5
5
4.5
4
3.5
3
2.5

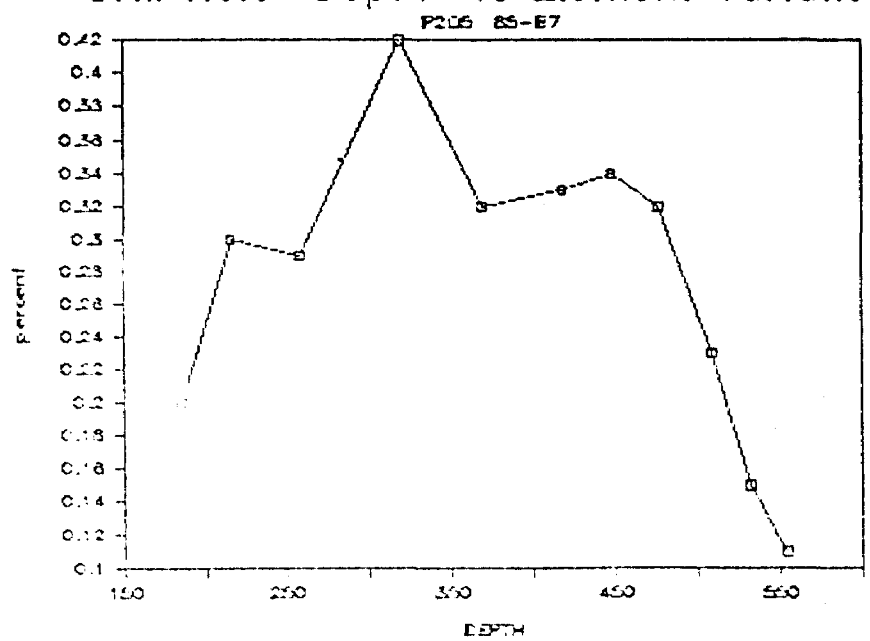

Drill Hole Depth vs Element Variation
MgO 85-87
percent
DEPTH


Drill Hole Depth vs Element Variation
MnO 85-87
percent
DEPTH

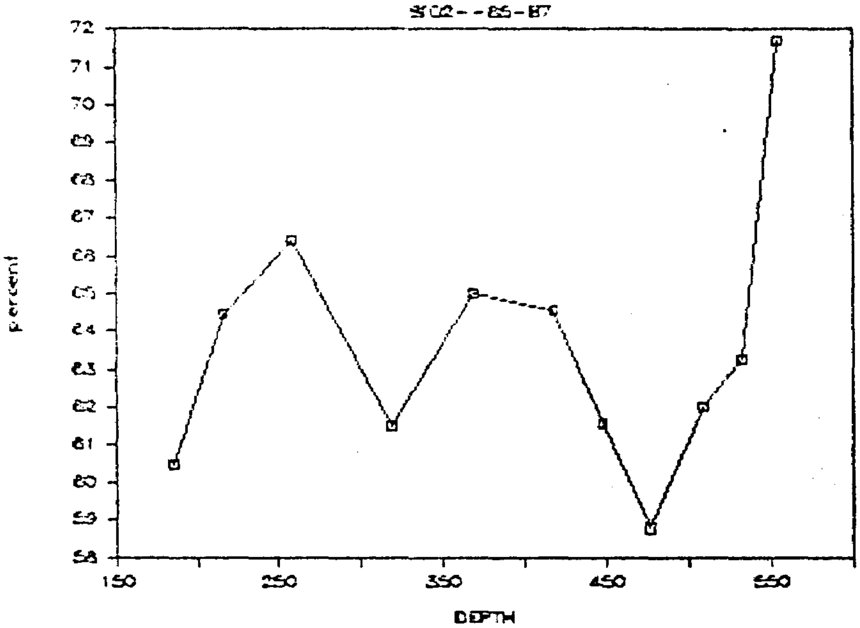
Drill Hole Depth vs Element Variation



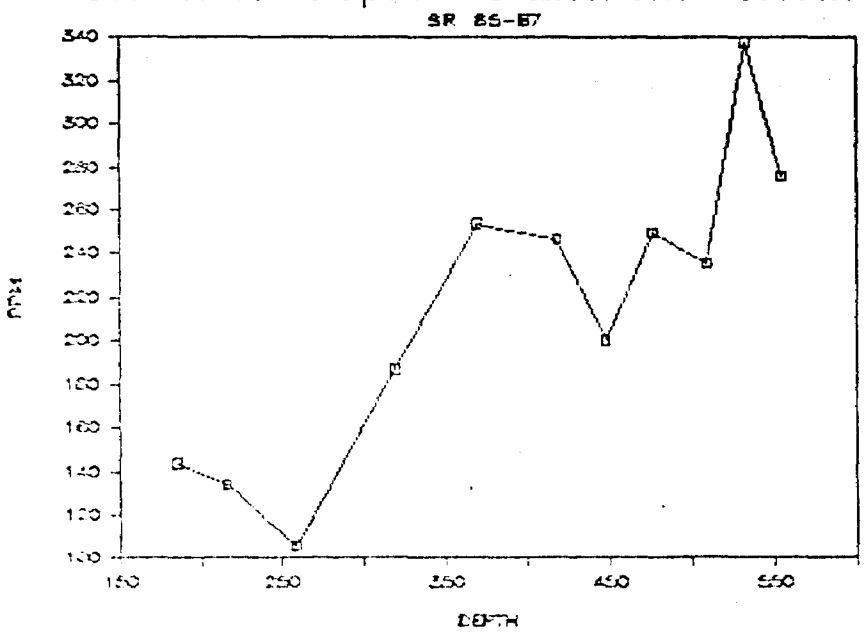
Drill Hole Depth vs Element Variation



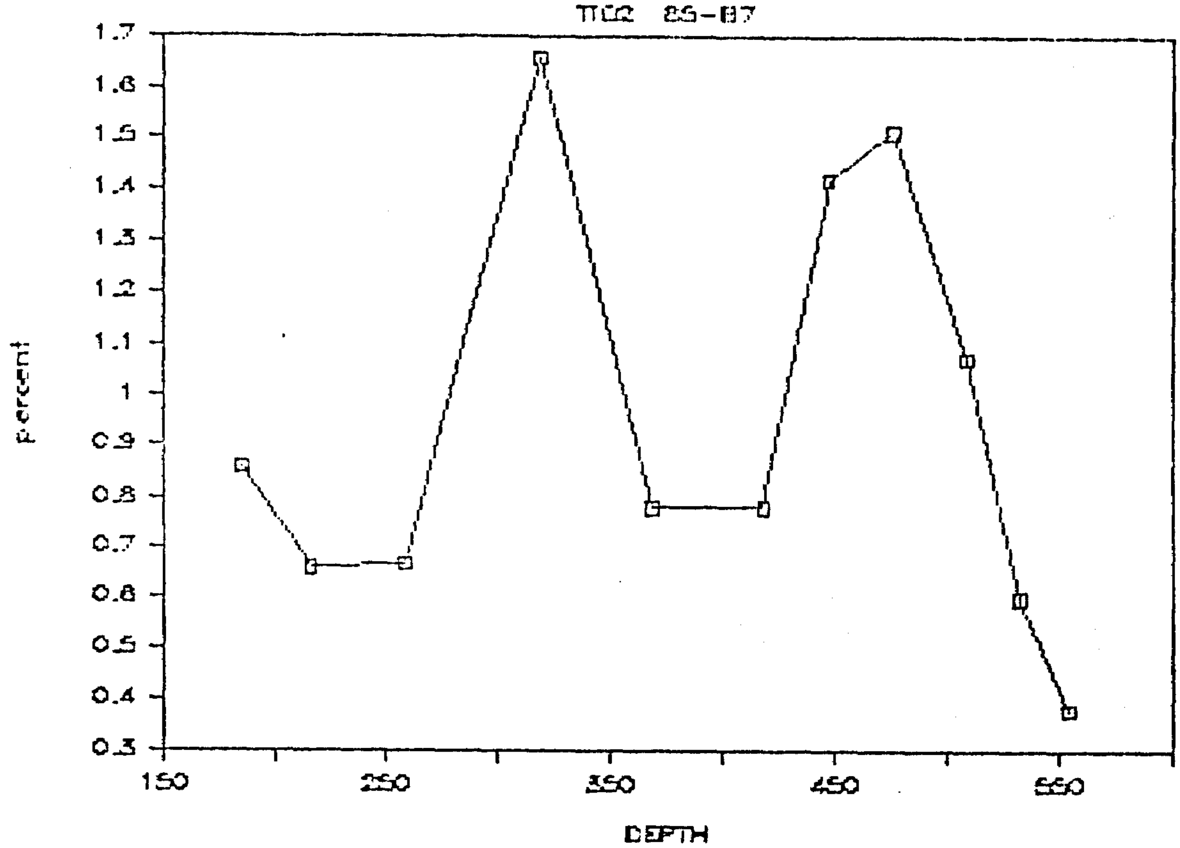
Drill Hole Depth vs Element Variation



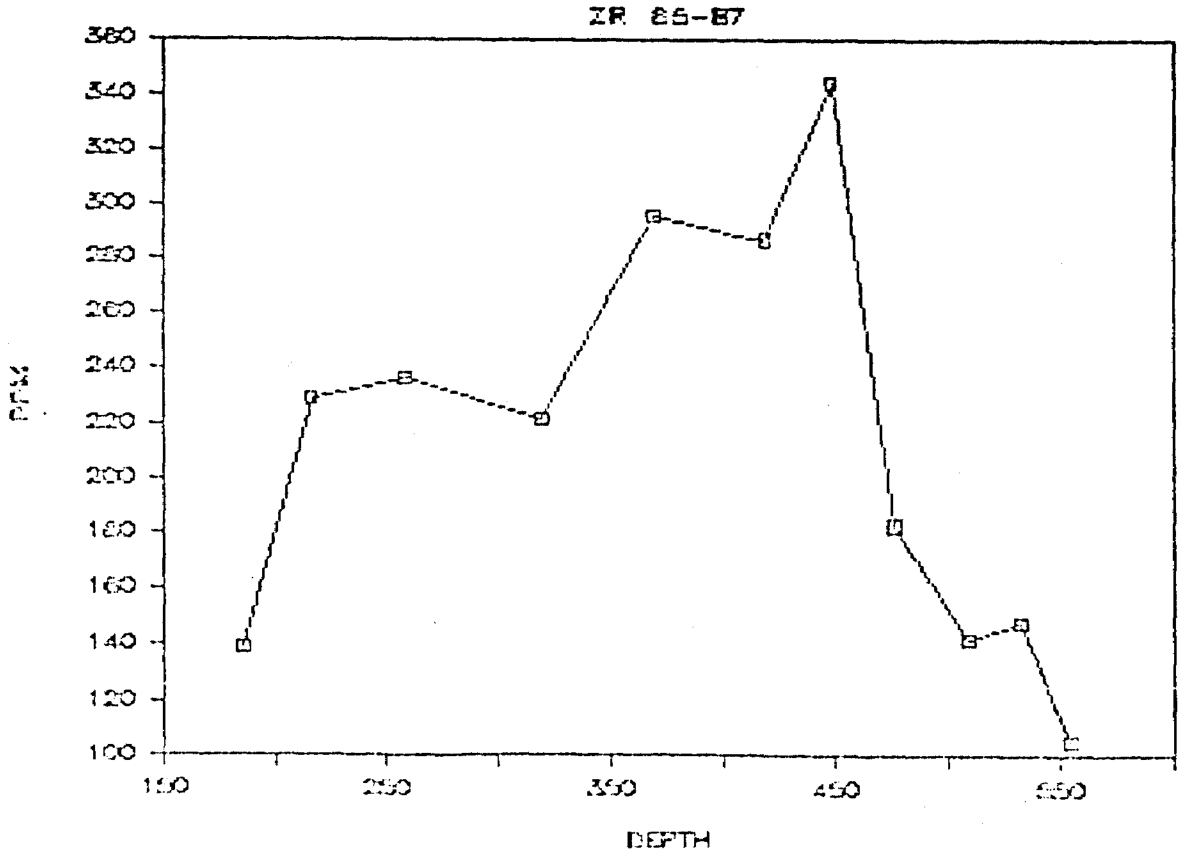
Drill Hole Depth vs Element Variation



Drill Hole Depth vs Element Variation

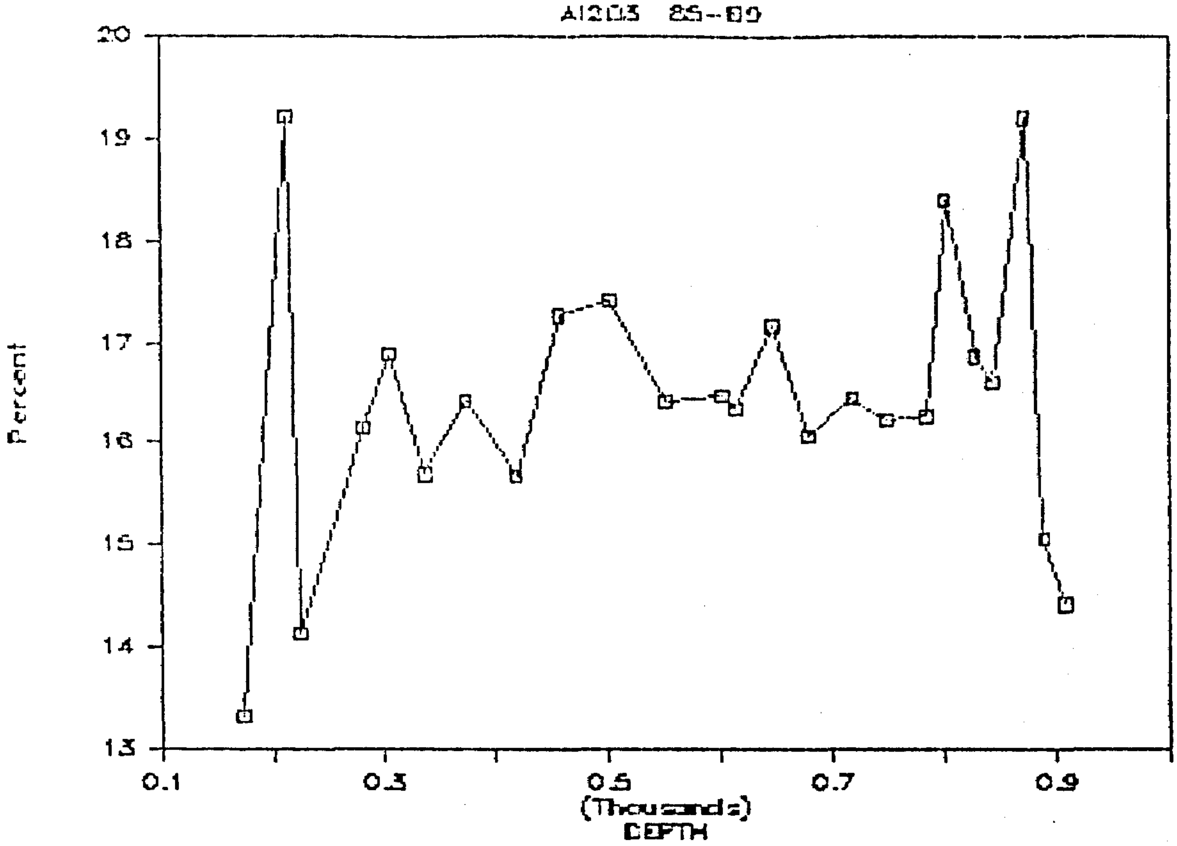


Drill Hole Depth vs Element Variation

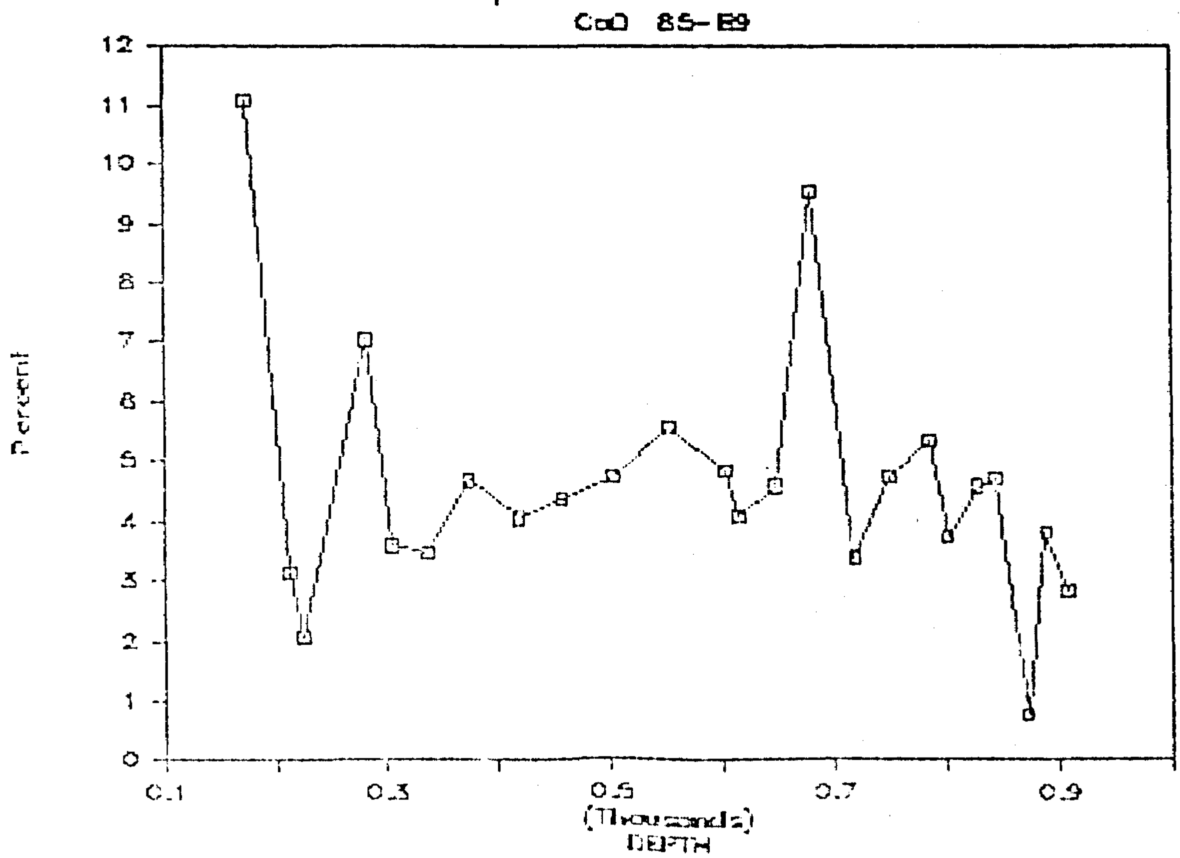


* TS	19457 B-85-9	chl. schist	174	49.15	13.32	21.9	11.09	2.02	0.04	0.76	0.68	0.87	0.13	28	74	78	9.83	19.00	5.49	9.76
	19458		212	60.1	19.23	5.81	3.16	2.31	6.07	1.32	1.43	0.11	0.43	333	260	236	3.68	0.22	1.37	2.26
*	19459 TS	QFP	225	70.74	14.14	4.85	2.1	1.23	4.01	0.63	1.03	0.09	0.31	294	208	166	2.05	0.13	1.71	3.55
	19460	dacite tuff and feld. porph	231	62.58	16.14	5.92	7.05	3.03	3.66	0.39	0.86	0.16	0.17	132	330	100	5.18	0.11	2.33	1.76
	19461		305	68.33	16.88	3.47	3.6	1.59	1.98	2.92	0.93	0.05	0.21	392	171	175	3.73	1.47	2.26	1.96
	19462		337	66.74	15.7	4.39	3.48	1.39	6.19	0.33	1.27	0.09	0.38	114	211	190	2.58	0.05	2.50	2.54
*	19463 TS		374	62.86	16.42	7	4.68	1.99	4.89	0.27	1.32	0.12	0.4	192	345	203	2.54	0.06	2.35	3.17
	19464		418	66.89	15.68	4.35	4.07	1.33	5.46	0.56	1.18	0.06	0.36	153	324	198	2.14	0.10	3.05	2.94
*	19465 TS		457	64.09	17.28	5.59	4.36	1.36	2.84	2.67	1.3	0.03	0.4	281	169	215	3.59	0.34	3.21	3.69
	19466		522	61.74	17.43	7.03	4.74	3.25	3.41	1.16	0.94	0.1	0.19	177	251	147	2.64	0.34	1.46	1.95
	19467		552	62.73	16.42	6.79	5.59	2.68	3.31	1.21	0.96	0.1	0.16	277	261	121	4.42	0.37	[illegible]	2.29
	19468		602	63.54	16.47	5.57	4.85	3.91	4	0.41	0.95	0.07	0.17	109	275	122	4.19	0.10	1.24	1.23
	19469		615	67.01	16.33	5.23	4.1	0.96	3.25	2	0.71	0.09	0.27	310	160	211	2.06	0.62	4.27	4.90
	19470		647	64.37	17.17	6.34	4.58	1.07	3.06	2.18	0.74	0.15	0.29	254	129	227	4.04	0.71	4.28	5.33
	19471		679	60.1	16.07	7.53	9.55	1.96	1.29	1.48	1.48	0.2	0.28	198	197	135	8	1.15	4.87	3.46
	19472	Int. volc c̄ dissem sulphide	719	64.72	16.44	6.95	3.41	2.37	2.94	1.26	1.48	0.09	0.29	312	240	145	3.28	0.43	1.44	2.64
	19473		750	62.53	16.23	6.89	4.75	2.51	4.21	0.96	1.48	0.11	0.3	214	237	148	2.91	0.23	1.89	2.47
	19474		785	61.01	16.27	7.92	5.33	2.22	4.48	0.99	1.4	0.09	0.29	179	256	145	3.5	0.22	2.40	3.21
	19475		802	55.16	18.41	11.16	3.76	3.01	5.78	0.36	1.84	0.11	0.41	72	174	199	3.9	0.06	1.25	3.34
	19476		829	65.33	16.87	5.9	4.57	1.27	2.97	1.94	0.74	0.08	0.29	159	194	221	3.41	0.65	3.60	4.18
	19477	w.k.Δ	845	61.32	16.61	6.93	4.69	3.28	4.54	0.77	0.48	0.03	0.15	400	166	134	2.9	0.17	1.43	1.90
	19478	msul	873	68.84	19.21	4.75	0.78	1.05	0.59	4.08	0.47	0.03	0.14	400	166	133	2.9	6.92	0.74	4.07
	19479	tuff	890	71.4	15.06	2.13	3.8	1.3	3.24	2.38	0.44	0.08	0.12	450	248	99	4.14	0.73	2.92	1.47
	19480	argillite	910	74.36	14.42	2.59	2.82	1.63	0.45	3.27	0.27	0.06	0.07	873	324	78	4.94	7.27	1.73	1.43

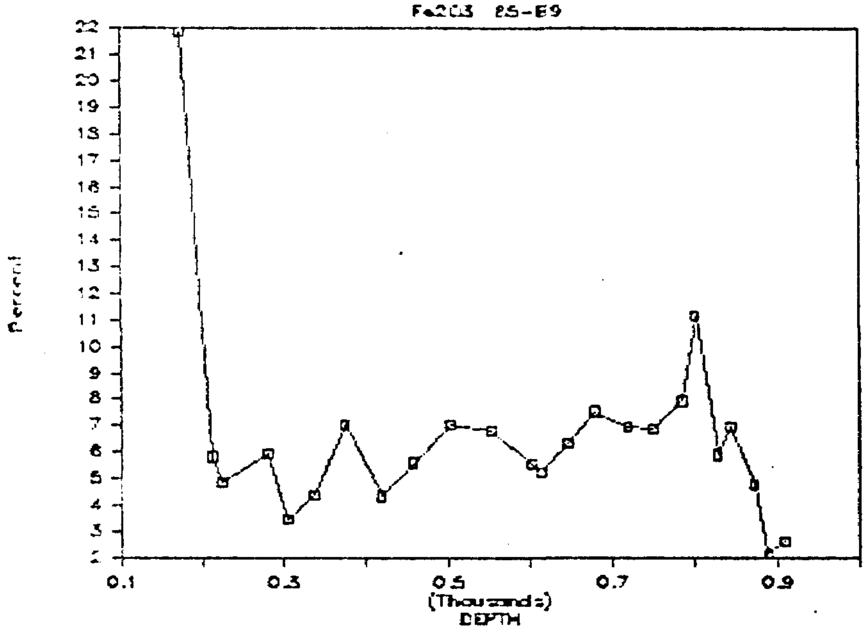
Drill Hole Depth vs Element Variation



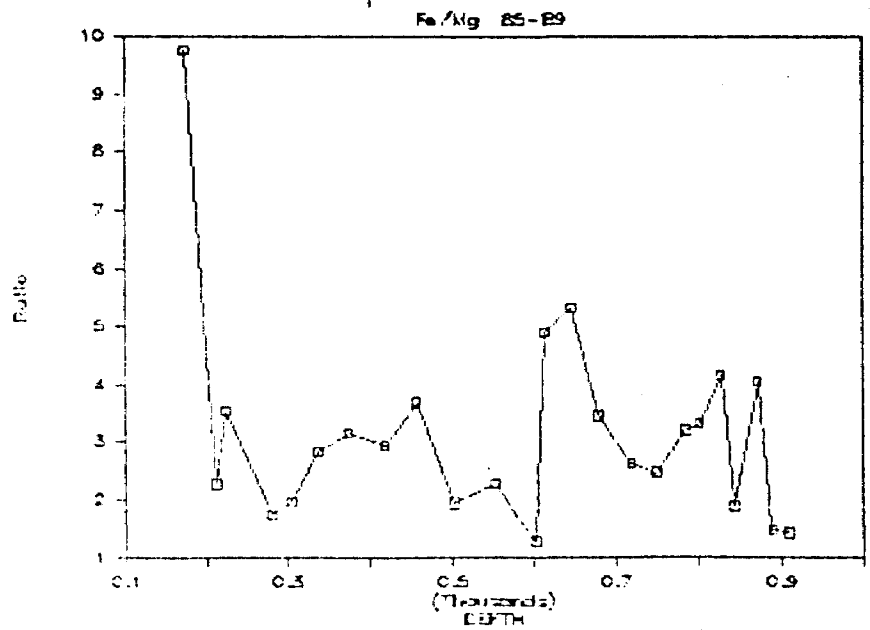
Drill Hole Depth vs Element Variation

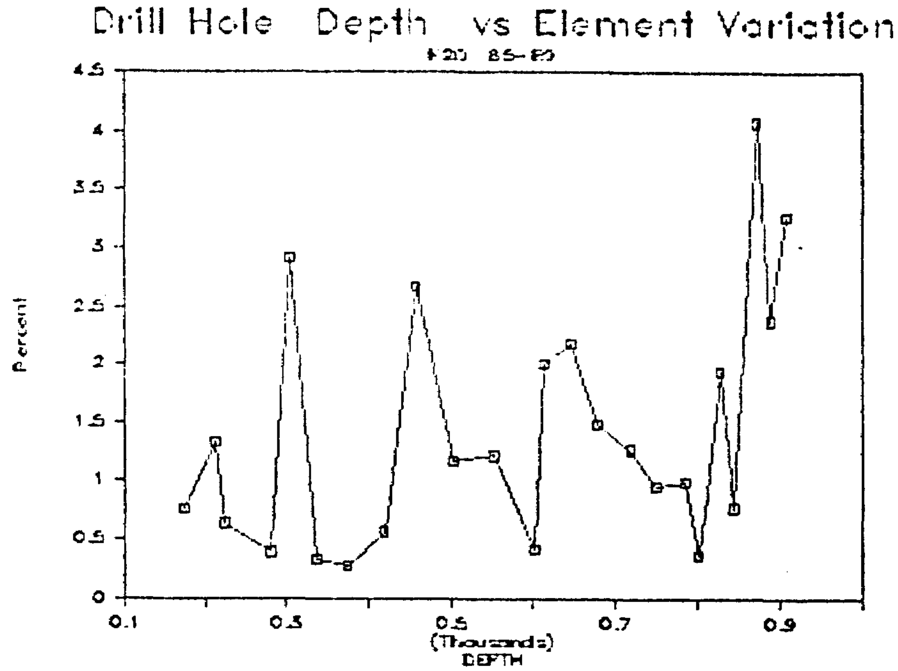


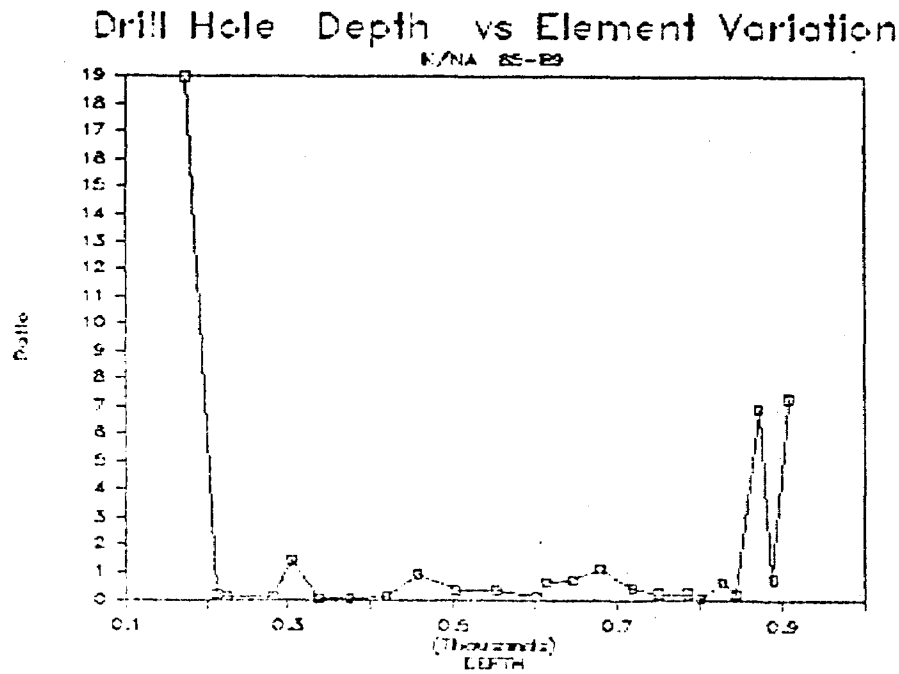
Drill Hole Depth vs Element Variation

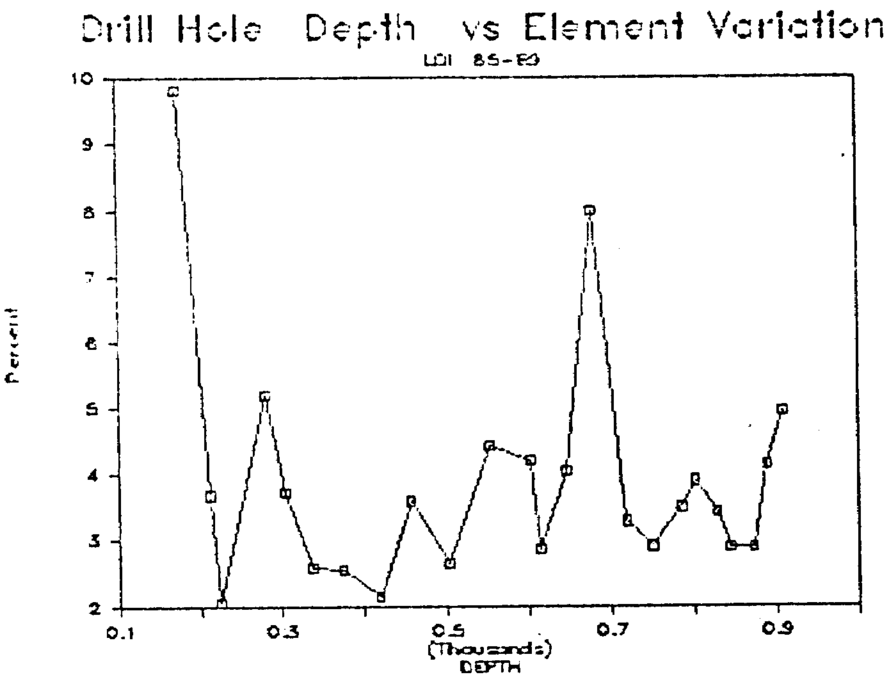


Drill Hole Depth vs Element Variation

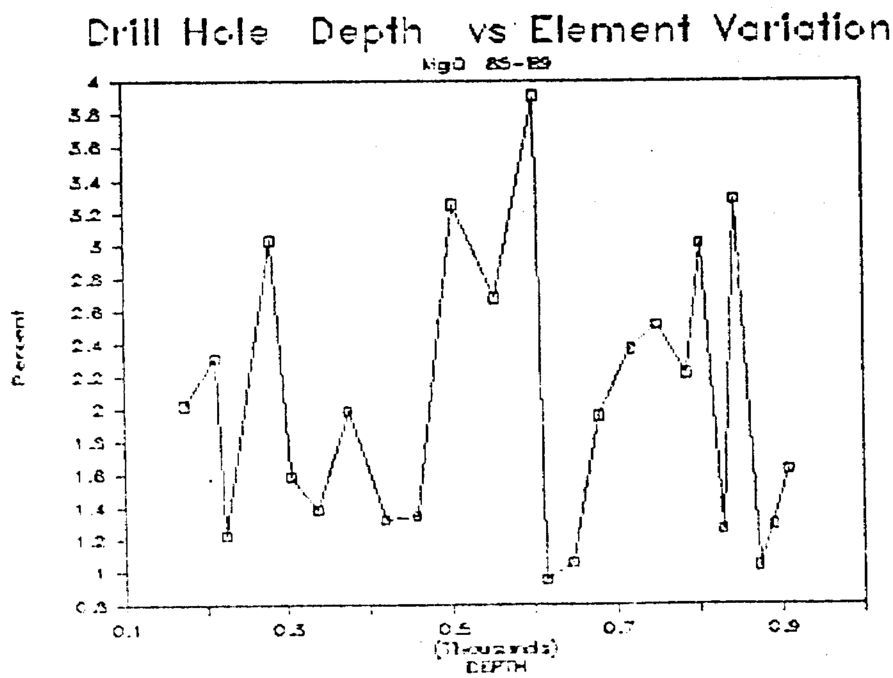



Drill Hole Depth vs Element Variation
Percent
DEPTH
(Thousands)


Drill Hole Depth vs Element Variation
K/NA 85-89
Ratio
DEPTH
(Thousands)

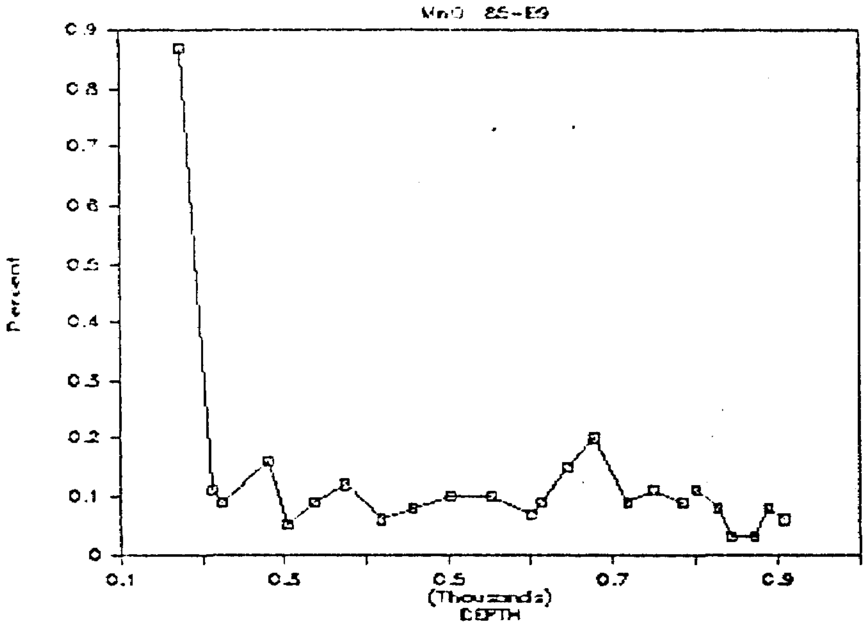


Drill Hole Depth vs Element Variation
LOI 85-B9
Percent
DEPTH
(Thousands)

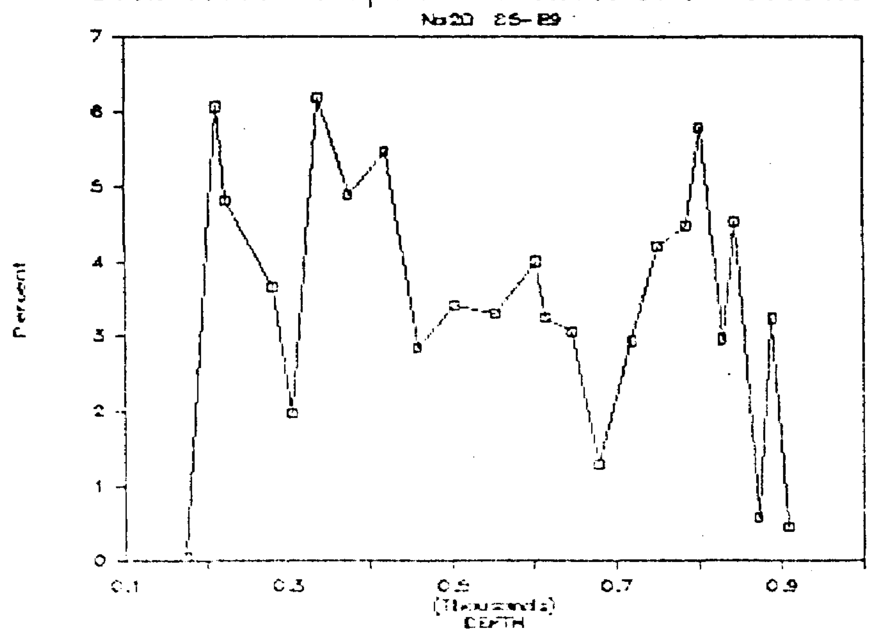


Drill Hole Depth vs Element Variation
MgO 85-B9
Percent
DEPTH
(Thousands)

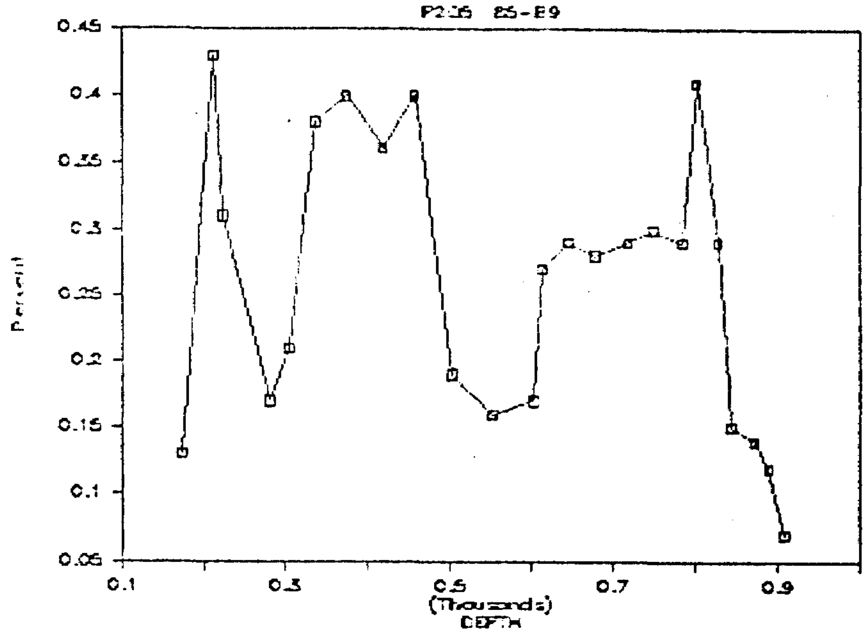
Drill Hole Depth vs Element Variation



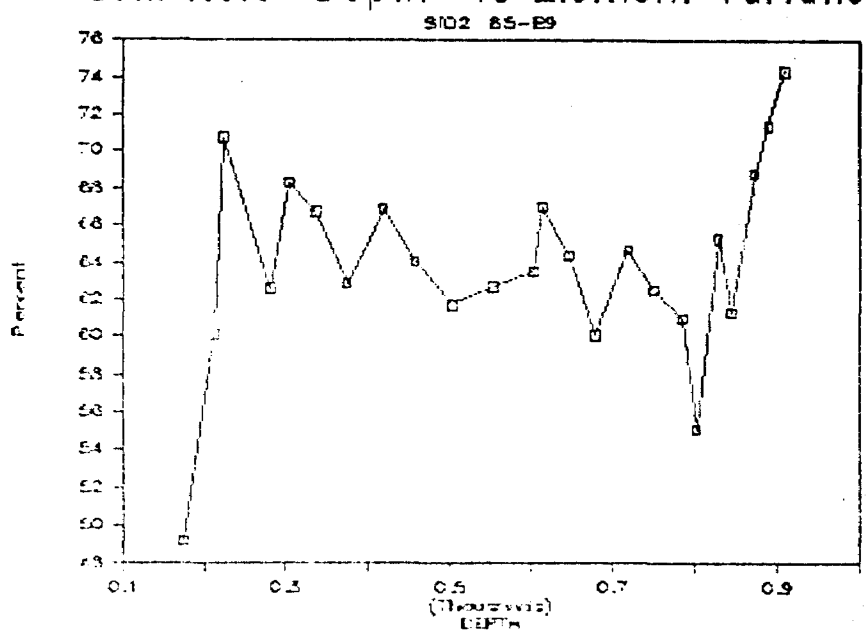
Drill Hole Depth vs Element Variation



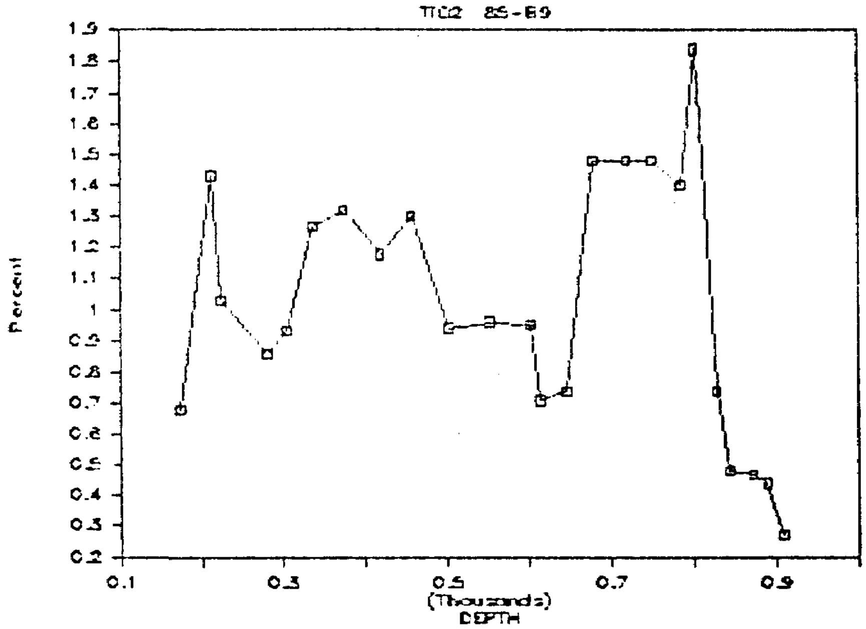
Drill Hole Depth vs Element Variation



Drill Hole Depth vs Element Variation



Drill Hole Depth vs Element Variation



APPENDIX Ib

Geochemistry of Area B

DDH's A1, A2, A3, A5, A6, A7

SUMMARY LOG

DDH 260-85-A-1, Revision:

FOOTAGE	DESCRIPTION
0 - 177.0	-Overburden
177.0- 207.0	-Argillaceous Sediments
207.0- 348.0	-Volcanic Conglomerate
348.0- 431.5	-Cherty tuffs- part of above unit? as in A6
431.5- 480.0	-Cherty Tuffs and Iron Formation (stopped short of Au zone intersected in A8)

SUMMARY LOG

DDH 260-85-A-2, Revision:

No change.

SUMMARY LOG

DDH 260-85-A-3, Revision:

No change - all argillaceous sediments.

SUMMARY LOG

DDH 260-85-A-5, [illegible]:

FOOTAGE	DESCRIPTION
0 - 184.0	-Overburden
184.0- 377.5	-Argillaceous Sediments
377.5- 408.0	-Cherty Tuffs and Iron Formation?
408.0- 875.0?	-Conglomerates and tuffs? No chem data to correlate
875.0- 897.5	-Cherty Tuffs and Iron Formation
897.5- 900.0	-Argillaceous sediments

SUMMARY LOG

DDH 260-85-A-7, Revision:

FOOTAGE	DESCRIPTION
0 - 180	-Overburden
180 - 419.5	-Andesite-dacite tuffs-argillaceous component after 300'
419.5- 767.0	-Argillaceous Sediments -more dissem. Sulphides (po) after 560' - higher mag susceptibility
767.0-1197.0	-Andesitic tuffs. Unit correlates with andesites in B holes. -Sulphide rich sections common especially from 767-792 - higher 813-825 mag sus- 842-869 ceptibil.
1197.0-1276.7	-Massive to foliated dacitic flows or tuffs
1276.7-1299.8	-Dacite agglomerate-sulphides common
1299.8-1349.0	-Auto brecciated and banded dacite flow

SUMMARY LOG

DDH 260-85-A-6, Revision:

FOOTAGE	DESCRIPTION
0 - 172.0	-Overburden
172.0- 239.5	-Cherty tuffs and iron formation
239.5- 256.5	-Fault zone in cherty tuff
256.5- 277.0	-Cherty tuff-minor argillaceous component
277.0- 316.5	-Volcanic Conglomerate
316.5- 493.0	-Cherty tuffs and iron formation -ankerite common
493.0- 539.3	-Argillaceous sediment
539.3- 563.0	-Cherty tuffs and minor iron formation -ankerite common

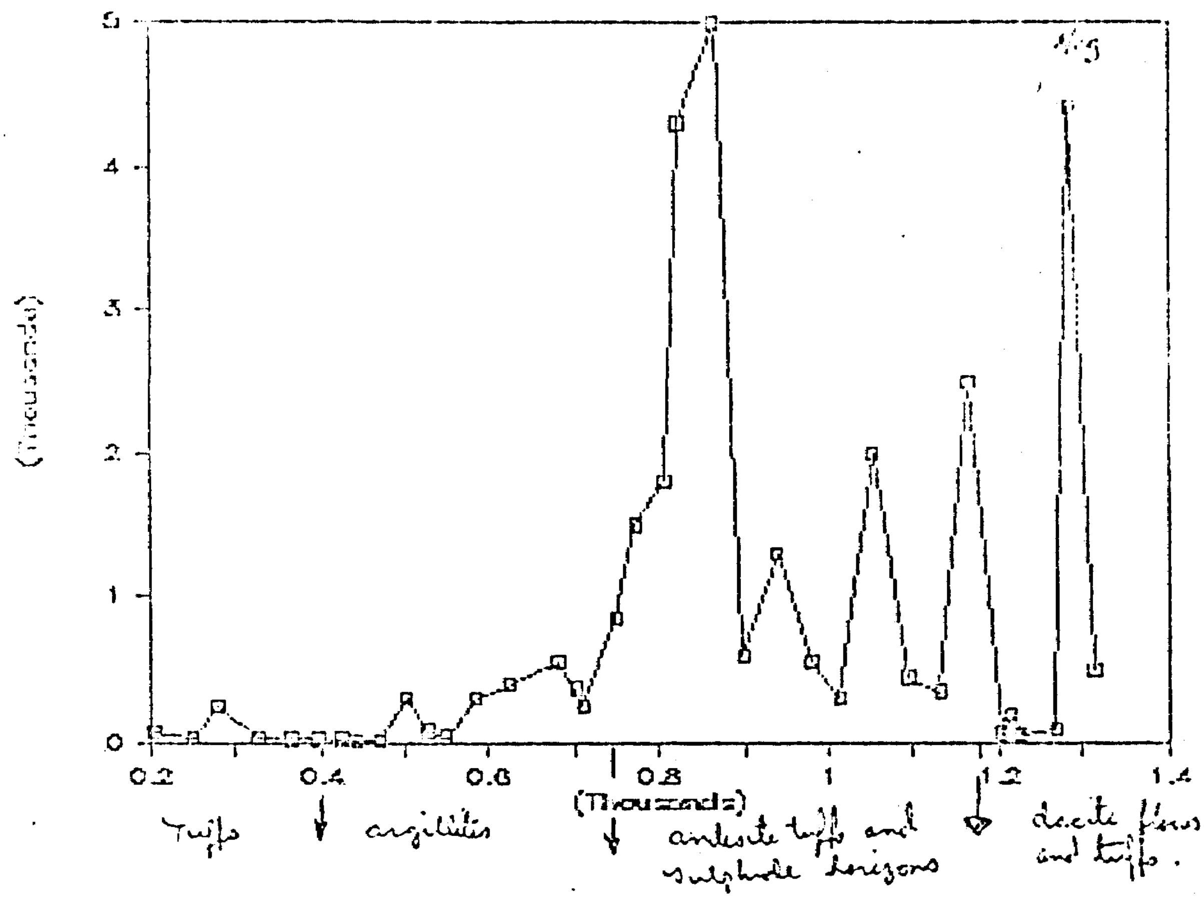
SUMMARY LOG

DDH 260-85-A-8, Revision:

No change except zone to 290.5 all cherty tuffs and iron formation.

Sample	Note	Depth	SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO	Na_2O	K_2O	TiO_2	MnO	P_2O_5	Ba	Sr	Zr	LOI	K/Rb	Ca/Mg	Fe/Mg	Mag
[illegible]		2?5	6?.4	16.23	6.13	4.24	2.14	3.74	0.65	1.07	0.11	0.22	157	144	164	6.27	0.16	1.39	3.42	65
[illegible]	Tuffs and flows?	253	60.3	16.53	6.52	4.52	2.93	4.57	0.94	1.24	0.1	0.21	252	173	160	5.41	0.21	1.54	1.94	25
[illegible]		2?8	62.04	15.55	8.76	6.47	2.43	2.67	0.44	1.05	0.11	0.21	103	167	161	6.52	0.16	3.19	3.03	250
[illegible]		327	61.73	19.48	9.37	2.25	2.7	2.75	0.91	1.24	0.1	0.23	205	165	190	5.2	0.33	0.83	3.12	30
[illegible]		345	58.5	19.57	8.63	3.21	4.07	2.82	1.5	1.3	0.06	0.24	246	166	199	6.95	0.53	0.79	1.92	25
[illegible]		377	64.05	17.61	5.82	2.79	2.56	4.69	0.99	1.04	0.47	0.23	177	135	174	4.81	0.21	1.49	2.03	25
[illegible]		4?5	71.96	14.93	3.??	2.04	1.61	2.58	2.5	0.43	0.04	0.12	374	226	114	4.91	2.97	1.66	1.78	23
[illegible]		433	71.02	15.67	2.7	2.78	1.93	2.89	2.44	0.37	0.05	0.11	667	413	118	5.06	0.84	1.44	1.26	17
[illegible]		470	69.34	14.53	4.62	2.79	3.45	3.07	1.21	0.55	0.04	0.15	473	743	94	5.36	0.37	0.81	1.25	15
[illegible]		502	64.39	16.31	4.69	3.22	2.05	3.68	2.2	0.61	0.06	0.14	671	494	119	3.66	0.60	1.57	2.05	300
[illegible]	[illegible]	523	71.24	15.03	3.35	3.09	1.63	2.09	2.49	0.5	0.04	0.15	868	522	136	4.05	1.19	1.90	2.13	60
[illegible]		5?0	65.33	17.4	5.03	2.57	2.1	5.08	1.21	0.66	0.05	0.13	296	625	122	3.37	0.24	1.22	2.31	40
[illegible]		5??	67.92	15.23	4.35	2.37	2.53	4.19	1.49	0.53	0.03	0.16	291	372	121	4.72	0.36	1.13	1.73	300
[illegible]		624	67.99	15.47	5.55	3.13	2.05	3.15	1.74	0.55	0.06	0.16	383	513	123	3.32	0.55	1.53	2.43	400
[illegible]	more alt.	6?0	57.44	16.13	4.74	13.75	1.92	2.75	2.34	0.53	0.23	0.13	517	591	103	9.77	0.35	7.15	2.??	550
[illegible]	"	703	43.71	14.?4	4.33	30.26	1.95	2.23	2.27	0.46	0.45	0.14	368	576	76	19.31	1.02	15.52	2.28	370
[illegible]		714	63.?5	18.37	5.35	4.24	2.55	4.01	1.67	0.58	0.07	0.14	393	580	120	4.37	0.42	1.66	1.79	250
[illegible]		749	64.84	17.23	5.42	3.8	2.13	3.15	2.21	0.6	0.05	0.13	441	497	125	3.93	0.78	1.78	2.32	850
[illegible]	[illegible]	773	5?.?7	13.36	12.6	7.64	2.63	5.09	0.0001	0.59	0.37	0.1	33	92	105	2.79	.02	2.35	4.23	1500
[illegible]		807	60.5	16.73	6.63	8.39	1.64	3.39	1.39	0.75	0.34	0.14	191	144	141	7.2	0.41	5.12	3.64	1503
[illegible]	[illegible]	823	58.34	16.98	9.05	6.53	2.47	3.97	1.35	0.72	0.36	0.14	1015	97	131	2.99	0.34	2.66	3.38	4000
[illegible]	" "	844	52.56	15.31	9.95	6.42	2.71	4.12	0.84	0.72	0.29	0.13	215	116	103	2.33	0.20	2.37	3.27	5000
[illegible]		899	56.36	14.3	13.22	8.53	2.47	2.5	0.67	0.3	0.41	0.15	459	102	117	6.63	0.27	3.47	4.22	600
[illegible]		942	57.71	16.79	9.16	5.36	3.07	3.69	0.4	0.9	0.21	0.17	130	217	134	5.64	0.11	1.91	2.69	1300
[illegible]	[illegible]	963	56.25	17.31	11.03	4.97	4.74	3.32	0.91	0.93	0.26	0.17	178	161	136	7.79	0.27	1.25	2.10	550
[illegible]		1013	57.8	16.92	5.9	5.53	3.16	4.47	0.86	1.01	0.11	0.2	314	237	152	4.43	0.19	1.75	1.68	300
[illegible]		1034	53.44	15.49	12.4	6.17	3.25	2.69	0.29	0.7	0.41	0.1	71	101	114	5.6	0.11	1.98	3.43	2000
[illegible]		1074	62.24	15.83	7.29	6.39	2.9	3.39	0.83	0.72	0.19	0.13	222	170	120	4.95	0.24	2.28	2.26	450
[illegible]		1130	61.93	17.43	7.02	3.66	3.91	3.93	0.87	0.88	0.14	0.13	255	154	121	4.04	0.22	0.94	1.62	350
[illegible]		1165	[illegible]	17.18	10.41	5.75	2.06	3.26	1.12	0.91	0.25	0.18	218	120	24	5.57	0.34	2.79	4.55	2500
[illegible]		1193	6?.6	16.65	4.62	4.9	1.03	4.03	1.23	0.33	0.15	0.2	455	132	67	4.75	0.48	2.92	2.55	60
[illegible]		1215	64.06	19.07	3.14	2.67	1.19	5.94	1.76	1.01	0.28	0.23	401	143	238	2.95	0.28	2.24	2.37	150
[illegible]		1227	62.3	14.97	3.23	6.61	1.56	3.73	0.57	0.81	0.23	0.17	104	176	19	5.6	0.16	4.37	4.78	55
[illegible]		12?9	[illegible]	16.17	9.24	6.25	1.76	3.29	1.14	0.86	0.26	0.18	131	161	0.0001	6.64	0.35	3.55	4.62	90
[illegible]		1?75	[illegible]	15.92	4.?5	5.61	2.43	5.16	0.66	0.84	0.19	0.22	130	200	323	4.83	0.17	2.31	1.58	4100
[illegible]		1319	65.19	17.71	4.57	4.62	1.75	3.72	1.04	1.07	0.08	0.22	143	286	23	2.91	0.28	2.64	2.35	500

contact correlates with [illegible] B [illegible]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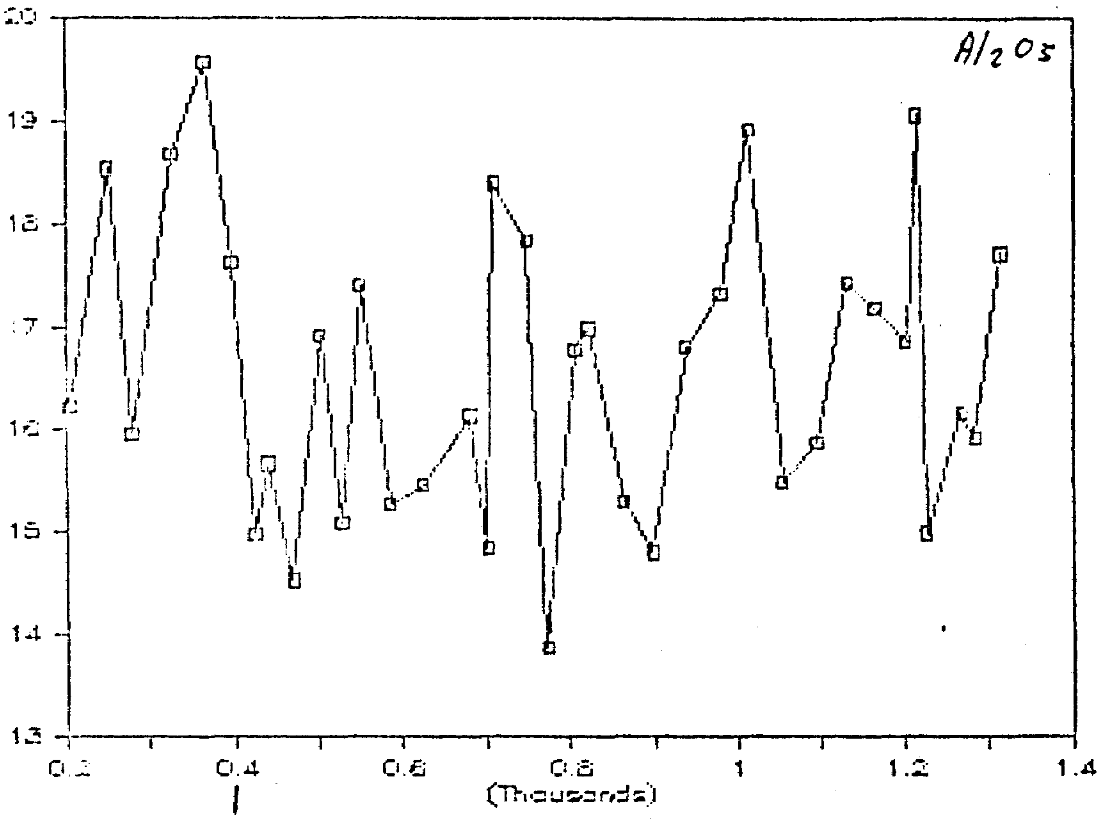
(Thousands)
Tuffs
argillites
andesite tuffs and sulphide horizons
dacite flows and tuffs.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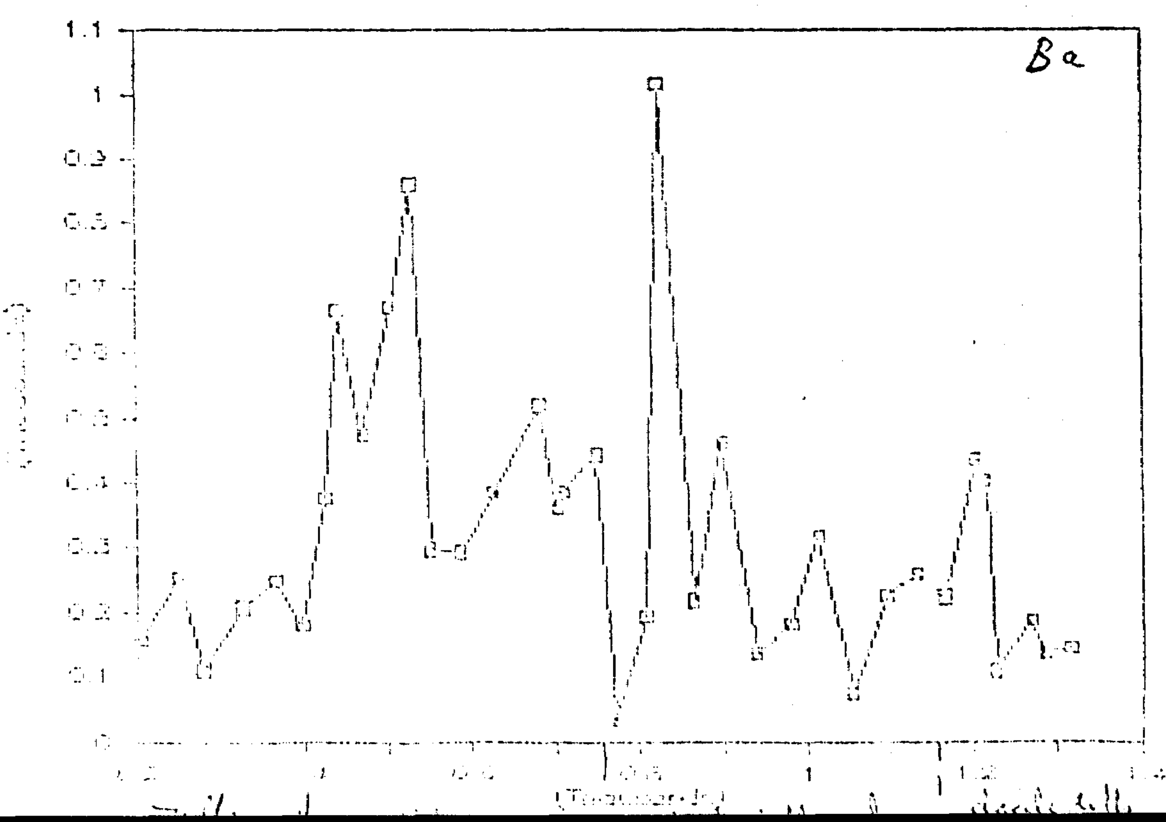
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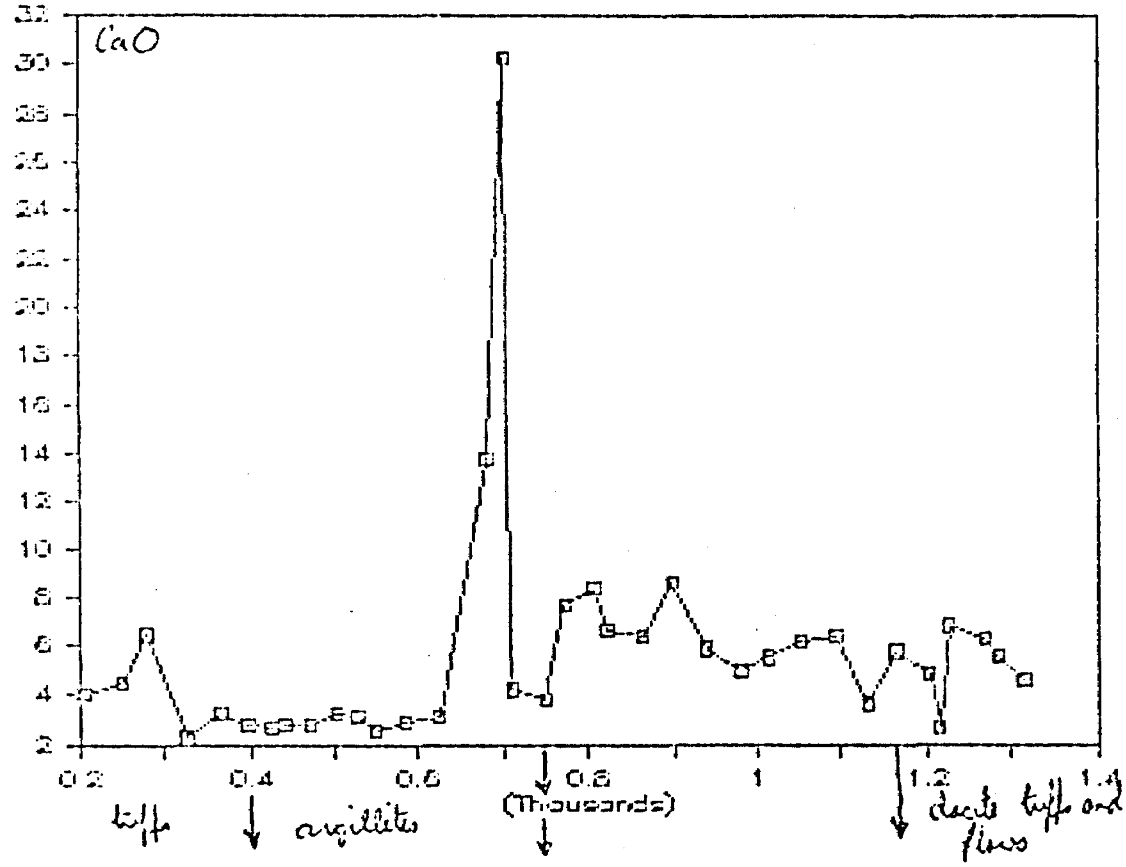
CaO
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26
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tuffs
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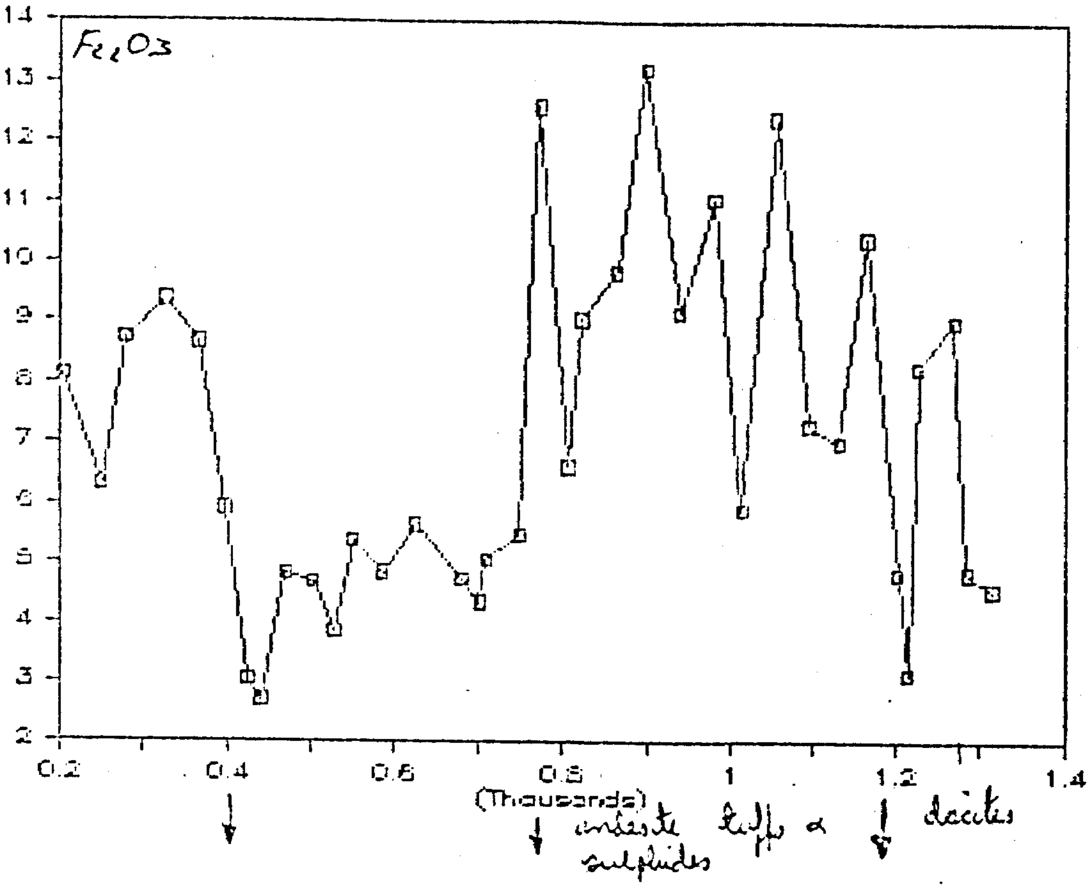
dacite tuffs and flows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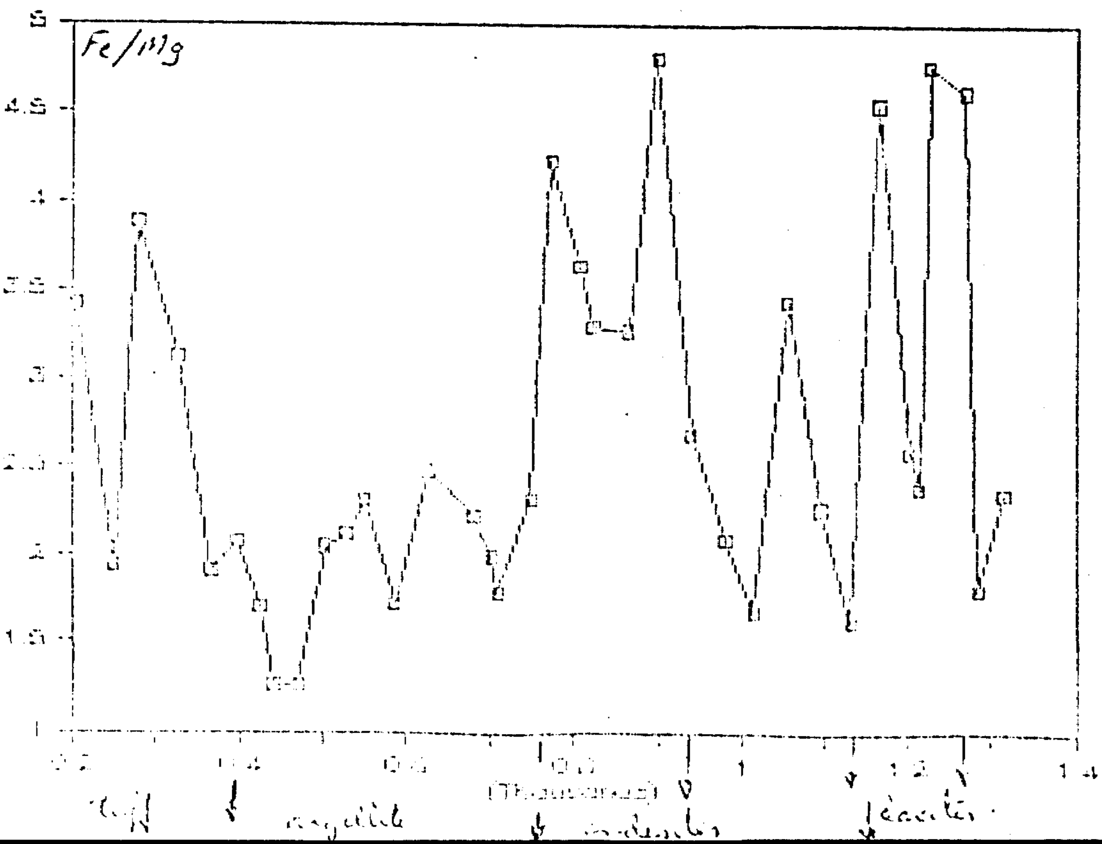
(Thousands)
andesite
dacites
sulphides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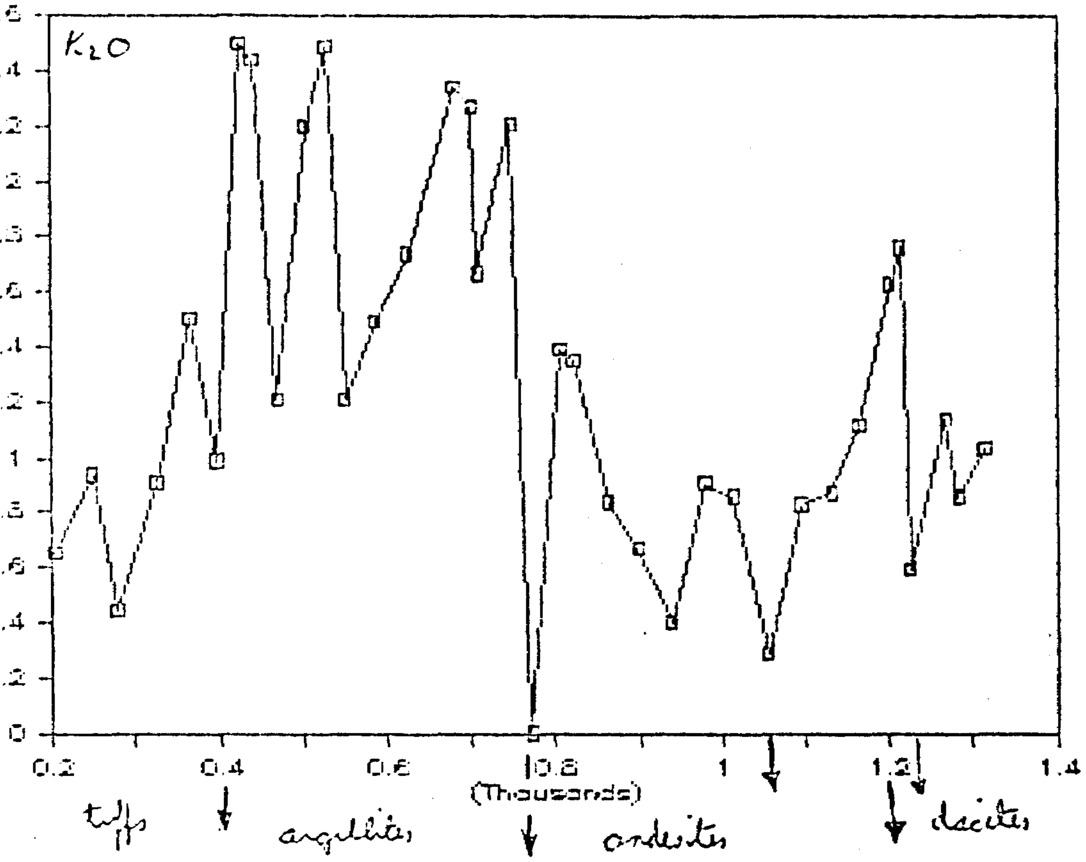
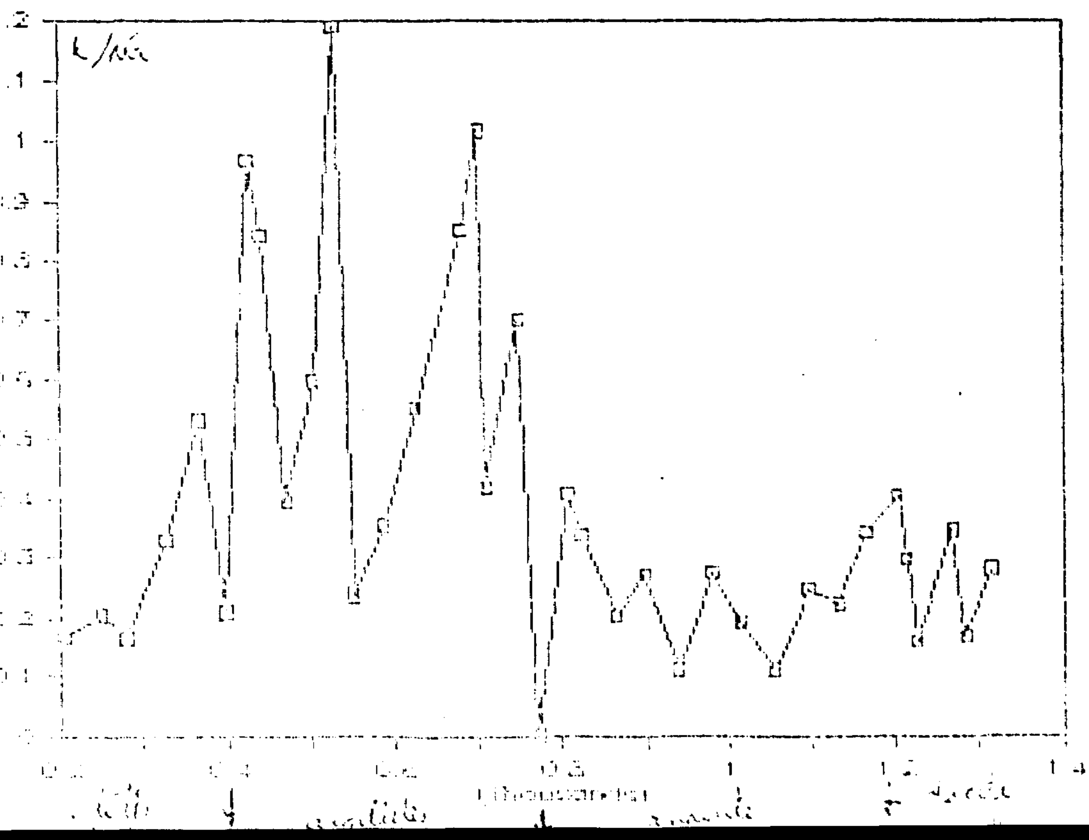
(Thousands)


K2O
(Thousands)
tuffs
argillites
andesites
dacites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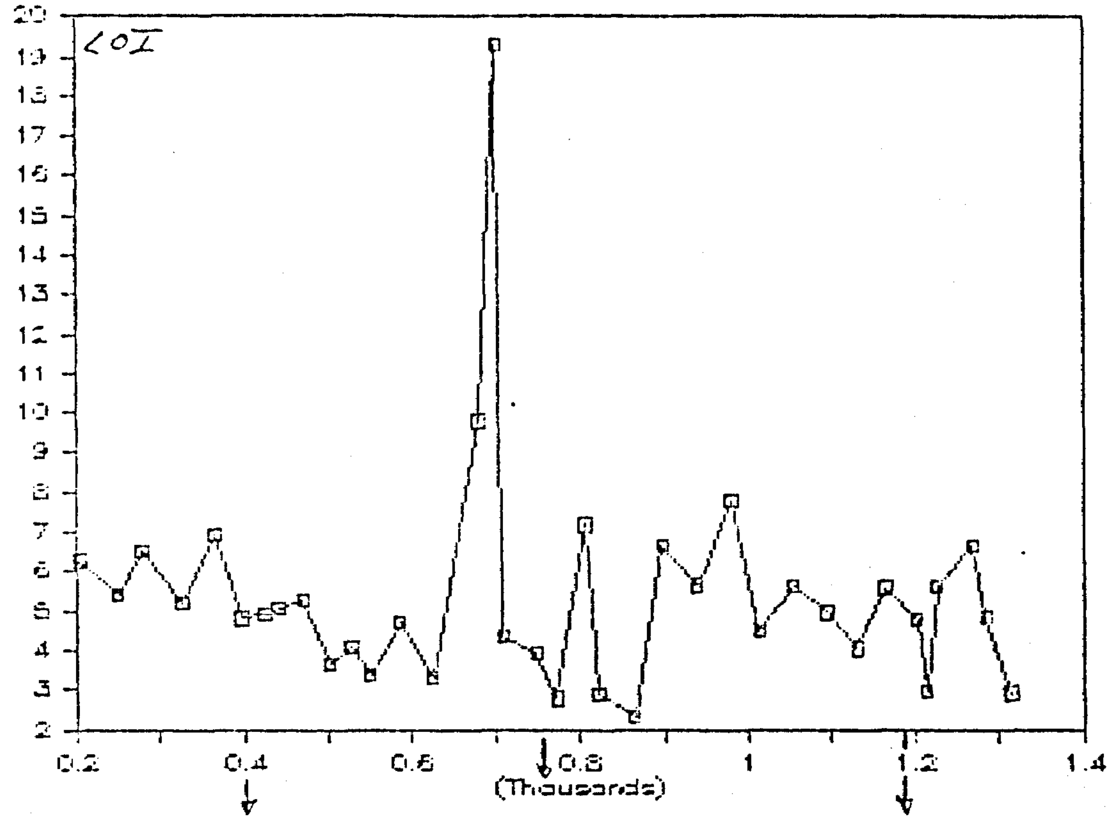
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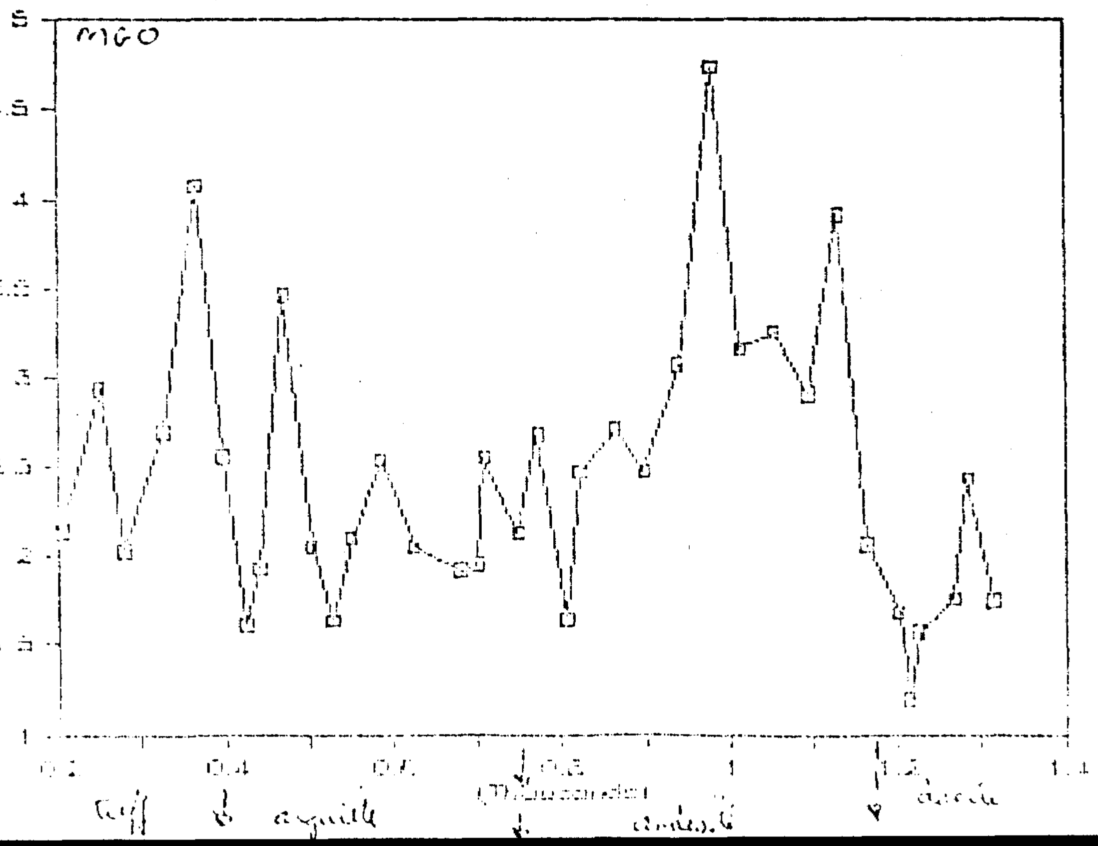
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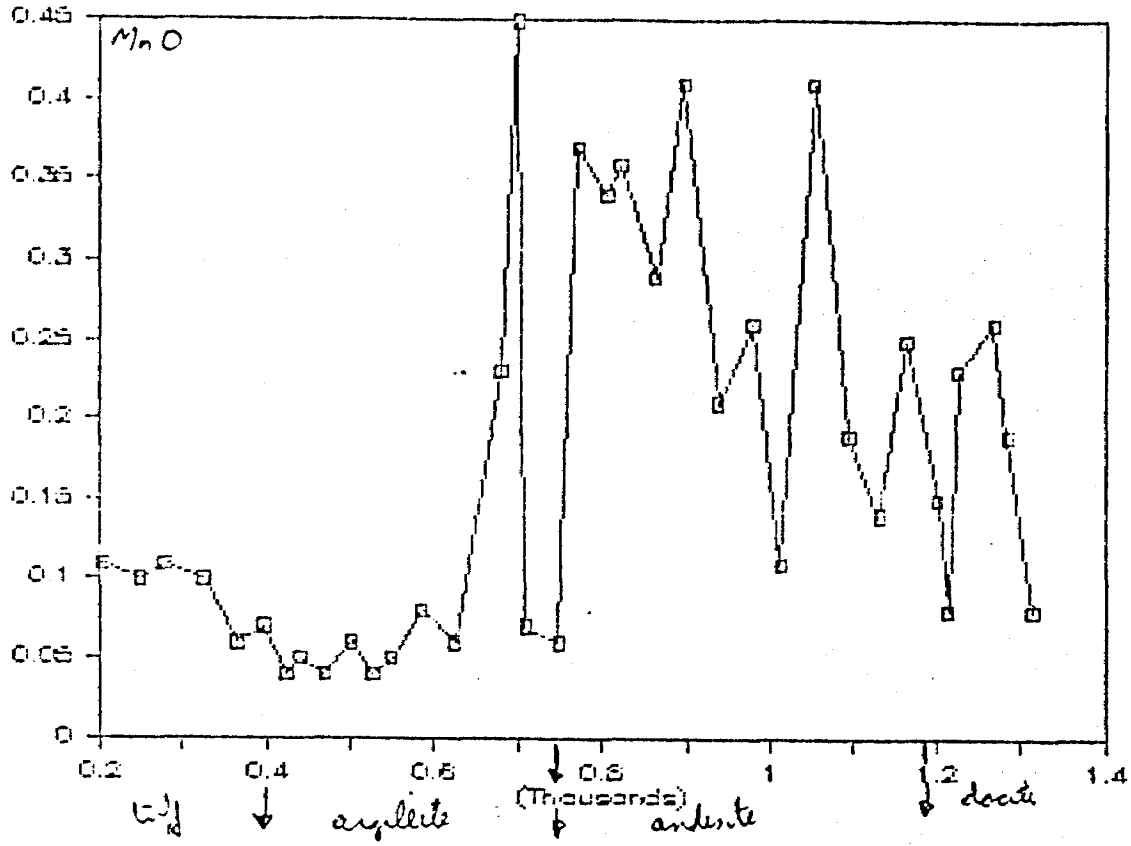
(Thousands)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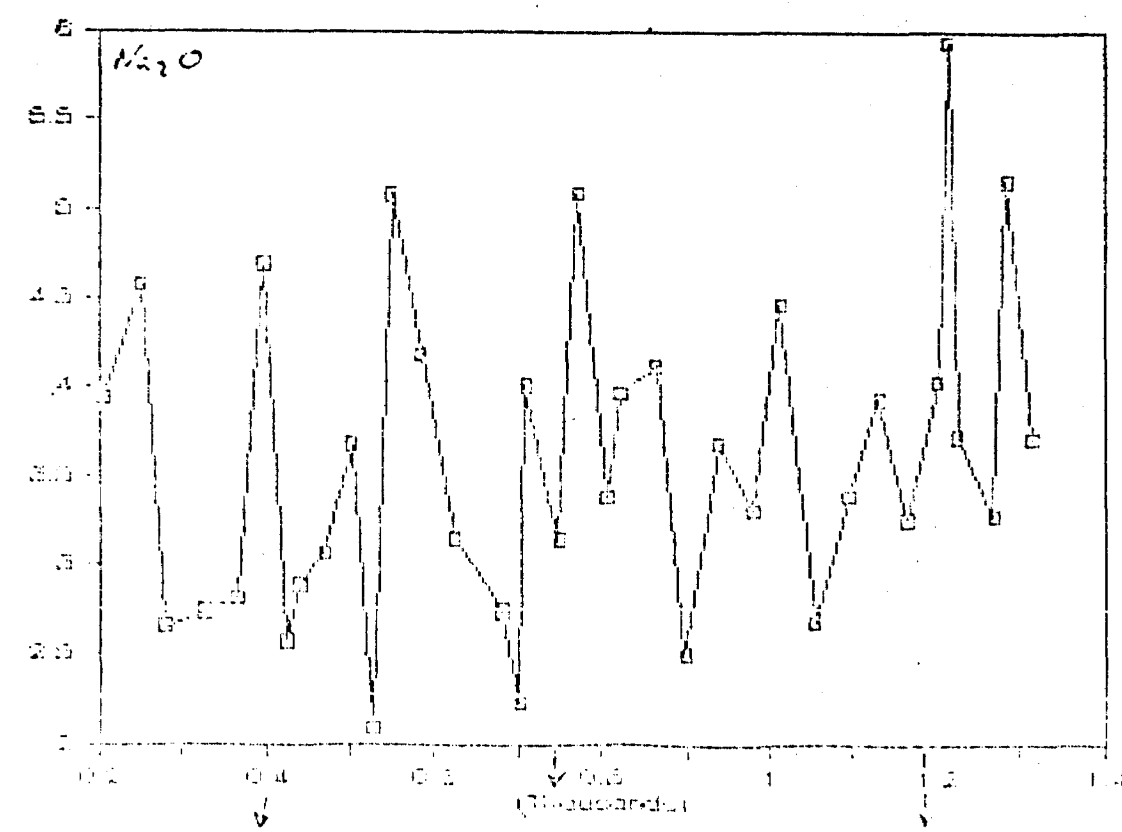
(Thousands)
argilite
andesite
dacite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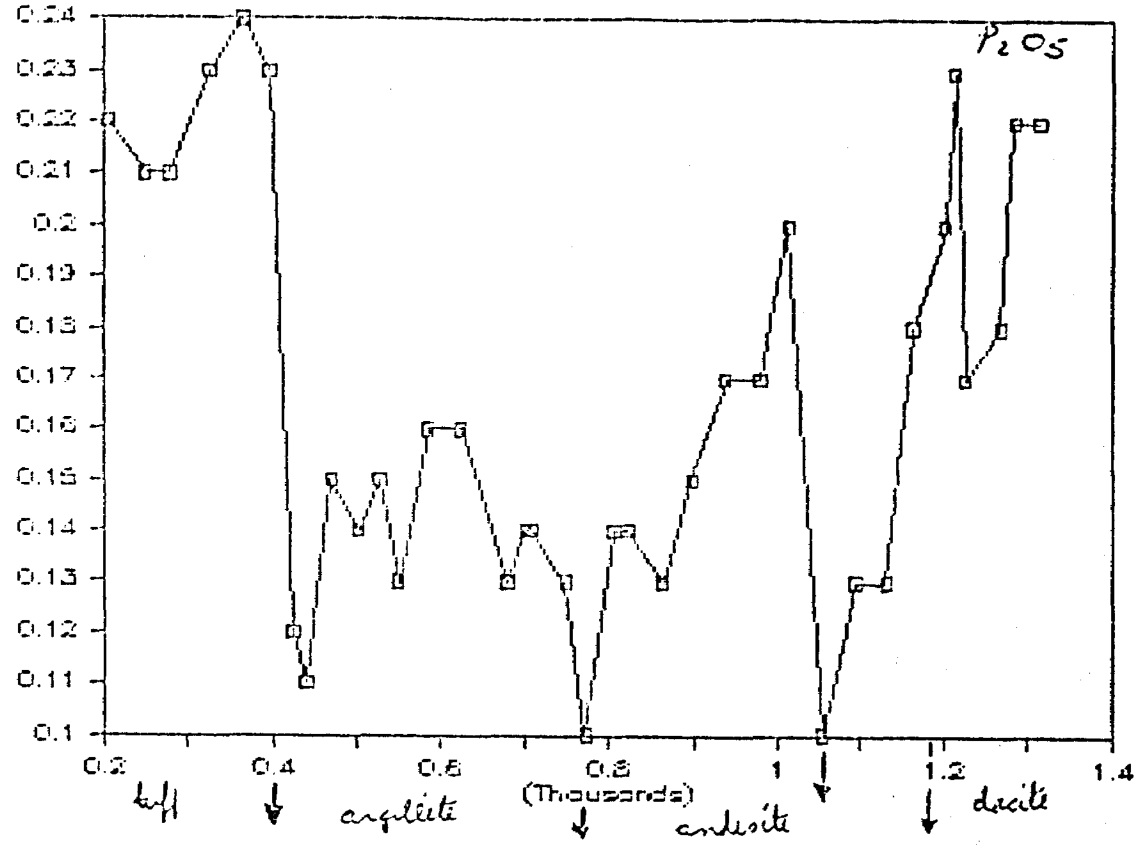
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0.14
0.13
0.12
0.11
0.1
0.2
0.4
0.6
0.8
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(Thousands)
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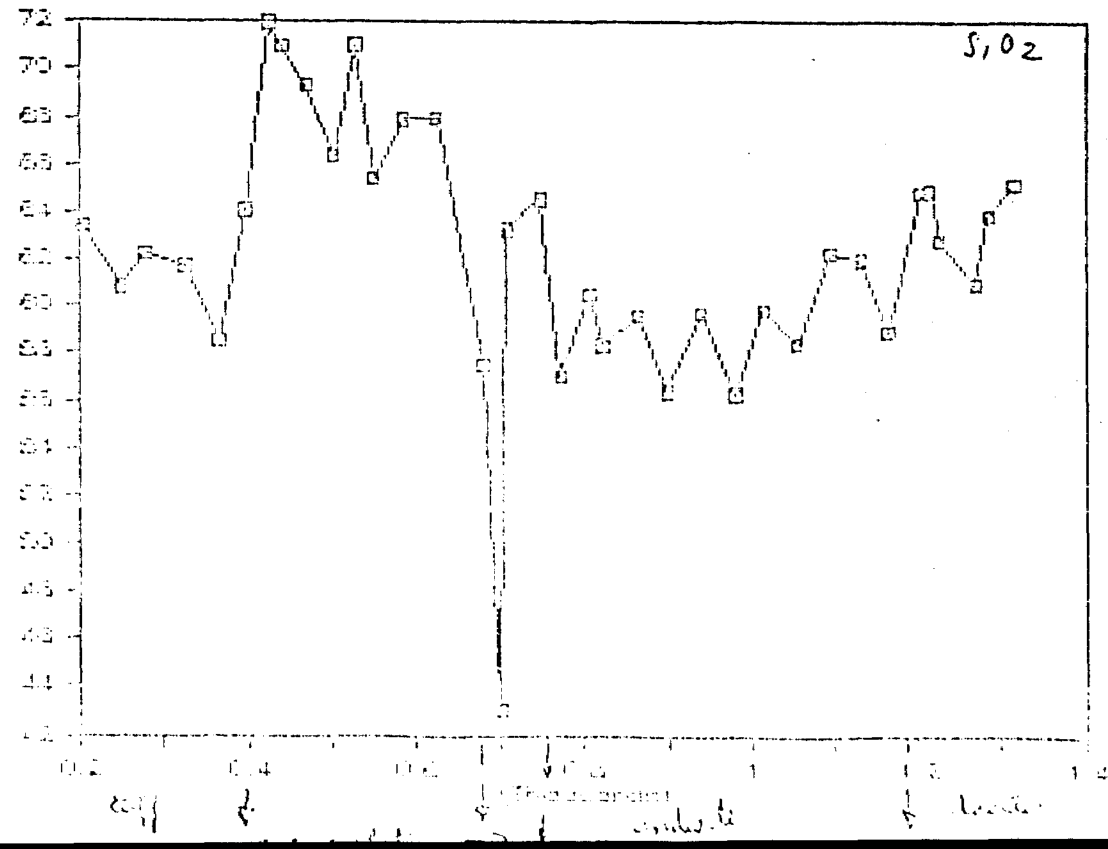
dacite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66
64
62
60
58
56
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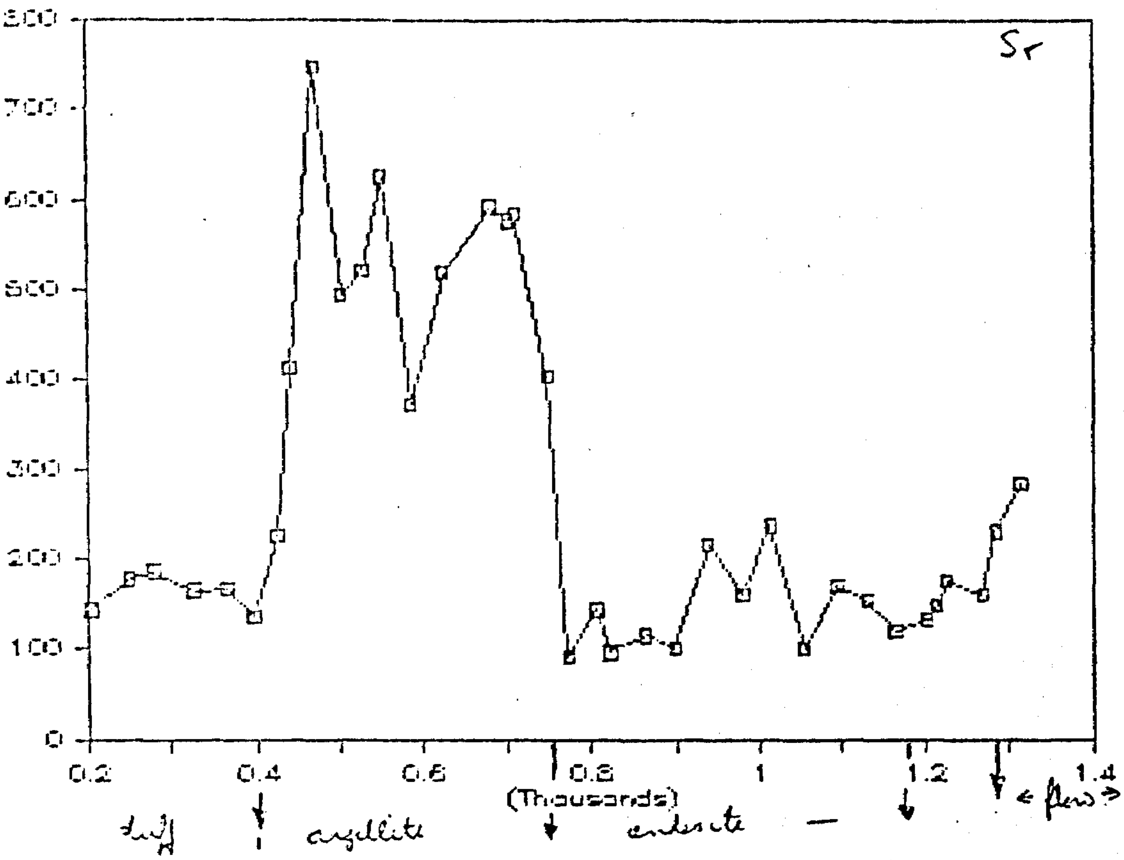
0.4
0.6
1
1.2
andesite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700
600
500
400
300
200
100
0
0.2
0.4
0.6
0.8
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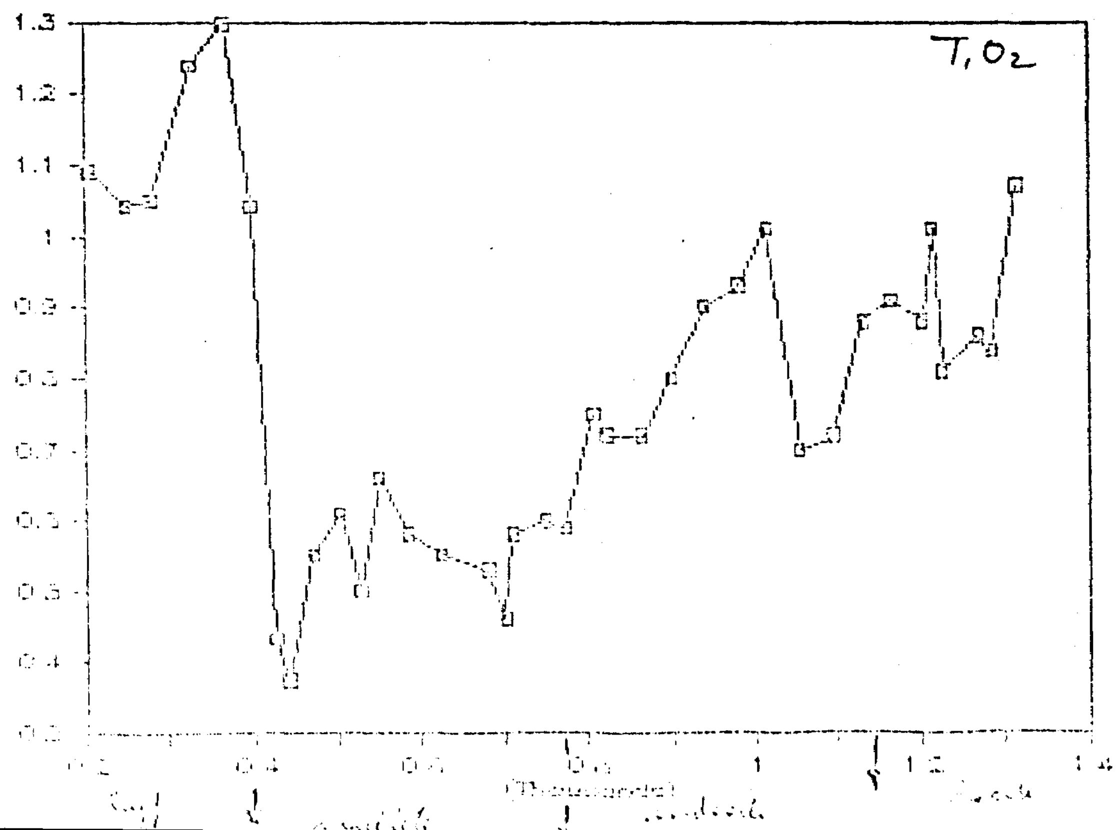
(Thousands)
tuff
argillite
andesite
< flows >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1.2
1.1
1
0.4
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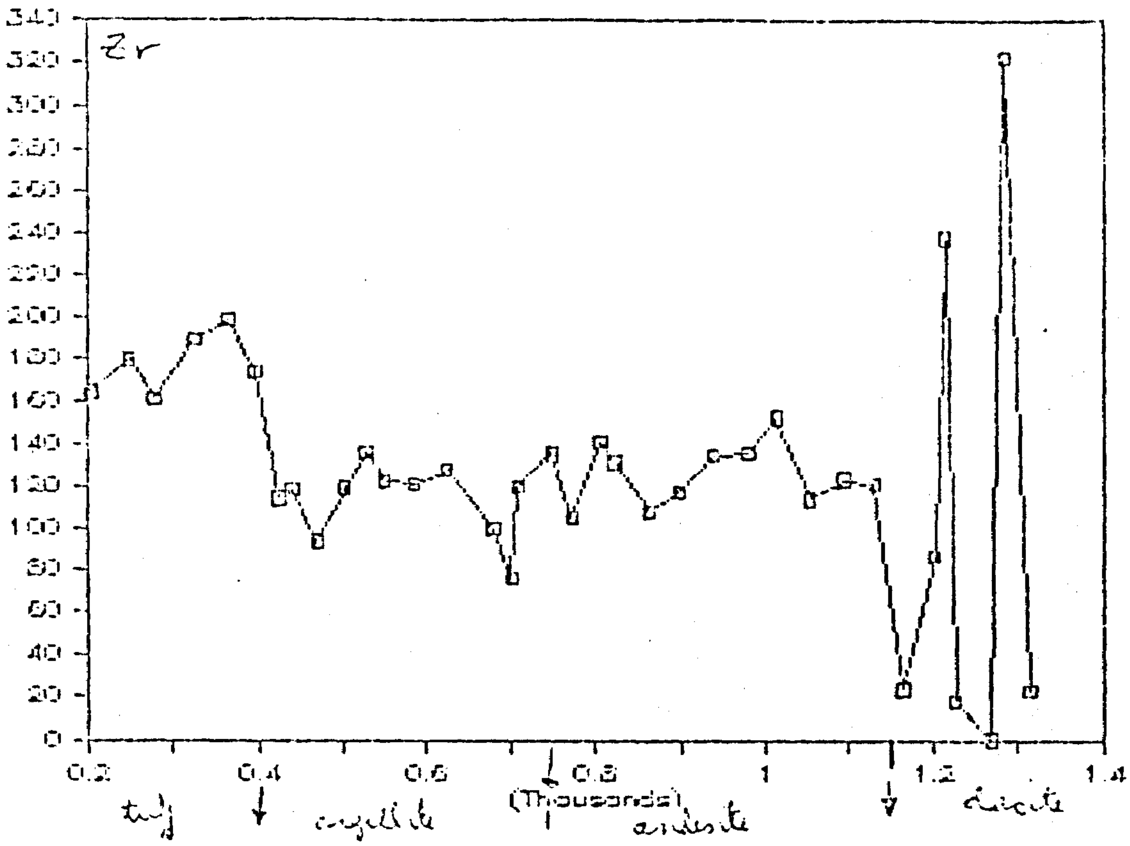
1.4
(Thousands)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0
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0.6
0.8
1
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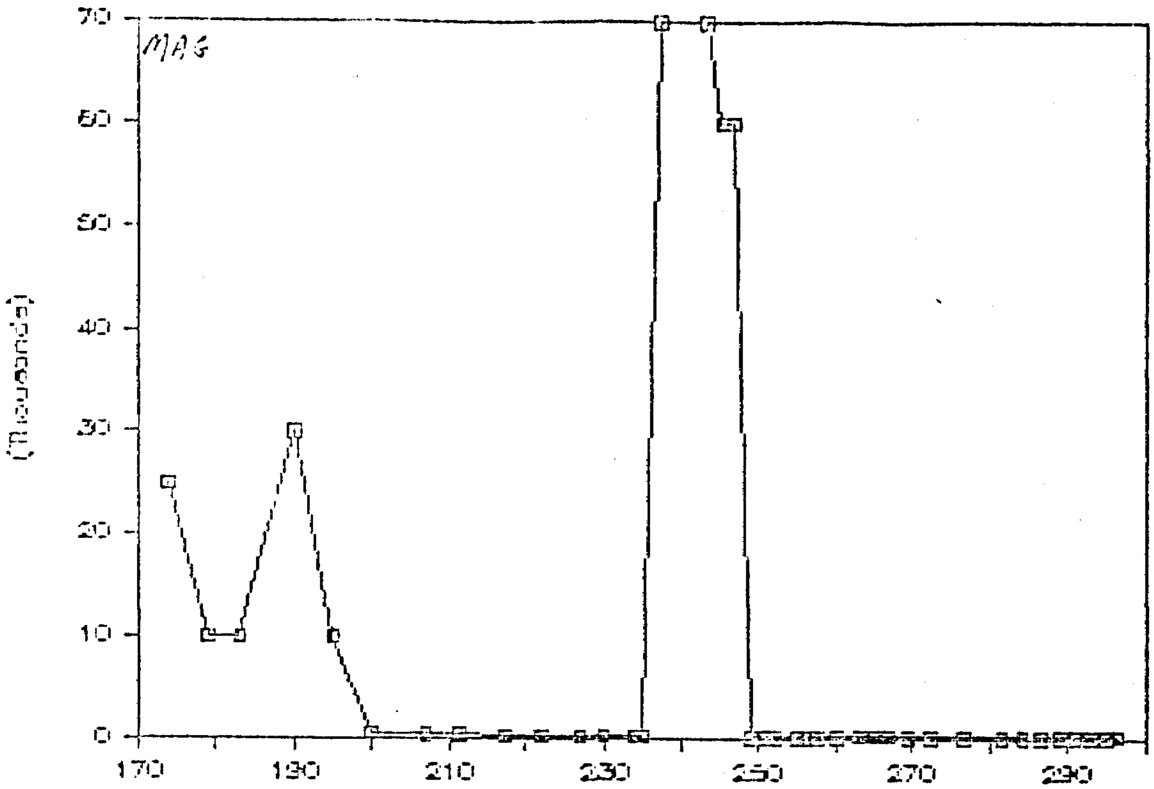
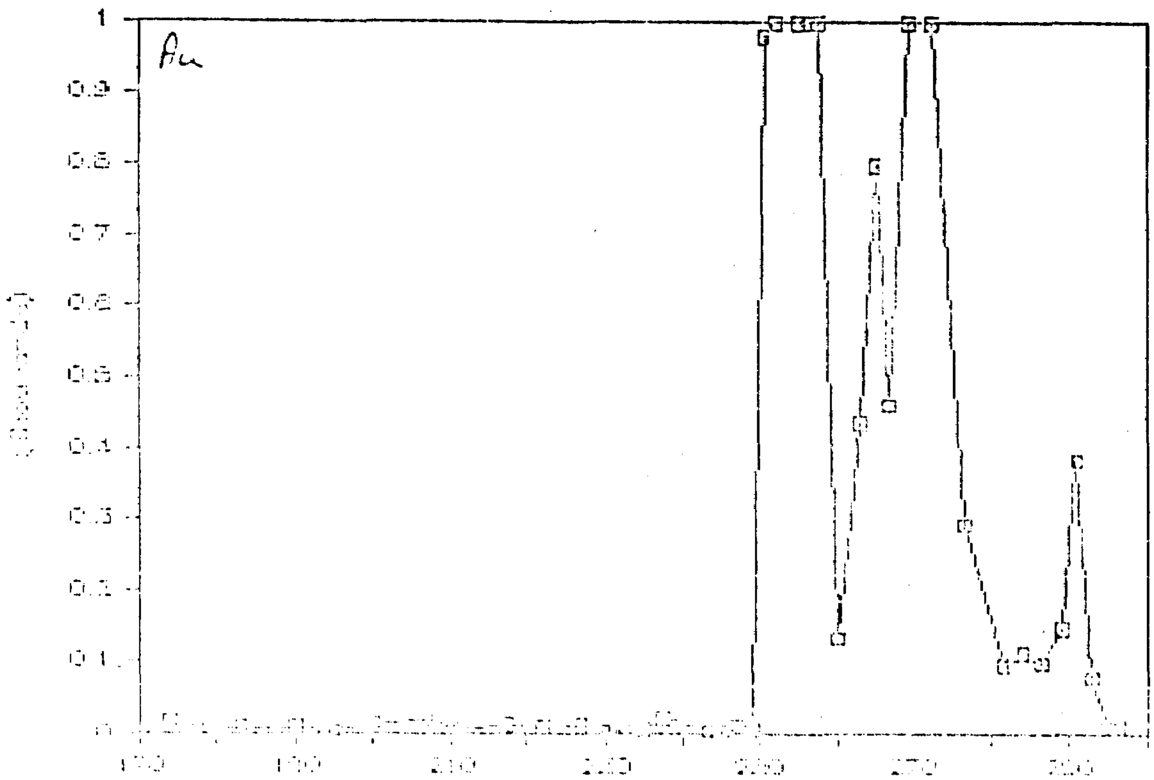
(Thousands)
tuff
argillite
andesite
dacite

A-8

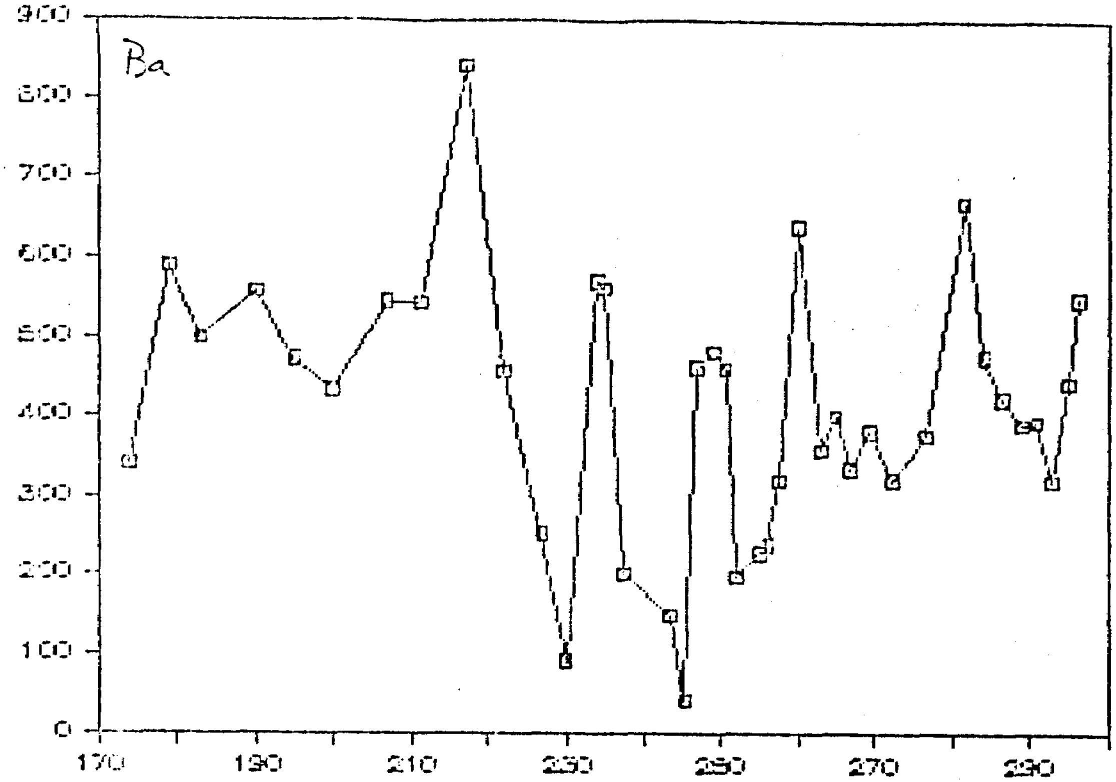
	From	To		Py	SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO	Na_2O	K_2O	TiO_2	MnO	P_2O_5	Ba	Sr	Zr	Au	LOI	MAG	As	Sb
[illegible]	1??	1??	IF	1%	54.27	8.03	33.39	0.47	1.32	0.36	0.58	0.4	0.21	0.21	342	69	57	13	10.5	25000		
[illegible]	1??	1??	IF	1%	57.39	11.75	25.24	0.4	2.24	1.09	0.97	0.49	0.12	0.23	589	94	91	7	6.97	10000		
[illegible]	1??	1??	IF	1%	55.46	11.21	23.43	0.39	1.99	0.25	1.35	0.52	0.12	0.23	498	59	127	8	7.74	13000		
[illegible]	178	195	IF	"	58.69	12.99	22.96	0.36	2.27	0.29	1.47	0.62	0.11	0.18	563	70	101	8	7.14	30000		
[illegible]	195	203	IF	"	53.96	9.52	32.04	0.41	1.89	0.1	1.31	0.44	0.09	0.2	472	53	69	2	9.51	10000		
[illegible]	203	207	"	"	53.65	9.17	32.01	0.64	1.77	0.04	1.86	0.41	0.16	0.24	435	63	91	15	12.79	400		
[illegible]	207	211.5	clay tuff		52.44	9.78	32.64	0.44	2.28	0.39	1.21	0.46	0.13	0.18	546	74	107	18	12.9	350		
[illegible]	211.5	217.5	chl "		53.53	11.01	29.6	0.45	2.18	1.26	1.13	0.41	0.17	0.2	544	109	77	7	11.7	350		
[illegible]	217.5	22?	"	0%	57.64	14.27	22.07	0.32	2.2	0.15	2.44	0.62	0.05	0.2	841	70	107	12	8.05	220		
[illegible]	22?	2?7	"	2%	61.53	13.63	18.72	0.29	1.79	0.1	2.92	0.66	0.14	0.18	456	75	106	8	8.33	220		
[illegible]	2?7	2??	"		62.76	10.02	22.93	0.32	2.01	0.02	1.17	0.45	0.11	0.16	252	40	70	12	8.39	220		
[illegible]	2??	234		1%	53.37	3.9	39.41	0.54	1.83	0.0001	0.35	0.18	0.14	0.21	91	25	58	3	15.9	220		55
[illegible]	234	235	graph. tuff	1%	67.18	16.5	9.41	0.25	1.37	0.79	3.47	0.7	0.11	0.17	571	118	142	7	5.16	220	15	
[illegible]	235	237.5	" "	1%	63.79	14.2	15.93	0.27	1.65	0.15	2.98	0.62	0.13	0.19	561	78	132	4	6.45	220	10	
[illegible]	237.5	243.4	IF	1%	52	6.49	37.33	0.41	1.76	0.42	0.47	0.27	0.09	0.17	201	52	45	20	11.4	70000		
[illegible]	243.4	245.3	"		40.63	11.04	39.12	0.35	2.72	1.59	0.7	0.53	0.05	0.16	150	81	77	3	12.03	70000		
[illegible]	245.3	246.3	"		53.93	1.45	42.54	0.44	0.73	0.13	0.28	0.06	0.15	0.18	40	32	11	2	8.57	60000		
[illegible]	24?.3	247	"		49.03	8.55	36.74	0.45	1.91	0.25	2.15	0.37	0.12	0.18	462	51	75	11	14.2	60000		
[illegible]	247	25?.5	schist	2%	63.66	15.67	13.7	0.41	1.74	1.15	2.44	0.71	0.11	0.17	492	140	131	4	5.23	60		
[illegible]	25?.5	2??	clay tuff	1%	?.12	11.57	20.76	0.32	1.72	0.17	2.48	0.49	0.14	0.18	461	62	92	980	8.93	60		
[illegible]	252	253	" "	2%	72.42	5.83	19.27	0.31	0.71	0.16	0.99	0.24	0.03	0.1	198	54	40	1000	7.89	60	424	
[illegible]	253	25?	" "	5%	67.69	6.9	21.69	0.25	0.96	0.49	1.23	0.31	0.1	0.14	228	75	54	1000	9.97	60		
[illegible]	25?	257.5		20%	65.99	7.33	22.49	0.32	1.25	0.71	1.22	0.32	0.09	0.16	238	65	63	1000	12.2	60		
[illegible]	257.5	2?8	"	5%	56.41	10.11	18.47	0.35	1.65	0.43	1.78	0.44	0.11	0.19	321	91	87	1000	8.25	60		
[illegible]	2??	2??	argillite		66.2	16.72	8.73	1.46	1.56	1.03	3.24	0.72	0.06	0.16	640	221	159	131	4.06	60	16	
[illegible]	2??	2??	clay tuff	2%	59.56	11.19	23.25	1.19	2.15	0.39	1.44	0.47	0.16	0.16	358	169	74	436	9.3	200	8	
[illegible]	265	267	" "	"	59.68	11.03	23.21	0.97	2.11	0.3	1.71	0.43	0.1	0.17	400	117	89	793	8.65	200	15	
[illegible]	267	269.5	" "	"	54.39	10.43	28.93	0.7	2.04	1.32	1.25	0.49	0.15	0.2	336	134	98	461	11.2	200	9	
[illegible]	269.5	272.5	" "	"	56.83	9.76	23.35	0.44	1.83	0.73	1.97	0.43	0.17	0.18	332	116	73	1000	12.29	70	15	
[illegible]	272.5	27?.7	tuff agglo		72.?3	11.38	8.15	2.09	1.17	3.19	1.34	0.36	0.04	0.11	322	318	77	1000	6.51	70	39	
[illegible]	27?.7	2?1.7			71.24	12.41	6.19	3.45	1.67	2.43	1.82	0.56	0.05	0.14	376	381	87	293	4.79	70	40	
[illegible]	281.7	284.1	[illegible]	2%	?0.93	17.37	8.03	4.3	2.17	2.93	3.4	0.49	0.04	0.22	670	467	120	93	7.1	70	4	
[illegible]	284.1	2??.?	clay tuff	4%	?8.0?	12.41	20.06	1.23	1.79	1.64	2.05	0.42	0.09	0.17	477	196	93	109	8.03	70	13	
[illegible]	2??.5	2??	" "	3%	55.43	9.43	29.2	0.87	1.93	0.72	1.62	0.37	0.07	0.17	423	107	80	96	11.79	70	7	
[illegible]	2??	2??	" "	4%	56.3	10.81	25.77	2.16	2.39	0.53	1.29	0.43	0.06	0.18	391	149	103	145	9.5	80	2	
[illegible]	2??	293	" "	"	55.71	12.29	25.1	1.64	2.26	0.63	1.77	0.51	0.07	0.2	394	171	162	303	9.53	80	8	
[illegible]	2??	2??	" "	1%	5?.?5	10.24	30.??	2.06	2.57	0.55	1.35	0.41	0.07	0.19	320	129	72	77	12.2	80	5	
[illegible]	2??	2??	argil. tuff		72.?4	14.14	4.54	2.62	1.22	3.95	2.07	0.29	0.07	0.12	444	362	115	10	4.73	80	3	
[illegible]	2??.5	302	argillite		60.54	15.75	6.29	3.17	2.05	2.24	3.05	0.64	0.06	0.16	550	314	129	10	5.76	110	14	

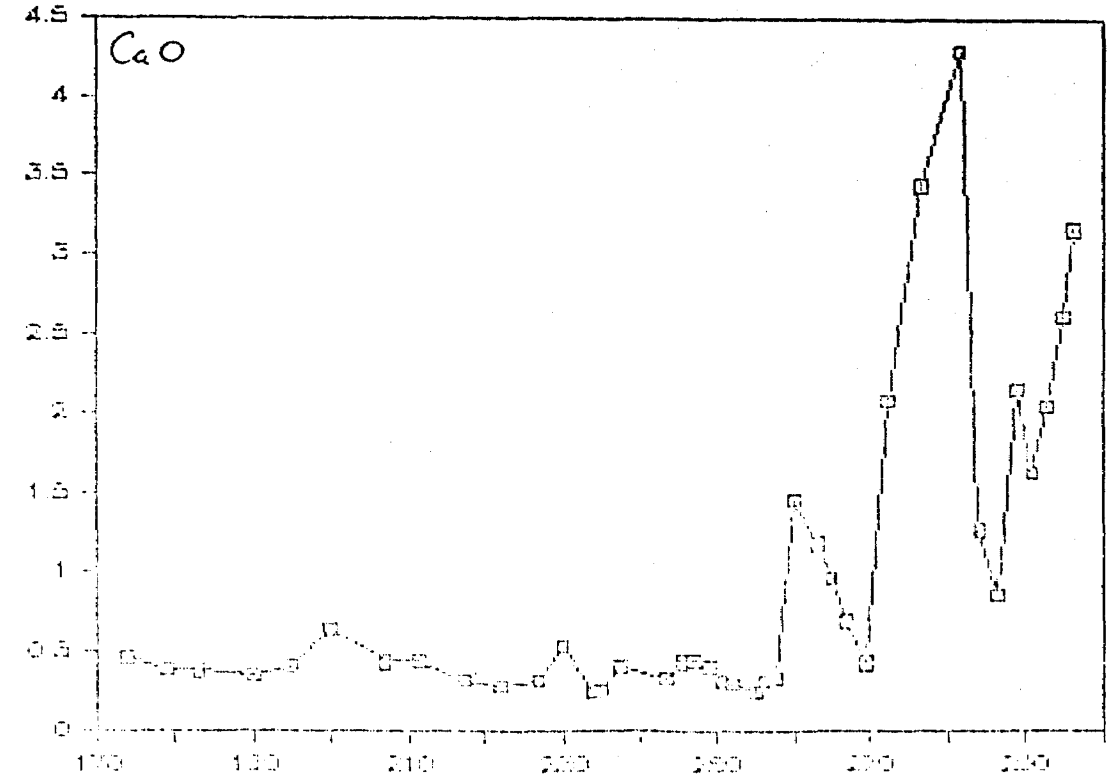
qtz mag expl. chert.

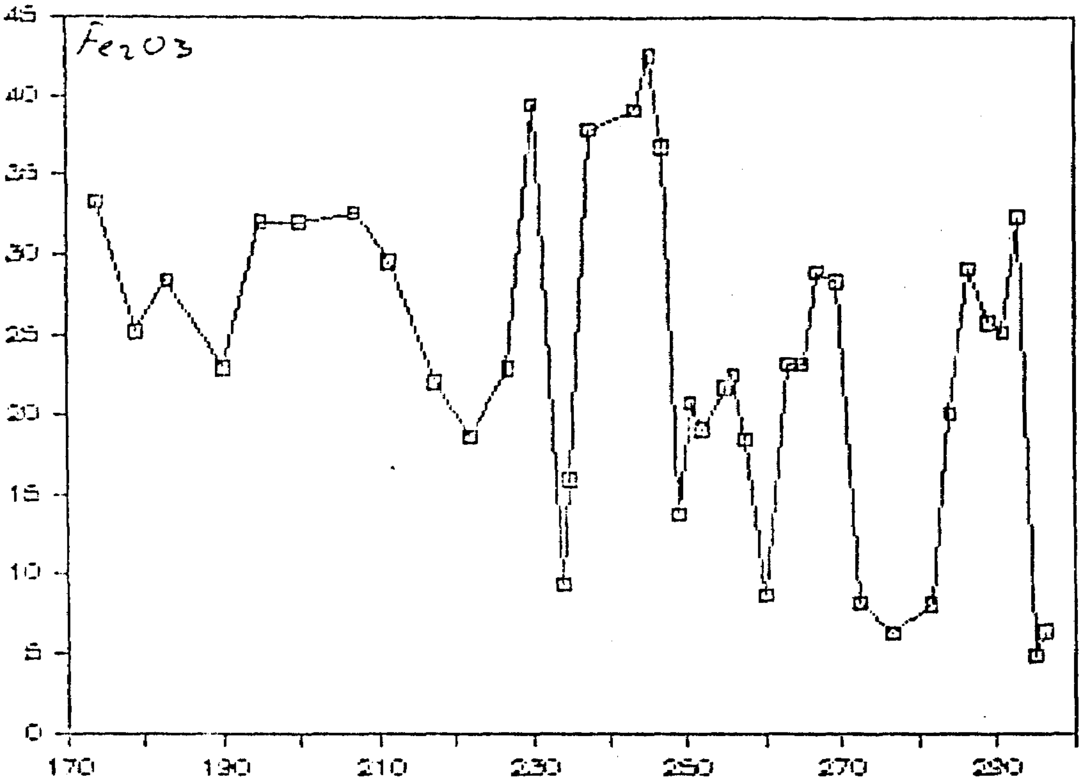


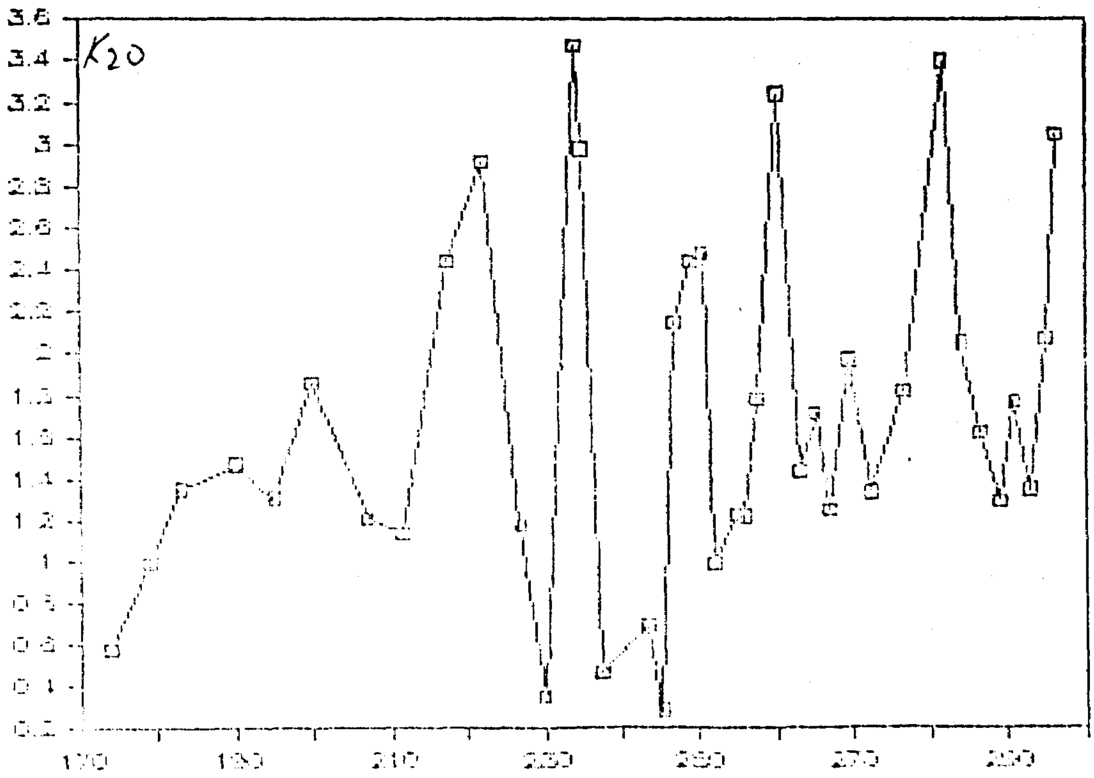


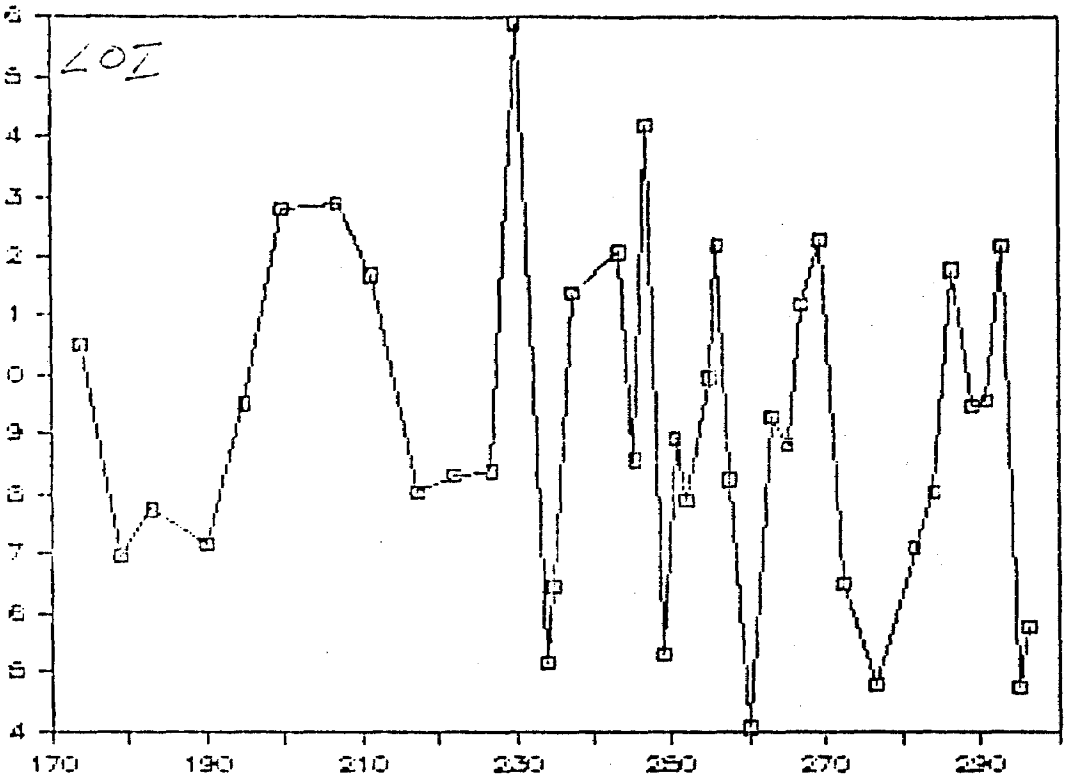
chd /mte ↓ ↓ chl/chl ↓

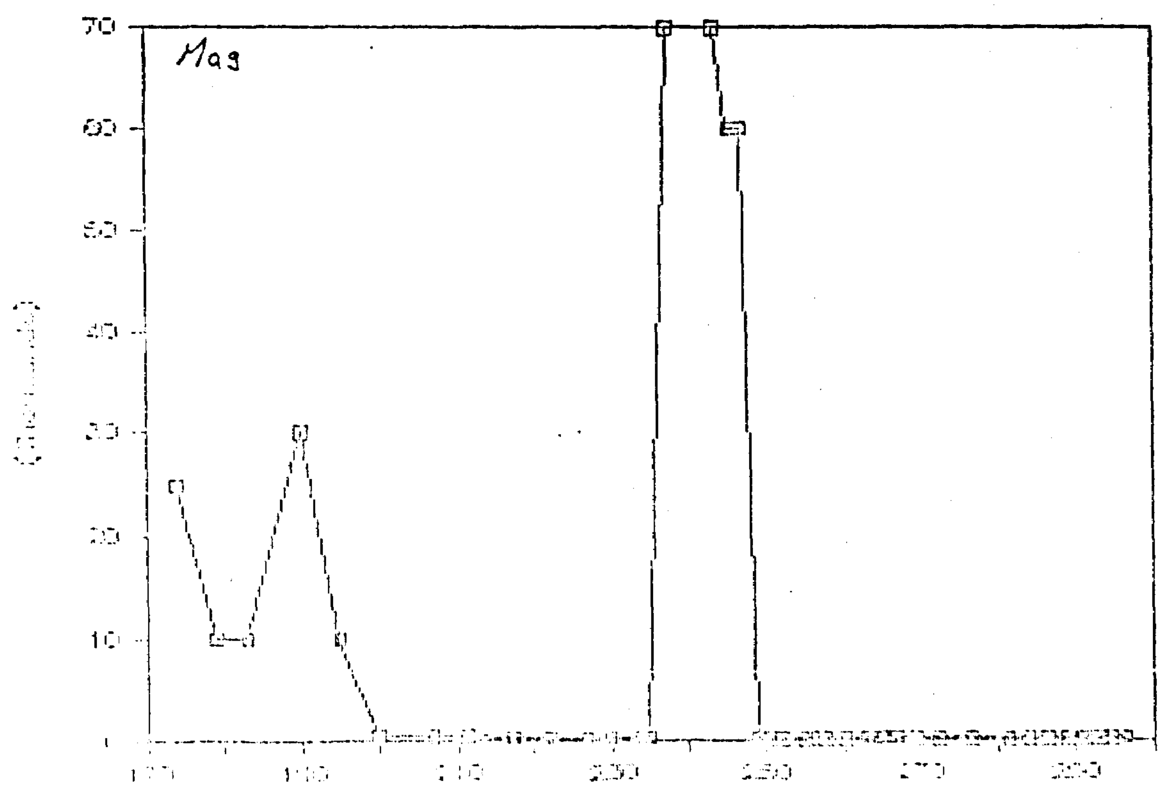

Ba
900
800
700
600
500
400
300
200
100
0
170
190
210
230
250
270
290

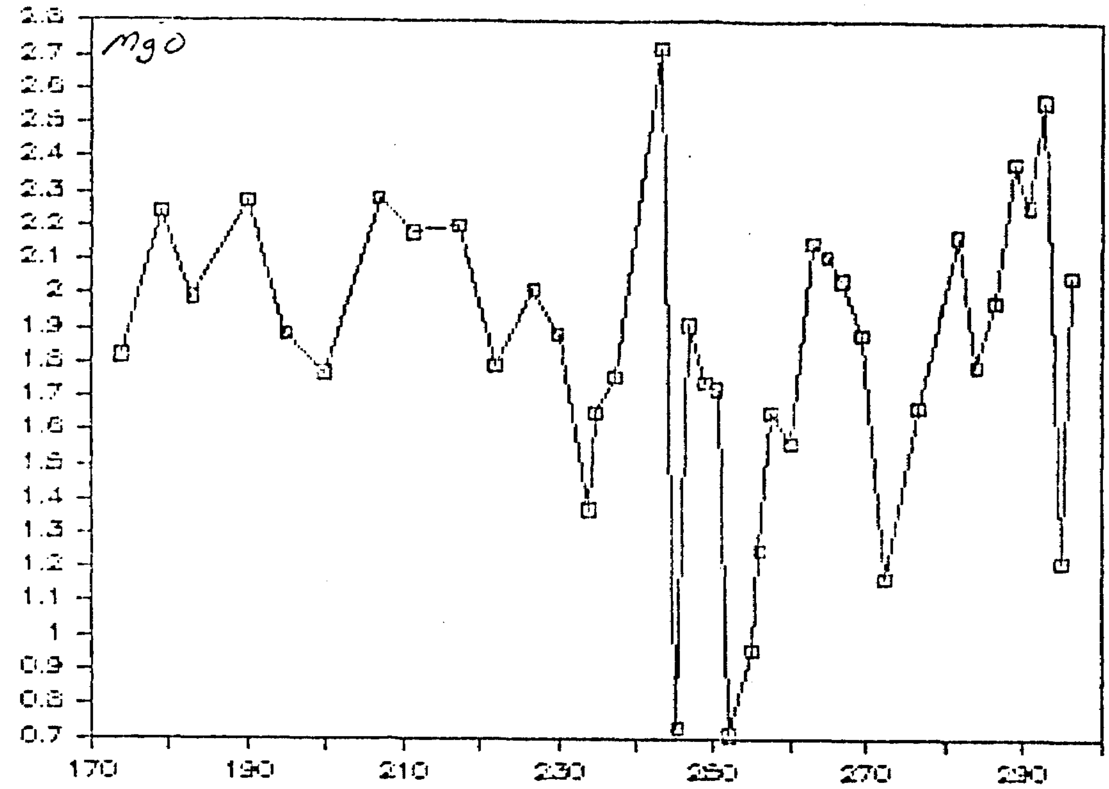

CaO
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0

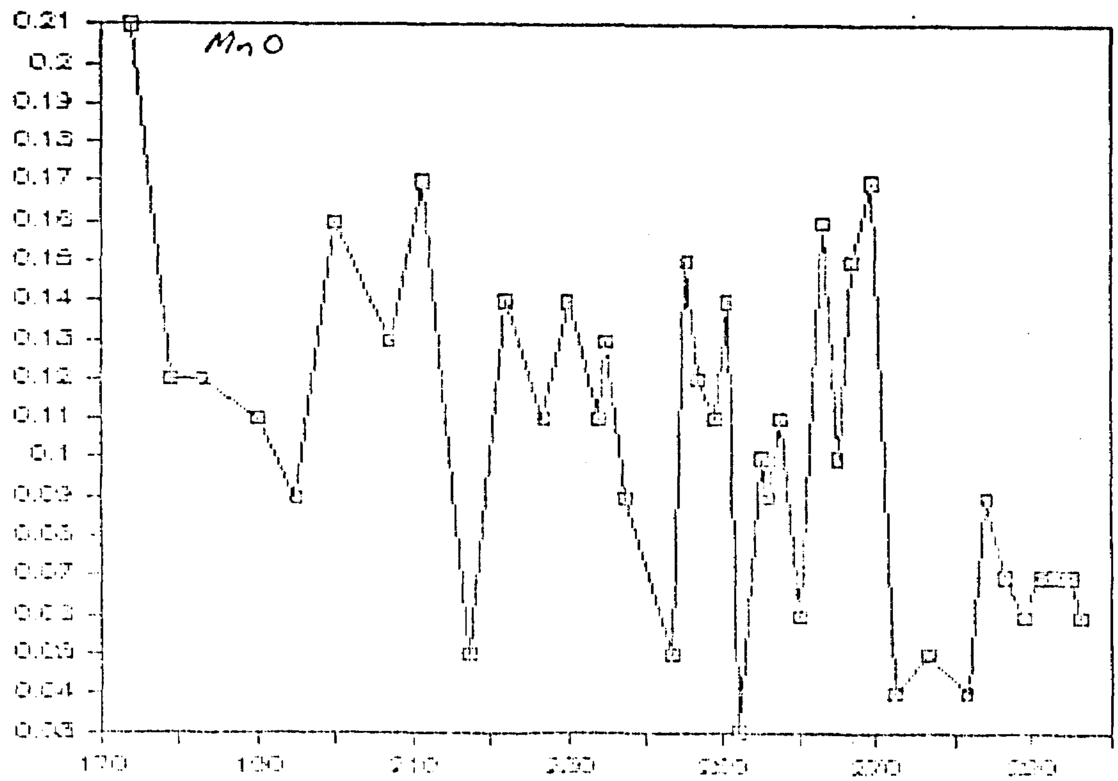

Fe2O3
45
40
35
30
25
20
15
10
5
0
170
190
210
230
250
270
290

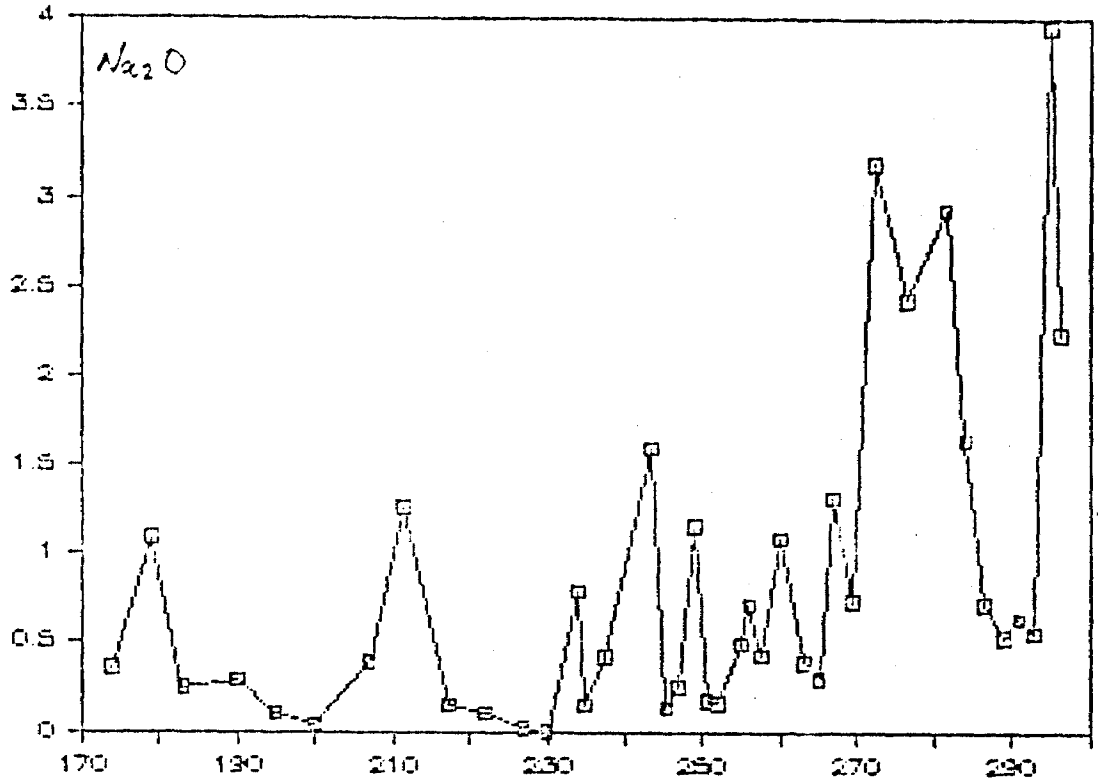

K2O
3.6
3.4
3.2
3
1
170
210
230
250
270


∠OI

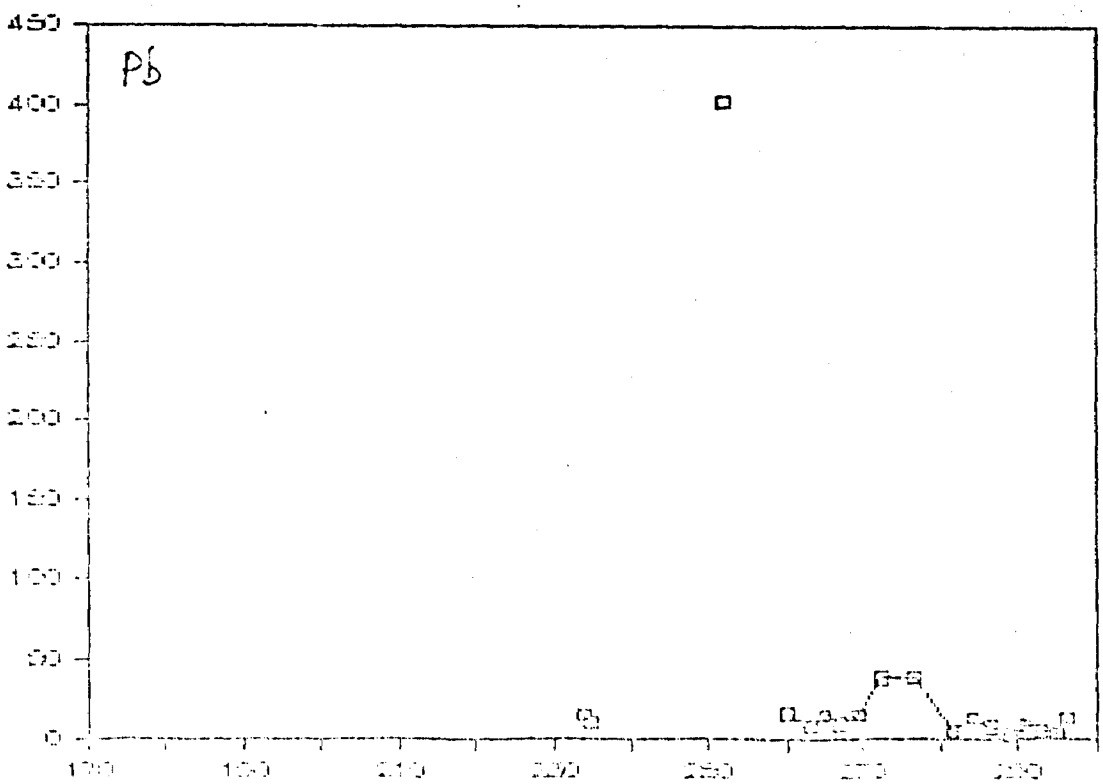

Mag


MgO
2.8
2.7
2.6
2.5
2.4
2.3
2.2
2.1
2
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
170
190
210
230
250
270
290

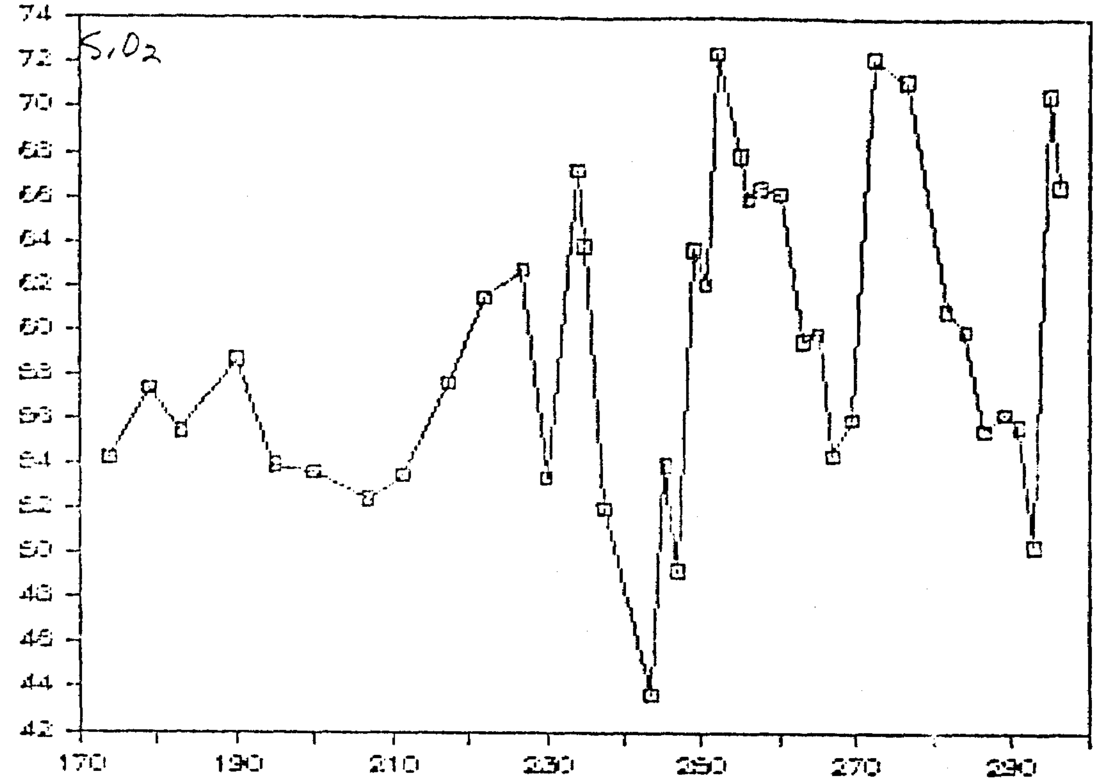

MnO
0.21
0.2
0.19
0.18
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
170
190
210
230
250
270
290

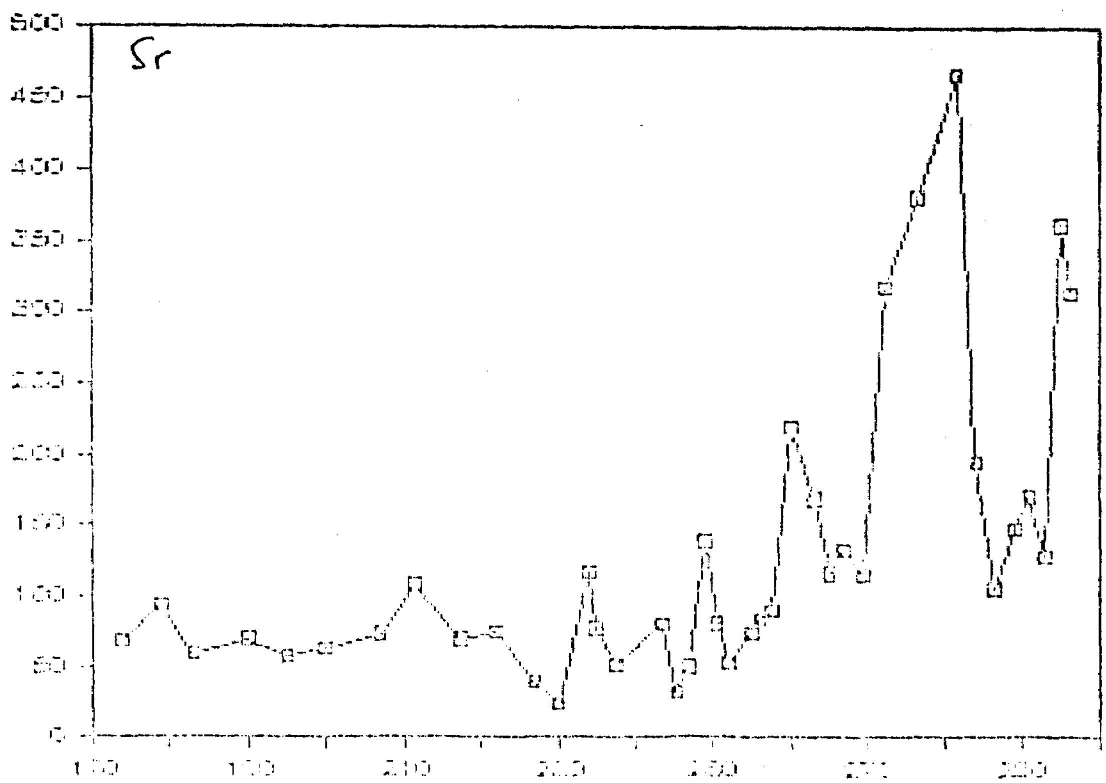


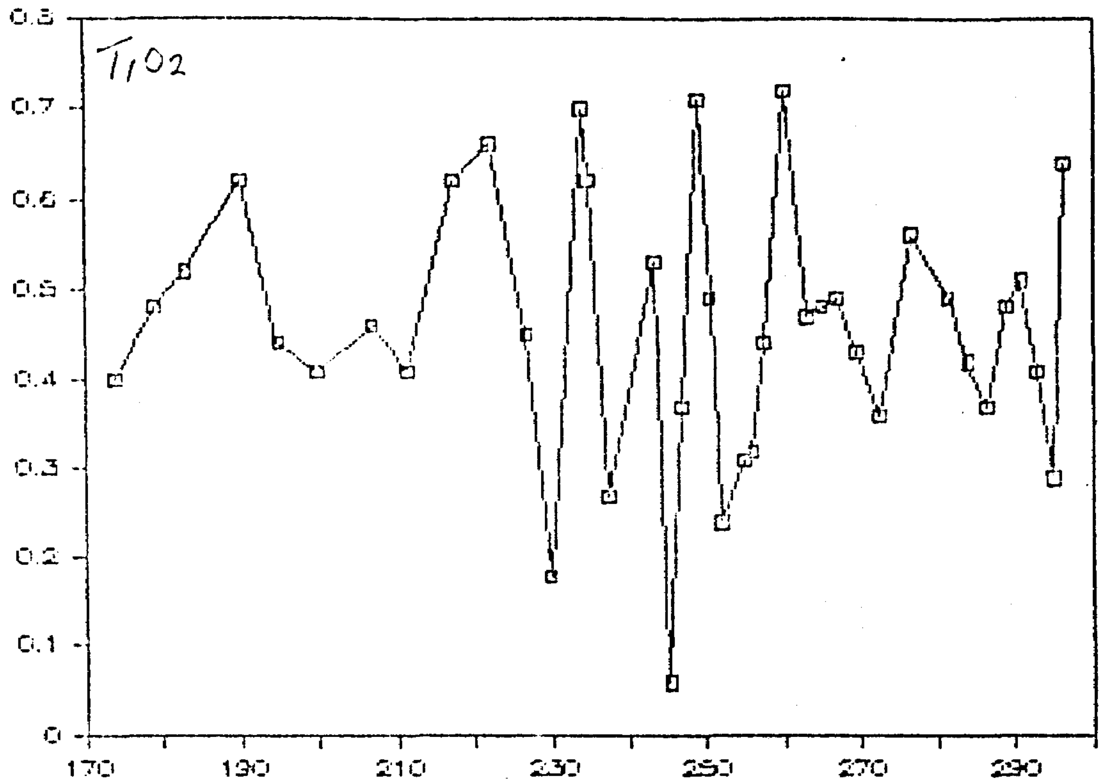
Na2O
4
3.5
3
2.5
2
1.5
1
0.5
0
170
190
210
230
250
270
290



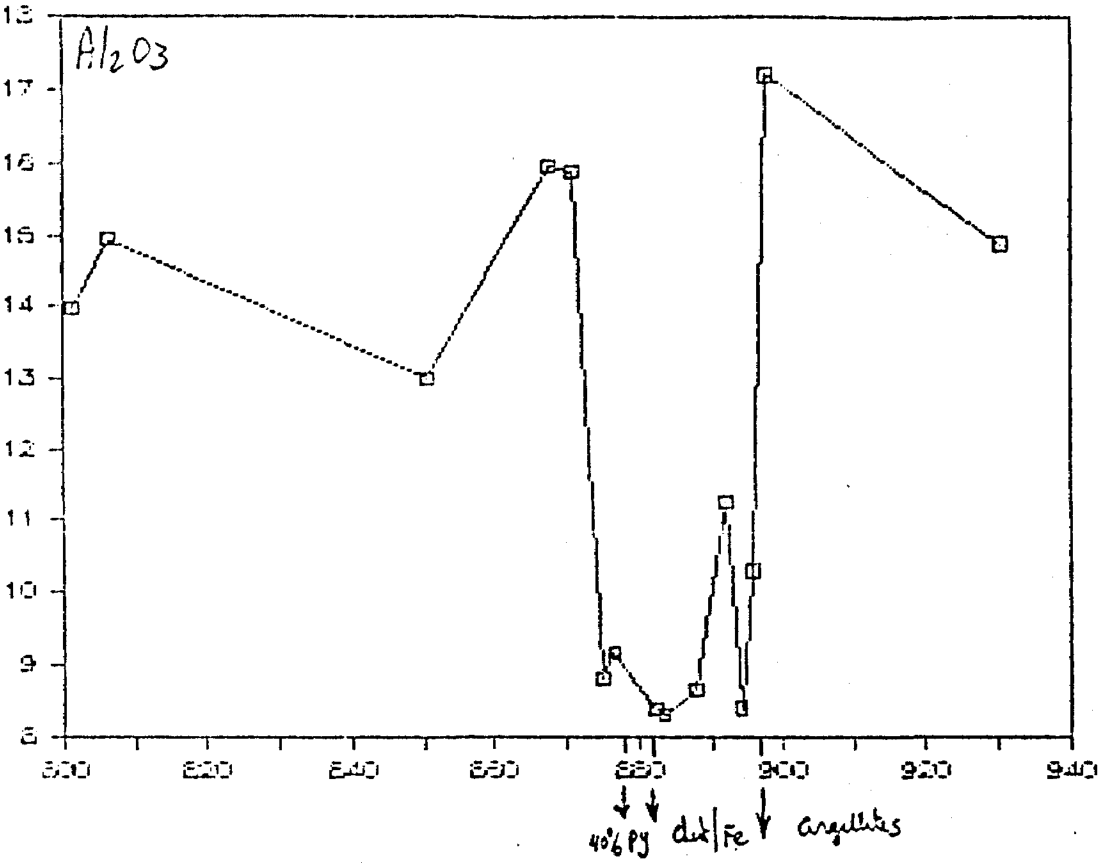
Pb
450
400

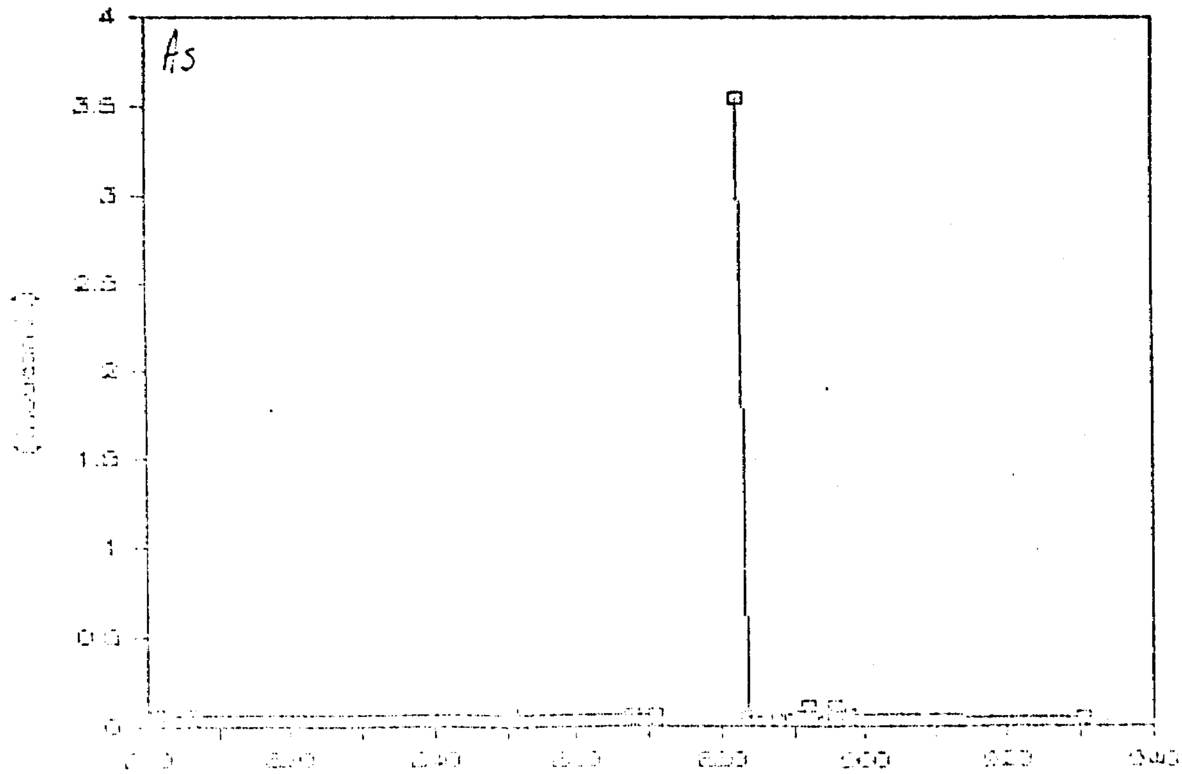

SiO2
74
72
70
68
66
64
62
60
58
56
54
52
50
48
46
44
42
170
190
210
230
250
270
290

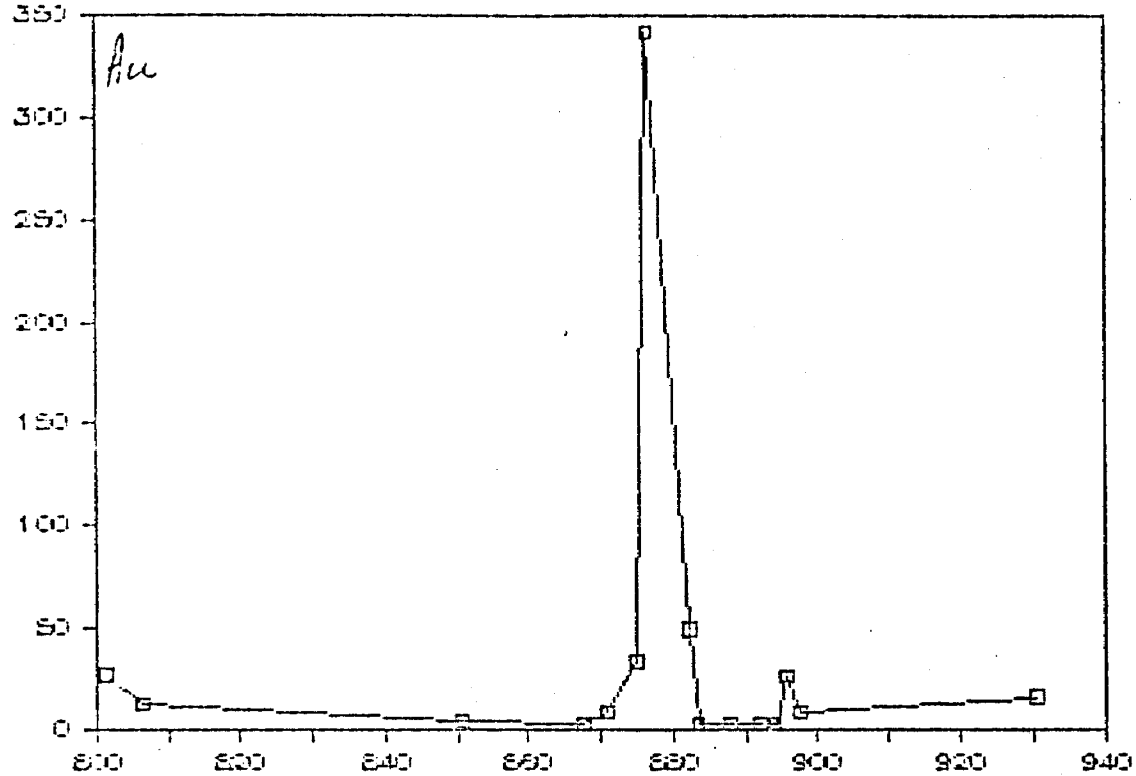

Sr
500
450
400
350
300
250
200
150
100
50
0

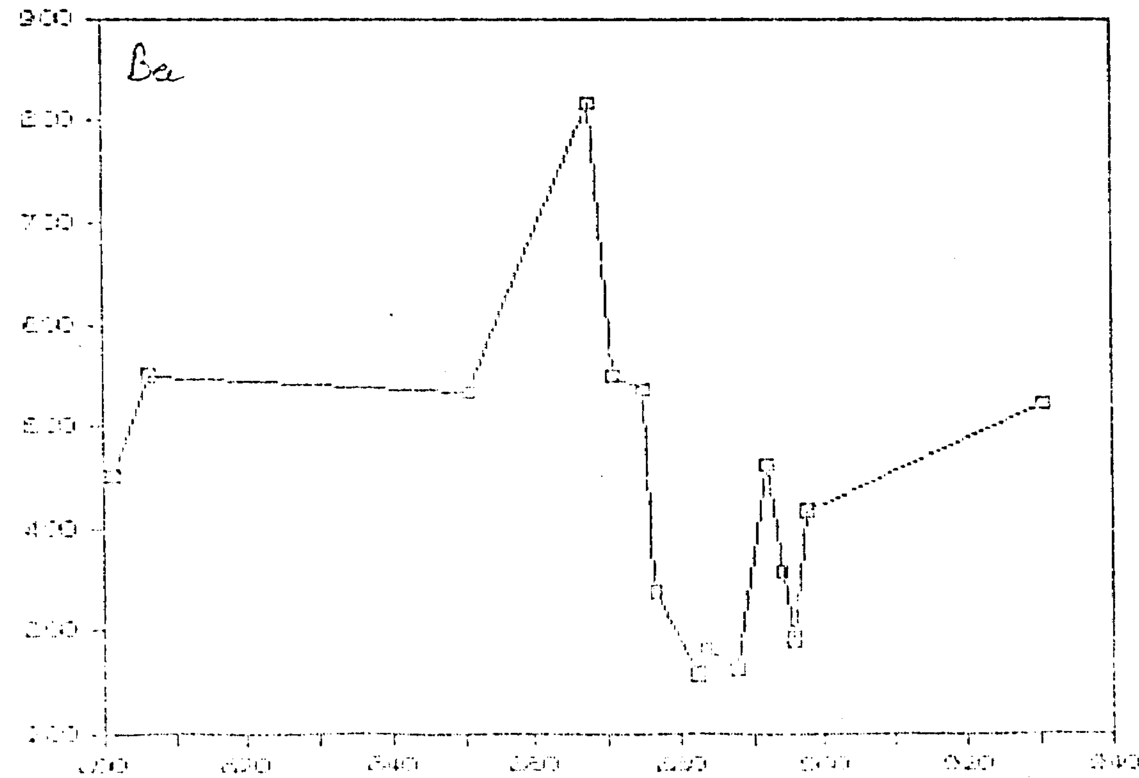

TiO2
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
170
190
210
230
250
270
290

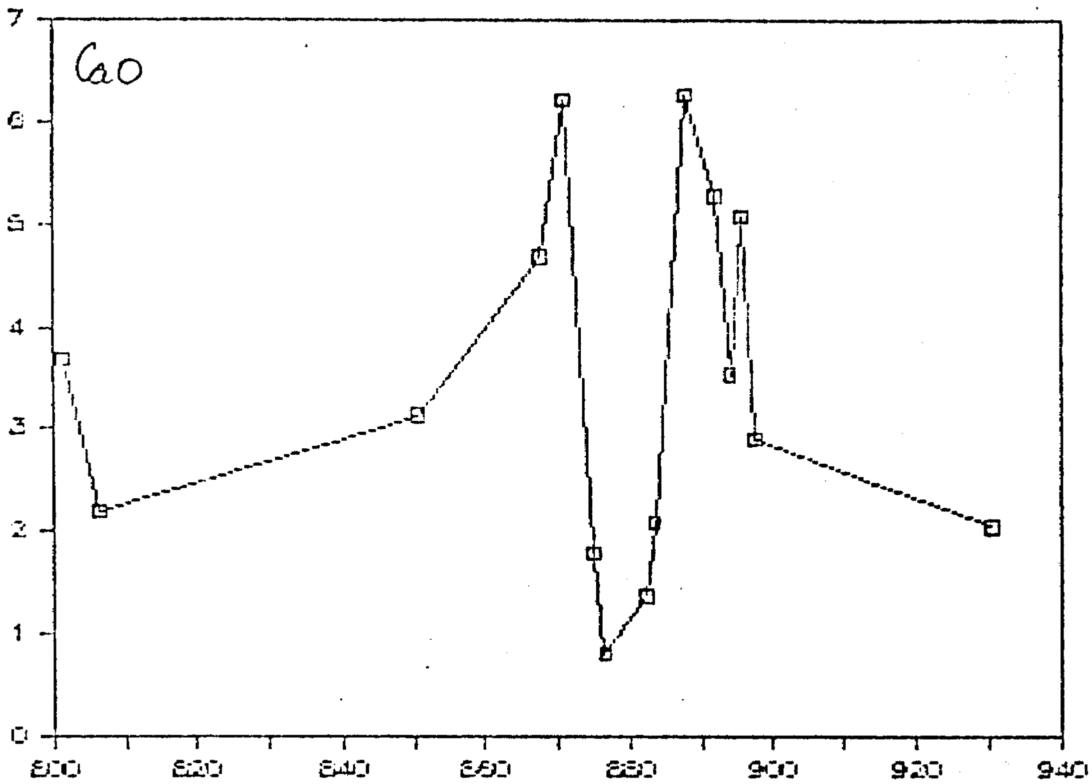
	From	To	SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO	Na_2O	K_2O	TiO_2	MnO	P_2O_5	Ba	Sr	Zr	Au	LOI	As	Zn	Cu
[illegible]	651.4	662.7	60.97	13.97	14.6	3.69	2.45	0.94	2.31	0.71	0.1	0.2	452	396	117	26	6.18	60	140	40
[illegible]	[illegible]	511.1	61.[illegible]2	14.95	14.65	2.2	2.37	0.7	2.5	0.68	0.12	0.16	551	360	121	12	6.79	50	147	16
[illegible]	[illegible]	[illegible]	60.11	16.99	15.61	3.13	2.11	0.15	2.85	0.65	0.15	0.2	534	346	93	4	7.95	60	209	139
[illegible]	667.6	672.5	64.21	15.95	6.73	4.68	2.73	1.63	3.14	0.61	0.08	0.2	817	537	118	2	9.33	50	141	17
[illegible]	672.5	675	63.64	15.89	6.33	6.22	2.82	1.49	2.78	0.52	0.1	0.18	550	659	102	8	7.72	50	187	14
[illegible]	675	676.5	64.95	8.3	19.99	1.79	1.95	0.26	1.68	0.33	0.1	0.12	537	169	74	33	9.97			34
[illegible]	676.5	682.3	62.1	9.16	23.64	0.61	1.96	0.09	1.55	0.37	0.07	0.2	337	59	65	342	12.5			46
[illegible]	682.3	685.5	64.15	8.38	21.46	1.36	1.72	0.14	2.03	0.37	0.09	0.2	258	68	49	49	12.7	3560	64	50
[illegible]	685.5	[illegible]	53.71	6.29	31.18	2.03	2.25	0.14	1.73	0.34	0.08	0.15	280	98	48	2	13.5	40	314	35
[illegible]	687.9	692	58.36	8.64	21.69	6.28	2.21	0.05	2.04	0.4	0.11	0.16	261	77	54	2	12.1	30	303	33
[illegible]	692	694.1	60.33	11.25	16.27	5.23	3.04	0.08	2.95	0.44	0.09	0.22	463	114	75	2	10.09	100	135	28
[illegible]	694.1	695.6	56.69	8.39	24.64	3.54	3.08	0.15	2.51	0.44	0.12	0.19	358	111	74	2	13	30	53	10
[illegible]	695.6	697.5	61.23	10.3	17.03	5.03	2.94	0.13	2.67	0.43	0.11	0.17	290	121	75	25	8.17	100	59	26
[illegible]	697.5	702.5	61.64	17.22	9.73	2.91	2.38	2.07	2.9	0.85	0.09	0.16	418	242	142	8	5.77	50	216	24
[illegible]	[illegible]	[illegible]	72.73	14.03	2.52	2.05	1.03	4.39	1.93	0.26	0.03	0.09	523	400	94	15	3.12	40	198	40

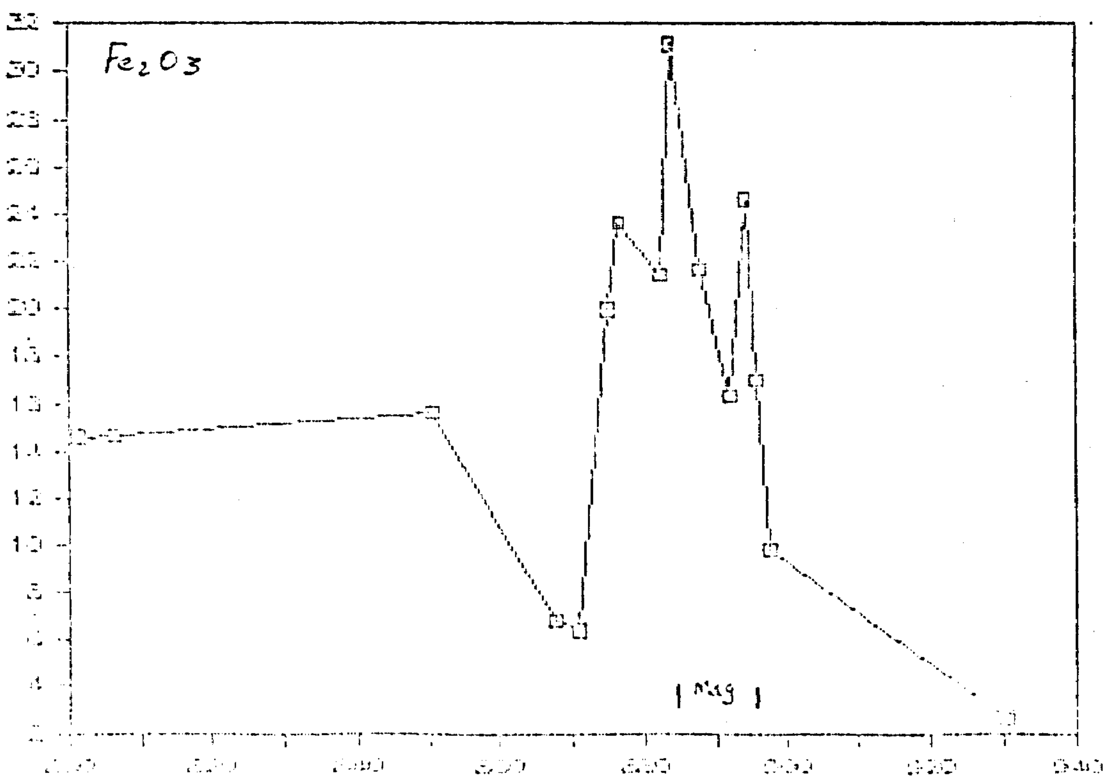

Al2O3
18
17
16
15
14
13
12
11
10
9
8
800
820
840
860
880
900
920
940
40% Py
dut/Fe
argillites

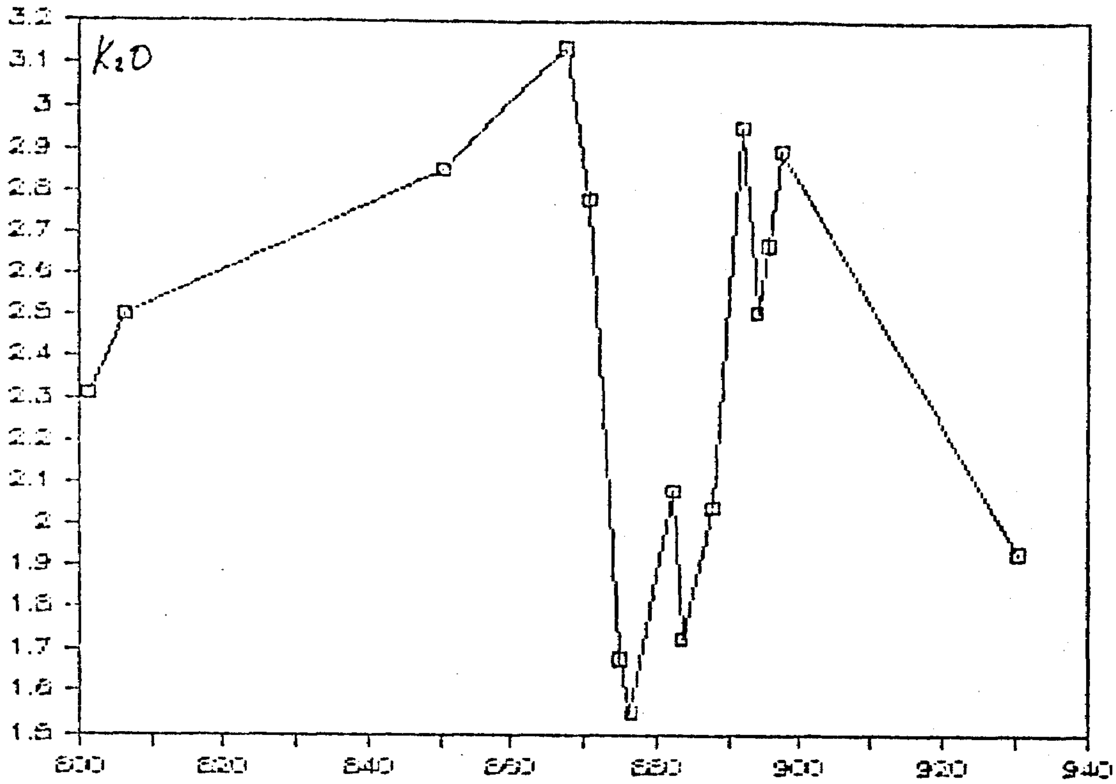

As
4
3.5
3
1
0

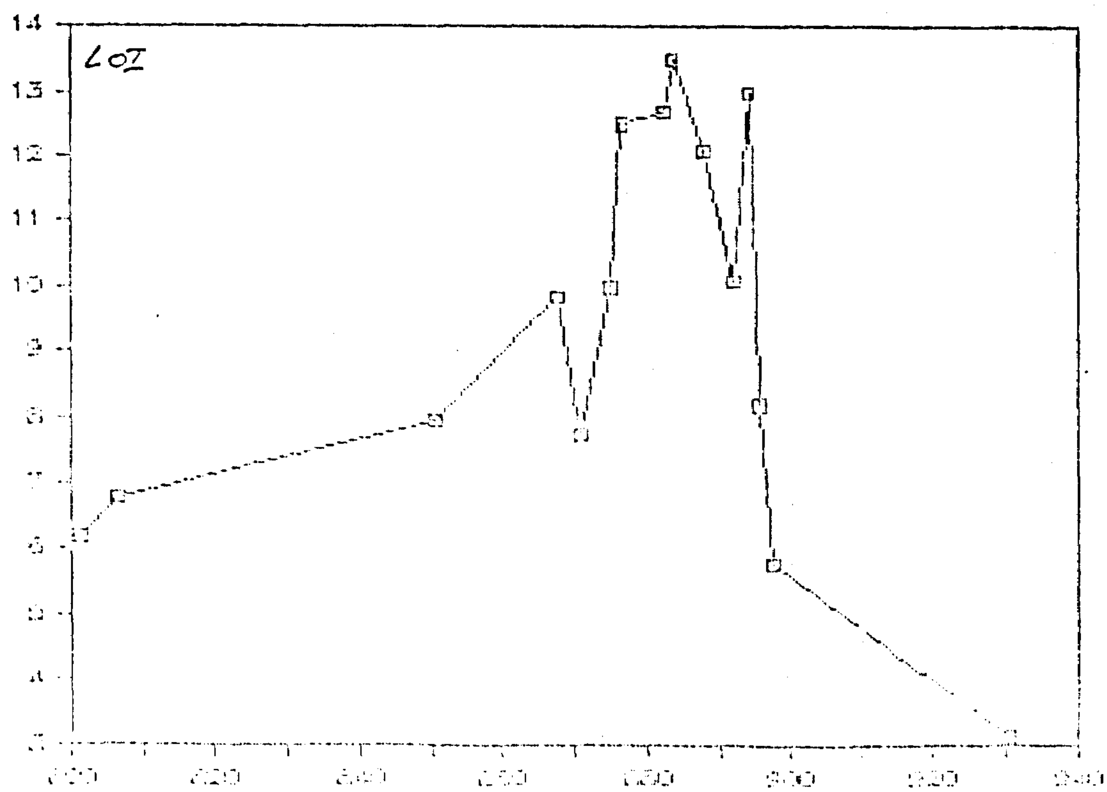

Au
350
300
250
200
150
100
50
0
800
820
840
860
880
900
920
940

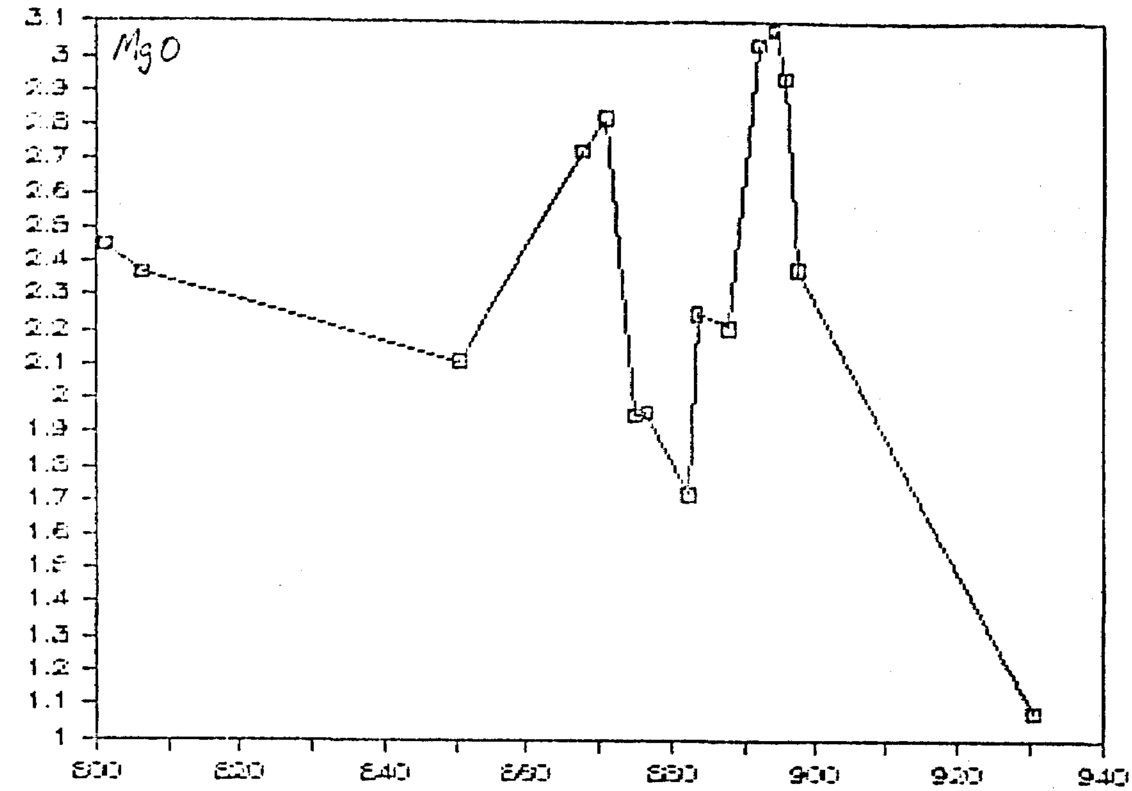

Ba
900
800
700
400
300
200
100

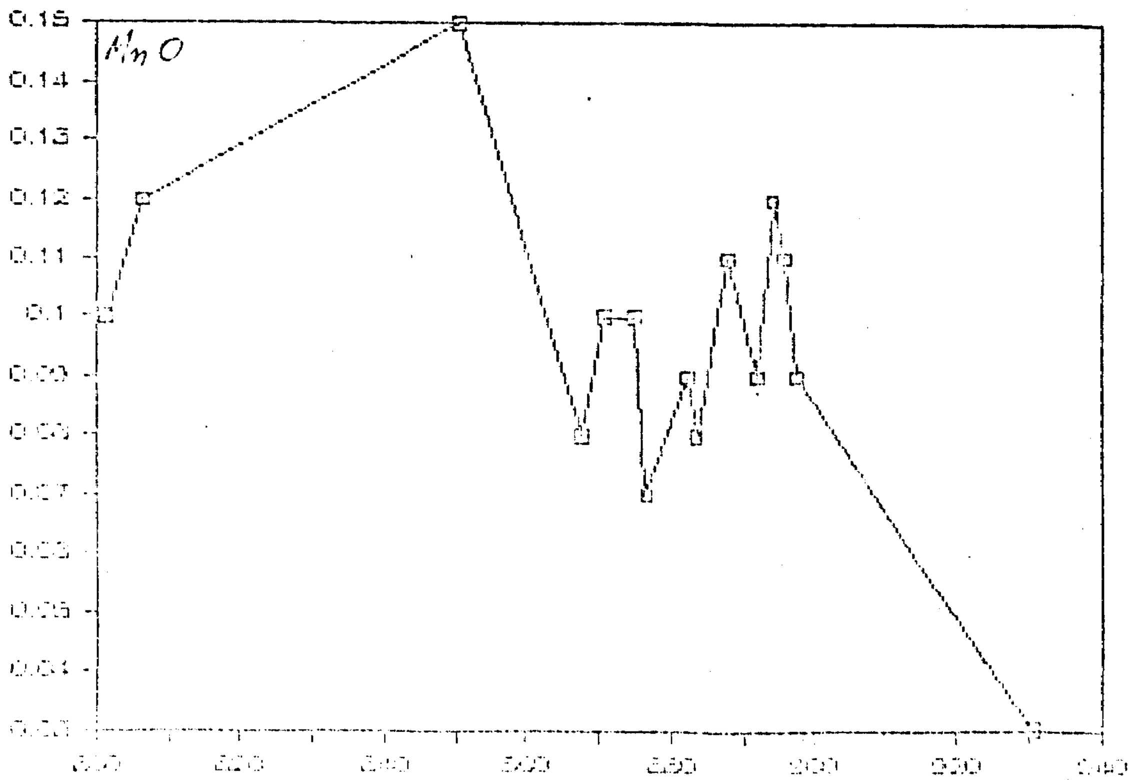

CaO
7
6
5
4
3
2
1
0
800
820
840
860
880
900
920
940

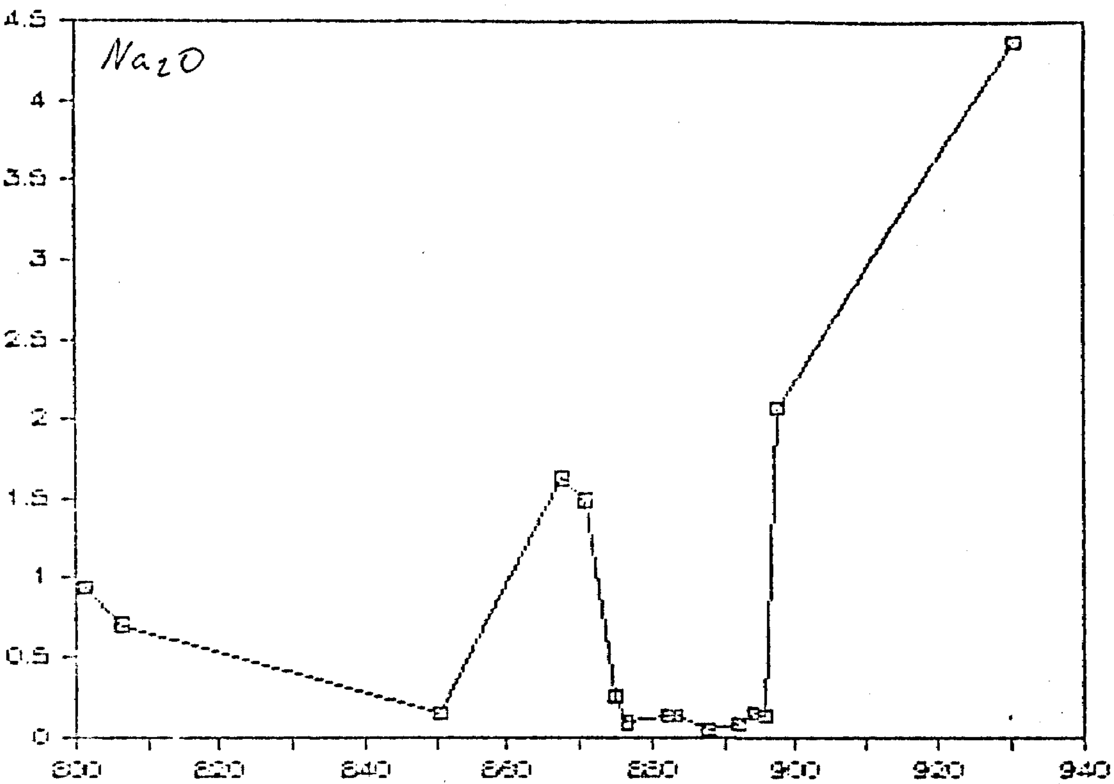

Fe2O3
Mag

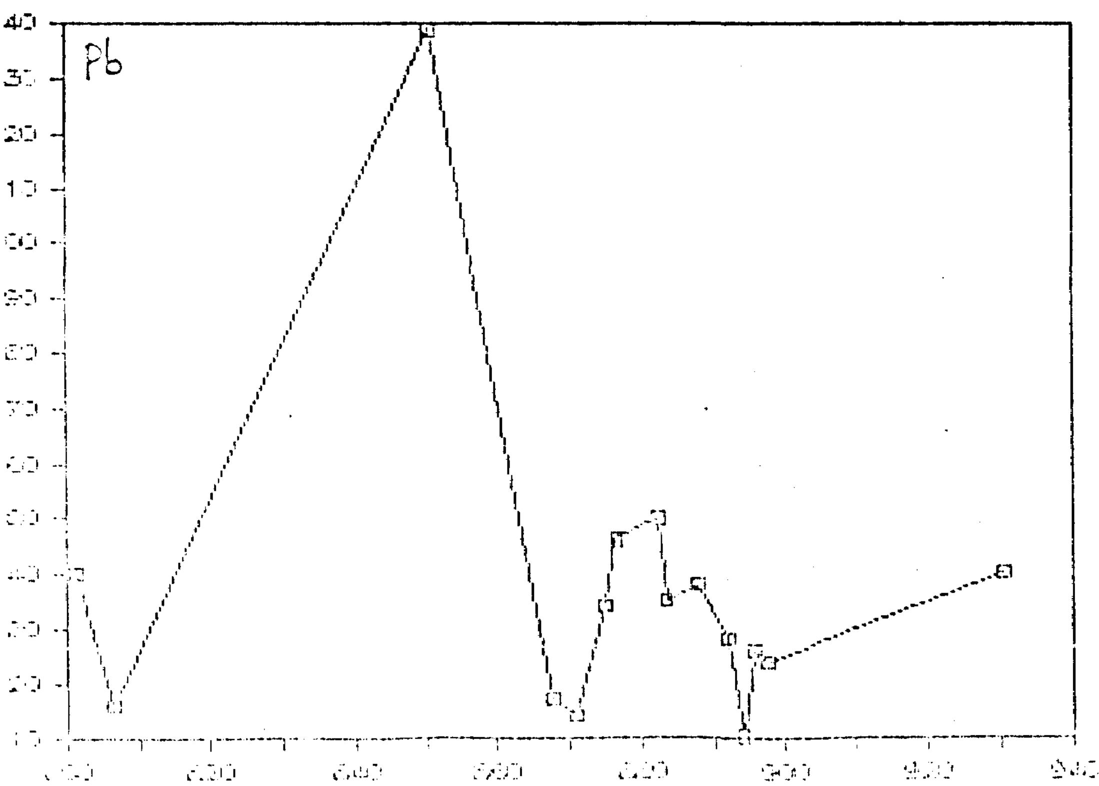

K₂O
3.2
3.1
3
2.9
2.8
2.7
2.6
2.5
2.4
2.3
2.2
2.1
2
1.9
1.8
1.7
1.6
1.5
800
820
840
860
880
900
920
940

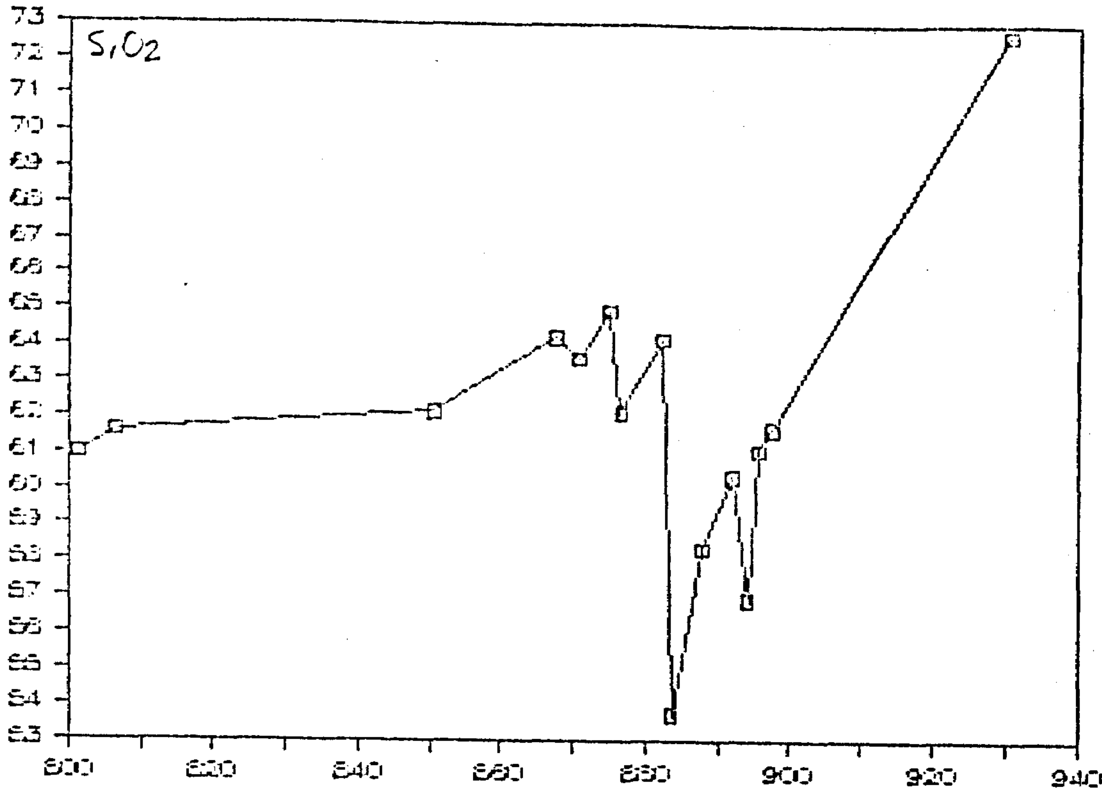

LOI
14
13
12
11
10

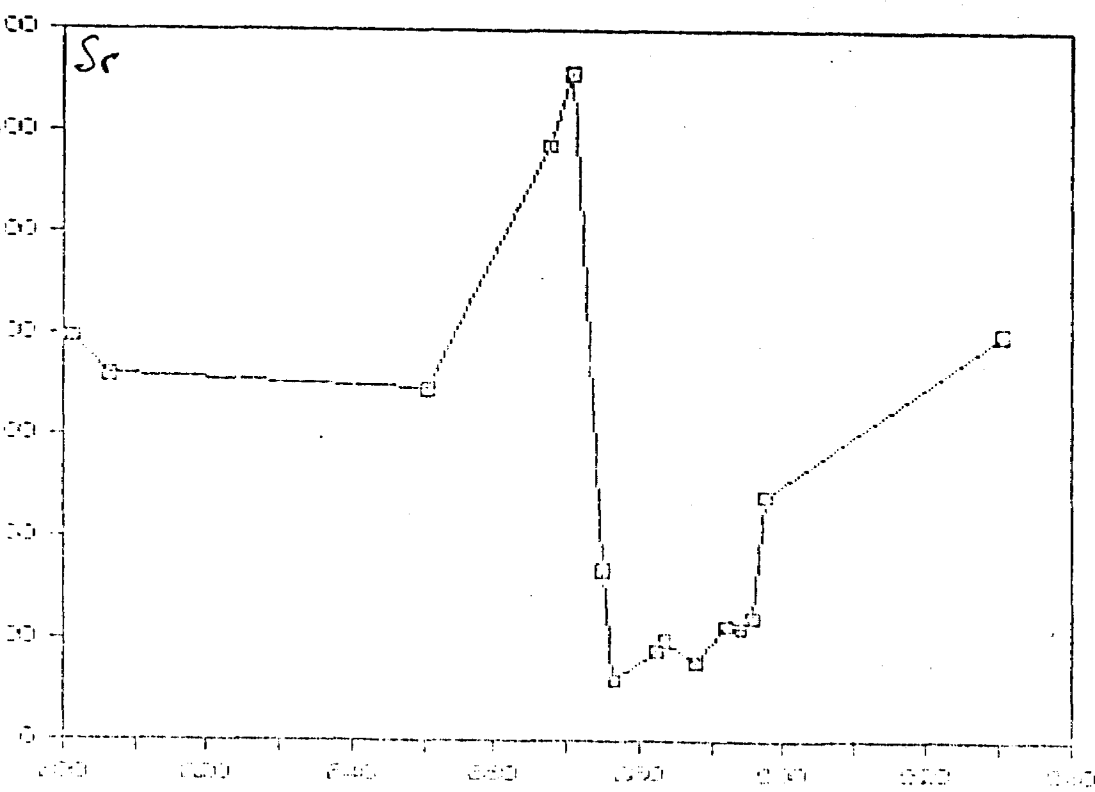

MgO
3.1
3
2.9
2.8
2.7
2.6
2.5
2.4
2.3
2.2
2.1
2
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1
800
820
840
860
880
900
920
940

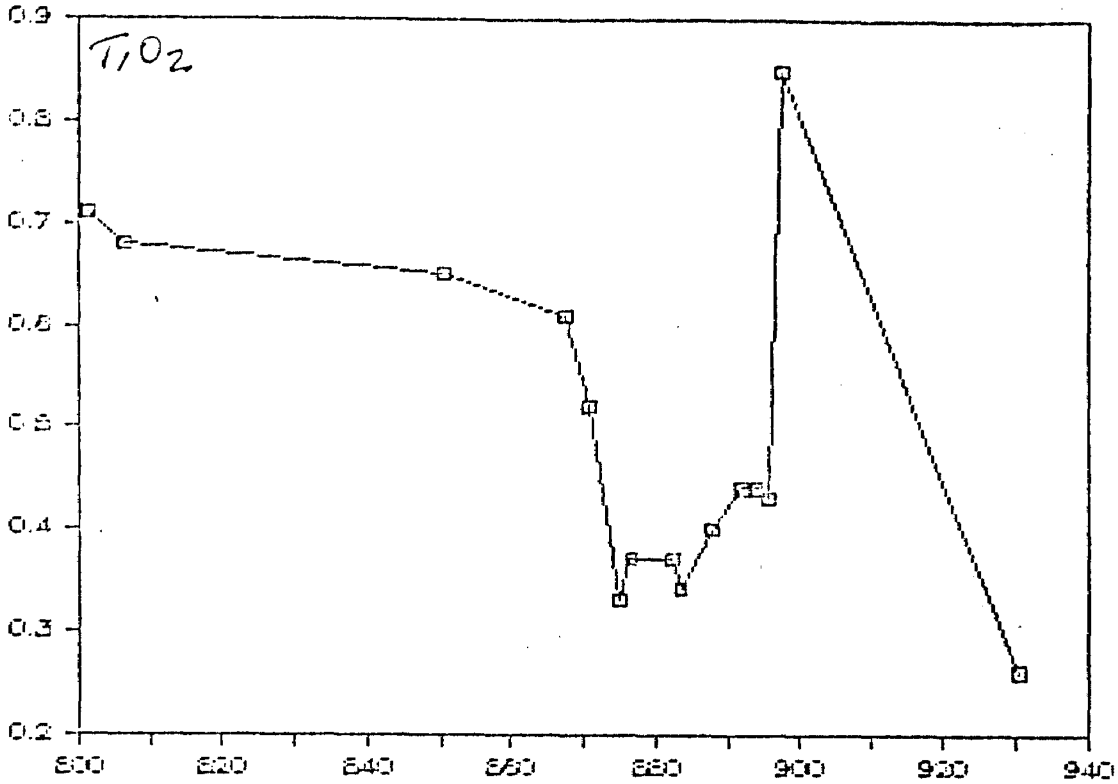

MnO
0.15
0.14
0.13
0.12
0.11
0.1

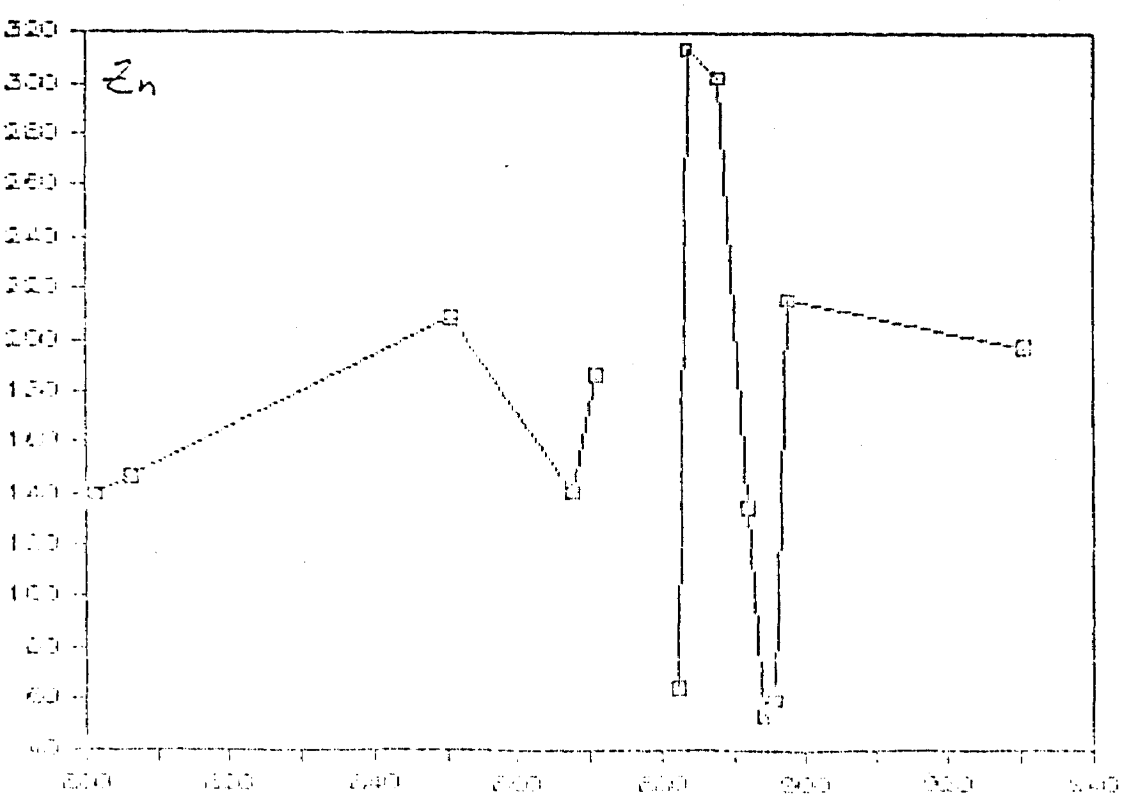

Na2O
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
800
820
840
860
880
900
920
940

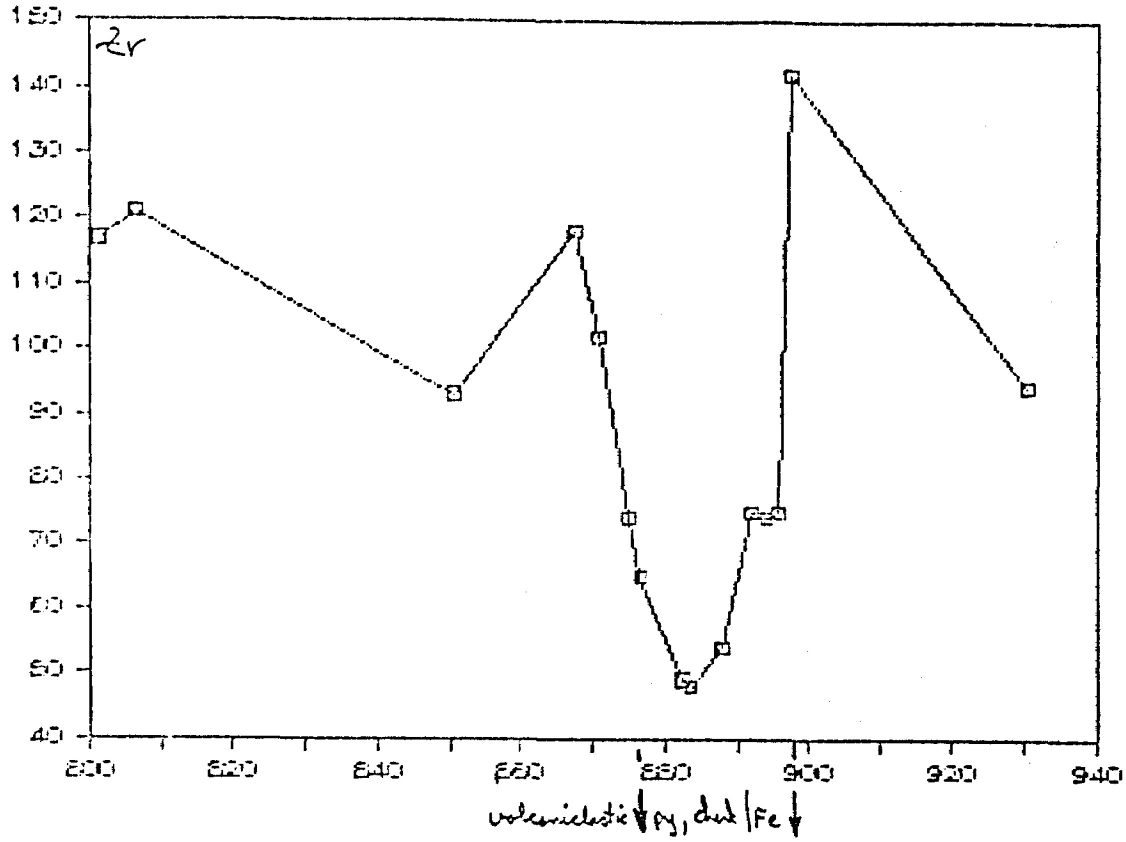

Pb
140
940


SiO2
73
72
71
70
900
920
940

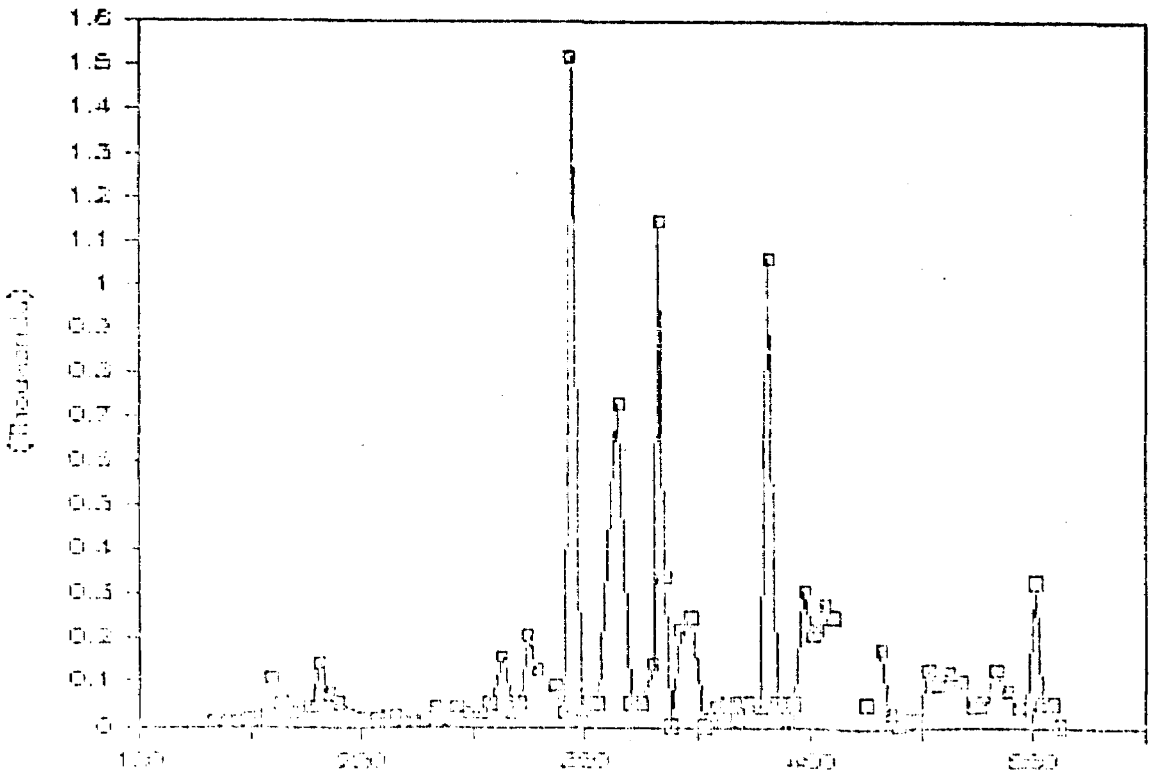

Sr
700
600
0


TiO2
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
800
820
840
860
880
900
920
940


Zn
320
300
280
260
240
200
140
800
900
940

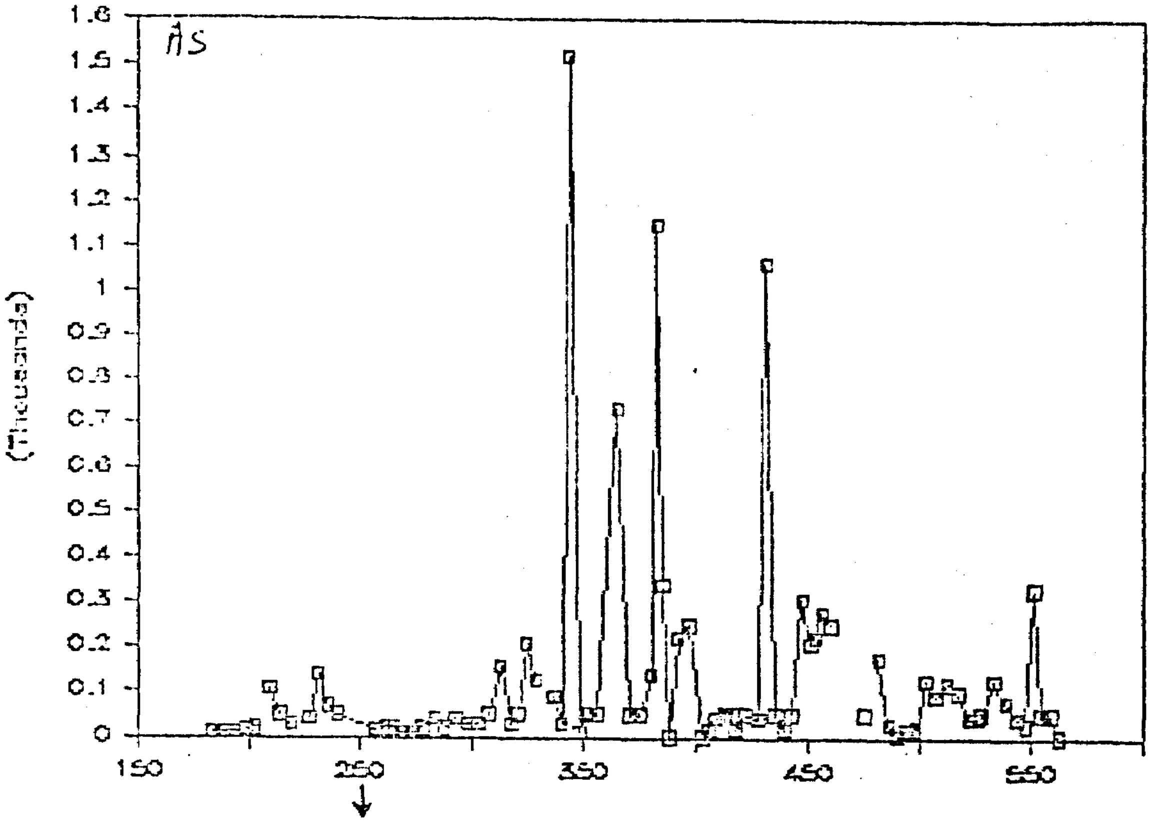

Zr
1.50
1.40
1.30
1.20
1.10
1.00
90
80
70
60
50
40
800
820
840
860
880
900
920
940
volcaniclastic py, dust Fe

- TS


1.6
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0

Sample	From	To	Notes	SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO	Na_2O	K_2O	TiO_2	MnO	P_2O_5	Ba	Sr	Zr	Au	LOI	As	Hg
[illegible]	172	177	mdi. 3%	71.15	6.69	19.34	0.53	1.01	0.12	0.61	0.29	0.03	0.16	205	34	51	56	3.29		15000
5496	177	184	dl. tuff	66.53	8.55	21.81	0.29	1.64	0.04	0.43	0.45	0.06	0.15	137	16	84	8	5.18	10	
5497	184	187	oxide "	66.[illegible]	12.45	16.21	0.2	2.13	0.03	1.93	0.36	0.02	0.14	1022	25	101	3	3.37	10	20000
5498	187	194	dl. T-3F	62.72	8.02	26.26	0.28	1.55	0.0001	0.53	0.37	0.03	0.15	177	16	75	3	5.33	10	
[illegible]	194	195	mdi 8%	61.17	5.23	30.67	0.39	1.54	0.0001	0.0001	0.3	0.13	0.18	0.0001	18	46	16	6.79		35000
[illegible]	195	199		61.59	11.04	21.28	0.12	2.37	0.0001	0.0001	0.54	0.04	0.1	76	14	83	5	3.2	15	
[illegible]	199	203	dl. T.	67.97	10.1	19.79	0.13	2.04	0.0001	0.38	0.41	0.02	0.13	305	15	82	7	3.12	20	
[illegible]	203	205	mdi 3%	56.26	7.01	34.12	0.33	1.63	0.0001	0.0001	0.31	0.07	0.14	69	20	63	27	4.87		45000
[illegible]	205	209	volcl 1%	65.2	15.1	13.88	0.14	2.36	0.02	2.45	0.63	0.02	0.16	657	40	136	2	3.1	110	
[illegible]	209	214	" "	62.23	17.23	13.67	0.07	2.45	0.03	3.43	0.73	0.01	0.14	841	44	150	3	3.46	50	
[illegible]	214	218.5	" "	61.11	15.27	18.24	0.07	2.49	0.01	2.02	0.62	0.02	0.11	496	30	122	56	3.8	30	55
[illegible]	216.5	223	" (ox) 2%	61.13	11.03	24.64	0.1	2.35	0.0001	0.11	0.42	0.02	0.12	28	16	81	193	4.39		2
[illegible]	223	227	" ox.	56.86	13.44	26.76	0.03	2.47	0.0001	0.37	0.62	0.03	0.15	98	16	110	144	3.34	42	35
[illegible]	227	231	" "	65.36	18.93	8.74	0.13	1.4	0.96	3.5	0.76	0.0001	0.11	733	97	150	3	3.92	140	
[illegible]	231	235	" "	63.51	18.33	11.03	0.17	1.54	1.39	2.98	0.76	0.03	0.17	626	112	152	3	3.73	70	
[illegible]	235	239.5	2%	60.44	16.95	16.43	0.21	2.19	0.57	2.17	0.75	0.04	0.15	466	82	137	8	4	50	40
[illegible]	239.5	250.5	fault	66.61	17.34	4.74	0.45	1.87	4.01	1.78	0.9	0.0001	0.22	677	534	160	3	2.44	15	7
[illegible]	250.5	258.5	tuff	64.87	17.43	7.65	0.43	2.36	5.08	1.07	0.69	0.16	0.21	528	579	129	7	3.25	20	12
[illegible]	258.5	264.5	"	64.78	17.14	7.79	0.45	2.23	5.1	1.34	0.74	0.16	0.21	519	606	161	2	3.21	20	35
[illegible]	264.5	268	"	61.74	19.45	8.81	0.49	3	2.48	3.09	0.5	0.09	0.3	812	300	134	3	3.3	10	
[illegible]	268	273		64	19.21	8.29	0.51	1.56	1.51	3.93	0.54	0.18	0.21	896	222	121	3	3.45	10	
[illegible]	273	277		65.7[illegible]	18.47	5.2	1.35	2.37	4.03	2.65	0.53	0.13	0.2	761	453	124	2	3.31	20	
[illegible]	277	282	cont'l	64.[illegible]	15.85	8.67	1.57	3.31	4.11	1.44	0.59	0.16	0.2	687	444	113	5	4.72	40	30
[illegible]	282	287	"	64.38	15.84	8.35	1.56	3.26	4.16	1.47	0.58	0.15	0.2	676	446	110	5	5.12	20	20
[illegible]	287	292	"	67.32	15.83	7.07	0.47	3.18	4.34	0.84	0.61	0.03	0.2	560	475	117	8	3.45	40	20
[illegible]	292	297	"	65.41	15.55	8.48	1.04	3.23	4.12	1.19	0.59	0.13	0.21	669	428	109	4	4.27	30	
[illegible]	297	302	"	64.97	15.62	8.33	1.31	3.83	3.92	1.02	0.63	0.12	0.2	579	354	109	7	4.16	30	
[illegible]	302	307	"	66.02	15.7	7.4	1.24	3.48	3.83	1.41	0.6	0.07	0.2	601	364	112	5	3.79	50	
[illegible]	307	312	"	65.46	14.94	9.73	1.36	2.37	3.11	2	0.58	0.22	0.19	657	278	101	8	4.87	160	25
[illegible]	312	317	"	65.82	14.51	7.93	2.93	2.94	2.97	1.92	0.56	0.12	0.18	615	321	95	4	5.72	30	20
[illegible]	317	320	tuff	66.42	15.1	7.78	1.94	3.06	3.37	1.42	0.53	0.03	0.19	639	314	107	5	4.45	50	
[illegible]	320	324	" ank 2%	65.53	17.44	3.98	4.5	2.36	2.08	3.22	0.53	0.06	0.2	504	587	95	8	7.95	210	
[illegible]	324	328		63.19	16.9	7.52	3.57	2.93	2.55	2.33	0.67	0.07	0.21	723	520	133	4	6.37	130	
[illegible]	328	329	" (ql) 5%	60.83	13.35	19.84	1.25	1.82	0.51	1.35	0.68	0.07	0.2	408	206	117	299	6.18		30
[illegible]	329	336	volcl.	64.45	17.12	5.13	2.99	2.44	5.26	1.61	0.71	0.04	0.19	507	838	131	69	5	90	2
[illegible]	336	340	fault 2%	56.62	13.39	10.67	2.26	2.22	2.6	1.29	0.42	0.03	0.21	432	415	102	60	4.54	30	35
[illegible]	340	343	" 5%	65.94	12.1	14.3	1.74	1.83	1.08	2.24	0.42	0.1	0.19	459	208	93	177		[illegible]	
[illegible]	343	348	" "	67.91	16.08	6.37	1.35	2.43	2.54	2.4	0.43	0.03	0.2	618	418	121	8	3.79	10	13
[illegible]	343	352	tuff 1%	61.3	18.23	6.17	3.46	2.72	4.31	2.11	0.82	0.05	0.29	655	805	144	5	5.99	50	30
[illegible]	352	355.5	vol.	65.54	17.75	4.83	2.43	2.1	3.62	2.54	0.51	0.03	0.3	653	561	145	4	4	50	
[illegible]	355.5	365	[illegible]	69.42	15.74	4.5	1.35	0.97	6.45	0.94	0.37	0.04	0.17	297	617	72	11	2.76	720	
[illegible]	365	370	2%	60.8	9.39	24.05	0.5	1.76	0.16	2.45	0.45	0.19	0.22	305	81	80	7	10.79	50	40
[illegible]	370	375	8%	[illegible].54	11.19	22.16	0.6	1.8	0.1	2.63	0.57	0.17	0.19	459	80	97	8	9.76	50	
[illegible]	375	380		53.65	11.07	23.82	1.02	2.17	0.03	2.24	0.54	0.15	0.21	447	89	93	113	9.26	140	55
[illegible]	380	382.4	5%	56.75	9.39	26.94	1.85	2.27	0.15	1.07	0.46	0.13	0.19	345	131	84	293	10.4	1150	65
[illegible]	382.4	384.8		56.45	13.3	18.24	3.17	2.25	1.07	2.65	0.52	0.1	0.2	510	311	98	137	8.64	340	
[illegible]	384.8	387.7	0%	57.23	8.44	28.03	1.55	2.64	0.41	0.97	0.35	0.16	0.17	203	128	67	777	11.7	0	
[illegible]	387	392	5%	[illegible].16	15.57	12.78	3.77	2.67	0.39	3.55	0.76	0.11	0.19	521	303	135	[illegible]	7.35	[illegible]	
[illegible]	392	397		61.72	14.57	12.58	3.92	3.03	0.17	2.99	0.69	0.07	0.18	431	244	127	64	6.97	250	
[illegible]	397.7	402.9	3%	59.14	11.27	19.68	3.41	3.47	0.05	1.99	0.6	0.12	0.21	367	94	102	82	8.07	0	45
[illegible]	402.9	405.8	1%	53.32	13.36	20.37	1.99	3.27	0.05	1.64	0.7	0.03	0.2	402	67	120	25	5.95	15	65
[illegible]	405.8	409	dl. T-F 1%	55.43	10.07	20.[illegible]	0.84	2.13	0.05	1.64	0.52	0.18	0.13	368	63	87	18	10.5	40	
[illegible]	409	412.4	dark dl.	55.33	13.17	25.43	0.63	1.99	0.07	2.34	0.72	0.12	0.09	497	70	121	7	8.34	50	
[illegible]	412.4	413.7	dl. T. 2%	77.31	3.72	15.61	1.42	1.37	0.02	0.15	0.16	0.12	0.06	153	37	32	7	6.27	50	
[illegible]	413.7	416.2	" 5%	72.33	3.69	21.83	0.47	1.06	0.04	0.0001	0.14	0.05	0.04	154	29	13	118	9.37	50	80
[illegible]	416.2	417.2	"	80.62	2.8	13.48	0.91	0.96	0.03	0.03	0.14	0.07	0.11	202	36	23	10	6.37	15	
[illegible]	417.2	[illegible]	2%	51.55	9.09	28.2	0.61	2.17	0.01	0.71	0.42	0.06	0.13	312	43	31	11	9.39	50	
[illegible]	[illegible]	[illegible]	T-F 2%	[illegible]	[illegible]	[illegible]	1.6	2.26	0.0001	0.61	0.35	0.11	0.16	[illegible]	44	4	15	[illegible]	[illegible]	[illegible]

[illegible]	427.7	431.5	2% 61.5	14.01	14.57	3.6	3.06	0.07	2.38	0.52	0.05	0.16	479	126	99	343	6.47	1060	
[illegible]	431.8	435.5	66.49	9.56	16.33	3.21	3.04	0.03	0.7	0.42	0.06	0.15	269	85	74	22	5.81	50	
[illegible]	435.5	437.7	56.31	4.34	34.56	2.35	2.56	0.15	0.22	0.22	0.11	0.17	100	43	31	14	12.8	15	3500
[illegible]	439.7	442.7	56.03	12.12	21.61	2.71	4.52	0.38	1.64	0.56	0.1	0.23	442	265	87	11	10.6	50	
[illegible]	442.7	447.7	62.75	14.33	8.37	6.51	4.92	0.66	2.94	0.66	0.1	0.22	713	570	107	7	10.9	310	
[illegible]	447.7	451.5	63.76	12.99	12.47	3.52	2.92	2.15	1.45	0.46	0.06	0.17	423	297	95	8	7.16	210	70
[illegible]	451.5	453.5	62.36	15.39	14.27	2.96	3.5	0.19	2.38	0.66	0.06	0.16	462	151	120	34	7.39	220	
[illegible]	453.5	456.5	56.27	12.9	20.53	2.17	3.24	0.35	1.61	0.56	0.09	0.19	405	154	94	33	8.74	260	80
[illegible]	456.5	[illegible]	54.8	16.53	10.13	5.36	3.62	1.15	2.96	0.59	0.07	0.2	640	455	102	70	9.79	250	
[illegible]	[illegible]	465	62.75	9.6	21.67	2.46	2.73	0.44	1.62	0.41	0.11	0.16	292	156	78	1000	9.76		
[illegible]	465	470	57.81	12.01	21.44	2.62	2.22	0.72	2.35	0.52	0.07	0.17	478	182	100	402	9.67		75
[illegible]	469.6	470	3% 51.55	7.79	31.57	2.77	2.91	1.97	0.8	0.29	0.1	0.19	212	146	60	40	13.1		
[illegible]	470	475	54.84	9.06	23.89	2.79	2.57	0.55	1.56	0.4	0.11	0.18	490	132	74	163	11.6		9000
[illegible]	474.2	475	52.3	3.24	40.9	1.14	1.25	0.56	0.19	0.11	0.09	0.18	117	54	26	44	12.9	50	
[illegible]	475	478	51.66	9.79	31.44	1.32	2.2	0.76	2.05	0.46	0.07	0.19	376	122	123	262	13.2		
[illegible]	478	481.7	61.23	14.39	15.57	2.91	2.47	0.49	2.16	0.63	0.1	0.15	420	194	105	11	7.55	180	
[illegible]	481.7	485	1% 55.99	7.59	31.85	1.44	1.95	0.76	0.69	0.26	0.07	0.15	367	82	53	7	9.25	30	
[illegible]	485	490	1% 55.85	9.37	30.12	1.42	2.18	0.91	1.49	0.37	0.06	0.17	476	74	71	10	10.29	5	30200
[illegible]	490	494	1% 52.53	7.37	34.18	1.81	2.05	0.36	1.11	0.31	0.07	0.17	325	64	57	7	9.79	15	25000
[illegible]	494	498	2% 55.20	10.27	24.84	2.65	2.53	1	2.18	0.39	0.09	0.18	698	109	80	15	10.79	20	
[illegible]	498	503	2% 66.47	15.66	6.9	3.23	2.02	1.73	3.03	0.63	0.03	0.14	535	260	129	7	5.49	130	60
[illegible]	503	508	66.65	16.25	6.3	2.73	1.9	2.03	2.95	0.63	0.07	0.14	511	256	131	5	4.92	90	
[illegible]	508	513	65.63	15.52	7.83	3.07	1.95	2.18	2.82	0.6	0.1	0.15	503	276	123	8	5.64	120	20
[illegible]	513	518	66.13	16.66	6.18	2.8	2.06	2.57	2.7	0.63	0.03	0.15	494	276	132	4	5.43	100	
[illegible]	518	523	70.13	15.76	2.62	2.96	1.51	3.92	2.56	0.32	0.05	0.12	620	274	103	10	4.77	40	
[illegible]	523	527.5	72.03	14.28	3.97	2.75	1.52	2.15	2.82	0.3	0.04	0.09	621	216	96	8	4.75	43	
[illegible]	527.5	[illegible]	55.33	11.27	25.97	1.51	2.56	0.45	2.12	0.43	0.08	0.17	400	85	87	67	9.92	50	
[illegible]	529.5	534	67.44	15.4	7.65	2.55	2.62	0.37	3.17	0.57	0.04	0.15	556	133	130	11	5.18	150	60
[illegible]	534	539.3	66.74	16.26	6.53	2.75	2.09	1.52	3.24	0.61	0.06	0.15	570	271	135	5	5.33	60	50
[illegible]	593.3	544	2% 52.56	12.65	19.74	2.25	1.93	2.15	1.78	0.56	0.07	0.19	437	306	86	16	8.41	40	
[illegible]	544	548	55.8	11.93	24.23	1.73	2.08	1.64	1.56	0.63	0.09	0.17	443	219	84	3	8.7	25	
23778	548	552	57.6	10.82	23.62	2.03	1.96	2.27	0.68	0.48	0.07	0.17	368	248	66	192	8.43	330	6000
[illegible]	552	554.7	53.33	7.71	32.07	2.64	2.04	0.6	0.92	0.35	0.1	0.16	222	171	35	63	13	50	6500
[illegible]	544.7	559	62.21	13.5	15.24	2.19	2.3	1.91	1.87	0.48	0.06	0.19	440	299	97	20	6.91	50	
[illegible]	559	563	57.83	11.55	23.64	1.82	2.31	1.81	1.01	0.5	0.09	0.19	391	200	79	5	8.6	0	


As
1.6
1.5
1.4
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1
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(Thousands)
150
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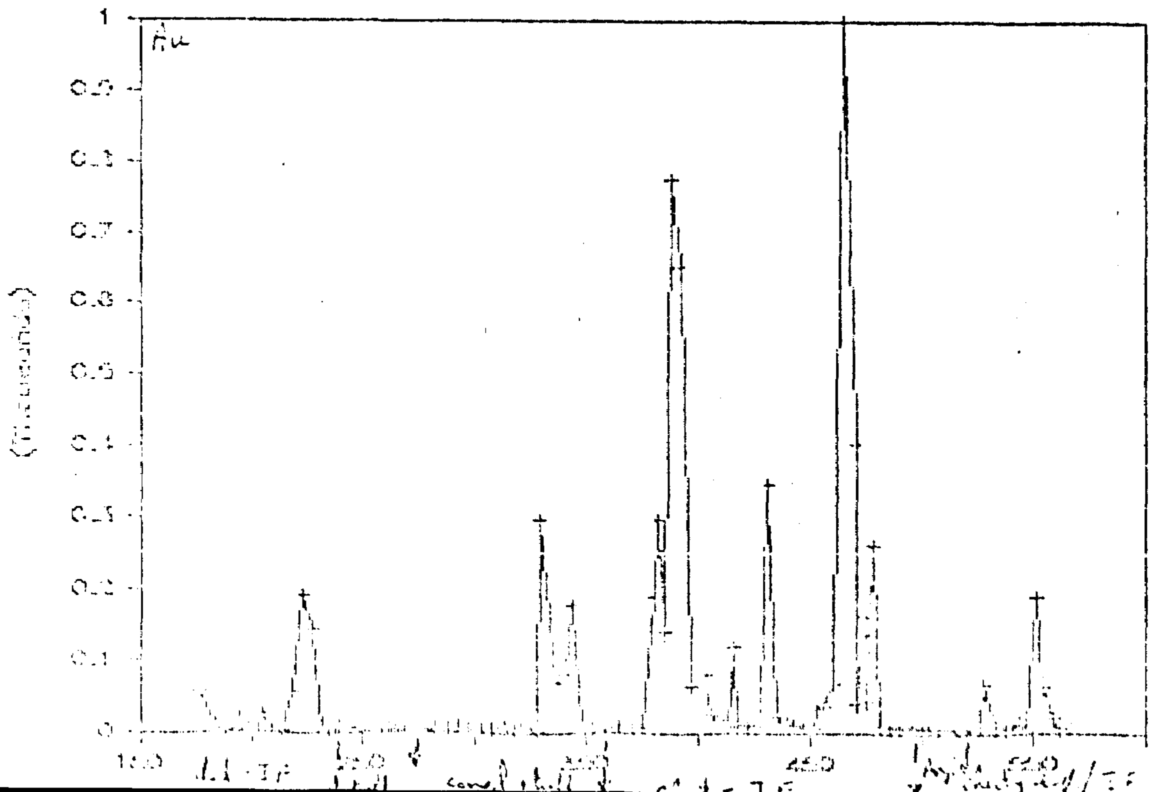
Au
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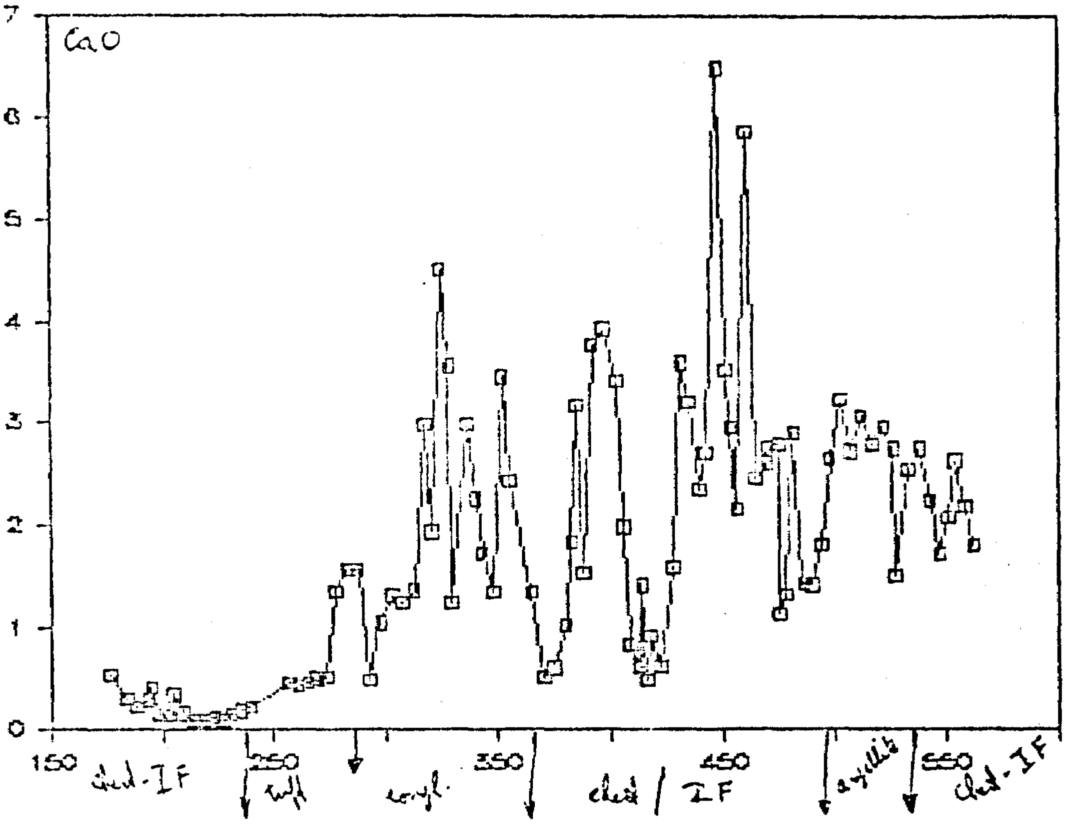
0
450
550


CaO
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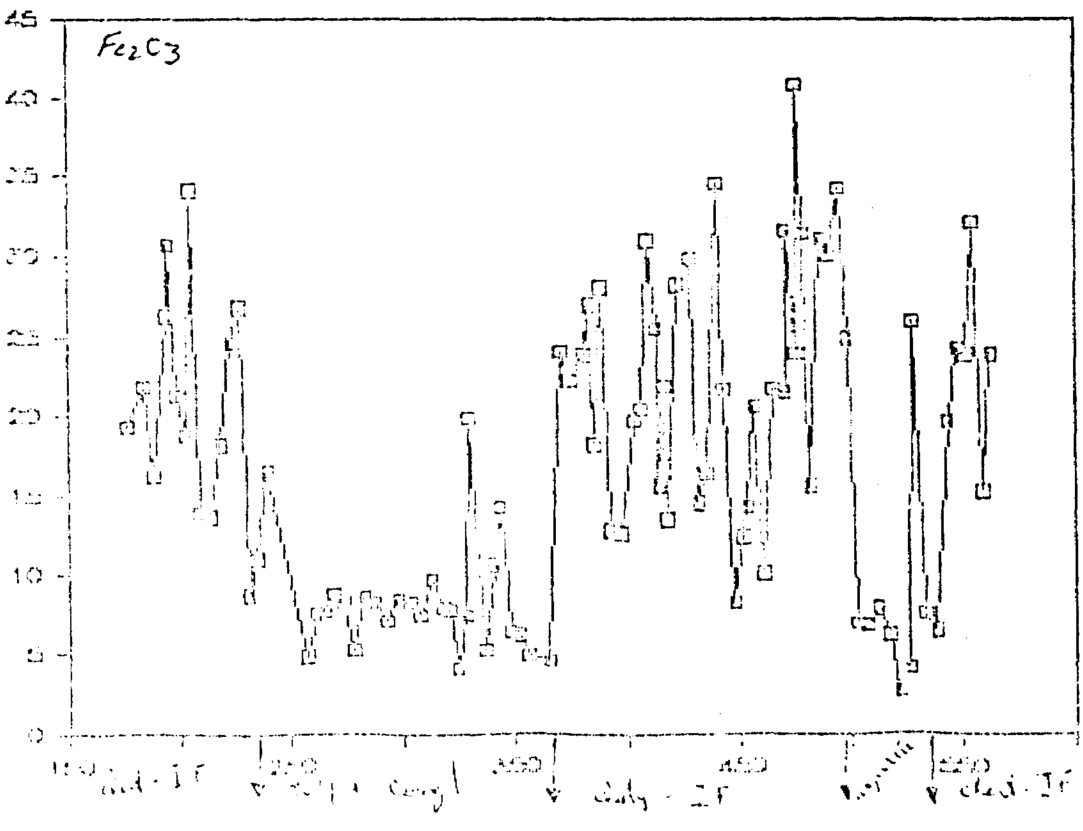
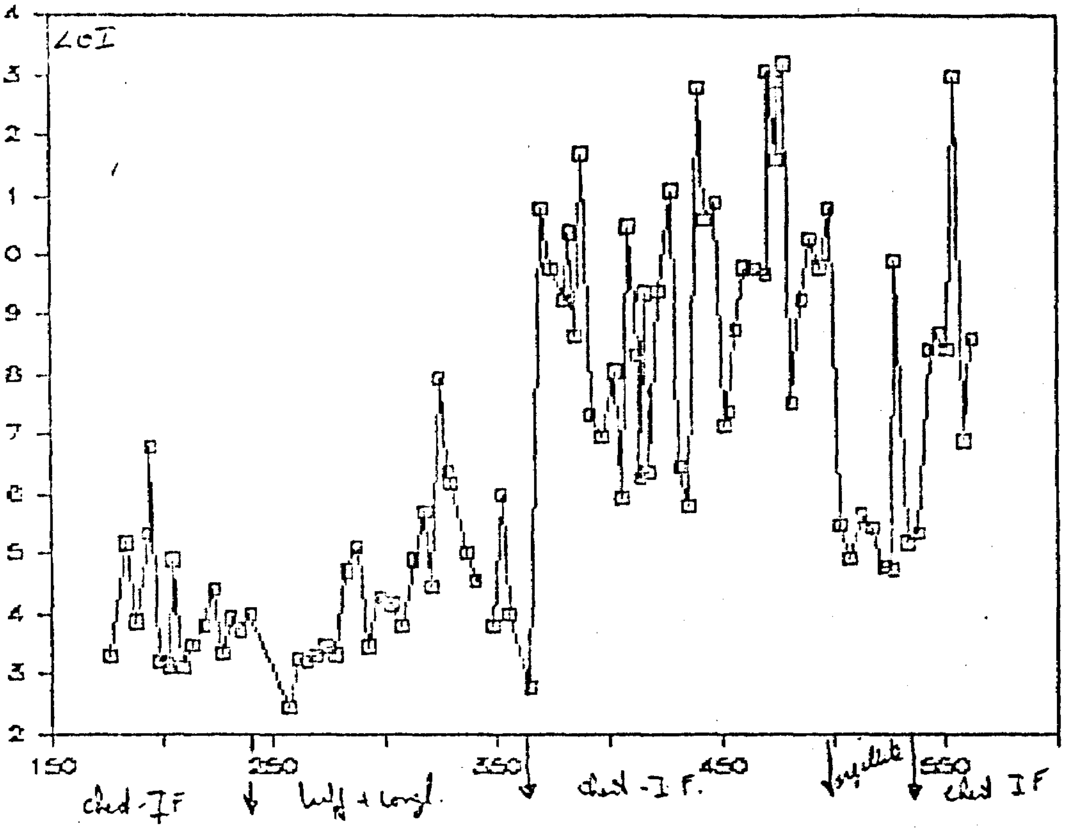
6
5
4
3
2
1
0
150
250
350
450
550


Fe2C3
45
40
10
5
0
450


LOI
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13
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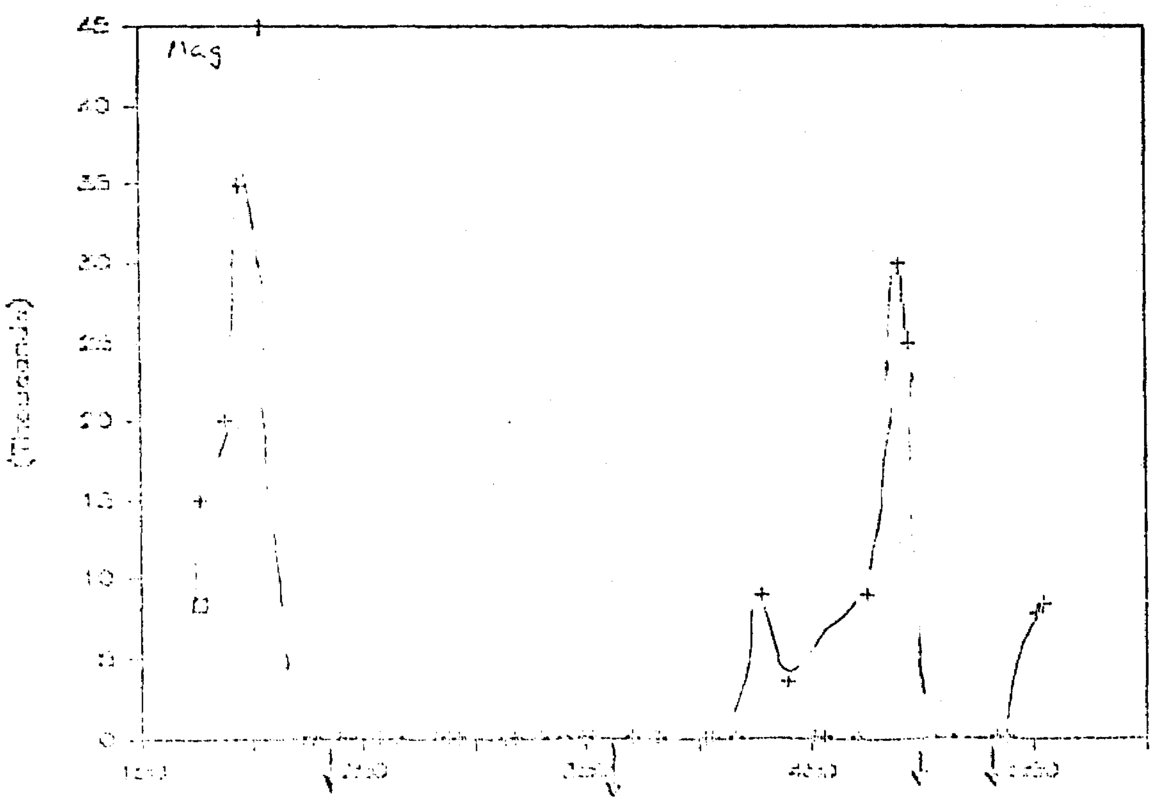
Mag
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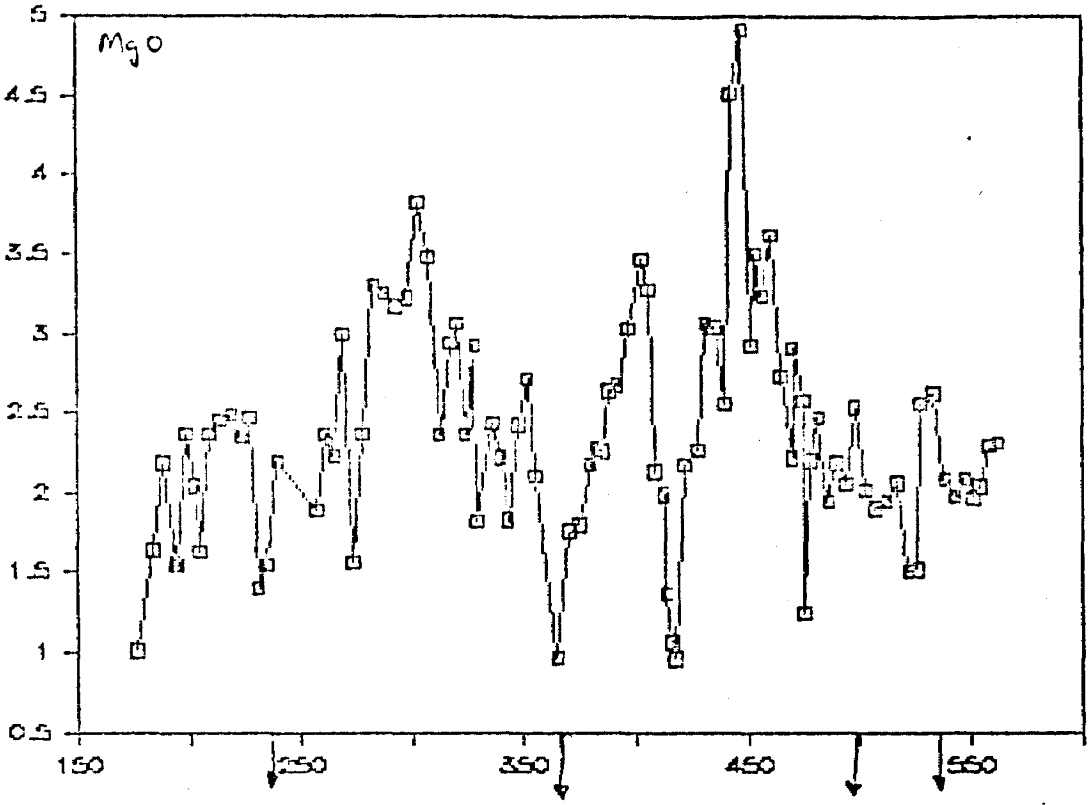
40
0


MgO
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
150
250
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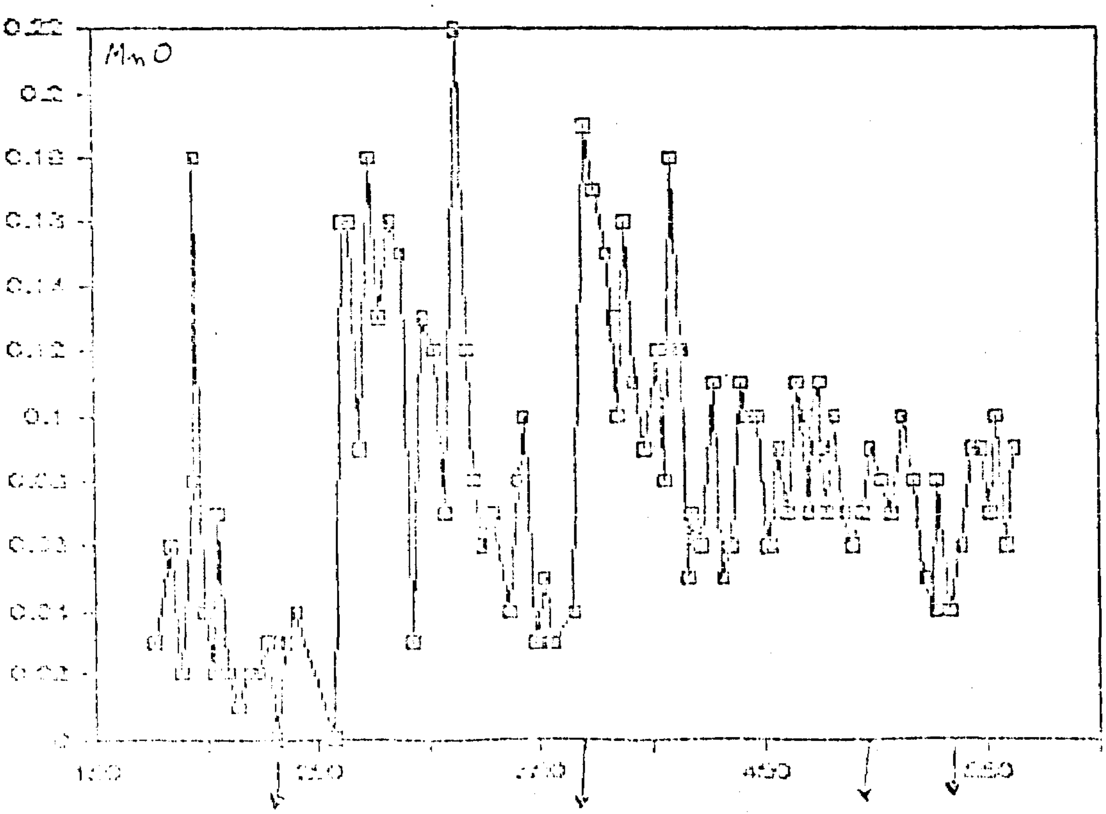
MnO
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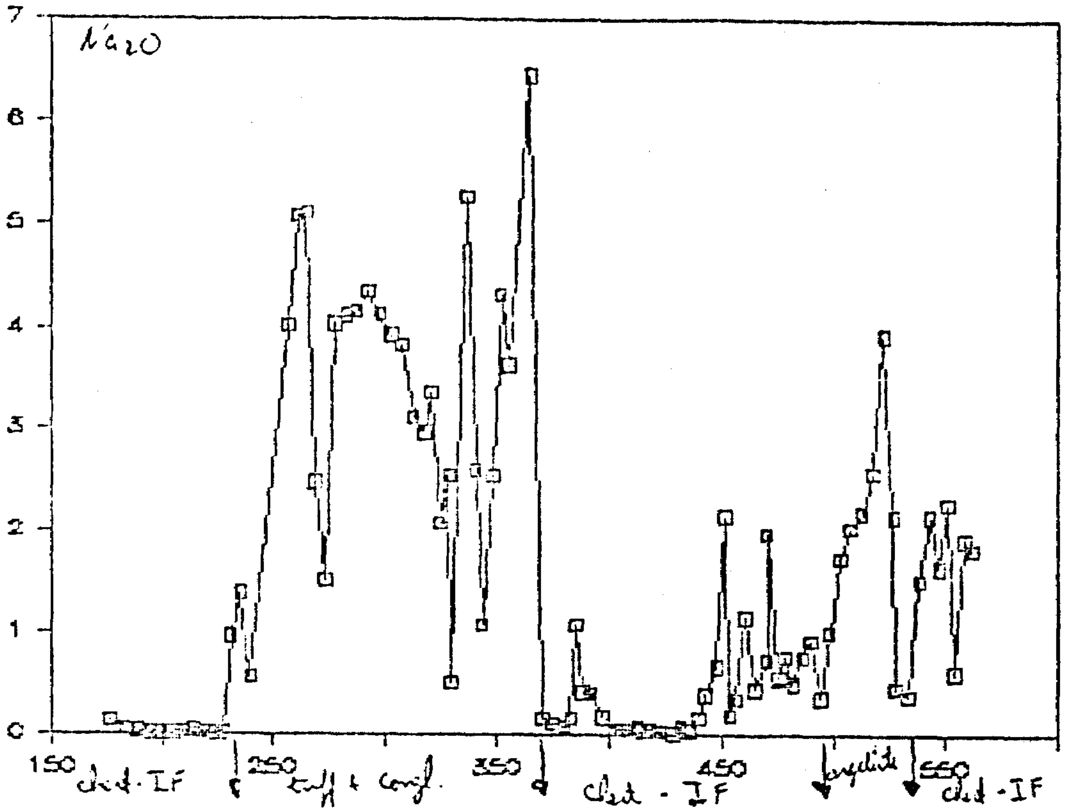
Na2O
7
6
5
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150
250
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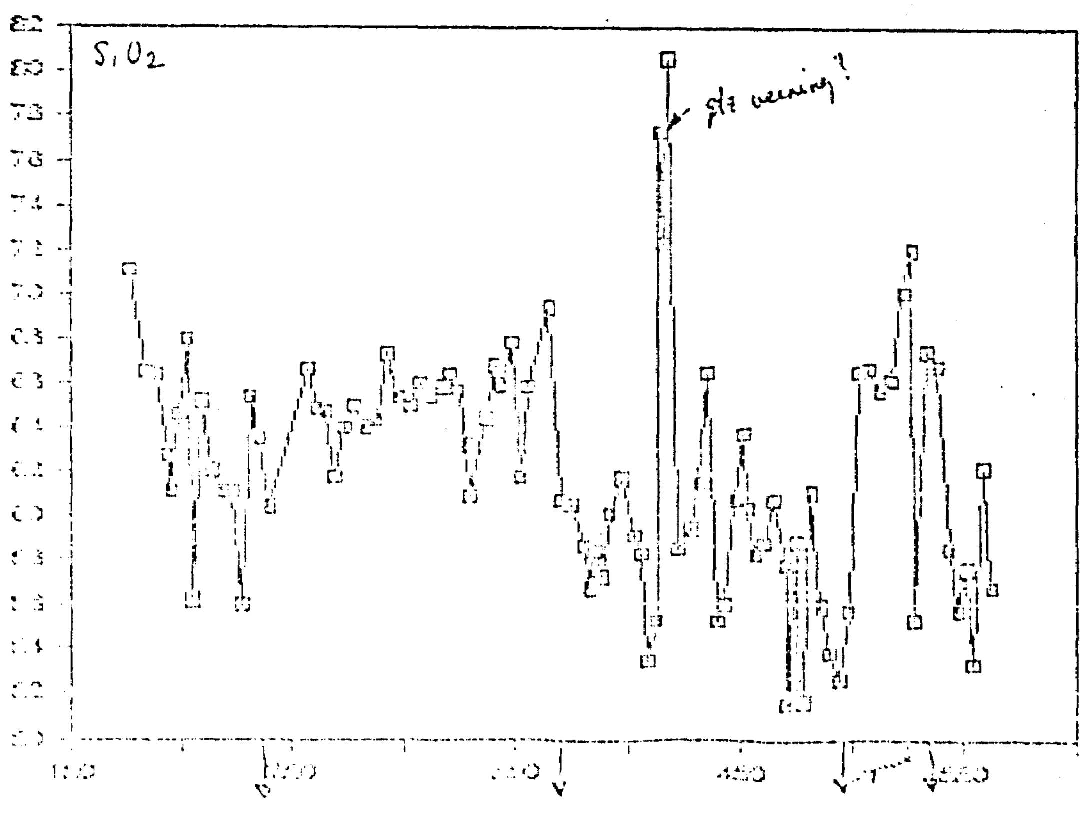
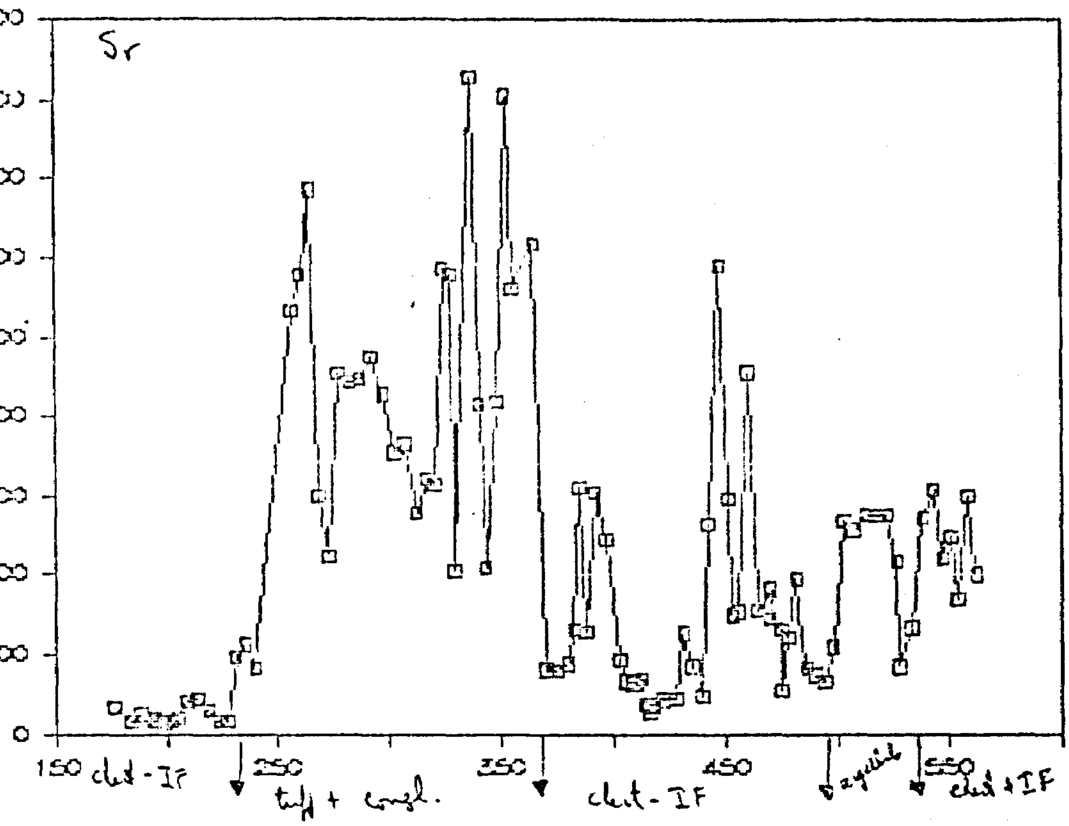
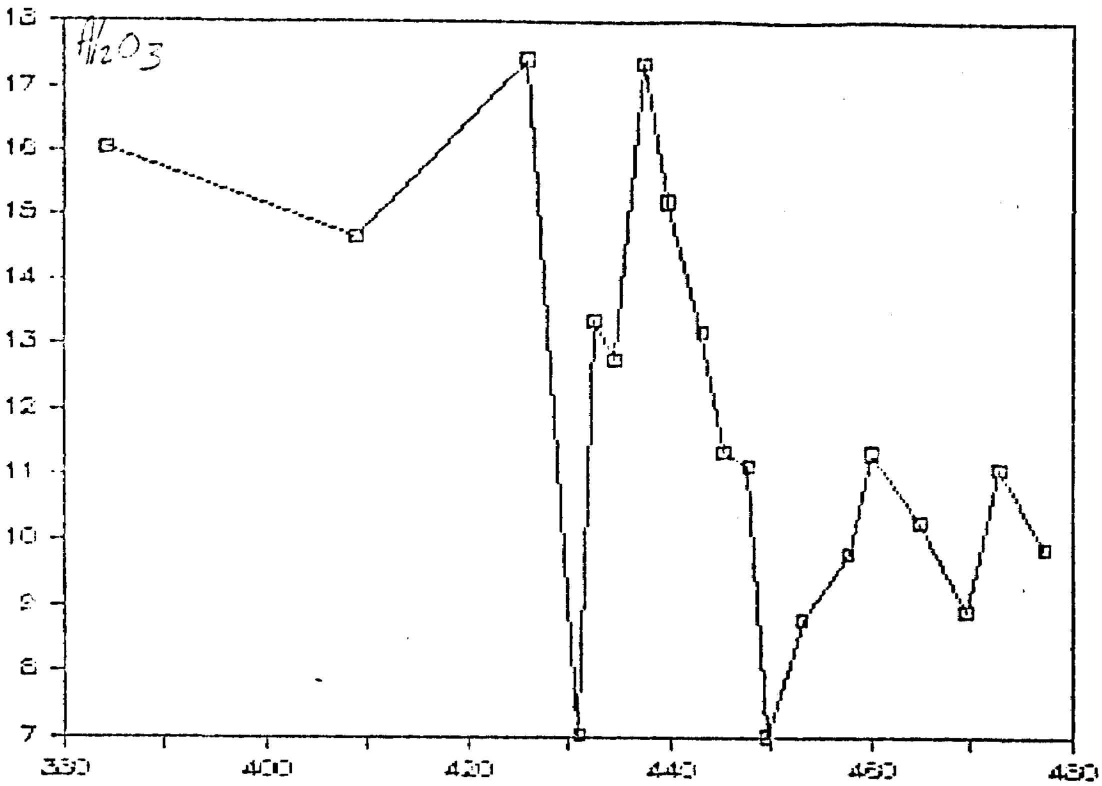
450
550
clast - IF
tuff + congl.
clast - IF
argillite
clast - IF


SiO2
qtz veining?
450


Sr
900
800
700
600
500
400
300
200
100
0
150
250
350
450
550

	From	To	SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO	Na_2O	K_2O	TiO_2	MnO	P_2O_5	Ba	Sr	Zr	Au	LOI	As	Zn	Mag
[illegible]	3[illegible]4.3	3[illegible].3	63.75	16.05	6.92	6.66	3.11	1.9	3.61	0.6	0.11	0.24	908	643	122	10	9.24	25	710	75
[illegible] 3	409	411.2	63.[illegible]4	14.67	6.32	7.19	3.00	0.7	3.47	0.58	0.11	0.19	770	605	139	4	10.2	40	75	70
[illegible] 25-41	4[illegible]5	4[illegible]1	6[illegible].5	17.44	7.31	3.68	3.15	2.45	2.39	0.66	0.08	0.19	743	519	102	2	7.16	50	70	80
[illegible]	4[illegible]1	4[illegible].5	47.5[illegible]	7.24	37.94	1.38	2.04	0.67	0.73	0.32	0.06	0.22	207	134	60		10.9			
[illegible]	4[illegible].5	4[illegible]4.5	65.[illegible]	13.[illegible]	14.24	2.32	2.59	2.12	1.51	0.43	0.05	0.14	756	303	84	10	6.89	15	44	
[illegible]4	4[illegible]4.5	4[illegible]7.5	66.69	12.76	17.71	2.4	2.62	1.31	1.43	0.41	0.04	0.2	704	303	70	6	6.97	15	40	65
[illegible]5	4[illegible]7.5	4[illegible].3	63.77	17.37	5.[illegible]	2.62	2.84	5.07	1.76	0.63	0.03	0.22	620	762	143	3	5.35	25	49	
[illegible]	4[illegible].3	4[illegible].2	58.59	15.22	17.75	1.43	2.29	1.69	2.12	0.63	0.05	0.17	531	293	123	7	6.51	80	92	2100
[illegible]7	44[illegible].2	44[illegible].4	59.37	13.18	19.34	2.05	2.57	0.58	2.04	0.56	0.07	0.19	506	252	95	3	7.39	40	81	
[illegible]	445.4	447.[illegible]	56.28	11.34	24.93	2	2.5	0.34	1.63	0.61	0.1	0.17	474	163	91	4	8.66	50	83	
[illegible]	417.3	44[illegible].5	62.16	11.14	18.45	2.09	2.31	1.25	1.83	0.47	0.06	0.19	549	240	100	2	7.12	5		
[illegible]	44[illegible].5	453.1	48.8	7	38.05	2.05	2.18	0.49	0.79	0.32	0.07	0.21	287	176	47	2	11.6	5	47	
[illegible]	453.1	45[illegible].7	56.[illegible]5	8.77	27.0[illegible]	3.01	2.04	0.89	1.19	0.39	0.08	0.16	380	270	72	3	7.72	20	52	75000
[illegible]	457.7	4[illegible]0.2	54.04	9.81	29.[illegible]6	1.66	2.07	0.82	1.13	0.49	0.16	0.21	313	200	66	3	10.29	20	110	
[illegible]2	4[illegible]0.2	4[illegible]5	56.63	11.32	24.74	1.77	2.12	0.99	1.54	0.54	0.11	0.19	449	232	70	4	7.91	10	94	
[illegible]3	4[illegible]5	469.5	54.7	10.26	27.39	1.96	2.14	0.26	2.53	0.45	0.08	0.18	749	180	73	2	7.43	10	53	55000
[illegible]4	4[illegible]9.5[illegible]	473	55.61	8.91	31.12	0.95	1.77	0.28	2.64	0.39	0.03	0.19	591	112	53	2	10.7	0	49	
[illegible]5	473	477.3	57.[illegible]5	11.1	24.11	1.44	2.2	0.38	2.27	0.54	0.08	0.18	469	169	249	3	6.83	0	87	55000
[illegible]	477.3	4[illegible].3	5[illegible].6	9.9	24.18	1.35	1.93	0.23	2.95	0.5	0.13	0.17	599	131	95	6	10.2	20	201	


Al2O3
18
17
16
15
14
13
12
11
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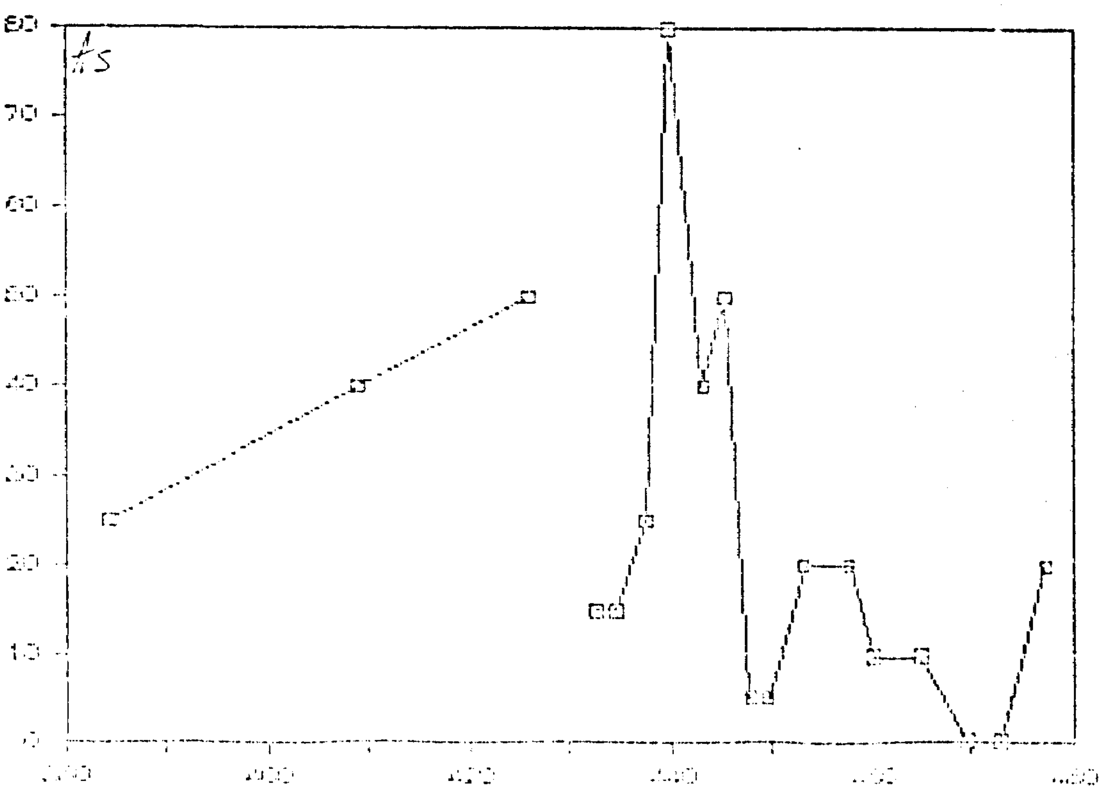
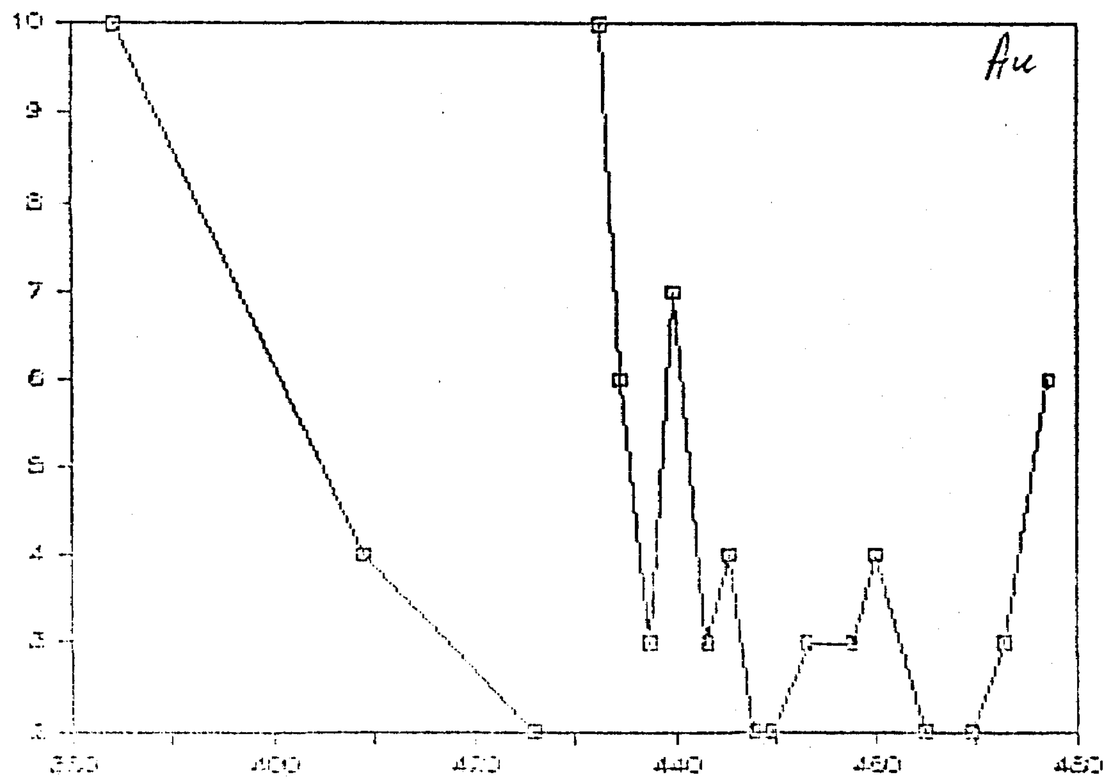
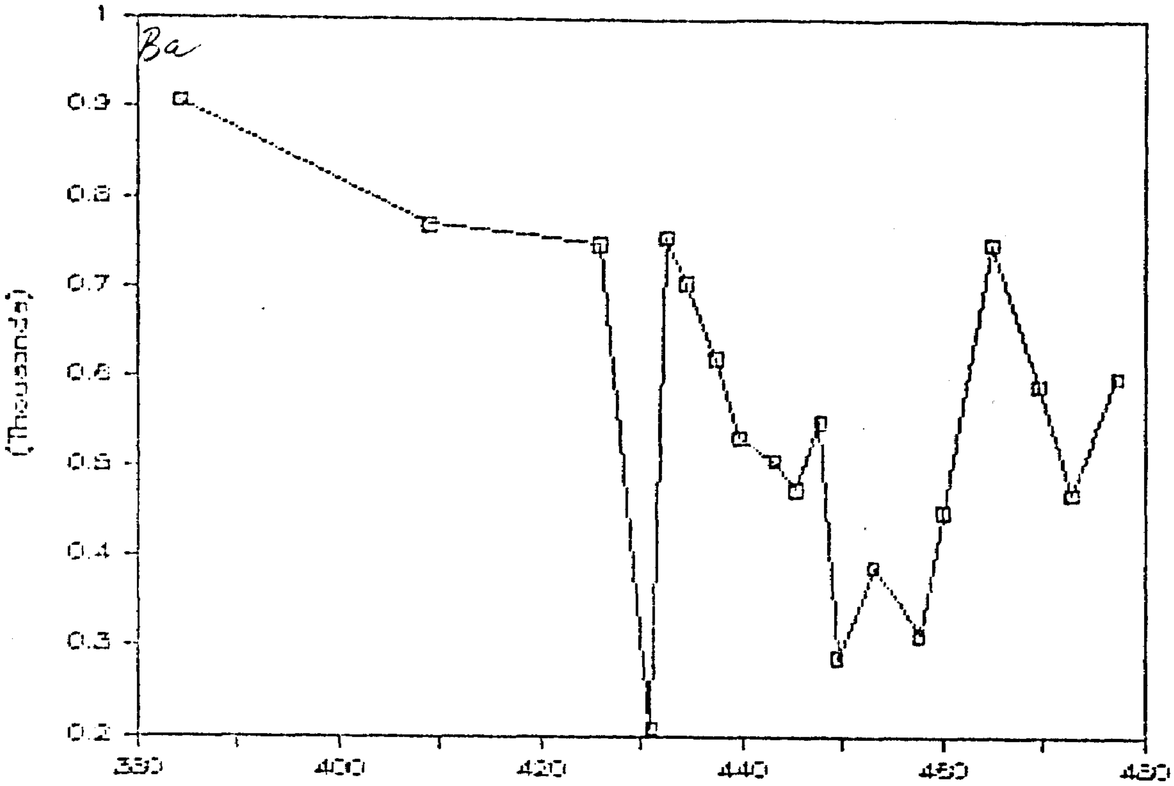
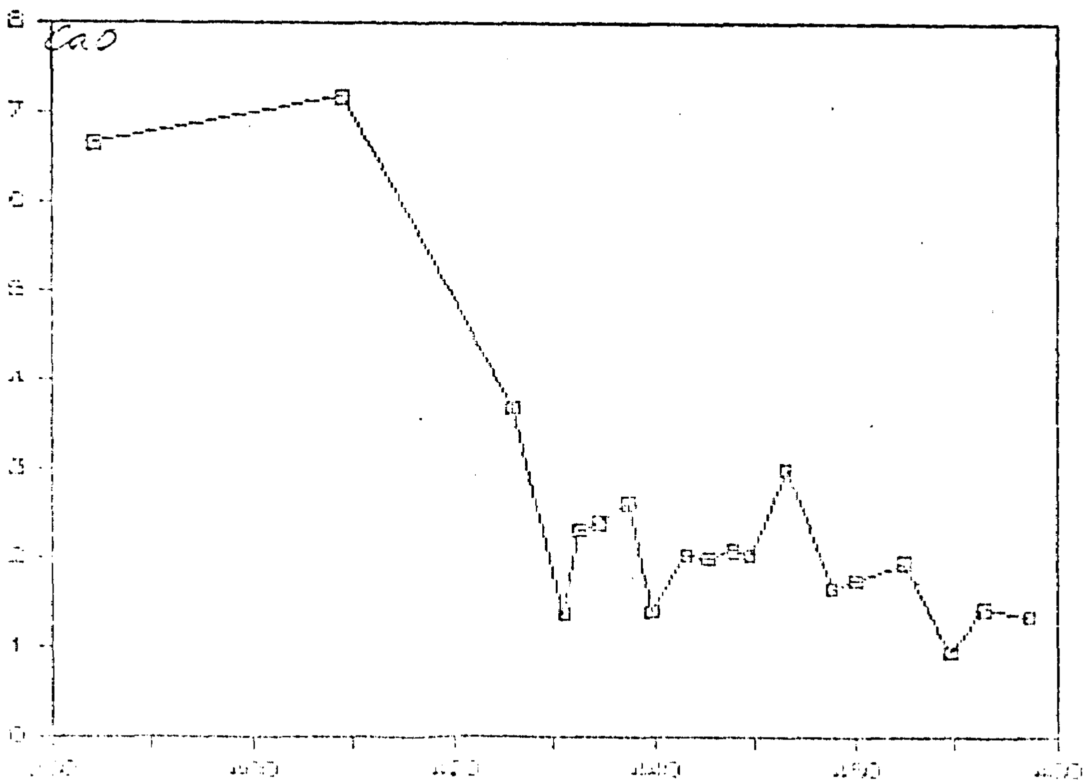
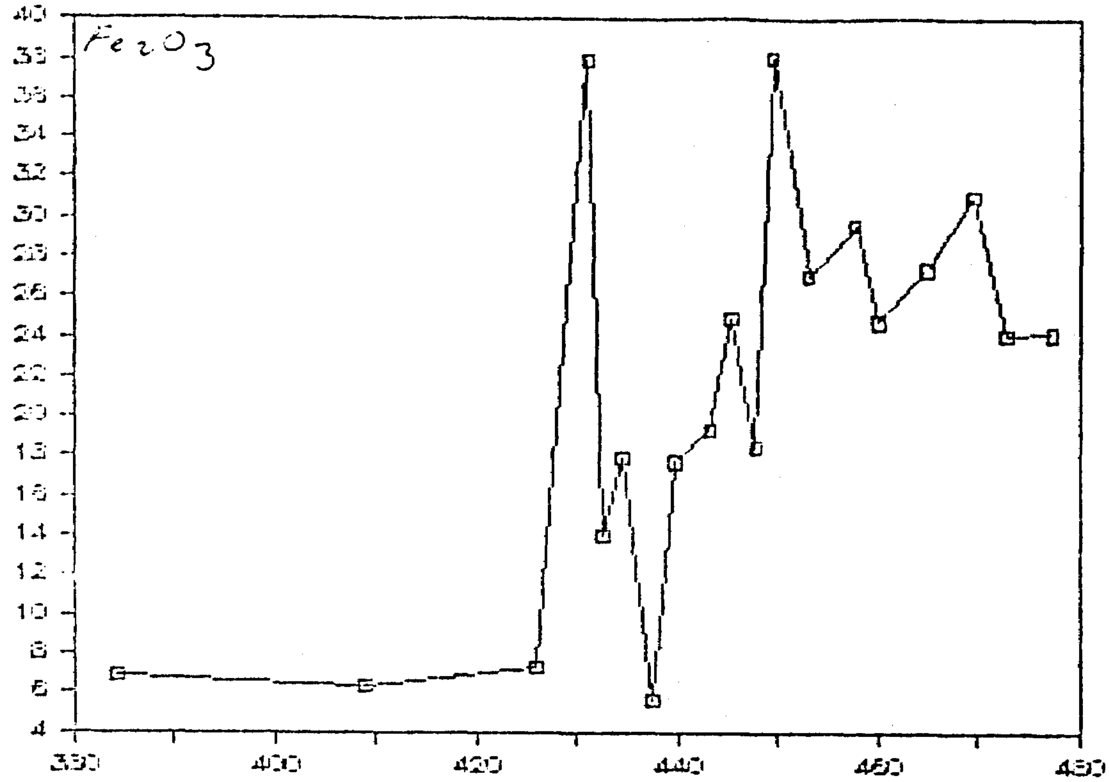
9
8
7
390
400
420
440
460
480

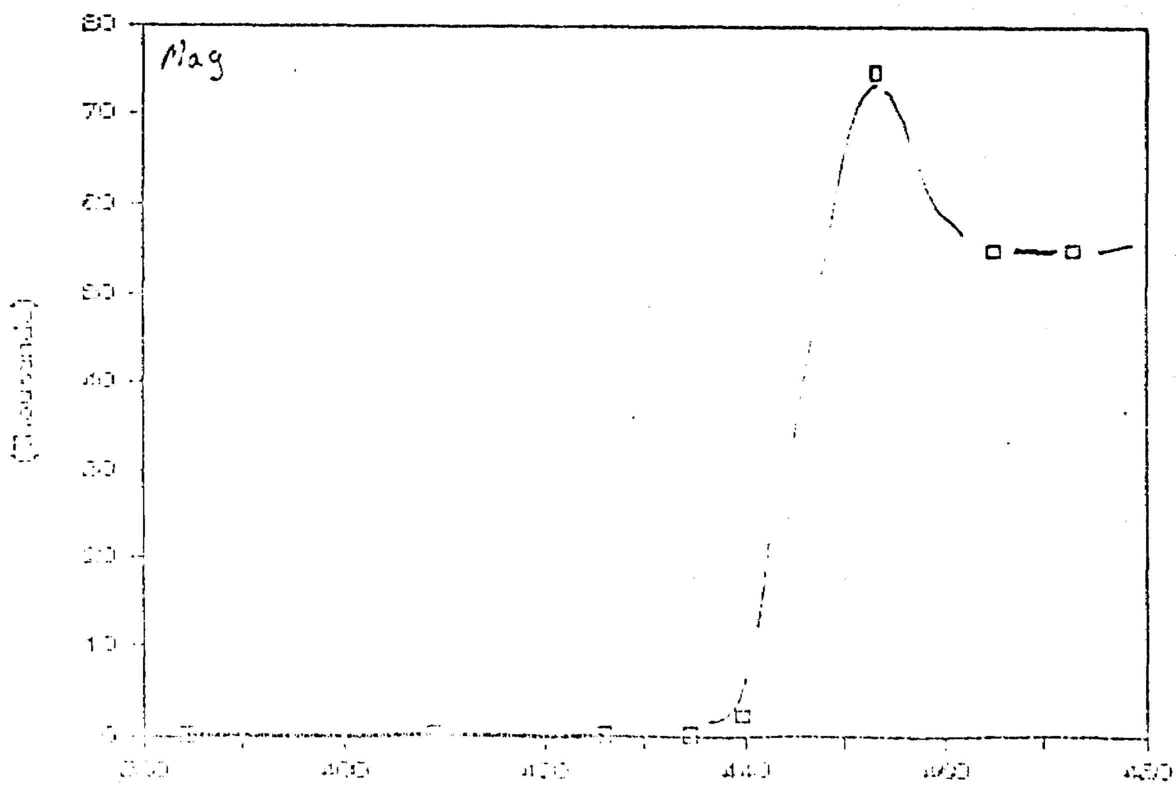

As
80
70
60
50
40
30
20
10
0

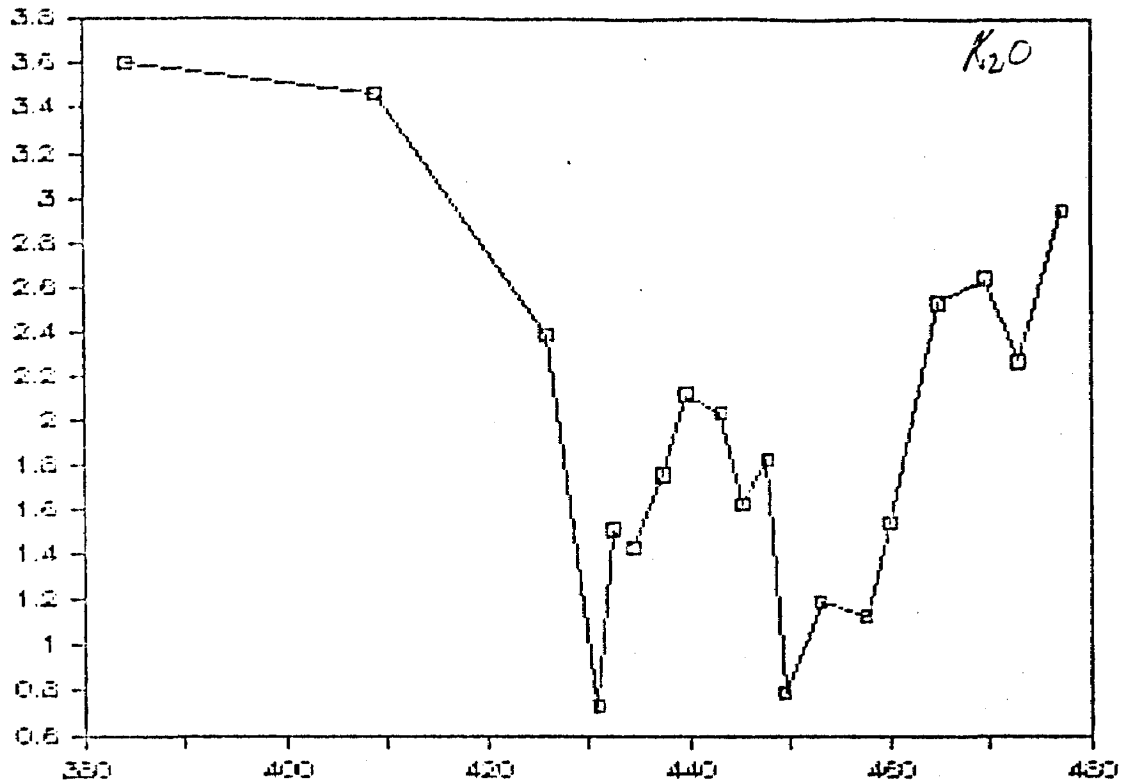

Au
10
9
8
7
6
5
4
3

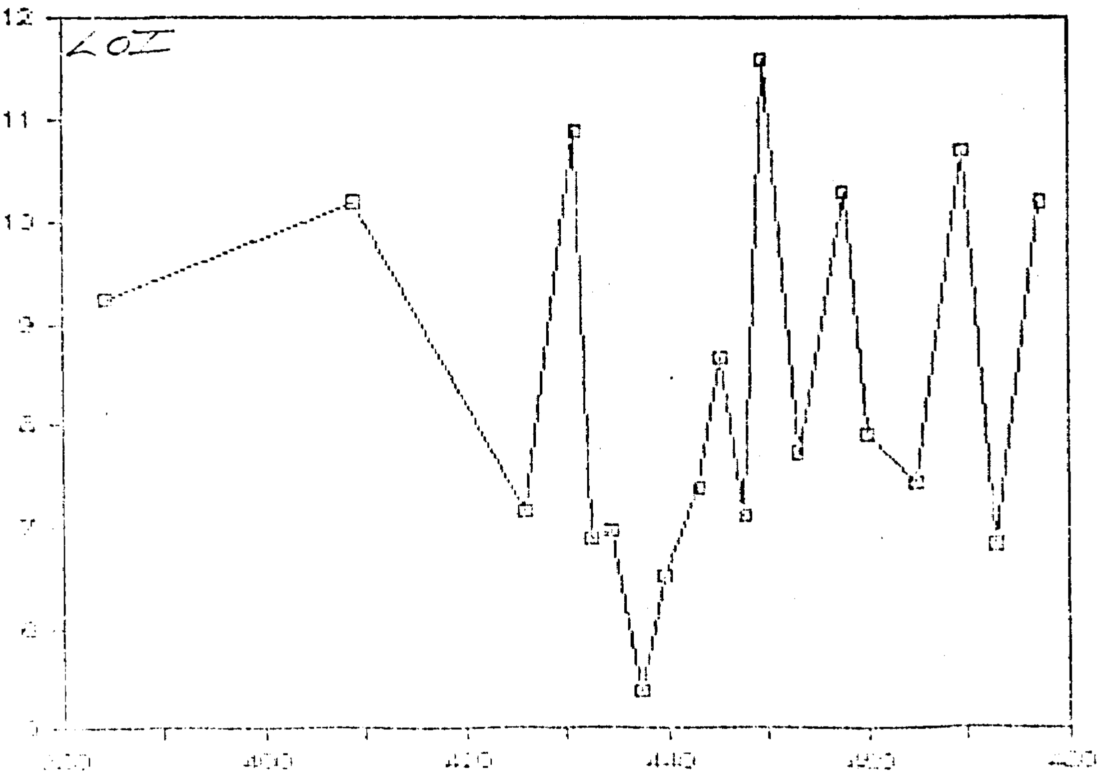

Ba
(Thousands)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
380
400
420
440
460
480

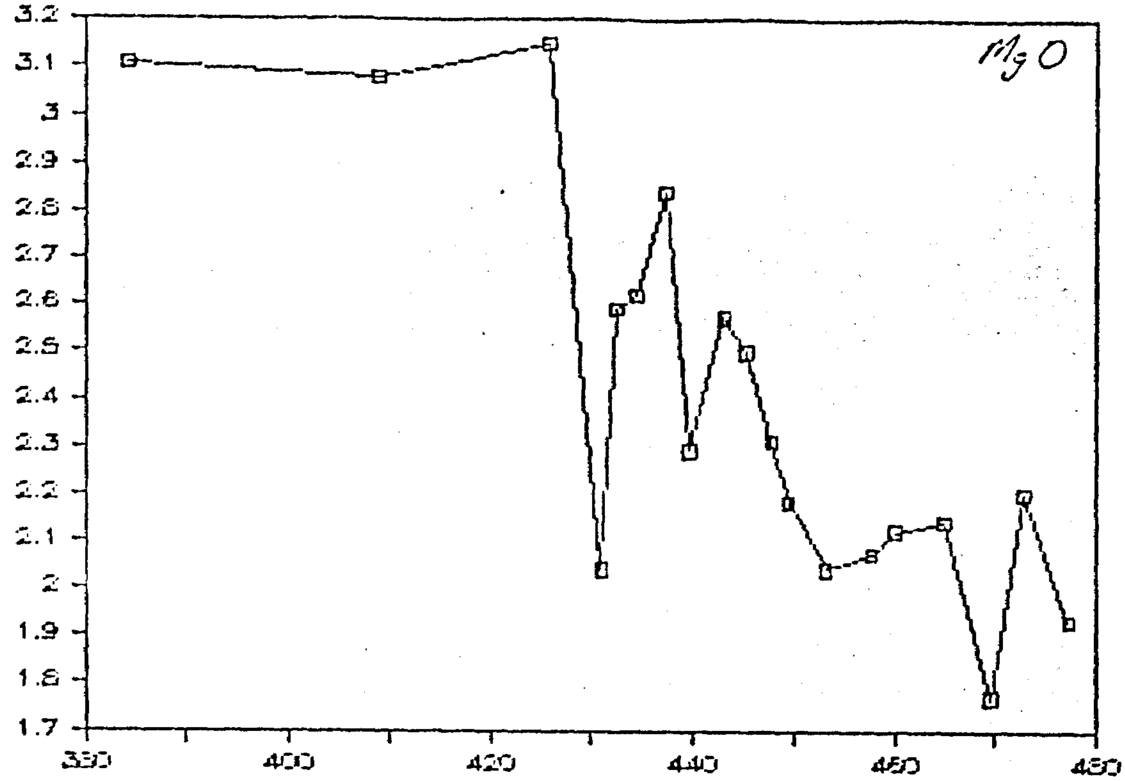

CaO
8
7
1
0

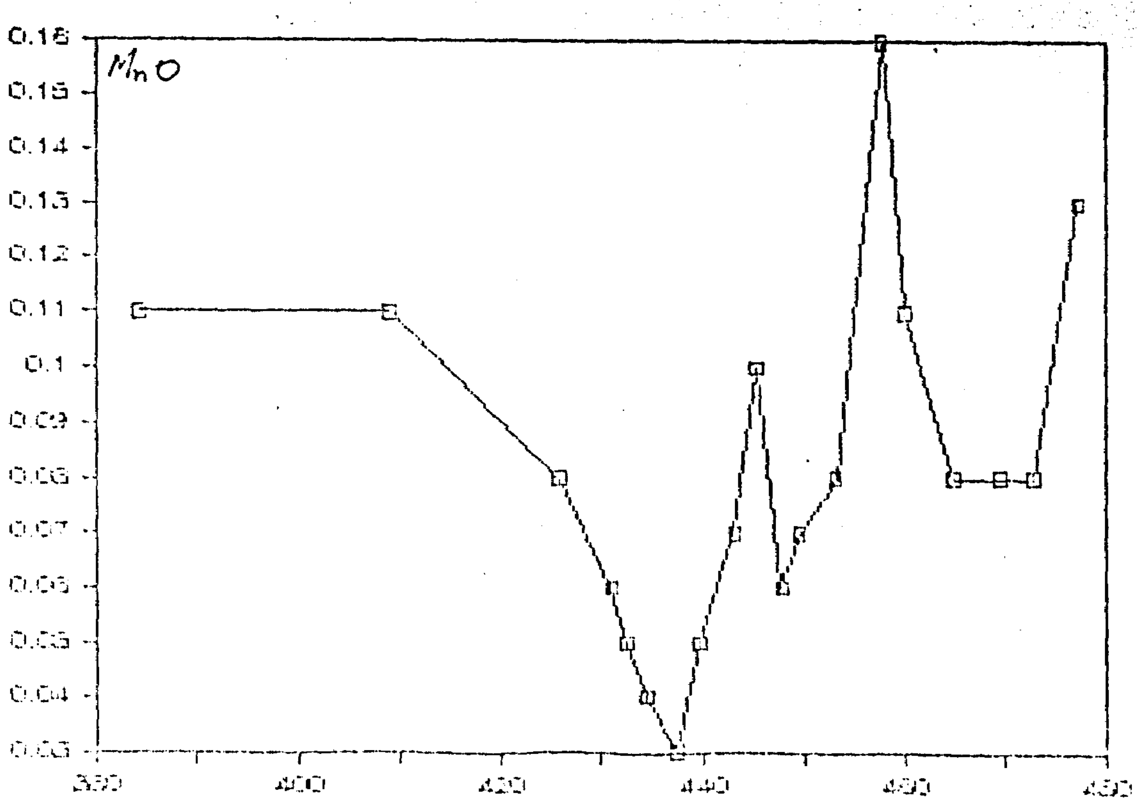

Fe₂O₃
40
24
10
4
420
440

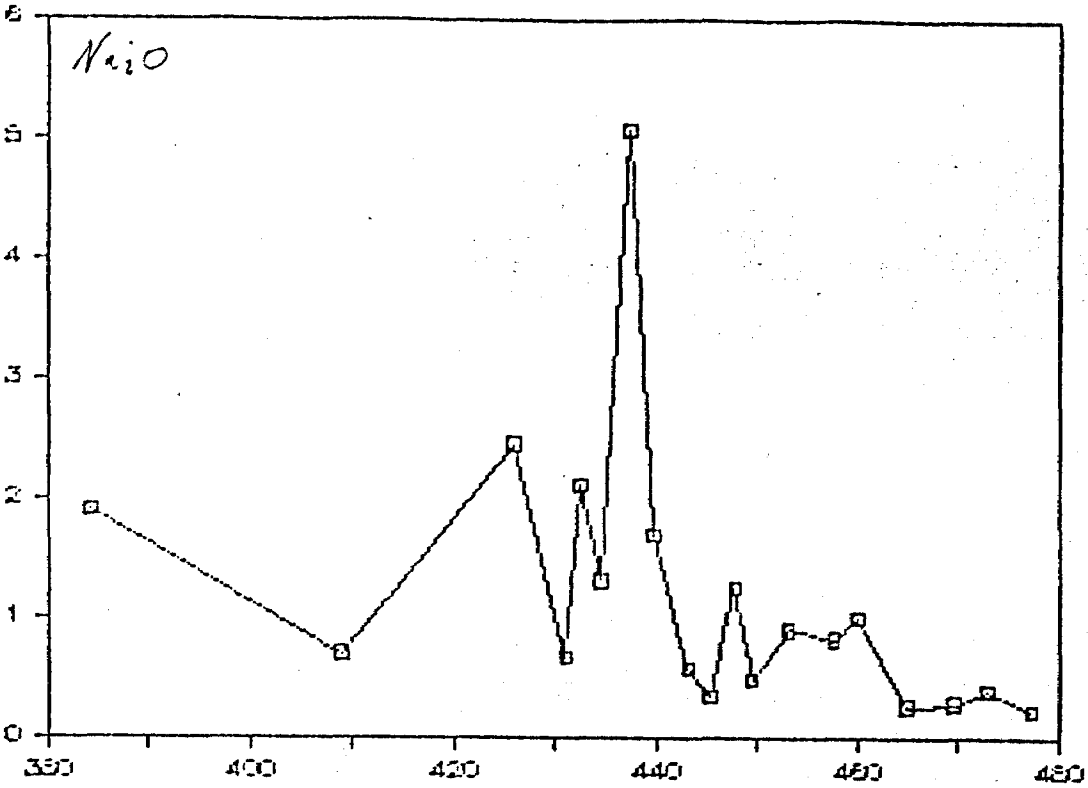

Mag
80
70

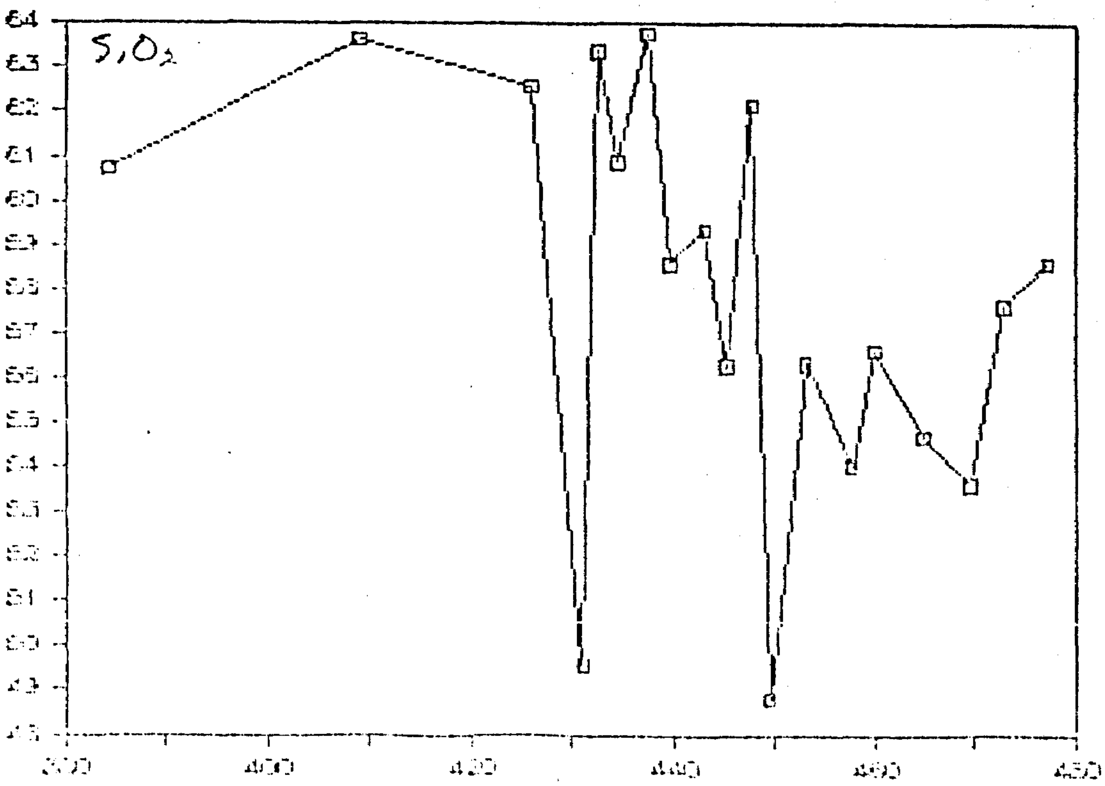

K2O
3.8
3.6
3.4
3.2
3
2.8
2.6
2.4
2.2
2
1.8
1.6
1.4
1.2
1
0.8
0.6
380
400
420
440
460
480

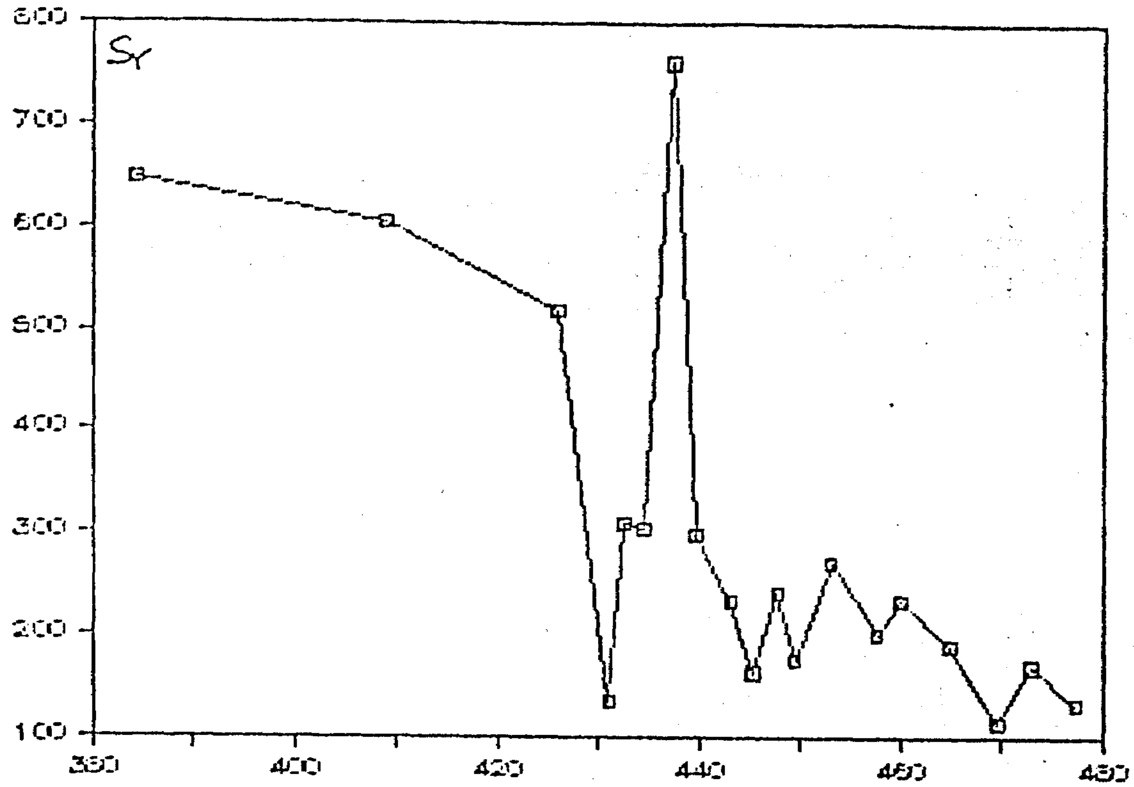

LOI
12
11
10
9
8
7
6
5
400
420
440
460
480


MgO
3.2
3.1
3
2.9
2.8
2.7
2.6
2.5
2.4
2.3
2.2
2.1
2
1.9
1.8
1.7
380
400
420
440
460
480

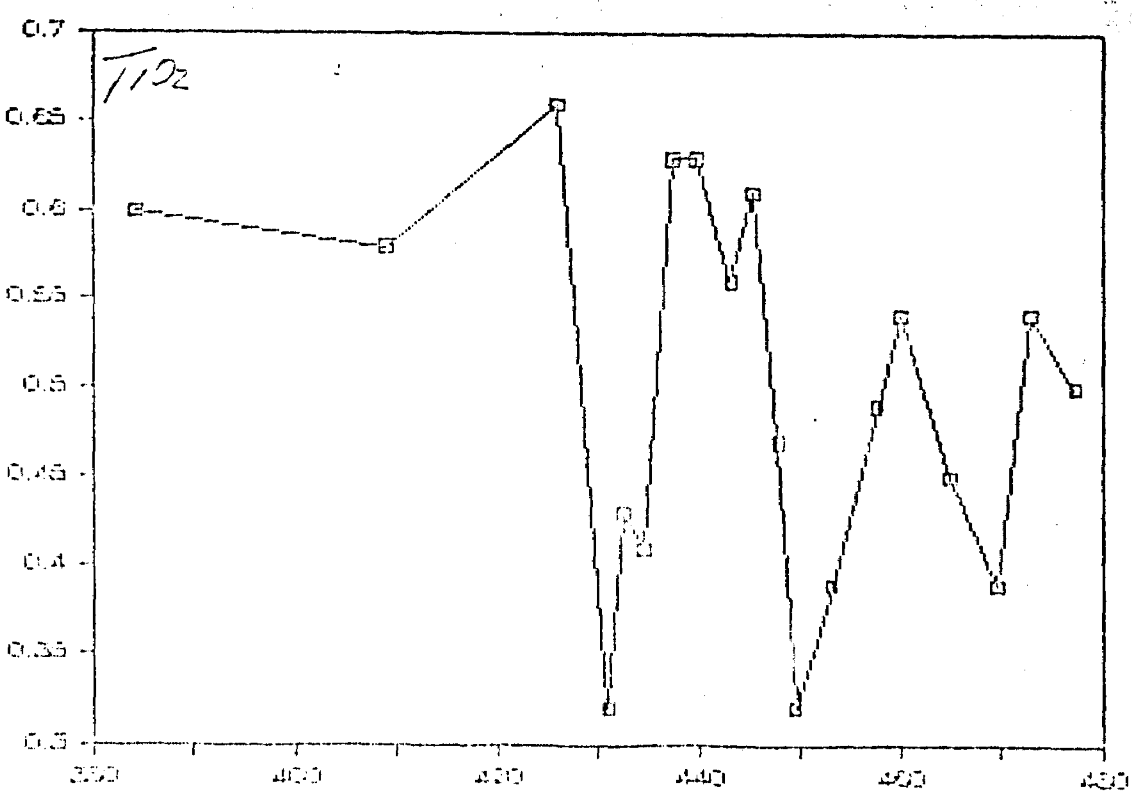

MnO
0.16
0.15
0.14
0.13
0.12
0.11
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
380
400
420
440
460
480


Na₂O
6
5
4
3
2
1
0
400
420
440
460
480

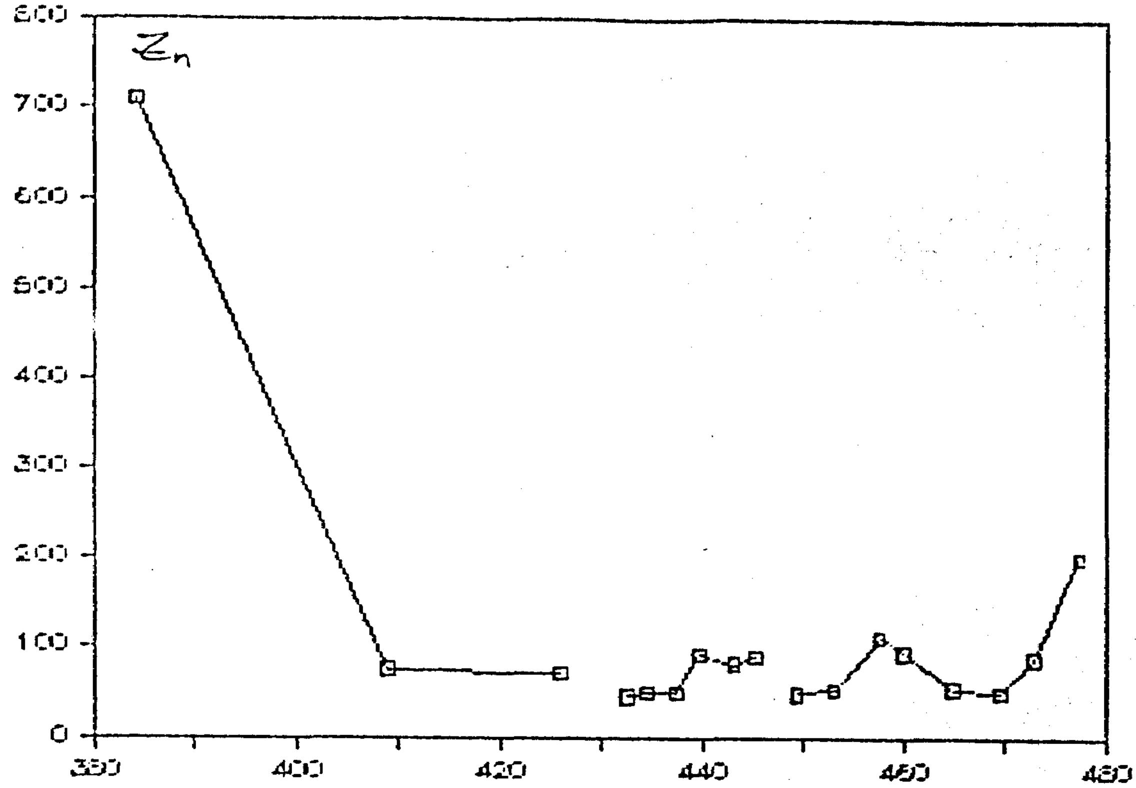

SiO₂
64
63
62
61
400
420

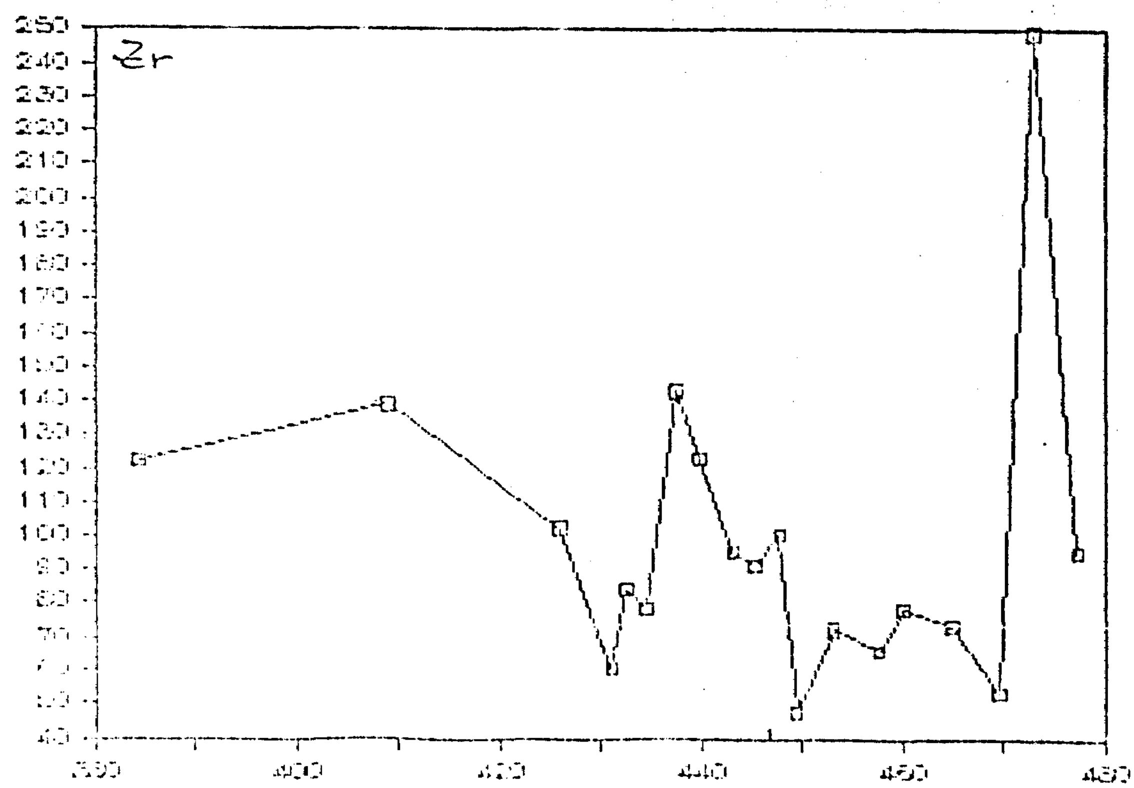


800
700
600
500
400
300
200
100
380
400
420
440
460
480
Sr



0.7
0.65
0.6
0.55
0.5
0.45
0.4
0.35
0.3
380
400
420
440
460
480
TiO2


Zn
800
700
600
500
400
300
200
100
0
380
400
420
440
460
480


Zr
250
240
230
220
210
200
190
180
170
140
130
100
400
420
440
460
480

APPENDIX II

Mag Susceptibility Data of

Some of 85 Mikwam Drill Holes

(Data not listed here in Appendix IIb)

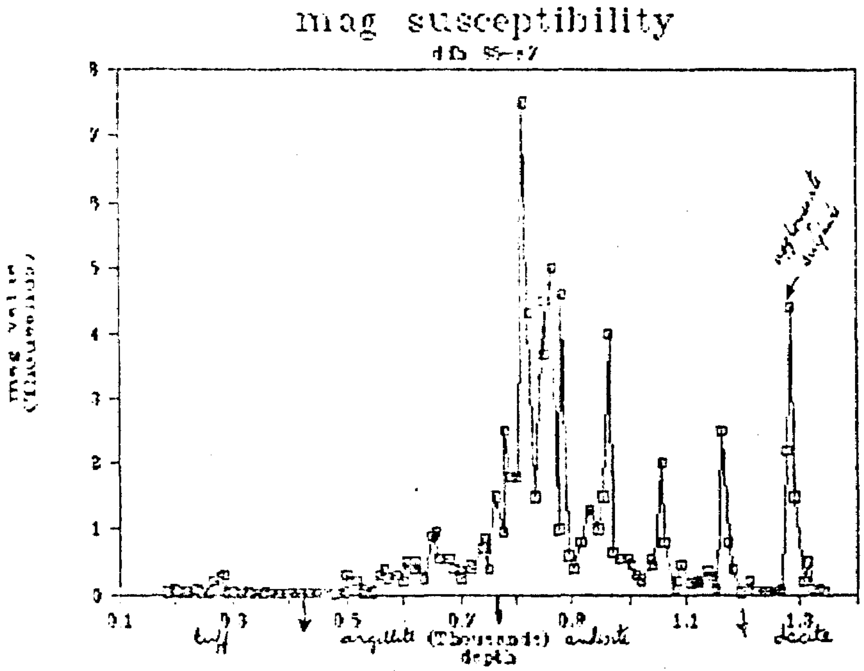
mag35-c0	depth	mag35-c1	depth	mag35-c2	depth	mag35-b3	depth	mag35-c5	depth	mag35-b7	depth	mag35-b9	depth	mag35-a7	depth	mag35-c8	depth
250	126	390	118	15	96	18	153	25	126	500	135	50	170	35	135	100	150
70	135	250	120	27	123	20	174	21	136	20	198	200	177	65	190	420	160
52	149	100	133	25	133	50	184	23	145	600	205	350	191	35	205	410	161
500	156	200	149	25	127	60	194	600	150	52	212	55	191	40	216	600	172
100	162	500	154	55	132	10	209	600	168	250	215	10	210	35	222	500	187
100	180	450	163	270	149	31	214	250	173	27	218	25	214	75	226	500	197
100	190	1000	175	150	152	31	221	120	189	37	240	10	220	15	246	400	202
1000	194	1000	182	10	159	25	237	300	194	20	252	16	233	40	259	500	215
200	209	1200	198	35	177	100	245	100	201	55	265	35	248	270	268	1400	221
70	213	550	247	1500	186	320	260	35	213	30	271	100	255	250	278	600	239
750	223	350	204	650	191	270	266	35	223	30	292	25	258	300	285	550	243
250	235	470	225	600	205	390	273	230	234	40	299	22	273	40	290	650	251
100	244	130	234	720	211	570	287	420	242	200	307	85	286	50	302	420	267
470	253	514	246	70	229	650	295	300	252	35	312	20	293	27	314	360	271
320	259	550	258	25	234	600	310	270	262	30	323	30	306	30	327	450	287
570	275	650	268	35	249	1300	313	720	274	40	338	100	318	25	333	1650	289
270	288	570	278	50	253	1300	327	850	292	35	351	350	326	27	342	720	304
1200	300	550	281	800	269	1000	332	150	298	350	359	150	332	35	357	1100	315
1000.00	310	510	276	1000	277	920	342	220	309	2500	363	35	342	25	366	1000	325
1000.0	315	200	303	1500	291	620	357	500	313	4300	374	26	360	25	379	830	332
98.00	322	700	312	1000	295	700	368	250	330	1500	382	35	365	23	385	1000	342
75.00	337	1200	325	1500	303	450	373	210	333	1420	391	30	374	25	399	1500	357
56.00	341	1100	331	540	311	620	392	55	346	5000	404	43	381	25	400	360	368
40	354	510	344	30	325	750	394	53	357	3000	411	20	395	25	418	850	377
150.00	368	200	352	20	328	1000	421	50	364	2200	423	20	403	20	421	4500	386
180.00	372	670	363	30	341	900	412	90	374	1500	435	24	414	17	437	900	395
65.00	381	100	375	12	353	750	422	350	385	4500	448	43	427	20	448	1000	429
500	391	200	367	55	362	650	438	350	395	3000	451	40	439	12	455	520	412
40	432	2000	392	15	375	1600	441	250	401	3000	467	45	449	15	470	650	423
17	416	130	428	70	387	550	452	190	411	2500	478	42	452	15	476	300	435
45	427	35	417	1400	398	830	467	160	421	3500	432	70	470	10	431	530	442
21	432	32	415	1500	418	650	472	85	431	5500	492	26	472	40	479	700	460
28	450	200	432	300	412	520	492	31	443	4500	503	26	432	300	501	750	462
19	452	17	446	1500	427	450	497	35	451	4200	511	25	472	200	519	1300	475
25,	453	30	472	1500	438	1450	507	35	455	4200	522	26	504	80	530	650	492
13	477	17	414	900	446	1200	511	300	410	4500	529	26	517	25	531	1300	493
17	473	25	472	300	453	900	529	1020	432	400	548	25	522	40	544	550	504
17	481	20	417	800	456	750	540	1000	473	100	552	22	540	300	540	500	512
27	495	200	472	500	472	750	544	850	529	300	542	34	542	410	567	1000	527
15	513	5	513	740	499	1000	558	2000	514	200	578	29	559	250	572	570	531
15	512	15	513	720	493	500	562	2500	521	700	590	25	561	240	589	650	550
10	521	13	521	730	507	750	572	370	531	500	591	25	571	100	599	1400	520
14	545	2	518	1400	519	950	563	500	549	150	602	25	584	500	576	1700	541
15	551	20	513	500	521	450	576	1000	573	60	619	25	597	470	619	700	571
70	518	40	516	1500	535	350	609	1200	563	90	621	2100	610	500	622	500	595
10	571	45	511	500	549	300	612	1100	573	400	622	1100	613	254	617	1100	597
10	572	43	517	470	514	370	628	2100	590	210	642	3100	625	500	650		
40	576	25	515	5000	518	650	613	2100	519	70	651	2500	631	950	657		
400	531	0	512	700	577	750	641	2570	603	450	668	2400	645	570	661		
100	518	70	613	700	507			700	617	570	672	550	657	530	670		
170	522	0	595	570	515			1000	621	250	692	2500	669	400	679		
200	517	5	612	770	523			1000	644	250	696	3000	672	270	693		
100	543	40	614	450	515			1020	643	150	701	760	691	250	703		
100	522	5	547	400	522			2500	663	45	716	850	720	470	720		
0	569	5	457	1900	512			5100	569			6000	721	430	721		
75	571	70	584	2700	545			5500	674			1000	717	720	748		
150	522	50	574	2800	551			4500	680			2500	721	350	742		

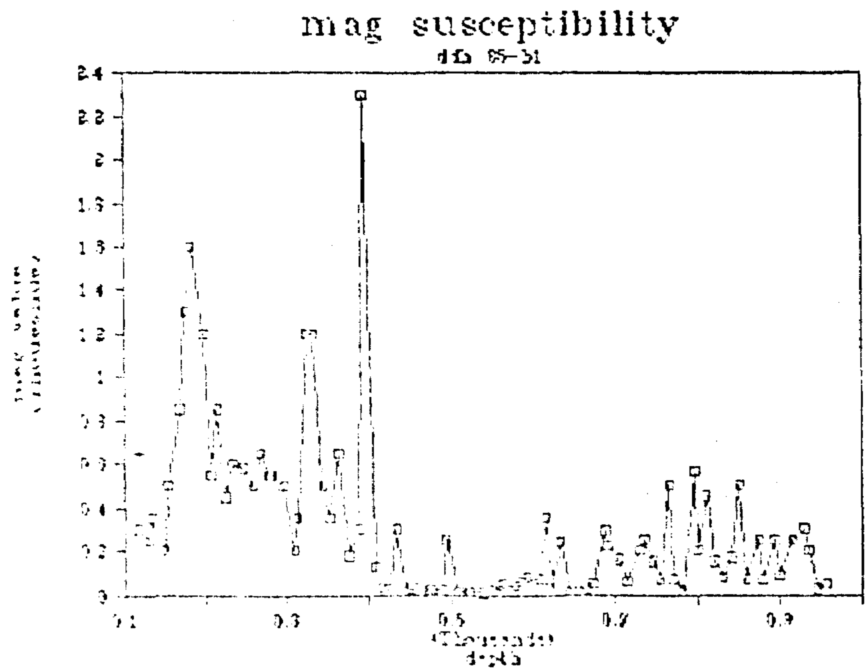
150	695	270	635	75000	667
2500	710	210	671	92000	670
170	712	140	704	62000	681
500	722	60	705	4000	698
20000	737	270	709	2300	703
1170	745	250	725	6502	710
70	752	150	745	400	721
1100	770	70	755	25	736
1500	772	500	766	20	740
1200	792	70	771	20	760
65	791	10	772	25	762
25	805	505	797	20	777
70	815	210	[illegible]	25	785
100	826	400	811	50	796
24	827	100	821	25	804
170	847	10	832	40	819
30	851	170	841	50	832
1070	862	500	852	10	836
120	872	70	861	20	843
100	890	250	875	45	856
170	875	70	891	25	861
350	897	250	895	24	877
1010	910	70	921	25	887
170	927	250	927	20	891
3500	932	200	930	27	910
210	942	210	936	42	913
210	952	10	947	20	925
370	956	50	958	20	934
50	973			22	941
300	980			22	954
270	992			24	958
				23	974

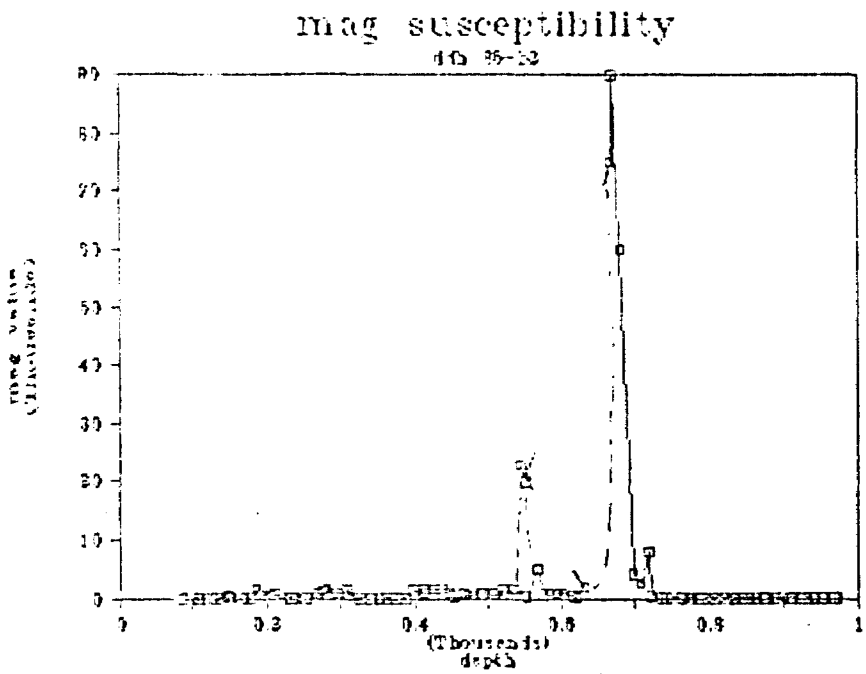
650	691
20	709
350	712
400	722
300	722
40	742
220	760
170	766
300	773
60	785
35	790
250	805
150	817
450	829
450	832
530	841
430	852

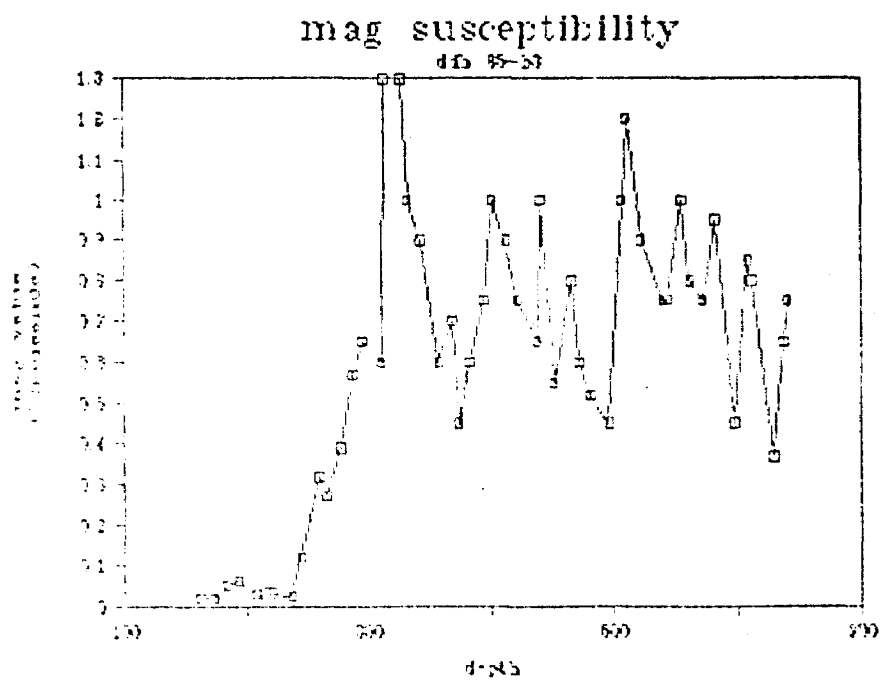
5500	725	420	751
4500	743	1500	763
4500	757	950	777
3100	761	2500	781
4500	761	1900	791
3200	781	1800	803
3100	798	7500	815
6100	809	4000	823
3500	813	1500	835
1850	821	4500	850
1100	837	3700	851
1400	846	5000	865
520	853	1200	878
1300	862	4000	883
5500	871	170	894
20	861	400	902
120	897	500	915
620	905	1000	920
650	917	1300	931
750	921	1200	946
		1500	953
		4300	965
		650	971
		550	981
		550	990
		450	1002
		300	1011
		200	1021
		550	1038
		450	1042
		2200	1058
		600	1061
		30	1079
		200	1083
		450	1091
		170	1106

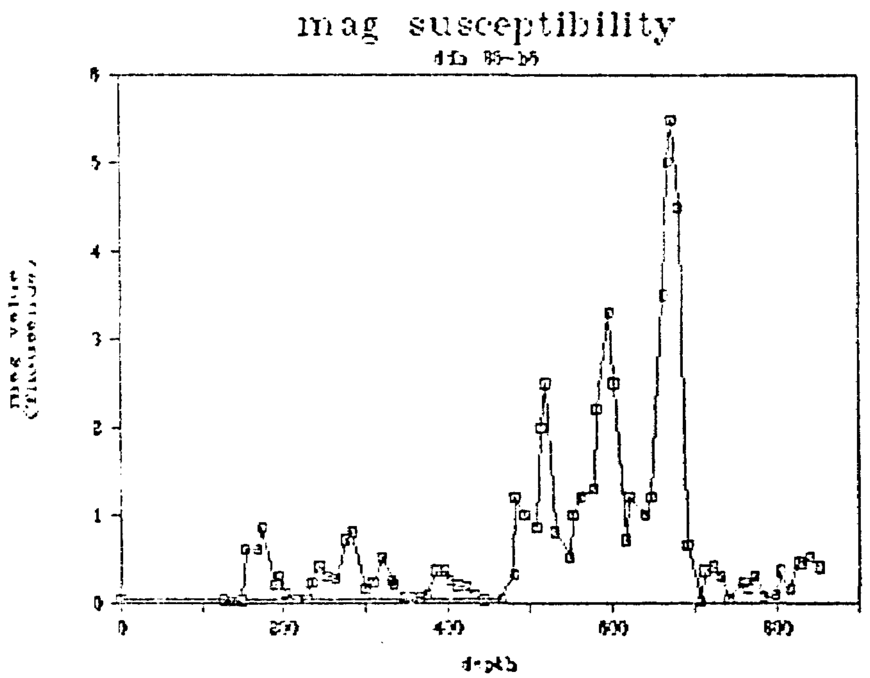
200	1119
170	1122
350	1137
200	1143
70	1153
2500	1162
900	1174
400	1180
40	1193
60	1205
150	1213
55	1222
45	1240
10	1249
10	1259
70	1268
2100	1273
4100	1285
1500	1291
210	1307
500	1315
70	1325
70	1335
50	1342

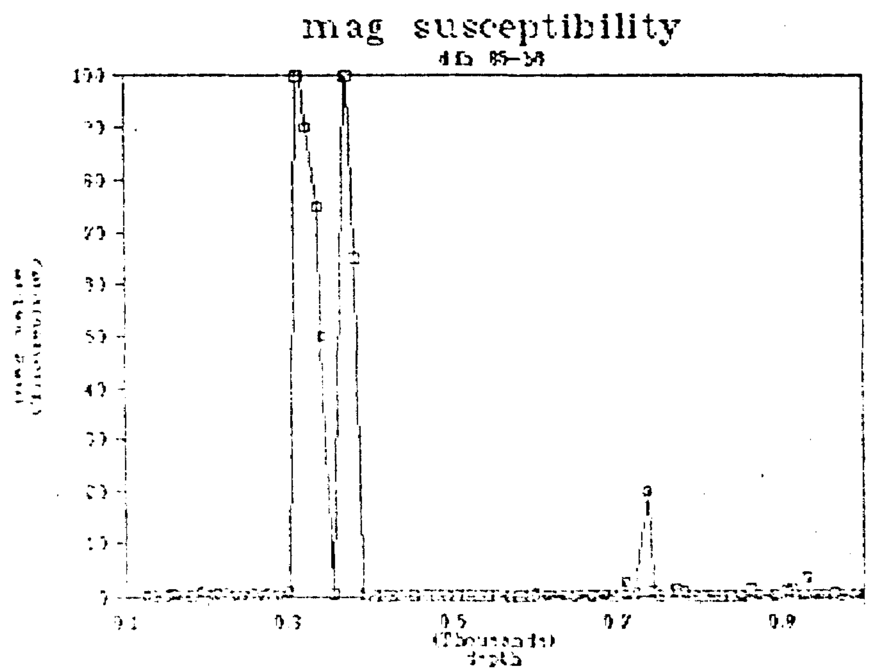

mag susceptibility
mag value
(Thousands)
depth

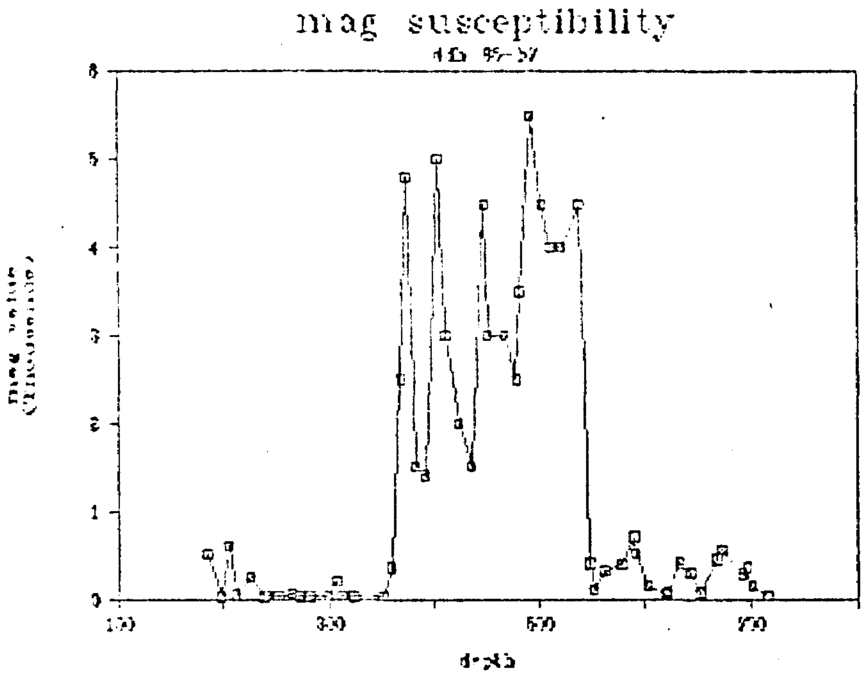

mag susceptibility
depth

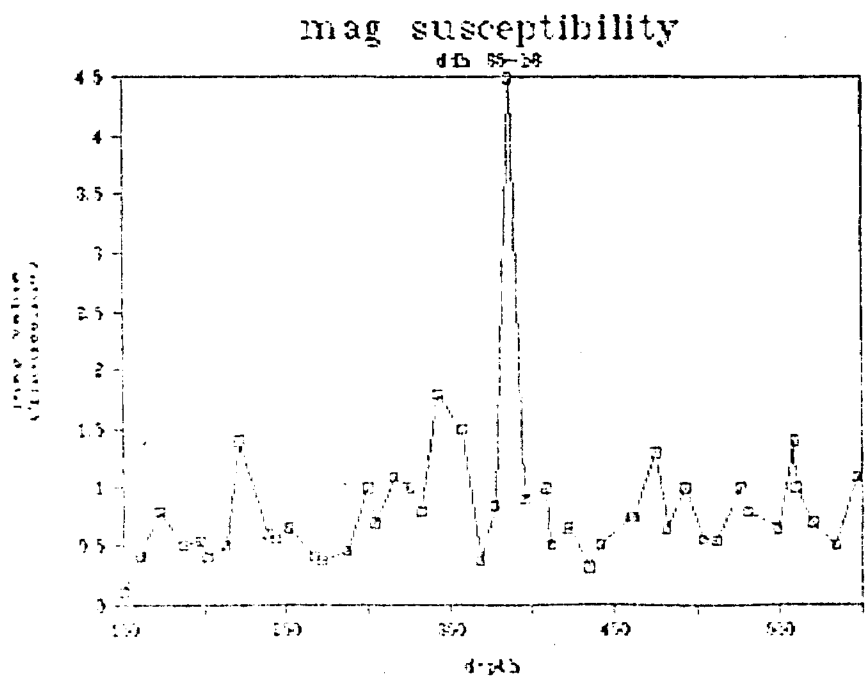

mag susceptibility
(Thousands)


mag susceptibility


mag susceptibility
depth


mag susceptibility
(Thousands)


mag susceptibility
0
1
2
3
4
5
depth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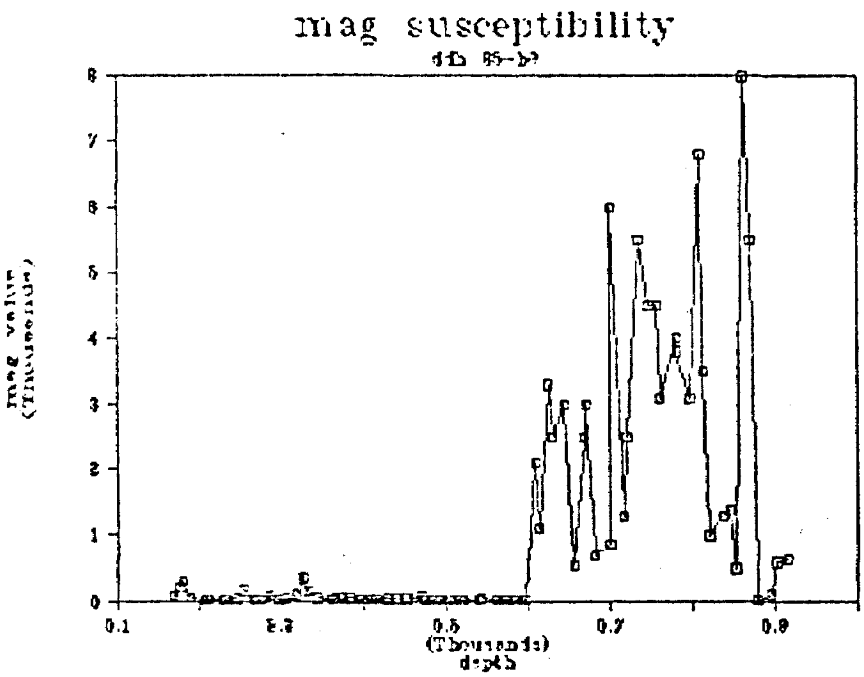
4
3.5
1.5
1
depth


mag susceptibility
mag value
(Thousands)
8
7
6
5
4
3
2
1
0
0.1
0.3
0.5
0.7
0.9
(Thousands)
depth

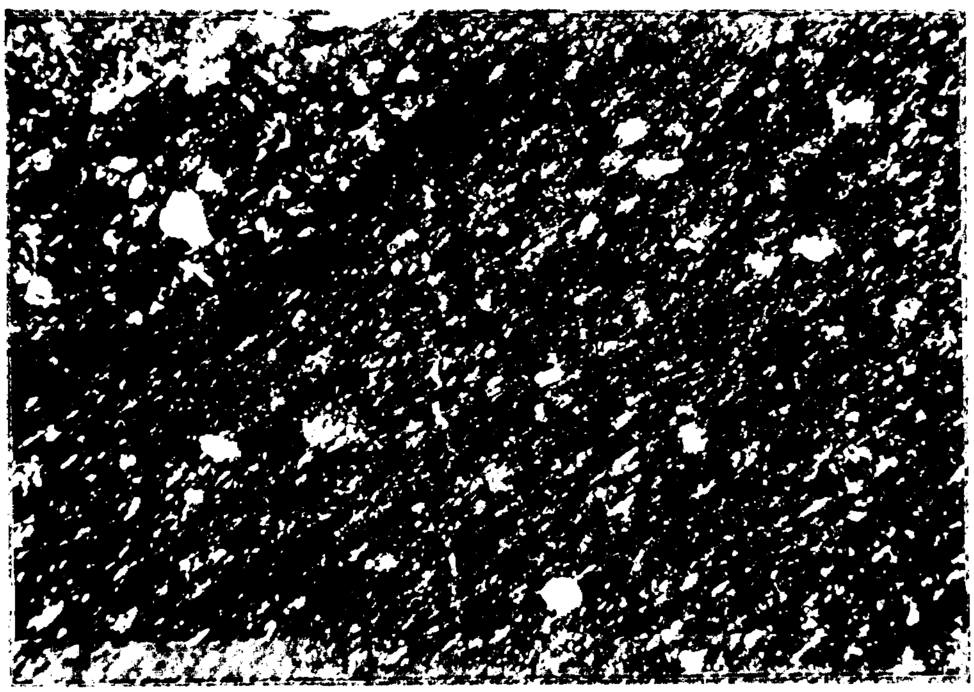
APPENDIX III

Representative Thin Section Textures

Inco-Golden Knight Property East Zone

magnification
70x

DDH 71742; at 37 metres
Conglomerate - porphyry fragment



magnification
70x

Fragment of above (top left) in tuffaceous matrix

magnification
175x

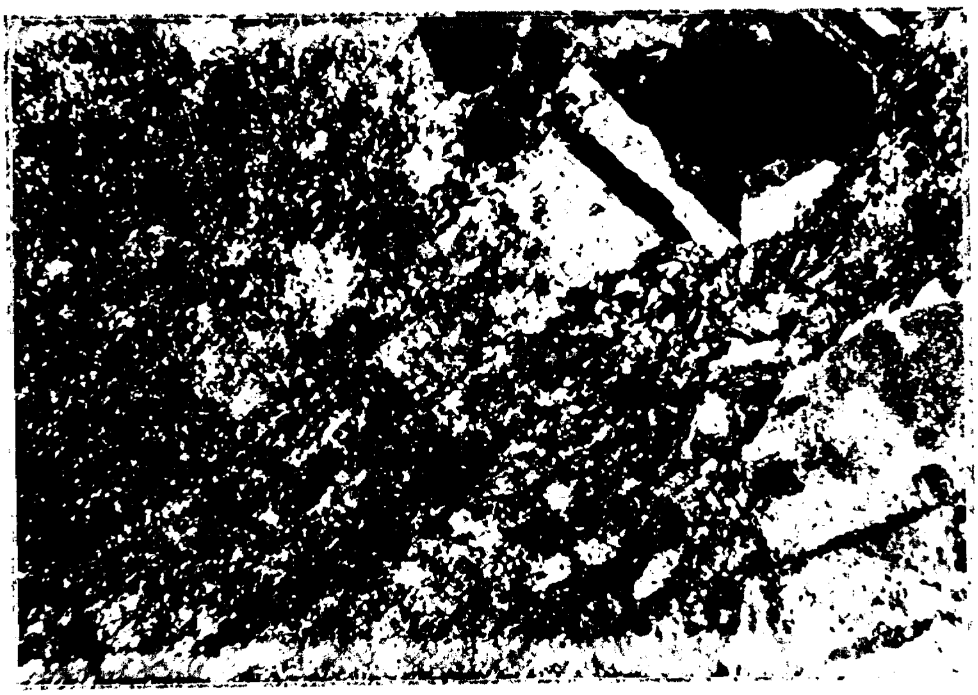
DDH 71742; at 37 metres
Enlargement of conglomerate matrix - foliation outlined by sericite

magnification
70x

DDH 71742; at 87 metres
Conglomerate - Porphyry fragment

magnification 70x

DDH ; at 165 metres
Conglomerate matrix - sericite foliations



magnification 70x

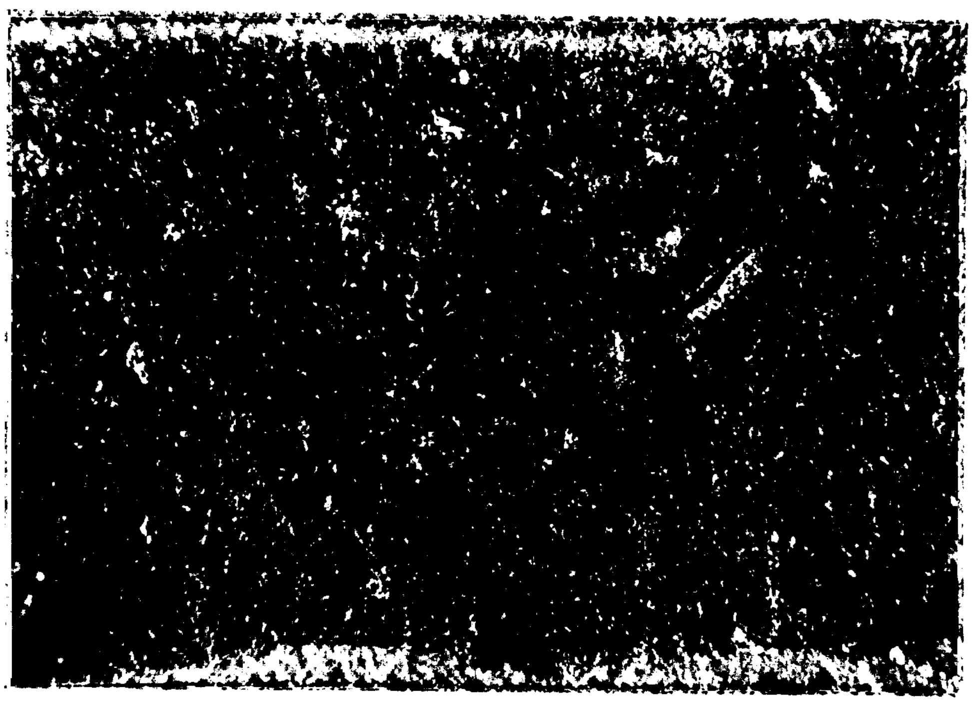
DDH 71742; at 254 metres
Altered porphyry - abundant ankerite

DDH ; at 257 metres
Tuff? Relict feld. phenos altered porphyry

DDH ; at 287 metres
Altered porphyry with leucoxene

magnification
70x

DDH ; at 342 metres
3 metres above 1st mineralized zone.
Altered porphyry? relict plag. pheno. foliations
defined by sericite.



magnification
175x

DDH ; at 361 metres
Altered tuff - relict broken fragments of pheno-
crysts in carbonate sericite matrix.

magnification
70x

DDH 72907; at 237 metres
Conglomerate-quartz-porphyry fragment - deformed-
foliations defined by sericite

magnification
70x

DDH 72907; at 237 metres
Conglomerate-matrix-lamianted (tuff) alternate
quartzo-feldspathic and sericite laminae-broken quartz
and feld. phenocrysts?

*63.4616

32E12SE0029 63.4616 NOSEWORTHY 900

08/07/87

OM84-6-JV-325

THIS SUBMITTAL CONSISTED OF VARIOUS REPORTS, SOME OF WHICH HAVE BEEN CULLED FROM THIS FILE. THE CULLED MATERIAL HAD BEEN PREVIOUSLY SUBMITTED UNDER THE FOLLOWING RECORD SERIES.
(THE DOCUMENTS CAN BE VIEWED IN THESE SERIES):

---

(1) 1985 DIAMOND DRILL LOGS
MIKWAM JOINT VENTURE
FEB. - MAR. 1985
Logged by: ARCHER and JONES ⟶ NOSEWORTHY TWP. D.D. #20

(2) a. MAXMIN AND INDUCED POLARIZATION SURVEY (1985)
LIMION, H.
OCT. 1985 (and the following appendices)

b. APPENDIX I: DIPOLE-DIPOLE IP SECTIONS

c. APPENDIX II: MIKWAM MAXMIN PROFILES 1985

all under .... ⟶ # 2.8741

(3) a. 1985 OVERBURDEN DRILLING PROGRAM (REPORT)
MIKWAM PROJECT 260
JUNE 1985

b. 1985 OVERBURDEN DRILLING PROGRAM
VOL. II DRILL LOGS
JAN. - FEB. 1985

LAFLEUR, J. all under... ⟶ # 2.8347

(4) MAGNETIC SURVEY - 1985
NTS: 32E/5
LIMION, H.
APRIL 1985 ⟶ # 2.8016