SEDIMENTOLOGY OF A PROGRADING SHALLOW MARINE SLOPE AND SHELF SEQUENCE, UPPER JURASSIC FERNIE-KOOTENAY TRANSITION, SOUTHERN FRONT RANGES

By

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ABSTRACT

The Fernie-Kootenay progradational transition consists of 10 interpretable facies described in ascending order. A marine greensand (2-7 m thick) lies at the base. It is overlain by 4 turbidite facies (totalling about 50 m) deposited on the prograding slope. Thin (1-50 cm) Bouma B and BC sandstones with solemarks (NNW flow) are interbedded with bioturbate siltstone. Next is a shallow marine facies of interbedded thick (12-485 cm) sandstones and bioturbate siltstones. Sandstone beds have sharp, toolmarked (NNW) bases and rippled, bioturbated tops. Internal structures are hummocky cross-stratification, and low-angle divergent and broadly trough-shaped sets of parallel lamination which probably represent primary hummocky cross-stratification. These beds result from reworking by variably-oriented currents during deposition from a seaward storm surge density current over fairweather platform sediments. A thick (7-34 m) sharp-based sandstone unit lies on siltstone of the previous facies. Long, low-angle divergent sets of parallel lamination dip in some preferred direction at each locality (especially to the E and SSE). The facies can be interpreted as shoreline beach-aeolian deposits amalgamated onto a storm sand bed.

A thick unit (average 7-8 m) of trough crossbedded sandstone (N and E flow) follows and represents the deposits of braided streams. Coastal plain coal, siltstone and crevasse splay sandstone cap the sequence. Facies can be recognized in core and develop characteristic nuclear log patterns. At the southern end of the shallow, elongate (N/S) basin offshore storm surge currents deposited shoreline sand on the platform (reworked into hummocky cross-stratification) and prograding slope (turbidites). As the platform built up to shallow depths, rapid progradation of small, marginal, river- and wave-dominated systems superimposed shoreline facies on hummocky sandstone beds, producing northward progradation of the coast. Sediment was derived from the Cordillera and supplied by large north-flowing and smaller east-flowing braided rivers.

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CHAPTER I

INTRODUCTION

Facies Concepts

The conclusions reached in this thesis are based on the treatment of the Fernie-Kootenay succession as a sequence of interpretable facies. The study deals in detail with a limited stratigraphic thickness in an attempt to interpret sedimentary depositional environments and their more regional significance.

The term "facies", as in this study, the total aspect of a rock unit, has been in use to some degree since 1838 (Gressley), though it was not commonly used in North America until 1939 (Moore). It is here a descriptive concept not confined by stratigraphy. The total aspect of a unit includes such features as sedimentary structures, bioturbation, and paleocurrent data which aid in interpreting depositional environments. Defining and distinguishing facies within a given sequence is, to a large extent, dependent upon familiarity with the sedimentary features of the interval, the relative significance of these features, their type and abundance, and the experience of the operator.

The vertical sequence of facies characteristic of a sedimentary interval may also aid in interpretation. Following Walther's Law, in any unbroken series of continuously deposited strata, "only those facies and facies areas can be superimposed primarily which can be observed beside each other at the present time" (quoted in Middleton, 1973). In many depositionally complex intervals, the variability and repetition in vertical facies sequence is so great that the data must be treated statistically to produce a probabalistic sequence of facies, but this was not necessary in the present study.

Objectives of this Study

This study was undertaken in an attempt to define an adequate depositional model for a marine to nonmarine transitional sequence capped by coals in the particular geological setting of western Canada. Little detailed sedimentology has been done in the Eastern Cordilleran region despite good outcrops in the Foothills and Front Ranges. The Fernie-Kootenay transition was chosen for its crucial role in helping to define the timing, extent and style of deformation during the Laramide Orogeny and the geometry and dispersal patterns of the successor basin which resulted. The sections are located on different thrust slices and sedimentation may have been contemporaneous in part with thrust movement. These are key sediments in reconstruction of the evolution of the Cordillera.

The Upper Fernie was noted by Walker (1976) as containing possible turbidites. As these occur beneath "deltaic" sediments, the Fernie-Kootenay sequence provides an opportunity to investigate an unusual transition from turbidite to shoreline deposition. The absence of a thick "slope" facies or evidence of extensive slumping or channellization is also unusual and implies some mechanism of direct turbidite generation in relatively shallow water rather than large scale slumping from the top of the continental slope. A turbidite interpretation also introduces the problem of source of Fernie sediments.

The Kootenay traditionally is thought of as a deltaic deposit representing initial uplift in the west and consequent reversal of the general east to west dispersal pattern, though little sedimentological evidence to support this conclusion has been described. The study, in part, deals with the investigation of these notions through the use of facies, facies sequence, sedimentary structures, and paleocurrent data. The sequence does not display the "typical" delta character as developed in other regions, but does obviously represent a transition from fully marine fine-grained sediment to coal-bearing (continental) sandstones. It therefore is considered an informative description of a progradational system with a storm dominated shoreline.

While in the field, several unusual sedimentological features were noted which required more detailed study and explanation. Of primary importance is the occurrence of "hummocky cross stratification" (Harms et al., 1975, p. 87), which characterizes a significant part of the sequence in the Fernie and is a key factor in the interpretations. At present, this is the only example of this recently-defined primary sedimentary structure known in Canada and the detailed description presented may aid in its recognition elsewhere. In addition, the thickness and nature of the base of the lowermost Kootenay sandstone body are very unusual, given the interpretation developed from the sedimentary structures. Also, drill core and logs were available and are related to the outcrop data which strengthens the thesis and its use.

It is hoped that this study can provide more details of the interpretations, sequence, basin implications and general depositional model for the Fernie-Kootenay transition.

Preview of Results

The Fernie-Kootenay transitional sequence is described in the context of a large prograding, storm-influenced, clastic system which advanced from the south into the N/S elongated Late Jurassic basin of southwestern Alberta and southeastern British Columbia. The basin was a shallow, relatively low energy miogeosyncline dominated by fine-

grained deposition in fair weather. Infrequent but very violent storms approaching from the west caused very large seaward storm surges. The E/W-trending coastline was degraded at these times and sandy material was swept offshore in surge density currents which conformed to the NNW basinal paleoslope. Above storm wave base the invading sand, deposited erosively on silts, was reworked into hummocky cross stratification by variably oriented, strong, post-storm currents, while that deposited below storm wave base formed thin, relatively shallow water turbidites on the prograding slope.

As the shallow marine storm and fairweather deposits preferentially built up on the platform, it shallowed to the point where small, marginal, lobate, delta-like systems prograded very rapidly over the shelf. Amalgamation of shoreline facies over the last storm hummocky sandstone bed produced apparently sharp-based beaches. Thick beach and aeolian dune ridge shoreline facies resulted from contemporaneous tectonic and isostatic subsidence, abundant longshore supply and strong wave action at the shore. The coalescence of these lobes led to quantum northward progradation of the entire coastal plain. Braided fluvial sediments and marsh coals with crevasse splay sands were deposited on the coastal plain. Sediment was supplied from the west and in large northward-flowing rivers which also were derived ultimately from the west.

Format of Thesis

Introductory and background information on the location and geology of the area and stratigraphic interval is outlined in Chapter 2. The following two chapters present detailed definitions and descriptions of the ten facies identified in the Fernie-Kootenay transition, the facies sequence, and discussions of trends in sedimentological features through the sequence. In addition, the use of drillhole and nuclear log material as supplementary sources of information is discussed. Appendices include full thin section petrographic data, detailed measured sections, and paleocurrent data while a summary correlation chart for all locations appears in Chapter 4. Chapters 5 and 6 present the interpretations for each facies and the sequence, paleocurrent analysis, basin implications and sediment dispersal patterns, and a summary of the proposed depositional interpretation.

CHAPTER 2

SETTING, STRATIGRAPHY, METHODS

Location

Field work for this project was performed on selected outcrops within an area of the Front Ranges of southwestern Alberta and southeastern British Columbia, covering approximately 16,000 square km. The region is located between latitudes 49°25'N and 51°15'N and longitudes 114°20'W and 115°30'W. Eleven outcrop sections and material from five drillholes (Figure 1, Table 1) were studied, though most of these are located in the Crowsnest Pass area. They represent some of the best and most accessible outcrops of the Fernie-Kootenay transition. Easy access to most sections is gained by highway from Calgary, mining and forestry roads, and short hikes, and the quality of outcrops in the studied sections is usually quite good.

Front Ranges Geology and Tectonics

The Front Ranges are composed of stacked thrust sheets of Paleozoic, Mesozoic, and in the subsurface, Precambrian sediments.

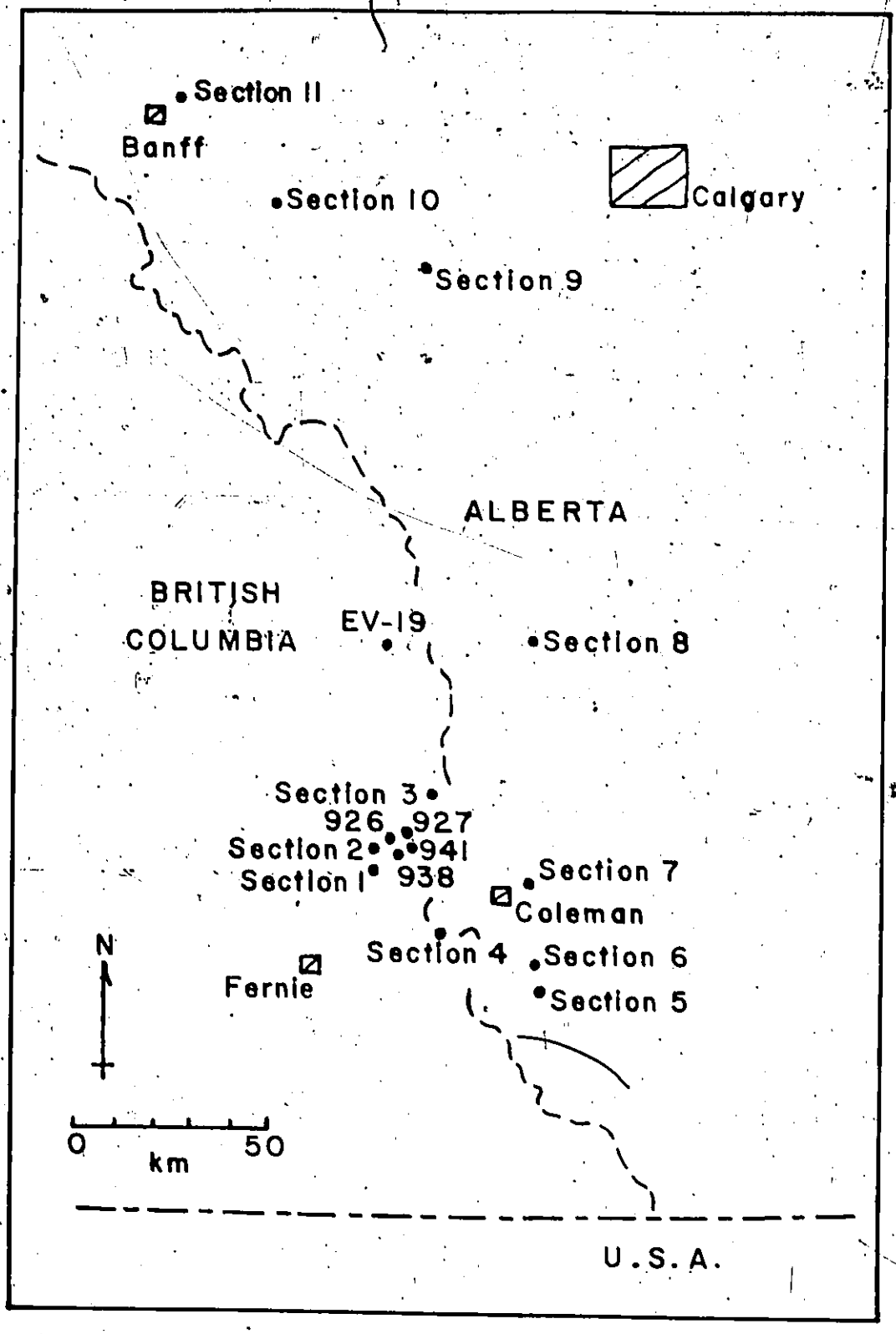


Figure 1. Outcrop and drillhole location map

Section No.	Sections	Thrust Sheet	latitude	longitude
1	Sparwood Ridge		49°43'N	114°52'W
2	Sparwood Bridge		49°43'N	114°51'W
3	Alexander Crk.		49°50'N	114°43'W
4	Tent. Mtn.		49°38'N	114°41'W
Drillholes	926	Lewis	49°45'N	114°48'W
	938		49°43'N	114°48'W
	EV-19		50°08'N	114°53'W
	927		49°45'N	114°47'W
	941		49°44'N	114°48'W
5	Carbondale Riv.		49°27'N	114°22'W
6	Adanac Mine	Livingstone	49°30'N	114°24'W
7	Grassy Mtn.		49°41'N	114°24'W
8	Ridge Crk.		50°07'N	114°22'W
9	Canyon Crk.	Outwest	50°53'N	114°45'W
10	Mount Allan		50°58'N	115°11'W
11	Banff Traffic Circle	McConnell	51°12'N	115°32'W

Table 1. Measured Sections - ReferencesNumbers; Names, Locations.

To the east are large, flat overlapping thrust slices of Upper Paleozoic carbonate and Mesozoic clastic sediments of the Foothills belt, and relatively undisturbed Paleozoic and Mesozoic sediments of the interior Platform which overlie the Precambrian Shield. To the west are the Main Ranges of the Rocky Mountains.

The basin of deposition, located on the western flank of the Shield, received sediment nearly continuously from late Precambrian time (Figure 2) forming an eastward-thinning wedge, the geometry of which was influenced by elements of the Churchillian basement (Stelck et al., 1972). The Peace River Arch to the north and the Sweetgrass Arch to the southeast were major confining elements, as well as the West Alberta Ridge (Figure 3).

The Paleozoic sedimentary history is one of miogeosynclinal clastics and carbonates deposited during transgression and regression of the "Pacific Ocean" over the western edge of the craton. During the late Paleozoic and early Mesozoic this regime changed, due to uplift in the northeast and subsidence in the west, to one of exogeosynclinal sedimentation probably with an eastern source (Norris and Bally, 1972).

Uplift and thrusting occurred during the Columbian Orogeny which spanned the time interval from Middle Jurassic to Early Tertiary (Wheeler et al., 1972) and contemporaneous erosion of those areas may have supplied at least part of the material deposited as

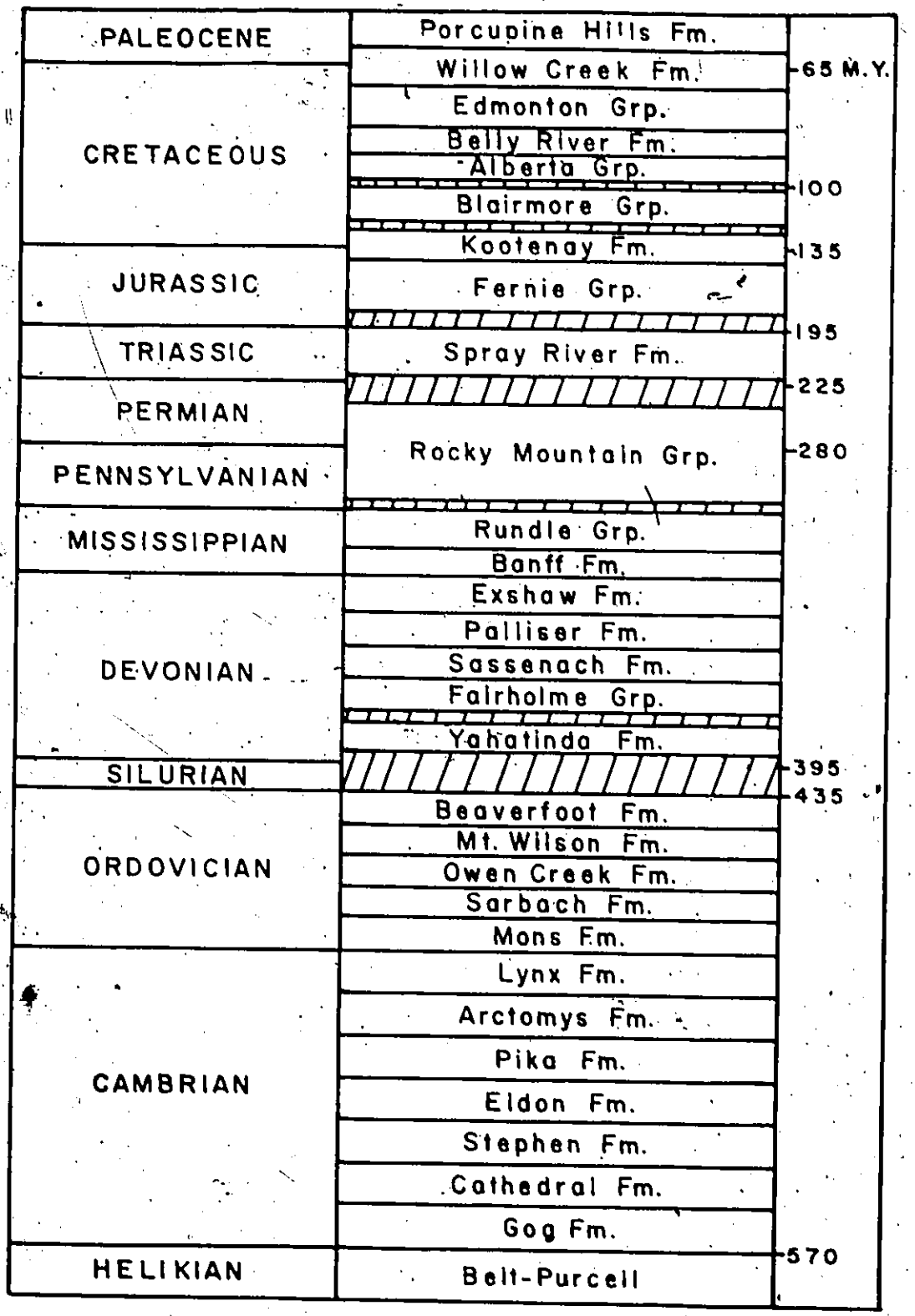


Figure 2. Stratigraphic column, southern Front Ranges (compiled from Stelck et al., 1972; Norris and Bally, 1972; Douglas, 1970)

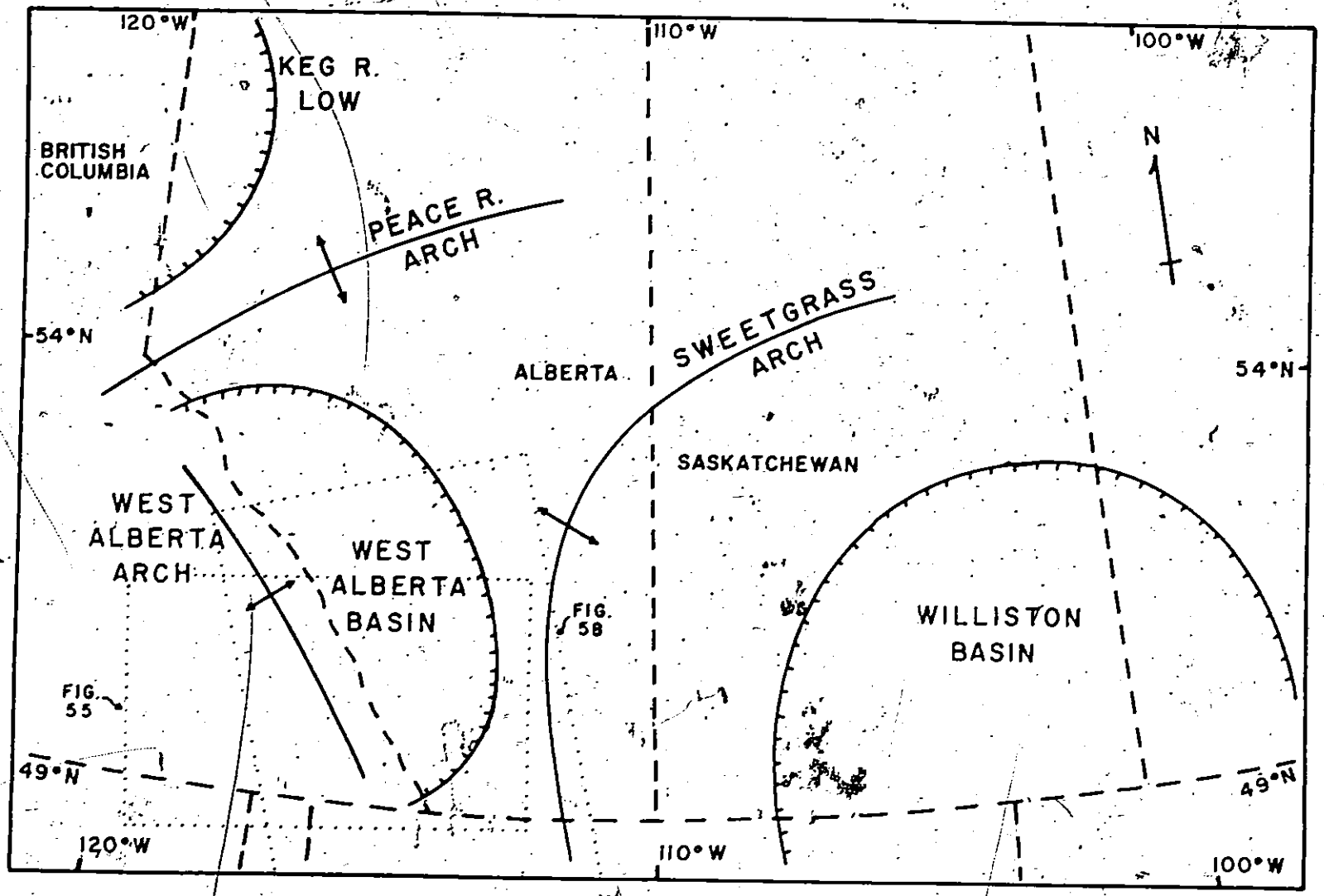


Figure 3. Basement structures influencing Late Jurassic/Cretaceous sedimentation (from Stelck, 1975)

Fernie-Kootenay sediments in the relatively shallow, elongate basin to the east. Deformation probably proceeded from west to east and from south to north in the eastern Cordillera, telescoping and vertically thickening the entire sedimentary wedge. Structurally higher and more westerly thrust sheets were formed earlier and hence moved farther than lower eastern sheets. Superficial shortening of up to 50% occurred in the southern part of the Foreland Thrust and Fold Belt (Wheeler et al., 1972).

Meanwhile, major uplift in south-central British Columbia blocked the connection with the "Pacific Ocean" and eventually resulted in deposition from west to east of the Cadomin conglomerate which erosionally truncates the Kootenay (McLean, 1977). Subsequent deposition consisted of a series of clastic depositional wedges of Lower Cretaceous through Tertiary ages. Thrust faults, which are imbricate and southwest dipping, may pass through the less resistant Fernie Group. Therefore, many outcrop sections appear near the faults (Figure 4) and parts of the Fernie are commonly tectonized.

Fernie-Kootenay Stratigraphy

The Jurassic and Lower Cretaceous stratigraphy is detailed in the following discussions and in the accompanying geologic column (Figure 5).

Fernie - The Fernie Group, encompassing most of the Jurassic of Western Canada, was first named by McEvoy and Leach (1902). Their

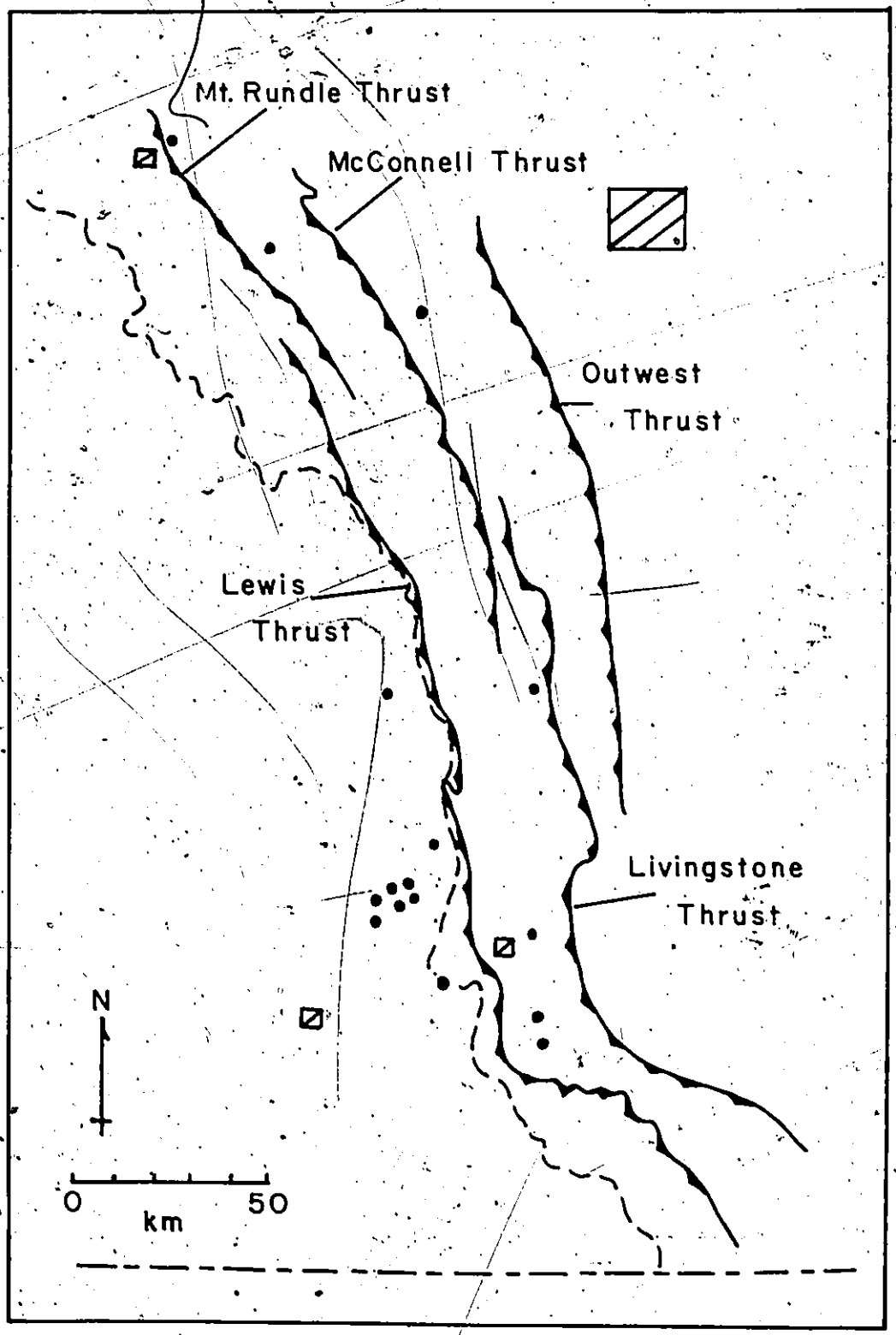


Figure 4. Major thrust faults, southern Foothills and Front Ranges

"Fernie shales" however included Triassic strata and the boundaries and status of the unit have undergone much revision since then. Frebold's contributions (1953, 1957, 1959, 1962) to the stratigraphy and paleontology are most notable. The Fernie Group forms a wedge of fossiliferous fine-grained sediments up to 900 m thick, and thinning rapidly to the east, which outcrops in a north-south belt along the Foothills and Front Ranges.

The following is summarized from Frebold (1957). The Lower Fernie may be represented by Sinemurian facies (phosphatic shale or limestone, coquinoid conglomerate) overlying the Triassic Spray River Formation, or by Toarcian facies (basal fossiliferous conglomerate followed by sandstone and shale). The Middle Fernie is represented by the Rock Creek Member of Bajocian-age (shale and sandy limestone with belemnites).

The Lower Callovian facies mark the base of the Upper Fernie. Locally developed Corbula munda and Gryphaea beds consist of grey shale and very fossiliferous sandstones. Elsewhere the Grey Beds, grey calcareous shale with intercalated thin sandstone beds, represent the Lower Callovian. Frebold (1957) correlates these sediments with the Upper Rierdon Formation (Montana), and possibly the Upper Shaunavon and Lower Vanguard Formations (Saskatchewan). The Green Beds, which form the base of the sequence dealt with in this study, are thought to be of

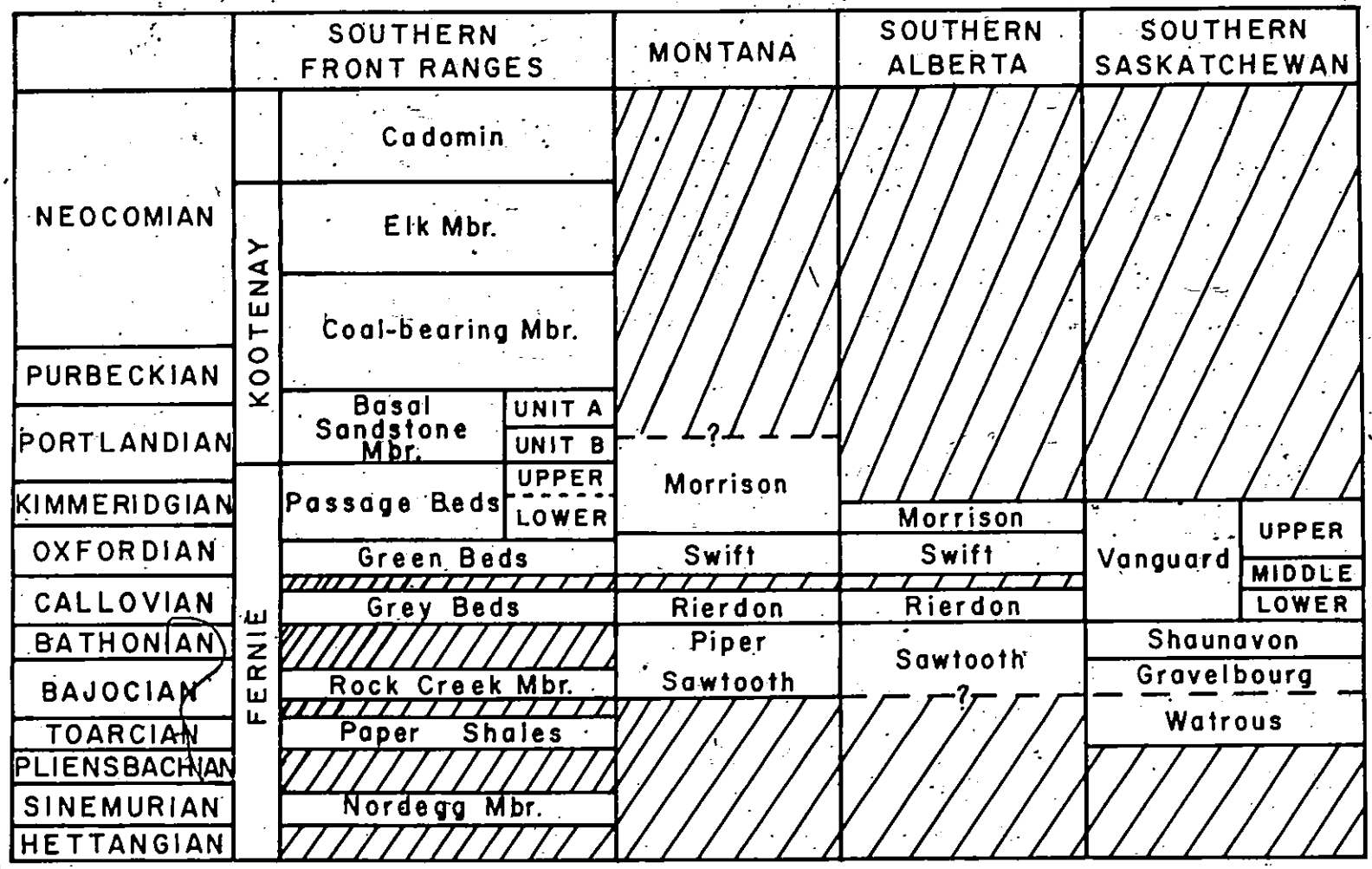


Figure 5. Fernie-Kootenay stratigraphy and correlation with adjacent areas (compiled from Frebold, 1957; Gibson, 1977a)

Lower Oxfordian age, as is the "facies of dark shales with big concretions". Oxfordian glauconitic zones are known from the base of the Swift Formation (southeast Alberta, Montana), and the Middle Vanguard Formation (Saskatchewan).

Younger Fernie sediments, the Passage Beds, have few distinctive fossils but may be of Upper Oxfordian and Kimmeridgian age. McLearn (1929) collected a "depauperate and poorly preserved fauna with both marine and nonmarine elements". This unit may be divided into Lower (dark siltstone with thin sandstone interbeds) and Upper (sandstone beds increase in thickness and number upward) parts. The Lower Passage Beds may be correlative with the Upper Swift Formation (southeast Alberta, Montana) and the Upper Vanguard Formation (Saskatchewan, Manitoba). The Upper Passage Beds may be equivalent to part of the Morrison Formation (Montana).

Kootenay - The term Kootenay was first used by Dawson (1886) though he included strata of both the presently defined Fernie Group and the Kootenay Formation. The unit was redefined by Leach (1912) and Rose (1917) though the Fernie-Kootenay contact has been revised several times since then and here is taken as the first occurrence of cliff-forming sandstone devoid of siltstone, following Gibson (1977a). Many reports have dealt with the general lithology, stratigraphy and coal exploration but little detailed work on depositional environments and regional stratigraphic synthesis was attempted until recently (Jansa; 1972; Gibson, 1977a). The

Kootenay Formation is a thick wedge (up to 1100 m) of sandstone, shale, coal, and conglomerate which thins to the east and outcrops in a north-south belt along the Foothills and Front Ranges. It may be in part equivalent or younger than the Morrison Formation (Montana). The following summary is based on the recent studies of Gibson (1977a).

The thick, cliff-forming Basal Sandstone Member can be divided into a lower Unit B and an upper Unit A. Unit B is composed of fine-grained, brown-weathering sandstone, thick bedded with planar lamination and some small-scale trough crossbeds. The basal contact with the Upper Passage Beds is abrupt but conformable. Likewise Unit A sharply overlies Unit B and is medium-grained, grey-weathering, "salt and pepper" sandstone, and characterized by abundant small to medium scale trough crossbedding. The upper bounding surface is very sharp and may have associated fine-wood fragments and vertical rootlets. The only other fossils known are one giant ammonite mould (late Jurassic age, Newmarch, 1953; Westermann, 1966) and a few fragments of a similar shell mould (this study) from Unit A.

The Coal-bearing Member, the lower few meters of which form the top of the sequence studied in this report, is a very thick succession of interbedded carbonaceous siltstone, fine-grained lenticular sandstone beds, and coal seams. A few conglomeratic beds occur in western areas. The coal seams which are thinner and less numerous to the east, have been the target of intense economic interest throughout the region since the turn of the century. Paleobotanical studies indicate

the Member is time-transgressive and ranges in age from Late Jurassic to Early Cretaceous.

The upper, Elk Member sharply but conformably overlies the Coal-bearing Member and thins rapidly to the east. Fine- to coarse-grained crossbedded sandstone is the dominant lithology with cherty conglomerates, carbonaceous siltstones and a few thin coal seams. The upper contact with the Cadomin conglomerate of the Blairmore Group appears to be erosionally disconformable at most localities.

Nikanassin - The Nikanassin Formation of the central and northern Foothills, named by MacKay (1929), occupies a position between shaley strata attributable to the Fernie Group, and the Cadomin Formation, and has variously correlated with the Kootenay and the Passage Beds. It is more similar lithologically (especially in the lower part) to the Upper Passage Beds, though it may be age-equivalent to the Kootenay and contains a few thin coal seams in its upper part (Gibson, 1977b). This unit may prove to be the northern, all-marine equivalent to the sequence studied here.

From the previous discussions, the facies definitions of Chapter 3, and Figure 6, it will be seen that there is a marked correspondence between the facies defined in this study and the stratigraphic units of the Fernie (Frebold, 1957) and Kootenay (Gibson, 1977a). This aids in field recognition of the facies and lends support to the original stratigraphic work.

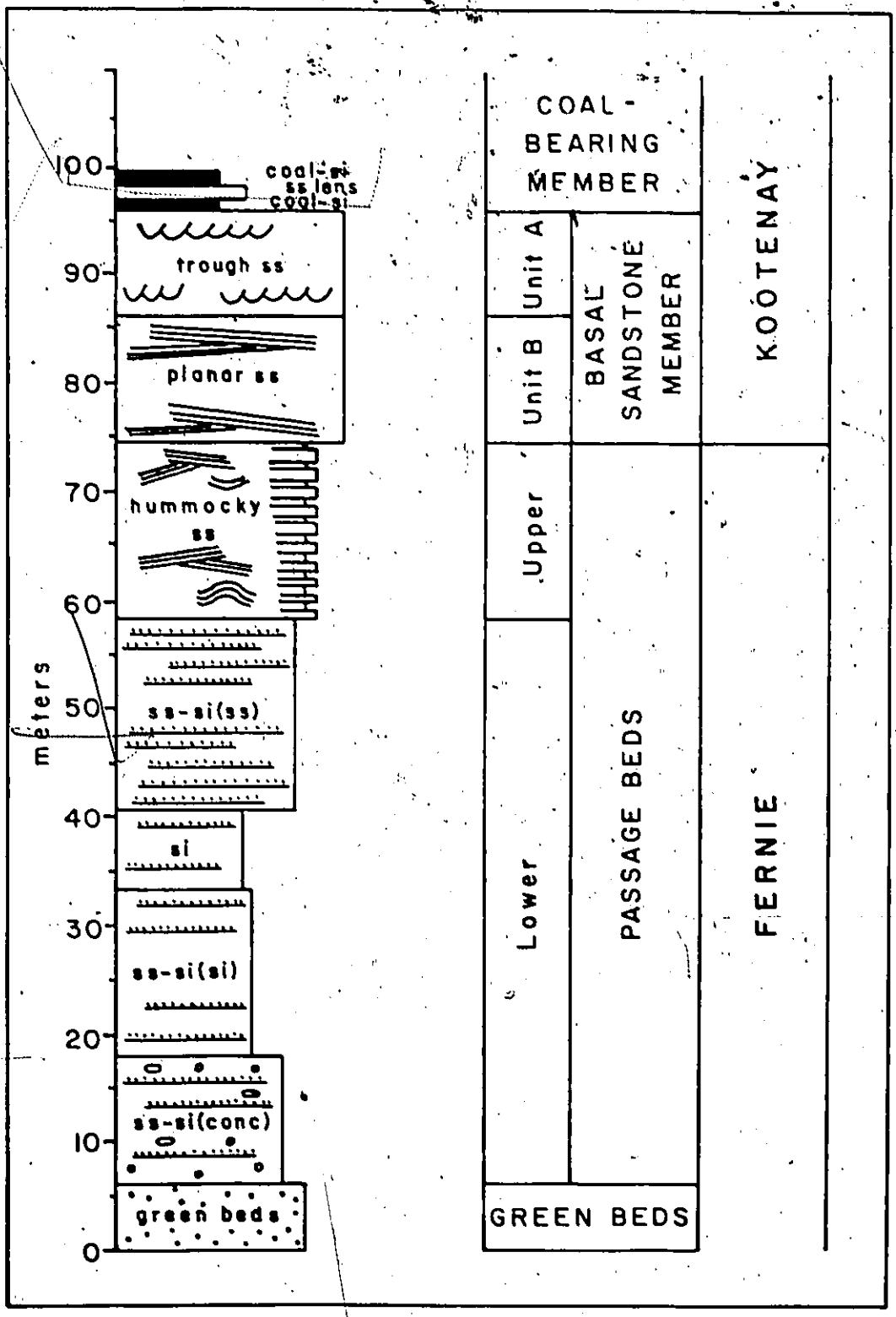


Figure 6. Correspondence of facies and stratigraphic units

Present Gross Interpretation of the Fernie and Kootenay

The Fernie Group has traditionally been interpreted as marine and the Kootenay Formation as marginal and continental deposits. The Kootenay has been thought to mark the reversal of sediment dispersal from a Precambrian Shield (eastern) source to a Cordilleran (western) source associated with uplifts during the Columbian Orogeny, though little paleocurrent data has been published. Jansa (1972) and Frebold (1957) interpret the Fernie as shallow marine shelf sediments deposited in the Fernie sea which covered much of the Western Interior. The Passage Beds were thought by Frebold (1957) to be transitional beds in the west to east Kootenay progradation, and by Jansa (1972) to be pro-delta shallow marine deposits.

Though the Kootenay was interpreted classically as deltaic (mostly on the basis of sandstone and coal as major constituents), Jansa (1972) and Gibson (1977) have been more specific in assigning a delta front sheet sand and/or interdeltaic beach-barrier island interpretation to the Basal Sandstone Member. Jansa (1972) also postulated tidal flat and channel environments. Most workers agree that the Coal-bearing Member represents extensive coastal or lower delta plain channel and interdistributary marsh deposits. The Elk is thought to be upper delta plain sediment with conglomerates representing the lower fringes of prograding alluvial

fans (Gibson, 1977a). The Cadomin represents a major west to east influx of alluvial fan and braided fluvial coarse sediment (McLean, 1977) which erosionally truncates Kootenay deposits and must represent a major tectonic event to the west.

Methods Employed in this Study

Eleven suitable sections were chosen for outcrop study and each was measured in detail (essentially bed by bed) with special reference to sedimentary structures, paleocurrent data, bounding surfaces of beds, sandstone:siltstone ratios, bioturbation and lateral variations. Three drill cores covering the same interval were similarly measured. During fieldwork, it became apparent that the sections could be divided into ten clearly defined facies as described below. Nuclear logs accompanying the three cores and two others (unmeasured) were perused in search of characteristic patterns for each facies.

Petrographic thin section investigation was not a major objective but added significant compositional information to facies descriptions, the study of provenance, and analysis of grain size and shape trends. These data aided in interpretation of depositional environments and source/dispersal patterns.

Of major importance was acquisition of abundant paleocurrent data. As all strata have been moved and deformed at least to a minor extent, all data were reoriented to their original horizontal position in the field by rotation around the strike of the bed involved (Figure 7).

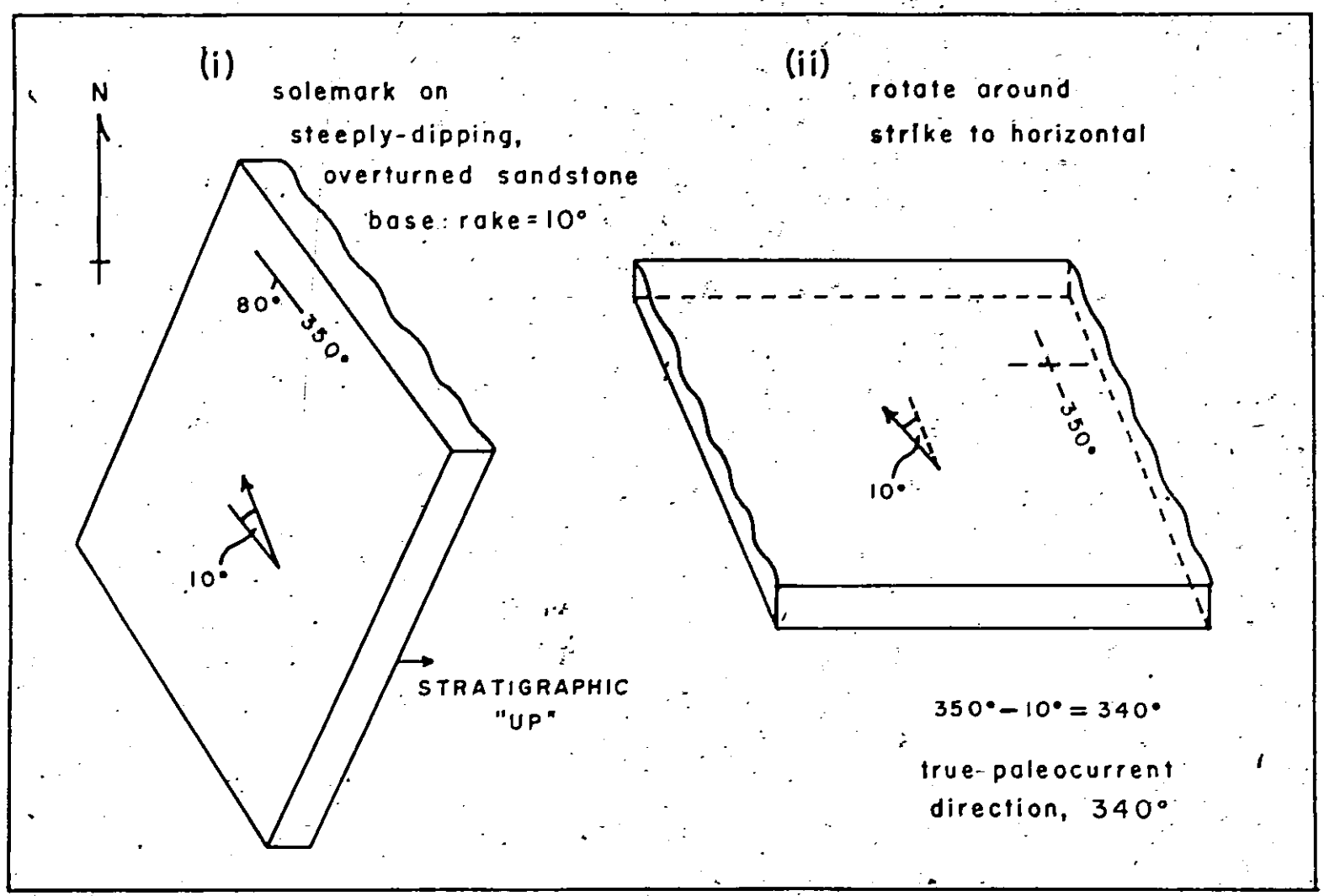


Figure 7. Restoring paleocurrent measurements to horizontal

In the relatively deformable interbedded sandstones and siltstones, strike and dip of the bed at that point were taken before each paleocurrent measurement, as it was found that both could vary considerably even over short lateral distances. Elongation of linear features (most sole marks, parting lineation, aligned wood fragments) was obtained by measuring the rake of the lineament on the bed surface and either adding or subtracting this from the bed strike, which automatically restores the measurement to horizontal. All other measurements were rotated to their original horizontal position using a stereonet.

Dip direction of inclined planes (ripple cross lamination, low angle-divergent sets parallel lamination) were measured by placing a notebook or card on the plane as an extension, and measuring strike and dip of this surface. Two methods were used in dealing with troughs or scours and trough crossbedding depending upon the exposure available. If the view is perpendicular to the axis of the depression, strike and dip of the two sidewall planes can be measured, as above, and plotted on a stereonet. If the depression is a spoon-shaped trough flaring downstream, the plotted planes projected onto the southern hemisphere of the stereonet intersect at the downstream end of the trough axis, representing the flow direction (Figure 8A). If the walls are measured where they are nearly parallel then only an axis orientation is obtained. If, alternatively, a view parallel to flow is seen then the upstream, steeply-dipping part of the trough crossbedding can be treated as a dipping plane, indicating the

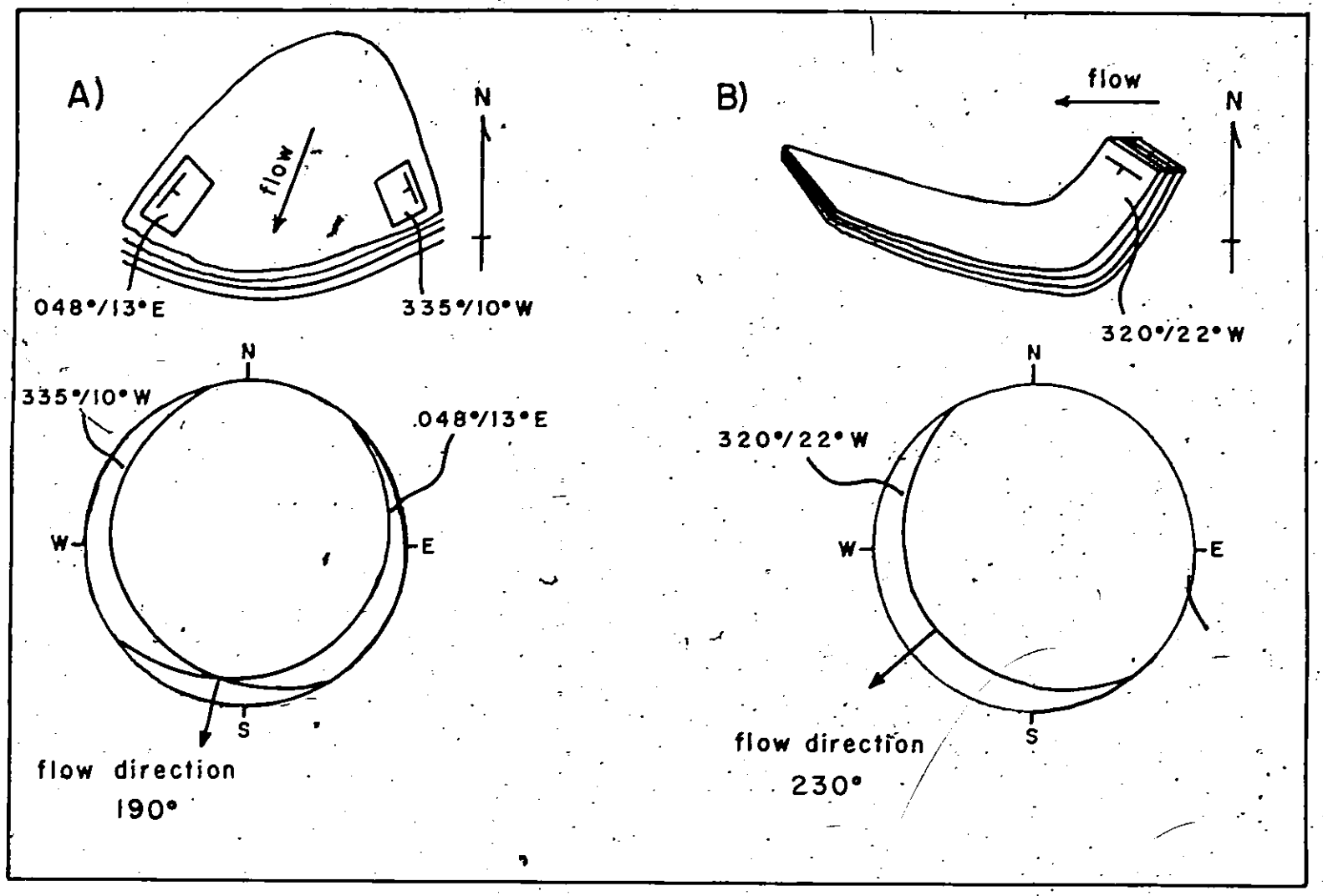


Figure 8. Obtaining flow direction from A) trough-shaped sets, B) trough crossbedding

the direction of the flow (Figure 8B). However, this measurement could be made over a wide range of positions around the edge of the trough and so an average direction must be obtained from a number of sets.

CHAPTER 3

FACIES DESCRIPTIONS

While familiarity with the succession allowed the use of informal but recognizable units in the field, formal definitions of the facies were made after most field work was completed and all sections had been described in detail. Criteria of lithology, grain size, bed thickness, sandstone:siltstone ratios, amount and style of bioturbation, type and scale of sedimentary structures, and paleocurrent data all proved useful in separating the facies.

For convenience, a system of shorthand symbols will be used throughout this thesis to denote the ten facies described. These symbols involve elements representing the lithologies and sedimentary structures characteristic of the facies, and are defined in Table 2. Paleocurrent data for each facies are tabled with the description while details of the petrography may be found in Appendix I.

Green Beds

This facies was described at two of the measured sections (Sections 3, 6) as well as two other locations in the Crowsnest Pass area and found to be of uniform character. It occurs in units 2.4 m to

ss lens	thin, lens-shaped, sharp-based sandstone beds, sole-marks, parallel lamination
coal-si	thin seams of coal and carbonaceous, bioturbated siltstone
trough ss	trough cross-bedded "salt and pepper" sandstone, sharp top with rootlets
planar ss	sharp-based sandstone unit 7-34 m thick, no siltstone, no bioturbation, long low angle - divergent sets of parallel lamination with preferred orientation
hummocky ss	interbedded sandstone and siltstone, ss:si = 2:1, sandstones 75 cm thick, sandstones thicken up, hummocky cross stratification, rippled and bioturbated tops
ss-si (ss)	interbedded sandstone and siltstone, ss:si = 1:1-2, sandstones 7 cm thick, large and small thickening upward bundles
si	interbedded sandstone and siltstone, ss:si = 1:10, sandstones 3 cm thick, well bioturbated
ss-si (si)	interbedded sandstone and siltstone, ss:si = 1:7, sandstones 5 cm thick
ss-si (conc)	interbedded sandstone and siltstone; ss:si = 1:16, sandstones 4 cm thick, concretions in si
Green Beds	green glauconitic sandstone with silt and concretion bands, belemnites.

Table 2. Shorthand Symbols used for Facies.

7.1 m thick. It consists of silty, very fine glauconite sand which is rather soft and friable, noncalcareous, and of a dull green colour. There are up to ten harder, calcareous ironstone concretion bands which are partly bioturbate, discontinuous, silty, and 10-15 cm thick. These bands usually contain macerated wood fragments, a few belemnites and tend to be more numerous near the base and top of the facies. In the middle part thin (10-15 cm) layers of dark coloured silty shale occur.

The Green Beds are dominantly very fine sand-sized glauconite particles which contain scattered quartz grains of silt, sand and granule size. Some harder bands consist of angular fine to very-fine sandstone with a glauconitic matrix. Commonly, there are thin black Cosmorphaphe trails and numerous belemnites (including Belemnites sp., McLearn, 1929) lying in bedding. No sedimentary structures were observed in the facies and paleocurrent data could not be obtained. The upper contact with overlying facies tends to be rather gradational and characterized by the most intense green colour.

Ss-si (conc)

This facies occurs as fairly thick units (4.8-43 m exposed) of siltstone with thin sandstones, interpreted as turbidites, and rusty weathering concretions (Figure 9) in the lower parts of Sections 3, 4, 7, 8, 11. Siltstones generally are thoroughly bioturbate, though at Section 11 only partly so and at Section 7, not at all. They commonly

Figure 9. Ss-si(conc) facies with large ovoid and small spherical (10 cm diameter) concretions (Section 3, 15 m)

Figure 10. Ss-si(si) facies. Top is to right (Section 11, 172-180 m)

contain small wood fragments and very thin streaks of sandy silt. Sandstones are composed of quartz in very fine sand to silt sized grains, poorly-sorted and immature with abundant clay matrix. The sandstone beds are thin, sharp-based, and parallel laminated (B division, Bouma, 1962) which pass upward into ripple cross-lamination (C division, Bouma, 1962). These B and BC beds may have some small unidentified burrows on their bases, usually have partly bioturbated tops, and in places are rather discontinuous.

Within the siltstones are numerous hard, black concretions of two shapes. Near the base of the facies these tend to be large, ovoid and flattened, lying along lamination, 2-20 cm thick and up to 1 m across. Throughout the units but dominantly in upper parts are small subspherical concretions 0.5-2.0 cm in diameter. Most concretions are noncalcareous and consist of clay sized particles with a few scattered quartz silt grains. Siltstones also yielded some belemnites which usually are found immediately above sandstone beds.

Individual siltstones range 15-110 cm, averaging 75 cm, and sandstone beds range 1-9 cm, averaging about 4 cm. The sandstone:siltstone ratio ranges 1:8 to 1:20, averaging about 1:16. Due to extensive bioturbation, paleocurrent data is minimal but is listed in Table 3.

TABLE 3. Paleocurrent data, ss:si(conc) facies

	SOLEMARKS	WOOD FRAGMENTS	DIP OF RIPPLE CROSSLAMINATION
SECTION 3			
SECTION II			

TABLE 4. Paleocurrent data, ss:si(si) facies

	SOLEMARKS	WOOD FRAGMENTS	DIP OF RIPPLE CROSSLAMINATION
SECTION 4			
SECTION 6			
SECTION 7			
SECTION 8			
SECTION II			

TABLE 5. Paleocurrent data, si facies

	SOLEMARKS	WOOD FRAGMENTS	DIP OF RIPPLE CROSSLAMINATION
SECTION 2			
SECTION 7			
SECTION 9			

Ss-si (si)

Sections 1, 2, 3, 4, 6, 7, 8, 11 and Drillhole Ev-19 have occurrences of this facies 0.5-10 m in thickness, most about 10 m or more, in their lower parts. Partially to well bioturbate siltstone predominates over thin interbedded sandstones (Figure 10). Siltstones range 2-150 cm, averaging 35 cm, and sandstones range 1-20 cm, averaging 5 cm. The sandstone:siltstone ratio ranges 1:4 to 1:25 but averages 1:7; the extreme values only occur in the thickening-upward sequences described below.

Quartz sandstones are very fine and silty, poorly sorted and immature with 10-15% clay matrix. Sandstone beds interpreted as turbidites have sharp bases with some solemarks and small loading features (Figure 11), and are Bouma B, C and BC beds. Abundant burrows on sandstone bases are 0.5-1.0 cm wide and 1-4 cm long and either vertical or subhorizontal. At Section 11 the bases are matted with a dense interlocking network of these ichnofossils with abundant Y-branchings and irregular enlargements (Figure 12). Jansa (1972) identified these as Thalassinoides. Tops of sandstone beds are usually bioturbated and gradational with thin black meandering trails, probably Cosmorphaphe, on lamination planes and a few belemnites immediately above these beds. Fine aligned wood fragments were found within sandstones.

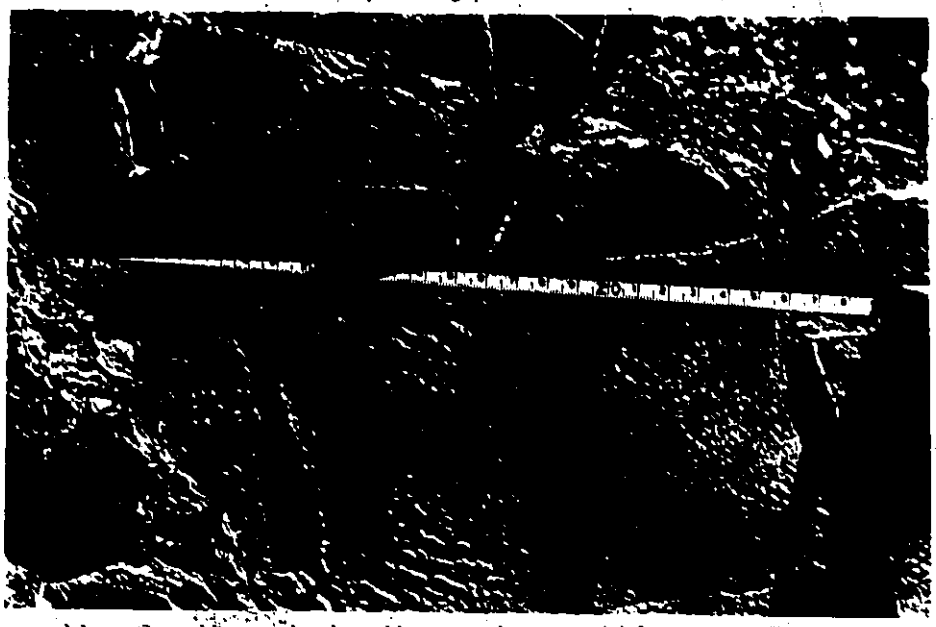


Figure 11. Small-scale loading on base of 10 cm sandstone bed, ss-si(si) facies (Section 11, 131 m)

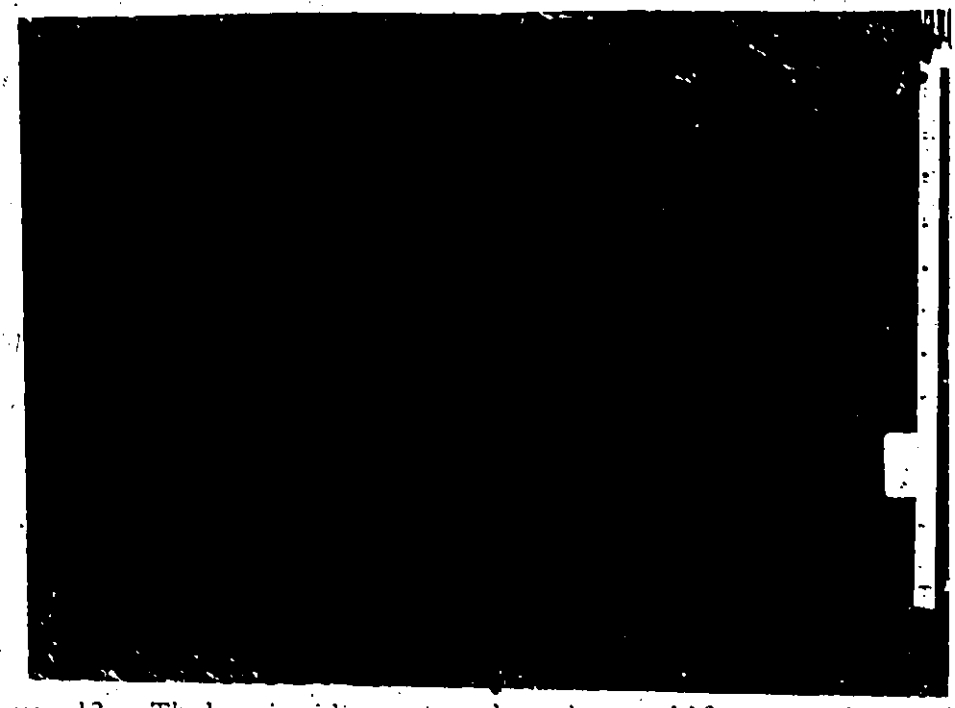


Figure 12. Thalassinoides network on base of 10 cm sandstone bed, ss-si(si) facies (Section 11, 179 m)

Thicker units commonly display an upward increase in sandstone bed thickness and number as at Sections 1, 8, 11. The bed thickening (from 5-6 cm to 10-15 cm) is accompanied by an upward change from dominantly B to dominantly BC and C beds. Limited paleocurrent data were obtained at six measured sections and are listed in Table 4.

Si

The interbeds between sandstone beds of the ss-si(ss) facies generally consist of 2-50 cm bioturbate siltstones in all sections but this facies also occurs in units 70 cm to 16.75 m in thickness at Sections 2, 3, 5, 7, 9, and Drillhole 938. Lithologies included are variable and except for the lower part of Section 7 are invariably bioturbated.

The si facies is thoroughly bioturbate silt and sandy silt usually with a few very thin, partially bioturbate and discontinuous beds and streaks of coarse silt to very fine sandstone which nearly always show vestiges of original ripple crosslamination (Figure 13). A few of these beds appear to have been originally Bouma B or BC beds. They are composed of poorly sorted and immature quartz with 10% clay matrix. These beds have sharp to gradational bases commonly with small burrows (possibly Thalassinoides) and gradational bioturbated tops. Bioturbation disrupts lamination and is at least partly vertical in nature. Small unoriented wood fragments can be found throughout the facies.

Figure 13. Discontinuous, partially bioturbated sandstone bed 2-3 cm thick, si facies (Section 9, 4 m)

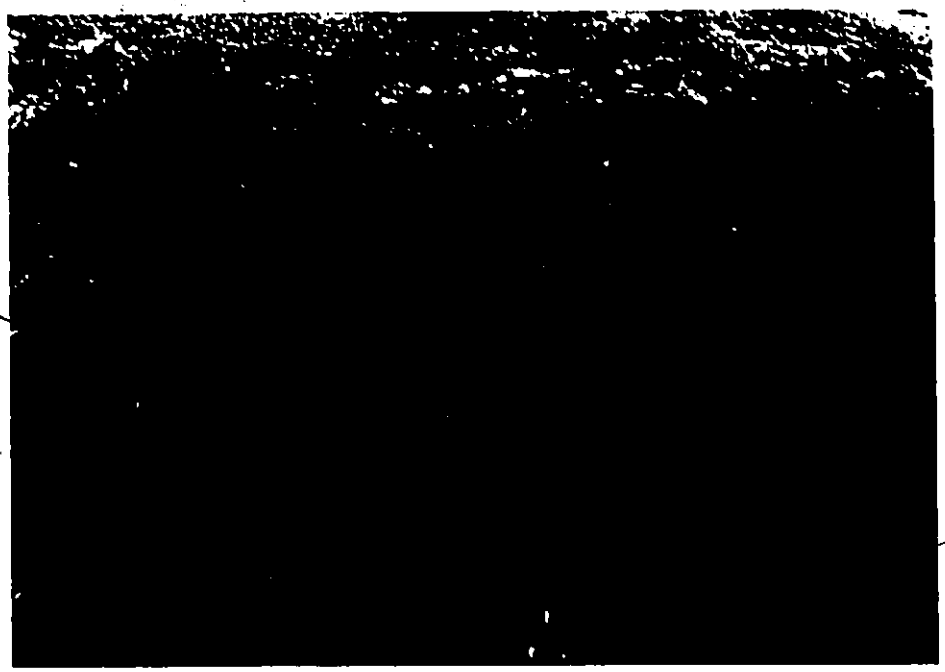


Figure 14. Ss-si(ss) facies. Top is to right (Section 11, 56-63 m)

Sandy beds range 1-10 cm, averaging 3 cm thick, and siltstones range 1-190 cm, averaging about 30 cm. Sandstone:siltstone ratios range 1:2 to 1:20, averaging about 1:10. Due to very extensive bioturbation only limited paleocurrent data could be obtained from thick units at a few sections and are listed in Table 5.

Ss-si(ss)

At all measured sections are units 5-80 m thick of thinly interbedded sandstones, interpreted as turbidites, and siltstones (Figure 14). Individual sandstone beds are laterally extensive, sharp based, Bouma B and BC beds ranging 1-50 cm, averaging 7 cm thick. Siltstones range 1-75 cm, averaging 6 cm and usually are at least partially bioturbate. Sandstone:siltstone ratios vary 1:5 to 3:1 but average about 1:1-2.

The sandstone is very fine grained, poorly to moderately sorted quartz, immature, with 8-11% silt and clay matrix. Sandstone beds have erosive bases though some gradational bases may be found where burrowing and bioturbation have been extensive. Small burrows and solemarks are ubiquitous, and in places, abundant. Most distinct burrows are similar to Thalassinoides and may extend several centimeters up into beds disrupting lamination. Solemarks include small scratches, prods, grooves, current crescents (Dzulinsky and Walton, 1965, p. 87), fluted burrow openings (Dzulinsky and Walton, 1965, p. 87, Fig. 60), and in several cases flute marks. Basal features are spectacularly exposed at overturned Section 11. The bases of many beds between 207-

227 m at Section 11 also have abundant fine aligned wood fragments and thicker beds (average 15 cm) display small loading features similar to Figure 11 from the ss-si(si) facies. Small thin shale chips and parting lineation are also characteristic of the lower few centimeters of sandstone beds.

Sandstones are finely laminated B and BC turbidites with fewer C turbidites. No occurrence of the massive Bouma A division was recorded at any section. Ripple crosslamination averages 2-3 cm in amplitude and dips range 15-28°. Between 162-175 m, Section 11, and 49-66 m, Section 7, rippling occurs on a slightly larger scale than elsewhere (Figure 15). Several thicker beds between 64-74 m, Section 11, are rippled deeply over part of their exposure but to little extent in other parts. Some thicker beds at Section 1 (31-34 m, 39-40 m) and Section 5 (0-4 m, 50-51 m) contain thin discontinuous planes of partially or totally bioturbated massive sediment with abundant organic material. Small, well oriented wood fragments may occur in abundance along lamination planes within some sandstones at all sections.

The tops of sandstones may be sharp or gradational depending upon the amount of bioturbation. Where tops are gradational bioturbation may extend several centimeters down into the bed and ripple crosslamination is poorly preserved (Figure 16). At the top of the facies at Section 11 (226.4 m) is a 9 cm sharp based sandstone with undulating continuous

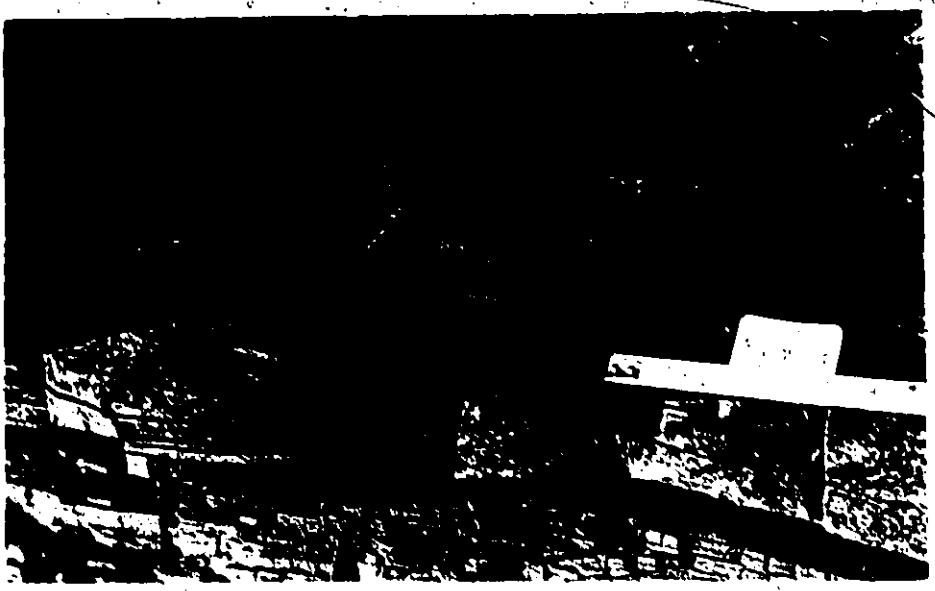
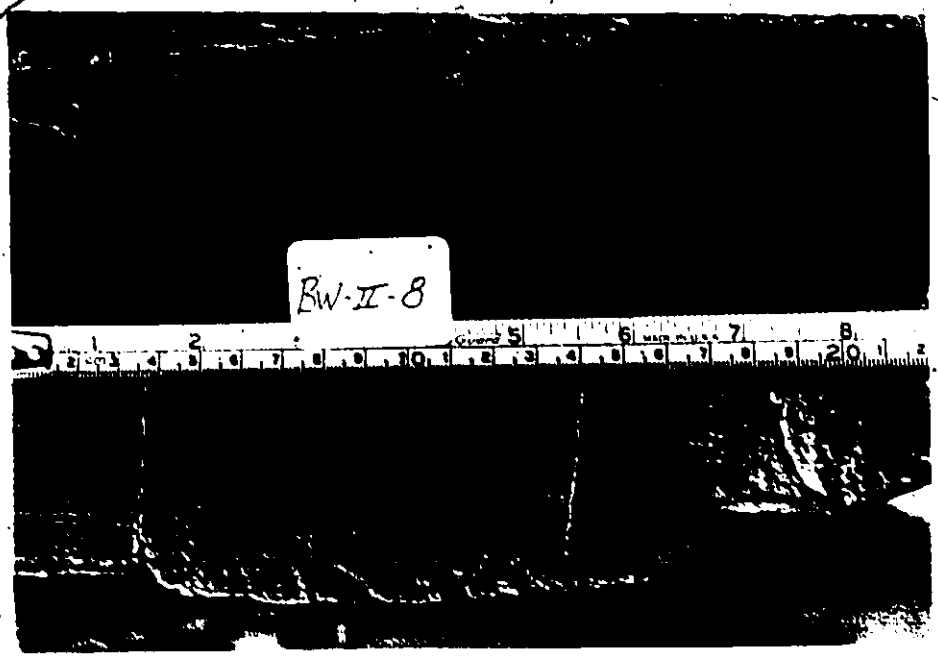


Figure 15. Ripple crosslimaination on slightly larger scale than most examples in 10 cm sandstone bed, ss-si(ss) facies (Section 6, 38 m)



Section 16. Gradational, bioturbated top of 13 cm sandstone bed, ss-si(ss) facies (Section 11, 226 m)

Figure 17. Undulating lamination at top of 9 cm sandstone bed, ss-si(ss) facies, immediately below hummocky ss facies (Section 11, 226 m)

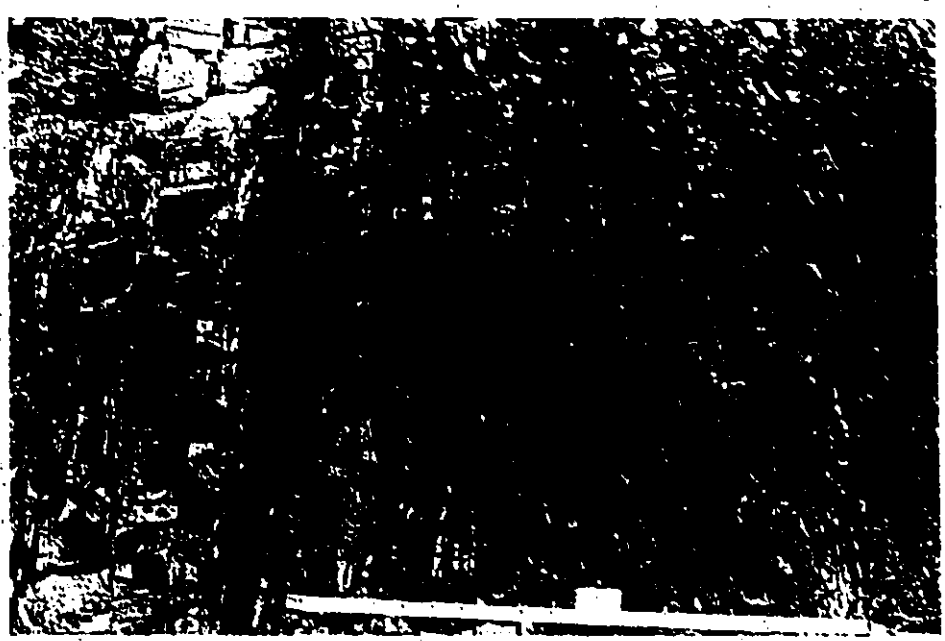


Figure 18. Small-scale thickening-upward bundle, ss-si(ss) facies. Top-is-to-left (Section 6, 38 m). Tape 50 cm.

lamination in the upper few centimeters (Figure 17) heralding the sedimentary structures of the overlying hummocky ss facies.

Finer grained interbeds are composed of dark siltstone which generally becomes sandier upward through the facies. They may contain very thin (up to 1 cm) discontinuous streaks of silty very fine sandstone, especially in upper parts of a section. Siltstones are generally bioturbate though only partially so at Sections 2, 7, 11. In places they contain unoriented wood fragments and meandering Cosmorphaphe trails.

At Sections 3 (148-149 m, 150-151 m, 157-158 m), 6 (25-26 m, 27-31 m) and 8 (50-51 m, 54-56 m, 57-58 m) sandstone beds occur in laterally extensive bundles 60-125 cm thick. Sandstone:siltstone ratios range 1:1 to 3:1 and several bundles display a slight thickening-upward trend (Figure 18). Trends of this sort on a larger scale and somewhat less obvious occur at Sections 6 (32-36 m, 36-42 m) and 7 (49-55 m, 56-64 m). At Section 6 sandstone:siltstone ratios shift from 1:2 to 1:1 upward in each of the two sequences while scale of rippling increases from the lower sequence to the upper. At Section 7 the ratio changes 1:3 to 1:1 and the scale of rippling increases upward in the upper sequence.

At Section 11 between 64 and 93 m are two thickening-upward sequences. The lower one (64-74 m) (Figure 19) is bounded by two minor faults and contains B and BG beds 1-45 cm thick with partially bioturbated siltstones. Sandstone:siltstone ratios change 1:3 to 2:1 with average sandstone thickness increasing from 7 to 20 cm. B division beds dominate

in the lower part and the occurrence of BC beds increases upward. The upper sequence (75.5-93 m) is also bounded by minor faults. Most sandstones are B beds, ranging up to 40 cm thick (average 10 cm) and the thickening-upward trends is less noticeable. Siltstones are slightly bioturbate and average 20 cm thick. The sandstone:siltstone ratio changes upward from 1:3 to 1:1.

The most important feature of these two sequences is the associated paleocurrent data (see Appendix II). Throughout the rest of the section solemark orientations indicate flow toward NNW but between 64-93 m the direction shifts markedly to NNE. Solemarks below 64 m in this facies have vector mean 348° while those above 93 m have vector mean 343°. Within these two sequences the vector mean is 028°. In conjunction with the observed sedimentological trends this shift of about 45° in solemark orientation is very significant, particularly as the two directions are nearly mutually exclusive. All paleocurrent data for the ss-si(ss) facies is listed in Table 6.

Hummocky ss

In all outcrop and drillhole sections are thick units of interbedded hummocky cross stratified sandstone and siltstone ranging 4.5 m (Section 9) to 81 m (Section 11), but averaging 15-20 m in thickness (Figure 20). They consist of individual sharp based, very fine- to fine-grained quartz sandstone beds 12 to 485 cm thick (average about 75 cm) characterized by parallel, low-angle divergent and broadly curving sets of lamination,

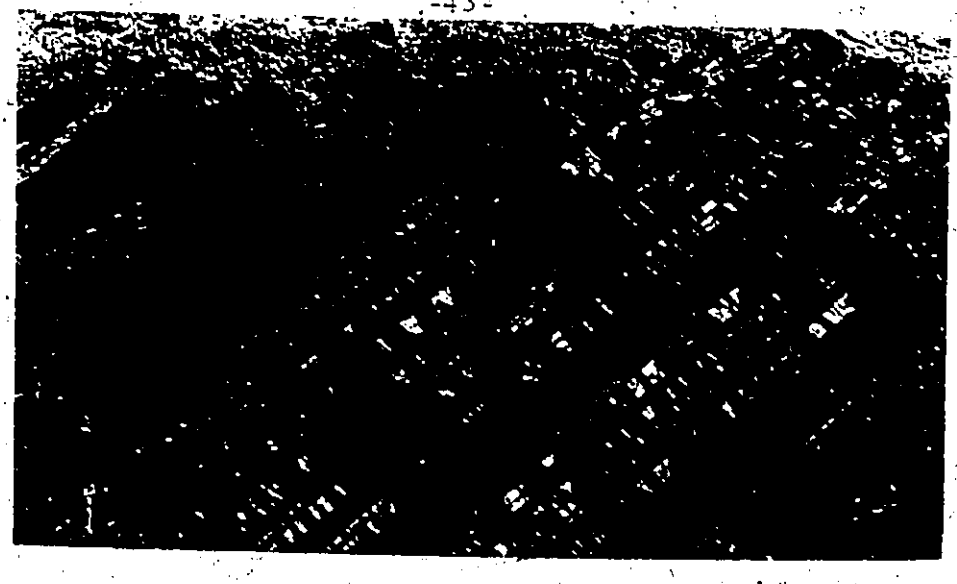


Figure 19. Large-scale thickening-upward sequence, ss-si(ss) facies. Top is to right (Section 11, 64-74 m).

Figure 20. Hummocky ss facies (Section 2, 58-65 m).

TABLE 6. Paleocurrent data, ss:si(ss) facies

	SOLEMARKS	WOOD/PARTING LINEATION	DIP OF RIPPLE CROSSLAMINATION
SECTION 1			
SECTION 2			
SECTION 3			
SECTION 4			
SECTION 5			
SECTION 6			
SECTION 7			
SECTION 8			
SECTION 9			
SECTION 10			
SECTION 11			

and interbeds 2 to 80 cm thick (average about 15 cm) of bioturbated siltstone. The sandstone is poorly to moderately sorted and immature with 5-10% silt and clay matrix. The facies has some features in common with lower turbidite facies and Table 7 compares the characters of all five interbedded facies.

Sandstone beds have erosive bases which may be flat, gently undulating, or may downcut into or completely through siltstones in broad shallow troughy scours (Figure 21). These scours range 50-300 cm across and 8-20 cm deep. At the overturned Section 11 where undersides of sandstone beds are extensively exposed, broad undulations and terracing of lamination due to scouring (Figure 22) between 275-300 m show these basal scour troughs are circular to oval with a slight N/S elongation. At most sections there are some well-oriented small scratches preserved on the bases of these sandstones (Figure 23). The lower few centimeters within a bed may contain flat ellipsoidal shale chips up to 5 cm across, commonly localized in patches, parting lineation and concentrations of oriented and unoriented wood fragments. At Section 11 (239-248 m) are several 30-40 cm beds with small-scale "ball and pillow" structures at their bases (Figure 24). Pillow axes are vertical in cross-section indicating purely vertical settling of sand into underlying silt, though in several cases the plane of symmetry appears to have a N/S orientation.

	ss-si (conc)	ss-si (si)	si	ss-si (ss)	hummocky ss
ss:si ratio	1:8-20, av. 1:16	1:4-25, av. 1:7	1:2-20, av. 1:10	1:5-3:1, av. 1:1-2	1:1-3-4:1, av. 2:1
si bioturbation	well	partly to well	well	partly to well	well
ss bioturbation	base and top	top, some on base	base and top, some completely	base and top	base and top
burrows evident	on base, small, unidentified	Thalassinoides, Cosmorphaphe	Thalassinoides (?)	Thalassinoides, Cosmorphaphe	Rhizocorallium, small basal too
thickening-upward sequences		slight, 10-30 m thick		small (1-2 m) & large (6-18 m)	entire facies
Bouma divisions or sedimentary structures of sandstones	B, some C	B, C, some BC	C, few BC	B, BC, some C	low angle and troughy sets of lamination, hummocky cross-strat.
si thickness (cm)	15-110, av. 75	2-150, av. 35	1-190, av. 30	1-75, av. 6	2-80, av. 15
ss thickness (cm)	1-9, av. 4	1-20, av. 5	1-10, av. 3	1-50, av. 7	12-485, av. 75
wood fragments	in si, unoriented	aligned in ss		abundant & aligned in ss, some in si	unoriented

Table 7. Comparison of the interbedded facies.

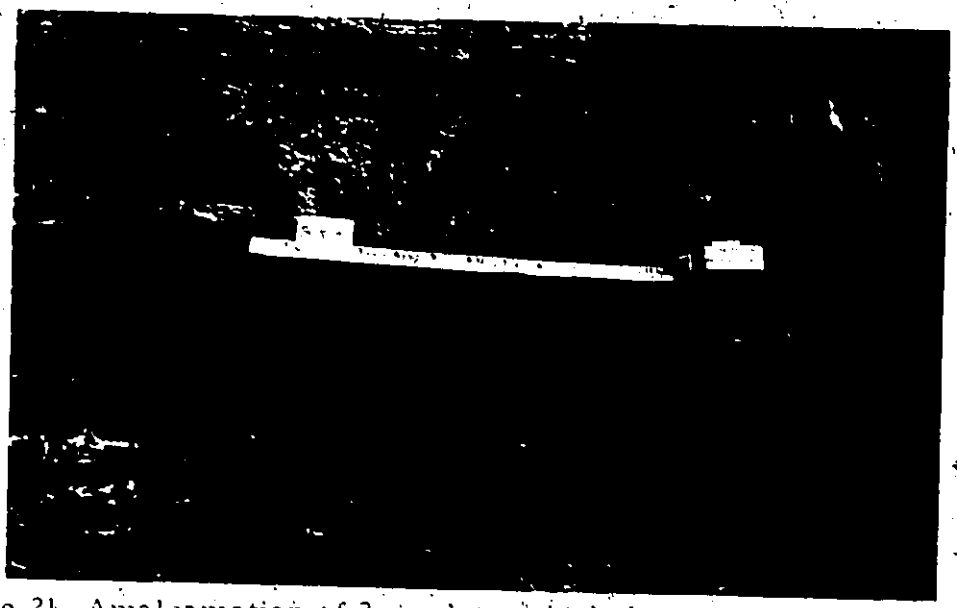


Figure 21. Amalgamation of 2 sandstone beds by scour erosion of silty interbed. Scour fill 12 cm deepx40 cm across (Section 2, 63 m)

Figure 22. Terracing of lamination on sole of 27 cm sandstone bed due to scour filling, hummocky ss facies (Section 11, 287 m). Tape 20 cm

Figure 23. Small, oriented scratches (NNW/SSE) on sole of 20 cm sandstone bed, hummocky ss facies (Section 4, 49 m)

Figure 24. Ball and pillow loading structures on base of 28 cm sandstone bed, hummocky ss facies (Section 11, 239 m) Tape 1 m.

Some subhorizontal burrow casts were recorded on sandstone bases at most sections and in some cases the lower few centimeters show evidence of bioturbation which quickly decreases upward into the bed. Sandstones may rarely contain a few, very thin bioturbated silty streaks that disrupt lamination and the upper 2-3 cm of the beds are generally bioturbated. At Section 1 and Drillhole Ev-19 several thin 10-15 cm sandstones are totally burrowed leaving only vestiges of lamination. At 278.75 m of Section 11, one 17 cm sandstone bed has two horizontal spreite burrows, Rhizocorallium, faintly preserved on its base (Figure 25).

The most obvious characteristic of these sandstone beds is the fine parallel lamination occurring in horizontal, low-angle divergent (Figures 26,27,28), and broadly troughy (Figures 29,30) sets 10-50 cm thick. Sets truncate each other and there is usually more than one vertically in a bed, and many if traced laterally. In many cases the ubiquitous low angle-divergent sets dipping at 2-15° in all directions appear to be planar but they commonly become asymptotic at the base and form one side of broad shallow troughs, especially typical at the tops of beds. Better outcrop might have shown this is normally the case, as was evident at Sections 3 and 9 where most sets of low angle lamination could be traced laterally into troughs up to 5 m across and

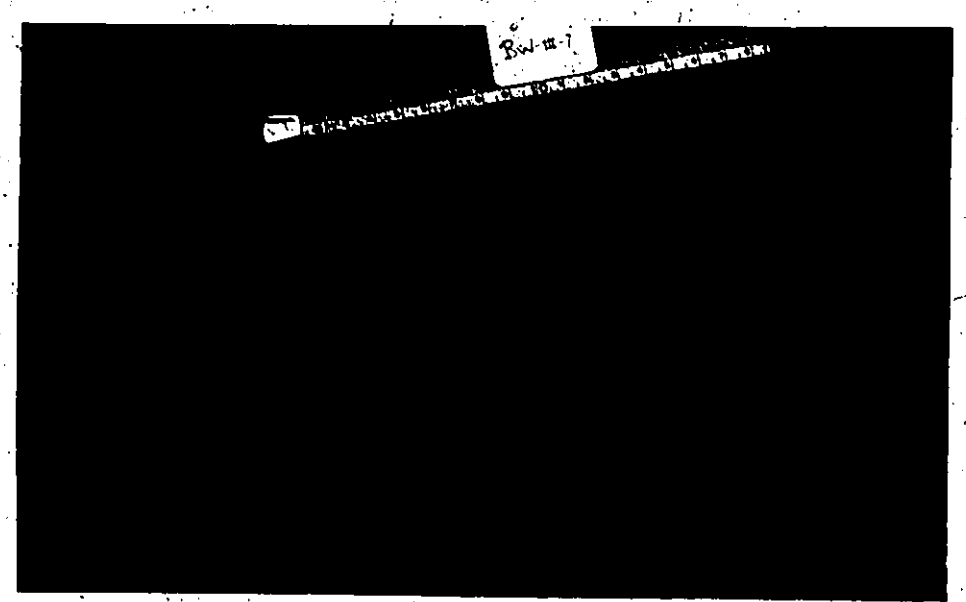


Figure 25.- Rhizocorallium spreite burrows on base of 17 cm sandstone bed, hummocky ss facies (Section 11, 279 m)

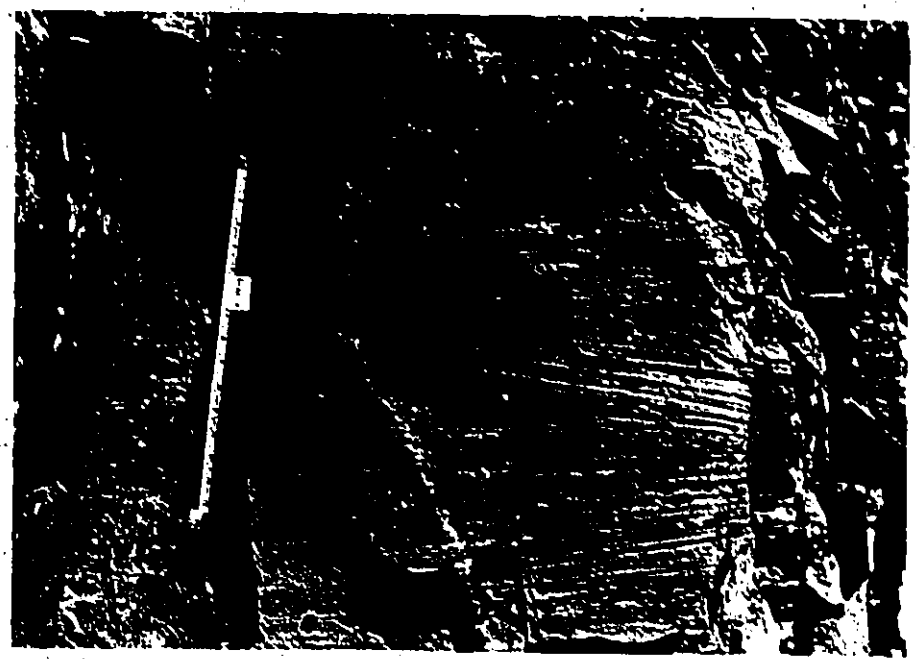


Figure 26.- Low-angle divergent sets truncating one another in 1.2 m sandstone bed, hummocky ss facies (Section 3, 136 m)

Figure 27. Low-angle divergent sets of parallel lamination in 3.4 m sandstone bed, hummocky ss facies (Section 10, 33 m).

Figure 28. Core with low-angle divergent sets of parallel lamination in 20 cm sandstone bed, hummocky ss facies (Drillhole 938, 63 m). Tape 18 cm.

Figure 29. Shallow trough-shaped set at top of 1.9 m sandstone bed, about 10 cm deepx70 cm across, hummocky ss facies (Section 6, 52 m). Tape 40 cm.

Figure 30. Shallow trough-shaped set, about 20 cm deepx100 cm across in 35 cm sandstone bed, hummocky ss facies (Section 11, 235 m). Tape 40 cm.

30 cm deep. Low angle and troughy laminae may extend to the base of a sandstone bed and even cut down into siltstone, or may be underlain by a set of horizontal lamination.

At Sections 3 (131.5 m), 5 (61.5 m) and 11 (234-250 m, 277-279 m) hummocky cross stratification (Harms et al., 1975, p. 87) was observed. It consists of sets of gently convex-up lamination generally preserved at the top of sandstone beds appearing as "domal" structures. The laminae may pass laterally into low angle trough sets. At Section 5 one isolated hummock is 2 m across and 35 cm high and lamination passes laterally into a trough set 3.5 m across by 20 cm deep (Figure 32).

Section 11 contains excellent exposures of hummocks 60-130 cm across and 10-30 cm high (Figures 33, 34) and associated troughs 50-300 cm across by 10-50 cm deep. Between 234-239 m the undersides of beds can be observed and in plan view the hummocks and troughs are circular to ovoid and are arranged en echelon. Lamination dips away from hummock crests in all directions at low angles of 2-20°, though there appears to be a preferred orientation at this section (Figure 35). Parting lineation measured from the sides of hummocks at this and several other sections is oriented along the strike of the lamination. Since the hummocks and troughs usually are preserved at the tops of sandstone beds and are underlain by low-angle divergent sets with similar characteristics, it appears that all these structures

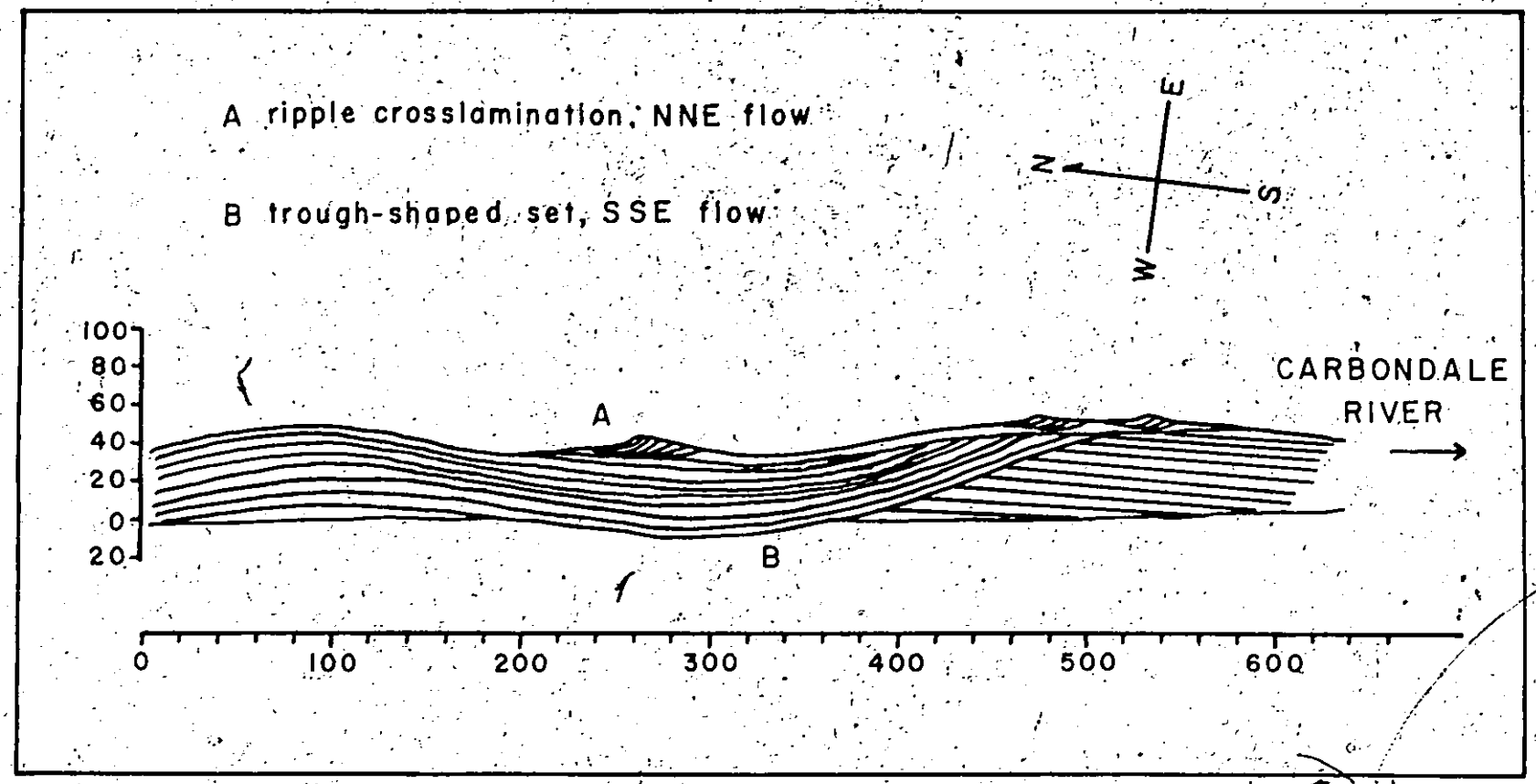


Figure 32. Cross-section sketch of vertically-dipping sandstone bed with hummocky cross stratification passing laterally into broadly trough-shaped set, and rippled top (61 m, Section 5)

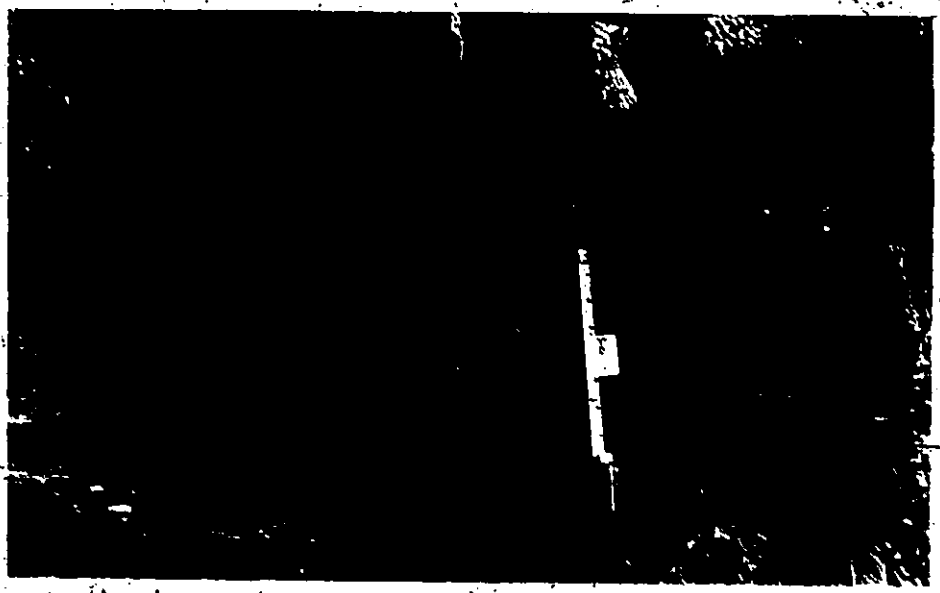


Figure 31. Hummocky cross-stratification in 20 cm sandstone bed, hummocky ss facies (Section 3, 132 m). Hummock about 5 cm high x 1 m across.

Figure 33. Hummocky cross stratification in 90 cm sandstone bed, hummocky ss facies (Section 11, 235 m). Hummock about 30 cm high x 130 cm across. Tape 50 cm.

represent hummocky cross stratification, but in most cases the convex-up upper part has been truncated (Figure 36).

The tops of sandstone beds usually are sharp but may be gradational if bioturbation is extensive. They may be flat, undulatory, or rippled. Rippling usually is asymmetric but at Sections 2, 4, 6 and 11 there are occurrences of symmetric ripples, normally in the upper few meters of the facies. Asymmetric ripples have amplitudes up to 5 cm (average 3 cm) and symmetric ripples are long and straight-crested with amplitudes of 3-4 mm and wavelengths 8-16 cm (average 13 cm). One bed at Section 5 (57 m) is capped by two sets of climbing ripples 3 cm thick and 7 cm long. The sets climb at about 7° and enclosed ripple crosslamination dips at about 15°. At Section 11 (227-232 m, 242-250 m) sandstone tops are cut by shallow scours 25-400 cm across and 5-40 cm deep (average 100 cm x 10-15 cm) filled by silts of the overlying interbed.

Fine-grained interbeds between sandstones consist of well bioturbated siltstone which may contain thin sandstone beds. These thin sandstones average 2-3 cm thick, are parallel or ripple laminated and usually are discontinuous and bioturbated. The siltstone may coarsen upward through the facies to sandy siltstone or, as at Section 11, to partly bioturbate silty, recessive-weathering, parallel laminated sandstone. At all sections sandstone beds increase, and silty inter-

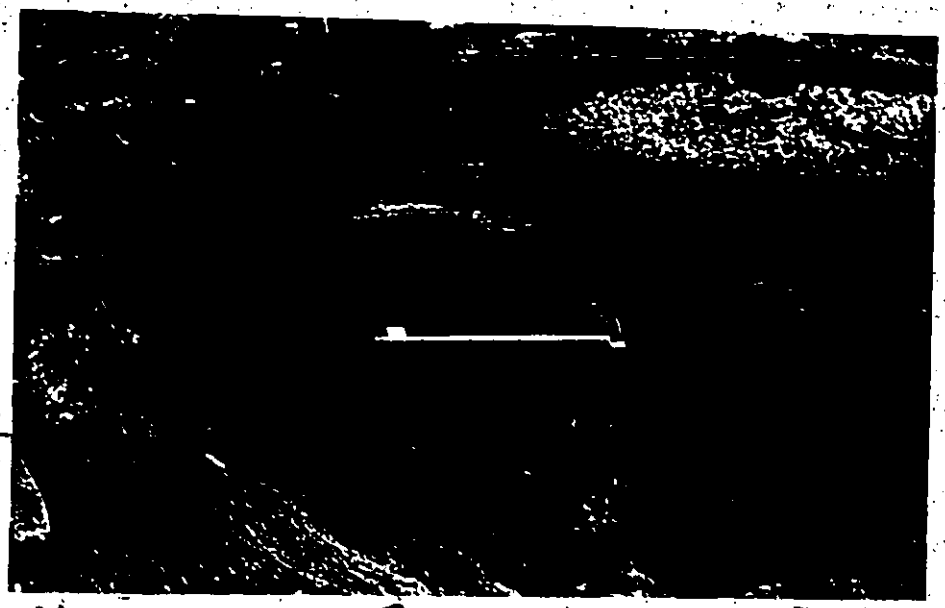


Figure 34. Hummocky cross stratification with low-angle divergence (right) in 65 cm sandstone bed, hummocky ss facies (Section 11, 250 m). Tape 50 cm.

Figure 37. Bundle of sandstone beds which downcut into each other, interpreted as possible small channel complex, hummocky ss facies (Section 6, 45-49 m).

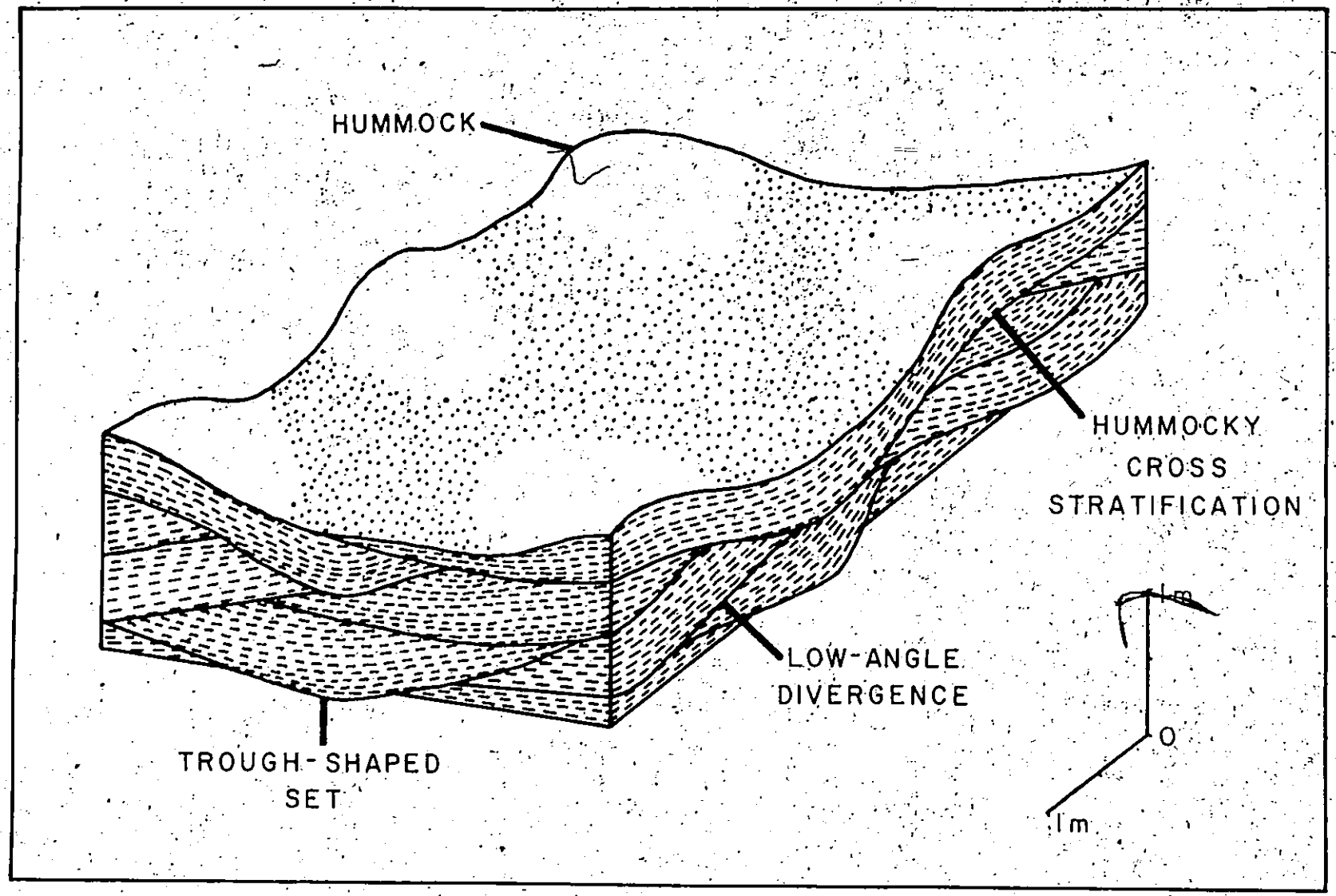


Figure 36. Schematic block diagram of hummocky cross stratified sandstone bed.

beds decrease, in number and thickness upward. Sandstone:siltstone ratios change upward from about 1:1 to as much as 3-4:1.

At the top of the facies at Section 9 are two bundles of broadly troughy sandstones. Beds within bundles are lensoidal, arranged en echelon, and cut down into each other through intervening siltstone interbeds. They have sharp convex-down bases and low angle, broadly troughy laminae which follow the bases. The size of troughs increases from about 50 x 5 cm in the lower bundle to about 200 x 15 cm in the upper bundle. At both Sections 6 and 7 there is one bundle of low angle and troughy laminated sandstone beds which downcut into each other (Figure 37). One lateral termination of each bed is exposed and scoured at a high angle by the adjacent and overlying bed. At Section 6 the beds are 15-100 cm thick and are exposed laterally for about 3 m, while at Section 7 they are 50-65 cm thick with about 4 m of lateral exposure. These may represent small "channel" complexes.

Paleocurrent data for the hummocky ss facies are listed in Table 8 and Figure 35.

Planar ss

Near the top of all sections is a unit of hard, rusty-weathering sandstone, 7-34 m (aferaging 10-20 m) thick characterized by fine planar lamination in low angle-divergent sets (Figure 38). It is generally composed of fine-grained, moderately sorted, submature quartz

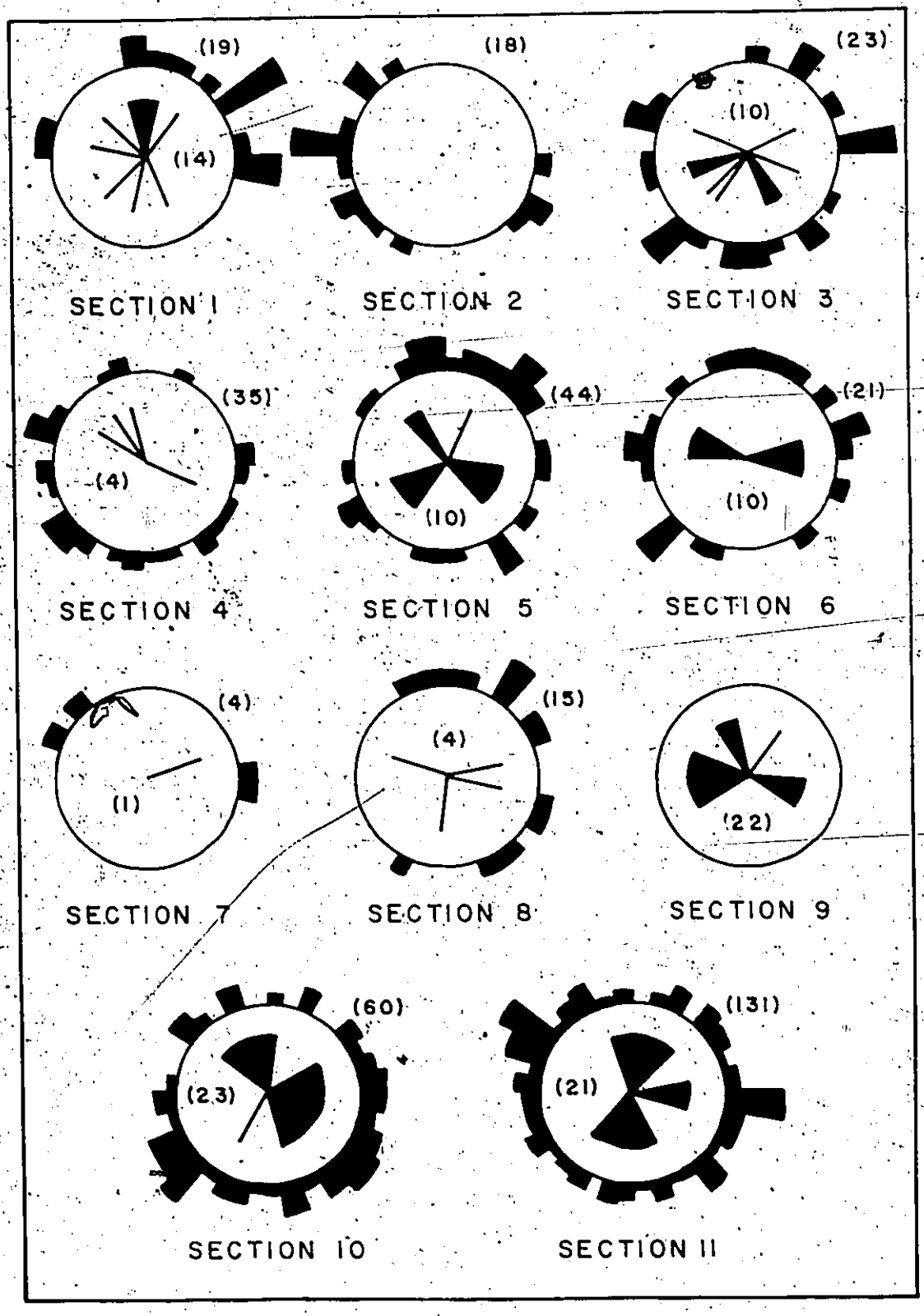


Figure 35. Rose diagrams of dip of low-angle divergent (outside) and flow direction of trough-shaped sets (inside) of parallel lamination, hummocky ss facies. Number of readings in brackets.

TABLE 8. Additional paleocurrent data, hummocky ss facies (see Figure 35)

	SOLEMARKS	WOOD/PARTING LINEATION	DIP OF RIPPLE CROSSLAMINATION	SYMMETRIC RIPPLE CREST	SCOUR AXES
SECTION 1					
SECTION 2					
SECTION 3					
SECTION 4					
SECTION 5					
SECTION 6					
SECTION 7					
SECTION 8					
SECTION 9					
SECTION 10					
SECTION 11					

sandstone with 5% matrix, but grain size increases upward through the facies from about 0.15 mm to about 0.21 mm. At Section 11 this facies consists of fine- to medium-grained somewhat "salt and pepper" (up to 30% chert) sandstone.

The facies always has a sharp base which commonly is irregular and may fill small scours up to 30 cm deep in the underlying silty bed (Figure 39). There may be small burrows and at Sections 1 and 6 a few small scratch and groove solemarks were recorded (Figure 40) though these were not observed elsewhere. Small flat shale chips concentrated in patches along lamination planes were noted in the lower few meters at Sections 6 and 7, and in Drillhole 938 a few very thin silty partings occur in the lower one meter.

The characteristic sedimentary structure of this facies is sets up to 1 m thick of even parallel lamination which generally dip at less than 12° and truncate each other at low angles. At any section, most sets dip in some preferred direction (spread over a 75-220° range) though that preferred direction varies widely between sections. At most sections some sets dip in the direction opposite to the preferred direction. The sets generally are 50-60 cm thick and can be traced laterally for more than 4-5 m (Figure 41). Isolated broad, shallow troughs 45-80 cm across and 5-10 cm deep which truncate underlying sets can be seen at most sections scattered through the facies (Figure 42). Individual laminae are 0.5 to 2 cm thick and are delineated by slight changes in

Figure 38. Planar ss facies with long, low-angle divergent sets of lamination (Section 6, 69-73 m)

Figure 39. Sharp base of planar ss facies overlying silt with scour fill 5 cm deepx45 cm across (Section 3, 137 m).

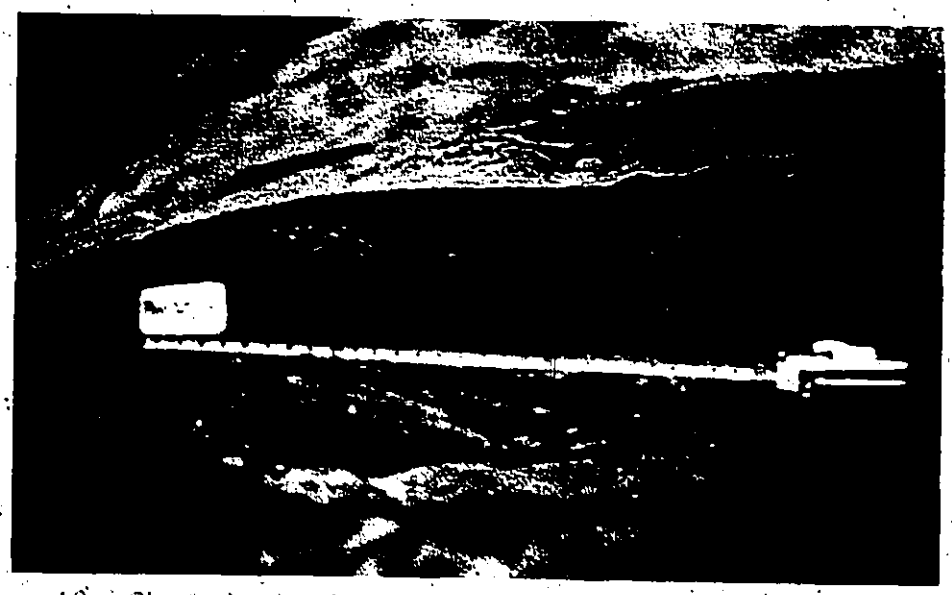


Figure 40. Sharp base of planar ss facies with solemarks oriented NNW/SSE (Section 1, 54 m). Tape 30 cm.

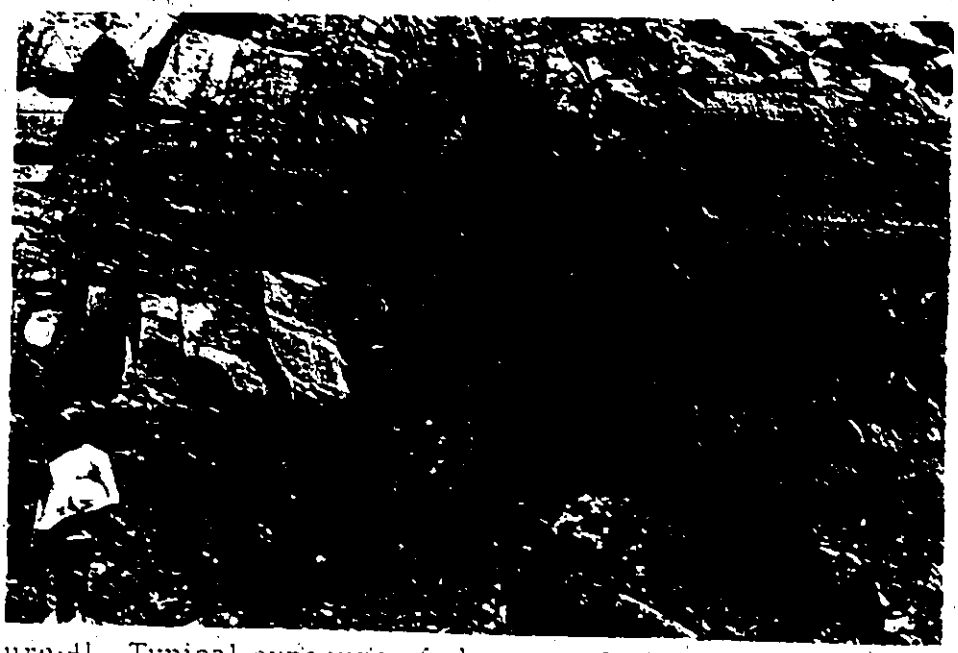


Figure 41. Typical exposure of planar ss facies with large-scale low-angle divergent sets of parallel lamination (Section 1, 54-60 m).

mineral composition and organic content.

The facies is extremely uniform at all locations but two. At Section 7, there is an upward decrease in rusty weathering and increase in greyish colour, but no apparent grain size change. At Section 11, in addition to the unusual colour, composition, grain size and thickness, the lower few meters are rather complex. There is one meter of poorly sorted fine- to medium-carbonaceous sandstone with parallel lamination, wood fragments and chert granules. It is overlain by fine- to medium-grained, less cherty sandstone which grades upward into medium- to coarse-grained "salt and pepper" sandstone. Grain size then decreases over several meters to fine-grained and remains so through the rest of the facies.

The upper boundary of this facies is always sharp and usually is accompanied by distinct changes in colour, grain size, weathering and sedimentary structures. It may be undulatory and downcut by some small troughs filled by the overlying facies, but evidence of extensive reworking is not apparent. Paleocurrent data for the facies consists mostly of dip directions of low angle-divergent sets of lamination plotted on stereonets in Figure 43, with other types listed in Table 9.

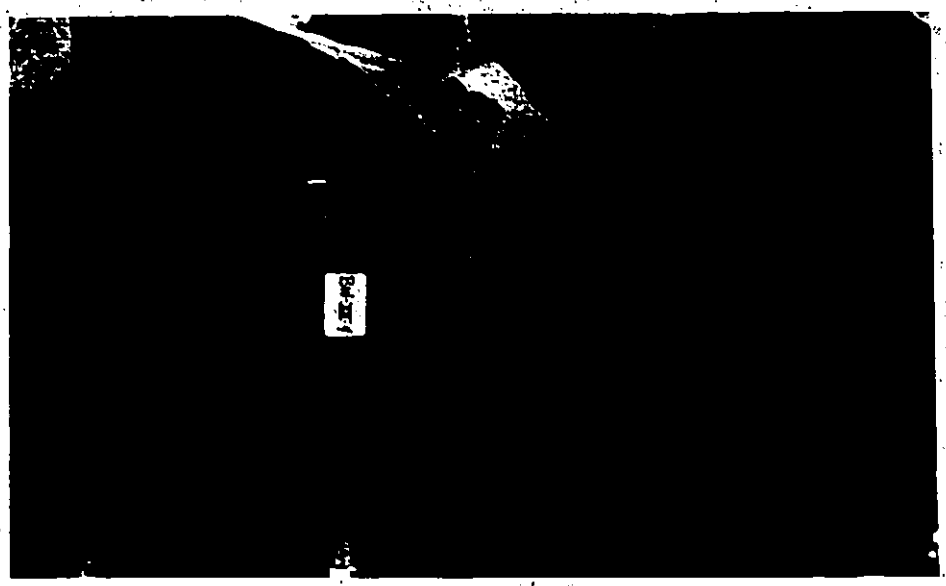


Figure 42. Parallel lamination in planar ss facies with isolated trough-shaped set, 5 cm deepx45 cm across (Section 4, 64 m).

Figure 44. Typical irregular, cliff-forming exposure of trough ss facies overlying planar ss facies (Section 3, 145-160 m).

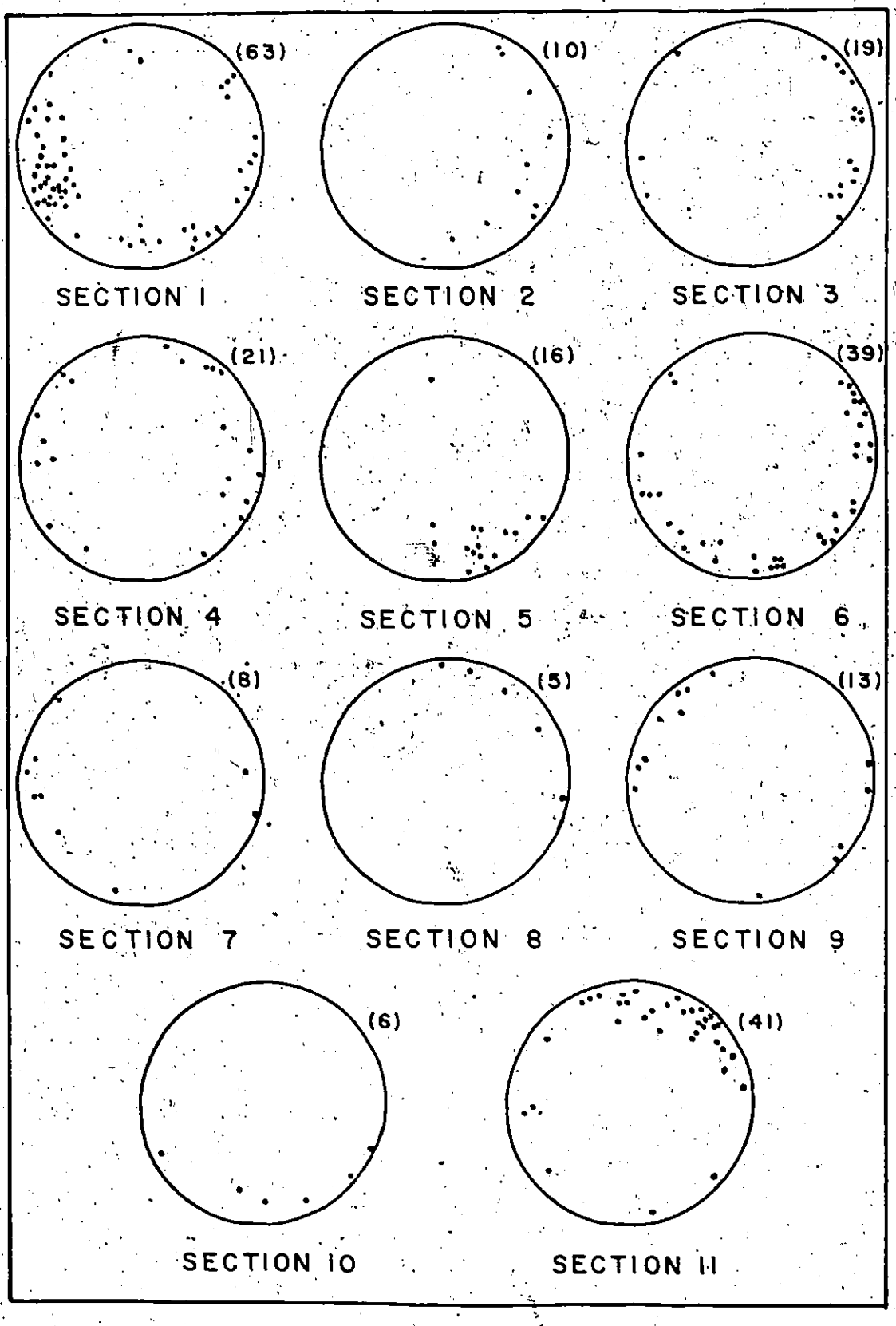


Figure 43. Stereonet plots of dip of low-angle divergent sets, planar ss facies. Number of readings in brackets.

TABLE 9. Additional paleocurrent data, planar ss facies (see Figure 43.)

	SOLEMARKS	DIP OF RIPPLE CROSSLAMINATION	TROUGH FLOW DIRECTION	SCOUR AXES
SECTION 1	\	↓	\	
SECTION 2				↓
SECTION 3				—
SECTION 4			>	
SECTION 5			—	
SECTION 6	\		<	
SECTION 9			↙	
SECTION 10			—	

TABLE 10. Additional paleocurrent data, trough ss facies (see Figure 48)

	SOLEMARKS	WOOD FRAGMENTS	DIP OF RIPPLE CROSSLAMINATION
SECTION 1	\	/	↓
SECTION 7			↓

TABLE 11. Paleocurrent data, ss lens facies

	SOLEMARKS	WOOD FRAGMENTS	DIP OF RIPPLE CROSSLAMINATION
SECTION 1		—	
SECTION 6	—	\	↓
SECTION 7	\		↳

Trough ss

Overlying the planar ss facies at most sections is a unit of grey, trough crossbedded sandstone, 1.5 m (exposed) to 17.3 m thick, averaging 7-8 m (Figure 44). These "salt and pepper" (quartz and chert) sandstones are fine- to medium-grained, moderately sorted and submature with 2-5% silt and clay matrix.

The facies has a sharp, commonly irregular base with shallow scouring of the underlying sandstone at several sections. The lower meter is variable and may contain slightly recessive weathering, finer sandstone with some parallel lamination and smaller scale less abundant trough crossbedding than that which characterizes the rest of the facies. A few thin silty partings 2-3 cm thick and some wood fragments may also be present.

Abundant trough crossbedding occurs in sets ranging 10-60 cm, but averaging 40 cm thick throughout the facies (Figure 45). In cross-section troughs range 20 to 200 cm across, averaging about 75 cm. Some 5-10 cm thick sets of parallel lamination or ripple crosslamination occur at some sections but no planar tabular crossbedding was observed. There is no apparent change in sedimentary structures or set size upward through the facies (except at Section 7) nor are there repeated sequences of this kind. No evidence of bioturbation was observed except in the upper few centimeters of the facies.

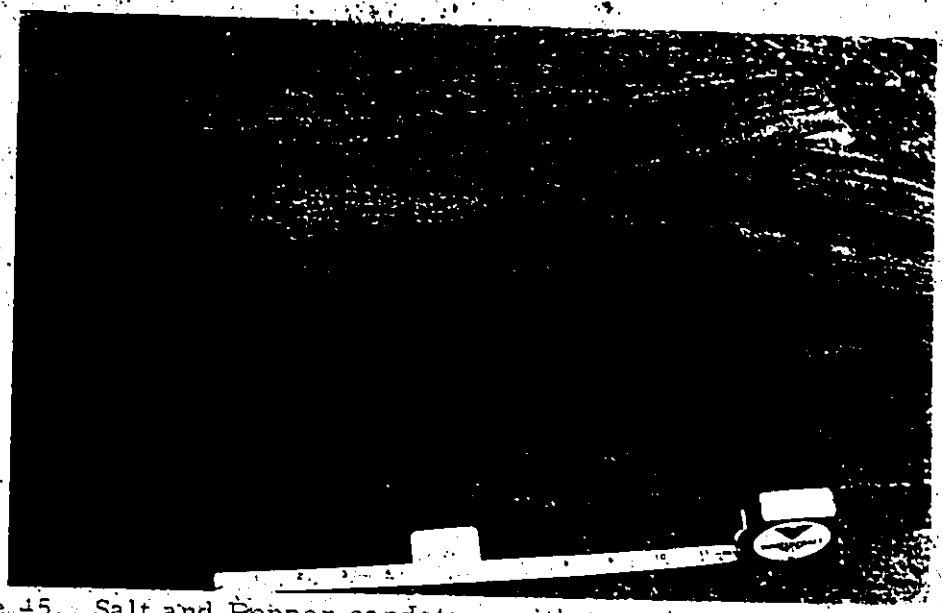


Figure 45. Salt and Pepper sandstone with trough crossbedding 15 cm deepx40-50 cm across, trough ss facies (Section 5, 85 m)

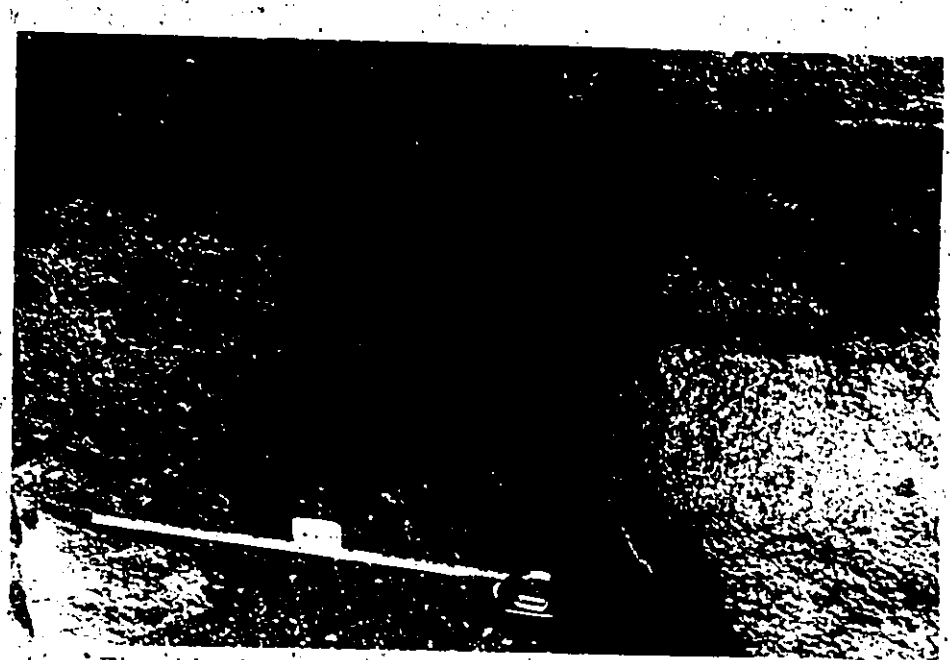


Figure 46. Fine black rootlets at top of trough ss facies immediately beneath overlying coal seam (Section I; 93 m)

At most sections the facies has a sharp, irregular upper boundary which may be cut by steep sided scours (Section 1, Drillhole 938) and have fine black rootlets up to 1mm wide and 2 cm long extending down from the upper contact (Figure 46). No fossils were found in this facies except fragments of a large ammonite (Figure 47) at Section 4. The primary costae are closely spaced with shorter secondary costae between. This may represent part of an inner whorl of Titanites as found by Newmarch (1953) at a similar horizon at Coal Creek 18 km to the west (G.E.G. Westermann, personal communication).

At Section 7 the upper part of the facies displays a sequence where grain size and scale of sedimentary structure decrease upward. Trough crossbedding decreases and ripple crosslamination increases upward to pass gradationally over 10-20 cm into fine rippled sandstone in 3-4 cm sets with abundant organic matter along lamination planes. This is gradationally overlain by 1 m of thoroughly bioturbated fine sandstone with vestiges of ripple crosslamination (same orientation as that beneath). The facies here is gradiationally overlain by the coal-si facies.

Paleocurrent data for the trough ss facies consists mostly of trough crossbedding, plotted in Figure 48, and some other data as listed in Table 10.

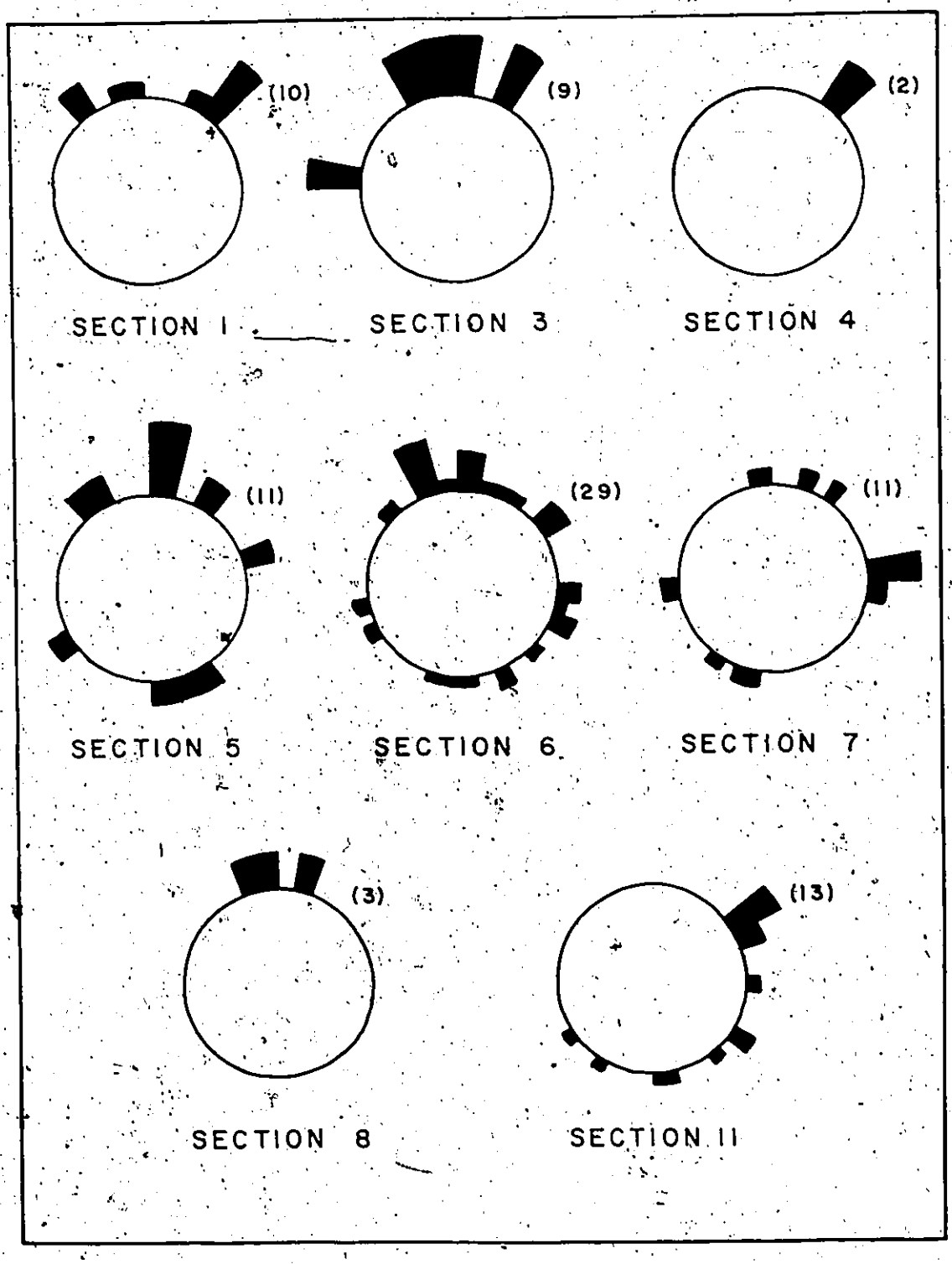


Figure 48. Rose diagrams showing flow direction indicated by trough crossbedding, trough ss facies. Number of readings in brackets.

Coal-si

This facies, exposed in Sections 1, 5, 6, and 7 and all drillholes, is interbedded with the ss lens facies and together they form the lower part of the Kootenay Coal-bearing Member (Figure 49). The coal-si facies includes two lithologies; coal and silt or clayey silt, often intimately interbedded and grading into one another, in units 15-290 cm thick.

Coal occurs in 5 to 290 cm thick seams, is durain in composition with clairainous streaks (Blatt et al., 1972, p. 351), and according to Norris and Bally (1972) is low to medium volatile bituminous. Silts are massive or parallel laminated, usually very carbonaceous, contain wood fragments and fragments of grass-like leaves, and may be partially bipturbate resulting in gradational bed boundaries. Thicker units may have very thin sandy streaks near their base. Siltstone beds range 15-70 cm in thickness.

Ss lens

One to several broad, thin, lens-like bodies of cherty sandstone interbedded with rocks of the coal-si facies occur at the top of Sections 1, 5, 6, and 7 and Drillholes 926, Ev-19 (Figure 49). The lenses are 15-150 cm thick and up to 45 m across and are made up of very fine- to fine-grained "salt and pepper" sandstone, poorly sorted and immature with 5-10% clayey silt matrix.

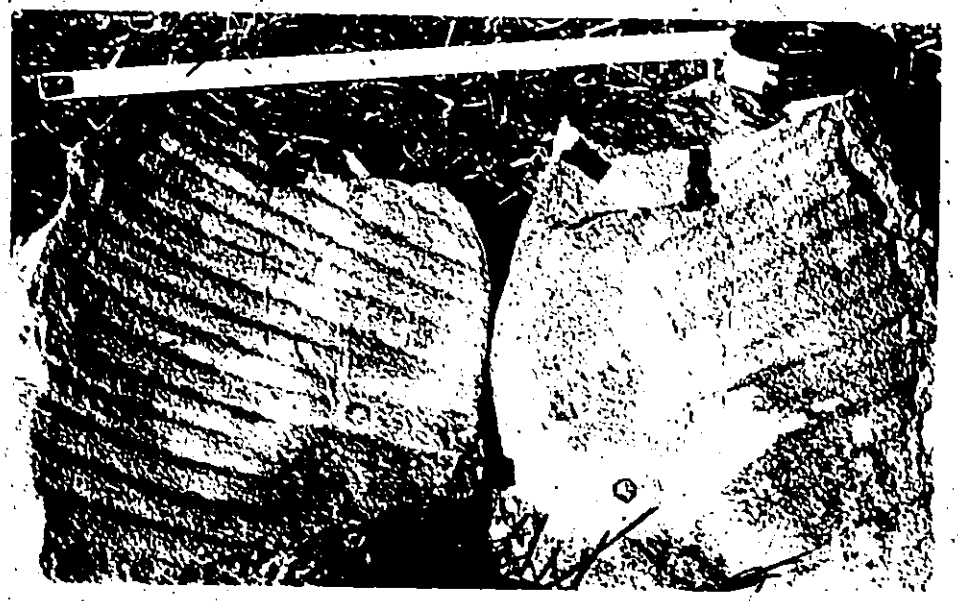


Figure 47. Fragment of inner whorl of large ammonite, possibly Titanites, found in trough ss facies (Section 4, 75 m).

Figure 49. Interbedding of coal-si and ss lens facies overlying trough ss facies (Section 1, 92-99 m).

Thicker beds generally are parallel laminated, with some ripple crosslamination (i.e. B, and some BC beds), while thinner beds may consist of thinly alternating recessive weathering parallel laminated silty sandstone and harder, sharp based BC bands. All beds have sharp bases, commonly with small scratch-like solemarks, and sharp to gradational tops. Wood fragments, minor bioturbation and small load structures on the base are commonly present. Limited paleocurrent data obtained is presented in Table 11.

CHAPTER 4

FACIES SEQUENCE

Each of the previously described facies will be assigned an interpretation of depositional environment separately, but the sequence of facies is also important since they consistently occur in a preferred order throughout the field area. The sequence may be identified from the detailed sections of Appendix II or the summary diagram of Figure 50.

Facies Sequence Identified

The preferred generalized sequence of facies in the Fernie-Kootenay transition as indicated by the present study is presented in Figure 51. There is little doubt in establishing this sequence, particularly for upper facies, as most upward transitions shown appear in 75-100% of the occurrences of the facies (Table 12). The facies ss-si(si) and si appear to be approximately interchangeable beneath the ss-si(ss) facies. This sequence may be compared with the detailed sections of Appendix II. While variations do occur, especially in the lower part of the sequence, it is quite representative.

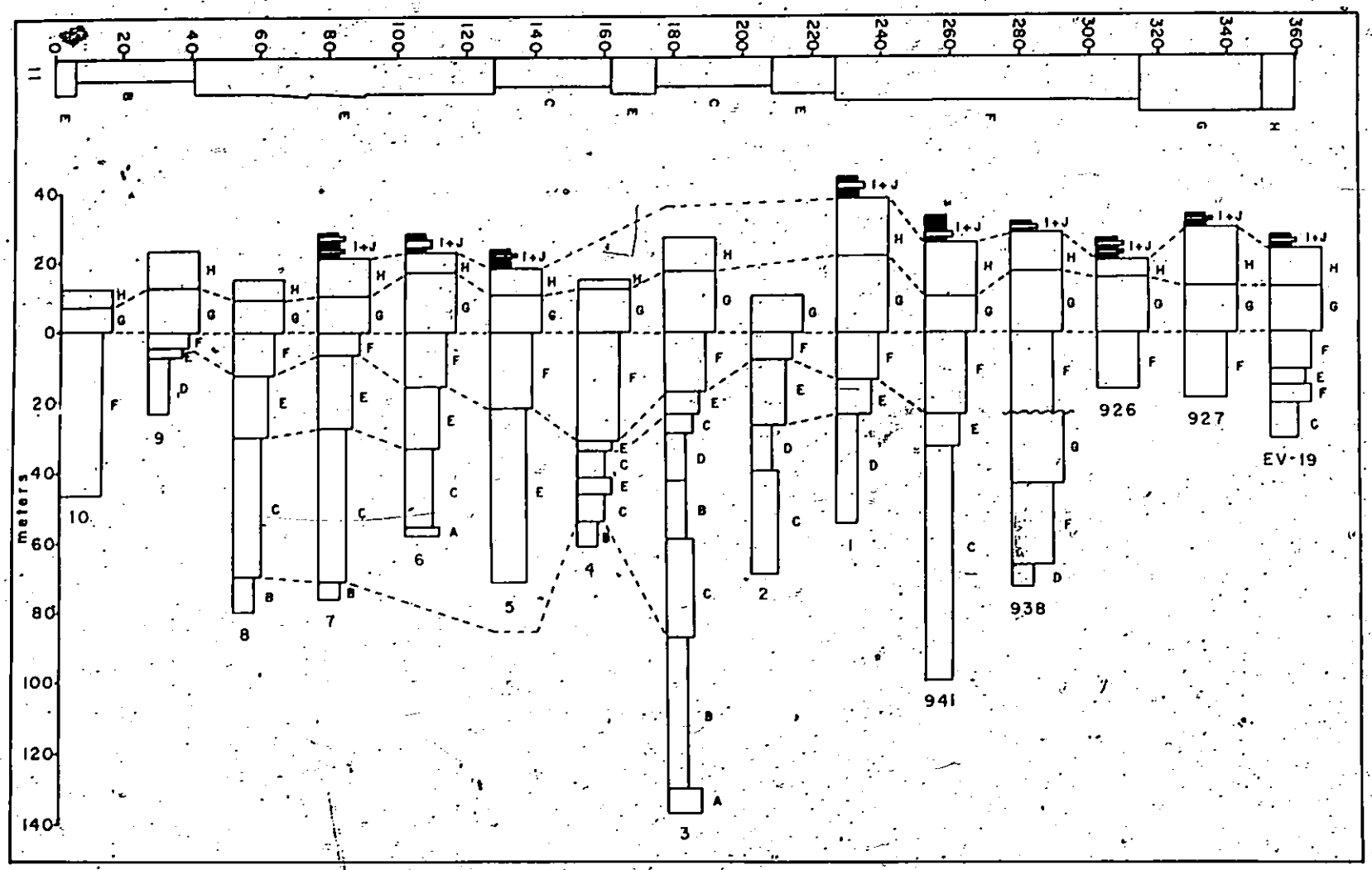


Figure 50. Correlation chart of studied sections. Facies designations: A, Green Beds; B, ss-si(conc); C, ss-si(si); D, si; E, ss-si(ss); F, hummocky ss; G, planar ss; H, trough ss; I, coal-si; J, ss lens.

Some sections lack the upper or lower few facies due to poor exposure. Also, the unusual thickness of Section 11 and of its individual facies is obvious. The Green Beds appear in only two sections (3 and 6) and, as noted by Frebold (1957), may be restricted to the Crowsnest Pass area. The ss-si(conc) facies need not be present at all sections but in several cases it occurs above, rather than below, one of the turbidite facies (6-40 m, Section 11, between two occurrences of ss-si(ss); 78-95 m, Section 3, between ss-si(si) and si). Ss-si(si) and si both generally pass up into ss-si(ss) but in sections where they both occur (Sections 2, 3) si tends to appear higher in the section, immediately beneath ss-si(ss). The si facies is so susceptible to weathering and talus slope formation that underlying facies are obscured when it occurs at the base of measured sections. At Section 11 (128-175 m, 175-227 m) and 4 (7-20 m, 20-39 m) the sequence ss-si(si) to ss-si(ss), sharp break, ss-si(si) to ss-si(ss) occurs before passing up into the hummocky ss facies. The turbidite facies tend to grade into each other and division of facies is difficult at some locations.

Though generally quite abrupt, the change from ss-si(ss) to hummocky ss is gradational in several sections, passing through a 6-11 m thickness of interbedded BC turbidites and hummocky cross stratified sandstone (120-130 m, Section 3; 28-39 m, 60-67 m, Section 4; 64-70 m, Section 7). At Section 4 this type of transition occurs twice

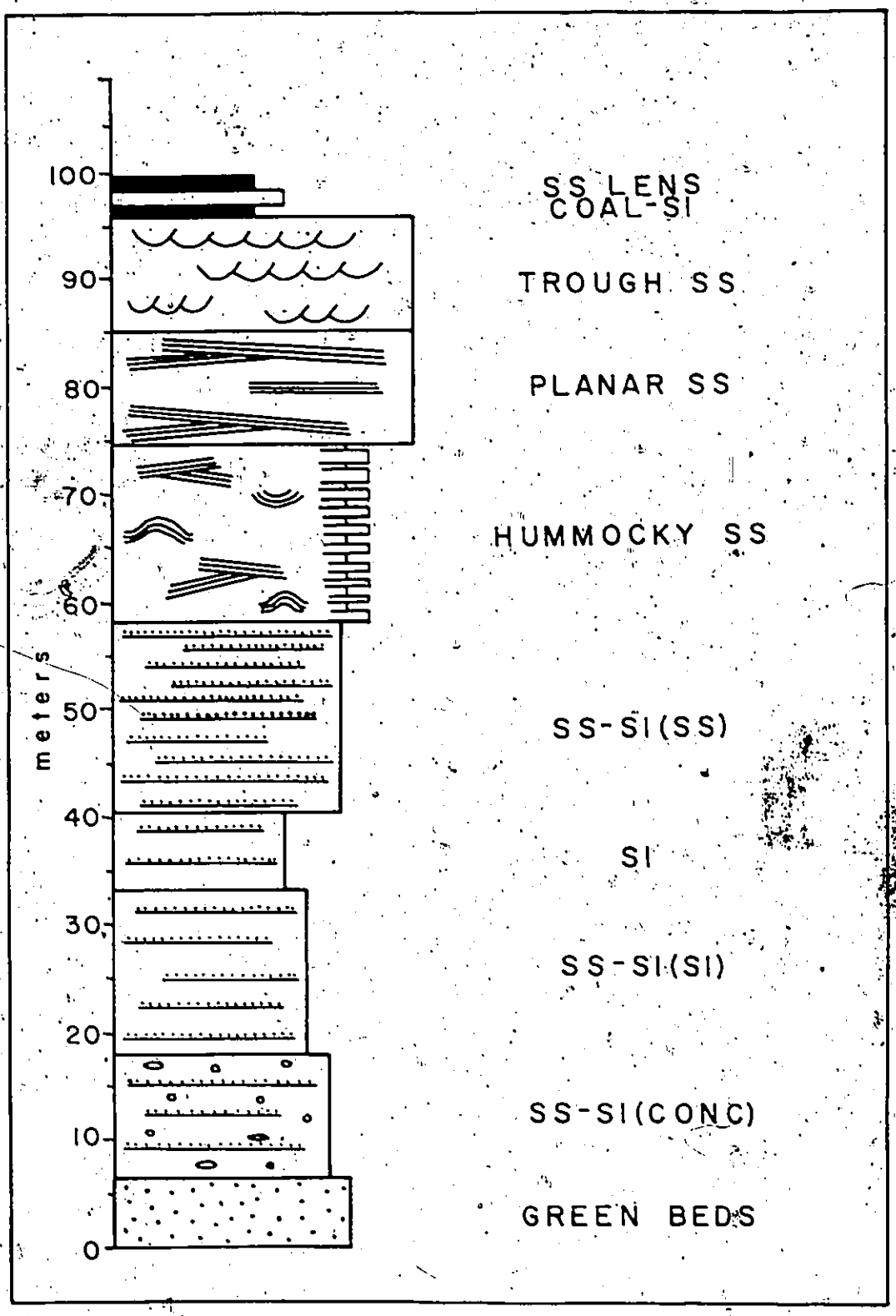


Figure 51. Generalized facies sequence of Fernie-Kootenay transition (thickness scale as approximate guide)

	Green Beds	ss-si (Conc)	ss-si (si)	si	ss-si (ss)	hummocky ss	planar ss	trough ss	coal-si	ss lens
Green Beds		1 (50%)	1 (50%)							
ss-si (Conc)			4 * (66%)	1 (17%)	1 (17%)					
ss-si (si)		1 (8%)		1 (8%)	10 * (84%)					
si					4 * (90%)	1 (10%)				
ss-si (ss)		1 (4%)	5 (23%)			16 * (73%)				
hummocky ss				1 (5%)	4 (20%)		15 * (75%)			
planar ss								13 * (100%)		
trough ss									7 * (100%)	
coal-si										11 * (100%)
ss lens									11 * (100%)	

Table 12. Tally matrix showing number of times (percentage of transitions in brackets) any facies passes upward into another (* = most common transitions).

before passing abruptly upward into the planar ss facies. Hence it is possible for hummocky ss to pass upward into thin units of ss-si(ss), as tabulated in Table 12, but the deposition always returns to the style of hummocky ss facies. In several sections a single isolated hummocky ss bed may occur within a turbidite facies several meters below the main exposure of this facies. The sequence of facies in the upper part of each section, when fully exposed, is always identical to that of the generalized sequence (Figure 51). The transition coal-si into ss-lens may be repeated several times (Section 7, Drillhole EV-19) and in fact represents the interbedded sandstones and coals of the Kootenay Coal-bearing Member.

Sedimentological Trends

From the facies descriptions it is seen that this sequence represents an overall thickening- and coarsening-upward trend from ss-si(conc) to trough ss facies, on the order of 80-90 m thick. As illustrated in Figure 52 the number, thickness and grain size of sandstone beds increase upward, while number and thickness of siltstones decrease (and grain size increases) upward, culminating in the thick sandstone bodies of the planar ss and trough ss facies.

There is, generally, an accompanying increase in the size of sedimentary structures. Small-scale ripple crosslamination in lower facies passes upward into larger scale rippling in the ss-si(ss) facies,

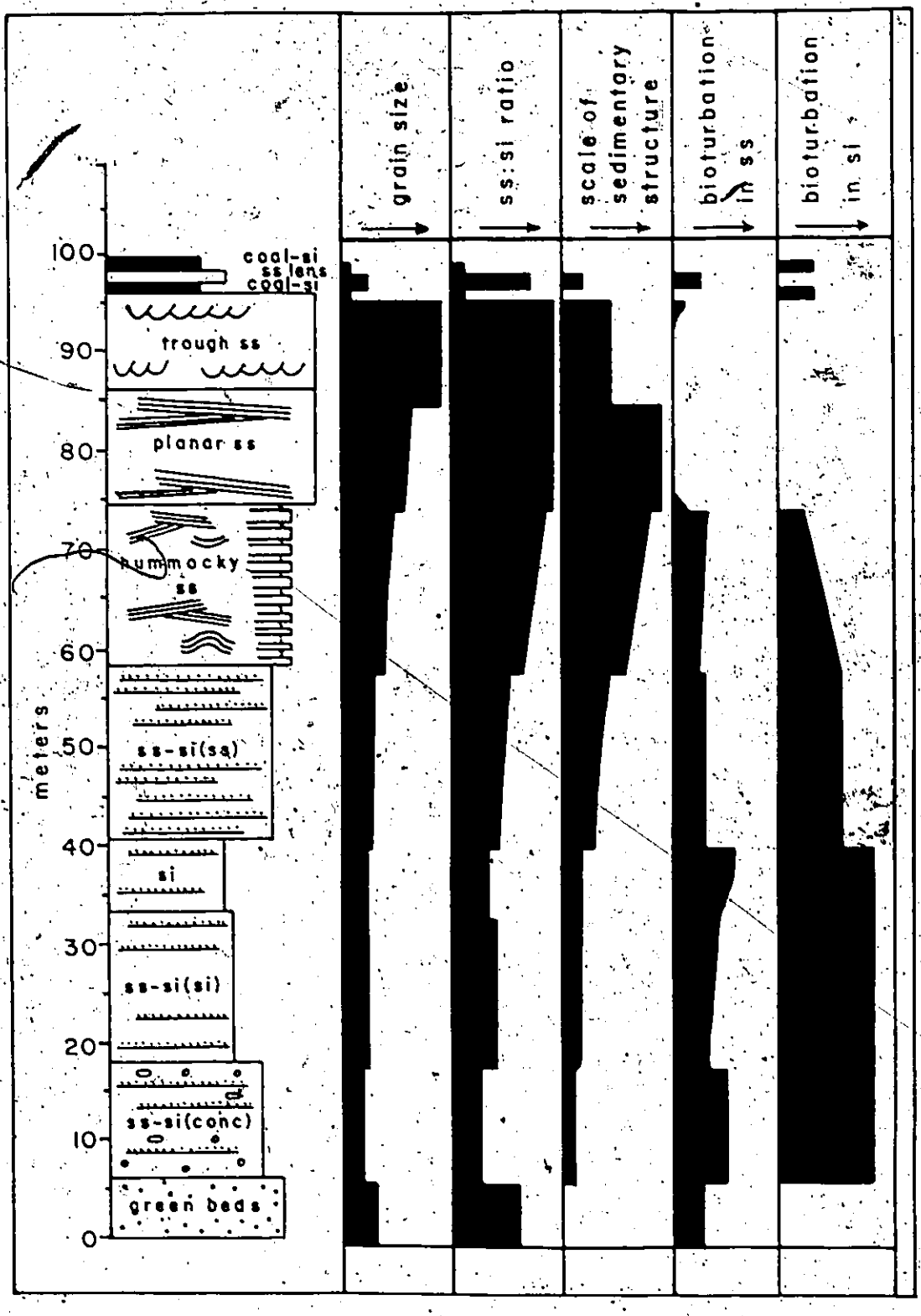


Figure 52. Generalized facies sequence with sedimentological trends (arrows indicate direction of increase)

and then rather abruptly hummocky cross stratification and low angle-divergent sets of lamination and then medium-scale trough crossbedding in the trough ss facies.

Paleocurrent Trends

A few general trends in paleoflow direction are also indicated by data in the detailed sections of Appendix II and the generalized diagram of Figure 53. Most noticeable is the extremely consistent reflection of NNW flow for sandstone beds in the lower facies; represented as solemark or wood fragments/parting lineation data. This is evident from ss-si(conc) through to hummocky ss facies. This consistency of base-of-bed and within-bed (i.e. lamination plane) data is not, however, maintained by associated ripple crosslamination which appears to indicate quite variable, though dominantly northerly, flow directions.

Variability is also characteristic of broad trough and low angle-divergent set orientation in the hummocky ss facies though sole marks maintain their previous orientation. Dip direction of large-scale low angle sets of parallel lamination in the planar ss facies is reasonably consistent within each section but varies greatly between sections, even where located very close together. There is, however, a dominance of easterly and southeasterly directions of average azimuth dip for each section. In the trough ss facies flow direction as indicated by trough crossbedding is quite variable though a preference for northerly directions is notable. The few measurements taken from the ss lens facies indicate

82. Yolton, J. W., Locke's Unpublished Marginal Replies to John Sergeant, J. H. I., Vol. 12, 1951, p. 533.

83. Ibid., p. 533.

84. Worthington, John, The Diary and Correspondence, edited by James Crossley, London, Chatham Society, 1885, Vol. II, Part I, p. 193, n. 1, as cited by J. W. Yolton, Ibid., p. 533.

85. Noah Porter, Marginalis Locke-a-Na, New Englander and Yale Review, Vol. XI, July 1887, pp. 33-49.

86. Fox Bourne states:

> Among these assailants were John Norris, the disciple of Malebranche and precursor of Butler, Thomas Burnet, the Author of 'The New theory of the Earth', and John Sergeant, A Roman Catholic Priest. 'Shall I not be quite slain, think you, amongst so many notable combatants; and the Lord knows how many more to come?' Locke wrote when the tide was setting in. But he replied to none of them, except here and there incidently in the works that have been already described.
> (The Life of John Locke, VOL: II, p. 439)

87. Cranston, M., John Locke, a Biography, 1959, p. 429.

88. Christopherson, H. O., A Bibliographical Introduction to the Study of John Locke, 1930, Reprinted 1968, p. 44.

89. Fraser, A. C., An Essay concerning Human Understanding, Dover Publications, 1959, Vol. I. Prolegomena: Biographical, pp. xliv & xlv.

90. Ibid.

91. Princle Pattison, A. S. (ed.), An Essay Concerning Human Understanding, 1924, p. 197 footnote.

92. Gibson, J., Locke's theory of Knowledge and its Historical Relations, 1917, Chapter I, section 7, p. 13.

93. Aaron, R. I., John Locke, Third Edition, Oxford, 1971, p. 41.

94. Ibid., p. 41, footnote.

95. Von Leyden, W., Seventeenth-Century Metaphysics, An Examination of Some Main Concepts and Theories, Barnes and Noble, New York, 1968, pp. 47-48.

96. Johnston, G. A., The Development of Berkeley's Philosophy, 1923, p. 61.

97. Ibid., p. 383.

98. Ibid., Appendix, pp. 383-396.

99. Bradish, Norman C., 'John Sergeant: A Forgotten Critic of Locke and Descartes,' The Monist, 1929, p. 572.

100. Bradish, Norman C., John Sergeant, A Seventeenth Century Critic of Logic, Dissertation for Ph. D. submitted to North Western University, Evanston, Illinois, U. S. A., 1932.

101. Locke, J., Marginal Comments: No. 5 & 8, The Preface, p. 23 and Preliminary First, p. 8.

102. Locke's Second Reply to the Bishop of Worcester, Works, Vol. IV, p. 390.

103. Yolton, J. W., Locke's Unpublished Marginal Replies to John Sergeant, J. H. I., Vol. 12, 1951, p. 535.

104. The major additions which are of relevance here are as follows (the page references are to Nidditch's critical edition, 1975):

1) IV:VII: 11, pp. 598 (2) - (34) p. 601.
2) IV:VIII: 3, (14) p. 610 - (12) p. 612.
3) IV:XII: 3, (32) p. 640 - (19) p. 641.
4) IV:XVII: 4, (25) p. 670 - (24) p. 671.
5) IV:XVII: 4, (19) p. 672 - (1) p. 677.
6) IV:XVII: 4, (18) p. 677 - (4) p. 678.
7) IV:XVII: 4, (5) p. 678 - (26) p. 678.
8) IV:XVII: 8, (9) p. 681 - (21) p. 681.

105. Yolton, J. W., John Locke and the Way of Ideas, p. 16.

106. Yolton thinks that such an attitude of Locke is understandable because 'the thought of exchanging views for mutual benefit had not taken hold of the intellectual world' (Ibid., p. 16).

107. Locke to Molyneux, dated June 28, 1694, Works, Vol. IX, p. 339.

108. Locke letter to Limborch, dated 12 August 1701, Works, Vol. X, pp. 121-22. Cf. pp. 105-122.

109. See Yolton, J. W., Introduction to his edition of the Essay, Everyman's Library, 1974, p. xiii.

110. See Nidditch's edition: footnote to II:XV:9, pp. 201-202.

111. In Coste's revised translation of the Essay (1729), the above addition begins with the following introductory statement given by Coste:

> C'est M Baybeyrac, a present Professeur en droit a Groningue, qui me communiqua ces Objections dans une lettre que je fais voir a M. Locke et voici la reponse que M. Locke me dicta peu de jours apres.

As cited by P. Nidditch, op. cit., p. 202, footnote.

112. Locke writes to Burnet:

> Before anything came out against my Essay concerning Human Understanding the last year, I was told, that I must prepare myself for a storm that was coming against it; it being resolved by some men, that it was necessary that book of mind should, as it phrased, be run down.

(An answer to Remarks upon an Essay concerning Human Understanding, 1697, Works, Vol. IV, p. 186.)

Samuel Bold also expresses a similar opinion concerning the rising tide of opposition to the Essay, when he writes thus:

> This excellent Treatise having been published several years and received thru all the Learned World with very great Approbation, by

> those who understood English, a Mighty Outcry was at last, all of a sudden raised against it here at home. There was no doubt some reason or other, why so many should be employed, just at the same time, to Attack and Batter this Essay; tho' what was the weighty consideration, which put them all in motion, may, perhaps continue a long secret.

(Some Considerations on the Principal Objections and Arguments which have been published against Mr. Locke's Essay of Human Understanding, London, Printed for A & J Churchill, 1699, Introduction, pp. 1-2.)

113. This is cited by Noah Porter in Marginalia Locke-a-Na, New Englander and Yale Review, Vol. XI, July 1887, p. 35.

114. Locke's Marginal Comment as cited by Noah Porter, Ibid., p. 35.

115. A Letter to the Right Reverend Edward Lord Bishop of Worcester, concerning some Passages relating to Mr. Locke's Essay of Human Understanding, in a late Discourse of his Lordship's in Vindication of the Trinity, Oates, January 7, 1696/7, Works, Vol. IV, pp. 1-96.
(This letter is in response to Stillingfleet's "Discourse, in Vindication of the Doctrine of the Trinity".)

The Bishop of Worcester's Answer to Mr. Locke's Letter concerning some passages to his Essay, etc., 1697.

Mr. Locke's Reply to the Right Reverend the Lord Bishop of Worcester's Answer to his Letter concerning some passages relating to Mr. Locke's Essay of Human Understanding, in a Late Discourse of his Lordship's, in Vindication of the Trinity, London, 29 June 1697, Works, Vol. IV, pp. 97-184.

The Bishop of Worcester's Answer to Mr. Locke's Second Letter wherein his Notion of Ideas is proved to be inconsistent with itself, and with the Articles of Christian Faith, 1698.

Mr. Locke's Reply to The Right Reverend the Lord Bishop of Worcester's Answer to his Second Letter. Wherein, besides other incident Matters, what his Lordship has said concerning Certainty by Ideas, and Certainty by Faith; the Resurrection

of the Body; the Immateriality of the Soul; the Inconsistency of Mr. Locke's Notions with the Articles of the Christian Faith, and their Tendency to Scepticism; is examined.
Oates, May 4, 1698, Works, Vol. IV, pp. 191-498.

John Edwards wrote The Socinian Creed (1697), attacking Locke's Reasonableness of Christianity. See Yolton, J.W., John Locke and the Way of Ideas, 1968, pp. 62-64.

116. See Locke's Second Reply to the Bishop of Worcester, May 4, 1698, Works, Vol. IV, pp. 303-334. See also footnote addition III:XXVIII:29, p. 348.

117. According to Nidditch, the inclusion of the Locke-Stillingfleet excerpts in the Fifth Edition must have been approved by Peter King, Locke's relation and executor. But whether he (a barrister and Member of Parliament and also the author of two theological books) or a more literary man who had been an associate of Locke, such as Pierre Coste, Anthony Collins, Samuel Bold or yet some other person, made the selections and wrote the remarks that each footnote contained, Nidditch thinks is not known due to lack of adequate evidence. He thinks that in all probability it was the same person(s) who acted on behalf of the late author in seeing the book through the Press, who were responsible for the said footnote additions. They are as follows: I:I:8 (n); I:IV:8 (n); II:II:2 (n); II:XXIII:1 (n); II:XXIII:2 (n); II:XXVII:29 (n); III:III:11 (n); IV:I:2 (n); IV:III:6 (n). (Nidditch, P.H., op. cit., Introduction xxxii & xxxiii; pp. 821-822)

118. This is addressed to Thomas Burnet in "An Answer to Remarks upon an Essay concerning Human Understanding", Works, Vol. IV, p. 188.

119. Ibid., p. 189.

120. See Locke's "Some Remarks upon some of Mr. Norris's Books, Wherein he asserts P. Malebranche's Opinion of our seeing all Things in God", Works, Vol. X, pp. 247-59.

121. Bourne writes:

> Among these assailants were John Norris, the disciple of Malebranche and precursor of Butler, Thomas Burnet, the Author of 'New theory

> of the Earth", and John Sergeant, a Roman Catholic Priest. 'Shall I be quite slain, think you, amongst so many notable combatants; and the Lord knows how many more to come?' Locke wrote when the tide was setting in. But he replied to none of them, except here and there incidently in the works that have been already described.

(The Life of John Locke, London, 1876, Reprinted Oslo 1932, Vol. II, p. 439)

Aaron writes:

> Many of the criticisms made by the Bishop were pertinent in the extreme, and Locke's efforts to answer them throw much light on his position in general. Other opponents, Thomas Burnet and Sergeant, wrote against the Essay, but Locke did not consider himself called upon to answer any of these attacks.

(John Locke, Third Edition, Oxford, Clarendon Press, 1971, p. 41)

Fraser too seems to give more weightage to Stillingfleet than to the other critics of Locke. Fraser thinks that the major criticisms which Locke made to the fourth edition of the Essay concerning Maxims and Trifling Propositions (IV:VII & VII) are directed mainly at Stillingfleet (Fraser, A. C., op. cit., Vol. II, pp. 277-78, footnote to IV:VII:11; p. 293, footnote to IV:VIII:3).

2:2

122. "Logica sumpsta (non pro naturali ratione nec pro systemate, sed pro qualitate menti acquisita) est ars dirigendi mentem in cognitione rerum; objectum ejus, sive quod tractatus ea, est ens rationis tale ens quod est objective tantum in intellectu. Finis est directio mentis sive actum mentalium, qui cum tres sint apprehensio terminorum simplicum compositio eorum &

> collectio unius ab altero. Logica in ordine ad illas in tres partes dividitue suo terminorum voce an natura."
> (MS. Locke, f. 33, Fol. 185 v.)

I am giving W. H. Kenney's translation of the above passage (John Locke and the Oxford Training in Logic and Metaphysics, 1959, p. 57). Kenney observes that these Notes on Logic have "similarities to text books current then, but their exact source has not yet been ascertained" (Ibid., p. 56).

123. Richard Burthogge makes explicit this distinction thus:

> Method of Reasoning is called Logick; and is either Artificial or Natural. Artificial is the Logic of Schools, of which the chiefest is Aristotle's: and is useful many waies (sic), but among others mainly (as a Whetstone) to acute and sharpen the Wit; and to render it more sagacious, circumspect and wary, both in making and admitting deductions and consequences. Natural Logick, that of plain and illiterate men, of which I designe to discourse, is the natural method of Reasoning; in relation whereunto the Scots are said to have a Proverb, that an ounce of Mother Wit is worth a Pound of Clergy.

(Organum Vetus Et Novum, or a Discourse of Reason wherein the Natural Logicke Common to Mankinde is briefly and plainly described, London, Cornhil, 1678, section 58, pp. 30-31.)

Thomas Spencer, who attempts to reconcile Aristotelian and Ramistic Logics, also takes note of the distinction between Natural and Artificial Logics. He states that Natural Logic deals with the "ways of discoursing, which the reason itself bringeth forth without the help of any order or method", while Artificial Logic is the application of a "multitude of precepts, orderly digested and approved by use" on "the ways of discoursing" (The Art of Logick, 1628, sections 2 & 5, pp. 2-5).

Cf. Coke, Zachary, The Art of Logic, London, 1654. Reprinted by The Scholar Press, England, 1969, p. 3.

124. Burthogge, R., op. cit., pp. 30-31.

125. Cf. Spencer, T., op. cit., pp. 2-5.

126. Robert Sanderson's Logicae Artis Compendium was a popular text-book of the Peripatetic tradition and was in use in Oxford during Locke's time. (Kenney, W.H., op. cit., pp. 60, 70-71; Axtell, J.L., The Educational Writings of John Locke, Cambridge, 1968, Introduction, p. 30; Von Leyden, W., John Locke Essays on the Law of Nature, Oxford, 1954, pp. 30-4). It was first published in 1615 and was given a total of 9 editions during the 17th Century (Howell, W.S., Eighteenth-Century British Logic and Rhetoric, 1971, p. 14). Locke had in his possession its First Edition (Harrison, J. & Haslett, P., op. cit., p. 228). Sanderson defines Logic as an "instrumental Art which directs the Mind in the knowledge of all things intelligible" (Logica.... est ars instrumentalis, dirigens mented nostram in cognitionem omnium intelligibilium." Logica Artis Comendium, p. 1, as translated and given by Kenney, W.H., op. cit., pp. 70-71). A similar view is expressed by other Peripatetic philosophers of this period - Henry Aldrich (Artis Logicae Compendium, Oxford, 1696, p. 2 as cited by Howell, W.S., op. cit., p. 44); Richard Crakanthorp (Logicae Libri Quinque, London, 1641, pp. 118-19, 340, as cited by Howell, W.S., Ibid., pp. 25-6); John Wallis (Institutio Logicae, 1643, pp. 1, & 12, as cited by Howell, W.S., Ibid., pp. 31-2, 38).

Such a view was prevalent in non-traditional circles too.

James Zabarella of the University of Padua is believed to be one of the most influential non-traditional philosophers of this period. His books were used in Oxford during Locke's time (Kenney, W.H., op. cit., pp. 61-67). According to Zabarella, "The aim of Logic is to give a method and a way which we ought to use for acquiring knowledge of things. The unknown becomes known only through the knowledge of something already known. In order to gain knowledge of something unknown, it is necessary to proceed from established principles and to use some certain means." (Logicae vero scopus est viam ac methodum tradere, qua ad rerum notitiam adipiscendam uti debeamus; ignotum anim non cognscitur, nisi ex alicius noti cognitione, & ad cuiusque ignoti rei notitiam assequendam a statutis quibusdam principiis, & per certa quaedam media progredi necesse est. De Natura logicae, l, x, (1594), as translated and cited by Kenney, W.H., op. cit., p. 67.)

Zachery Coke's The Art of Logick, 1654, is not mentioned by Howell nor Kenney nor in any of the standard histories of Logic of Philosophy of this period. This book is a typical example of the attempt to blend Ramistic with Aristotelian Logic. The Systematics were an influential group of logicians who were involved in such an attempt (Howell, W. S., Logic and Rhetoric in England..., 1956, pp. 261-2). Coke may be placed as one of the Systematics. According to him,

> The proper end of Logic, is the ordering and directing of Man's cogitations (or acts of Man's Understanding) in the Knowledge of Things; this is the true and proper end of Logic.
> (The Art of Logick, p. 2)

Port-Royal Logic was popular during Locke's day. Its text, La Logique, ou L'Art de Penser, was written by Antoine Arnauld and Pierre Nicole, and enjoyed great success in France and on the continent from 1662 (the year of its first publication in Paris). There were five editions of it between 1664 and 1700 and eight translations into Latin, English and Spanish (Howell, W.S., Logic and Rhetoric in England, 1500-1700, 1956, pp. 101-4 & 351; Baynes, Thomas Spencer, The Port Royal Logic, Translated from the French with Introduction, Notes and Appendix, Edinburgh, 1861, Introduction, pp. xxxix-xliii). According to Roland Hall, "it is extremely possible that Locke read the Port-Royal Logic, judging by the similarities" (R.S. Woolhouse cites Hall in "John Locke and the Port Royal Logic", N & Q, July 1970, p. 257). Woolhouse suggests that Locke was familiar with the text of the Port-Royal Logic before its first publication in English (1685), since he finds similarities between this Logic and Locke's views as found in his Journals, and Drafts A, B & C, which are prior to 1685 (Ibid., pp. 257-9). The Port-Royal Logic expresses a similar view concerning the epistemological role of Logic:

> La Logique est l'art de bien conduire sa raison dans la connoissance des choses, tant pour s'en instruire soi-meme, que pour en instruire les autres. (Logic is the Art of directing reason aright in obtaining knowledge of things, for the instruction of ourselves, and for the instruction of others).
> (Antoine Arnauld et Pierre Nicole, La Logique ou L'Art de Penser, Introduction, p. 37)

Hence, the view that Logic provides the method to knowledge was prevalent in both traditional and non-traditional circles during Locke's time.

127. I say "perhaps" because, according to Kenney, "The sense of the very last part is doubtful (i.e. that of the Second set of notes on logic by Locke) but it probably means that both the names and natures of the three mental acts demand three corresponding parts in logic". (Kenney, W.H., op. cit., p. 57 footnote 20.)

128. Scholastic and Peripatetic philosophers of this period organized their logics on the basis of this tripartite distinction. An instance of the Scholastic use of the tripartite distinction may be found in the works of John of St. Thomas (1598-1644). In the second part of his volume on logic, which in turn formed a part of his voluminous work entitled Cursus Philosophicaus (Course of Philosophy), he commences his discussion on Logic by attempting to answer the question, "Among the topics treated by Logic, which one is principal?" His answer is as follows:

> Syllogism, which is produced by the Third operation of the intellect is the principal object of Logic ... The reason is plain since, as St. Thomas teaches (Commentary on Interpretation lesson I leonine 1-2 and Commentary on Posterior Analytics Lesson I leonine 4) the three operations of the intellect are such that the first and the second are related to the third as to the principal one. It is in the third operation that reasoning is completed...
> (John Poisnot (John of St. Thomas): Cursus Philosophicaus, Vol. on Logic: Second Part (material Logic): Chapter I as translated by Y.R. Simon, J.J. Glanville, and G.D. Hellenhorst in 'The Material Logic of John of St. Thomas', 1955, p. 26.)

Robert Sanderson, an influential Peripatetic, states that his epistemologically oriented Logic is organised on the basis of tripartite distinction and quotes Aristotle for such an organization (Logicae Artis Compendium, 1618, pp. 2-3, 4, 122, as translated and cited by Howell, W.S., Eighteenth Century British Logic and Rhetoric, 1971, pp. 17-18). John Wallis

organizes his treatise on Logic on the basis of the tripartite distinction (Institutio Logicae, 1687 - Part one, consisting of 23 chapters analyzed simple apprehension and dealt with terms, predicables and predicaments; Part two, with eleven chapters, analyzed judgment and propositions; Part three, having 24 chapters dealt with discourse and Syllogism. This is Howell's observation, op. cit., pp. 31-33.)

Ramistic Logic had considerable influence in Cambridge but Oxford was not completely free from its influence (Howell, W.S., Logic and Rhetoric in England, 1500-1700, 1956, pp. 171-2). Even though Ramus did not give a separate place for Terms in his book on logic (Dialectique, 1574, as translated by Macmaine, pp. 72-73), Ramistic logicians began to organize their logics on the basis of the tripartite distinction. For instance, John Sanderson, a reputed Ramistic logician of this period, divides logic into invention and judgment, following Ramus, and then divides judgment into Terms, Propositions and Syllogisms, (Institivorum Dialecticorum Libri Qvatuor, as cited by Howell, W.S., op. cit., p. 293). Sanderson's book had three editions at Oxford between 1602 and 1699 (Howell, W.S., Ibid.).

The Port-Royal logicians too organized their logic on the basis of such a distinction. After Discourses I & II, La Logique ou L'Art de Penser deals with Terms (Chapters I & II), Propositions (Chapters III-XX) and Reasoning (Part III).

As Kenney observes, nearly all Logic text-books during this period divided logic into three parts (terms, propositions, and syllogisms) corresponding to the three acts of the mind (simple apprehension, judgement, and discourse). (Kenney, W.H., op. cit., p. 276.)

129. Advitus ad Logicam, A 2 v - A 31 (as translated and given by Howell, W.S., Logic and Rhetoric in England, 1500-1700, 1956, p. 294). This was a popular logical treatise of the tradition of the Systematics. It was published in 1613 and had 14 printings during the 17th Century (Howell, W.S., Ibid., p. 292). According to J. L. Axtell, this book was also used as a text in Oxford during Locke's time (The Educational Writings of John Locke, Cambridge, 1968, Introduction, p. 38.).

130. The following are my main sources for the 17th Century senses of "form":

1) Oxford English Dictionary, Murray, ed., Vol. IV, pp. 458-63.
2) Webster's Dictionary, 1828, Copywright 1966, Third International edition.
3) Krauth, J., Vocabulary of Philosophy.
4) Baldwin, J., "Latin and Scholastic Terminology" in Dictionary of Philosophy and Psychology, 1901, pp. 628-37.

131. Kenney, W. H., op. cit., p. 282.

132. Logic and Rhetoric were closely associated with one another in the university curriculum of this period (See: Axtel, J. L., op. cit., p. 296 footnote 2; Howell, W. S., Eighteenth Century British Logic and Rhetoric, 1971, Chapter III, section I, pp. 75-82).

133. Burthogge, R., Organum Vetus et Novum, or a Discourse of Reason and Truth, 1678, reprinted in The Philosophical Writings of Richard Burthogge, ed., M. W. Landes, 1921, sections 6-15, pp. 11-15.

134. Baldwin, J., op. cit., pp. 632-3 & 636-7.

135. The Aristotelian-Thomistic position on "subject" is presented succinctly by Cardinal Mercier thus:

> Subject: In Logic, that of the terms in a proposition of which predication is made (Log. 13). "Dictur subjectum, de quo alia predicantur" (In VII Metaphy. I. 2).
> In Metaphysics, that to which accidental determinations belong; synonym for substance. "Soli substantiae convenit proprie ratio subjecti" (In I Post. Anal., I. 34).
>
> Subjective: In Metaphysics, pertaining to the subject of Accidental determinations, i. e. to substance (Gen. Met., 114, note). "Soli substantiae convenit proprie ratio subjecti" (In I Post. Anal., I. 34).

[Manual of Modern Scholastic Philosophy, 1962, Vol. II, p. 524.]

136. The "object" (of a Faculty): "That to which the exercise of a Faculty is applied" (Objectum non est materia exqua, sed materia circa et habet quodammodo rationem Formae in quantum dat speciem" - Summa Theol., I. 2, Q, 18, a. 2, ad. 2) - as translated and cited by Mercier, op. cit., p. 517. The "Object" of knowledge is that wherein the act of knowledge rests and by which it is completed (Log. 10). ("Objectum operationis terminat et perficit ipsam et finis ejus" - In Sent., dist. I, q. 2, a. I, ad. 2) - Mercier, op. cit., p. 518.

137. Prantl, III, 308 note. As cited by Baldwin, op. cit., p. 637.

138. Baldwin, J., Ibid., 637-8.

Webster notes the use of the term "Objective" as "the existence or nature of a thing as an object of consciousness (as distinguished from an existence or nature termed 'subjective')". He states "The Scholastic Philosophy made the distinction between what belongs to things subjectively (subjective), or as they are in themselves, and what belongs to them objectively (objective) as they are presented to consciousness". (Webster, op. cit., p. 16).

Cf. Krauth, J., op. cit., p. 355.

139. Locke, J., Second set of notes on logic, op. cit.

140. The textual sources will be cited in Chapter III, where I deal with the topic in greater detail. See:
Owens, Joseph, Aristotle - Cognition a Way of Being, Canadian Journal of Philosophy, Vol. VI, No. 1, March 1976, pp. 1-11.
Hoenen, P., Reality and Judgment according to St. Thomas, translated by Henry F. Tiblier, Chicago, 1952, pp. 191-99.

141. Aristotle, De Anima, III:8, 431b 28-30 (McKeon ed.).

142. J. Owens states:

> Back of it lies the overall Aristotelian tenet that form is the cause of being (Metaphy. 8, 1017b 15-16; Z 17, 1041b 7-28; H 2, 1043a 2-26). It is the form that makes a thing be,

> no matter in which category. In the basic category of substance the form makes something be a metal, a plant, an animal, a man. In the other categories the accidental forms make a thing be extended, coloured, related. (op. cit., p. 7)

C. Georgiadis distinguishes between two conceptions of Substance in Aristotle ("Two conceptions of Substance in Aristotle", New Scholasticism, Vol. 47, 1973, pp. 23-37): the 'reistic' and the "archological'. According to the latter, substance is the principle (arche) of the individual thing that makes it to be what it is. Georgiadis identifies 'form' with 'substance in the archological sense' ("The Individual Thing and its Properties in Aristotle", Great Philosophers: History of the Interpretation, Dialectics and Humanism, No. 7, 1977, p. 157).

148. Aristotle, De Anima, II:12 424a 17-24 (McKeon ed.).

Aquinas, T., Summa Theologica, Q, 84, Art 1.

144. Yolton, J.W., Ideas and Knowledge in the Seventeenth Century Philosophy, J. Hist. Phil., Vol. XIII, April 1975, No. 2, p. 147.

145. Oxford English Dictionary, Vol. IV, points 5, 8, 9 & 12, pp. 458-9.

Webster's Dictionary, 1, 2, & 12.

146. Oxford English Dictionary, Ibid.

147. As Yolton observes:

> There was a method claimed for science by men of this period - John Sergeant is one.... a method of deducing from principles, which Locke was careful to attack and reject. This was a method to knowledge used by the Schoolmen and claimed to apply to all knowledge including knowledge of nature...., These were the people identified by Power, Hooke, Sprat and Glanville as the 'old dogmatists', who were more concerned with disputing than with

> increasing human knowledge. They would defend any conclusion tracing all truths back to the principles of Logic.
> (Locke and the Compass of Human Understanding, Cambridge, 1970, p. 90)

148. Yolton, J. W., Ibid., pp. 90-91.
See Chapter V (5:2 & 3) of this dissertation.

149. Oxford English Dictionary, Vol. IV, points 6-8, pp. 462-63.

Webster's Dictionary, see: 'formality' points 1 & 2.

150. Oxford English Dictionary, Vol. IV, points 1 & 2, p. 462.

Webster's Dictionary, see: 'Formalist' points 1 & 2.

151. See Appendix II of this dissertation.

CHAPTER III

LOCKE'S ANTI-FORMALISM AT THE LEVEL OF SIMPLE APPREHENSION

3:1 Introduction:

The Idea-Notion controversy between Locke and Sergeant reveals their respective "anti-formalistic" and "formalistic" positions. In a context where Simple Apprehension was taken to be the initial act of knowledge, its "object" was considered the elementary object of knowledge. Certain requirements concerning it were stipulated. 3:2 deals with them. Sergeant claims that his characterization of Notion in terms of "form" enables it to meet the said requirements and thereby be the legitimate "object" of knowledge. He thinks that Idea does not meet these requirements mainly because of Locke's failure to characterize Idea in "formalistic" terms. Sergeant's characterization of Notion is given in 3:3. How Locke's characterization of Idea goes against Sergeant's "Formalistic" presentation is discussed in section 3:4.

3:2 Requirements concerning the "object" of knowledge:

The reasons for Sergeant's condemnation of Locke's Idea and for substituting Notion stem from certain requirements the fulfillment

of which is considered necessary for knowledge to be obtained. More fundamentally they pertain to acts of awareness or the theory of consciousness as such. When knowing is viewed as a kind of conscious activity, these requirements become pertinent to the theory of knowing.

Even though Sergeant characterizes Notion on the basis of the acceptance of these requirements, they are not peculiarly his nor unique to his age. They have had various formulations and were widespread during the time of Sergeant and Locke. [1] The requirements in short are as follows:

1. That knowing has to be about something.
2. That this something should be "real".
3. That which is known should be present to the mind, which is taken as the knowing agent.
4. That which is known should be like the mind.

Let us examine these requirements in greater detail.

1. The first one is associated with the doctrine of "Intentionality of Thought", according to which, whenever one thinks, he thinks about something. [2] Sergeant distinguishes between thinking and imagining. He takes the former to be the activity of the Mind or "Understanding" while the latter to be that of the Faculty of Imagination or "Fancy" (Solid Philosophy Asserted, The Preface, section 18, p. 25). He considers both thinking and imagining to be intentional in character. In his view, whenever one claims that he is imagining, there must be

something about which he imagines; whenever one claims to be thinking, he has to think about something. What is imagined he calls "Phantasm" or "Image" or "Material Representation" (Ibid., sections 18-19, pp. 25-27; Preliminary First, section 4, p. 3; Reflexion 18, section 9, pp. 350-352). When an act is taken to be "intentional" it has to be about something. This "something" to which an intentional act is directed is described as its "object", which, in this context, may be taken in its predominantly 17th Century sense, as what is present to the mind in any of its acts or the contents of any act of awareness.[3] For Sergeant, Notion is what is present to the Mind in its act of Simple Apprehension; Phantasm is what is present to the Faculty of Imagination or "Fancy" in its act of imagining. Both Notion and Phantasm are described as "interiour" or "immediate objects" (Ibid., The Preface, section 18, pp. 25-26; sections 20-25, pp. 27-33; Preliminary 2, section 1, pp. 24-25). According to him,

> Man being One Thing, compounded of a Corporeal and a Spiritual Nature, and every Thing acting as it is, it follows, that both those Natures must concurr to every Operation that flows from him, as he is Man; and, consequently, be produced by some Faculty belonging properly to each of those respective Natures: Nor can it be doubted, but that, as those Faculties, or Powers, which are peculiar to both those Natures, are as different as are the Natures themselves; so the Immediate Objects peculiar to those Different Faculties, must likewise be as widely Different from one another, as are those Powers to which they belong; and, consequently, be as vastly Opposite, as the Natures of Body and

> Spirit can distance them.
> (Solid Philosophy Asserted, The Preface, section 18, p. 25)

"Knowing", being a human act, includes both the acts of imagining and thinking, and is not restricted to one of these, as in the case of Brutes and Angels. Brutes being totally corporeal in nature can have only "material phantasms" as their objects while Angels being totally spiritual can have only "purely spiritual objects" with "nothing of Matter or Fancy in them" (Ibid., section 18, p. 25). In the case of Man, when he is involved in the act of knowing, both the acts of imagining and thinking are involved. But, the proper "object" of knowledge has to be Notion and not "Phantasm" (Ibid., section 19-24, pp. 26-31). Even though "Phantasm" is given a place in human knowing, its legitimate "object" is Notion.[4] The reasons for Sergeant preferring Notion becomes clear once we take into account his other stipulations concerning the "object" of knowledge. At this juncture, it is sufficient to note that he insists "knowing" to be "intentional" in character and Notion its "object". He states:

> To clear then the meaning of the word (Notion), as 'tis used here from this Sleight and (in our case) Unconcerning Ambiguity, I declare, that, there being two Considerations in Knowledge, viz. the Act of my Knowing Power, and the Object of that Act, which, as a kind of Form, actuates and determins the Indifferency of my Power, and thence specifies my Act; I do not here take the word (Notion) for my Act of Simply Apprehending; but for that Object in my mind, which informs my Understanding Power, and about which that Power is

> employed; in which Objective meaning I perceive Mr. Locke does also generally take the word (IDEA).
> (Ibid., Preliminary II, section 2, pp. 26-27)

Sergeant takes Simple Apprehension as an act which tends towards an object and hence is "intentional" in character. When Simple Apprehension is taken as an act of knowing, as is implicit in the above passage, the "object" of Simple Apprehension is taken as an "object" of knowledge. But what is specifically required of such an "object" has to be noted. It is required to "actuate" the Knowing Power, "determine" its indifferency and "specify" its act. For Sergeant, the "object" is able to so function because it is taken to be a kind of "form". Here he understands "form" in a typically Aristotelian-Thomistic sense as what actuates any potentiality and specifies any act.[5] The phrase "informs my Understanding Power" indicates the action of "form" on a potentiality - the "form" actuating and determining the potentiality of the "knowing Power". We shall have occasion to examine Sergeant's theory of Notion as form later in this chapter.

Here it is sufficient to note that the assumption underlying Sergeant's claim that Notion is the "object" of the act of knowing is that knowing is "intentional" in character; that, when one claims to be involved in an act of knowing, there has to be something which he knows - an "object" of the act of knowing. It is also of interest to note that Sergeant thinks that Locke took Idea generally as "object".

2. The second requirement may be called the "solidity" or "reality" requirement, according to which, what is known should be "real". "Real" here is contrasted with what is dependent for its existence on the mind which thinks about it or more generally is aware of it (Ibid., The Epistle Dedicatory, p. 2; The Preface, pp. 1, 9, 21-22; Reflexion 18, p. 342).[6] For Sergeant, "reality" consists of particulars, which he generally calls "things". He usually alternates "things" with "substances" (Ibid., Prelim., 2, section 5, p. 29; Reflexion 13, sections 3-5, pp. 239-40). All created substances are dependent for their existence ultimately on God, the Uncreated Being. Sergeant states:

> Wherefore the meaning of that Word (thing) can be no other but that of (Capable to be) for, no Created Thing has Actual Being, or Existence, in its Essential Notion, but of its own Nature may be or not be; as, besides what is proved in my Method (Book III: Lesson 7), is seen in the very Notion of Creature; which signifies That which has its Being from Another; which, therefore, can, of itself, be only Capable of Being....
> (Solid Philosophy Asserted, Preliminary 5, section 4, pp. 90-91)

In the case of God, existence is taken to be a part of His essence. He necessarily exists and his existence does not depend on any thing else. In the case of all created things, sometimes called 'Ens' (Ibid., pp. 90-91) they have only a 'capacity of being' (Ibid., p. 91). Modes and Accidents of Substances are also sometimes called "things". He employs the term "thing" in a stricter and also in a more accommodative

sense. According to him,

> I take the word (thing) in the largest Signification as it comprehends not only Substances, which only are properly things; but also the Modes, or Accidents of Substance, which are improperly such. (Ibid., Prelim., 2, section 5, p. 29. See also Prelim., 3, section 1, p. 45)

We shall deal with this distinction in 3:3. Here it is sufficient to note, that, even though modes and accidents are dependent on substances (Ibid., Prelim., 5, sections 16 & 17, pp. 101-3; Prelim., 3, sections 11 & 12, p. 52) they qualify to be ontological entities or "things", since they can exist independently of our awareness of our thoughts about them. The constituents of Sergeant's ontology are independent of the mind which may think about or be aware of them. God exists independently of all other things; created things or substances, their modes and accidents are dependent ultimately on God, but they are not dependent on our thoughts of awareness of them.

Sergeant interprets "nothing" as what is "not a thing" as "Ens" negated (Solid Philosophy Asserted, The Epistle Dedicatory, p. 6; Prelim., 4, sections 31-34, pp. 77-79; Reflexion 13, section 3, p. 239). In other words "nothing" does not exist independently of our thoughts and awareness; what so exists is the "thing". In his view, knowledge of "nothing" per se is impossible (Ibid., Reflexion 13, section 3, p. 239).

For Sergeant there is a world that is independent of our thoughts

about or awareness of it. Such a world is populated with God, created substances (both corporeal and spiritual), their modes and accidents. It is in the context of such a "Realism" that he stipulates the "solidity" or "reality" requirement.

His constant demand that knowledge must be "solid", and that philosophical knowledge or science or any piece of knowledge worth its name must be "of things" indicate his firm belief in said requirement. For knowledge to be "solid" the method of achieving it must be grounded in reality. The method has to commence from "reality" itself and not from mere mental constructs. In accordance with the prevalent view, Sergeant takes Simple Apprehension to be the initial step in the method to knowledge and its "object", namely Notion, as the elementary "object" of knowledge. He calls Notions as "materials of knowledge" and "seeds of science" (Ibid., The Epistle Dedicatory, p. 2 & The Preface, section 18, p. 25). After stating that Simple Apprehension is "the first operation of our Understanding" and Notion its "proper object" (Ibid., Prelim., 2, section 1, pp. 24-25), he claims that the latter must be characterized in a particular manner in order to obtain knowledge through the employment of Simple Apprehension. He states:

> Notion is the very thing itself existing in our Mind; which is undoubtedly a Solid Material, or Firm Ground to build the Knowledge of Things, or Science upon it.
> (Ibid., Prelim., 2, section 1, p. 25)

He further claims that, if "Notion" is not taken to be "the very thing it self in my Understanding", "it is impossible any Man living should know any thing at all" (Ibid.). He points out:

> I am to note, that, as the Moderns grant we know nothing without having (Ideas) of them within our minds; so I willingly acknowledge, that we cannot know any thing that is without us but by having in our Understanding Notions of those things. Now I say, those Notions must be the very things themselves in our Soul, which they deny as incredible and Monstrous...
> (Ibid., section 5, p. 28)

The first part of this quotation deals with the "presence to the mind" requirement, which we shall discuss subsequently. Here we should note his insistence that Notion is the "thing itself in our Soul (Mind)". After such an insistence, he goes on to establish through 15 arguments that Notions are "things themselves in our Understanding" (Ibid., Prelim., 2, sections 6-21, pp. 29-38). Most of these arguments are repetitive but they are significant, because they reveal his convictions that the "object" of knowledge should be "real" and that it should be "present to the mind". So as to enable the "object" of knowledge to be "real" he identifies the "thing" with the "object"; Notion as "object" is identified with "thing". He insists that even "abstract notions" and notions of Accidents and Modes "include or connotate" the thing. He criticizes the view which considers abstract notions as exclusive of the thing. He claims:

> .. whereas I make it only Exclusive of other Notions, but to Include and signify the Thing or Subject, according to some Consideration, or (as it were) Part of it; in the same manner (to use a grosser example) as the Hand or Foot signifie the Man or Thing to which they belong, according to his power of Handling or Walking. Hence I hold, that Whiteness, Breadth or Hardness in the Wall, do signifie and import the Wall itself, precisely quatenus, or as it is White, Broad and Hard. Whence I affirm, that all Science, which consists of those Abstract and Mutually-distinct Notions as of its Materials, is truly a Solid Knowledge of those very Things. (Ibid., Prelim., 3, section 9, p. 50)

According to him, an abstract notion like "Humanity", "though expressed abstractly does signifie the Thing or Man". "Humanity is the Thing or (Homo) according to what's his constitutive" (Ibid., section 10, p. 51). Notions may be of Accidents and Modes but they "include and connotate" the thing (Ibid., Arguments 2 & 3, sections 11 & 12, p. 52). Accidents are for him "the unessential but intrinsic properties of the thing"; they "advene to the thing" (Ibid., section 11, p. 52; Cf. Prelim., 5, section 16, pp. 101-102). Notions of Accidents are "the unessential properties of the Thing in our Understanding"; they are the "unessential conceptions of the Thing" (Ibid., Prelim., 3, section 11, p. 52). Modes are "manners of how a thing is" (Ibid., section 12, p. 52; Cf. Prelim., 5, section 17, pp. 102-3). Modes are the "manners of how a Thing is"; they "involve essentially the Thing of which they are modes, and to which, as such, they relate" (Ibid., Prelim., 3, section 12, p. 52). Notions are "the manners of how a Thing is"

in our Understanding; they are "conceptions of how a thing is" (Ibid.). The theoretical basis for characterizing Accidents and Modes in the above manner is tied up with his views on "substantial" and "accidental forms" and we deal with this in 3:3. What has to be noted here is his underlying emphasis - that any type of notion is the thing itself "in our Understanding". He states that Notions are things themselves; that they are "considerabilities" or "conceptions of things"; that they signifie the thing"; that they "involve the thing", that they relate to the thing; that they include and connotate the thing (see: Solid Philosophy Asserted & Method to Science). Despite this varied and rather careless manner of expression, his underlying claim is that Notions, are "things themselves". The manner in which he characterizes this identification between Notion and Thing will be discussed in 3:3. In his view, such an identification between the "object" and "thing" is necessary for knowledge to be possible. He criticizes the Ideists and their logic as "visionary", "empty", "aiery" and "superficial" because he is convinced that they failed to meet the "reality" or "solidity" requirement (Solid Philosophy Asserted, The Preface, pp. 1-36). According to him, their characterization of the "object" of knowledge, (idea in particular) does not manifest the said identification. After presenting his 15 arguments in the Second Preliminary to establish that "Notions are things themselves in our Understanding", and, after giving four arguments in the Third Preliminary to establish that even abstract

notions and those of accidents and modes are "things themselves in our Understanding", he concludes thus:

> It would not be hard to multiply Arguments to prove this nice Point; fetched both from Metaphysics, and also from Logick, and the verification of all Propositions, did I conceive it to be needful. But, I see plainly, that all the Arguments in my former Preliminary (i.e. the fifteen arguments to establish that Notions are things themselves in our Understanding) do conspire with their United force, to make good this Fundamental Position. For, if this Truth be once firmly established, that our Notions are the Things themselves; as far as they are conceived by us, it must follow, that all our Science being built on those Notions, has for its Solid Basis the very Thing it self, and not any other Things, or Nothings, distinct from the Thing known; such as are their pretty Spiritual Looking-Glasses, those Unaccountable, Inexplicable, Unnecessary, and Useless Things called Ideas.
>
> (Solid Philosophy Asserted, Preliminary III: section 13, pp. 52-53)

According to him, for knowledge to be "solid" the "object" known in the initial act of knowledge (Simple Apprehension) has to be the "thing itself".

3. According to the third requirement, what is known has to be "present to the mind".

Sergeant's first argument to establish that the Notion is the "thing itself in the Understanding" runs thus:

> When I simply apprehend the Thing, or any Mode or Accident of it, this Operation of my Understanding is within my Mind, and compleated there; therefore the Thing Apprehended, which is the Object of that Operation, must be there likewise;

> For, otherwise, this Operation of my Mind, it being Immanent, and not Transient, or passing out of my Mind to the Thing without me, cannot be employed about that Thing, contrary to the Supposition. Nor could the Thing be truly said to be Apprehended, unless this Operation, called my Apprehension, had the Thing for its Object; and this within my Understanding, it being an Internal Operation. But, that which is within me when I know it, is the Notion of it: Therefore the Notion of it (taken, as is declared above, objectively) is the Thing itself in my Understanding.
> (Solid Philosophy Asserted, Preliminary II: Section 6, Argument I, p. 29)

The "immanency" of the acts of the mind is also made explicit, when Sergeant states:

> Again we experience, that we consider, judge, and discourse of the very thing itself and of its very nature: which (these being Interiour and Immanent Acts, bred and perfected within our soul) we could not do, unless the objects of those Acts, or the very Things themselves were there.
> (Method to Science, Book I: Lesson I, p. 2)
> [See also: Prelim., 4:4: p. 61]

For Sergeant, since the acts of the mind are immanent, when something external is known, it has to be present to the mind; no action at a distance is conceived possible.[7] If what is known is not present, he asks,

> How could the Soul's Acts of Understanding which are Immanent Acts, become Transitive, and affect a Thing which is without her?
> (Solid Philosophy Asserted, Prelim., 4, section 4, p. 61)

The necessity of the "presence to the mind" condition for the attainment of knowledge is also made explicit in the following argument:

> I know the very Thing; therefore the very Thing is in my Act of Knowledge: But my Act of Knowledge is in my Understanding; therefore the Thing, which is in my Knowledge, is also in my Understanding. (Ibid., Prelim., 11, Second Argument, section 7, p. 29)

The soundness of the above argument need not be decided here. What has to be noted is Sergeant's basic contention that, if the "Thing" is not present to the mind, since the locus of the act of knowing is the mind, the "thing" concerned cannot be known. In the third and fourth arguments (Ibid., sections 9 & 10, p. 30) he attempts to establish that, if what is known is not present to the mind, knowledge is not possible. In his view, if Ideas are not things themselves, one cannot claim to have knowledge of things through Ideas, since Ideas only are present to the mind and not the "things" concerned (Ibid., sections 9 & 10, p. 30). It has to be noted at the outset that Sergeant's employment of spatial language should not be taken literally. He did not believe in the literal presence of the thing in the act of knowing it. The "presence to the mind" requirement arises from the Aristotelian theory - that in the act of knowing there is an identity between the knower and the known. This is effected through the "form" of the thing. The precise nature of Sergeant's "presence to the mind" requirement will become clear once we appreciate his use of "form" here, which we shall discuss in 3:3. At this juncture, it is sufficient to note that Sergeant insists "presence to the mind" as an essential condition the

"object" of knowledge has to meet. He formulates the said requirement in more Aristotelian terms thus:

> And, if neither the Idea brings the Thing into the Knowing Power or (which is the same) into the Mind; nor the Mind, or Knowing Power goes out of the Soul to it, I know not how they can pretend to show how the Knowing Power, and the Thing known, can ever come to meet, as they must whenever an Act of Knowledge is made.

The "presence to the mind" requirement is tied up with the stipulation that what is known by the mind should be like it. Let us examine this requirement.

4. That only what is like mind can be present to the mind is the fourth requirement.

The "object" of Imagination or Fancy, according to Sergeant, cannot be present to the Mind or Understanding, since it is corporeal in nature. He claims that Notion being spiritual in nature can be present to the Mind and be its "immediate object" (Solid Philosophy Asserted, The Preface, sections 18-24, pp. 25-31) because Notion, unlike Phantasm, can exist "spiritually" or "intellectually" in the Understanding, since it is "like the mind".

If what is corporeal in nature is to be known it has to be present to the Mind. For it to be present to the mind, Sergeant insists that the "object" has to be like the mind. Hence, when "things" which are corporeal in nature are to be known, a transformation from the corporeal to the spiritual is imperative. In the third Preliminary, Sergeant

attempts to give a detailed account of the manner in which this transformation takes place - how the corporeal things become spiritual in nature and become present to the Mind. He blames Aristotle and others, who had advanced the doctrine that only what is like mind can be present to it and be known by it, for not explaining how this transformation takes place. Then he goes on to give his account, which may be considered a physiological explanation with metaphysical overtones (Ibid., Prelim., 4, sections 11-29, pp. 65-76).

External bodies are said to emanate effluvia, which are, for Sergeant, the literal aspects of the bodies concerned. These effluvia enter the pores of the various sense organs. He puts it thus:

> Wherefore, since Bodies, in their whole Quantity, or Bulk, cannot be conveyed by the Senses into the Brain, the Author of Nature has ordered that all Bodies, upon the least Motion of Natural Causes, Internal or External, (which is never wanting) should send out Effluviums, or most minute and imperceptible Particles; which may pass through the Pores of those Peruious Organs, called the Senses; and so, be carried to the Brain. (Ibid., Prelim., 4, section 12, p. 65)

Sergeant considers Man as a compound of material and spiritual natures; the body is the matter and the soul the form of Man (Ibid., section 13, p. 65). The material and the spiritual parts of man come together at some point which, according to Sergeant, is "Corporeal-Spiritual" in nature and is comparable to Descartes's Pineal Gland (Ibid., section 14, p. 66). Following Scholastic tradition, Sergeant

calls this the "seat of knowledge" (Ibid., sections 16, 17, 18, 20, 24 & 27, pp. 67-74). Every effect that alters the material part of man at this point (i.e. the brain and nearby regions) also creates a parallel effect in the spiritual part. The material effluvia do not enter the spiritual part. There is a parallelism involved here - the alterations in the spiritual part correspond with and duplicate therein the alterations in the material part.

He states:

> Those Effluviums sent out from Bodies, have the very Natures of those Bodies in them or rather are themselves Lesser Bodies of the Self-same Nature, (as the smallest imperceptible parts of Bread and Flesh, are truly Bread and Flesh) which are cut off by Natural Agents from the great Lump; and, therefore, by Application of themselves, they imprint the very Body it self, or a Body of that Nature, on that material part which is the Seat of Knowledge. Whence the Soul being, at the same time, affected after her manner (or knowingly) as that part was affected, she has also the very Nature of that Body (as far as the Sense exhibits it) put in her by that confirmable Impression, when she has a Notion of it.
> (Solid Philosophy Asserted, Prelim., 4, section 20, p. 69)

Whether or not Sergeant is successful in his attempt to explain how corporeal things are transformed into spiritual notions, need not be decided here.[8] Locke himself satirically comments on Sergeant's attempt. When Sergeant completes his long and laboured account (Ibid., sections 6-12, pp. 63-76), Locke marginally comments thus:

> And now let the reader consider whether by reading what he finds from # 6 whether he has not got a

> perfect clear knowledge how material things get into the immaterial soule.
> (Marginal Comment: no. 24, p. 76)

Sergeant's whole enterprise is based on the assumption that only what is like mind can be present to it and be known by it. According to him, this transformation is necessary since the corporeal body by itself cannot in any manner affect the spiritual soul which knows. He agrees that all "corporeal agents work by Local Motion" and that their actions are "all successive and quantitative" (Ibid., sections 3 & 4, pp. 59-60). He also thinks "Local Motion" cannot take place in a "Soul which has no parts" (Ibid.). That which could affect the Soul has to be like the Soul. Hence, he attempts to transform the corporeal things into spiritual Notions.

The Notions which so occur in the "seat of knowledge" are explicated in terms of "form" and here he resorts to metaphysics rather than to physiology. But his whole enterprise is based on the underlying assumption that what is like mind can only be known by the Mind. We will discuss his explication of Notion in terms of "form" and "meaning" in section 3:3.

Conclusion

For Sergeant, when some one claims that he knows, he has to know something. This "something" has to be "real (i.e. be not "nothing"), be "present to the mind" and be "like mind". Then and only

then would Sergeant accept that there is substance in the said claim.

In his view, Notion unlike Idea meets these requirements. The next section deals with his reasons.

3:3 Sergeant's Formalism at the level of Simple Apprehension:

The reasons for Sergeant's claim that Notion and not Idea is the legitimate "object" of knowledge are revealed in his characterization of Notion in terms of the Aristotelian-Thomistic theory of Form. Such a theory provides him with the theoretical basis for presenting Notion as the "object" of knowledge fulfilling the "reality", "presence to the mind" and "like mind" requirements mentioned in the previous section.

"Form" is here interpreted as what makes a thing to be what it is. The various facets of such a characterization and their involvement in the justificatory explication of Notion as the "object" of knowledge will be dealt with in this section.

In the Appendix to Method to Science, Sergeant defends the Peripatetic theory of Formal Composition and Mutation. An examination of some sections of this defence is helpful to get at Sergeant's employment of "form" in his explication of Notion. So as to distinguish the main facets of his defence, I have divided the following passages into six sections. He argues thus:

1. It must be granted that we cannot have Science of any Thing but by means of Discourse; that the most Exact and most Evident Discourses are those we call Syllogisms; that, Syllogisms are resolved into Propositions; and Propositions into Two Terms and a Copula that connects them: that all we can say of these parts of a Proposition is, that they are Notions or Meanings of the Words that express them: that therefore all Discourse is built on the Right putting together of these Notions: and can be built on nothing else or made on any other fashion.

2. That no Discourse can be solid but what is grounded on the Notions or the Things themselves, without which they must necessarily be Aiery and Chimerical, and impossible to beget knowledge: that for this reason, our Notions, which ground all our Discourse and Knowledge are the very Natures of the Things, without us, existing Spiritually in our Understanding.

3. That our operations of Apprehending, Judging, and Discoursing of the Natures of Things being Immanent or Performed and Perfected within us, the objects of these operations or the very Natures of the Things must be likewise within us.

4. That 'tis evident by experience that we do make Diverse Conceptions or Notions of the same thing i.e., all the operations of our Mind are built on those Partial and Inadequate Notions of the Thing about which we are to Discourse. That we can frame a great number of these abstracted or partial notions of the Same Thing, and many of them Intrinsical Ones. That therefore, the Thing must have in it what corresponds to those several Notions; which we call Formal Composition.

5. That hence, there is a Divisibility in the Thing as grounding one of these Notions from the same Thing as grounding another of them, by reason that Natural Causes are apt to work upon the Thing according to that in it (or what part of it, as it were) which is thus conceived, and yet not work upon it according to what in it is otherwise conceived, or what grounds a different Notion. Whence they make account is inferred this Grand conclusion that therefore there is Formal Mutation in regard it can be wrought upon according to that in it which corresponds to the Notion of Form and not to that in it, which answers to the notion of Matter; Whence follows unavoidably, that there is Formal Composition and Formal Mutation as is above explained.

6. Which Conclusion must necessarily follow, if they allow (as they must) this Method of Discoursing; each part of which has been made good in the foregoing Treatise.

(Method to Science: Appendix: The Grand Controversy concerning Formal Mutation decided in favour of the Peripatetick School, pp. 381-83.)

In the first section, Sergeant claims that the Syllogistic method of discourse is indispensable to the attainment of knowledge. Syllogistic discourse is reducible to Terms, which are for him, Notions. Hence Notions play an important role in such a discourse. For an effective method to knowledge, Notions as "objects" of knowledge, have to meet certain requirements. Sergeant claims that they do. By being the "very natures of things" they fulfill the "reality" requirement; by "existing in our Understanding" or "within us" they meet the "presence to the mind" requirement; and by being "spiritual" or "intellectual"

they meet the "like mind" requirement. In sections two and three he re-affirms these claims. So as to enable Notions to meet the said requirements, he resorts to the theory of "formal composition and mutation" and he indicates this in sections four and five. He realizes that there could be diverse and changing notions of the same thing. If these Notions are to be legitimate "objects" of knowledge, they have to fulfill the "reality" requirement; they have to be "things themselves". But, how could a single thing have more than one notion? If the thing does not have in it what corresponds to these diverse notions, they too become "aiery" and "chimerical" like Ideas, which he criticizes. The theory of Formal Composition and Mutation provides the theoretical basis to relieve Notions of this subjectivity. For him, such a theory guarantees their "reality" and the "solidity" of the knowledge constructed out of them.

The theory of Formal Composition and Mutation is a part of a more comprehensive theory - that of Form and Matter - and has to be understood in the light of Sergeant's views of Form and Matter in relation to Substance. According to Aaron, there were two main views of substance current then, and they were not distinguished from one another with sufficient care.[9] He states that "in the first place, substance is ens, real existence (or, sometimes, the essence, the "true nature" of a real existence). In the second place, it is that which supports, per se subsistens et substans accidentibus".[10] Sergeant's

view may be associated with the former. He alternates "substance" with "thing" and usually calls it "Ens". Created substances are defined as having the "capacity to exist" (Solid Philosophy Asserted, Prelim., section 4, pp. 90-91; Reflexion 13, sections 3 & 4, pp. 239-241). For him substance is nothing more than accidents taken collectively - a "complexion" or "composition of properties" (Ibid., Reflexion 13, sections 4-7, pp. 241-46; Prelim., 5, sections 5, 7, 8, 10 & 12, pp. 91-9). He denies that substance as "supporter of accidents" is the primary sense of the term, although he recognizes this as one of the senses then prevalent. He criticizes Locke for taking the word "substance" in its secondary sense, as "supporter of accidents" rather than in its primary sense, as "complexion of accidents" (Ibid., Reflexion 13, section 4, pp. 240-41). The controversy between Locke and Sergeant over "substance" is not dealt with in this dissertation.[11] Here it is sufficient merely to note in what sense Sergeant takes "substance" and how he relates it to his views on Matter and Form.

For him, Matter is a "power to be a thing", an "indifferent and indeterminate potency" (Method to Science, Book III, Lesson 7; Solid Philosophy Asserted, Prelim., 5, section 6, pp. 90-91). Form is what determines and actuates the indeterminate Matter and makes it "capable of existing" or "disposed to exist" (Ibid., sections 4-7, pp. 90-93; Cf. Method to Science, Book III, Lesson 7). In the light

of the matter-form dichotomy, the particular is what is differentiated or determined to be a this or that. The process of actuation by which a "potency to exist" becomes what is "capable of existing" involves also a process of particularising and individuation. In Sergeant's context a created substance or thing (Ens) is "capable of existing". Since existence is not a part of its essence it may or may not exist; existence is a gift to it from God (Solid Philosophy Asserted, prelim., 2, section 22, p. 38; Prelim., 5, 4, pp. 90-91). "Form" is already involved in such an Ens or thing. On the other hand, what has a "potency to exist" is still to be acted upon by "form" - it is still indeterminate or indifferent. Form is taken to be the principle of actuation and individuation; individuation implies actuation as the following passage indicates:

> To show literally what's meant by this saying, that Matter and Form constitute the compleat Ens, or make the Subject capable of Existing, I discourse thus. Nothing as 'tis Indeterminate or Common to more can be ultimately capable to be: v. g, neither a Man in Common, nor a Horse in Common, can possibly exist, but This Man or This Horse: whatever therefore does determin the Potentiality, or Indifferency of the Subject as it is Matter, or, which is the same, a Power to be of such or such a Nature, (which is what we call to have such a Form in it) does make it This or That, and, consequently, disposes it for Existence. Wherefore since the particular Complexion of the several Modes and Accidents do determin the Power or Matter, so as to make it Distinct from all others, it does by Consequence determin it to be This, and, so, makes it capable of Existing; that is an Ens or Thing.

(Solid Philosophy Asserted, Preliminary 5, section 7, pp. 92-93; Cf. Method to Science, p. 380)

The "form" which actuates and individuates a thing is intrinsic to it but is not to be confused with its physical constitution. He makes this explicit when he describes Formal Composition. He also calls the latter "Metaphysical Composition" and differentiates it from physical and artificial composition imposed extrinsically on a thing (Solid Philosophy Asserted, Prelim., 5, section 9, p. 95). The compounding of many ingredients into a pill by an Apothecary or fixing diverse materials into a house by a Carpenter are acts of Physical Composition extrinsically imposed but do not qualify to be Metaphysical or Formal Composition (Ibid., p. 95). He grants that a thing is composed of minute particles which are not further divisible, but, with the Peripatetics, he claims that there is also a "formal composition" which is intrinsic and non-physical. Such a "composition", according to him,

> is no more, but that there is found in the Thing (though Physically and Entitatively one, and uncompounded) what grounds those distinct Notions. (Ibid., p. 95).

Such a "formal composition" provides the ontological basis for having diverse notions of the same thing and for considering them all as equally "real". For Sergeant diverse notions are the "formal composites" of a physically "uncompounded" thing "spiritually" or "intellectually existing in our Understanding". Formal Mutation is the change of a thing, according to its form, as that of wood into fire (Method to

Science, Appendix, p. 379). Such a transformation provides the ontological basis for our changing our notions of a thing. He claims that Formal Composition and Mutation may be "essential" or "accidental". This is related to his distinction between "substantial" and "accidental" forms. This distinction in turn is made on the assumption that "thing" or "substance" is "complexion" or "composition" of separable and inseparable properties" (Ibid., Prelim., 5, 12, pp. 98-9).

According to him, the "substantial form" of a thing is intrinsic to the thing and does not have a separate existence as a distinct entity (Solid Philosophy Asserted, Prelim., 5, Corollary to Section 8, p. 95). It is that "complexion of properties" of a thing which is "found in the first instance of its being". It is inseparable from the thing and constitutes its very essence and hence "Essential Form" is another name for it. By virtue of the "substantial" or "essential" form, a thing is said to have a specific nature or is considered as being of a certain kind (Ibid., pp. 93-4). This confirms what he says in Method to Science - that "Essence is the Form that constitutes an Ens or makes it Formally a Thing" (Method to Science, Appendix, p. 379).

The Accidental Form of a thing is also a "complexion of properties". But, these properties are not essential to the thing in that they are not found in it at its first instance of existence; they are subsequently accrued and are separable from the thing. But, both Substantial and Accidental Forms are intrinsic to the thing (Solid

Philosophy Asserted, Prelim., 5, section 12, pp. 98-9).

Substantial Form is the most fundamental principle of Individuation of a thing (Ibid., section 9, p. 96), but the Accidental Forms also help subsequently in individuating and determining a thing to be a specific "this" or "that" distinct from the other members of its kind; to be "wood" of a specific colour, hardness, weight, etc. (Method to Science, Appendix, p. 380). He states:

> Wherefore the complexion of those Accidents which constitutes them of such or such a Nature and nothing else, is (as the Schools phrased it) their Substantial or Essential Form. And, if we go yet lower, there will need still a greater complexion, or a Decomposition of Accidents for the same reason; and so still more till we come to an Individual Thing; which only in proper is a Thing, because it only is Capable of Existing.
> (Ibid.)

Both the Substantial and Accidental Forms are involved in the process of individuation and thereby in that of actuation.[12] For Sergeant individuation implies actuation.

Sergeant usually takes "nature of thing" to be the "essential" or "substantial" "complexion of properties", which constitutes a thing from its first instance and is inseparable from it. Definitions express such "natures" and, when Notions are taken as "meanings", they usually stand for the "essential" natures of things.[13] But in some places he seems to include the "complexion of accidental properties" in the "nature of a thing". According to him, the "roundness of a

pillar" is accidental to the pillar but may be taken as a "part of its nature" (Faith Vindicated from Possibility of Falsehood, pp. 123-4). Since he considers "accidental" properties as also being intrinsic to the thing, though not essential to it, he thinks that he is justified in taking these properties too as belonging to their "nature" (Ibid., p. 124). Just as he takes "thing" in a stricter and looser sense (Solid Philosophy Asserted, Prelim., 2, section 5, p. 19), he takes "nature of thing" in a stricter and a looser sense. As "thing" in the stricter sense signifies "substance", the "nature of thing" in the stricter sense stands for "substantial or essential form". Just as "thing" in the looser sense includes Accidents and Modes of things, the "nature of thing" in the looser sense stands for "Accidental Properties".

There is also a Platonic-Augustinian element in Sergeant's characterization of Notion. One of the characteristics of Notion is what he calls their Metaphysical Verity; that things are what they are. Identical Propositions express this metaphysical verity and we will discuss this aspect in Chapter IV. Here it is sufficient for us to note that he finds it proper to associate "metaphysical verity", which properly belongs to ontological entities, with Notions, since he takes them to be "things themselves"; even though Notions are "present to the mind" they retain their ontologicity. It is significant to note that Sergeant connects the "metaphysical verity" of Notions with the "Divine Understanding".[14] According to Sergeant, Notions partake

in this metaphysical verity by being in the "Divine Understanding" from which they are said to flow; they are taken to be unchangeable (Method to Science, Book I, Lesson 1, p. 5; Solid Philosophy Asserted, The Epistle Dedicatory, p. 6; Prelim., 2, section 24, pp. 40-41). He also acknowledges that he would accept Locke's "Ideas" if they are interpreted as "natures or essences of things having their source in the Divine Understanding" (Solid Philosophy Asserted, Prelim., 2, section 24, pp. 40-41). In Sergeant's theory we detect Aristotelian, Platonic, and Thomistic features, which indicate his resort to metaphysical modes of explanations. They help him in his basic contention that Notions as "objects" of knowledge have to retain the "ontologicity" of things, in order to meet the "reality" requirement. For him,

> We have no knowledge of a Nothing formally as such; therefore, all our knowledge must be either of Res or Modus Rei; or (as the Schools express it) of Substances and Accidents; for other Notions we cannot have.
> (Ibid., Reflexion 13, section 3, p. 239)

Since "things" only can exist independently of the Mind, and since a "nothing" is "not a thing", a "nothing" cannot exist independently of the Mind. For him, to know a thing "formally" is to know it as it exists independently of the knowing Mind.[15] A "nothing", since it cannot exist independently of the Mind, cannot be known "formally".

When Sergeant claims that Notion is "thing itself" he means the form of the "thing" and not the "thing" taken literally. This "form"

may be Substantial or Accidental or both as in "Total Form" (Solid Philosophy Asserted, Prelim., 5, section 5, p. 91). Since "form" by definition is for Sergeant "intrinsic" to the "thing", Notion whether it be Substantial or Accidental Form is still the "thing itself", and not something other than it. His resort to the characterization of Notion in terms of "form" enables him to claim that Notion fulfills the "reality" requirement, which he associates with the "object" of knowledge.

As early as 1671, in Faith Vindicated from Possibility of Falsehood he writes thus:

> We will begin our explication with noting that our Understanding has two Operations (omitting the third, Discourse as not pertinent to our purpose) viz. Simple Apprehension and Judgement. The result or effect of the first is Notion concerning which Philosophers discuss thus: that when I apprehend what is meant by the word, Man or have the Notion in me, Man's Nature is both in the Thing and in Conception; for 'tis impossible (my Conception being an Immanent Act) I should conceive what is not in my Conception, or that my Act of Conceiving should be intrinsically determined to be this but by what is intrinsical or in it. What is that meant by Word (Man) has two states: one in the Thing as existent out of me; the other in the Thing as existent in me as the self-same figure is in the Seal and the Wax. Yet neither of these diverse states enters into the Notion; I have of Man, but merely what is what to the Definition; for both Man, taken as in himself is a Rational Creature; and also what I conceive or mean by the Word (Man) is a Rational Creature, though the Words (Rational Creature) express neither the being in my Mind nor out of it but abstract from either. By this Means my Mind conceiving Man gains an Unity of Form with the Thing out of it; or Conformity to it;...
> (Answer to Objection II: pp. 119-21)

This passage is in response to an objection that when he describes Notion as the "thing itself" he confounds "objective" with "formal existence". In the Seventeenth Century context, "formal existence" means the existence of a thing as it is unrelated to the Mind which may think about it. "Objective existence" is the existence of a thing as it is found in the mind, which thinks about it.[16] In the above passage "Rational creature" as the Notion of Man, is compared to the "figure" in the Seal and Wax. This comparison is indicative of his general interpretative strategy to characterize notions in terms of "form". He claims that such a characterization does not confuse "formal" with "objective" existence. Just as "figure" in the Seal is the same as the one in the Wax, "Rational Creature" is the same in the Man as he exists independently of the mind which thinks about him (i.e. as he exists "formally"), and in him as he exists in the mind, when it is involved in thinking about him (i.e. as he exists "objectively"). Sergeant acknowledges that these two modes of existence ("formal" and "objective") are distinct, but what he emphasizes is that the Notion is still the "thing itself". The rationale behind such a claim is his doctrine that modes of existence are extrinsic to Notion as they are to "Form". His characterization of Notion as "meaning" too highlights such a view. He claims that since Notions are "meanings", just as the latter "do not include" existence, Notions are indifferent to the modes of existence (Solid Philosophy Asserted,

Prelim., 2, section 22, p. 39).

In the passage quoted above Sergeant also states that "Man" must be "in my conception" for conceiving him. Here he confirms the necessity of the "presence to the mind" requirement which we have examined in 3:2. But, for this requirement to be met, "Man" need not be physically transferred into the mind that conceives him. What is intrinsic to him is transferred. We have already noted that Sergeant regards "form" (whether accidental or essential) to be intrinsic to the thing. We have also noted that the "formal composition" of a thing is not physical in character. In the passage quoted above "Rational Creature" may be taken as the "essential formal composition" (or "substantial form") of the thing called "Man". When one has the notion of him (as "Rational Creature"), since what is intrinsic to him, (in this case what is essentially intrinsic) is "present to the mind", it may be claimed that one conceives "Man" himself.

When "Man" is transferred to the Mind that conceives him, "Rational Creature" becomes the contents of the act of conception; it becomes a "conception" or "considerability" in the mind. But, it does not thereby become subjective. It does not become a mere mental product dependent on the Mind for its character and existence. Although now, as "contents", it is mental in its mode of existence, it is still the "nature" of Man or "Man itself". The losing of the corporeal mode of existence and the gaining of the spiritual mode of existence

does not in any manner change "Rational Creature". It being "form" does not get affected by the change in the mode of existence, just as the "figure" in the seal does not change when it gets imprinted on the wax. In Method to Science Sergeant gives a similar analogy, which also suggests that he takes Notion as the form of the thing known. He claims that Notions are "Prints" or "stamps" which the "Understanding receives" when it is involved in the act of knowing. These "Prints" or "stamps" are the "very natures" of the things and in his view do not duplicate the things. (Method to Science, Book I, lesson 1, p. 2).

In the act of conceiving, there is a "unity" that is effected between what is conceived as it is outside the Mind and the Mind that conceives it, and this for Sergeant, as the passage quoted above indicates, is a "unity of form".

Sergeant's presentation of the act of knowing in terms of "unity of form" falls within the Aristotelian-Thomistic theory of cognition, according to which the cognitive agent becomes what is cognised. [17] Sergeant states:

> Wherefore, when the Soul knows any thing in Nature she must be that thing as it is Another thing distinct from her; so that in a word, to know is Esse aluid ut aluid.....
> (Solid Philosophy Asserted, Prelim., 2, section 26, p. 43)

In the Aristotelian context such an identity is not corporeal or literal but one that is made possible through the "form" of the thing. [18]

Sergeant too advocates such a manner of identification, when he claims that there is a "unity of form" between the knower and the known in the act of knowing. This form, which "actuates the Knowing Power" and determines it to be that which it knows (Solid Philosophy Asserted, Prelim., 2, section 2, pp. 26-67), is not a mere mental construct of the knower but what is intrinsic to the "thing".

Underlying the claim, that the cognitive agent directly cognizes the thing by virtue of the reception of its form is the Aristotelian tenet that "form" is what makes a thing to be what it is - the constitutive (or intrinsic) individuating and actuating principle of a thing.[19] In his explication of "Formal Composition" Sergeant reveals his affiliation with the above view. The "formal composition" of a thing, whether "substantial" or "accidental" individuates and determines a thing. "Substantial Form" makes a thing to have a certain nature or to be a certain kind of a thing as a metal, animal or plant. Accidental Form determines the thing further so that it becomes a specific thing different from the other members of its kind.[20] But, since both these kinds of form are intrinsic to the thing, when there is "unity of form" between the cognitive agent and what is cognised, the "thing itself" is cognised whether the form be "Substantial" or "Accidental".

Sergeant acknowledges his adoption of Aristotle's theory of cognition, when he states:

> Now, if our Soul, when it knows any Thing has the very Nature of that Thing in it, and therefore is intellectually that thing (for to be such a thing is nothing but to have the Nature of such a thing in it) it follows that, considering her precisely as knowing a Stone, a Tree, Fire, &c she is that Stone, Tree and Fire intellectually, whence we may discover how Rational, and how necessary and important a truth that saying of Aristotle is, that Anima intelligendo fit Omnia. In a word, 'tis due to the Nature of our Soul, as it is Spiritual, and to the Eminency of her Essence, to comprehend after the manner the whole Inferiour Nature of Bodies, (and much more) or to be an Intellectual World as soon as she is her self, and depur'd form her dull Material Compart, as is shown in my Method. (Solid Philosophy Asserted, Prelim., 2, section 23, p. 39; Cf. Method to Science, Book III, Lesson 4, p. 14)

The consideration of Notion as "form" also enables it to meet the "like mind" requirement. Here also Sergeant's view falls within the Aristotelian-Thomistic contention that in any act of cognition the "form" of what is cognised is received without "matter".[21] When Sergeant repeatedly emphasizes that Notions are "things themselves" "spiritually or intellectually existing in our Understanding", he affirms his belief that the "object" of knowledge has to be received by the Mind "under conditions of immateriality". When he attempts to drain off all corporeality from the "objects" of knowledge (Notions) and present them as "meanings" or "spiritual objects" or "conceptions" he is trying to express the view that "form" alone and not matter enters the Mind in cognition (Solid Philosophy Asserted, Preface, sections 20-25, pp. 27-33).[22] He calls Notions "Meanings",

> .. because they affect the Mind, which only can intend or mean; or else, in relation to the Words whose Meanings they are.
> (Method to Science, Book I, Lesson 1, pp. 3-4)

In relation to things Notions are the very "things themselves". He states:

> Now the Meanings of Words being the same with Notions, which as has been demonstrated, are the Things themselves...
> (Solid Philosophy Asserted, Reflexion 17, section 17, p. 388)

"Things" are able to be "present to the mind" since they are "incorporeal" and "mind-like" when they are so present; they are meanings of words.

Sergeant's criticism of Locke's Idea also reveals the assumption that what is known has to be like-mind. Sergeant states that, if Ideas are,

> Corporeal, they cannot be in the Mind; as Accidents or Modes of it; the Mind being of a Spiritual Nature.
> (Solid Philosophy Asserted, Prelim., First, section 13, p. 18)

In the same Preliminary, Sergeant criticizes Locke for using the term "Idea" without first distinguishing it from "Phantasm", which for Sergeant is the "immediate object" of Fancy, and is sensible in nature; it is merely a material representation (Ibid.). Hence, it cannot be "present to the Understanding" as its "immediate object" (Ibid., section 17, pp. 22-23). The corollary which Sergeant gives at the end of this Preliminary reveals his conviction - that the "object" of knowledge

must be "present to the Mind" and be "like it". He states:

> From this whole Discourse collected into a Summary, I deduce this Corollary, that, since the word IDEA, according to this Author, signifies a Resemblance, Similitude or Image, and, consequently is indifferent to Corporeal and Spiritual Resemblances, that is, to what's in the Mind, and what's only in the Fancy; and that, only that which is in the Mind can be the proper Material of all our Knowledges; hence that word is most improper to be used in Philosophy, which is the Study of Knowledge. Also, that as taken thus undistinguisht, it does in another regard highly prejudice all true Knowledge of Things or Science; in regard it confounds Corporeal and Spiritual Natures, which contain the two General Objects of all our Knowledges; and are besides, most vastly disparate. (Solid Philosophy Asserted, Prelim., 1, Corollary, p. 23)

What is cognized by the Mind has to be "like the Mind" (i.e. be spiritual in nature). In this sense it is the "object" of the Mind in its act of knowing. At the same time this "object" is the same as the "object external to the Mind" and the latter may be corporeal. For Sergeant, "Notion" as "form" can be identical with "thing" and at the same time be "like the mind" and be "present to the Mind". [23]

Conclusion:

For Sergeant, when Notions are interpreted in terms of "form", they are able to fulfill the requirements he stipulates for a legitimate "object" of knowledge - the "reality", the "presence of the mind" and the "like mind" requirements. As Yolton observes, for Sergeant the Notion is the "epistemological object" in the sense that it is the

"ontological object translated into intelligible terms".[24] For Sergeant, the "ontological object" (i.e. the "thing" taken in the accommodative sense) has to be "present to the mind" and be "like mind" for it to be translated into intelligible terms. In his view, when Notions are interpreted as "forms" they are able to retain their "thingship" (Solid Philosophy Asserted, Reflexion 13, p. 239) or ontologicity when they are translated into intelligible terms. It is the ontological feature of the "epistemological object" that becomes the main point of controversy between him and Locke.

3:4 Locke's attack:

Locke's anti-formalism at the level of Simple Apprehension is revealed in the manner he characterizes Idea in his analysis of the method to knowledge.

Sergeant observes that Locke too regards Idea "objectively" (Cf. Solid Philosophy Asserted, Prelim., 11, section 2, pp. 26-27). But, he criticizes Locke for not characterizing it in the same way as Sergeant characterizes Notion in its role as "object" of knowledge. An examination of some aspects of Locke's characterization of Idea indicates the undermining effect such a characterization has on the position upheld by Sergeant. We will also understand why Sergeant was so critical in his response to Locke's doctrine of ideas.

Locke usually characterizes Idea as "object" or "immediate

object". The following features stand out in his characterization:

1. Idea as "object" is distinguishable but not separable from the "act".
2. Idea as "object" is not identified with the thing but instead taken as its sign.
3. Idea as "object" is regarded as being "present to the mind" but such a "presence" does not have any ontological overtones.
4. Idea as "object" is described as mind-like but it is not a mental ontological entity.

These features highlight a characterization of Idea, which goes against a cluster of views which Sergeant's presentation of Notion exemplifies. As early as 1705, an anonymous writer wrote A Philosophick Essay concerning Ideas, which indicates how controversial the topic of Ideas was during Locke's day. He states:

> There is hardly any Topick we shall meet with that the Learned have differed more about than this of Ideas; like Men blundering in the dark, they feel after them to find them; some catch at them under one Appearance, some under another; some make them to be Material; others Spiritual; some will have them to be Effluvia from the Bodies they Represent, others totally Distinct Essences; some hold them to be Modes, other Substances; some assert them All to be Innate, others None; so that one would think there must needs be a very great Intricacy in that which has given Rise, not only to such a Variety, but also such a Contradiction of Opinions. [25]

Locke's doctrine of Ideas as "objects" added fuel to the controversy that was raging.

Let us examine the four features in greater detail and determine how they go against the cluster of views which Sergeant represents.

Act and Object

In this section we will examine the manner in which Locke relates "object" and "act", when he characterizes Idea as "object" or "immediate object".

In the Introductory Chapter of the Essay Locke writes:

> But, before I proceed on to what I have thought on this Subject, I must here in the Entrance beg pardon of my Reader, for the frequent use of the word Idea, which he will find in the following Treatise. It being that Term, which, I think, serves best to stand for whatsoever is the Object of the Understanding when a Man thinks, I have used it to express whatever is meant by Phantasm, Notion, Species, or whatever it is, which the Mind can be employed about in thinking; and I could not avoid frequently using it.
> (I:I:8)

For Locke, thinking is an act of the Mind (II:I:10; II:XIV:4; II:IX:10). He usually uses "thinking" in an accommodative sense to cover acts such as Reasoning, Perceiving, Remembering, Contemplating, and even Reverie and Dreaming (II:XIX:1-4). He calls them "modes of thinking" (Ibid.). Thinking is a conscious activity even though there

may be degrees of consciousness (II:I:1; II:I:10, 12, 19). Even Dreaming qualifies to be a mode of thinking because, unlike Deep Sleep, we are semi-conscious when we dream (II:XIX:1). Thinking becomes more complex, involving a greater activity of the Mind, in propositioning (joining or separating ideas) or in reasoning (perceiving the connection of ideas through other intermediate idea or ideas), but at the initial level "thinking is passive (II:XIX:1). At this level, "thinking" involves apprehending or what was then popularly called, "Simple Apprehension". Perception may be also another name for it (II:XIX: 1, 15). When Locke describes "Idea" as the "object" of the "Understanding" in thinking, he means by the latter "Simple Apprehension". We shall note later that his use of "object" may be reasonably extended to cover the "contents" of acts where the connections of ideas are perceived as in propositioning and reasoning. At this juncture it is sufficient to note that Locke takes Idea as the "object" of the initial act of thinking commonly known as "Simple Apprehension".

The term "object" when taken as "what is present to the mind in any of its acts" may be also described as the contents of an act. When Locke describes Ideas as those which the "Mind is employed about whilst thinking" (II:I:1; I:I:3 & 8; Conduct of the Understanding, section 5; Works, Vol. III, p. 216; section 9, p. 228) he is merely stating in another way that Ideas are "objects" of the Mind in "thinking".

He sometimes describes Ideas as "Immediate Objects". In

some contexts he is prepared to call things which operate on our senses "objects" (II:VIII:2; Marginal Comment, No. 29, p. 137). Usually he uses adjectives like "external", "sensible", "visible", "corporeal", "remote", to identify such "Objects" (II:I:2 & 3, 4 & 5; II: VIII:4; Conduct of the Understanding, section 9, Works, Vol. III, p. 227; An examination of P. Malebranche..., Works, Vol. IX, section 14, p. 218). Hence, to differentiate Ideas from such "objects" he usually employs the term, "Immediate Object".

Let me cite some places where he describes Ideas as "Immediate Objects". In the Essay he states:

> Whatsoever the Mind perceives in it self, or is the immediate object of Perception, Thought or Understanding, that I call Idea.
> (II:VIII:8)

He further states:

> Since the Mind, in all its thoughts and reasonings, hath no other immediate object but its own Ideas, which it alone does or can contemplate, it is evident, that our knowledge is only conversant about them.
> (IV:I:1)

He makes it clear to Stillingfleet that Ideas signify "immediate objects" when he replies to the Bishop thus:

> But since the Word Idea has the ill luck to be so constantly opposed by your lordship to reason, permit me, if you please, instead of it, to put what I mean by it, viz. the immediate objects of the mind in thinking (for that is it which I would signify by the word ideas)....
> (Locke's Second Reply to the Bishop of Worcester, May 4, 1698; Works, Vol. IV, p. 233)

In several other places in his correspondence with Stillingfleet he mentions Ideas as "Immediate Objects" (Locke's First Reply to the Bishop of Worcester, June 29, 1697, Works, Vol. IV, pp. 132-33, 134, 144 & 145; Locke's Second Reply, pp. 233, 357, 362). He even claims that "Ideas are nothing but the Immediate Objects of our Minds in thinking" (Ibid.). When responding to Norris, Locke informs that he has "no design to consider them (Ideas) any further than as Immediate Objects of Perception".[26] When Sergeant contrasts his method to knowledge with that of the Ideists and Locke in particular, and alleges that they ground their method on Ideas which are for him mere "Fancies" or "Aiery Bubbles", Locke marginally comments thus:

> That is as Mr Locke expresses it is the Immediate Object of the Mind in thinking.
> (Marginal Comment No. 3, Preface, p. 8)

Locke acknowledges that he grounds his method to knowledge on Ideas, taken as "Immediate Objects". Here the marginal comment serves to confirm what he had already stated in the Essay.

Locke needed a comprehensive or neutral term to signify the "object" or "immediate object" of any act of Simple Apprehension and found "Idea" most suitable.[27] He informed Stillingfleet:

> I would for the satisfaction of your lordship, change the term of Idea for a better, if your lordship could help me to it. For that, Notion will not so well stand for every immediate object of the mind in thinking, as Idea does, I have (as I guess) somewhere given a reason in my book; by showing that

> the term Notion is more peculiarly appropriated to a certain sort of those objects, which I call mixed-modes: and, I think, it would not sound altogether so well, to say the Notion of red and the notion of a horse, as the idea of red, and the idea of a horse. But, if any one thinks it well, I contend not; for I have no fondness for, nor antipathy to, any particular sounds; nor do I think there is any spell or fascination in any of them.
> (Locke's reply to the Bishop of Worcester's Answer, London, 29th June, 1697, Works, Vol. IV, pp. 132-133)

Locke uses Notions to describe Mixed-Modes (II:XXII:2), which are for him Complex Ideas consisting of several Simple Ideas of different kinds (Ibid.). Since he takes "thinking" in an accommodative sense, Ideas as "objects" are for him more appropriate than Notions, because the former are more comprehensive than the latter.

When we take into consideration the manner in which the term "object" was generally understood in 17th Century philosophical circles, Locke's characterization of Idea as "object" and "immediate object" may be taken as signifying the "cognitive contents" of an act of the Mind - as what is present to the Mind in any of its acts. In a context where the acts of thinking including knowing were taken to be intentional in character, acts were considered to be dependent on the "content". In Sergeant's terms, the "content" determines and actuates the potentiality of the "Knowing Power" and specifies its acts. Even though he accepted the dependency of the act on the content he did not think that the content should be dependent on the act. According

to him, such a dependency leads to Subjectivism and the lack of "solidity" in knowledge; the "object" of knowledge becomes a mere mental construct dependent on the Mind and its acts. Here, he resorts to "form" to characterize the "object" of knowledge as the "thing itself" "spiritually existing in our Understanding". This, according to him, makes the "object" of knowledge independent of the act of knowing and thereby guarantees the grounding necessary for knowledge.

But Locke goes further and makes it a point to emphasize that there is a two-way dependency between act and content. This does not mean that he does not intend his method to knowledge to be well-grounded nor Idea as "object" of knowledge to meet the "reality requirement". He did not resort to "form" but rather to the "sign" theory. We shall have occasion to discuss his Theory of Signs later in this chapter. Here we have to note how he attempts to show that there is a two-way dependency between act and content; how he characterizes Idea as "object" (content) that is inseparable from the act.

Locke not only regards acts of thinking as having contents (II: I:1; I:I:3 & 8; Conduct of the Understanding, sections 5 & 9, Works, Vol. IV, pp. 216 & 228) but also thinks that it is impossible to deal with "thinking" without thereby considering its "contents" which is for him Idea described as "immediate object" (Locke's Reply to the Bishop of Worcester, London, June 29, 1697, Works, Vol. IV, p. 134). The

reason for such an impossibility is traced to the dependency of the act on the content of "thinking". He writes to Stillingfleet thus:

> But you will say, that Descartes built his system of philosophy upon Ideas; and so I say does your lordship too, and every one else as much as he, that has any system of that or any other part of knowledge. For Ideas are nothing but the immediate objects of our minds in thinking; and your lordship, I conclude, in building your system of any part of knowledge thinks on something: and therefore you can no more build, or have any system of knowledge without Ideas, than you can think without some immediate objects of thinking. (Locke's Second Reply to the Bishop of Worcester, May 4, 1698, Works, Vol. IV, p. 362)

He makes it quite clear to the Bishop that one cannot think without "Immediate Objects", which are the contents (Ibid., pp. 233, 357).

According to him not only the act needs an "object" but also the "object" needs an act.

In his case against Innate Principles, Locke states:

> ...it seeming to me near a contradiction, to say, that there are Truths imprinted on the Soul, which it perceives or Understands not; imprinting, if it signify any thing, being nothing else, but the making certain Truths to be perceived. For to imprint anything in the Mind without the Mind's perceiving it, seems to me hardly intelligible...
> (I:II:5)

With regard to Notions he makes a similar emphasis:

> To say a Notion is imprinted on the Mind, and yet at the same time to say that the mind is ignorant of it, and never yet took notice of it, is to make this impression nothing... So that to be in the Understanding, and, not to be understood; to be in the

> Mind, and, never to be perceived, is all one, as to say, anything is, and is not, in the Mind or Understanding.
> (I:II:5)

As noted earlier, "Idea" for Locke signifies "whatever is in the Mind when a Man thinks". The above claim then applies to Ideas. Ideas as "objects" cannot exist unperceived.

The dependency of the act on the "object" is also made explicit in Locke's discussion of Memory. In his first edition of the Essay, Locke described Ideas as "being laid away out of sight in a Repository to be later revived". But, perhaps as a result of Norris's criticism and particularly in response to his question as to what happens to Ideas when they are laid aside in the "Repository",[28] Locke adds the following section in the second edition of the Essay:

> But our Ideas being nothing, but actual Perceptions in the Mind, which cease to be anything, when there is no perception of them, this laying up of our Ideas in the Repository of the Memory has a Power, in many cases, to revive Perceptions, which it has once had, with this additional Perception annexed to them, that it has had them before. And in this sense it is, that our Ideas are said to be in our Memories, when indeed, they are actually no where, but only there is an ability in the Mind, when it will, to revive them again; and as it were paint them anew on itself, though some with more, some with less difficulty; some more lively and others more obscurely.
> (II:X:2)

Idea as an "unperceived entity" unlike a thing, does not exist. Its "existence" in the "repository of our Memory" has no ontological

overtones, since the "idea" that is "laid up" is not a thing. It may be helpful to introduce here Sergeant's query about Locke's account of Memory.[29] Sergeant comments that the "laying up ideas in the Repository of his Memory, signifies no more, but that the Mind has in many Cases a Power to Revive Perceptions, with a Connotate annext, of having had them before"[30] is certainly,

> peculiar to himself, and contrary to the sentiments of all mankind; who..... would I believe, unanimously declare that by laying up a thing in Memory, they meant, (as the words naturally impart) the retaining something which has its being yet within us, and may be brought into play again upon occasion. Can the Memory be said to retain what is not? Or can there be a repository of nothing?
> (Solid Philosophy Asserted, Reflexion 5, section 1, p. 143)

In both Sergeant's and Norris's query there is an underlying presupposition that the "object" of Memory has to be a "thing" or having the quality of "thingship". When not perceived it has to be retained some where in the manner a "thing" can be, when we do not think about it or be aware of it. If not such an "object" cannot be revived. Sergeant's presupposition becomes manifest, when he goes on to state:

> I must not omit here to remark, that when Mr Locke says, that Ideas fade in the Memory; or, (as he ingeniously expresses it) that (the Pictures drawn in our Minds are laid in fading colours) he most evidently discovers that by Ideas here he means Spiritual Objects of our Understandings, Notions. For there is no doubt that Phantasms, they being Imperceptible Particles, of the same Nature with the

> Corporeal Agents whence they are sent, do follow, (and that very easily) the Fate of their Originals; and are liable to be defaced, altered or corrupted, as these are; Whereas it is impossible, that Ideas or Notions, which have a Spiritual Being in our Mind, should be liable to any such Decay, Corruption or Mutation..... The Corporeal Instruments which brought our Notions thither may perish; but when they are once in her they are as Immutable and Immortal as her self.
> (Solid Philosophy Asserted, Reflexion 5, section 2, p. 161)

This passage clearly indicates that in Sergeant's view Notions, even though not innate, have an ontological status. They are spiritual beings or entities which can exist independent of the mind's thought about or awareness of them. As we have already noted (3:2 & 3), Sergeant considers Notion as the "form" of the thing, which is present in the spiritual part of the "seat of knowledge" as a result of the impact of the effluviums on its corporeal part. As the passage quoted above indicates, the corporeal causative factors of Notions may decay but, Notion as "spiritual being" does not. It is in light of such a claim that Locke marginally comments thus:

> Were Ideas as he makes his Notions (63-76) adventitious effluviums lodged in your brains, we might be said to have these Ideas when we do not perceive them.
> (Marginal Comment, No. 27. p. 121)

The ontological feature of the Notion (i.e. its capacity to exist independently of our thoughts about or awareness of it) becomes manifest in Sergeant's criticism of Locke's account of Memory.

The question as to what happens to the Idea when it is forgotten and then recollected looms large in a context where Ideas are taken to be "real" (ontological entities). In a context where Ideas are not so taken but are regarded as merely "cognitive contents" dependent on the act of cognition, the question itself appears improper. When they are not perceived there is no sense in which we could be concerned about their existence. The Anonymous writer on on Ideas, whom we have already cited observes thus:

> Now if it should be askt here, What becomes of those Ideas when they go out of the mind? I must confess it would be a proper Question amongst those who hold them to be Real Beings; for there seems a Necessity that there should be some Repository for them in some Mind, and considering the Infinite Number of Ideas that may be formed of all things that are; and are possible to be, it seems impossible that there should be any proper and suitable Receptory for them but in an Infinite Mind, which is God; and those Ingenious Persons, who advance this Notion, do always suppose them to have their Residence there, and we come to the Knowledge of them only so far as God is pleased to Exhibit them to us.
>
> But this Question can be nowise proper for those who make Thought and Idea to be the same; for according to this Notion they are not Real Beings, but only Modifications of the Mind, or so many several Modes of Thinking upon the several Objects presented to the Mind; or if you please, it is the Mind it self operating after such and such Manner.....
>
> ... 'Tis plain they are lost and vanisht; and tho' the Mind has a Power of Reflection, that is, of Proceeding from the Knowledge of one thing to the Knowledge of another, till it comes to the same Objects, and so Recollects the same Thoughts and Ideas again,

> yet 'tis evident these Ideas exist no longer than the Thoughts do, and when those Thoughts cease, the Ideas by consequence are lost and are for the present as if they had never been, that is, they have no Being.[31]

Here the Anonymous writer understands by "thoughts" the acts of thinking.[32] In his emphasis that Ideas cease when there are no "thoughts" about them he expresses Locke's sentiments. Such an explanation of "forgotten ideas" will not satisfy philosophers like Sergeant. I do not claim that Locke has solved the problem of Memory. What is to be noted here is that Locke's discussion of Memory indicates his emphasis that Idea as "object" or "content" is dependent on the act. The Anonymous writer points out that, when "Idea" and "thought" (act of thinking) are taken to be interdependent, two corollaries follow:

1. That there cannot be "thought" without some "idea".
2. That there can be no Idea actually in the Mind but what is actually thought.[33]

The Anonymous writer associates Locke with such a view.[34] As we shall see in due course, Locke interprets the "presence of the idea" in the mind during an act of cognition cognitively, without any ontological overtones.

Locke's characterization of Idea in terms of "Perception" also confirms his basic contention that "Idea" as "object" is inseparable from the "act".

"Perception" is Locke's term for awareness, particularly as the first act of the Mind (II;IX:1, 2-4, 15). It is taken to be the

> First step and degree towards Knowledge, and the inlet of all the materials of it... Perception is the first Operation of all our intellectual faculties, and the inlet of all Knowledge into our Minds... (II:IX:15)

The "object" of Perception is the Idea. In some places "perception" taken as "perceptual act" is considered as correlative to "idea" (II: IX:1, 2-4, 15).

In the chapter on "Perception" after describing "Perception" as an act or operation of the Mind (II:IX:1-4) he concludes thus:

> A sufficient impulse there may be on the Organ; but it not reaching the observation of the Mind, there follows no perception: And though the Motion, that uses to produce the Idea of Sound, be made in the Ear, yet no sound is heard. Want of Sensation in this case, is not through any defect in the Organ, or that the Man's Ears are less effected, than at other times, when he does hear: but that which uses to produce the Idea, though conveyed in by the usual Organ, not being taken notice of in the Understanding, and so imprinting no Idea on the Mind, there follows no Sensation. So that where-ever there is Sense, or Perception, there some Idea is actually produced, and present in the Understanding. (II:IX:4)

According to this comment, whenever there is a "perceptual act" there has to be some Idea as its "object". This correlation is further confirmed when he says:

> To ask, at what time a Man has first any Ideas, is to ask, when he begins to perceive; having Ideas and the Perception being the same thing... (II:I:9)

Locke wants us to notice a child from its birth. He thinks that we will find "as the Mind by the senses comes more and more to be furnished by Ideas, it comes to be more and more awake; thinks more, the more it has matter to think on" (II:I:22 & 23).

Locke thinks that the Mind is passive when it perceives (II:IX:1). But that does not mean that when the Mind perceives, the Idea is in the Mind without the latter being aware of the former. Such a possibility entails that some Ideas are separable from the acts and exist independently. This would in turn strengthen the case for innate Ideas, which he challenges. For him, in "perception" the Mind is passive but such a "passivity" is also a state of awareness; in such a state the Mind cannot avoid perceiving what is perceives (II:IX:1; II:I:25; II:XII:1).

For Locke, being aware and having ideas are simultaneous conditions;[35] when there is a perceptual act (i.e. when the Mind is aware) the Mind has an Idea and vice versa. When he argues that "whatever Idea was never perceived by the Mind, was never in the Mind" he emphasizes in negative terms his basic contention that Idea as "contents" is correlative to the Perceptual act (I:IV:20).

In certain other passages Locke identifies "Perceptions" with

"Ideas" or uses them interchangeably. He states that "our Ideas are nothing but Actual Perceptions in the Mind, which cease to be any thing, when there is no perception of them" (II:X:2). In his An Examination of P. Malebranche's Opinion of seeing all Things in God, he tells Malebranche:

> One who thinks ideas are nothing but perceptions of the mind annexed to certain motions of the body by the will of God, who hath ordered such perceptions always to accompany such motions, though we know not how they are produced; does in effect conceive those ideas or perceptions to be only passions of the mind, when produced in it, whether we will or no, by external objects.
> (Section 14, Works, Vol. IX, p. 218)

The use of "perceptions" interchangeably with or as alternative to "ideas" may be found both in the Essay and in his response to Malebranche (I:IV:21; II:I:3, 5; II:VIII:7 & 8, 24; IV:IV:4; II:XXI:14; An Examination of Malebranche, sections 8, 15, 18, 42, 50).

Locke identifies "perceptions" with "ideas" in a context where Ideas are taken to be "things" having an ontological status. His critical response to Malebranche indicates that he follows Arnauld rather than Malebranche in interpreting Ideas. By emphasizing that they are Perceptions, Arnauld questions Malebranche's claim that Ideas are not mind dependent but have an ontological status in the Mind of God.[36] Locke makes a similar interpretative strategy with a similar motivation.

Locke's emphasis need not be construed as indicative of a

tension in his views concerning Ideas - that his use of "Ideas" interchangeably with "Perceptions" contradicts his view of Ideas as "objects" (as contents of perceptual acts). If he had taken "contents" to be separable from "acts", then his identification of Ideas with "Perceptions" creates a tension in his views. But, as we have already noted, he repeatedly insists that Ideas as "contents" are inseparable from and correlative to their corresponding acts.

Moreover, when he identifies "Perceptions" with "Ideas" it should not be taken that in all cases he takes the former to mean "Perceptual Acts", even though he defines "Perception" as the initial act of the Mind (II:IX:1, 2, & 15).[37] In certain places he seems to take perception as "contents" rather than "act" (II:I:3; II:VIII:7 & 24; II:XXXII:16).[38] But, even in the passages he identifies Ideas with Perceptual acts (II:X:2; An Examination of P. Malebranche, section 14), he does not through such an identification eliminate one of the two and stick to one at the expense of the other. If, by the claim, "ideas are nothing but perceptions", Locke means that Ideas are perceptions per se, i.e. contentless acts, then he goes against his belief in the "intentionality" of perceptual acts, which he shares with Sergeant. If, on the other hand, Locke means that Ideas are actless contents, then he goes against his overall contention that they are not "things". When he identifies Ideas with Perceptions, he seems to assert that there is no distinct kind of existence called perceptual

act but that this is only the presence in the mind of a particular content or that there is no distinct kind of existence called perceptual contents but what is involved in an act and presented in and through it. Such an identification is then a reformulation of the "inseparability" thesis,[39] intended to combat the tendency to take Ideas as "things".

Both the views of Locke (i.e. Idea as contents or "object" and Idea as "perception" taking the latter as either perceptual act or content) may be thus taken as highlighting his overall contention that Idea is not an ontological entity existing independently of any perceptaul or any other act of thinking, as a "thing" does. This takes us to his discussion of Idea with specific reference to "thing":

Object and Thing:

Locke's presentation of Idea as inseparable from the act deontologizes the Idea, for it cannot be said to exist independent of the mind and its acts as any other ontological entity.

Locke goes further and makes it quite explicit that he does not take Idea as a "thing" in the sense in which this term was generally understood in the philosophical context in which Locke presented his theory of Ideas.[40]

The critical response to Locke is itself an indication of how Locke's characterization of Idea went against those who insisted that the "object" of knowledge has to be "real." The demand to know what

kind of things Ideas are, along with the condemnation that if the Idea cannot be categorized as Substance, Mode or Accident, then it is not a legitimate "object" of knowledge is based on the assumption that for knowledge to be reality-based, the objects of knowledge have to be "real". Norris initiated such a mode of criticism, when he demanded:

> I would know what kind of things he makes these ideas to be as to their Essence or nature...[41]

He goes on to ask whether Locke's ideas are "real" or not; if they are "real" whether they are Substances or "Modifications of Substances" and whether they are Material or Spiritual.

Sergeant's response too manifests a similar reaction. He states:

> To proceed, and persue my Theme more closely; I would be glad to know, at least in Common, what kind of things, in this Author's opinion, those (Ideas) are. Are they Corporeal, or are they Spiritual, or under what Head shall we rank them? (Solid Philosophy Asserted, Prelim., I, section 13, p. 18)

Such a query contains a condemnation - that, if the Ideas cannot be classified into the traditional categories of substance, mode and accident, then they cannot be "real" and hence do not qualify to be "objects" of knowledge. Sergeant finds that the Ideas,

> ...being most evidently, neither the Things known, nor any Mode or Accident of those Objects; and, consequently, nothing at all of the Thing in any sort, were manifestly convinced not to be the Productions of Creative Wisdom, in which he had imprinted all

> Natural Truths, but mere Fancies, coined by their Imagination.
> (Solid Philosophy Asserted, The Epistle Dedicatory, p. 6)

We have already noted that Sergeant's ontology is made up of Substances and their Modes and Accidents. He attempts to classify Notions into the Aristotelian Categories which he calls the "Ten Common Heads" (Method to Science, Book I, Lesson 11). Such an attempt is founded on the assumption that Notions as "objects" of knowledge may be placed in categories which are differentiated on the basis of ontological distinctions. His question - under what head shall we rank Ideas - is based on such an assumption. His dismissal of Ideas as "nothing" since they are neither Substances nor their Modes and Accidents (Solid Philosophy Asserted, The Epistle Dedicatory, p. 6) is based on the same assumption. According to him,

> Wherefore those who have only in their Minds Similitudes or Ideas, do only Connect or Discourse of them, which Ideas are not the Thing, nor conceived to it It either in whole, or in part, are convinced to build their Discourses (thus grounded) Upon Nothing. Therefore they have no Solid Knowledge of any Thing.
> (Solid Philosophy Asserted, The Preface, section 24, p. 32)

It is not Locke's failure to define Idea that bothered critics like Norris and Sergeant, but his reluctance to characterize it in the way they thought the object of knowledge must be characterized. Locke's presentation of Idea was not according

to their taste. They wanted to locate the Idea on the ontological scale, which they usually described as the "scale of being". If they could not do so they concluded that knowledge by way of ideas was impossible.

Locke's reply to Norris indicates the manner in which he responded to those who insisted that for knowledge to be "real" the "object" of knowledge has to be a "thing". He replies thus:

> Indeed he condemns me in this same p 3, that I have not given him an account of the nature of ideas .... If you once mention Ideas you must be presently called to account what kind of things you make these same ideas to be though perhaps you have no design to consider them any further than as the immediate objects of perception or if you have, you find they are a sort of sullen things which will only show them what, but will not tell you whence they came nor wither they go nor what they are made of and yet you must be examined to all those particulars - whether they be real being or no, in the next place, whether be substances or modifications of substances and further whether they are material or immaterial substances and then upon their being material you must answer to an hundred solid questions. I must confess it a mark of my poverty not to be provided with ragousts to entertain him according to his relish on all these subjects for there is not I perceive a leg or wing of any of those dotteral (stupid) ideas that imitate every-thing whether you would lash them up as material effluvias or serve immaterial as to their substance or immaterial as to their representation but managed by good cookery might make (sic) a considerable dish as you may see pp 21-31, where out of his abundant liberality and in consideration of my unprovided kitchen has furnished out to himself (has furnished out to himself) (sic) a large entertainment according to his palate and thither I send anyone who has a mind to feast himself upon Ideas.[42]

Locke is determined not to entertain Norris according to his taste by providing him with an explication of Idea as a "thing". Locke's response is applicable to Sergeant too, since he too insists that Locke should present the Idea as a "thing", or more exactingly as the "thing itself". Sergeant thinks that "real knowledge of the Things in Nature" cannot be had "according to the Principles of the Ideists", who according to him substitute "Empty Resemblances or Fancies, for the Things themselves" (Solid Philosophy Asserted, Reflexion 18, section 1, pp. 338-339). After stating that the "object" of knowledge has to be the "thing itself" and that it should be "present to the Mind" to be known (Ibid., sections 2-4, pp. 339-343), Sergeant alleges:

> Now this seems to me a strange way of proving the Reality of our Knowledge, by Ideas, to affirm that we are not to regard the Things, but as conformable to our Ideas. Is not this to make Philosophy not the Knowledge of Things, but of the Ideas only; and to pretend, that the Thing must only be held True, if it be Conformable to our Ideas? He might as well have said Fancies; for, he expressly says, these Complex Ideas are made by the Mind, and not taken from the Thing, nor like it: And, whatever is neither the Res, nor so much as like it, can neither have Reality nor Shew of Reality; and therefore, must be a mere Fancy.
> (Solid Philosophy Asserted, Reflexion 18, 4, pp. 343-344)

Locke's marginal comment to the above passage has to be taken note of and it runs thus:

> Things are truly what they are whether we have any Idea of them or noe. But they cannot belong

> to any one specific name, unless they agree to his specific Idea.
> (Marginal Comment No. 66, p. 343)

When Locke comments that "things" are what they are whether or not we have any Idea of them, he not only makes explicit his view on "things" but also emphasizes that contrary to Sergeant's allegation, "things" are not tailored to conform to Ideas. Since names (words) are signs of Ideas for Locke, to name a "thing" we have to first have an "idea" of it. We have already noted that for Locke "having an Idea" of anything and "perceiving" it are equivalent. Hence, when he comments that "things" could exist independently of us "having Ideas" about them, it means that they are able to exist independently of our acts of perceiving them; that things are independent of the acts of the Mind. This is the way Sergeant interprets "reality" and the "things" which constitute it. There is really no difference of opinion between Sergeant and Locke on the question of the independence of the "thing" from the Mind. Both accept the existence of an extra-mental reality. But for Sergeant, for knowledge to be had of "things", the "object" of knowledge has to be the "thing itself" translated into intelligible terms (through meeting the requirements of "mind-like" and "presence to the mind"), without thereby losing any of its ontologicity. The change is only in the mode of existence and for him, existence is extrinsic to the nature of the "thing". But for Locke, we know "things" through the "intervention of ideas" (IV:IV:III) and not by the translation of the

"thing" to the Mind through the mechanics of "form. To know "X" or more accommodatively to be aware of "X", we have to have the idea of "X" as the contents of our act of knowing or awareness. But this "contents" does not have the ontologicity characteristic of Sergeant's Notion. Locke does not place the "Idea" into the traditional ontological categories. He specifically states that it is not a "substance" (Remarks upon Mr. Norris's Books etc. . . , section 17, in Works X, p. 256). Locke also makes it a point to distinguish between Ideas [as "Perceptions in the Mind"] and "Qualities in the Subjects" or "External Objects".[43] He acknowledges that sometimes he speaks of Ideas as if they are qualities, but he insists that the reader should be careful to make the necessary distinction (IV:VIII:7 & 8). The distinction that Locke attempts to make here is one between the ontological and the cognitive. Things and their qualities belong to the ontological while their ideas belong to the cognitive. Qualities, whether they be Primary or be Powers which are causal to Secondary Qualities (Ibid., 9 & 10) belong to the ontological dimension, while Ideas belong to the cognitive - for they indicate the manner of being aware of the qualities. Ideas are "real" not because they are qualities and powers themselves, but because they "answer and agree to those powers of things", which "produce them in our mind" (II:XXX:2). The Ideas of Whiteness and Sweetness of Sugar are "in our Minds" while the "powers" which produce these ideas are in "sugar itself"

(II:XXXI:2). We shall see the cognitive interpretation he gives to "presence to the mind" in the subsequent sub-section. But what we have to note here is that he attempts to distinguish between qualities and ideas. Whether he has always been successful in making this distinction clear need not be decided here. Throughout Book II, he frequently talks of Ideas of motion, space, time, and substance as if they are properties, qualities and things (II:XII, XIII, XIV, XV). But, his account here has to be examined through the adoption of the interpretative apparatus which he gives before commencing such a discussion - that of distinguishing ideas from qualities (IV:VIII:7 & 8). When we do not take this into account, we are naturally led into problems concerning the status of ideas.[44]

Locke's attempt to present Idea as "object" or "immediate object" inseparable from the act and his insistence that Idea does not fall into any of the traditional ontological categories of Substance, Modes or Accident, deontologizes it.[45] We have already noted that for Sergeant the ontologicity of the "object" of knowledge [Notion] is made possible through characterizing it in terms of "form". In a context where "form" was understood as what makes a thing to be what it is, "formalization" of the "object" of knowledge meant its ontologization. Locke's attempt to deontologize the "object" of knowledge may thus be interpreted as an attempt to "deformalize" it. Herein lies the anti-formalism of Locke at the level of Simple

Apprehension.

When the "object" of knowledge is not taken to be an ontological entity, its "presence to the mind" and it being "like mind" receive a different interpretation. We shall next examine these interpretations, which in turn highlight Locke's attempt to deontologize and thereby deformalize the "object" of Knowledge.

Object and Presence:

Locke acknowledges that Ideas as "objects" are present to the Mind. In several places he states that Ideas are in the Mind (II:I:1; I:I:8; I:II:5; II:I:5; II:VII:7, 8, 9, 12; II:X:2; II:XXX:2; II:XXXI:2; II:XXXII:3, 15). He seems to attribute existence to Ideas when he states:

> When Ideas are in our Minds, we consider them as being actually there, as well as we consider things to be actually without us; which is, that they exist, or have Existence.
> (II:VII:7)

But this "existence" or "presence to the mind" of Ideas in the Lockean context has a cognitive connotation, without the ontologicity characteristic of the existence of "Notions in the Understanding". For Locke "to be in the Understanding" means "to be understood". He criticizes the view that Innate Ideas could be in the mind without being perceived, on the basis of such an interpretation he gives to "presence" of Ideas in the Mind. He states:

> He therefore that talks of innate Notions in the Understanding, cannot (if he intend thereby any distinct sort of Truths) mean such Truths to be in the Understanding, as it never perceived, and is yet wholly ignorant of. For if these words (to be in the Understanding) have any propriety, they signify to be understood. So that, to be in the Understanding, and, not to be understood; to be in the Mind, and, never to be perceived, is all one, as to say, any thing is, and is not, in the Mind or Understanding.
> (I:II:5)

For Locke, "X" is in the Understanding means that "X" is understood. In the Lockean context Ideas signify something other than themselves or sometimes themselves. We will deal with this subsequently in this Chapter. What has to be noted here is that in the light of the significatory role assigned to Ideas, if "X" is in Understanding, what "X" signifies is understood by the Mind. Locke resorts to the notion of "objective existence" to make his point clear.[46] Such a notion was in vogue then.[47] In the notes on logic, written during his undergraduate days (cited in 2:2) he mentions that ideas are "objectively in the mind". In the fourth edition of the Essay he adds a section in the Epistle to the Reader, where he informs the reader that he prefers terms "determined" or "determinate" to "clear and distinct" ideas.[48] He states:

> By those denominations, I mean some object in the Mind, and consequently determined, i.e. such as it is there seen and perceived to be. This I think may fitly be called a determinate or determined Idea, when such as it is at any time objectively in the mind and so determined there, it is annexed, and without variation determined to a

> name or articulate sound, which is to be steadily the sign of that very same object of the Mind, or determinate Idea.
> (Essay, The Epistle to the Reader, p. 13)

The annexation of name in itself does not make an idea "determined" or "determinate". First of all the ideas to which names are subsequently annexed have to be "objectively in the mind". We have also noted that for Locke, if anything is said to be in the mind it means that it is perceived or understood. For him, ideas are conscious contents. But he goes further in the above passage and emphasizes that some of the ideas may be taken as "determined", when they are "objectively in the mind". Such an emphasis does not mean that "undetermined" ideas are not "in the mind". All Ideas are Objects in the mind and hence conscious contents. But certain Ideas may be better "understood" and when such Ideas are given steady names they are called "determined" or "determinate". In a context where "to be in the Understanding" is taken as "to be understood", the degrees of existence of the objects in the mind (ideas) are based purely on cognitive considerations; on the degrees of understanding by the Mind.

In a marginal comment Locke makes it explicit that "presence to the mind" is assessed on cognitive considerations only. When Sergeant criticizes Locke's theory of Ideas as "objects", Locke comments thus:

> His arguing here is to prove that the minde cannot have two objects at once which if true the minde

> can never have any knowledge which is had only by the comparing 2 Ideas or Notions which are two Objects. The eye sees and consequently the minde perceives an hundred objects at once though some more and some less clearly and distinctly.
> (Marginal Comment No. 28, p. 123)

Locke acknowledges the possibility of having more than one idea in the mind as its "objects", which in his terms amounts to the claim that one can understand more than one thing at a time. But he also acknowledges that certain ideas may be understood or "perceived more clearly and distinctly" than others. This is equivalent to the claim that these ideas are more "objectively in the mind" than the others. In the Fourth edition he calls such ideas "determined" or "determinate". "Objective existence" or the "presence to the Mind" for Locke is taken cognitively without any ontological overtones.

The "objective existence" of "X" is "X" so far as it is a "content" of an act of being aware of "X" (i.e. knowing, thinking, perceiving, remembering, etc.). What "objectively exists" is "X" and not the Idea of "X". This does not mean that there are two modes of existence of a thing. "X"'s existence is really its "formal existence", i.e. as it is independent of the act of knowing. "Objective existence" is "X" so far as it is known, thought, perceived, etc.[49]

Such a cognitive interpretation of the "presence to the mind" requirement goes against the view which Sergeant represents; where the Notion as the "form" of the thing exists in the mind "spiritually".

Object and mind-likeness:

Locke thinks that "since the Things, the Mind contemplates, are none of them, besides it self, present to the Understanding", 'tis necessary that something else, as Sign, or Representation of the thing it considers, should be present to it" (IV:XXI:4). These are for him Ideas. It is evident from the manner he introduces Ideas as signs, that he accepts in a way the "present to the mind" and the "like-mind" requirements. His presentation of Ideas as mind-like objects signifying "things" makes him controversial. Sergeant thinks that in whatever way one interprets Ideas there are bound to be problems. He recognizes the possibility of interpreting Idea as "not a thing" (nothing) which, according to him, makes knowledge impossible. He also finds:

1. That Ideas may be taken as "something other" than "things". This entails Scepticism, for, if Ideas even if spiritual are not the "things themselves" knowledge through Ideas will not be knowledge of "things". (Solid Philosophy Asserted, The Preface, sections 12-13, pp. 15-16)
2. That Locke's use of Ideas indifferently to cover both corporeal and spiritual entities also makes knowledge impossible. For if Ideas are corporeal they cannot be present to the mind. (Solid Philosophy Asserted, Prelim., 1, p. 23)

Sergeant thinks that Locke takes Ideas to be "similitudes" (Solid Philosophy Asserted, The Epistle Dedicatory, p. 6). But Locke marginally comments thus:

> Where is it Mr Locke says Ideas are the similitudes of things he expressly says most of them are not similitudes?
> (Marginal Comment No. 1, p. 6)

When Sergeant claims that the Word Idea, signifies a Resemblance, Similitude, or Image and consequently "is indifferent to what's in the mind, and what's only in the Fancy", Locke introduces in the margin the questioning word, "Where?" (Locke: Marginal Comment No. 8, p. 23). Again, when Sergeant discusses Secondary Qualities and asks Locke "why the ideas of secondary qualities should have nothing existing like bodies", Locke is careful to point out that he does not give a blanket definition for Idea as "resemblance". He marginally comments thus:

> Blewenesse (sic.) or heat in the minde are the Ideas there whether they be like anything in the object or noe. But he will have Mr Locke to mean resemblances by Ideas, though Mr. L. says expressly that he does not.
> (Marginal Comment No. 31, p. 137)

These marginal comments make it clear that Locke does not want Sergeant to take Ideas as similitudes or resemblances in an unqualified manner. Sergeant associates "corporeality" with resemblances and thinks that, if an Idea is a resemblance or similitude, it is a "Phantasm" or "Material Representation". As we have already noted, for

him, a Phantasm has an ontological status; it belongs to the class of corporeal things. That is why he makes it a point to distinguish Notion from Phantasm (Solid Philosophy Asserted, The Preface, sections 19-25, pp. 26-32). In his view, Locke's Ideas are "Similitudes" and hence "Phantasms" or Material Representations. As the said marginal comments indicate, Locke denies such an interpretation. He no doubt indicates in marginal comments (I) that he regards some ideas as "similitudes", but that does not mean that they are materially representing things, in the order of "Phantasms".[50] He describes Ideas of Primary Qualities as "resemblances" (II:VIII:15), but such a description follows his emphasis that Qualities have to be distinguished from Ideas - that Ideas in the mind are not qualities in the things (II:VIII:7 & 8). In such a context, Ideas of Primary Qualities, even though resemblances, are not themselves resembling corporeal things. Hence, Sergeant's enterprise to distinguish Notions from Phantasms and involve Locke's Ideas with "similitudes" giving the latter a corporeal ontological status is really irrelevant to Locke and does not affect his position (Solid Philosophy Asserted, The Preface, sections 19-25, pp. 26-32).

Locke takes Idea to be mental but not as a mental ontological entity nor "spiritual thing". As we have already noted, his interpretation of Idea as "object" inseparable from the act deontologizes the Idea. That is why he does not place it in any of the traditional

ontological categories. His characterization of it as like mind (IV: XXI:4) has to be taken then as qualifying a deontologized entity. Idea is not a thing in the first place for it to be spiritual thing. Whether his interpretation of Idea as a mental "object" inseparable from the act could still be considered as causing epistemological problems traditionally associated with the Representative Theory of Perception need not be decided here. What has to be noted here is that for him, Idea is not a thing and hence not the thing itself; it is sometimes a resemblance but never a corporeal thing resembling something else; it is mental but not a spiritual thing. Hence, when Idea is said to be "present to the mind" there is no ontological feature associated with such a presence; what is associated with the presence of a "thing". Such a characterization goes against Sergeant's theory. For Sergeant Notion has an ontological character about it on account of it being the "form" of the thing (3:3). Hence the presence of the Notion in the mind of the knower has an ontologicity associated with it, even though it is not a spatial or corporeal presence. Locke's presentation of Idea as "object", as given in the Essay and confirmed by the marginal comments already cited in this section (3:4), goes against Sergeant's theory. There are certain other marginal comments which more explicitly attack Sergeant's position that in the act of knowing the "form" of the thing exists in the mind and that there is "unity of form" between the knower and the known.

When Sergeant claims that in the event of knowing a corporeal thing, Notion as the "form" or "nature of the thing" is "in our Soul Spiritually, though out of it Corporeally" (Solid Philosophy Asserted, Prelim., section 3, p. 59), Locke marginally comments:

> What is it for a material thing to exist spiritually?
> (Marginal Comment No. 17, p. 59)

When Sergeant claims that in the act of knowing the knower becomes the known and that the "Soul of Man" is "capable of knowledge infinitely higher, viz. the beautifying Sight of God" (Ibid., Prelim., 2, section 23, p. 40), Locke claims:

> It should have been inferred according to what J. S. says in this by which the Soul becomes God.
> (Marginal Comment No. 14, p. 40)

Sergeant claims that, when "the Soul knows anything in Nature she must be that thing as it is Another distinct from her; So that in a Word, to Know is Esse aluid ut aluid; to be another thing as it is another" (Ibid., Prelim., 2, section 26, pp. 42-3). Then he cites the example of knowing the Bell in the Steeple. According to him to know the Bell in the Steeple, the Soul must have the Bell in the Steeple in her as it is out of her (Ibid.). Locke's marginal comment runs thus:

> i.e. must be that thing as not being that thing.
> (Marginal Comment No. 15, p. 43)

In his correspondence with Stillingfleet, Locke cites Sergeant as saying, "that notions are the materials of our knowledge; and that

a notion is the very thing itself existing in the understanding" (Solid Philosophy Asserted, pp. 24 & 27 as given by Locke). Then Locke asks Stillingfleet:

> Not thinking your lordship therefore yet so perfect a convert of Mr. J. S. 's that you are persuaded, that as often as you think of your cathedral church, or of Descartes's vortices, that the very cathedral church at Worcester, or the motion of those vortices, itself exists in your understanding; when one of them never existed but in that one place at Worcester, and the other never existed anywhare in rerum nature. I conclude, your lordship has immediate objects of your mind, which are not the very things themselves existing in your understanding; which is, with the academics, you will please to call representations, as I suppose you will, rather than with me, Ideas, it will make no difference.
> (Works IV, pp. 390-91)

When we view these comments to Stillingfleet and the marginal comments to Sergeant apart from the context in which they were made and consider them as Locke's condemnation of Direct Realism of every sort (i. e. of any theory of knowledge or perception that claims that we could have direct knowledge or perception of things), then they appear to be naive. Locke was here criticising a type of Direct Realism according to which we could have direct knowledge of things because the intrinsic "forms" of things are not altered in any way when they become spiritual in their mode of existence in the mind of the knower; that in the act of knowing there is an identity between the knower and the known made possible through a "unity

of form". Locke criticizes such a type of Direct Realism, which Sergeant represents. Locke's marginal comments (No. 's 17, 14, 15) are helpful here since they reveal what is not explicit in the Essay.

For Locke the Idea as "object" is distinguishable but never separable from the act, and is not a "thing" in the sense of being able to have an existence independent of the act of the mind, as those which belong to the traditional ontological categories of Substance, Modes and Accidents are supposed to have. Even though the Idea is taken to be mental it is not a mental ontological entity. In his attempt to deontologize the Idea he goes against the formalistic characterization of the "object" of knowledge, which Sergeant represents through his characterization of Notion. One of the motivations for him to characterize the Notion in terms of "form" is to enable his method to knowledge to be well-grounded and the knowledge thereby obtained to be "solid". Locke's dismissal of the characterization of the "object" of knowledge in terms of "form" should not be taken to mean that he questions the reality requirement. He too believes that knowledge must be reality-based but instead of the formalistic characterization he resorts to the consideration of Ideas as signs. Ideas are for Locke "objects" but they are "signs" and not "forms" of things. The next task will be to examine his Theory of Idea-Signs.

Ideas as Signs:

Locke assigns a significatory role to Ideas.[51] Commencing from his Abstract[52] the doctrine of signs has continuously found a place in the various editions of the Essay. Except for certain minor verbal changes the final chapter of the Essay (IV:XXI) has been intact since its first edition. When we consider his theory of signs in the light of his theory that ideas are "objects" we will better appreciate the place his sign theory has in his analysis of the method to knowledge by "way of ideas". We will also be able to assess the extent to which his theory of ideas undermines the "formalistic" interpretation of the method to knowledge that was prevalent then, and which Sergeant represents.

Locke takes Ideas and Words as signs (IV:XXI:4; II:XXXII:19; III:III:6 & 11; IV:V:2; IV:XVIII:3; II:XXX:2; IV:IV:5). Locke's use of phrases like "stand for" (IV:V:4; II:XXXII:19; IV:V:5-8; III:IX:6; III:II:2, 3, 6; III:III:10) and "mark of" (III:II:1, 2, 4; II:XXX:2; IV:V:4) in relation to Ideas and Words also indicates his consideration of them as signs. Locke presents them as signs in an epistemological context. Idea-Signs are employed to obtain knowledge while Word-Signs are to communicate it (IV:XXI:1). Ideas are signs which the "mind makes use of for the understanding of things", while words are signs for conveying what has been understood (IV:XXI:4). Both are taken to be the Great instruments of knowledge (IV:XXI:4; Cf.; II:

XXXIII:19). We will be concerned with only Idea-Signs.

Locke assigns a significatory role to Ideas taking the latter as "objects" or "immediate objects". By "object" or "immediate object" Locke means the cognitive contents of any act of awareness. He treats this contents, which is inseparable though distinguishable from the act, as "sign".[53] Idea as "object" is not an ontological entity and its presence does not have any ontological connotations. Hence, when such an "object" is taken to be a "sign" it is not a "thing", signifying something. When he describes Idea as "standing for" something (II:XXXII: 19) it does not "stand in" for what it signifies, as a person represents someone at a meeting.[54] Idea is not a kind of "instrumental sign" which one has to first know before he knows what it signifies.[55] It is not like smoke signifying fire. Being aware of "X" and being aware of the "Idea of "X"" are not separate successive acts of awareness. When one claims that he is aware of "X" in the Lockean context it means that the idea of "X" is present to his mind (i.e. he has the idea of "X") as the inseparable content of his act of awareness and that this content in turn signifies "X". This "X" may be something external to the mind and independent of its acts as in Ideas of external corporeal or spiritual things and in qualities (II:VIII) or an operation of the mind as in Ideas of Reflexion (II:VI:VII) or may be the idea itself as in complex ideas which are their own archetypes (II:XII; XXII; XXIII). But, in none of these cases has the Idea of "X" any ontological status.

It is merely a deontologized mental content. Yolton observes that Locke does not elaborate on the sign theory of Ideas but that he "clearly takes Ideas as Signs and not as entities".[56] When we take into account Yolton's repeated emphasis that Locke deontologizes the Idea, the term "entities" here should mean ontological entities or "things".[57] For Locke Ideas are then deontologized signs.

When he deontologizes the Idea he also psychologizes it,[58] for when he takes Idea to be "Object" and takes the latter as "inseparable contents" of an act of the mind, he makes Idea dependent on the person and his psychological makeup. Any act of awareness being a mental event is tied up with the psychology of the person involved in the act. Hence, when the content is taken as a sign, the latter cannot be considered separate from the psychological factors that go to make up the act. Idea-Sign for Locke is essentially an epistemic sign. Through it one is said to know what is signified by it. Such an epistemic sign is closely tied up with the psychological factors associated with the act. Hence the Idea-Sign for Locke is not an impersonal symbol, which could be manipulated in the manufacture of Knowledge. As Yolton puts it, the "psychology of awareness was linked up with the theory of signs".[59] There is a close link between the psychological and the logico-epistemological in his characterization of Idea as "sign".

Locke sometimes uses "sign" and "representation" or

"representative" interchangeably (II:XXI:4; II:XXXI:4; II:XXXII:19). Signs may be representations but they do not have the corporeal ontologicity usually associated with Phantasms. Locke explicitly denies Sergeant's allegation that Ideas are taken as "material representation" (Marginal Comment No. 1, p. 6 The Epistle Dedicatory). He informs Sergeant that for the most part Ideas are not "resemblances" (Marginal Comment No. 31, p. 137) and even if they are so, as in Ideas of Primary Qualities, they are not resembling things. In the act the Idea may be an exact resemblance of a thing but apart from the act such a resemblance does not have any status. For Locke, since the Idea as "object" does not have a status independent of the act, even Ideas which resemble things do not exist independent of the act.

Sometimes he likens Ideas to visions, pictures, or paintings, or to "shapes imprinted on the mind", but here he seems to speak in analogical rather than in literal terms. He describes their nature in terms drawn from the vocabulary of seeing and talks of their being "kept in sight", "in view", etc. (II:I:2, 8, 25; II:IX:4; II:X:2, 5, 7, 11; II:XXIX: 2, 3, 8; III:XI:21; IV:XI:21). Such descriptions may be taken as instances of his explicatory strategy to describe the "Perception of the Mind ... by Words relating to the Sight" (II:XXIX:2).[60] Hence, in most cases, Ideas are, for Locke, non-resembling signs and even when, in some cases, they resemble what they signify, they

are not "things" resembling others.

When Locke considers Ideas as deontologized mental contents ("Objects"), assigns them a significatory role, and claims that we have the knowledge of things "only by the intervention of Ideas" (IV: IV:3), he provides a mode of analysis of the initial act of knowing (Simple Apprehension) which goes against the "formalistic" account that Sergeant attempts. The Doctrine of Signs is Locke's way of characterizing the manner in which we apprehend "things". I do not claim that Locke's account is free from problems and ambiguity. Nevertheless, it may be taken as an alternative mode of analysis to Sergeant's - where the act of knowing is explicated through the identification of the Knower and the Known through the "object" considered as the "form" of the thing, transferred to the Mind of the Knower. For Sergeant since the Notion is the "form" of the thing known and since "form" is intrinsic to it, Notion can never be the sign. It can only be the signified (Solid Philosophy Asserted, Prelim., 11, section 25, pp. 40-41). For him, Locke's characterization of Logic as a doctrine of signs is inexplicable and knowledge through such a logic is impossible (Ibid., Reflexion 22, section 19, pp. 454-5). According to Locke, if Ideas and Words are "distinctly weighed and duly considered" as signs, "they would afford us another sort of Logick and Critick, than what we have ... been hitherto acquainted with" (IV:XII: 4). The logic "hitherto acquainted with" explicates the "object" of

simple apprehension in terms of "form". Hence the Logic of Signs, which presents the "object" as deontologized sign rather than "form" was anti-formalistic.[61]

Conclusion:

In his characterization of Idea as "object" Locke deontologizes and deformalizes it. At the same time, he claims that through such an "object" one can attain knowledge at the level of Simple Apprehension. Here he resorts to the theory of signs. For a formalist like Sergeant, a deformalized "object" like Idea cannot be the legitimate "object" of knowledge. He acknowledges that Locke is better versed in Mathematics than in Metaphysics, since he thinks that Locke fails to make use of the metaphysical mechanics of "form" to explicate how things get transferred into the mind and there be its "object" in its act of knowing (Solid Philosophy Asserted, The Epistle Dedicatory, p. 5). Locke's characterization of Idea as "object", as mainly found in the Essay, goes against the "formalistic" interpretation that characterizes Sergeant's presentation of Notion. Some of Locke's marginal comments confirm his characterization and help us to better appreciate the anti-formalism entrenched in it (Marginal Comments No. 's 3, 27, 28). Some of the comments indicate explicitly that he does not advocate the explication of the knowing in terms of the "unity of form" between the knower and the known (Marginal Comments No. 's 13, 14, 15, 16, 17,

24). The Idea-Notion controversy brings out Locke's "anti-formalism" and Sergeant's "Formalism".

CHAPTER III--Notes and References

1. J. W. Yolton gives some of the formulations of these requirements - the Aristotelian, Thomistic, Cartesian and those of Arnauld, Malebranche, and Locke (On Being Present to the Mind: A Sketch for the History of an Idea, Dialogue, Sept., 1975, pp. 373-88, Ideas and Knowledge in Seventeenth-Century Philosophy, J. H. I., Vol. 13, 1975, No. 2, pp. 145-65). M. Ginsberg gives some of these requirements, when he discusses the Malebranche-Arnauld Controversy (Dialogues on Metaphysics and on Religion, London, 1921, pp. 38-42).

2. For this meaning of "Intention" see: John of St. Thomas, Entia Rationis and Second Intentions, tr. by J. Glanville, G. D. Hollenhorst & Y. R. Simon, The New Scholasticism, Vol. 23, No. 4, Oct. 1949, p. 407; Gilbert Ryle, Are there Propositions?, Proc. Arist. Soc., Feb. 1930, pp. 91-111; A. R. Greenberg, Sir William Hamilton and the Interpretation of Reid's Realism, The Modern Schoolman, Vol. LIV, Nov., 1976, p. 15.

3. Baldwin, J. M., Dictionary of Philosophy and Psychology, 1901, Vol. I, pp. 636-7.

   Oxford English Dictionary, points 4 & 6 of "object" and points 1 & 2 of "objective" (Vol. IV, pp. 14-15).

   Krauth, C. P., Vocabulary of Philosophy, New York, 1878, pp. 354-55, 492-3.

4. There is a similarity between Sergeant's views on Phantasm and the Aristotelian-Thomistic view. When I relate Sergeant to the Aristotelian-Thomistic doctrinal position I do not claim that he strictly followed Aristotle and Aquinas. For instance see Aristotle: De Anima, III, chapters 7 & 8 (translated by J. A. Smith and given in McKeaon, ed.); Aquinas, T., In De Anima, III, Lessons 12 & 13; Summa Theologica, Q. 8 art. 7 Cf.

5. Aristotle, Metaphysics, Book IX, 8, 1050b 2, p. 830; Book VII, 10, 1035b 30-35, p. 799; Book (V), 8, 1017b 15-16, p. 761; Book Z (VII), 17, 1041b 7-28, p. 811; Book H (VIII), 2, 1043a 2-26, p. 814 (tr. by W. D. Ross, McKeon ed., 1941).

Cardinal Mercier presents the Aristotelian-Thomistic position on "form" thus:

> Form is "an intrinsic perfective principle" (Gen. Met. 113) "Per Formam significatur perfectio unisscujusque rei" (De Ente et Ess., C 7). "Est actus dans esse rei" (John of St. Thomas, Nat. Phil., I, q. 4, a. 1). (Manual of Modern Scholastic Philosophy, 1962, Vol. II, p. 513)

Back of it lies the overall Aristotelian tenet that form is the cause of being. It is the Form that makes a thing be, no matter in which category..... When the form is received immaterially in cognition, it still exercises its overall function of making the recipient be something. But now it does not give substantial being to the reception nor does it modify or alter him..... Cognitive reception of a form makes the percipent be the thing of which it is the form, just as physical reception of a form makes the matter a particular kind of thing, each in its respective order (Aristotle, Cognition of a Way of Being, Can. J. of Phil., Vol. VI, No. 1, March 1976, p. 7).

6. J. Baldwin states that "the real ontological being belongs to objects in so far as they are not mere entia-rationis (beings of reason), but either exists or may exist outside of the mind" (op. cit., p. 362).

Cf. Krauth, C. P., op. cit., p. 363; Burthogge, R., Organum Vetus et Novum, 1678, sections 9 & 10, pp. 12-13.

7. J. W. Yolton, On being Present to the Mind: A Sketch for the History of an Idea, Dialogue, 1975, Sept., p. 380.

8. J. W. Yolton is of the opinion that Sergeant does not succeed in his attempt (Locke and the Way of Ideas, 1968, p. 106).

9. Aaron, R., John Locke, third ed., 1971, p. 173.

10. Ibid.

11. Yolton, J. W., Locke's Unpublished Marginal Replies to John Sergeant, J. H. I., Vol. 12, 1951, pp. 555-58.

12. The determining function of both Substantial and Accidental Forms is stated by Cardinal Mercier thus:

> A Substantial Form is one of the constitutive elements of a substance, namely that which makes it a specific being and differentiates it from all other substances (Introd. 5: Cos. 44). "Forma substantialis facit esse simpliciter" (Summa Theol., I, q. 77, a. 6).
>
> An Accidental Form is one determining a substance already constituted (Introd. 5: Gen. Met. 118). "Forma accidentalis non facit esse simpliciter sed esse tale tantum aut aliquo modo se habens" (Summa Theol., I, q. 77, a. 6).

Mercier, C., op. cit., p. 513.

13. Sergeant, J., Solid Philosophy Asserted, Reflexion 19, section 17, p. 388.

14. Kneale and Kneale observe:

> In the middle ages, the word Idea was still reserved for a form as that what was understood in the Christian Platonism of St. Augustine, i.e. for an archetypal concept in the mind of God. Thus St. Thomas asks in his Summa Theologica, I. XV. 1, Utrum ideae sint, and replies Necesse est ponere in mente divina ideas. At that time forms which were supposed to exist in Human Minds were described as species or intentiones, and there were debates between philosophers who followed Aristotle in thinking that species intelligibles were all derived by abstraction from species sensibiles

> and others who followed St. Augustine in thinking that species intelligibiles could be acquired only by Divine Illumination. (Kneale and Kneale, op. cit., p. 310)

They observe that such a medieval tendency was prevalent during the 16th and 17th centuries too (Ibid., pp. 310-11). Sergeant's theory of Notions here exhibits the Augustinian-Thomistic view.

Cf. Odegard, D., Essences and Discovery: Plato, Locke and Leibniz, Dialogue, III, 1964-65, p. 220.

15. J. Baldwin notes that in later Scholasticism "formal existence" or "formal being" was associated with the "real" or with the "existent being" as it exists independent and outside the Mind, which may be aware of it (op. cit., p. 638).

16. The distinction between "formal" and "objective" existence was prevalent during the 17th century. Descartes popularised it. "Formal" and "objective reality" were also used. (Krauth, C. P., op. cit., p. 355).

Cf. Webster's Dictionary.
Yolton, J. W., Ideas and Knowledge in Seventeenth Century Knowledge, J. Hist. Phil., April 1975, pp. 146-7, 148-53.

17. Aristotle states "Actual knowledge is identical with its object" (De Anima, 431a 1, tr. by J. A. Smith, McKean, ed., p. 593); "In every case the mind which is actively thinking is the objects which it thinks" (Ibid., 431b 17-18, p. 595).

18. Aristotle states "Within the Soul the faculties of Knowledge and sensation are potentially these objects, the one what is knowable, the other what is sensible. They must be either the things themselves or their forms. The former alternative is of course impossible; it is not the stone which is present in the soul but its form" (De Anima, 431b 26-30, p. 595).

19. See footnote 5 for references from Aristotle.

Cf. Owens, J., op. cit., p. 201.
Cardinal Mercier, op. cit. p. 513.

Georgiadis, C., Two Conceptions of substance in Aristotle, New Scholasticism, Vol. 47, 1973, pp. 22-37. The Individual and its Properties in Aristotle, Dialectics and Humanism, No. 4, 1977, p. 157.

Georgiadis notes that the "archological concept of substance according to which substance is the principle (arche) of the individual thing that makes it to be what it is" is "form" (Ibid., p. 158).

20. The intrinsic aspect of accident in Aristotle is noted by C. Georgiadis, Ibid., pp. 166-67.

21. Aristotle states "By a 'sense' is meant what has the power of receiving into itself the sensible forms without the matter. This must be conceived of taking place in the way a piece of wax takes the impress of a signet-ring without the iron or gold" (De Anima, II, 424a 18-20, tr. by J. A. Smith, Mckeon, ed., p. 580).

Aquinas, Summa Theologica, Q. 84, Art. 1, as cited by Yolton, J. W., Locke's Unpublished Marginal Replies..., J. H. I., Vol. 12, 1951, pp. 551-2.

22. Yolton, J. W., Ibid., p. 552.

23. Baldwin, J., op. cit., p. 637.

24. Yolton, J. W., op. cit., p. 553.

25. A Philosophick Essay concerning Ideas - According to Dr. Sherlock's Principles wherein his Notion of them is stated and his Reasonings thereupon Examined - In a Letter to a Friend. Printed and Sold by B. Bragg in Ave-Mary Lane near Ludgate, London, 1705, p. 4.

This Essay is of use to this dissertation for the following reasons:-

1. It is the earliest literature that I am aware of deals with the views concerning Ideas during the Seventeenth Century.

2. It reveals how controversial the topic of Ideas was during this period (see the passage cited in the body of this dissertation).

3. It is a critical exposition of the views which were prevalent during this period. The Anonymous Author indicates that there are two defects in most of the theories about ideas prevalent then - the tendency to describe ideas in terms of Matter. According to him what pertains to Mind should not be characterized in terms of Matter (as "seeds of Thought", Impressions and Images), and the defect of not clearly defining the nature of "ideas" (p. 5).

4. The Author attempts to present an account of Ideas free of these defects; he cites Locke as one who subscribed to the account presented in the Essay (p. 8).

We shall note in due course the points of similarities between the said presentation and Locke's account of Ideas.

26. Locke's reply to J. Norris, The Locke Newsletter; Cf. Draft, B., section 3, p. 19 (Rand's ed. 1931).

27. Krauth, C. P. op. cit., p. 225. Here Krauth notes the use of "idea" to "signify all mental representations" after Descartes.

The following note the comprehensive use of "idea" by Locke:

Aaron, R., op. cit., pp. 99-100.
Alexander, S., Locke, Kennikat Press, N. Y. London, 1908, pp. 28-9.
Yolton, J. W., Ideas and Knowledge in the Seventeenth Century Philosophy, J. H. I., Vol. 13, April 1975, No. 2, p. 146 footnote 2.

28. Norris, J., Cursory Reflexions..., 1690, p. 9.

29. Sergeant presents his criticisms of Locke's account of Memory immediately after emphasizing that Locke should have differentiated the "object" from the "act" of perceiving it. According to Sergeant the "object" is the "thing" (Solid Philosophy Asserted, Reflexion 5, section 1, p. 142). Such a "thing", for him, cannot decay or corrupt (Ibid.).

30. Sergeant, J., Ibid., p. 144.

31. Anonymous Writer, op. cit., Corollary III, pp. 11-14.

32. Ibid., Corollary I, p. 8.

33. Ibid., Corollary I & II, pp. 9 & 10.

34. Ibid., Corollary I, p. 8.

35. Yolton, J. W., Locke's Concept of Experience, in Locke and Berkeley, ed. by Armstrong, D. M. & Martin, C. B., 1968, p. 43.

36. Arnauld, A. Des Vraies et Fausses Idees, 1683, pp. 155-88, 198-207.

As Yolton notes "What is important for Arnauld is that 'Idea' and 'perception' do not mark two different entities, they refer to only one modification of the Mind" (Ideas and Knowledge in Seventeenth Century Philosophy, 1975, pp. 153-54).

37. Asplin, G., Idea and Perception in Locke's Essay, in Locke on Human Understanding, ed. I. C. Tipton, Oxford, 1977, pp. 50-51.

38. Locke, J., An Examination of Malebranche, Works, Vol. IX, sections 8, 15, 18, 42, 50, pp. 215, 218, 220, 239, 250.

Cf. Webb, T. E., The Intellectualism of Locke, 1857, reprinted 1973, pp. 20-38.
Greenlee, D., Locke's Idea of Idea, in Locke on Human Understanding, ed. I. C. Tipton, 1977, pp. 44-7.
Yolton, J. W., The Locke Reader, Cambridge, 1977, Chapter 2, section entitled 'Two Concepts of Ideas', pp. 109-111.

39. J. W. Yolton states:

> "Perception" was Locke's term for awareness. It is the first faculty and the first act of the Mind exercised about its ideas. 'Idea', of course is a conscious mental content. Despite his remark in II, 2 that ideas are nothing 'but actual perceptions in the mind', his more careful statements keep act and content distinct. Without the act there can be no content, and, conversely, without a content there can be no act.

('Locke's Concept of Experience' in Locke and Berkeley - A collection of Critical Essays, ed. by Armstrong and Martin, 1968, pp. 42-43)

40. The terms "ontological entity" and "thing" here are interpreted as signifying what can exist independent of the mind which may or may not be aware of it. See: Baldwin, J., op. cit., pp. 637-38.

41. Norris, J., op. cit., pp. 22-23.

42. Locke's First Reply to John Norris as reprinted in The Locke Newsletter, No. 2, pp. 7-11.

43. Even as early as in the Abstract of the Essay, the French version of which was published by Le Clerc (1688), Locke insists that Ideas and Qualities are not to be confused with one another; he writes:

> Whatsoever immediate object, whatsoever perception, be in the Mind when in thinks, that I call Idea; and the power to produce any Idea in the Mind, I call Quality of the Subject wherein that power is. Thus whiteness, coldness, roundness, as they are sensations or perceptions in the Understanding, I call Ideas; as they are in a snow-ball, which has the power to produce these Ideas in the Understanding, I call them Qualities. (P. King in The Life and Letters of John Locke, 1884, reprinted 1972, p. 368)

44. J. D. Mabbott confuses Ideas with qualities when he discusses Complex Ideas. (John Locke, 1973, pp. 19, 46). J. W. Yolton makes this observation in his review of J. D. Mabbott's John Locke in Can. J. of Phil., Vol. IV, No. 2, pp. 334-36.

45. See C. B. Martin's introduction (p. 4) to Locke and Berkeley, ed. by Armstrong, D. M. & Martin, C. B., 1968.

46. Yolton, J. W., Ideas and Knowledge in the Seventeenth Century Philosophy, J. H. I., 1975, p. 146.

47. See J. W. Yolton's "Ideas and Knowledge in the Seventeenth Century..." for instances where Arnauld in criticizing Malebranche, distinguishes between "formal" and "objective" existence (J. H. I., pp. 153-157).

48. Locke, J., The Epistle to the Reader, (27), p. 12 - (14), p. 14 - addition to the Fourth edition of the Essay.

49. The cognitive interpretation Locke gives to "presence in the mind" is another instance where his account is free from the defect which the Anonymous Writer (1705) finds in the theories of ideas prevalent then - that of characterizing ideas in terms appropriate to describe what pertains to Matter (A Philosophick Essay..., p. 5). Locke's "cognitive presence" is discussed by Yolton (Ideas and Knowledge in the Seventeenth Century..., pp. 148-161; On being present to the Mind..., pp. 374-389).

50. Locke cites Phantasm when he defines idea (I:I:8). But that is indicative of the comprehensiveness which he wants to give "Idea" and not make it into a "Corporeal thing".

51. Locke's theory of ideas as signs has received attention among Lockean Scholars.

J. Gibson notices that Locke employs ideas as Signs. He also notes that Locke hoped to "afford us another sort of Logic and Critic than what we have been hitherto acquainted with". He states that he would give a "fuller consideration later on" of Locke's theory of ideas as Signs, but he never does so (Locke's theory of Knowledge and its Historical Relations, Cambridge, 1917, pp. 12-13).

G. Ryle merely recognizes Locke's use of ideas as Signs (John Locke on the Human Understanding as in Locke and Berkeley, ed. by Martin, C. B. and Armstrong, D. M., 1968, pp. 18-19).

J. W. Yolton has done considerable research on Locke's theory of ideas as Signs (see: John Locke and the Seventeenth Century Logic of Ideas, J. H. I., Vol. 16, 1955; Locke and the Compass of Human Understanding, Cambridge, 1970, Introduction and Chapter IX entitled 'Signs and Significations'; Ideas and Knowledge in Seventeenth-Century Philosophy, J. H. I., Vol. XIII, April 1975; On Being Present to the Mind..., Dialogue, Sept. 1975; The Locke Reader, Cambridge, 1977, Part II, "The Doctrine of Signs", pp. 109-168).

R. L. Armstrong discusses the anti-metaphysical import of Locke's Theory of Ideas as Signs. According to Armstrong the Metaphysics that Locke attacks is best represented by Sergeant (John Locke's 'Doctrine of Signs': A New Metaphysics, J. H. I., Vol. 26, 1965).

52. Locke, J., Abstract of the Essay as found in P. King's Life and Letters of John Locke, p. 393.

53. Yolton notes Descartes's use of the cognitive contents of perception as signs. He cites from Descartes's Le Monde, Ch. I, pp. 315-23 and Le Dioptrique, I, pp. 684-85, F. Alquie's edition: Oeuvres philosophiques, Vol. 1963, (Ideas and Knowledge in Seventeenth-Century Philosophy, J. Hist. Phil., April 1975, p. 163 footnote).

54. Yolton, J. W., Locke and the Compass of Human Understanding, Cambridge, 1970, p. 205.

55. Veatch distinguishes between "instrumental" and "formal" Signs. He states:

> By an instrumental sign is meant one which signifies its significatum to a knowing power only by being first apprehended itself. That is to say, one must first apprehend the sign and only then does one apprehend the significatum. Taking smoke as a sign of fire, for instance, it is obvious that through this sign relationship one can become aware of the fire only by first becoming aware of the smoke. Or again, an artificial sign such as 'dog', this sign will never represent its significatum to a knowing power unless the sign first be apprehended itself... or one can only come to know what the guide-post on the road means or signifies by first becoming aware of the guide-post.
> (Veatch, H. B., Intentional Logic, 1970, p. 13)

He differentiates "formal signs" from the above when he continues thus:

> Now suppose we contrast with signs of this sort, a sign of the order of a concept or a

proposition, or an argument. Thus, in order to know what a concept signifies do we first have to know the concept? Notice that we are not here speaking of the words or artificial signs by which the concept is expressed, but of the concept itself. As for this concept itself, it can hardly be said that we are obliged to know it, as such and as a concept before we come to know what it is a concept of. (Ibid., p. 13)

Locke's ideas may be compared to Veatch's "Formal Signs".

56. Yolton, J. W., On Being Present to the Mind..., Dialogue, September 1975, p. 386.

57. Ibid., pp. 382-384.

58. As Yolton observes:

> In equating perceiving with having ideas, and in glossing "present to the mind" as "understood by the mind", Arnauld and Locke were de-ontologizing the way of ideas. To de-ontologize in this way is to psychologize: they took themselves to be describing awareness and how it comes about via understanding and meaning. The psychology of awareness was linked with theory of signs, especially by Locke. (Ibid., p. 384)

He further states:

> Arnauld (and Locke following Arnauld) tried to give an analysis of knowledge and perception without the spatial metaphors, an analysis which would capture some of the psychological and cognitive details. (Ibid., p. 383)

59. Ibid., p. 384.

60. It may appear that in adopting such a strategy Locke also is making the mistake of characterizing what pertains to the

Mind in terms of what pertains to Matter (Anonymous Author, A Philosophick Essay. . . , 1703, p. 5). But, it has to be noted that Locke is here using terms of "sight" only analogically and not literally.

61. Armstrong notes that:

> The "other sort of Logic or critic" is, I submit, the sort of traditional metaphysics defended by John Sergeant and it should be clear that Locke intends his doctrine of Signs to replace it.
> (John Locke's 'Doctrine of Signs': A New Metaphysics, J.H.I., 1965, p. 379)

The "Metaphysics" which Armstrong criticizes as Locke's target interestingly contains many of the features of "formalism" that are discussed in this dissertation.

CHAPTER IV

LOCKE'S ANTI-FORMALISM AT THE PROPOSITIONAL LEVEL

4:1 Introduction:

The controversy between Locke and Sergeant over identical Propositions reveals their respective "anti-formalistic" and "formalistic" positions at the propositional level. Their controversy is foreshadowed by that between Sergeant and John Tillotson. In a series of polemical exchanges with Tillotson, Sergeant made explicit the role he assigned Identical Propositions. Locke had in his possession most of Tillotson's works,[1] commended his clarity of expression,[2] and had frequent consultations with him.[3] Locke owned Method to Arrive at Satisfaction in Religion, where Sergeant uses Identical Propositions to establish some of his theological claims.[4] It is most probable that Locke was aware of the Sergeant-Tillotson controversy.

Sergeant continued the controversy over Identical Propositions with the Ideists, and considered Locke as one of them.[5] His stand on Identical Propositions is first formulated in his polemical exchanges with Tillotson, particularly in A letter of Thanks from the Author of Sure Footing to his Answerer, Mr. J. T. (1666), The Method to Arrive

at Satisfaction in Religion (1671), Reason against Raillery (1671), and Errour Non-Plust: or Dr. Stillingfleet shown to be the Man of No Principles (1673). In Method to Science (1698) he presents his views on identical Propositions in an elaborate manner within a philosophical context. His criticisms of the views of the Ideists, in particular those of Locke, are given in Non-Ultra or A Letter to a Learned Cartesian Settling the Rule of Truth, and First Principles Upon their Deepest Grounds (1698). His response to Locke's criticisms of identical Propositions is also given in Solid Philosophy Asserted (1697). He confirms his views on identical Propositions in Transnatural Philosophy... (1700).

Locke's stand on identical Propositions is found in the chapters entitled, "Of Trifling Propositions" (IV:VIII), "Of Maxims" (IV:VII), and "Of the Improvement of our Knowledge" (IV:XII) in the Essay. In his correspondence with Stillingfleet, Locke clarifies his position. The marginal comments in Solid Philosophy Asserted also confirm and in some cases anticipate his additions to the fourth edition of the Essay, where he further elaborates his views.

4:2 Sergeant's Formalism at the Propositional Level:

Sergeant adopts the subject-copula-predicate analysis of propositional structure. He states:

> I meant no more by the word (Proposition) but a Speech that affirms or denies: I added that

> therefore, such speeches if Affirmative (and the same Mutatis Mutandis is to be said of negative ones), must consist of something that is affirmed, something of which it is affirmed, and some word which affirms or expresses the affirmation, which three parts of a proposition, Logicians agree to call Predicate, Subject and Copula.
> (Non-Ultra, section 4, p. 595)

Earlier in Method to Science he makes it clear that he considers the Proposition as a mental entity but verbally expressible. The subject-copula-predicate structure pertains to the proposition whether it be verbally expressed or not. He claims:

> Tho' even taking them as in our Understanding, they have, even there, their Subject, Copula, and Predicate, as well as when they are pronounced or put in Words...
> (Method to Science, Book II, Lesson 1, p. 117)

For him, propositions may be true or false. As one interested in constructing a method to knowledge, he is interested only in true propositions. False propositions may be well-formed, but they are useless for knowledge purposes. He cites the School Boy's construction of the Latin sentence meaning "Virtue and Vice are both laudable". Sergeant points out that such a sentence may be grammatically proper but, since it is false, it is useless for knowledge purposes (Method to Science, Book II, Lesson 1, p. 113). Hence, he needs a way to differentiate true from false propositions (Ibid.); a criterion of truth.

He stresses the importance of distinguishing false from true

propositions, and of the necessity of the truth of First Principles, in his Method to Science thus:

> Since, as was said, Judgments or Propositions may be True or False, and in laying the Method of Science we can have no occasion to speak of False Judgments, but in order to the avoiding of them, which is easily done, if we settle the knowledge of the true one; hence, that which concerns us, is to treat of True Judgments or Truths; and, in the first place, of those Propositions or Judgments that are the First Truths which we call the First Principles. Again, since all propositions are either evident or inevident, and inevident or obscure ones cannot avail us in our quest of Science, it follows, that only evident propositions are to be treated of, or made use of those who aim at Scientifical knowledge. Wherefore, since all propositions or judgments that are evident must be self-evident or made evident, which is done by way of proof, and these latter must depend on the former for their evidence, we are therefore to begin with the former which are self-evident.
> (Method to Science, Book II, Lesson 11, p. 130)

Since Sergeant works within a context where deduction is taken to be the appropriate method to knowledge, not only has he to establish a satisfactory means to differentiate true from false propositions but also, by that means, guarantee the truth of first principles. In this connection, he employs the term "Rule of Truth" or "Ratio-Cognoscendi-Veritatem" or "Rule of Knowing Truths" (Non-Ultra, sections 6-19, 30, 37, 38, 48, pp. 596-623). He assigns two roles to it - as criterion or "test" of truth (Ibid., section 6, p. 596) and as First Principle or Maxim or "First Rule of Knowing" or "First Truth" or "Rule of Knowing all Truths" (Ibid., section XI,

p. 599; section 10, p. 598; section 18, p. 603). There is an analogy between the way he employs "Rule of Truth" and "Rule of Faith". In his discussion of "satisfaction in religion" (Method to Arrive at Satisfaction in Religion), Sergeant states:

> Wherefore, he who sincerely aims at Satisfaction in Religion ought first of all find out and establish some assured means or Rule by which he may be secure which is True Faith: For till this be done he cannot be secure either of Scripture, Church, Council or Fathers... Hence the necessity for the Rule of Faith.
> (p. 243)

He assigns two roles to the "Rule of Faith":

1. It provides the "assured means" by which one may differentiate true from false doctrine. According to him the "Rule of Faith" must be the means to assure us infallibly what Christ taught" (Ibid., pp. 243-245).

2. It acts as the First Principle providing the necessary foundation for Christian Faith. He states:

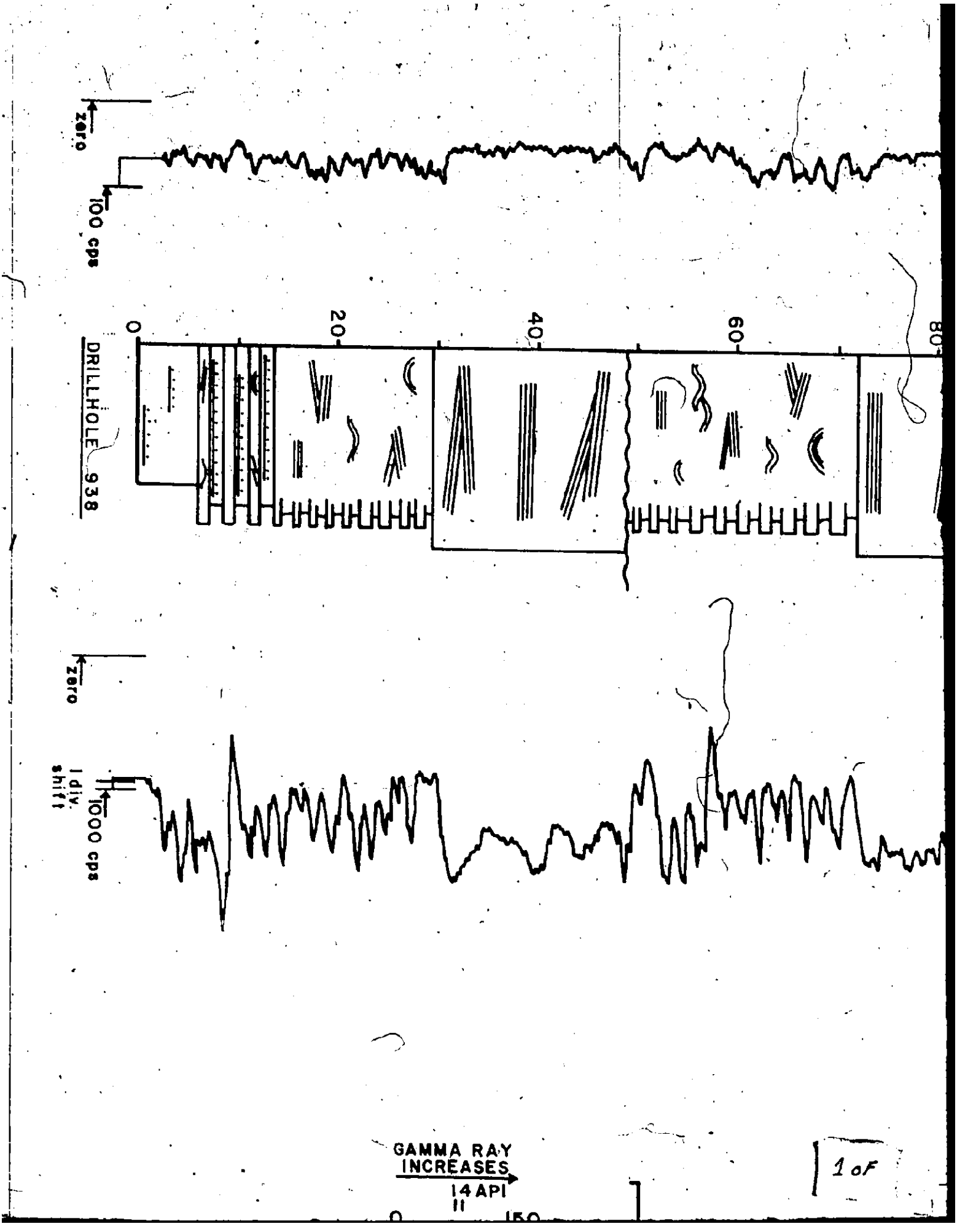
> Since all superstructures must needs be weak whose Foundation is not surely laid; He who desires to be satisfied in Religion ought to begin with searching out and establishing the ground on which Religion is built, that is the First Principle into which several points of faith are resolved and on which their certainty depends... Hence, the necessity for the Rule of Faith.
> (Ibid., pp. 241-242)

Just as the "Rule of Faith" acts both as "criterion of faith" and as "first principle", Sergeant takes the "Rule of Truth" both as

"criterion of truth" and as "first principle". But, as we shall see subsequently, a "first principle" has to function also as a "criterion of truth", in addition to meeting certain other requirements. X may be a "criterion of truth" without functioning as a "first principle" but, if X is a "first principle" it functions as a "criterion for truth" as well. He claims that the Identical Proposition is the legitimate "Rule of Truth" both in its role as "criterion of truth" and as "first principle". Locke's controversy with Sergeant centers around this question.

Sergeant classifies Identical Propositions into (a) Materially and (b) Formally Identical Propositions.

A Materially Identical Proposition is one in which the Subject and Predicate Notions are of the same thing but as Notions they are not the same (Reason against Raillery, section 3, p. 11). In all Materially Identical Propositions "what corresponds to both their notions must be found in the same thing" (Ibid., section 4, p. 14). In such a proposition, "what is meant by the two terms, exists in the same thing" (Method to Science, Book II, Lesson 11, p. 137). "A Stone is hard" and "Socrates is Wise" are some of the examples he cites. Sergeant characterizes Notions in terms of form (Chapter III). In such a context, in a Materially Identical Proposition, the Notions are "forms" of things "spiritually existing in our Understanding" but, as "forms", they are not the same. For instance,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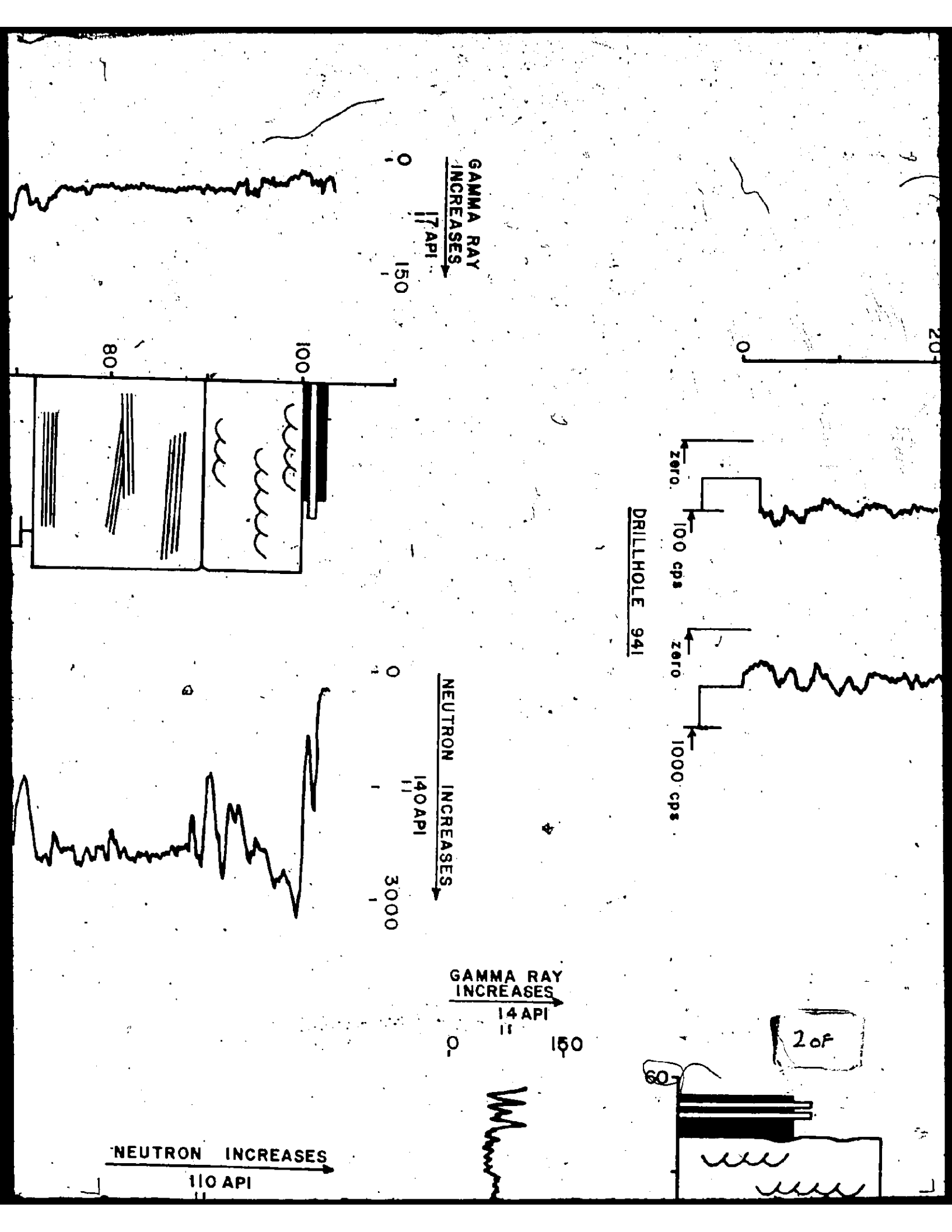
"A stone is hard" is a Materially Identical Proposition for it means: It is the same thing which is "Stone" (or which is informed by "stoneness") and which is "hard" (or, which is informed by "hardness), (Ibid., p. 137). "Socrates is Wise" is materially identical, for "that which answers to 'Socrates' and 'wisdom' are found in the same thing", though they are themselves not identical to one another (Solid Philosophy Asserted, Reflexion 17, section 4, p. 320). Sergeant's description here resembles the Thomistic account of Materially Identical Propositions.[6]

A Formally Identical Proposition is one in which the Subject and Predicate Notions are not only of the same thing but also as Notions they are the same, i.e. they are the same forms of the same thing (Method to Science, Book II, Lesson 11, pp. 131-136; Reason against Raillery, Discourse II, section 9, p. 14). Such a proposition is also called "perfectly", "supremely", "manifestly", "exactly" or "directly" identical (Method to Arrive at Satisfaction in Religion, pp. 259-60; Method to Science, Book II, Lesson 11, pp. 131-149; Solid Philosophy Asserted, Reflexions 17 & 19; Reason against Raillery, Discourses II & III; Non-Ultra...). It is ideally formulated when the same manner of expression is used. Then it is called "formally identical in expression" or "identical in every regard". "A Tree is a Tree", "Man is Man", "Yellow is Yellow", "Existence is Existence", "Self-Existence is Self-Existence" are some examples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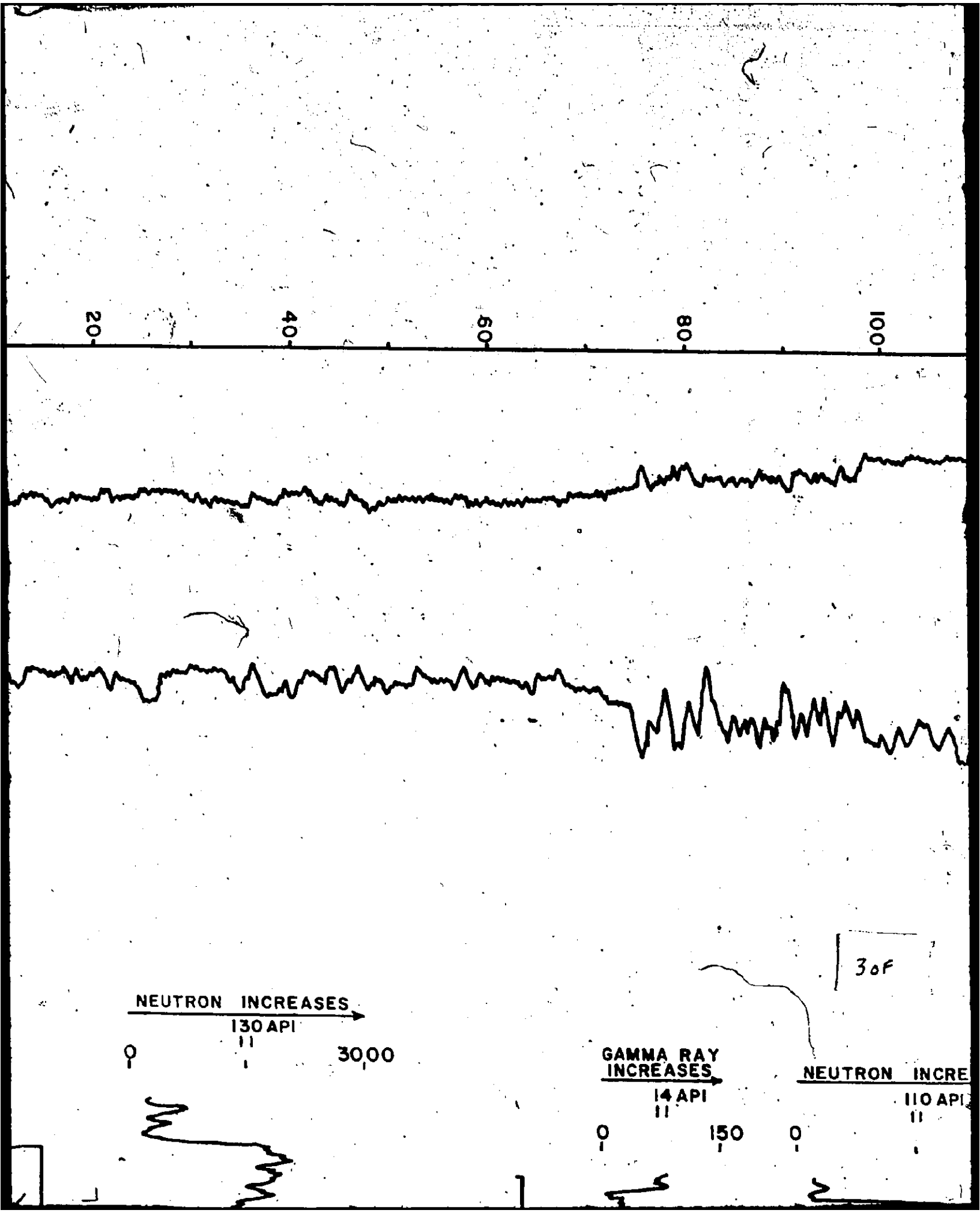
cited (Ibid.). But, even when expressions differ, there can be formal identity, as in "The Whole is greater than a Part". This is formally identical in sense. It may be reduced to one which is formally identical in expression as "That which is more than a Part is more than a Part" (Reason against Raillery, Discourse III, pp. 23-24; Non-Ultra. . . , section 24, p. 607). Definitional Propositions, like "Man is a Rational Creature" are also formally identical in sense though not in expression (Method to Science, Book II, Lesson 11, p. 132). For Sergeant, a definition is of a thing and brings out its essence or essential form, which is that quality or set of qualities that makes a thing what it is from the first instance of its being and is inseparable from it. He adopts the genus-et-differentia mode of definition (Method to Science, Book II, Lesson 11, pp. 131-32; Solid Philosophy Asserted, Reflexion 19, section 9, pp. 371-72). In a definition like "Man is a Rational Creature" not only what is informed by "humanity" and "rationality cum creature-hood" is the same but also what is called "humanity" is identical with what is called "rationality cum creature-hood". The latter stands for the essence or essential form and differs from the former only in expression. According to Sergeant, such a definitional proposition may be converted into "Man is Man", which is formally identical in expression too (Method to Science, Book II, Lesson 11, p. 132). The latter is free from equivocation and this is one reason why he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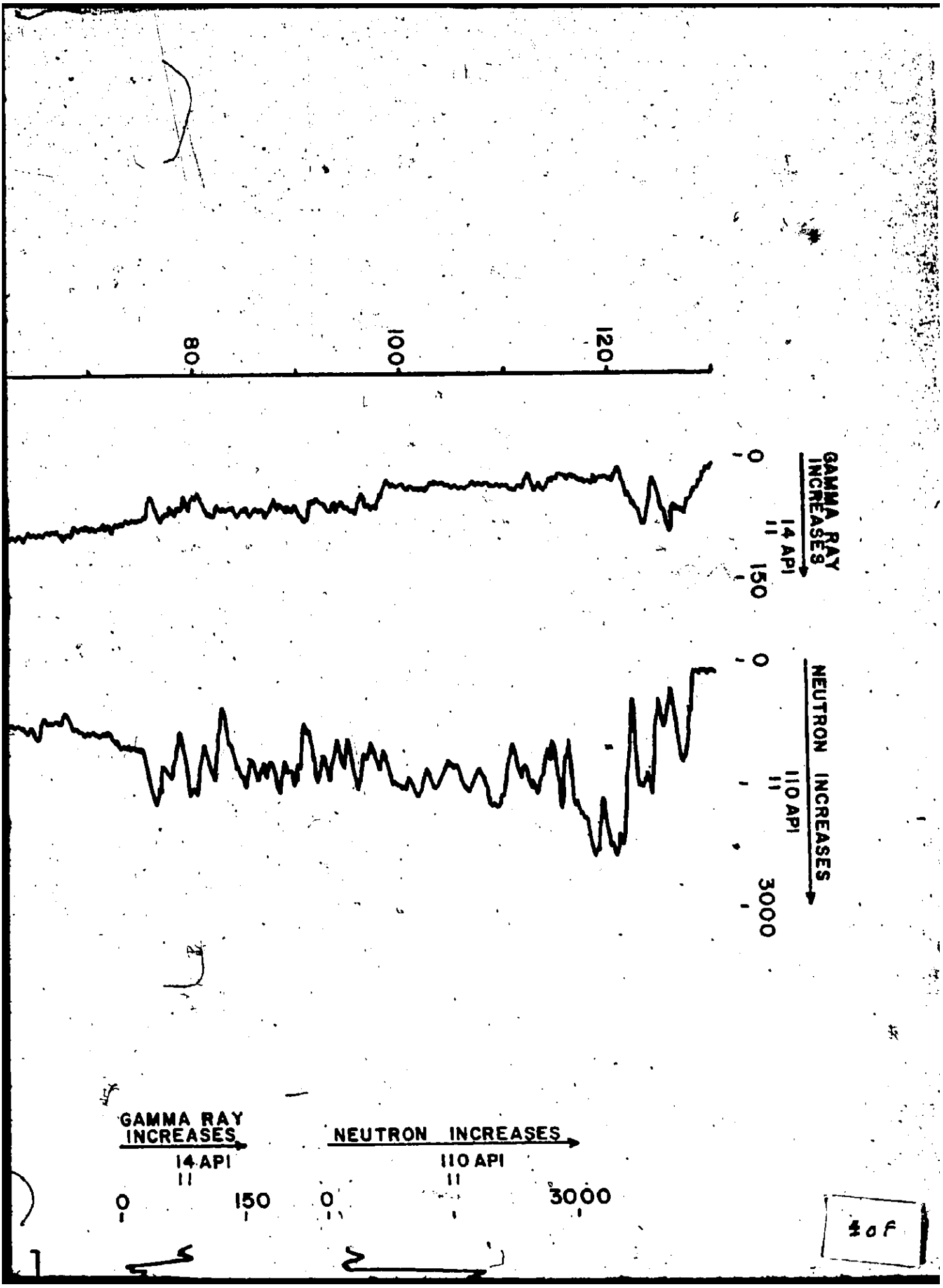
prefers the latter (Ibid.).

On the basis of the extension of the subject term, Formally Identical Propositions may be further classified into Universal and Particular Identicals (Solid Philosophy Asserted, Reflexion 19, pp. 364-68). "Everything is what it is" or "Existence is Existence" is for him a Formally Identical Universal Proposition because of the extension of "Existence" or "Everything that is" (Ibid.). On the other hand, "Yellow is Yellow", "A Tree is a Tree" or "Man is Man" are Formally Identical Particular Propositions because the notions "tree", "yellow" and "Man" fall within the extension of "existence" or "everything that is". Particular Identicals are instances of Universal Identicals (Ibid.). "Self-existence is Self-existence" is a transcendental Formally Identical Proposition. It refers to God's existence (Method to Science, Book II, Lesson 11, Corollary III, pp. 137-38, pp. 145-46; Reason against Raillery, Discourse III, section 21, p. 41).

But in all Formally Identical Propositions (Particular, Universal and Transcendental), the pattern of relationship between the Subject and Predicate Notions is the same. It is one in which the Notions are not only of the same thing but also, as Notions, they are identical to one another. In a Materially Identical Proposition there is a possibility of having an instance of one notion without thereby having an instance of the other. One may have a notion of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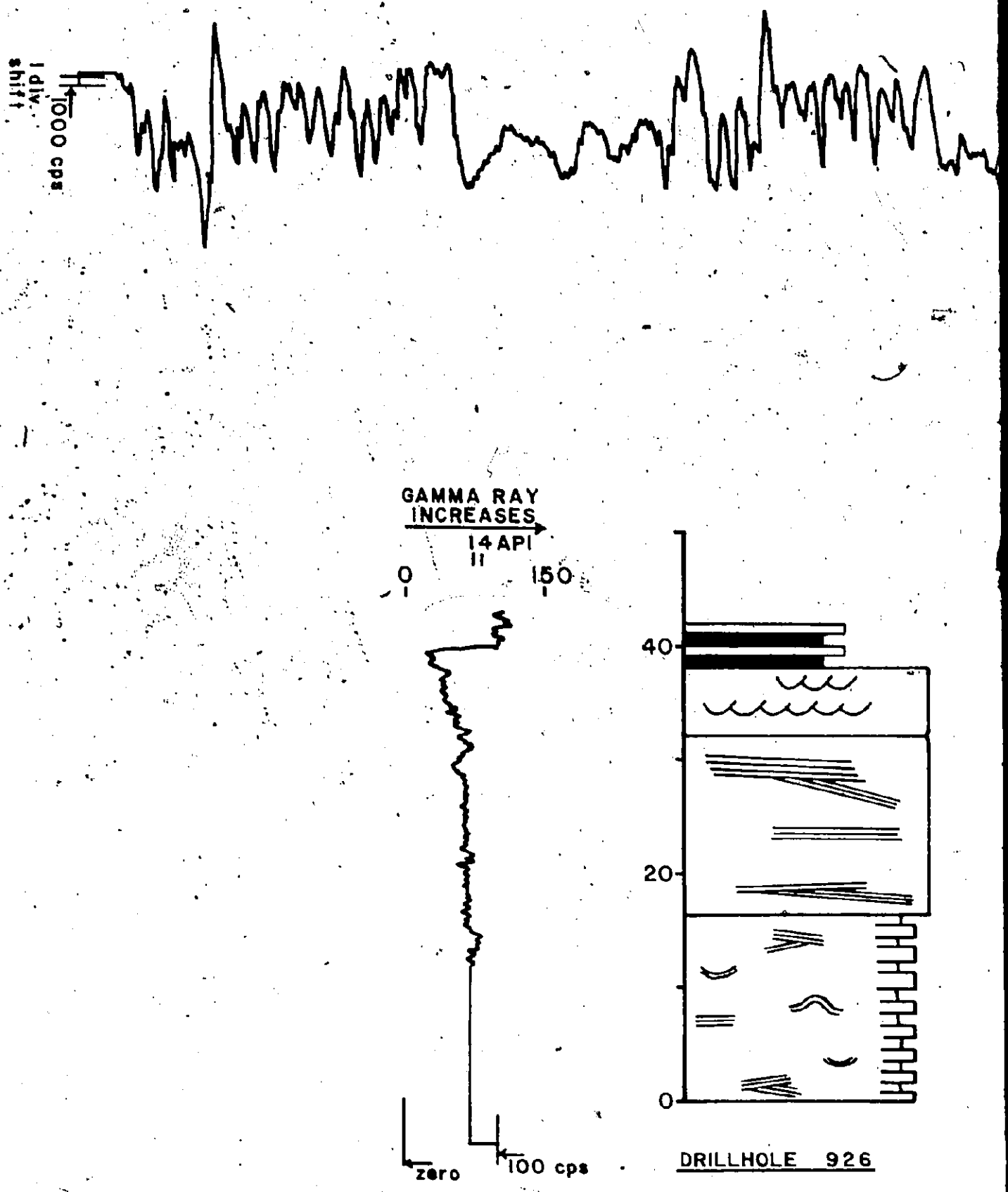
"humanity" without thereby having an instance of "whiteness" and vice-versa, as in "Man is White". These notions are in Sergeant's terminology "disparate forms". But, in a Formally Identical Proposition, since the notions are themselves identical to one another, there is no possibility of having an instance of one without thereby having an instance of the other notion, unless one is not sure of the meaning of the words he employs to express the notions concerned. For instance, if one does not know the meaning of either "Man" or "rational creature", there is a possibility of having an instance of one of these notions without thereby having an instance of the other. But, when one knows the meanings of the words which express these notions, there is no such possibility. In a Proposition which is formally identical in expression, such as "Man is Man", when both the words (i. e. "Man" as subject and "Man" as predicate) are employed in the same sense, there is absolutely no possibility of having an instance of one without thereby having an instance of the other notion. In this dissertation, the pattern of relationship between the Notions in a Formally Identical Proposition is called its "formal schema" and is symbolized as "N = N", "N" standing for Notion and "=" standing for "Formal Identity". The "formal schema" of a Materially Identical Proposition is symbolized as "N - N", "-" standing for "Material Identity".

The other features of these types of propositions and the way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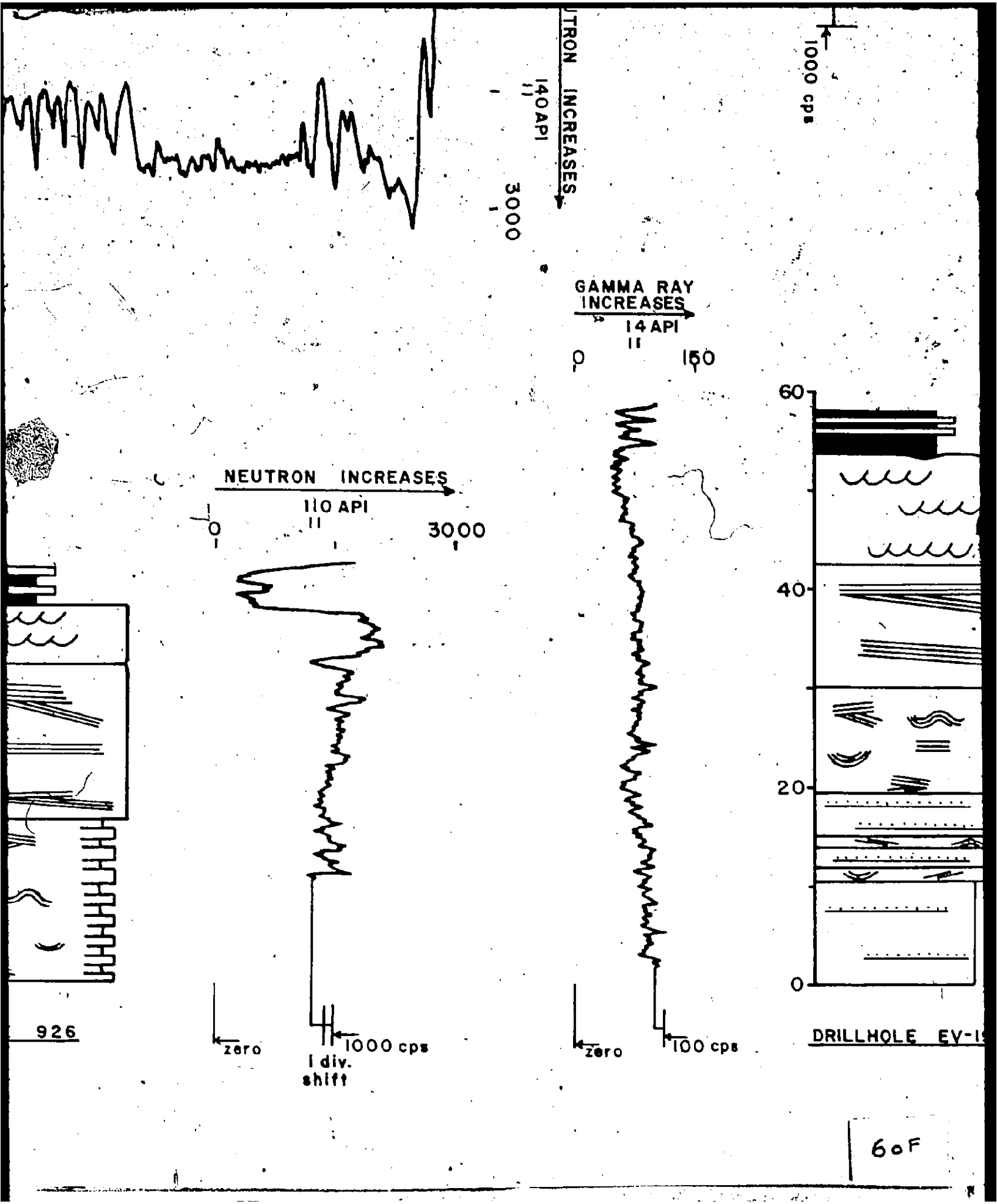
they are inter-related become clearer, when we examine Sergeant's claims concerning them.

For Sergeant, Formally Identical Proposition is the legitimate "Rule of Truth" both as "Criterion" or "Test" of truth and as "First Principle".

Formally Identical Proposition as Criterion of Truth:

Sergeant acknowledges that truth and falsity properly belong to propositions (Non-Ultra..., section 4, p. 595). He also acknowledges that a true proposition, unlike a false one, corresponds with reality; that there is a "conformity" between a true proposition and the state of affairs to which it refers (Method to Science, Book II, Lesson 11, Corollary III, pp. 138-39; Book III, Lesson III, section 16, p. 258; Reason Against Raillery, Discourse II, sections III & IX, pp. 10-11, 14-15). He states:

> I know it will run in the Objecter's Fancy, that we can connect Notions which our selves have coined; but he may easily correct these Misconceits, by Reflecting that this Proposition is True; and that truth must not be grounded on our Alery Fancies, but on the Solid Nature of the Thing to which it is a Conformity. I know he will Fancy that the Copula (IS) has an office of merely connecting without any Reference to the Existence of the thing, which is its proper signification;... we cannot with truth conjoyn Notions in our Minds that are not conjoyned before hand in the Thing; and that when Notions are of Positive Being, or such as are not Chimerical and Contradictory, the Copula (IS) must signify Existence, and does but say in our Mind what is in the Thing if the saying be true.
> (Method to Science, Book II, Lesson II, p. 140)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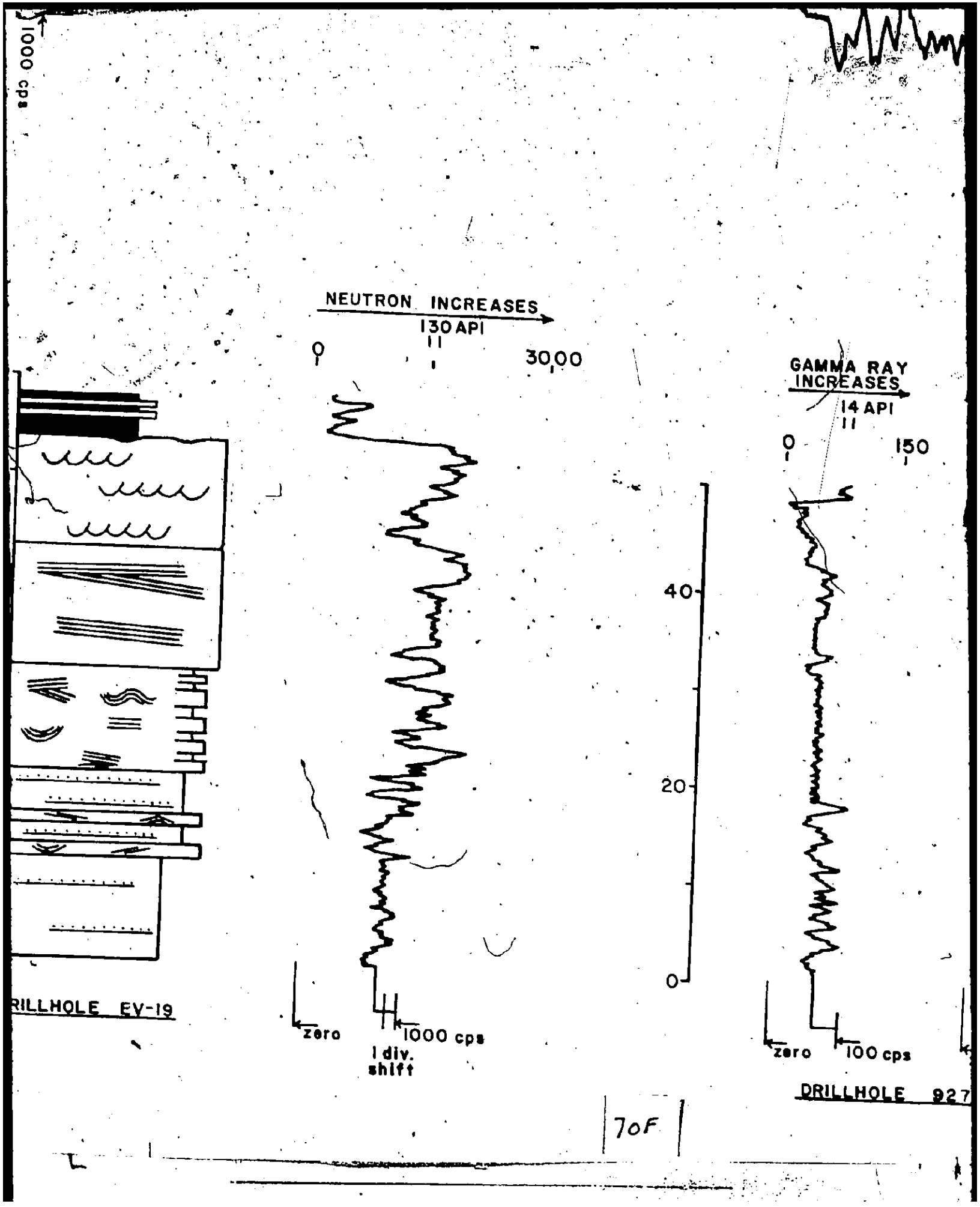
The Copula in a true proposition not only predicates but also asserts that the relation really is in the world outside.[7] For him, a Materially Identical Proposition is capable of being true. It is true when, in some way, the subject and predicate notions are of the same thing in reality, though not the same as notions. For instance, if the proposition "Socrates is Wise" is true, it means that there is in reality something which is both "Socrates" and "Wise" and that the relation between what is called "Socrates" and what is called "Wise" really is as indicated by the copula in the proposition. There is a correspondence between the true proposition and the state of affairs to which it refers. But, according to Sergeant, there is a deeper level of investigation which is open to the "Acute Logician" through the employment of Artificial Logic. Sergeant is preoccupied with analyzing the "criterion of truth" at this level. He presents the Formally Identical Proposition as the "criterion of truth" which underlies the characterization of truth in terms of correspondence and does not refute it; the "correspondence" criterion of truth presupposes the "identity" criterion.

According to him, a criterion of truth must be objective and be able to show that it itself is true without the aid of any other criterion.

According to the "objectivity" requirement, what makes a proposition true must not be a subjective factor. Sergeant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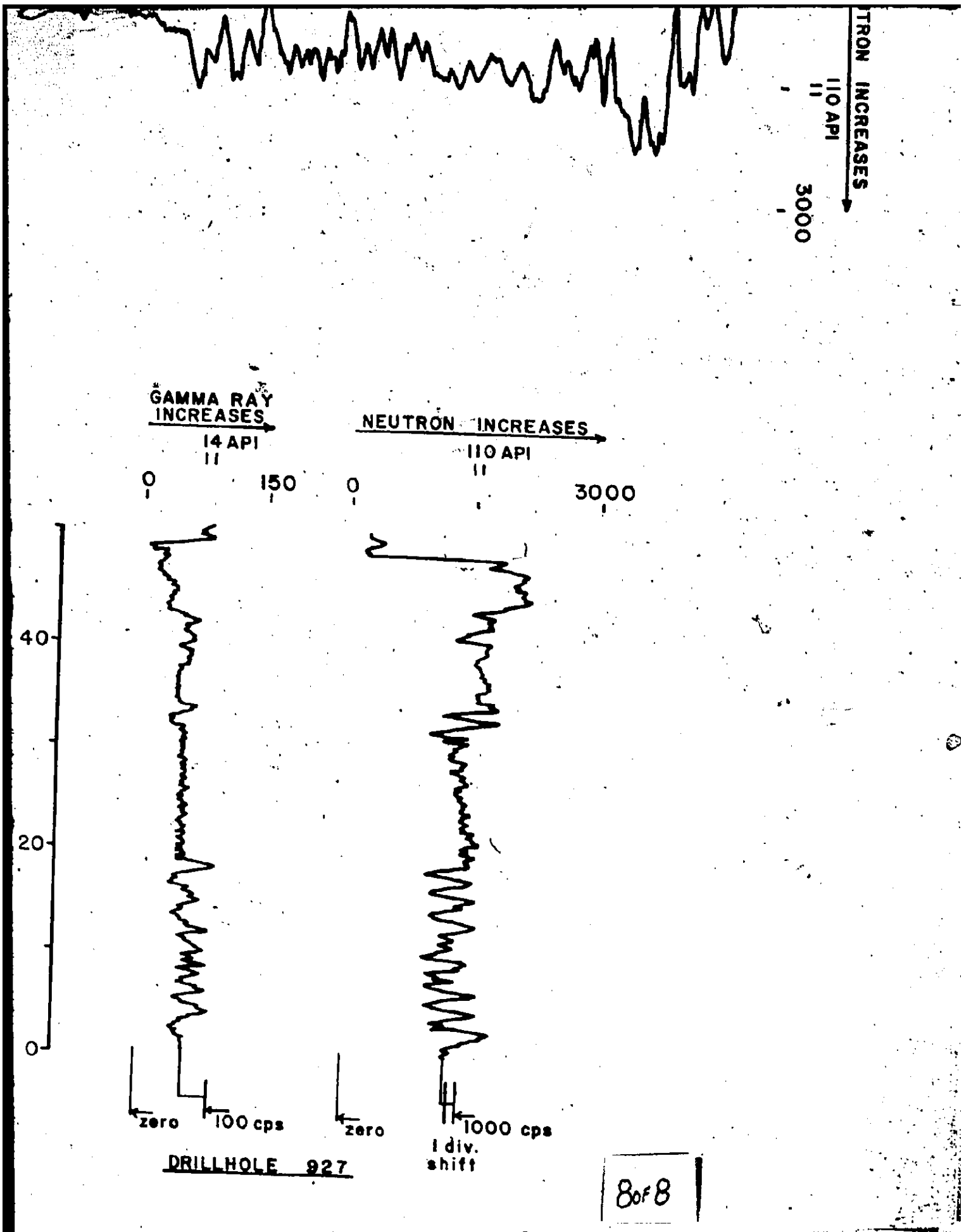
acknowledges that when a Proposition is known to be true, the act that is involved in knowing the truth of the proposition may be one of clear and distinct perception. But he insists that the truth of the proposition must not be placed in the perceptual act, which is a subjective factor. In his view, the Cartesian theory of Truth presents such a subjective criterion of truth. One of the reasons for Sergeant's publishing Non-Ultra... is to attack the theory of truth of the "Ideists" (Non-Ultra..., section 6, p. 596). Locke is identified as one of them. On the assumption that "one cannot see or know what is not" (Ibid.), Sergeant claims that "clear and distinct perception" which pertains to the act cannot take place until and unless something other than the act "determines and specifies" it. This is part of his overall thesis that what specifies and determines an act has to be independent of it. He is convinced that the ideists subjectify the criterion of truth when they propound "clear and distinct perception". He asks:

> The only question is whether this be a Rule of Truth. In order to the clearing of which, I ask: Was it True before you saw Clearly and Distinctly it was true? Or, Did it become True by your seeing it (as you phrase it) Clearly and Distinctly to be True? If it were before you thus saw it to be True; then 'tis unavoidable, there was Another Rule, or Reason, for that Truth which anteceded your seeing it to be such; and therefore, your Clear and Distinct Perception could not be the Rule of knowing that Truth, being Subsequent to it. And, if you say, it became True by your Seeing it Clearly and Distinctly, then it was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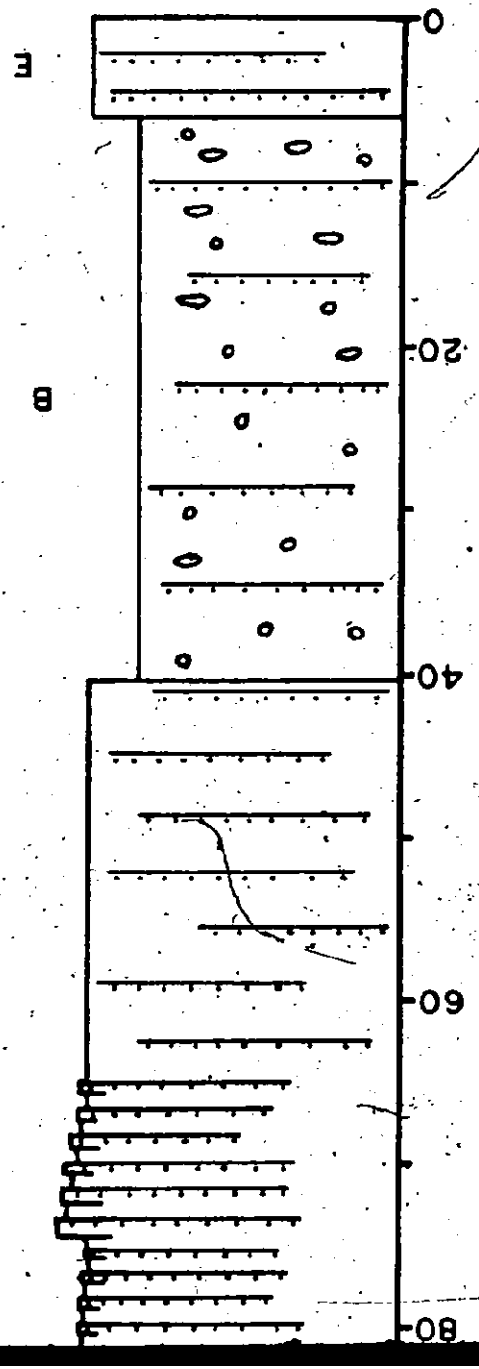
> not True before; and then, you saw that to be True, which was not True; that is, you saw it be otherwise, than in Effect and Reality, it was. And, consequently, that Pretended Sight or Perception is so far from being a Rule of Truth, that it is a palpable Errour and Mistake; and therefore, all judgments issuing from it must be False. Which, instead of constituting it a Rule of Truth, would make it, indeed a Rule of Falsehood.
> (Ibid., section 7, pp. 597-8)

In the section which follows he makes explicit his thesis that the "object" which "specifies and determines" the "act" has to be separate from the "act" (Ibid., section 8, p. 598). According to him, the placing of the "criterion of truth" in the act also indicates a confusion between what makes a proposition true and the manner of knowing its truth. He states:

> In constituting this Perception to be your Rule, you begin at the wrong end; for, seeing this Perception is an Act, and that the Object specifies every Act. And makes it such as it is; and, by being in it self True, it thence makes our Judgment (when we rightly conceive it) to be True also. This Distinction, then, in our present case, is altogether Frivolous; and the alledging it, Preposterous. To Perceive, is an Act of Understanding, and the same as to know; and to Perceive Clearly and Distinctly is the same as to Know Perfectly. Whence follows, that to say, (I know that to be true, which I Clearly and Distinctly Perceive to be so,) is the very self-same sense as to say (What I know to be True, I know to be True;) or, (I know what I know;) which is a good Confident saying; and, moreover True too. But, nothing can be more ridiculous, than to make Knowing the Rule of Knowing or a Rule to make a thing true to us. To say (A thing is, because it is) or (I know it because I know;) is more like

SECTION II



SOLEMARK ORIENTATION

WOOD FRAGMENT – PARTING LINEATION ORIENTATION

DIP OF LOW-ANGLE DIVERGENT SETS

FLOW DIRECTION FROM TROUGH CROSSBEDDING

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> Woman's Reason, when she is fixed and wilful;
> than a Rational Man's or a Philosopher's.
> (Non-Ultra..., section 38, p. 616)

Sergeant claims that he differentiates the "Rule of Knowing Truths" from the manner of knowing truths. For him, knowing depends on and is subsequent to the "rule"; the "rule of knowing" pertains to the "object" while "knowing the rule" pertains to the "act". According to him, the Ideists confuse these two and present "clear and distinct" perception as the "Rule of Knowing" instead of taking it as a manner of knowing. Sergeant claims that his presentation of the "Rule of Truth" is free from such confusion.

To guarantee the "objectivity" of the "rule of knowing" and free it from subjective factors (i.e. those pertaining to the act of perceiving or knowing the truth), Sergeant makes it reside in something which is separated from the act. Here he resorts to a religio-metaphysical explanation.[8] He turns to the "Metaphysical Verity" of things, whereby he means the truth that things are what they are. Metaphysical Verity is descriptive of an ontological state of affairs; it is about things. But, since Sergeant considers Notions as "things themselves", he finds it proper to characterize them in terms of Metaphysical Verity. He connects this aspect of Notions ultimately to God, asserting that they "partake" their "verity" from the "Ideas in the Divine Understanding from which they inerringly flow, and which are essentially unchangeable" (Method to Science, Book I,

SOLEMARK ORIENTATION

DIP OF RIPPLE CROSSLAMINATION

DIP OF LOW-ANGLE DIVERGENT SETS

FLOW DIRECTION FROM TROUGH CROSSBEDDING

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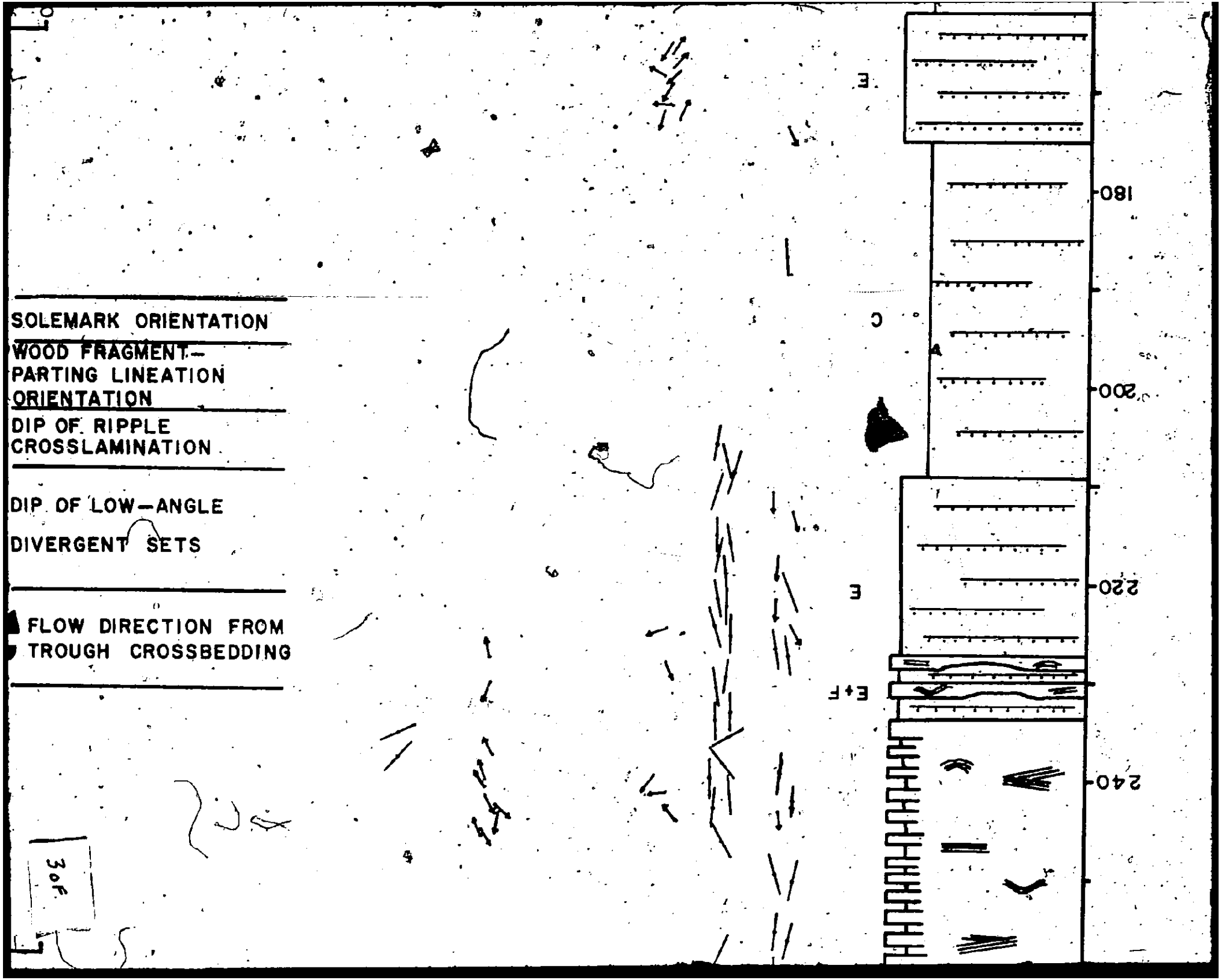
Lesson I, p. 5). He makes the "God of Truth" the "sole author of the truth in us" (Ibid.). He states:

> The Ideas, or Essences of each Piece of the World's Fabrick were in the Mind of the Divine Architect, ere they were made. Again; since he did not make them by Hand of some Bungling Journey-Man, who might, perhaps, deviate from his Pattern or Model; but immediately by his own Infinite Wisdom and Power, it cannot be doubted but that each Part of the Creation was framed exactly according to the Archetypes of those Unchangeable Ideas; and therefore, was perfectly Established in its respective Essence, or Nature, as those Original Ideas were, that is, they were fix'd to be what they are, by an Inerrable Hand, in which consists that which we call their Metaphysical Verity.
> (Non-Ultra..., section 10, p. 599)

In tracing the essences of things to ideas in God's Mind, Sergeant is more Thomistic than Aristotelian. Things are what they are because God fixed them to be so. But such a state of affairs in itself is of no use to help one determine the truth of propositions. The Metaphysical Verity of things has to be translated into something that can be related to propositions, since

> ...all our Discourses are made up of Propositions; nor can a Rule or Principle be expressed, but by such Forms of Speech... Hence, we become forced to put the Nature of the Thing, or its Metaphysical Verity, into such a Frame of Speaking; so to fit it for Discourse: which 'tis Impossible to do, but that Speech, or Proposition, whether we will or no, must be an Identical one.
> (Non-Ultra..., section 13, p. 601; Cf. Solid Philosophy Asserted, Reflexion 18, section 11, p. 355)

Sergeant claims that the Identical Proposition translates a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theologically justified ontological state of affairs - that things are what they are fixed by Divine Providence - into a propositional form so that it could be related to propositions in discourse (Cf. Reason against Raillery, Discourse II, section I, p. 16). Formally Identical Proposition expresses the Metaphysical Verity of things. The transcendental Identical Proposition, "I am what I am" or "Self-existence is Self-existence" expresses the verity of God's existence; the Universal Identical Proposition, "Existence is Existence" expresses the Metaphysical Verity of things, which are created by God, in a general manner; the Particular Identicals, like "Man is Man", or "A Tree is a Tree" express the metaphysical verity of instances of things. The Formally Identical Proposition, as the expression of metaphysical verity receives an epistemological importance. It is able to meet the "objectivity" requirement of the "criterion of truth" and thus to be free from Cartesian subjectivism.

In Sergeant's view, the "Rule of Knowing Truths" must show in the first instance that it itself is true. If not, another rule will be required and this may lead to an infinite regress (Non-Ultra..., section 7, p. 597). He claims that the Formally Identical Proposition, whether it be Transcendental, Universal or Particular, is able to show its own truth without the aid of anything extraneous to it because of the "formal schema" that it manifests. He claims that Formally Identical Propositions,

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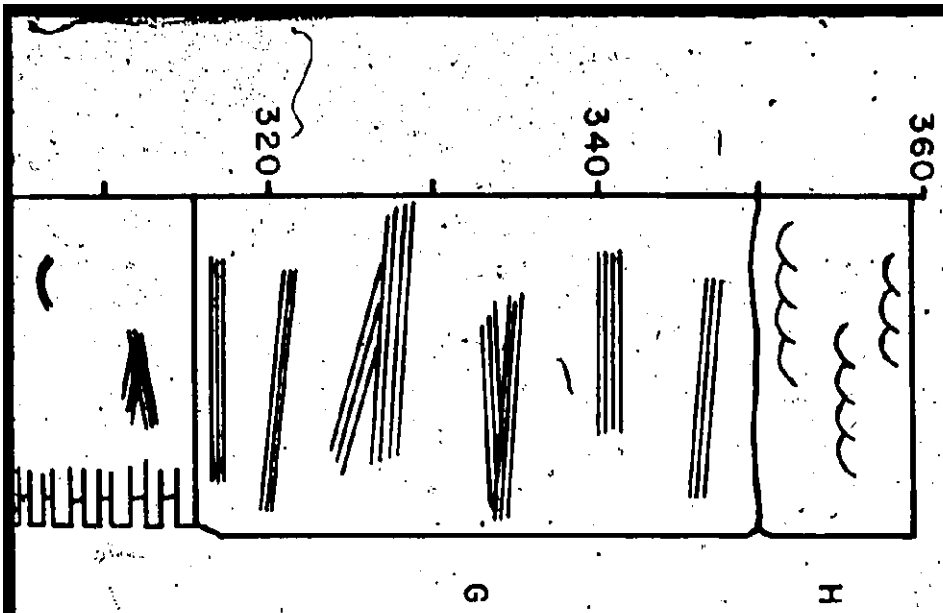
> have all the requisities that can be imagined for a Ratio-Cognoscendi-Veritatem or a Rule of Truth, since they self-evidently manifest to us their own truth and by it give us light to know all others.
> (Ibid., section 9, p. 598)

He classifies true propositions into those which are self-evident and those which are made-evident (Method to Science, Book II, Lesson II, p. 130). Self-evident ones are capable of showing their own truth, and their capacity is dependent on the "form" they manifest - "N = N".

In his Letter of Thanks (1666) to Tillotson in response to the latter's criticisms of Identical Propositions, Sergeant gives his first account of the reasons for his claim that Identical Propositions are First Principles (sections 5-7, pp. 9-14). For Sergeant, the First Principle has to function in the first instance, as a "criterion of truth", fulfilling the requirements stipulated for the latter. We will deal with this aspect, when we discuss the role of Formally Identical Propositions as First Principles in the subsequent sub-section. Here we may note that he asserts that First Principles have to be self-evident and claims the Formally Identical Propositions meet this requirement on account of the "formal schema" ("N = N") they manifest. He states:

> Wherefore, since they cannot be evidenced by any thing out of themselves and yet must be Evident, else nothing could be evident by them, it follows they must bee Evident of themselves or Self-Evident. And in what consists this Self-Evidence?



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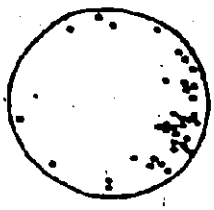

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> meerly in this that no medium, middle Term or Argument can come between the Notions of their Subject and Predicate; which devolves finally into this, that the Subject and Predicate are perfectly the same notion (sic.).
> (Ibid., section 5, p. 11)

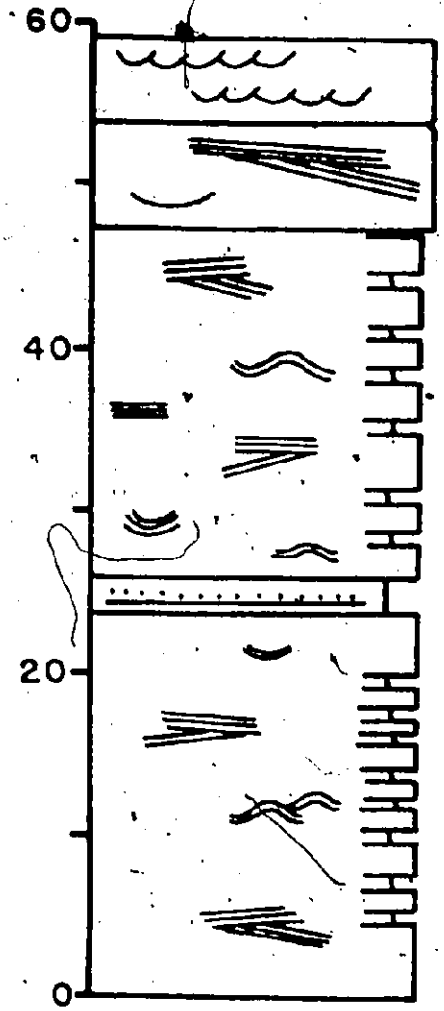
He repeatedly emphasizes the importance of the "formal schema" in enabling the propositions manifesting it capable of showing their own truth without the aid of anything "out of themselves" (cf. Reason against Raillery, Discourse II, section 3, p. 11; section 8, p. 14; Non-Ultra..., section 19, p. 604; section 48, p. 622).

According to him,

> The more remote the terms of a proposition are from formal identity, the less evident they are, and the more proof they require; as also they still grow nearer and nearer to evidence, according to the degree of their approach toward the said Identity.
> (Reason against Raillery, Discourse II, section 8, p. 14)

For Sergeant, self-evident propositions are expressed only through the "formal schema" of formal identity (Solid Philosophy Asserted, Reflexion 17, section 9, p. 325).

There cannot be greater clearness nor evidence than "self-evidence" (Non-Ultra..., section 6, p. 597). Such self-evidence is associated with Intuition. According to him, Intuition guarantees truth and the intuitive act is "clear and distinct", but he does not place the truth obtained thereby on the clarity or distinctness of the act. For him, any act has to be specified and determined by the



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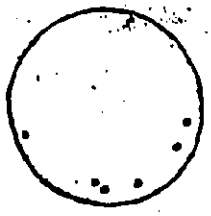

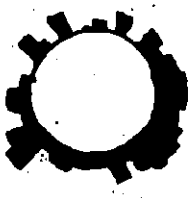

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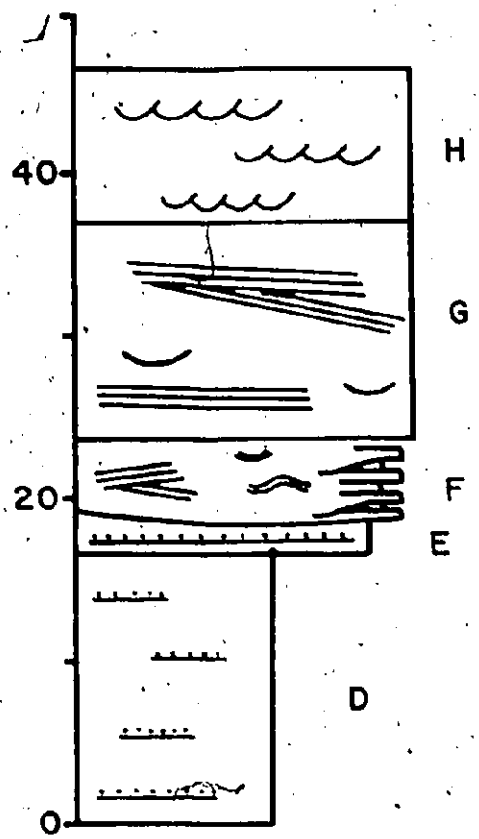
"object". The "formal schema" of the Formally Identical Proposition expressing Metaphysical Verity determines and specifies the act of Intuition. Sergeant is unable to understand Locke when he gives such an important place to Intuition and thinks that it is involved in every step of Demonstration (IV:II:1, 7), but is so reluctant to use Identical Propositions (Solid Philosophy Asserted, Reflexion 17, section 9, p. 325). Sergeant claims that, since self-evidence can be expressed only through Identical Propositions, and since Intuition is determined and specified only through the "formal schema" that the Formally Identical Propositions manifest, it is impossible to give a satisfactory account of Intuition and Self-evidence without introducing Identical Propositions (Solid Philosophy Asserted, Reflexion 17, section 7, p. 323; section 9, pp. 325-6). According to him, the "contradiction is formally and intrinsically the greatest or first of falsehoods". He finds that it "is impossible to assign any truth opposite to a contradiction but an Identical Proposition". He concludes that it has to be "the greatest and the first truth" (Reason against Raillery, Discourse II, section 5, p. 12).

The Formally Identical Proposition, on account of the "formal schema" ("N = N") it manifests, is able to fulfill both the requirements Sergeant stipulates for the "criterion of truth"; it meets the "objectivity" requirement because it expresses the metaphysical



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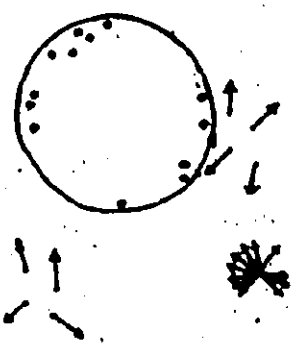

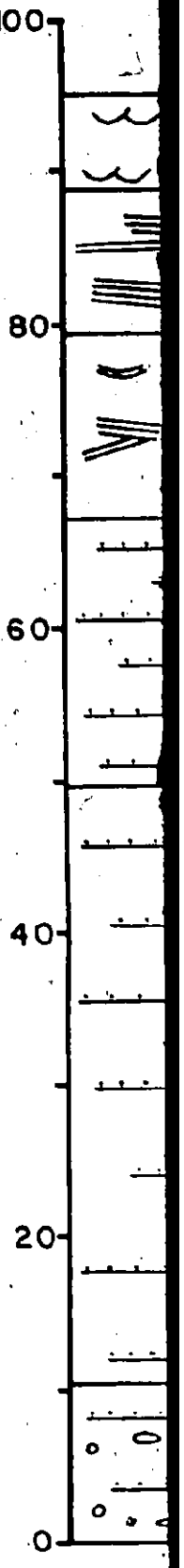

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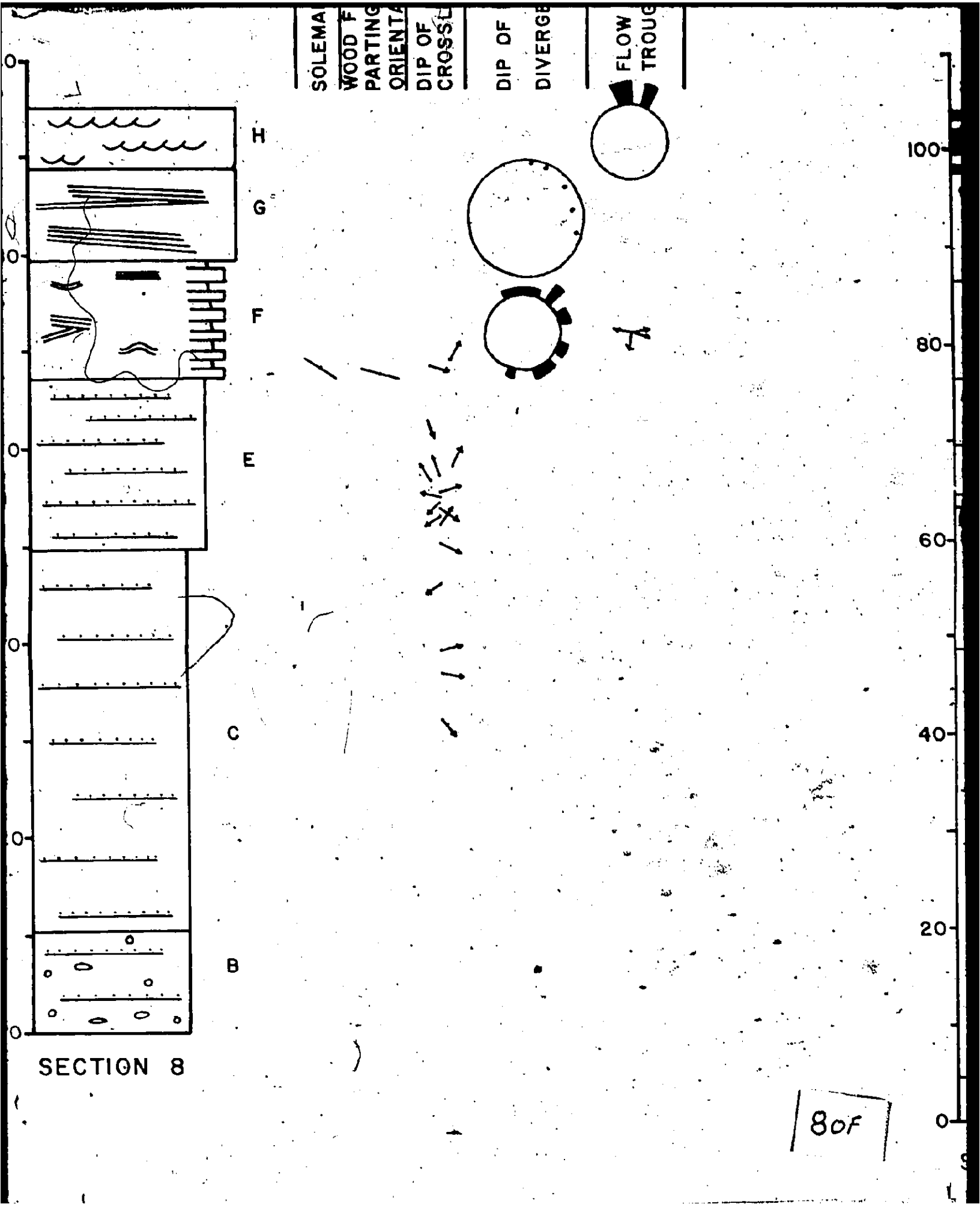
verity of things; it is able to show that it itself is true on account of its "formal identity". Hence, it is the legitimate "Rule of Truth" in its role as "criterion of truth".

This leads Sergeant to make a sweeping claim that every true proposition is reducible to a Formally Identical Proposition and every false proposition to a Contradiction (Method to Science, Book III, Lessons 3 & 4; Reason against Raillery, Discourses II & III; Letter to Locke of May 10, 1696). But he does not expect everyone to reduce every proposition to an Identity. The correspondence criterion is sufficient for differentiating true from false propositions in most cases. But to get at the "deepest grounds" of the truth of propositions one has to resort to the "Identity" criterion. According to him, the Acute and Speculative Logician is sensitive to the "deepest grounds" of their truth - i.e. can be reduced to an "identity". In a Formally Identical Proposition, which manifests the "identity" ("N = N"), the ground of its truth is explicit. But any other proposition which is capable of truth can be reduced to a Formally Identical Proposition. When this is effected, the "deepest grounds" of the truth of the proposition which is reduced become known (Ibid., p. 257).

Sergeant considers propositions which are explicitly Identical as "Supreme Truths", while those which can be reduced to such identities as "Inferiour Truths" (Method to Science, Book III, Lesson IV, p. 361). He claims: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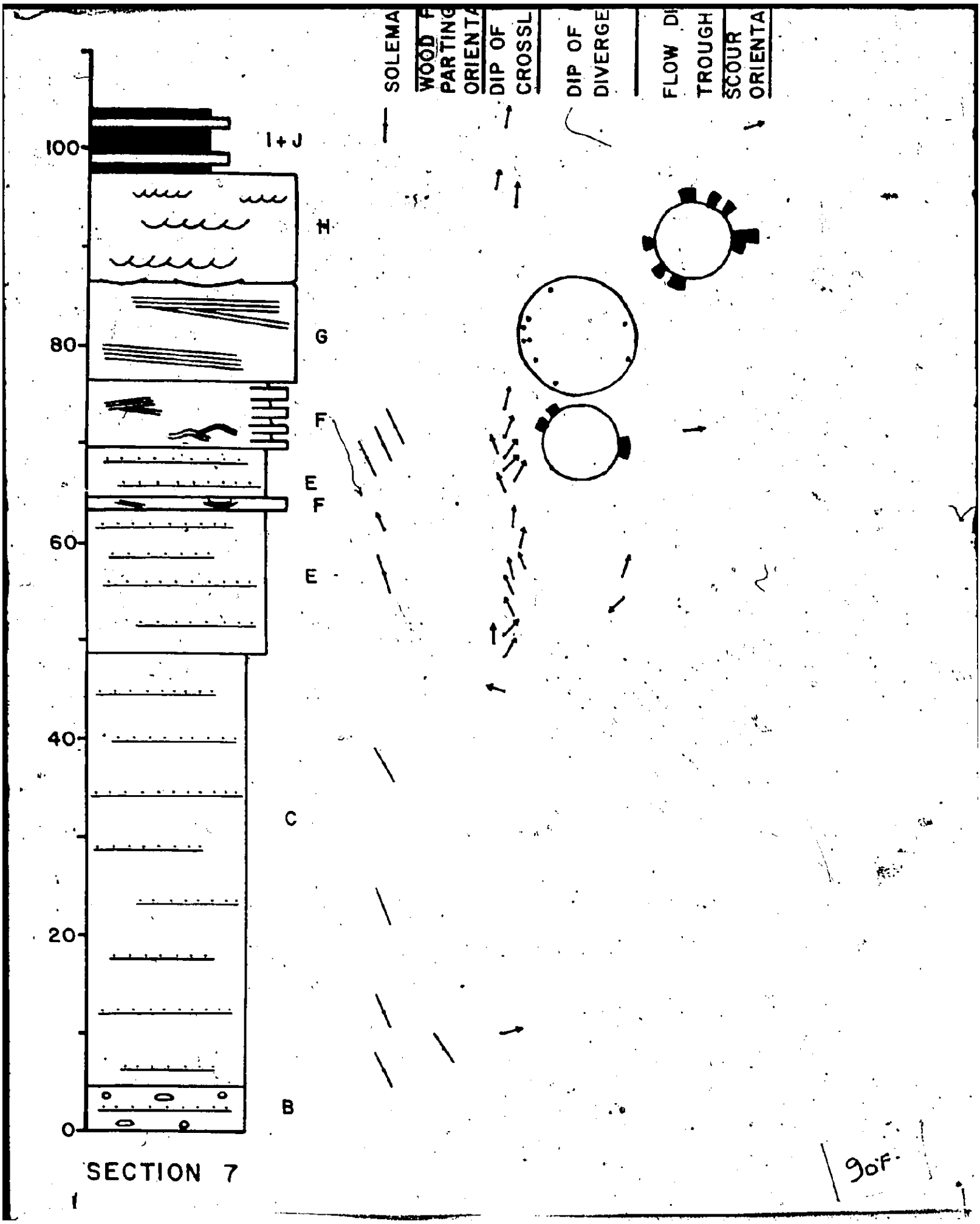
> For, since the Reducing Inferiour truths in any subject to those which are Supreme or Identical is performed by way of Discourse or Drawing Consequences; and it is evident that those Propositions which are Inferiour Truths, and the Supreme ones cannot be the same Formally and Expressly: it follows that they can only be the same Virtually, or as one Truth included in another. Wherefore, as Deducing is nothing but deriving downwards the verity which was in some Higher Truths to the Inferiour ones; so Reducing is the Carrying Upwards or Reducing those Inferiour Truths into those Higher ones on which they depend, and the showing them to be by Consequence the Same: or that the Inferiour Thesis must needs be True, if the Identical or Supreme one is so; and that the verity of the Supreme Truth does by Consequence stand engaged in the Patronage of the Inferiour one. (sic.)
> (Method to Science, Book III, Lesson Iv, p. 361)

For him, Reduction and Deduction differ only in their directions; both are parts of discourse or the process of drawing consequences. He then goes on to give some methods of reducing truths to Identical Propositions. Here is another instance of his oscillation between epistemological and metaphysical modes of analysis.

He commences with what he calls a "Lema" in which he asserts that an "Ens" or "thing" is what is "capable of existing" and the "capacity for existence" is the "Essence" of the "Ens"; and that an "essence" cannot be composed of contradictory qualities, for a "contradiction" cannot constitute that which exists or is capable of existing (Ibid., Lema, p. 362).

The "subject" of propositional discourse is, for him, the



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"thing" or "Ens". Hence, he finds his metaphysical explication of "thing" relevant to the presentation of a method of reducing propositions to Identical Propositions. On the basis of the above stated "Lema", he gives the following method of reduction:

> Hence an easy way is chalkt out how to Réduce any Truth to an Identical Proposition or any Errour to a Contradiction. For, let but the Subject of the Discourse (Homo for e. g.) be defined, and two parts of its definition be defined likewise and so forwards: We shall have gained a clear and distinct Notion of the Subject and of all its Essential Parts. If then the Discourse be about the Nature or Essence of Homo... that Discourse must either evidently close with and contradict some one of those Essential Parts; or agree to them all. If it contradicts any one of them, then, since Essences consist in an Indivisible, it does by Consequence destroy the whole Essence of the Subject and make Homo not to be Homo: And if, it agrees with all its Parts, then, since all the Parts are evidently the Whole 'tis by Consequence, as Certain as it is that Homo is Homo. Since, to say that Homo is an Ens, and such an Ens as is Corpus, and such a Corpus as is Compounded, and such a Compounded Body as is Viveins, and such a Viveins as is Sensitive or an Animal, and such an Animal as can have Notions in it, and can compare one Notion to another, and two to a Third, is evidently to say in Equivalent Terms Homo is Homo.
> (Ibid., p. 362-3)

Here he commences with "Homo is an Ens" and arrives, through defining the "Ens" called "Homo", at "Homo is one who can compare one Notion to another, and two to a Third", i.e. one who can syllogistically reason. As we shall see in Chapter V, Sergeant identifies syllogistic reasoning with the "rationality" unique to Man (i.e. his

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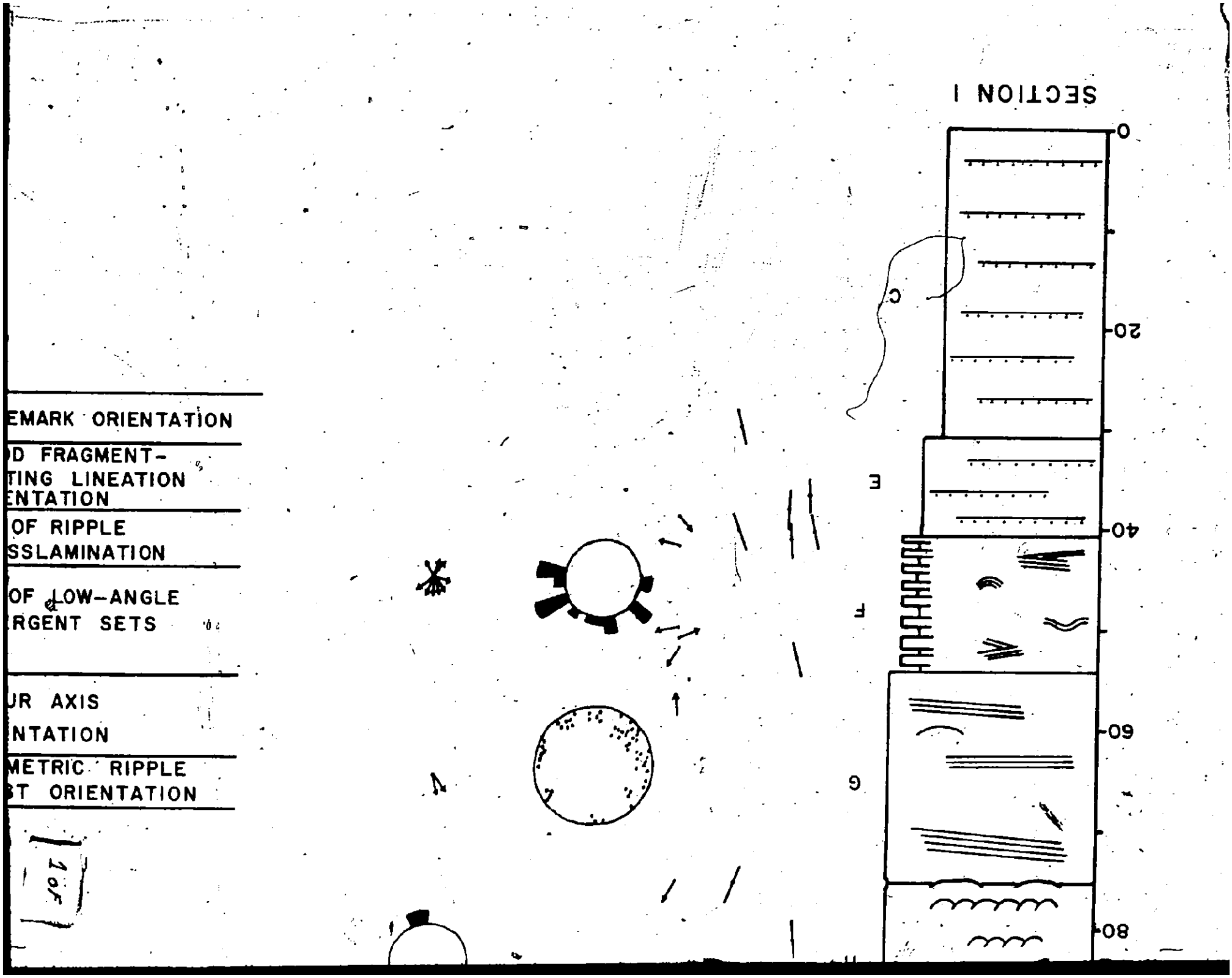
essence). On account of this identity he takes the last proposition as equivalent to "Homo is Homo".

Another method of reduction, is to "define the Subject and Predicate and to persue their definitions till some Notion that is perfectly Identical appears in both" (Ibid., p. 363). For instance, "Virtue is Laudable" may be resolved into the Formally Identical Proposition, "What is according to Right is according to Right" through definitional substitution (Method to Science, Book III, Lesson III, p. 257).[9]

Sergeant acknowledges that he had received some hints upon the subject of "Reducing to Identities", from Albius, whom he describes as the "Second Aristotle" (Non-Ultra..., section 19, p. 603).[10] Sergeant had seriously applied himself for about twenty years "to dig very deep into this subject to find out the Immovable centre of all Truth" (Ibid.). He had intended publishing a separate book on how to reduce every truth to an Identical Proposition but had shelved it (Ibid.). He had made use of some of this material in Method to Science and hoped that some "Speculator" would do further research on the subject (Ibid., p. 603; Cf. Solid Philosophy Asserted, Reflexion 19, section 14, p. 383). Hence, for him, "Reducing to Identities" is a serious enterprise. It is based on the assumption that any proposition that is capable of truth is ultimately or "virtually" identical in form, i.e. having the form "N = N"; and that "Nothing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can be known to be true or be Evident, but by having recourse finally to Identical Propositions" (Solid Philosophy Asserted, Reflexion 19, section 14, p. 383). Herein lies the "Formalism" in Sergeant's account of the "criterion of truth".

He claims that a Materially Identical Proposition is capable either of being true or of being proved (Reason against Raillery; sections 3-9, pp. 10-15). But, this does not mean that it does not depend on "Formal Identity" for its truth. For instance, if the notions "Socrates" and "Wise" are of the same thing, "Socrates is Wise" is true. Here correspondence may be employed to decide its truth. But, according to him, the truth of such propositions ultimately depends on "Formal Identity". The Logician is able to get at it while the "Vulgar" are satisfied with "correspondence" (Solid Philosophy Asserted, Reflexion 19, section 4, p. 363). "Socrates is Socrates" is the Formally Identical Proposition that is involved here. It expresses the Metaphysical Verity of what is called "Socrates", and about whom the proposition "Socrates is Wise" is made (Ibid., p. 380). If "Socrates is Socrates" is denied, all propositions about Socrates become false on the basis of the criterion of correspondence. For, if Socrates is not Socrates, there is no possibility for a correspondence between a proposition like "Socrates is Wise" and the state of affairs to which the proposition refers, i.e. to a state of affairs concerning what is called "Socrates", for without Socrates there cannot be a

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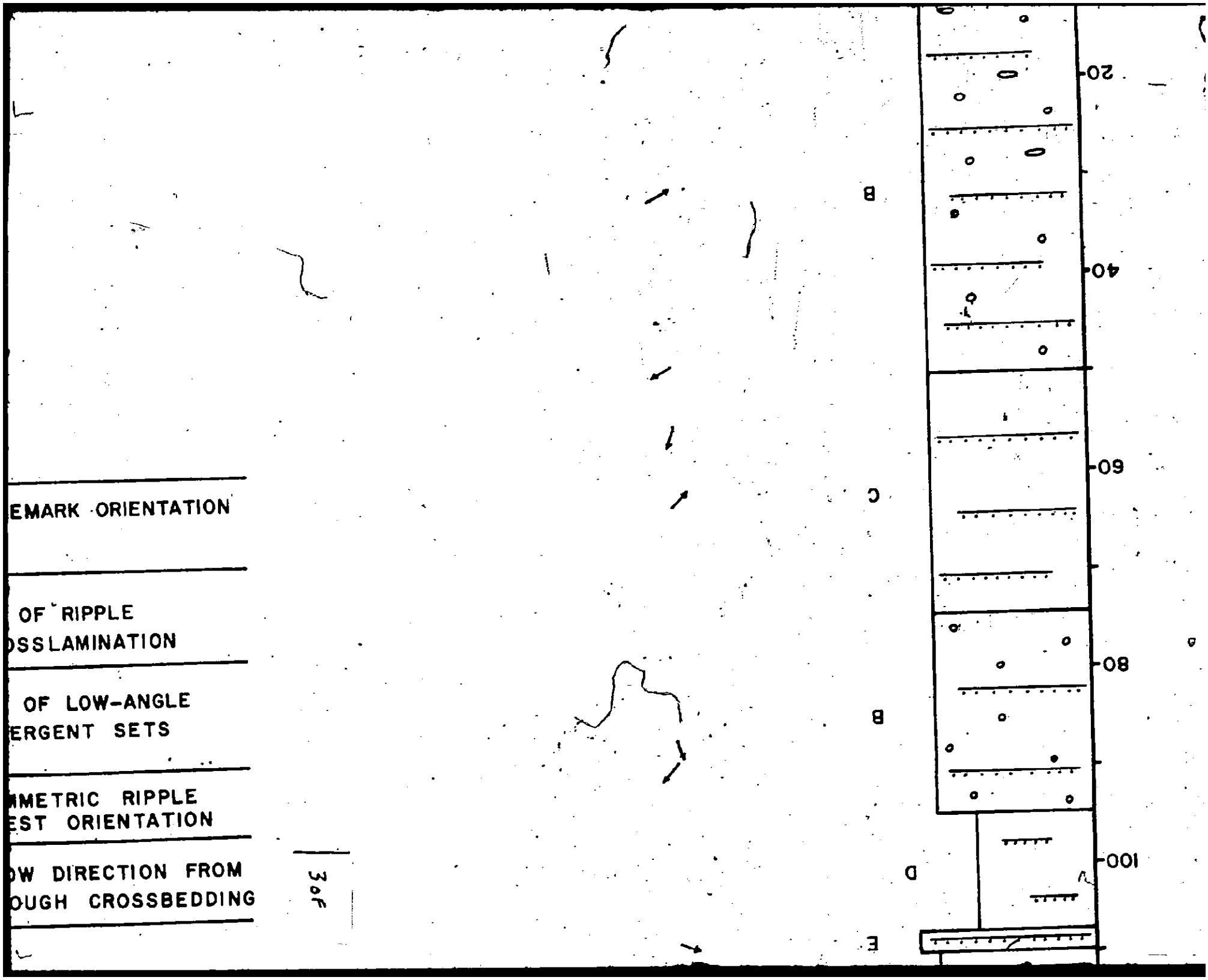
state of affairs concerning him (Ibid., pp.* 380-81). Here, Sergeant seems to take the Formally Identical Proposition as a condition of truth. In several other places, Sergeant describes "Identity" as the "deepest and firmest grounds", "foundation", "bottom" on which truths are "built" (Cf. Method to Science, Book III, Lessons 3 & 4; Preface; Reason against Raillery, Discourses II & III; Letter to Locke of May 10, 1696; Solid Philosophy Asserted, Reflexions 17 & 19). There is a correspondence between the above descriptions and his characterization of Identical Propositions as "presuppositions" in their role as "First Principles". We will deal with the latter in the subsequent sub-section. What has to be noted here, is that even though he regards "Formal Identity" as a "condition" of truth, he does not stop with this. He makes the further claim of "reducibility". If the Formally Identical Proposition, as the expression of the metaphysical verity of a thing, is taken to be merely a condition of truth, then it is not necessary for the Materially Identical Proposition to have the said schema. Propositions like, "Socrates is Wise" may be true even though they are not implicitly formally identical, and known to be true without making manifest the "formal identity". But for him, all true propositions, and this includes Materially Identical Propositions, are reducible to "formal identity". We have already noted that the requirements pertinent to the Materially Identical Proposition are not so stringent as those of the Formally Identical



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Proposition. If the Notions are of the same thing, a proposition is materially identical but for it to be Formally identical, the Notions themselves have to be identical with one another. When Sergeant demands that for a Materially Identical Proposition to be true, it has to implicitly contain the formal schema, and for it to be known to be true this schema has to be made explicit, he is in fact demanding of the weaker proposition ("N - N") the requirements pertaining to the stronger proposition (N ≡ N). The whole enterprise of reduction is based on a confusion concerning the respective requirements of the Materially and Formally Identical Propositions.

Sergeant makes explicit his "reducibility" thesis in the following letter to Locke, sent along with a copy of Method to Science:

> Much honoured Sir,
>
> After I had written and almost printed this book I here send you, (I mean all of it but the Preface and Appendix) I was favoured by a friend with a sight of your Essay Concerning Human Understanding; to which, till then, my circumstances had made me a stranger.... But, the haste, I was in, (the Printer having almost overtaken mee) did allow mee no more leasure than onely to take a cursory view of it here and there as it light. Yet that little I saw of it (ex ungue Leonem) enabled mee to make a fair Estimate of the whole. The most Substantiall Difference between us (as far as I yet observe) is about the Necessity and Usefulness of Identical Propositions, on which I mainly build; and to which (in my judgment) all Truths must either be reduced or they will, if scanned by Speculative and Acute Logicians, be left destitute of their Deepest and Firmest Ground. For since you have so solidly confuted Innate Ideas, it must follow of course that Truths must be taken from the Things without us: and consequently, must be first built on, and finally resolved into their

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> Metaphysical Verity or their being what they are, which is an Identicall Proposition, and can be nothing else; nor can we speak or say anything of their Natures of Essences as such (or staying there) or express them at all but by such an Identicall Speech, as upon triall you will find. Again we must either come at last to Self-evidence, or no Dispute can ever come to an end; nor can any Propositions, but such as these, possibly lay claim to self-evidence since all else can bear Explicating or the making them plainer, and clearer, which these cannot. These onely being Evident from themselves, or from the very Terms without the assistance of any other Light, I do grant, indeed, that they look at first sight, till attentive reflexion comes to discover the usefulness of them, dry, insignificant and in a manner foolish and ridiculous. I grant too that there are many Principles exprest more handsomely and with a better grace, which seem to force every man, who has a good mother - wit, to assent to them, without putting them into such an odd and nice form of words; but I must deny that there are any deserving the name of first principles or self-evident but because they do virtually include an Identicall; as I have exemplified in (A whole is more than a Part). Besides Sir, we have a sceptical world to deal with, who will question even the verdict of our senses and quarrell the meaning of every word, pretend it ambiguous and then distinguish it; and nothing can hamper such men but Identicalls, which put them past their Distinguishing. Add that all Truths consist in the connexion of the terms in the Proposition that expresses it; and the terms of no proposition are self-connected (to which we must either come at length or never make an end) but those of Identicall Propositions. (sic.)
> (Letter to Locke, May 10, 1696; B. L. Ms Locke C. 16, F. F. 134-5)[11]

For him, the Formally Identical Proposition, on account of the "formal schema" it manifests, is the legitimate "criterion of

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truth", at the level of logico-metaphysical analysis.

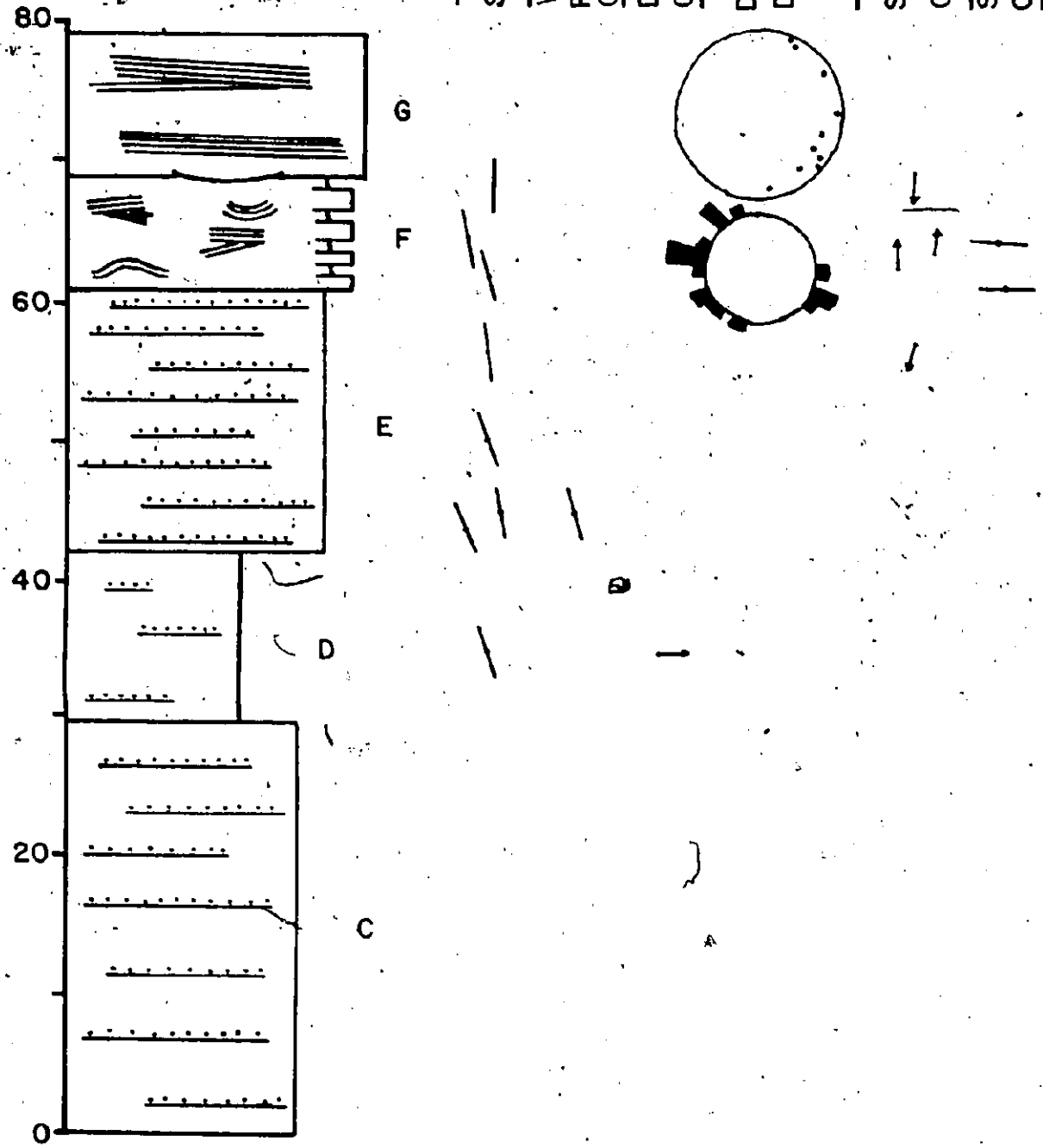
The above letter also presents Formally Identical Propositions as First Principles.

Formally Identical Propositions as First Principles:

In the first known defence of Identical Propositions as First Principles, Sergeant writes thus to Tillotson:

> So that all Science about any thing is finally resolved into the nature or Essence of that thing, that is into that things being what it is, or which is all one it's being the same with its self, which your great Learning laughs at. Hence, what is, is; or Every thing is what it is, as plain and course (sic.) as it looks, is the last resort of all Evidence in the world; and, in particular Sciences, that the Subject of that Science is what it is; as that Man is a Man, Quantity is Quantity, and so, a Rule is a Rule, Faith is Faith, must Principle all that can bee solidly concluded either about Man, Quantity, Rule or Faith (sic). (Letter of Thanks, section 5, p. 11)

The distinction Sergeant makes here between Formally Identical Propositions like "What is, is" and others of the same kind, like "Quantity is Quantity" is maintained in his subsequent writings. He considers the former kind of identicals "First Principles of all Knowledge"; the latter as pertaining to particular sciences (see also Reason against Raillery, Discourse II, section 7, p. 13; Solid Philosophy Asserted, Reflexion 19, section 4, pp. 364-5; Non-Ultra..., sections 19 & 48, pp. 604 & 622). Propositions like "Everything is What it is", and "Existence is Existence" are for him "General" or



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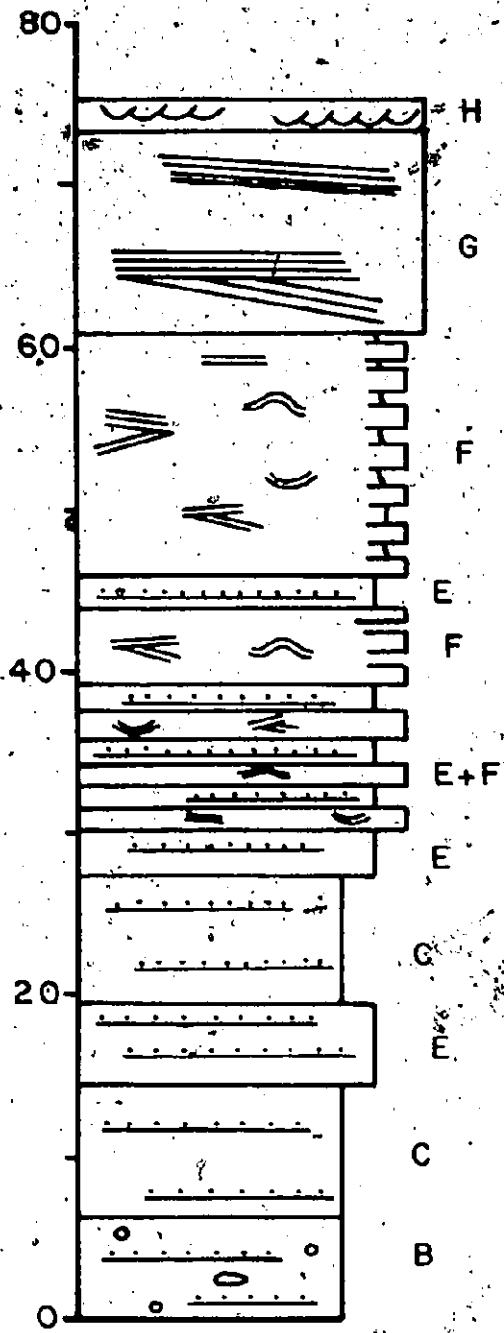
"Universal" Identical Propositions. He distinguishes them from the First Principles of particular sciences. Propositions like "An Equal is equal to itself", "A Whole is greater than a Part" and "Quantity is Quantity" are some examples cited here. Identical Propositions like "Yellow is Yellow", and "A tree is a tree" are taken as "First Principles" in a restrictive sense; they pertain to specific subjects in various disciplines.[12] He takes Formally Identical Propositions other than "Universal" or "General" Identicals as "Particular" Identicals (Solid Philosophy Asserted, Reflexion 19, section 4, pp. 364-5; Reason against Raillery, Discourse III, pp. 26, 34-38, 41-42; Non-Ultra..., sections 12, 18 & 19, pp. 600, 603 & 604). He gives priority to the "Universal" over the "Particular" Identicals, when considering them as "First Principles". The reason for this becomes clear when we examine, later in this section, his comparative analysis of these kinds of Identicals.

In the course of presenting Formally Identical Propositions as First Principles Sergeant makes explicit certain requirements, which he thinks that a legitimate First Principle must meet. They may be stated as follows:

1. The First Principle must, in the first instance, be a satisfactory "criterion of truth". The twin roles he assigns to the "Rule of Truth" (i.e. as "criterion of truth" and as "first principle") are closely interrelated. This is made



SECTION 4

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explicit particularly in Non-Ultra...

2. It must have an "influence" over other self-evident propositions.
3. It must provide the necessary "grounding" for the structure of knowledge "built on" it.
4. It must be "presuppposed" or "foregranted" and universally acceptable, and even "foreknown" in a qualified sense.

Sergeant claims that Formally Identical Propositions fulfill the said requirements and that the "Universal" Identicals fulfill some of these requirements in a more adequate manner.

He claims that Formally Identical Propositions, both Universal and Particular, meet the requirements of the "criterion of truth", on account of the "formal identity" ("N = N") they manifest. They "have all the requisites that can be imagined for a Ratio-Cognoscendi-Veritatem, or a "Rule of Truth"; since they self-evidently manifest to us their own truth and by it give light to know all others" (Non-Ultra..., section 9, p. 598). If First Principles are not self-evident they will need some other Proposition to make them evident and hence they cease to be "First Principles". According to Sergeant self-evidence can only be expressed through Identical Propositions. Hence, they qualify as first principles. They are to be the Test or Touchstone of Truth and Falsehood (Reason against Raillery, section

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SECTION 5

11, p. 31).

The relation between Metaphysical Verity and Formal Identity has already been noted. The Formally Identical Proposition, as the expression of Metaphysical Verity, not only meets the "objectivity" requirement of the "Criterion of Truth" but also provides the necessary grounding for knowledge that is built on it and thereby qualifies as legitimate "first principles". According to Sergeant, if Formally Identical Propositions, as the expression of Metaphysical Verity, are not accommodated as "First Principles", knowledge lacks "solid grounding"; it becomes grounded on "visionary" and "unproved suppositions" (Solid Philosophy Asserted, The Preface, section 5, pp. 6-7; section 7, pp. 9-10).

According to Sergeant, Formally Identical Propositions are not only self-evident and well-grounded but have an "influence" over other propositions. This is one of the main reasons for considering them as Maxims or First Principles. He claims:

> For a First Rule, or First Principle, requires another Quality, peculiar to it self, to compleat its Notion, besides its being thus Solidly Grounded, and thus Supreamly Evident; which is that all other Truths, or Knowledges must be Ruled or Princip'l'd by it; It must have an Universal influence over all other Knowledges, and impart its Light to them.
> (Non-Ultra..., section 12, p. 600)

He speaks often of First Principles as having a "Universal Influence over all other truths", as "principling all that can bee solidly

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SECTION 6

concluded", as "guiding all our Thoughts steadily, nay, all our Actions" (Cf. Non-Ultra..., section 48, p. 622; Letter of Thanks, section 5, p. 11; Solid Philosophy Asserted, Reflexion 19, section 7, p. 369). Before we examine the nature of this "influence" we have to note that Sergeant acknowledges that not all men are aware of the "influence" of the First Principles over other truths. He states:

> The Former Qualities (i.e. that of being Solidly Grounded and Supreamly Evident) will, I believe, be granted to Identical Propositions, by every Attentive Considerer, who knows what belongs to Logick, or Reason reflecting on it self; and is, withall, but meanly vers'd in Metaphysicks. This latter Qualification (i.e. that of "Universal Influence") will be deny'd by many, perhaps by most; nay, will be fancy'd, and abetted by very few. For, every one's genius does not lead him to speculate so deep; and there are scarce any who have proposed this highest and nicest Point, much less handl'd it at large; tho' divers have given the Grounds whence it must follow.
> (Non-Ultra..., section 12, p. 600)

He goes on to claim that Universal Identical Propositions possess a "Universal Influence" (Ibid., p. 600).

We have already noted that Sergeant thinks that one best appreciates the value of Identical Proposition as "criterion of truth" at a deeper logico-epistemological level of analysis. Likewise, he thinks that one appreciates the value of the "Universal Influence" of Identical Propositions at such a level of analysis. He claims that there are two spheres of influence of Identical Propositions over other propositions.

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SECTION 6

Firstly, that Formally Identical Proposition is one of the factors (the other being the syllogistic form of argument) that gives the "force of consequence" to a proposition made "evident" or "proved" or "demonstrated". According to him, such a proposition provides the "Fundamental Ground of the Force of Consequence, which gives the Nerves to every act of True Reasoning, and of the Certainty and Evidence of every conclusion which we rightly inferr" (Method to Science, Preface). He claims:

> To conclude is to show evidently that two notions we call the Subject and Predicate are Identify'd or truly connected in the proposition we call the conclusion. To do this we find a Third Notion called a Middle Term to be Identified which those two, and consequently assert the Truth of the Conclusion. But how shall we know that the Third Notion to be truly connected with those two others; that is, how shall we know the major and minor propositions to be true. By finding (if they need proof) another medium connected with the two terms found in each of them and how far must this go on? Endlessly or no? If Endlessly, then since every following connection is proved by some foregoing ones, in case we cannot see some first connection or First Principle, we could conclude or evidence nothing and how must we evidence the connection of the terms in these First Principles? By another antecedent connection of their terms with the third? No: for these are supposed to be first connections; wherefore since they can't be evidenced by anything out of themselves, and yet must be evident else nothing could be evidenced by them, it follows that they must be evident of themselves or self-evident and in what consists this self-evidence? Manifestly in this that no middle term can come between the notions of their Subject and Predicate which devolves finally into this that the Subject and Predicate are the self