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Title/Titel: *The Forms, Contents and Techniques of Traditional Literature in Southern Sotho.*

Medium: English.

The main object of this study is to try and give a brief resume of traditional literature in Southern Sotho. Although not a detailed study of each genre the forms, contents and techniques of the main genres will be dealt with in some detail in order to best arrive at their value and social significance.

Ditshomo is a term used to include a variety of stories such as myths, legends, fables, folk-tales and recent stories. Myths are answers to certain basic questions. These answers are a progressive revelation of the nation's mind and character. There are myths that deal with the origin of death, marriage and how certain foodstuffs come to be generally accepted; romantic myths dealing with human nature, as in the stories dealing with Masilo and Bulane. Of legendary figures the boy-hero Senkatana and the man-eater Dimo are very popular. In fables animals speak and behave like human beings. Human actions and passions are attributed to them for purposes of moral instruction. *Mmutlanyana* (the clever little hare) is perhaps the cleverest character. Folk-tales are popular inventions of the story-teller. A great variety of stories are found in this category. From these stories emerge *inter alia* that the idea of death as an end to life never existed amongst the Sotho. To the Sotho mind life is endless and indestructible, therefore the heart of a victim of murder assumes the form of a living bird that goes off to report the murderer, and so on. *Ditshomo* are narrated in a particular manner, sometimes including little songs. Characteristic is further the use of Nguni words and unusual syntactical constructions.

Dilotho (riddles) are a test of wit in which one member quizes another by providing him with an obscure yet accurate clue in the form of the intended object. They are a game but contain a grain of truth in that they are based on something that actually exists.

Often there is a close connection between the riddle and the proverb.

The main value and function of the riddle is to provide entertainment to children. In range and scope Southern Sotho riddles cover the entire community and its customs.

Riddles are asked and answered in set phrases which may be modified when the game is already in progress. Apart from the ordinary riddles, there are lengthy ones known as conundrums.

Maele (Idioms and Proverbs). The proverb is a pithy sentence with a general bearing on life and expresses some homely truth or a moral lesson. Proverbs have certain basic characteristics such as a fixed form; they are didactic; they are figurative; they employ various structural forms (contrast, parallelism, rhythm, alliteration, balance). Idioms in Southern Sotho tend to be confused with proverbs. They are characteristic indigenous expressions whose meaning cannot be deduced or inferred from the knowledge of individual words. Idioms are changeable in form and are based on a predicate connected with a particular verb stem often associated with a large number of idioms.

The wit, humor and observations of the Sotho are evidenced by his riddles, idioms and proverbs. The ancients speak directly to their descendants, counselling and teaching them from their own experiences in life.

Dipina (songs) constitute the lyric and dramatic poetry of the Southern Sotho. There are a great variety of songs which fall in two main categories, viz. action songs and ceremonial songs. The former include songs sung at work and dance songs. Ceremonial songs fall in three main types, the *mokorotlo*, a war song for men only; *kodi-ya-malla*, the dirge or lamentation usually sung by women only, and the *thapelo* or prayer. There are also the *dikoma*, secret songs sung by boys undergoing circumcision. *Dikoma* are couched in secret language with a secret vocabulary and concords. They were mainly intended for instruction on the virtues of communal life and on the traditional lore of their people. They also teach historical excerpts. From these appear that the Sotho came from the North, wandered from place to place being subjected to persecution; crossed the *makwa mafubedu* (red sea) and *matsha a maholo* (great lakes) until they crossed the Lekwa (Vaal river).

They were also taught the miracle of a virgin who conceived without meeting a man, and other phenomena which although seem to reflect missionary influence is not borne out by fact.

Dithoko (praises) constitute the highest water mark of Southern Sotho traditional poetry. They fall into three types, those of boy initiates; those of animals and divining bones and those of kings and warriors. The praises of kings and warriors constitute an authentic record of past events in the history of people who could neither read nor write. Because they were meant to be heard, thought is basic to them. Independent thoughts follow one another without any due consideration as to their meaningful sequence or agreement. The lines of a stanza are usually related by parallelism and rhythm. The poet does not depend on rhyme and meter but on balance of thought. Structural patterns such as chiasmus or parataxis, repetition and inverted word-order are found.

Conclusions

Southern Sotho literature is divisible into two main sections, namely prose and poetry. Prose includes a variety of stories as well as riddles and proverbs. Poetry is made up of songs, i.e. action and ceremonial, and of praises.

Literature, oral or written, is a reliable source and record of the pulse of the community with which it deals and whose creative output it is. It reflects its national thoughts and feelings, its culture and customs, as well as its general outlook on life. Basically it deals with life's problems as they are.

A plea is made to African intellectuals, as people in the culture, who can penetrate African life in a way no outsider can ever do, to collect as much as possible of the traditional lore. The African must take his rightful place in the search for and scientific analysis of things that concern him as well as others.

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Title/Titel:	*A Critical Investigation into the Standardization of Written Tswana*
Medium:	English

A. Data

Historical

The intention with this aspect of the thesis is to highlight briefly, from about 1800 to 1960, efforts that helped produce the current orthography of Tswana.

The first 25 years are characterised by sporadic travellers' word-lists, whose spelling provides us with interesting beginnings in comparison with what spelling systems followed and what obtains today. We may instance here Lichtenstein's *Beetjuans*, Campbell's *Bootchuana* in comparison with Bechuana and Bochuana later, for the Tswana people and the land of the Tswana respectively. In 1824 already, Burchell writes *Sichuana*. We notice the development of the /e/ phoneme (phon. i) from *ee* to *i*, and that of the aspirated prepalatal affricate from *tj* to *tch* and to *ch* finally. These were all sincere efforts to record Tswana speech sounds, and they account for many of our present-day divergent representations of the same sound.

In 1816, with the advent of Rev. Robert Moffat, we note the beginning of missionary enterprise among the Tswana, and with this the beginning of a prodigious drive to record the language. The first school came in 1825, the Gospel according to St. Luke in 1830, the New Testament in 1840, the Old Testament in 1857. The /e/ phoneme now reaches a further stage when Moffat writes *Sechuana* and not *Sichuana* as Burchell did. The prepalatal affricate now takes the form *c*, as in *Kholagane enca* (New Testament: Moffat). The voiced explosive is represented with an *r* in *Morimo* (God), and *rumela* (believe). At this stage there is an orthography in which every speech sound is represented.

Efforts to produce grammars followed. We have in mind *Grammar of the Bechuana Language* by Rev. James Archbell, and the *Etudes sur la langue Sechuana* of the Rev. Eugene Casalis, in 1837 and 1841 respectively. Tone-marking is quite a consideration, as first emphasized by Burchell. Further literature follows from missionaries, e.g. Brown and Crisp. Crisp's grammar is important for its alphabet, excluding totally the /h/ phoneme except for using this symbol for aspiration. Brown's dictionary on the contrary excludes /f/ and employs the /h/ phoneme right through. Serious dialectal emulation was to follow, and continues to date between users of *f* and users of *h* in the same environment.

In 1910 an orthography is produced. Tone-marking is featured. We find *h* in place of present-day *r* in *diha* for instance, *y* for the prepalatal semi-vowel as well as for the voiced prepalatal affricate. Plaatjie criticises this in his 1929 translation of Shakespear's *Comedy of Errors*, introducing a *j* as distinct from a *y*.

The *sh*, *c*, *ch*, of 1910 are replaced in the 1937 orthography by *s*, *ts* and *tsh* respectively.

Some orthographies were based on a dialect, thus virtually challenging workers on other dialects to produce their own. The 1937 orthography picked sounds for inclusion in, and exclusion from the written language. Tacitly, certain dialects, quite articulate in the field of current literature, were being excluded, making it easy for this effort to be construed as sectional.

The answer came in the years 1947 to 1962, when the Transvaal Education Department, and later the Bantu Education Department exerted serious efforts to unify not only the orthography of Tswana, but that of all three Sotho languages. Provision was made for the representation of all Sotho sounds, and of like ones by like symbols. Writers of this period rightly used the sounds of any dialect, or dialect cluster, or alternated the sounds of all dialects spoken and/or written in the same book. In the meantime there were population shifts, into as well as out of urban areas, dialectal patterns being conveyed out of their traditional boundaries. The present position is seen as one in which dialectal boundaries are no more, and dialectal patterns are distributed all but discriminately. Dialects in the true sense may be found where reduction to writing lags behind as in Kgalagadi, Ngologa, etc.

The spoken language

From the above facts it is understandable that in our collection of speech patterns, we viewed these simply as variant material of Tswana, without attaching them to tribes or areas. They are no longer thus attached.

The written language

The literature examiner divides readily into centralist and sectionalist orthographies. The first is an orthography wherein it is attempted to employ all possible variant sounds, to satisfy all dialectal inclinations possible. It allows of a great measure of inconsistency with oneself since a word figures in different forms in the same book. The latter attempts to employ the patterns of a section (dialect or cluster) of Tswana. The sectionalist orthographies, simply because of the shifts of dialectal patterns in correspondence with shifts of populations, show strong centralist tendencies. See 4.9. It is clear that the language must be standardised, and not a section of it. And the Tswana themselves demand standardisation of Tswana (1.56–1.59), since they cannot point to a pure or eminent dialect to be adopted as basis of standardisation. They have no paramountcy, and must pool their heritages.

B. **Recommendations**

1. Our conclusion is that a Selectivist orthography be attempted.
2. It is contended that an author must be consistent with himself first, and authors consistent with one another.
3. Application of the principles of orthography of the Institute of African Languages and Cultures is urged, and in that spirit unnecessary alternants opposed.
4. Word-division offers serious current writing problems. Since the problem of word-identification and parts of speech in disjunctive languages is not yet solved, we do not enter upon a discussion of word-division beyond supporting disjunctive writing as heretofore in the meantime.
5. A discussion of all alternants encountered in speech and in current literature is to be found in Chapter IV.

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Title/Titel:	*Die uitvoering van die kommersiële funksie in drie plattelandse verbruikerskoöperasies*
Medium:	Afrikaans

Verbruikerskoöperasies in Suid-Afrika, soos in die res van die wêreld, vervul 'n rol as een van die groot groep kleinhandelsinstellings wat goedere aan die verbruikerspubliek verskaf. Alhoewel die basiese fislosofie en benadering van die verbruikerskoöperasie verskil van die van ander ondernemings wat op dieselfde terrein werksaam is moet die verbruikerskoöperasie, om sy bestaan te regverdig, so effektief en doeltreffend moontlik funksioneer. Daarom moet die verbruikerskoöperasie die moderne besigheidsmetodes en -tegnieke in aanmerking neem. Die doel van dié verhandeling is om die aankoops- en verkoopsmetodes en -beleid soos toegepas deur drie verbruikerskoöperasies (Die Nylstroomse Handelshuis — Nylstroom, Die Bosveldse Winkel — Potgietersrus, en die Voortrekkerwinkels — Bethal) te ontleed om vas te stel of hulle die moderne kleinhandelsbenadering handhaaf, naamlik om doeltreffendheid, en dus die verskil tussen inset („input") of afset („output"), te verhoog.

Die studie benadruk dus in hoofstuk I die kenmerke van 'n verbruikerskoöperasie. Verder, omdat dit vir die verbruikerskoöperasie in die uitvoering van sy kleinhandelsfunksie noodsaaklik is om die mentaliteit van die verbruiker, die risiko en koste by die besit van voorraad, en die finansiële verhoudings (rentabiliteit, likwiditeit en solvabiliteit), in aanmerking te neem, word hierdie aspekte vervolgens behandel.

In hoofstuk II word 'n situasie-ontleding van die drie verbruikerskoöperasies gegee wat beperk is tot 'n kort historiese oorsig, 'n saaklike beskrywing van die spesiale kenmerke van die omgewings en 'n evaluasie van die drie verbruikerskoöperasies.

In hoofstuk III word die prysbeleid en prysbepalingsmetodes van die betrokke verbruikerskoöperasies ontleed.

Hoofstuk IV handel oor die basies onpersoonlike metodes van afsetbevordering. Die vernaamste verkoopsmetodes in die kleinhandel en die van die drie verbruikerskoöperasies word in hoofstuk V ontleed. Die drie elemente van persoonlike verkope in die kleinhandel, wat ook in die drie verbruikerskoöperasies toegepas word, naamlik die verkoopsklerk, die kliënte en die voorraad word behandel.

In hoofstuk VI word die kleinhandelsdienste soos kredietbeleid, aflewering van goedere, werkswinkelgeriewe en die behandeling van klagtes wat deur die drie verbruikerskoöperasies aangebied word, ontleed. Die aankoopsbeleid en metodes van aankope van die drie verbruikerskoöperasies word in hoofstuk VII behandel.

Hoofstuk VIII behandel die belangrikheid van die voorraadomsetsnelheid; die doel van 'n voorraadkontrolestelsel en die basiese elemente van 'n voorraadkontrolestelsel, asook die vernaamste voorraadkontrolestelsels wat in die kleinhandel aangetref word. Daarna word behandel die voorraadkontrolestelsels wat by die drie verbruikerskoöperasies aangetref word en 'n evaluasie van elk en moontlike metodes om die voorraadkontrolestelsels te verbeter word gegee.

Hoofstuk IX toon die finansiële resultate wat deur die drie verbruikerskoöperasies by die uitvoering van hulle kommersiële beleid van aankoop en verkoop bereik is. As doeltreffendheidstandaard van bestuur geld hier slegs die verhouding van die bedryfsresultate wat aandui in watter mate die drie verbruikerskoöperasies winsgewend is en die verhouding wat die ewewig van die koöperasies, soos in die geval van enige besigheid, aandui.

Hoofstuk X is 'n abstrahering van die redes vir sukses van die drie verbruikerskoöperasies, waarna die redes vir sukses tot enkele sinne gereduseer word. Die vernaamste gevolgtrekking kan soos volg saamgevat word:

Die lede-as-kliënte is bewus van die feit dat die betrokke verbruikerskoöperasies tot hulle persoonlike voordeel opgerig is. Die lede dwing as't ware die verbruikerskoöperasies deur hulle persoonlike belangstelling en aktiewe optrede, ook by die verkiesing van direkteure, om aan die kleinhandelsdienste waarvoor daar 'n aanvraag bestaan, te voldoen.

Die basis van die prysbeleid by al drie verbruikerskoöperasies is sonder die minste twyfel die faktore wat meewerk tot nie-pryskonkurrensie in die kleinhandel, terwyl die mentaliteit van die verbruiker noodgedwonge in aanmerking geneem word. Die uitstallings in die vensters en in die winkel is ook by die jongste gebruike wat in die kleinhandel aangetref word, aangepas. Veral by die uitstallings in die winkels het die drie verbruikerskoöperasies die afgelope dekade radikaal verander. Koop bly altyd vir 'n kliënt 'n moeilike taak en die korrekte uitstallings is reeds 'n doeltreffende hulpmiddel. Die drie verbruikerskoöperasies gaan egter verder deur die kliënte te help by die selfhelp- en uitsoekdepartemente deur ook toonbankdiens te lewer. Die verskaffing van kredietfasiliteite, die feit dat telefoonbestellings by alle departemente geneem word, die uitstuur van goedere op sig, en die werkswinkel- en afleweringsdienste is volkome rasioneel vir die verbruikerskoöperasies, want die lede word koste en moeite bespaar en hulle inkope word vergemaklik.

Die drie betrokke verbruikerskoöperasies poog nie slegs om goeie kwaliteit voorraad aan te bied nie maar probeer ook 'n goeie verskeidenheid aan te hou. Die verskeidenheid is egter aangepas by die omgewing van elke koöperasie sodat 'n redelike voorraadomsetsnelheid gehandhaaf kan word en die lede kan weet dat die voorraad vars en die nuutste is wat op die kleinhandelsmark aangebied word.

Die onderverdeling van die drie verbruikerskoöperasies in verskillende departemente werk nie slegs doeltreffende verkope in die hand nie, maar ook spesialisasie van aankope. Die voorraadkontrolestelsels van die drie koöperasies kan bestempel word as 'n bevredigende hulpmiddel in die uitvoering van elkeen se kommersiële funksie. Die personeel- en kapitaalvergoeding van die drie verbruikerskoöperasies is 'n realistiese beleid en hulle is in staat om voldoende bekwame personeel te trek en om deur interne finansiëring fondse te verkry, en alhoewel nie genoegsaam nie, tog voldoende om die nuutste winkelmeubels te bekom, 'n stygende volume-omset gedurende normale jare te toon en om die nodige finansiële aanpassings by veranderde ekonomiese toestande te kan maak.

Die basiese ekonomiese beginsels van 'n koöperasie werk mee dat die kleinhandelsdienste tot die algemene voordeel van die lede-as-kliënte by hulle inkope toegepas word, en swakhede by 'n verbruikerskoöperasie as kleinhandelorganisasie moet enersyds gewyt word aan die mentaliteit van die verbruiker by sy inkope om self alle finansiële voordele te benut, en andersyds aan die menslike onvermoë van die tegniese personeel om die kommersiële funksies van 'n verbruikerskoöperasie altyd korrek te kan uitvoer. Volmaaktheid bestaan nêrens in enige ekonomiese sektor nie.

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Title/Titel: *'n Nuwe Imidasoloon-alkaloïed uit Macrorungia Longistrobus C.B.Cl. en die sintese van Imidasoolalkaloïede.*

Medium: Afrikaans

In hierdie tesis word die struktuuropklaring van makrogungien, 'n 2-kinoliel-imiedasool-alkaloïed, beskryf. Die isolasie en sintese van 'n verdere onbekende imiedasoolalkaloïed, normakrorien, wat deur metilering na die alkaloïede makrorien en isomakrorien lei, word ook uiteengesit.

Die gegewens ingewin uit fisies-chemiese metodes dui daarop dat makrorungien, $C_{13}H_{11}N_3O$, 'n hoogaromatiese verbinding is wat 'n karboniel-. 'n N-metiel en 'n NH-groep bevat.

Kennis aangaande die skelet van makrorungien is verkry uit katalitiese en chemiese hidrogenerings- en uit dehidrogeneringsreaksies. Die isolasie van 2-etielkinolien, 'n afbouproduk uit hierdie hidrogenerings- en dehidrogeneringseksperimente, het die eerste lig gewerp op die aard van die onbekende alkaloïed. Deur katalitiese en chemiese reduksies word ook aangetoon dat makrorungien 'n trisikliese skelet besit en dat die karbonielfunksie deel uitmaak van 'n amied-, of meer waarskynlik 'n ureum-groepering.

Die stabiliteit van makrorungien en perhidromakrorungien teenoor hidrolitiese reagense versterk die vermoede dat 'n ureumgroepering in die skelet aanwesig is.

Deur makrorungien onder bepaalde reaksietoestande te oksideer, kan verskillende oksidasieprodukte verkry word. Die strukture van hierdie oksidasieprodukte word met behulp van chemiese en fisiese metodes soos ultraviolet- en infrarooi-spektroskopie asook kernmagnetiese resonans- en massaspektrometrie, opgeklaar.

Die struktuurvasstelling van die verskillende oksidasieprodukte lewer, naas die isolasie van 2-etielkinolien as afbouproduk, die belangrikste bydrae tot die bepaling van die struktuur van makrorungien, omdat dit moontlik is om in die gedrag van die alkaloïed teenoor oksideermiddels die eienskappe van 'n tipiese 4(5)-gesubstitueerde 2(3H)-imidasoloon te herken.

Dit kan dus uiteindelik aangetoon word dat die struktuur van makrorungien geskryf kan word as 1-metiel-4-(2-kinoliel)-2(3H)-imidasoloon.

Deur die kernmagnetiese resonans- en die ultravioletspektrum van die tweede onbekende alkaloïed, normakrorien, wat in hierdie tesis beskryf word, te vergelyk met dié van makrorien en isomakrorien, kan vasgestel word dat normakrorien 2-kinoliel-imiedasool is wat op geen van die stikstofatome 'n substituent dra nie. Metilering van normakrorien met verskillende alkileermiddels lewer dan ook makrorien en isomakrorien as produkte.

Dit was moontlik om normakrorien en dus ook makrorien en isomakrorien te sintetiseer. As uitgangstof word die tosilaat van 2-asetielkinolienoksiem berei wat deur 'n Neberomskakeling gevoer word na die hidrochloried van 2-(ω-amino-asetiel)-kinolien. Die kondensasie van hierdie sout met kaliumtiosianaat lei tot 'n kinoliel-imiedasool-2-tiol wat deur oksidasie omgesit word in 4(5)-(2-kinoliel)-imiedasool. Hierdie produk is identies met normakrorien.

Die onderlinge verband tussen vier Acanthaceae-alkaloïede word deur hierdie sintese aangedui.

Makrorien (4) en isomakrorien (2) is die twee metiel-isomere wat deur metilering van normakrorien (1) verkry word, terwyl die litiumaluminiumhidried reduksie van makrorungien (3) om makrorien (4) te lewer, die verwantskap tussen dié twee alkaloïede bewys.

Makrorungien is die eerste bekende imidasoloon-alkaloïed wat geïsoleer is, terwyl normakrorien en sy twee NCH_3-isomere die eerste lede is van 'n tot nou toe nog onbekende groep kinoliel-imiedasool-alkaloïede.

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Medium:	Afrikaans

Die karakterisering van die alkaloïede makrorien en isomakrorien word in hierdie ondersoek beskryf. Die alkaloïede, wat uit die plant *Macrorungia longistrobus* C.B.Cl. geïsoleer is, behoort tot 'n voorheen onbekende groep van kinoliel-imiedasoolalkaloïede. 1-Metiel-4-(2'-kinoliel)-imiedasool [I] en 1-metiel-5-(2'-kinoliel)-imiedasool [II] is die strukture wat vir makrorien en isomakrorien respektiewelik voorgestel word.

Makrorien en isomakrorien het albei die molekulêre formule $C_{13}H_{11}N_3$ en bevat albei 'n N-metielgroep. Spektrometriese gegewens dui vir albei alkaloïede 'n sterk aromatiese karakter aan. Die verband tussen die twee alkaloïede is vasgestel deur te bewys dat hulle metjodiede identies is. Die k.m.r.-spektrum van makrorienmetjodied dui daarop dat die twee stikstofatome wat nou albei metielgroepe dra, deur 'n onversadigde koolstofatoom geskei is en dat konjugasie tussen die stikstofatome bestaan.

Die ultraviolet- en k.m.r.-spektra van tetrahidromakrorien dui op die aanwesigheid van 'n 1,2,3,4-tetrahidrokinoliensisteem. Makrorien self bevat dus die kinolien-struktuur in sy skelet. 'n Vaste konformasie is vir die versadigde heterosikliese ring van tetrahidromakrorien vasgestel.

Die N-metielimiedasoolring wat in makrorien voorkom, word deur die karakterisering van twee produkte van 'n kaliumpermanganaatoksidasie bewys. Die produkte is kinaldamied, wat direk geïdentifiseer is, en 'n ureïedverbinding. Laasgenoemde se struktuur word deur hidrolise in metanoliese suurmedium na metielkinaldaat en N-metielureum bewys.

Isomakrorien se struktuur word bevestig deur 'n soortgelyke oksidasie uit te voer. Die isolasie van N-metielkinaldamied uit die reaksiemengsel bewys dat makrorien en isomakrorien slegs verskil ten opsigte van die posisie van hulle N-metielgroepe in die imiedasoolring.

'n Hofmann-afboureaksie op makrorienmetjodied uitgevoer lewer 'n enkele produk. Hierdie produk het die molekulêre formule

$C_{14}H_{15}N_3O$, terwyl twee N-metiel-groepe en een N-formiel-groep as funksionele groepe aangetoon word. Spektrometriese gegewens toon aan dat die verbinding ontstaan deur die opening van die imiedasoolring by die N(1')-C(2')- binding. Dit word voorgestel dat die reaksie verloop deur die vorming van 'n 2 karbinolamien-tussenproduk wat dan na 'n oop struktuur toutomeriseer. 'n N-formiel- en 'n sekondêre N-metielgroep word sodoende gevorm. Die struktuur wat vir die afbouproduk voorgestel word, word chemies bewys deur die produk met chroomtrioksied-piridienkompleks na N-formiel-N-metiel-kinaldamied te oksideer. Die struktuur van hierdie verbinding word deur hidrolise na N-metielkinaldamied en mieresuur bewys. Die Hofmann-afboureaksie word op makrorien-etjodied herhaal en 'n produk met die molekulêre formule $C_{15}H_{17}N_3O$ geïsoleer. Soos verwag moet word lewer oksidasie en hidrolise van hierdie stof N-etielkinaldamied en mieresuur as produkte. Die k.m.r.-spektra van die verskillende proukte by hierdie afboureaksies verkry vertoon interessante verskynsels. Met die interpretasie van hierdie spektra word die Hofmann-afbouproduk van N,N-dimetiel-bensimiedasooljodied as modelstof gebruik.

Min is bekend van die massaspektrometriese splytingspatrone van imiedasoolverbindings. Die interpretasie van die massaspektra van makrorien en tetrahidromakrorien kan dus 'n bydrae lewer tot die bestaande kennis van die massaspektrometriese gedrag van gesubstitueerde imiedasole. 'n Belangrike verskynsel in die splytingsreaksies wat by makrorien voorkom, is dat die moederioon 'n molekuul blousuur uit die imiedasoolring verloor. Die kinolienskelet bied meer weerstand teen splyting as die imiedasoolring. In die massaspektrum van tetrahidromakrorien word interessante waterstofmigrasies by splyting waargeneem. Met die interpretasie van die splytings wat in die versadigde ring van die moederioon verkry word, word migrasies van waterstof van hierdie ring na die imiedasoolring voorgestel.

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Titel/Titel:	*Christology: A study on the writings of Anders Nygren*
Medium:	English

The primary intention of this study is to show the application of Nygren's method of motif research to the actual content of his theology, and to examine the validity of the claim that Agape is the fundamental motif of Christianity. This has been done with specific reference to his Christology, since it is common consent that this doctrine is central to the Christian faith. Secondary matters and attendant doctrines are treated to the extent that they are regarded as being relevant to the ultimate understanding of Nygren's Christological concepts.

The secondary intention is to relate these Christological concepts to the Christocentric theology of Karl Barth, especially, but others also in the Reformed tradition. In some respects then this study becomes an assessment of Nygren in relation to these theologians.

Anders Nygren was born in 1890 in Göteborg and during the course of an outstanding career has achieved fame both within and without Lutheranism. His earliest research was in the field of comparative religions, philosophy of religion and 'Dogmengeschichte'. It was in this last field that he published his magnum opus on the concepts of love implicit in the Greek words Agape and Eros, under the title: "Den kristna kärlekstanken genom tiderna Eros och Agape." The pioneering character of this work and its excellent scholarship were immediately recognised. Nygren has written no formal or systematic dogmatics, but nevertheless a clearly consistent theology is discernible throughout his writings. In order to arrive at an interpretation and assessment of his Christology it is necessary therefore to consult all his theological writings.

Immanuel Kant's argument for the transcendental necessity for religion provides Nygren with a scientific basis for his dogmatics. This he supplements with Schleiermacher's argument for the complete independence of religion over morality. To Nygren the independence of religion as a separate category of experience is a fundamental necessity if dogmatics is to be possible. He argues to this effect by showing that valid experience can be subdivided into four independent forms: science, art, morality and religion. The fundamental category of religion is 'the Eternal'.

Here Nygren introduces his Christology, showing how the four basic elements in religion are found in Jesus Christ. These four aspects are:

1. Relegion claims to be a 'revelation of the Eternal in this world of time'.
2. In religion there is the seriousness, the disquiet, the judgement of the Eternal.
3. In religion there is the consciousness of the tension between the revelation of the Eternal and the judgement of the Eternal, which is resolved in various systems of atonement.
4. The principal objective of religion is vital fellowship and union between the Eternal and man on the basis of the given system of atonement.

This leads to a consideration of what Nygren calls the fundamental motif of any given system of thought. He finds it possible to classify religions in terms of three fundamental motifs: Nomos, Eros, and Agape. The latter he shows to be the fundamental motif of Christianity. Men such as J. Burnaby, M. C. d'Arcy, and G. Wingren have contested this claim, Burnaby charging him with neglect of the concept of Philia, d'Arcy with an exaggeration of the difference between Eros and Agape, and Wingren arguing that he has not done justice to the role of Nomos in Christianity. Elements of their criticisms can be maintained, others can be repudiated from the writings of Nygren himself.

Nygren's definition of Agape is of the greatest importance in interpreting what he says. There are four elements: Agape is spontaneous and unmotivated; it is indifferent to value; it is creative; it is the initiator of fellowship with God. This is the fundamental motif of Christianity, and by this Nygren means that if at any point this motif be removed the entire structure will collapse. This can be shown to be true with reference to every doctrine. Nygren illustrates this from the writings of the Apostolic Fathers, with particular reference to Creation, the Incarnation and the Resurrection. The Christological centre of Agape is consistently evident.

An important development of Nygren's thought, which has a direct bearing on his Christology is his interpretation of the two 'aeons', which he finds basic to New Testament thought. It is in this connection that he discusses Paul's comparison of Christ and Adam as the two 'Heads' of humanity. Jesus Christ as the Messiah introduces the 'new aeon', and stands on the boundary between the old and the new. The Messianic expectations are discussed and analysed in terms of the Messiah-King of the Enthronement Psalms, the Suffering Servant of Isaiah, the Son of Man of Daniel, and the enigmatic 'Him that cometh' of the New Testament times. This leads naturally to a fuller examination of the significance of Jesus Christ, and a comparison with contemporary theologians such as Karl Barth is revealing. Nygren's interpretation of Reconciliation, with reference to Justification and Sanctification, is treated Christocentrically. Sanctification is closely related to the treatment of ethics which he has presented in several books.

Nygren's Christology reaches an appropriate and practical climax in his Ecclesiology. He has written to the effect that Christology attains its proper breadth only when the Church is seen to be the body of Christ. "Ecclesiology is a direct consequence of Christology". This has far-reaching implications for the institutional Church of today, especially with regard to its task and function in the world.

The dissertation makes a threefold contribution towards the study of theology:

First, it shows, that within the range of his own definitions, Agape is the pivotal concept in Nygren's theology, in his research and writings over a period of forty years, and that those who have disputed his contentions have usually done so because they have refused either his presuppositions or his definitions.

Second, it shows that Agape can be interpreted as an essentially Christological concept. Nygren does not explicitly do this, but such an interpetation of his argument is shown to be both necessary and defensible.

Third, it shows that there is a common denominator between the Ludensian theology of Nygren and the Continental Reformed theology of Karl Barth, even though neither acknowledges any kind of dependence on the other. This becomes apparent when the Christological reinterpretation of Nygren's Agape motif is compared with the Christocentric theology of Barth.

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Title/Titel:	*The Industrial Growth Pattern and the Real Forces of Economic Expansion in South Africa* 1916/17–1956/57
Medium:	English

This study attempts to explain the real growth pattern of the South African economy in terms of shifts in sectoral demand and supply conditions. The analysis covers the forty-year period 1916/17–1956/57 as well as three sub-periods, namely the thirty-year period 1926/27–1956/57, the twenty-year period 1936/37–1956/57 and the post-World War II decade 1946/47–1956/57. The three following main dimensions of economic growth are examined for each period distinguished. Firstly, the course of developments in total supply and final demand is examined in order to discover the changes in their composition. Next, the general stage of development of the economy and its changing industrial structure are determined and analysed with a view to establishing the degree of industrialization and the leading growth sectors. And, finally, the effects of the changing pattern of sectoral supply and demand conditions are calculated with the aid of an inter-industry model and interpreted as causes of the structural transformation experienced in the process of economic growth.

The economic growth of South Africa during the forty years ended 1956/57 reveals a consistent pattern of rapid industrial transformation accompanied by continually rising real income levels. All indications are that this process of modern economic development has become institutionalized in South Africa and obtained a momentum of its own that can carry the high rates of expansion forward for some time in the future.

So far as the general pattern of South Africa's industrial transformation is concerned, the analysis shows that during the first half of the twentieth century economic development in South Africa closely followed the modern trend according to which secondary economic activity and especially manufacturing, increasingly assumes the leading role at the relative expense of primary industry. Tertiary industry, on the other hand, more or less keeps pace with the expansion of overall development.

In respect of the degree of industrialization it is found that manufacturing in South Africa was substantially under-developed in 1916/17 according to a standard pattern calculated for countries at a similar stage of overall development and of the same economic size. Primary economic activity still dominated the economic scene in South Africa at the time, while the development of tertiary activity was slightly above the relevant international standard. Thanks to the rapid rate of industrialization from 1916/17 onwards, the general level of manufacturing in South Africa was more or less brought in line with the corresponding international standard by the late thirties. Since 1936/37 manufacturing industry in South Africa has expanded in general accordance with the standard pattern for economies at the same stage of development and of the same size.

The leading sectors of growth in South Africa changed from time to time. Thus light industries that cater for final demand such as furniture and footwear manufacturing, were among the leading sectors during the early stages of industrialization. It is found in most cases that subsequent to their establishment owing largely to import substitution, these industries grew at a moderate pace. Although the growth rates of heavy industry, and of most intermediate manufacturing sectors also tend to decline in the periods following their establishment, they subsequently recovered and continued to expand at high rates. This phenomenon can be associated with the tendency for imports to continue as a major source of supply, and consequently for import substitution to operate longer as a force of growth. In addition, the growth rates of intermediate manufacturers, i.e. industries with products that are mainly used in the production system, are often strongly affected by technological advance that also contributes to their prolonged high growth.

In the final analysis concerning the role played by the several changing demand and supply conditions as causal factors in the industrial transformation and growth of the economy, the following four factors are distinguished; namely changes in final domestic demand, exports, import substitution and technology. The study reveals that considering the forty-year period as a whole, final domestic demand was the most important single causal factor in changing the industrial structure. This finding may, however, be influenced by the choice of 1916/17, i.e. during World War I, as the commencing year. In all three the other periods examined, import substitution appears as the dominant factor in the industrial transformation of the South African economy.

Grouping final domestic demand and exports as demand factors, and import substitution and technology as supply factors it is found that the former made the largest contribution to changing the pattern of production during the forty-year period viewed as a whole. On the other hand, in the thirty-year period 1926/27–1956/57 demand and supply factors shared equally in the industrial transformation, while in both the twenty-year period and post-war decade ended

1956/57, the supply factors of import substitution and technological change figure as the dominant causal elements in changing the industrial structure. In this connection it is important to bear in mind, however, that in the analysis of a dynamic situation it is not always instructive to consider changes in demand and supply conditions as independent causal factors. For example, the growth in domestic demand and exports may in turn be interpreted as the cause of import substitution, be it only in a permissive sense. Moreover, to define changes in exports as a demand factor may not always be realistic because it may be due to changes either in foreign demand conditions or in supply conditions such as the discovery of natural resources.

So far as the share of the several causal factors in the growth of the economy is concerned, the analysis shows that except for technological changes which remained relatively insignificant throughout, the role played by each of the other factors in the first twenty years differs markedly compared with that in the second half of the forty-year period considered. Final domestic demand appears as the main growth sustaining factor before 1936/37, while it expanded slower than the real domestic product during the subsequent twenty years. Import substitution was not an outstanding growth factor in the twenty-year period ended 1936/37, but it became the most important growth source subsequently. During both twenty-year periods the volume of total exports expanded at a slower pace than the overall economy. This relatively slow increase in the expansion of real exports must be ascribed to a slow rise in the export of primary commodities that figure prominently in total exports. On the other hand, the export of manufacturing products, while still comparatively less important, kept more or less pace with overall expansion prior to 1936/37 and grew faster in the following twenty years.

The main findings of this study may contribute to a better understanding of the real growth forces in the economic expansion of South Africa. It adds to the few case studies available to distinguish between particular and general features in the theory of economic growth. It is hoped that the analysis will give rise to further applications and stimulate research in the process of economic development in South Africa.

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Title/Titel: *Die inkome-elastisiteite van stedelike Bantoehuishoudings in die lig van die teorie van die konsumpsiefunksie*

Medium: Afrikaans

Die studie behels 'n ontleding van die ekonomiese gedrag van die stedelike Bantoe as verbruiker met besondere verwysing na die teorie van die konsumpsiefunksie. Daar word veral aandag geskenk aan die vraag of die stedelike Bantoe as onlangse markfaktor enigsens afsonderlike inagname regverdig as element van onstabiliteit in die Suid-Afrikaanse konsumpsiefunksie. Ten einde lig te werp op hierdie vraagstuk, word daar van inkome-elastisiteitskoëffisiënte gebruik gemaak wat as maatstaf dien vir die beoordeling van die ekonomiese gedrag van die stedelike Bantoe as verbruiker.

Die studie word ingelei met 'n uiteensetting van die rol van die konsumpsiefunksie in die makro-ekonomie. Daar word in die besonder gelet op die aanname van stabiliteit van die konsumpsiefunksie wat met verloop van tyd deur empiriese navorsing aan verskeie kwalifikasies onderwerp is. Hierdie studies wys op die noodsaaklikheid vir die ontleding van 'n gedifferensieerde verbruikerspatroon ten einde die aard en kenmerke van die onderskeie bestedingskomponente te bepaal. Ooreenkomstig hierdie benadering word die onstabiliteit van die konsumpsiefunksie in die korttermyn grootliks teruggevoer na die toenemende belangrikheid van diskresionere elemente in verbruikersoptrede en onsistematiese verskuiwings in koopkragverdeling tussen verskillende verbruikersgroepe.

Die huidige studie wys egter daarop dat die omvang van diskresionere elemente by die stedelike Bantoe op die huidige stadium as onbelangrik geïgnoreer kan word. Verder vergelyk die berekende elastisiteitskoëffisiënte vir stedelike Bantoehuishoudings redelik gunstig met die van minder gegoede verbruikersgroepe in Europese lande. Ooreenkomstig is daar weinig rede om te glo dat die verbruikersgedrag van die stedelike Bantoe enigsens noemenswaardig sal afwyk van die van minder gegoede Blanke verbruikers in Suid-Afrika.

In die lig van hierdie bevindings skyn daar weinig grond te wees om te glo dat die Bantoe hom op hierdie stadium enigsens sal voordoen as 'n onsistematiese element met betrekking tot sy bestedingsgedrag enersyds, en sy beskikking oor koopkrag andersyds. Derhalwe kan die stedelike Bantoe, as vraagfaktor, op die huidige stadium nie gesien word as 'n bron van onstabiliteit in die Suid-Afrikaanse verbruiksfunksie nie.

Die berekenings en bevindings van die huidige studie is van besondere waarde vir makro-ekonomiese vooruitskattings en beleidsbepaling. Verder is dit ook van waarde vir mikro-ekonomiese marknavorsing.

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Title/Titel:	*A Study of the Development of Bantu Wage Structure in the Copper Mining Industry in Northern Rhodesia* 1929–1962
Medium:	English

Development of Underdeveloped Countries

The economic growth of underdeveloped countries is receiving a great amount of attention in economic thinking at present. There appear to be two trends of thought regarding development, firstly, that the general standard of living in such countries should be raised by introducing labour-intensive industries and, secondly, that capital-intensive industries should be introduced.

The latter train of thought involves the introduction of an expatriate skilled labour force till such time as the indigenous population can be trained.

The Question of Wages

In the first approach the policy would be to raise the wage structure of the indigenous population as a whole. In the case of the second approach the policy to be followed is not so clear and the question arises as to whether the wage structure of the minority employed in capital-intensive industries should be related to the general wage structure of the foreign skilled labour force.

An International Labour Organisation resolution appears to accept with specific reference to Africa, that the wage structure of the employees, in an underdeveloped country, should be related to the wage structure of the skilled labour force. The resolution further implies, that where that is not the case, any differentials that exist are due to racial discrimination. With this statement, the writer disagrees and maintains that inter-occupational differentials in countries with dual economics are due to a great variety of factors.

Empirical Study of Position in Northern Rhodesia

An empirical study of the wage structure of the African employees of Copper Mines in Northern Rhodesia, is made in order to distinguish the various factors, that were operative. As a necessary background, the development and growth of the Copper Mines are investigated, and the demand for labour to which this growth gave rise. The policies of the British and Northern Rhodesian Governments and of the Copper Mining Companies are investigated. It is shown that during the whole period under consideration, it was the expressed policy of the British Government to give every opportunity to the indigenous population, to develop to the fullest extent.

At first a policy of balanced development was followed, and an attempt was made to spread the benefits to be derived from employment in the cash economy as widely as possible by adhering to a system of migratory labour. The Government of Northern Rhodesia was very reluctant to allow the Copper Mining Companies to adopt a policy of stabilisation of labour, after their experience of having had to repatriate a vast number of unemployed workers to their tribal areas, when some of the mines closed down during the World Depression in the early 1930's.

When a change was made to a policy of using stabilised labour, the question of the advancement of the African in industry, came to the fore. This naturally involved the question of the dual wage structure which was in operation. The Mining Companies, with the support of the Northern Rhodesia Government attempted to bring about a unitary wage structure for the whole industry. The concept of a unitary wage structure is examined at a later stage in order to show that the parties concerned held different ideas as to what constituted a unitary wage structure. The Mining Companies interpreted it as merely creating a bridge across the gap between the two structures by means of which outstanding Africans, could progress, into the semi-skilled/skilled wage structure. The African Labour Union, the creation of which was sponsored by the Government, interpreted it as a wage structure similar to those in advanced industrial countries. This difference in conception gave rise to difficulties.

The European Labour Union opposed the proposals of the Companies for African Advancement and a long protracted struggle ensued, the history of which is traced. The Government appointed various Commissions of inquiry of African advancement to higher positions. Since, however, from Commission reports it was clear that African advancement would involve the replacement of Europeans and the fragmentation of some jobs, the European Union agreed to some measure of advancement after considerable opposition and eventually to African trainees being accepted for the higher jobs.

The Factors influencing Wage Structures

An analysis of Wage Theory is then made to determine the factors influencing wage structures, and their influence on the narrowing and widening of inter-occupational differentials. Then follows an analysis of all the factors, economic, institutional, social and political, that were involved in the above situation and their influence on the inter-occupational differentials.

Conclusion

The conclusion is arrived at that a great number of factors influence wage structures in countries with dual economics and that the isolation of one factor i.e. racial discrimination as was done by the International Labour Organisation gives an erroneous picture of the situation. In fact, since the whole situation can be interpreted in other than racial terms, the conclusion must be arrived at that the racial factor was merely ancillary to the whole question of inter-occupational differentials.

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Title/Titel:	*Die invloed van emosies op sosiale vorming en op insig in die opvoedingsproses*
Medium:	Afrikaans

Die ondersoek in hierdie verhandeling beoog 'n drieledige doelstelling nl.:

om die voorkoms en aard van sosiale aanpassing en insig soos by adolessente leerlinge in die hoërskool aangetref word behoorlik na te gaan;

om die verband wat daar tussen hierdie twee verskynsels mag bestaan te probeer bewys en met mekaar te korreleer aangesien albei as gevoels- of gesindheidsituasies beskou kan word;

om die bevordering van hierdie twee noodsaaklike persoonlikheidseienskappe by adolessente leerlinge aan die hoërskool te probeer ontwikkel en te vergemaklik deur doelgerigte groepleiding en groepervaring (sosiale opvoeding) aan te wend vir suksesvolle gesindheidvorming.

In die eerste hoofstuk is die probleem van onsimpatieke gevoelsarme opvoeding wat die ideaal van goeie sosiale aanpassing, insig en gesindheidvorming laat misluk, sorgvuldig gestel. Aspekte van die probleem wat onder die soeklig geplaas word is die volgende:

(*a*) Daar is in die skool leerlinge wat om verskeie redes in 'n mindere of meerdere mate sosiaal aangepas is; hierdie sosiale aanpassing vereis verdere diagnose en studie.

(*b*) Dieselfde groep leerlinge sal ook elkeen individueel 'n sekere gesindheid (of emosionele insig) teenoor 'n spesifieke situasie soos bv. Rekene as skoolvak openbaar; ook hierdie insigverskynsel word gediagnoseer en oor 'n periode van minstens nege maande empiries bestudeer en ondersoek.

(*c*) Daar bestaan waarskynlik 'n noue verband tussen sosiale aanpassing en die vermoë om insig te openbaar, d.w.s. gesindheidvorming om tot sosiale en nuwe insigte gelei te kan word; hierdie verband word gevolglik nagespeur.

(*d*) Deur gebruikmaking van groepleiding en groepervaring binne 'n klub as aanvullende opvoeding binne die raamwerk van die bestaande onderwysstelsel word hierdie hulpmiddel tot verbeterde sosiale vorming en insig empiries uitgetoets.

(*e*) Ook word vasgestel of die ondersoeker suksesvol in sy proefnmeing en ondersoek is.

In die tweede hoofstuk is 'n histories-kritiese oorsig van die vraagstuk onder behandeling gegee sodat die probleem van die innige emosionele verband tussen die twee gevoelsituasies t.w. sosiale aanpassing en insig soos deur die aanpassingsgevoelige mens ervaar word in sy regte historiese perspektief begryp kan word. Vervolgens word 'n oorsig van die literatuur oor die probleem gegee om vas te stel wat toonaangewende mense, denkers en navorsers deur die eeue heen in hierdie verband gedink het en wat ander belangrike ondersoeke aan die lig gebring het. Daarna word 'n saaklike uitsetting van die ondersoeker se eie opvattings aangebied sodat die vraagstuk teoreties gefundeer word met betrekking tot die invloed van die emosies op sosiale vorming en op insig in die opvoedingsproses.

In die daaropvolgende drie hoofstukke word 'n noukeurige verslag gegee van oorspronklike navorsing wat uitgevoer is nl.:

(*a*) die identifisering en toetsing van die groep toetslinge wat in hierdie geval adolessente meisies aan die Hoër Huishoudskool op Riebeek-Wes is, asook die naspeuring, ontleding en statistiese verwerking van die gegewens.

(*b*) 'n eie proefneming in groepervaring met 'n uitgesoekte eksperimentele en kontrole-groep (elke groep bestaande uit 35 toetslinge), voortgesette toetsing, insameling van verdere gegewens vir bestudering, ontleding en statistiese verwerking.

(*c*) aanvullende projeksie- en sosiometriese ondersoeke van dieselfde uitgesoekte groepe proefpersone om die probleem fenomenologies te deurgrond en die resultate van al die gestandaardiseerde toetse, projeksie-navorsing en fenomenologiese benadering met mekaar te vergelyk.

Die laaste hoofstuk bevat 'n samevatting van die bevindinge asook enkele opvoedkundige implikasies en aanbevelinge wat voortvloei uit die navorsing wat in hierdie verhandeling onderneem is.

Resultate wat as vrug op hierdie ondersoek openbaar kan word

'n Beknopte opsomming van die vernaamste bevindinge in hierdie verhandeling kan rigtinggewend wees wanneer die toekomstige opvoedkundige beleid en beplanning ter sprake kom.

Jeugbewegings

Groepervaring en -leiding van die opgroeiende jeug (veral gedurende die adolessensie) vereis 'n gunstige klimaat, atmosfeer, struktuur en organisasie en dit is moontlik om in die spaartyd van leerlinge 'n jeugbeweging nuttig te gebruik om hul persoonlikheidsontwikkeling te vergemaklik en te verbeter.

Die aanvullende opvoeding wat die ondersoeker in hierdie verhandeling onderneem het, het in die spaartyd van die groeplede vir slegs sowat 55 uur altesaam en weekliks verspreid oor 'n periode van tien maande geduur. Meetbare resultate is egter verkry en die klublede van die jeugbeweging het veel daardeur gebaat.

Sosiale aanpassing en insig

Wanneer die sosiale (en algemene) aanpassing van die adolessente meisies doelgerig en op natuurlike wyse deur groepervaring binne 'n jeugbeweging verbeter word, sal die gesindheidvorming om tot nuwe insigte gelei te word d.w.s. die algemene insig van hierdie individue ook dermate verbeter soos blyk uit die volgende:

(*a*) daar is 'n neiging om beter in 'n sogenaamde onpopulêre vak soos Rekene te presteer ofskoon geen onderrig hooggenaamd op hierdie gebied verskaf is nie;

(*b*) daar is 'n neiging om beter in die algemene skoolwerk te presteer soos met 'n spesifieke onderwerp soos Rekene geskied het;

(*c*) 'n algemene verbetering in die skoolwerk (en rekene) van ten minste 3% oor 'n periode van een skooljaar is waargeneem.

Hierdie verbetering kan alleen verwag word mits die emosionele opvoeding of gesindheidvorming van die adolessente leerlinge nie verwaarloos word nie en hierdie proses van groepervaring moet altyd doelgerig en konstruktief aangepak word.

Die emosionele lewe

Suksesvolle sosiale aanpassing en gesindheidvorming om tot nuwe insigte gelei te word is afhanklik van 'n gesonde emosionele lewe soos uit die proefneming en Rorschach-ondersoek geblyk het. Die emosionele lewe mag nooit in die opvoedingsproses verontagsaam word nie want

(*a*) alle individue het as eenmalige wesens emosies en drange wat onderling verskil en almal moet ook emosioneel opgevoed word, òf hul intelligent òf normaal òf agterlik is;

(*b*) hierdie emosionele opvoeding geskied baie langsaam want aanpassing en gesindheidvorming verg baie tyd;

(*c*) hierdie aanpassing en gesindheidvorming vind die beste plaas deur groepervaring (of opvoeding in die gemeenskap deur die gemeenskap vir die gemeenskap) binne 'n groep waarin elke leerling gelukkig en tuis voel.

Projeksie

Elke persoon projekteer sy persoonlikheid gedurig rondom homself deur sy denke, emosies en dade wanneer hy response natuurlik en vrywillig moet lewer by die ervaring en waarneming van allerhande situasies. Uit die Rorschach-openbarings van die adolessente meisies se persoonlikhede blyk o.m. dat

(*a*) dit moontlik is om deur doelgerigte en doeltreffende groepervaring die projeksie d.w.s. die persoonlikheid oor 'n proefperiode effens te wysig en selfs te verbeter omdat daar sosiale aanpassing en gesindheidvorming plaasgevind het;

(*b*) emosionele spanning wat veroorsaak word deur onderdrukking van die innerlike vermoëns en impulsiewe lewe, angstoestande, uitermate hoë ambisies, oorgevoeligheid, emosionele verwaarlosing e.s.m. die projeksie en persoonlikheidsontwikkeling nadelig beïnvloed.

Aanbevelings

Na aanleiding van hierdie resultate word die volgende aan die hand gedoen in belang van die opvoeding en onderwys nl.:

Geen opvoedingsprogram en -stelsel mag die sosiale aanpassing van die jeug verwaarloos nie want anders sal die gevoelslewe in die lewe en opvoeding van die mens skade ly.

Geleidelike gesindheidvorming om tot nuwe insigte gelei te word behoort die strewe binne en buite die ouerhuis, die skool, die kerk en in die gemeenskap te wees.

Elke jeuggroep saam met 'n volwassene (ouer, onderwyser of iemand anders) soos bv. die huisgesin, klas, skool, jeugklub, span, brigade, bende, korps e.s.m. moet altyd as 'n leerskool vir die kind dien om onderlinge menslike verhoudinge en gesindhede psigoterapeuties te vorm.

Alle ware opvoeders (ouers, onderwysers en jeugleiers) moet eers hul eie emosionaliteit besef, bestudeer, verstaan en stabiliseer voordat daar sprake kan wees van stabiliteit in hul opvoedingstaak.

Heelwat praktiese wenke word aan die hand gedoen sodat die wêreld van die kind binne en buite die ouerhuis, die skool en jeugaktiwiteite gesuiwer word van alle invloede wat sy opvoedingsavontuur asook sy sensitiewe en ontwikkelende persoonlikheid skadelik sou beïnvloed.

Finale gevolgtrekkings

Die sosiale vorming en insigvorming word die beste deur groepervaring en -leiding ontwikkel en vergemaklik. Hierdie twee gevoelsituasies korreleer beslis met mekaar want hoe doeltreffender die sosiale vorming geskied hoe doeltreffender is die insigvorming.

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Medium: Afrikaans

Omskrywing van die begrip

In die studie word deurgaans onder die begrip verstandsafwyking spesifiek net na negatiewe verstandsafwyking verwys en dan ook slegs na die opvoedbare negatief verstandsafwykende vir sover hy voordeel uit 'n aangepaste opvoedkundige program kan trek.

Verder het die plaaslike navorsing slegs betrekking op die Transvaalse skoolwese en die aanbevelings waartoe uiteindelik geraak word, is ook net in ooreenstemming met die huidige onderwysbeleid in Transvaal.

Aanleiding tot die studie

Verstandsafwyking is nie 'n ongelukkige toestand wat beperk is tot een of ander volks- of gemeenskapsgroep nie. Ook is dit nie 'n toestand wat na willekeur bewerkstellig of voorkom kan word nie. Verstandsafwyking kom voor in ryk en arm, opgevoede, onopgevoede, geletterde en ongeletterde gesinne. Verstandsafwykendes is deel van elke ras, nasie en geloof, sodat verstandsafwyking in der waarheid as 'n universele probleem beskou kan word. Daarom dat verstandsafwyking as 'n uitdaging kom, primêr tot die opvoedkundige en sekondêr tot die gemeenskap. Onder die hedendaagse opvoedkundige opvatting is opvoeding en onderwys nie langer 'n voorreg van die gegoedes nie, maar dit is die reg van almal, dus ook van die verstandsafwykende, omdat hy wel op sy besondere vlak 'n gemeenskapsbydrae kan lewer in ooreenstemming met sy potensialiteite. Deur dit te doen word van die verstandsafwykende 'n bate in plaas van staatslas gemaak.

Uit hoofde van sy belemmering stel die verstandsafwykende besondere eise aan die onderwys, veral ten opsigte van sy potensiële beroepsnuttigheid, klas- en skoolgrootte.

Doelstellings

Die doel met hierdie studie is om die verskynsel van verstandsafwyking uit die literatuur te ondersoek aan die hand van die volgende:

— Die begrip: verstandsafwyking
— Belangrikheid van die verskynsel
— Voorkomssyfer
— Kriteria vir verstandsafwyking
— Fisiese en psigiese eienskappe van die verstandsafwykende
— Probleme van die verstandsafwykende

In die lig van die besondere eise en probleme wat hieruit blyk, word dan uiteindelik besin oor die ideale opvoedingsgeleenthede vir die verstandsafwykende, veral ten opsigte van die optimum klas- en skoolgrootte.

Eie ondersoek

Deur middel van vraelyste aan etlike oorsese lande is die huidige beleid en opvoedkundige voorsiening vir verstandsafwykende leerlinge nagevors. Verder is omvattende vraelyste aan die hoofde van al die seninr spesiale skole in Transvaal gestuur, terwyl persoonlike onderhoude met 'n aantal skoolhoofde gevoer is. Uit hierdie gegewens is die volgende aspekte ten opsigte van die verstandsafwykende leerlinge ondersoek:

— Psigiese en fisiese afwykings
— Sosio-ekonomiese agtergrond van die gesin
— Voorberoepsopleiding van seuns en meisies
— Die oordeel van die skoolhoofde met betrekking tot die optimum grootte van senior spesiale skole

Belangrikste bevindinge

In die buiteland en plaaslik is skole vir verstandsafwykende leerlinge deurgaans gemengde skole vir seuns en meisies.

Plaaslike omstandighede, beskikbare fasiliteite, maar veral beskikbare opgeleide personeel bepaal grootliks die skoolgrootte. Skole wissel in grootte van 50 leerlinge tot meer as 500 per skool.

In Transvaal is die gemiddelde werklike skoolgrootte 271 leerlinge en in die buiteland 234 leerlinge.

Verstandsafwykende leerlinge kom merendeels uit groot huisgesinne wat sosio-ekonomies onder gemiddeld is. Ongeveer 20% van alle senior leerlinge in spesiale skole kom uit huisgesinne waar die maandelikse inkomste minder as R100 is terwyl die aantal kinders van 6 tot 10 plus per gesin wissel.

Die graad van afwyking van die leerling het eerder 'n invloed op die klasgrootte as op die skoolgrootte.

Daar is groot verskille ten opsigte van die praktiese onderrig van leerlinge. In Transvaal is die verhouding tussen skolastiese en praktiese onderrig min of meer op 'n 50-50-basis.

Ongeveer 65% van die leerlinge in spesiale skole in Transvaal word vir spesiale onderwys gesertifiseer voor hulle 13de jaar.

Die gemiddelde I.K. van die leerlinge in spesiale skole in Transvaal is 72.5.

Seuns blyk minder handvaardig te wees as meisies. 80% van die seuns is redelik tot goed in handvaardighcid terwyl die persentasie by meisies 86% is.

Skolasties bring die leerlinge dit gemiddeld nie verder as st. II of III nie.

Belangrikste aanbevelings

Met inagneming van sy belemmering, word aanbeveel dat spesiale opvoedkundige voorsiening as voorvereiste vir die opvoeding van die verstandsafwykende as algemene beleid aanvaar sal word.

Daar word aanbeveel dat 'n einde gemaak word aan die beleid van verdeelde onderwysbeheer vir sover dit die provinsies die reg ontneem om volle beroepsonderwys aan leerlinge in spesiale skole aan te bied.

Verstandsafwyking gaan dikwels gepaard met fisiese afwykings. Dit is baie belangrik dat hiervan kennis geneem sal word in die opvoedkundige program.

Verstandsafwykende leerlinge sal uiteindelik hoofsaaklik aangewese wees op die halfgeskoolde en ongeskoolde arbeidsvelde veral in die industrieë wat in en om die groot stede gekonsentreer is. Dit word derhalwe aanbeveel dat spesiale skole hoofsaaklik in die stede gestig sal word.

In die praktiese rigtings moet veral rekening gehou word met die arbeidsmoontlikhede van die besondere rigting. Daar moet daadwerklike pogings aangewend word om daardie rigtings aan te bied wat wel deur die verstandsafwykende bemeester kan word en waarin hy 'n toekomstige werksverwagting kan hê.

As gevolg van die besondere eise en omstandighede van die verstandsafwykende word aanbeveel dat die gemiddelde klasgrootte vir skolastiese werk nie groter as 14 leerlinge per onderwyser en vir praktiese onderrig nie meer as 16 leerlinge per instrukteur sal wees nie.

Daar word aanbeveel dat die optimum grootte van 'n senior spesiale skool vir verstandsafwykende leerlinge 300 leerlinge sal wees. Dit blyk 'n realistiese en praktiese eenheid in ooreenstemming met die toestande in die buiteland, die huidige onderwysbeleid in Transvaal, skoolorganisasie, personeelvoorsiening, homogene groepering, voorberoepsopleiding, bestaande fasiliteite en die algemene oordeel van die skoolhoofde te wees.

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Medium:	Afrikaans

Probleemstelling

Denke is 'n geestesproses wat kennis as grondslag het, maar ook beïnvloed word deur die affektiewe en konatiewe aspekte van die persoonlikheidstruktuur. Deùr die denkakt word die kennis ondersoek, ontleed, saamgevoeg, veralgemeen en geabstraheer.

As motief vir die begin, die verloop en die beëindiging van die denkakt is daar die taak wat deur die omgewing in die vorm van 'n probleem of 'n opdrag aan die mens gestel word.

Kritiese denke bestaan daaruit dat dit aan alle vereistes van denke moet voldoen, maar dat dit gekenmerk word deur 'n besonder objektiewe en ondersoekende gees en dat dit kennis van die tegnieke van ondersoek, evaluering en redenasie vereis.

Kritiese denke moet aangeleer word en soos alle aangeleerde funksies sal dit vanaf 'n klein begin verder ontwikkel moet word.

Wanneer geen vooroordeel meer bestaan nie, en wanneer onder alle omstandighede tot 'n betroubare waardebepaling en toepassing van die oortuiging geraak is, het die mens geleer om krities te dink.

Die kind kan geleer word om te dink deur aan hom die basiese kennis te verskaf en hom te leer om die objektiewe verband tussen die dele van hierdie kennis te vind.

In die Republiek van Suid-Afrika val die klem in die skoolopvoeding eerder op die bybring van kennis as op die ontwikkeling van die denke. Dit word veral veroorsaak deur die oordrewe waarde wat aan kennis geheg word.

'n Kritiese oorsig in verband met die Literatuur in verband met denke en kritiese denke

Volgens die assosiasiesielkunde berus die denke op 'n vlegwerk van voorstellinge.

As reaksie teen die assosiasiesielkunde, verklaar die veldteorieë dat gevormde patrone of stelsels die belangrikste faktore in die denke is.

Die Würzburgse skool ondersoek die onaanskoulikheid van die denke asook die rol van die *taak* in die denke. Gedagtes word verklaar as volledige psigiese prosesse. Selz verklaar die denke as sou dit ontstaan en verloop, as gevolg van die volledige *denktaak* (Gesamtaufgabe). Die Gestaltsielkunde verklaar alle psigiese aktiwiteite volgens die beskouing dat die hele situasie as 'n geheel gekonstrueer en gerekonstrueer word. Volgens 'n ander sielkundige teorie onstaan die denke uit die drie bewussynslae wat die konkreet-aanskoulike, die skematiese en die abstrakte inhoude bevat.

Daar bestaan 'n noue verband tussen denke en taal. Albei ontwikkel vanaf die konkreet-aanskoulike tot die abstrakte. Beide denke en taal berus op begrippe.

Dikwels word kritiese denke en probleemoplossing as sinoniem beskou. Besondere norme en waardes kenmerk egter kritiese denke.

Verskeie navorsers het reeds ondersoek ingestel na die ontwikkelingsmoontlikhede van kritiese denke, en daar is verskeie toetse saamgestel ten einde die ontwikkeling van kritiese denke te meet.

Adolessente Denke

Die denke van die adolessent het reeds verder ontwikkel as dié van die kind. Die kind se denke is emosioneel-egosentries van aard en die meeste eienskappe wat volwasse denke kenmerk, ontbreek by die kind.

Die ontwikkeling wat die adolessent op ander terreine ondergaan, het 'n direkte invloed op sy denke. Om hierdie rede moet in 'n ondersoek oor die denke van die adolessent, ook aandag gegee word aan die sosiale ontwikkeling, die fisiese ontwikkeling, die verstandelike ontwikkeling en die religieus-filosofiese ontwikkeling.

Dit kan met reg verwag word dat die kritiese denke gedurende adolessensie teen 'n hoë tempo ontwikkel, omdat die adolessent besonder krities ingestel is, daarin slaag om persoonlike betrekkinge te verontagsaam en deduktief te dink. Nogtans is die adolessent tot 'n groot mate 'n gevoelsdenker, omdat die affektiewe instelling en die integrering van die persoonlikheidsfaktore nog nie die volwasse vlak bereik het nie.

Die ontwikkeling van die adolessente denke word duidelik weerspieël in die ondersoeke in verband met die verstaan van meganiese verskynsels, verbandvinding en evaluering, begripsvermoë, insig in gedigte en gelykenisse, ontwikkeling van humor en rekenkundige berekeninge.

Die psigologie en die logika van die Denke

Die denkakt, as 'n proses wat in die bewussyn verloop, bevat die drie elemente van alle bewussynsfunksies, nl. die kognitiewe, die affektiewe en die konatiewe aspek.

Kennis is die belangrikste enkele faktor van die kognitiewe aspek, en vir die denke is nie slegs 'n parate kennis nodig nie, maar ook 'n funksionele kennis.

Die denke kan egter nie suiwer verstandelik benader word nie, aangesien die affekte 'n belangrike funksie by die denke verrig. Die emosionele of gevoelslewe gee kleur en vitaliteit aan die lewe, en dus ook aan die denke van die mens.

'n Derde aspek wat die denke kenmerk, is die konatiewe aspek. Die denke staan in noue verband met die bevrediging en die nie-bevrediging van die mens se behoefte.

Dit is egter nie net die persoonlikheidsstruktuur wat 'n invloed op die denke uitoefen nie, maar ook die formele logika. Die logika is 'n wetenskap wat gegrond is op redenasie en gevolgtrekkings of afleidings.

Albei die faktore, naamlik die psigologie en die logika beïnvloed die denke. Hierdie afsonderlike invloede kan positief wees, wanneer dit geïntegreerd en aanvullend langs mekaar funksioneer.

Die insameling van gegewens en die bespreking daarvan

Daar bestaan reeds verskeie tegnieke wat die ontwikkeling van die kritiese denke ten doel het.

Omdat die meervoudige keusevraag as toetsmiddel besondere voordele inhou, het die skrywer hierdie metode aangepas om terselfdertyd as toetsmiddel en onderrigmetode te dien. Deur die aanwending van 'n vloeistof op 'n besondere plek en die daardeur verkryging van 'n kleur kon die leerling sy antwoord dadelik evalueer.

Naas die eksperimentele groep is ook 'n kontrole groep gehou en 'n aantal gestandardiseerde toetse asook selfopgestelde toetse is voor en na afloop van die eksperiment by beide groepe afgeneem.

Volgens 'n nie-parametriese metode is die gegewens statisties ontleed en die korrelasiekwosiënt tussen die toetsprestasies en die intelligensie van die betrokke leerlinge is bereken. Ook is 'n aantal gevallestudies gedoen om die verband tussen huislike omstandighede en persoonlike eienskappe enersyds en die ontwikkeling van kritiese denke andersyds te bepaal.

Gevolgtrekkings, aanbevelings en Implikasies

Die skrywer het gevind dat kritiese denke deur die metode van gemotiveerde meervoudige keusevrae, wat op die doen van vertaling in Duits toegepas is, kritiese denke kan ontwikkel en dat gewone skolastiese prestasie ook daardeur verbeter kan word. Die leerlinge met die laer I.K.'s het die tendens getoon om in verhouding meer baat te vind by die eksperimentele onderrigmetode. Wat betref die redenering- en klassifikasietoetse was daar die tendens dat die leerlinge met die hoër I.K.'s in verhouding meer gebaat het by die besondere metode van onderrig.

Die denkvermoë mag positief beïnvloed word deur 'n goeie sosio-ekonomiese agtergrond, bestendigheid in die huis en die intellektuele ontwikkeling van die ouers.

Die doelstelling van die onderwys behoort verander te word en meer kennis aangaande die onderrig en aard van kritiese denke behoort verwerf te word. Dit sou meebring dat leergange sowel as onderrigmetodes hersien moet word.

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Medium: Afrikaans

The Education Librarianship in some European countries and in the Transvaal: A comparative-critical study

General

In the course of a study tour it was possible for the author to examine school library systems and related matters in a number of European countries.

In comparing the school libraries of Great Britain, Norway, Sweden, Denmark and the Netherlands with those of the Transvaal, it is apparent that in the short period of less than twenty years so much leeway has been made up that Transvaal school libraries compare favourable with those of Western-Europe.

With the establishment of the T.E.D. Library Service in 1951 the Transvaal Education Department laid a strong foundation for education librarianship. It was on the recommendation of this Library Service that a firm groundwork of policy and its implementation for school libraries was established. Likewise, on representations from this Service, the departments of school and college librarianship were set up in the colleges of education, and these departments, as well as the libraries which form a part of them, were placed on a firm footing so far as staff, accommodation and allocations are concerned. Furthermore, when the Library Service came into being, the Education Library, which had existed since about 1918, was completely remodelled and enlarged in order to be able to give the Department and the teaching profession the most efficient specialised information service possible.

School library policy

Nowhere overseas could a clear official policy be found with regard to school libraries such as that of the Transvaal Education Department, namely: "It is the policy of the Department that every school should build up its own independent centralised school library to form an integral part of the school's educational programme." This policy is implemented in practice in such a way that in most respects the Transvaal can play a leading role in school librarianship.

School librarian and library period

One of the most important prerequisites for an educationally integrated school library is the *full-time teacher-librarian*. While the Transvaal stands on the threshold of a thorough provision in this connection (34 of these posts having been introduced in 1963), none of the countries visited has a fixed policy for such a provision, although a few schools had a full-time teacher-librarian. In some countries in the larger schools an ordinary librarian is responsible for the school library. This, however, is a position which is anything but acceptable to the teachers. In Denmark a school library supervisor is sometimes also attached to a school as a teacher-librarian. While such a combination can have advantages, usually either the school library or the general organisation suffers. A system of full-time teacher-librarians, such as has already been introduced in the Transvaal, must necessarily be the only way to achieve the desired results in a school library which is educationally orientated.

Although in various European publications much attention is devoted to the *library period* and its use, it was found that training in the use of the books and libraries received sufficient attention in only a few cases. The result is that both independent use of the library by the pupil and also real integration of the school library with teaching are hampered. The Transvaal Education Department recommends that a weekly library period for every class be used for the teaching of Book Education, based on a publication of that name compiled by the Head of the Education Library Service, Mrs. E. C. Groenewald. The aim, however, is not only formal training in the use of books and libraries, but preparation for life in the broad sense of the word.

Book stock

Allocations for the purchase of school library books differ from school to school and from municipality to municipality in the countries visited. In Great Britain the allocation for school libraries is a part of the total amount granted for the educational equipment of every school. The share which the school library gets depends therefore on the interest of the particular school principal. In the Scandinavian countries definite grants are made by the central as well as the local authority for school library purposes. Swedish schools in particular are so well provided for that in addition to the central school library extensive class and subject collections are built up, as well as a collection of reference books for teachers. In comparison with these schools the provision in the Transvaal is conservative, but it should be borne in mind that the free re-binding scheme, whereby more than 100,000 books are rebound annually for schools and colleges, appreciably reduces the number of books discarded. The annual allocation for Transvaal primary schools is R28 + R0.20 per pupil, and for high schools R28 + R0.25. In addition an initial allocation is granted, chiefly to new schools.

With regard to *book selection* the European school libraries demonstrate the two extremes of complete freedom and total bondage. Great Britain and Sweden are countries where schools are free to select their books independently. Norwegian schools on the contrary are obliged to buy only books which appear in the official catalogue. Certain areas in Denmark do not even have the right to make a choice among officially approved books, but must simply accept the books which are selected for them by the authorities, and no others. Here the Transvaal follows the golden mean. The half-yearly *Book Guide* gives positive guidance by bringing the newest and most suitable books to the attention of teacher-librarians. Schools are, however, free to buy books not listed in the *Book Guide* after the consent of the Department has been procured. When considering such requests the circumstances and needs of each school concerned are taken into account by the Department.

School library organisation and accommodation

The *organisation* of school libraries in the Scandinavian countries as well as in parts of Great Britain is largely in the hands of the public library. The School Library Association gives valuable assistance in this field to schools that wish to make use of it, with the object of recommending such methods as agree with the character of the school library, omitting unnecessary details, so that pupils can be trained to use the school library on their own. The Transvaal Education Library Service has since its inception endeavoured to build up school library organisation so that it is educationally justified. These methods are brought to the attention of the teaching profession in all sorts of ways. A large number of guides and publications are made available to every school, such as, for example, the *Dewey decimal classification for Transvaal school libraries* (1960) and the *Guide to cataloguing for school libraries* (1962). In addition, courses in school librarianship are conducted at the colleges of education, vacation courses for teachers are arranged by the Library Service, and visits are paid to schools by school library advisers attached to the T.E.D. Library Service.

With regard to *accommodation* it appears that the average Transvaal school is in a privileged position in contrast with the average school of Western Europe. Transvaal primary schools with an enrolment of more than 200 pupils, and all high schools are provided with reading rooms of 800 and 1,200 square feet respectively, with an adjacent workroom. High schools with more than 1,200 pupils are equipped with an excellently planned library complex.

In conclusion the author attested that his stimulating visit to Western Europe made him more conscious of the far-sightedness of the Transvaal Education Department, which adopted the policy of regarding education libraries as an intrinsic function of education. The Department not only formulated and implemented the necessary school library policy, but is also establishing school libraries as a sine qua non for its enlightened educational programme.

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Medium:	Afrikaans

Die tema het sy ontstaan te danke aan die feit dat die ekonomiese opvoeding, hoewel nie die belangrikste nie, tog 'n wesenlike deel uitmaak van elke persoon se geestelike grootwording. Die bedoeling is nie dat die kind alleen toegerus moet word om 'n beroep te kan beoefen nie, maar dat hy 'n insig moet kry in die samestelling en aktiwiteite van die ekonomiese lewe en bewus kan word van sy verantwoordelikhede ten opsigte daarvan.

In die verhandeling is in die eerste hoofstuk aandag gegee aan terminologiese aangeleenthede, daarna is die wysgerig-pedagogiese agtergrond van die probleem behandel en in die derde hoofstuk wys die skrywer op die noodsaaklikheid van ekonomiese opvoeding. In die twee laaste hoofstukke word dan sekere aanbevelings gemaak.

Die bevindinge kom op die volgende neer:

In sy bestaanstryd moet die mens gedurig keuses maak en moet hy onder andere ook beslis hoe hy sy inkomste sal bestee, hoe hy sy tyd, krag en besittings sal gebruik ten einde maksimale behoeftebevrediging te bereik. In die begin is dit moeilik en selfs onmoontlik vir die kind om alleen te kies en op verantwoordelike wyse uitvoering te gee aan sy keuse. Hy moet dus gehelp word, sodat hy in sy jeugjare oefening kry in die totstandbringing van sodanige besluite en handelinge wat by hom die oortuiging, die begeerte en die wil wek om konsekwent ook later in die volwasse lewe op 'n verantwoordelike wyse te kies, te besluit en te handel. So gesien beteken ekonomiese opvoeding dan hulpverlening by sedelike keusevorming wanneer opgetree word op die ekonomiese terrein.

Dit beteken egter nie dat die mens geïsoleerd op die verskillende lewensterreine kan optree nie. Daar word wel tussen die verskillende werklikheidstrukture onderskei omdat elk sy eie identiteit het, maar hulle kan nooit van mekaar geskei word nie. Hierdie verskeidenheid

in en van die kosmos is op 'n besondere ingewikkelde wyse universeel verbind, sodat die heelal 'n ondeelbare eenheid vorm. Dit beteken dat daar rekening gehou moet word met die ekonomiese faset se onlosmaaklike verband met die ander fasette van die werklikheid.

Net soos die kosmos is die mens 'n geïntigreerde totaliteit, 'n veel-dimensionele eenheid wat meer en anders is as die somtotaal van die samestellende dele. Die geheel gaan die dele vooraf en verleen betekenis aan die dele. Elke persoonlikheidsfaset van die mens het slegs waarde in sy verhouding tot en sy verbondenheid met ander komponente. Hulle funksioneer saam en is kante van 'n geheel en kan nie buite die totaliteit van die persoon staan nie. So gesien, beteken dit dat die ekonomiese aspek nie van die ander aspekte geïsoleer kan word nie, alhoewel dit tog duidelik van die ander komponente onderskei word.

Die noodsaaklikheid van opvoeding tot ekonomiese verantwoordelikheid spruit veral voort uit die behoefte aan totaliteitsopvoeding, die strategiese plek wat die ekonomiese in die samelewing inneem, die ontstaan van talle maatskaplike probleme as gevolg van foutiewe keusehandelinge op ekonomiese terrein, 'n gebrekkige arbeidsbekouing by die blanke en 'n verkeerde beskouing van tyds- en vryetydsbesteding.

Ekonomiese opvoeding het ten doel om:

(*a*) Die leerlinge 'n insig te gee in die geheelbeeld van die ekonomiese struktuur en in die onderlinge afhanklikheid van die verskillende ekonomiese sektore;

(*b*) Die leerlinge bewus te maak van hulle verantwoordelikheid as produsent en verbruiker in 'n vrye verkeershuishouding;

(*c*) 'n Gevoel van ekonomiese onafhanklikheid by die leerlinge aan te kweek;

(*d*) Die leerlinge sodanig voor te berei dat hulle in staat sal wees om hulle persoonlike geldsake op 'n behoorlike en intelligente wyse te behartig.

Weens 'n verkeerde opvatting van die ware betekenis en belangrikheid van die ekonomiese in die volkslewe word die behoefte aan spesiale opleiding nie algemeen besef nie. Ons onderwys- en opleidingsgeriewe is nog lank nie voldoende om in daardie behoeftes van ons jeug te voorsien nie. Daarom word gepleit vir 'n formele- en sistematiese onderrig om die kind voor te berei vir 'n ekonomiese lewe. *Hiermee word beoog 'n leergang vir leerlinge aan Provinsiale Middelbare Skole wat sal dien as algemene inleiding tot die ekonomiese sfeer.* Alhoewel praktiese vakke soos Bedryfskennis en Huishoudkunde en handelsvakke soos Boekhou en Handel baie geleentheid bied vir insidentele voorligting, is hierdie metode lank nog nie voldoende om die kind ten volle toe te rus vir 'n ekonomiese lewe nie, en wel om die volgende redes:

(*a*) Insidentele onderrig geskied broksgewys en slegs wanneer die geleentheid daartoe gebied word, gevolglik is die kind nie in staat om 'n geheelbeeld te vorm waaroor dit alles gaan nie;

(*b*) Die ekonomiese sal nooit tot sy reg kom as daar net van insidentele voorligting gebruik gemaak word nie. Met ander woorde, die leerling sal maar 'n vae begrip kry van die ekonomiese probleme en hoe hulle moontlik opgelos kan word. Waar die geleentheid hom voordoen, word ekonomiese probleme wel behandel, maar origens word daar baie min in hierdie verband gedoen. Sekere aspekte van ekonomiese opvoeding bly heeltemal agterweë, omdat hulle nie in verband met die ander vakke gebring kan word nie.

Die bedoeling is natuurlik nie dat die werk in waterdigte hokkies aangebied word wat geen verband hou met die ander vakke nie. Dit spreek vanself dat die ekonomiese aspek, met die oog op die sistematiese studie, wel as 'n aparte studieveld afgebaken moet word, maar dat daar by die studie daarvan gedurig korrelasie met die ander vakke sal moet wees.

Indien in aanmerking geneem word dat baie kinders in huise opgroei waar 'n gees van „spandeerlosbandigheid" heers, is dit noodsaaklik dat spaarsin in die skole ook aandag sal geniet. Alhoewel by die meeste laerskole skoolspaarklubs bestaan, is dit 'n saak wat by die hoërskole weinig aandag geniet. Spaarsin is vir ons tyd so belangrik dat dit nie maar aan die laerskole alleen oorgelaat kan word nie. Hoe dit presies in die reeds oorvol rooster ingepas kan word, is 'n saak vir praktiese oorweging. Hier dien gemeld te word dat in die hoërskool soveel as moontlik van die leerlinge by die organisasie van spaarskemas betrek kan word.

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Title/Titel: *Moral Insight in Jane Austen: A Study of her Development as a Novelist*

Medium: English

Mansfield Park: Cynicism and Moral Thought (Chapters 1-17)

In a letter dated 29 January 1813, Jane Austen stated that her new novel, *Mansfield Park*, would be different from *Pride and Prejudice* and 'a complete change of subject'. The new subject was to be 'ordination'.

An examination of *Mansfield Park* reveals that in phase after phase of the plot Jane Austen is dramatizing a particular kind of difference between right and wrong judgment. A variety of topics is offered for judgment: education, gentlemanliness, modestry, an apricot tree, landscape-gardening, a chapel, theatricals, the significance of ordination. The characters who judge rightly are those who are aware of, and understand, the inner nature or 'private character' of what is being discussed, and those who err do so because they judge by irrelevant, incidental, or superficial aspects. Success in judgment is shown to be dependent not so much on intelligence or experience as on a capacity for deep and sincere feeling, an ability to *respond* to things, people, and situations; failure to respond in this way has important moral consequences in behaviour.

London is associated with shallow feeling and a cynical observance of forms; in the Portsmouth episodes we see warmth of feeling, but the feeling is not disciplined or sustained by decorum; at Mansfield Park itself we look for the union of propriety and true feeling, and it is in the rural Thornton Lacey, remote from London but near Mansfield, that Fanny (with Edmund whom she has saved from the influence of Mary and London) will find her appropriate setting and live in a world where values are real and judgment is true.

The themes, scope and manner of *Mansfield Park* derive from various sources, among which are the Scriptures, Crabbe, Bunyan, Cowper's *The Task*, and the play *Lovers' Vows*, all (except the last, which is reflected ironically) having a specifically moral concern.

Jane Austen's Subject (Chapter 18)

Jane Austen addressed herself systematically in *Mansfield Park* to the subject that was to occupy her in all three of the mature novels that were conceived and written at Chawton: the difference between behaviour that is moral and behaviour that is merely polite and, perhaps, disguises a bad motive.

The country gentry provided the right material for her purpose. Whereas in her early novels she had written about the gentry because she knew them best, after *Pride and Prejudice* she wrote about them because in them could be seen most clearly the gulf that divides mere observance of a strict and sophisticated code of conduct from behaviour that is moral because it is an expression of autonomous principle: in *Mansfield Park* it is called 'active principle'. She demonstrates that though a civilized society no doubt requires a comprehensive code of polite conduct, real virtue is attained only rarely, and only by those members of the society who have learnt truly to know and to feel the values that a civilized code attempts to embody. Real virtue is achieved only by individuals who recognize and respond fully to objects, situations, people, and entities.

The Early Novels: Superficial Comedy (Chapters 19-21)

Sense and Sensibility, *Northanger Abbey* and *Price and Prejudice* were conceived and written — though not as we know them — by 1803, when Jane Austen was twenty-seven. Ten years or more elapsed between their original composition and their publication, and, although Jane Austen revised them more or less thoroughly, they are different from the Chawton novels. They are concerned with moral behaviour in the country gentry, but they do not treat the subject that I have described in Part II with the concentration and penetration that develops in *Mansfield Park*. *Sense and Sensibility* and *Northanger Abbey* touch the subject of *Mansfield Park* only incidentally and superficially, but in *Pride and Prejudice*, which Jane Austen revised extensively after she had started *Mansfield Park*, we are aware of a more explicit concern with the difference between reality and mere appearance; thus this novel presents us with an interesting transition. Jane Austen knew that to treat the new theme adequately she required a new novel: this explains why she expressed dissatisfaction, though very whimsically, in a letter dated 4 February 1813. Her remark (in a letter written six days earlier), that *Mansfield Park* was to be 'a complete change of subject', was accurate and significant.

The Later Novels: Mature Comedy (Chapters 22-23)

In *Emma* and *Persuasion* Jane Austen applies with consummate artistry the concepts and insights that were conscientiously investigated in *Mansfield Park*. Both novels are concerned with true gentility, or virtue. Emma learns in the end that appearance is often delusive and truth very difficult to arrive at, and that true gentility has less to do with style and forms than with goodwill and humanity: everything becomes clear to her when she is deeply moved and able to see the truth about herself.

Anne Elliot (in *Persuasion*) lacks Emma's sharp and vivacious intellect, but she seems always to have a sensitivity of response, an awareness of 'private character', and thus a true sense of values. The responses of all the others (with the exception, usually, of Wentworth) differ from Anne's in kind or degree. What Anne has to learn is to have confidence in her own judgment, even when it is at variance with that of Lady Russell, who observes the social code strictly but without feeling or real knowledge, and thus illustrates the difference that there can be between decorum and virtue, semblance and turth.

Another Change of Subject? Sanditon (Chapter 24)

In her three last completed novels Jane Austen describes virtue and accounts for moral failure in individuals; of *Sanditon* it is less true to say that she has changed her subject again than that she has begun another phase of the enquiry which she started in *Mansfield Park*. *Sanditon* appears to have been conceived as a satire on a new kind of society, a society characterized by a restlessness and acquisitiveness that make truth and individual virtue still more difficult to realize. The proprietors and patrons of Sanditon are urbanized, commercially-minded and uprooted; they have lost touch with the pieties and moral values that have evolved and are maintained in the world which we catch sight of in Henry Crawford's description of Thornton Lacey in *Mansfield Park*.

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Title/Titel:	*The Poetry of William Empson*
Medium:	English

The publication of *Seven Types of Ambiguity* in 1930 not only laid the foundation of William Empson's reputation as an original and stimulating critic, but also revealed the principles that were to influence his poetical development. These principles were based on the literary theories of I. A. Richards, his Director of Studies at Cambridge, and supported the argument that poetry is fundamentally a form of communicated meanings, all of which can be analysed and explained. In the critical works that he wrote after *Seven Types of Ambiguity*, Empson extended this critical dogma through the use of sociological material, attempting to show how beliefs and attitudes altered the meanings of words and increased their possible ambiguity. All this is reflected in his verse.

His emphasis on complexity of meaning as a criterion of poetic value led him to choose seventeenth century metaphysical verse, with its predilection for the ambiguous, the recondite, and the bizarre, as his poetic ideal. His decision to imitate Donne and his school is, therefore, in accordance with the principles upon which he formed his critical dogma; at the same time, this decision is an indication of his sensitive feeling for the intellectual tone of his own age. There had been a revival of interest in the poetry of the seventeenth century during the late 'twenties (mainly due, in the opinion of F. R. Leavis, to the influence of T. S. Eliot) and Empson found an appreciative, if rather uncomprehending, audience for his work. He was encouraged in his deliberate complexity by the similarity between his own theory of ambiguity and T. S. Eliot's belief that a modern poet must be difficult, must 'dislocate if necessary, language into his meaning'. Apart from the similarity in critical dogma, Eliot's poetical innovations, his use of colloquial idiom, metaphorical compression and 'unpoetical' material produced the necessary reorientation for Empson to write his particular 'clotted kind of poetry'.

Empson's poems can be divided into two sections: poems written between 1927 and 1933, and those that he wrote after 1933. The earlier poems are characterised by an excessive preoccupation with intellectuality, a compulsion to probe and dissect feeling and thought, and seem to have been written with the assumption that one can reason oneself into the aesthetic experience.

The underlying thought in Empson's poetry is the paradox that 'life involves maintaining oneself between contradictions that can't be solved by analysis'. He expresses this in the early poems through the idea of a conflict, either between the individual and his own self-consciousness, or between the individual and society. In both cases, this conflict is accompanied by a sense of isolation which increases the resultant mental and spiritual torment. There is an ingenious use of entomic images in poems such as *The Ants*, *Value is in Activity*, *Plenum and Vacuum* and *High Dive* to illustrate the neurosis that this situation produces; in *Arachne* and *Sea Voyage*, he uses the "persona' of a spider to suggest that we can adapt ourselves to the situation through a careful balancing of opposing tensions, much as the spider constructs his web.

Like Donne, Empson draws upon the sciences for many of his metaphors; the sense of constriction that he perceived in the social consciousness led him to describe the individual's attempts to escape from this constriction through the use of cosmological comparisons. There is a successful use of this scientific material in *The World's End*, where 'curved' space is used to show that we are confined within an inescapable system of beliefs that, paradoxically, defeat their own ends. Empson is less successful when he combines cosmology and entomology in his images to illustrate his theories on existence; the two fields of reference remain parallel examples in the poetic argument, they are not drawn together in a final, illuminating image.

The tendency in the earlier poems was to sacrifice feeling for thought; the logical extension of ideas became an end in itself, forcing the ultimate meaning further and further away from the reader until it was finally lost in a maze of ingenious paradoxes, analogies, and contrasts. Yet despite the degree of syntactical and intellectual compression, the fundamentals of good poetry existed behind this façade of a 'sophisticated' obscurity. Profundity of thought, imaginative expression, metrical skill, and above all a sensitive feeling for the way in which language works, all revealed Empson's potentiality. This potentiality was fulfilled in the poems that he wrote after *Bacchus*, when he came closer to that passionate ratiocination which gives the poet his superiority over the purely analytical thinker.

In Empson's poetry, there is a definite progression in sensibility. The earlier poems express a desire to remain aloof from the human situation, but after *Bacchus*, there is a growing sympathy with the difficulties of those engaged in 'the public spirits or the private play' (*Success*). Many of the later poems, particularly *Autumn on Nan-Yueh*, reveal a sense of responsibility, a concern for the moral welfare of society that extends beyond the witty display of 'ambiguous gifts'.

Empson's verse is both a confirmation of the new bearings taken in English poetry since 1910 and an indication of future development. Although he finally reduced the 'close pack't line' to complete obscurity in *Bacchus*, his combination of associated images and a dual syntax in this and other poems has advanced the possibilities of contrived ambiguity as a poetical device. He also differs from his contemporaries in the way he has developed non-traditional imagery, Whereas they were content to introduce contemporary material into their verse to give it 'atmosphere', or as a sign of liberal tendencies, Empson was able to use a concept from modern science that was inseparable from the development of meaning in the poem; his images are functional, not ornamental, and are intended to reveal something of the limitations of life and to suggest a means to overcome them. His deliberate cultivation of an analytical self-consciousness from which to derive his ideas, images, and philosophies seems to presage a type of poetry in which auto-psychology will be the motivating force.

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Title/Titel:	*A Revaluation of John Dryden as Dramatist*
Medium:	English

John Dryden is one of England's best-known poets. That he also wrote some twenty-six works for the stage and was the most popular playwright of his time has often been forgotten or glossed over. Most critics, among them Saintsbury, treat the plays condescendingly as if they are forgivable eccentricities. T. S. Eliot broke away from this tradition and was the first to criticise Dryden's plays objectively. Of all the plays he thinks that only *All for Love* is truly 'great', but that it suffers from the inevitable comparison with Shakespeare's *Antony and Cleopatra*. Eliot contends that 'Heroic' drama, so successful in France, does not suit the English temperament or form part of its literary tradition.

Close examination reveals that Dryden's plays are not deserving of the belittlement which critics usually mete out to them. Not only is *All for Love* a great play, but at least two others, *Aureng-Zebe* and *Don Sebastian*, have more than ordinary merit; indeed, they often have sections which are memorable.

Many of the plays written before 1675 seem to have been churned out to satisfy the 'gross' taste of the Restoration public. They are grandiose plays with complicated plots, highly romantic settings and exaggeratedly noble sentiments. These early plays deal with the themes which were to preoccupy Dryden until his death, namely, the relationship between 'Love', 'Honour' and 'Reason'. In the comedies (although they are crudely constructed and unnecessarily bawdy) he makes acute criticisms of Society and dissects behaviour in a mode inadequately labelled 'The Comedy of Manners'. Of the early plays the bombastic *The Indian Emperor* is certainly the best.

By 1669 Dryden had learned more of his craft, and his opinions on the exercise of Reason, which he regarded as Man's most distinctive ability, had been clearly formulated. *Tyrannic Love* has much in it that is fine; its firmer construction and more natural

diction owe much to Dryden's serious contemplation of Drama, his *Essay of Dramatic Poesy*. The plot of *Tyrannic Love*, although it is bloody and complicated, is coherent; the events are so ordered that the hero's progress to his doom is inevitable. Dryden discusses the use of Reason: like the Elizabethans, he believes its absence means insanity and chaos. Maximin's increasing refusal to criticise his motives and actions results in his eventually becoming completely mad. The play is written mainly in rhymed couplets, obeying the dictum Dryden had defended in his *Essay*. Although much of the dialogue is stilted and unnatural, Dryden succeeds in delineating consistent and probable character.

Tyrannic Love was followed by the two parts of *The Conquest of Granada* and by *Aureng-Zebe*. These are rhymed plays in the 'Heroic' style and their plots are so complicated that they are difficult to follow. There are, however, many beautiful passages in them, such as Almanzor's gentle and courteous rejection of Lyndaraxa's all-too-sudden propositioning (*The Conquest of Granada*, Part Two: Act III, scene iii).

Dryden's great veneration of Shakespeare did not prevent him from disapproving of his predecessor for not adhering rigidly to the Three Unities. On several occasions Dryden felt moved to 'correct' Shakespeare's plays. The best of these adaptions, and undoubtedly the play which is Dryden's finest, is *All for Love*. The play deals with events in the lives of Antony and Cleopatra after the Battle of Actium. Dryden still manages, in so short a space, to suggest Antony's greatness, and to convey the fascination of Cleopatra; but the world they 'lose' has not the all-encompassing sweep of *Antony and Cleopatra*. It is, nevertheless, a play that has as much merit at least as any of those by Dryden's academically more 'respected' contemporaries, such as Vanbrugh and Otway.

In the last year of his life Dryden wrote two more fine plays. *The Spanish Friar* and *Don Sebastian* are tightly constructed and deeply moving. If their rhetoric, 'grandly' conceived, is too overwrought, for the greater part these two plays have convincing characterisation and contain on occasion much fine blank verse.

Dryden wrote many tragi-comedies. These contain much that is farcical and crude. Tragi-comedy in the hands of Shakespeare, for example, in *The Winter's Tale*, can be wonderfully successful. Dryden's serious plots are laboured and the portentous sentiments of his 'noble' characters are curiously flat in comparison with the vitality and wit of the comic exchanges.

Of the tragi-comedies *Marriage-à-la-Mode* is the best-known and the most successful, mainly because the tragic plot is so slight and the comic parts so very lively.

Amphytrion, based on Plautus's play, is, in my opinion, Dryden's best comedy. Popular in its day, it is now almost entirely forgotten. Although it contains much social satire and comment on mankind's folly, the comedy and wit is generally 'fantastic': gods assume human shape, light-heartedly beget heroes upon mortals and disport themselves altogether quite ridiculously if immorally.

As poet-dramatist Dryden is justifiably not accorded the same status he has as a critic and a poet. His best plays, however, deserve to be read and acted; they do not deserve to be left to moulder on the back-shelves of some antiquarian library.

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Title/Titel:	*A comparative Study of two Examples of River Capture in the Great Escarpment Area of the Eastern Transvaal*
Medium:	English

The phenomenon of River Capture or Stream Piracy has hitherto had no systematic treatment in South Africa. Various examples have been noted and dealt with in a superficial way by Davis, Mellor, Hall, King and Wellington from the opening years of this century, but to the writer's knowledge, no detailed investigation of them has been attempted, particularly on a morphometric basis.

It was the aim of this investigation to examine two examples of River Captures in the Eastern Transvaal with a view to establishing the precise nature of the modes of Capture and attempting to date their occurrence in the past. The examples chosen were the captures of the Slang River by the Buffalo in the Volksrust/Charlestown district and that of the M'Thlapitsi River by the Groot Letaba in the Haenertsburg area. The choice was based on the strong contrasts in geological formations, precipitation characteristics and terrain as well as a very obvious difference in age of the phenomena.

Almost the whole of the investigation was done in the field — there can be no substitute for this in geomorphic research. The writer was considerably handicapped by the total lack of even remotely suitable topographic maps of the research areas and by some glaring errors on the existing geological maps, which became apparent during the field investigations. There was no option but to construct the necessary maps from air photographs — themselves of inadequate scale. Further information was added from ground photographs taken at strategic points.

The enquiry involved the reconstruction of the pre-capture conditions of gradient profiles of the beheaded streams from observation of the traces of former courses still in existence. The measurement of these was a very necessary first step in the morphometric analysis of the results of the Captures, for from these former profiles can be calculated the amount of vertical corrasion which has occurred in post-capture times.

Having established the mode of capture in each case — the Buffalo/Slang Capture having been considerably delayed by the nature of the geological formations along the edge of the Great Escarpment, while that of the M'Thlapitsi was materially aided by the rock structures — the writer was able to undertake a calculation of the age of the first example. This was rendered possible by the finely preserved transverse profile of the senile, abandoned valley of the Slang River downstream from the point of capture, which is at present covered by a layer of alluvium some 105 feet in thickness, derived from the flanks of the valley transverse to the area of indeterminate drainage at Vooruitsig Station. This was done graphically and yielded the volume of material which has been deposited in a strip 100 feet wide across the valley. Then, by taking the denudation areas into account, the reduction in altitude of the valley flanks in post-capture times was found and this, when related to Du Toit's measurement of the rate of downwasting of the Vaal-Orange catchment, yielded an age for this Capture of 85,000 years. Further calculations then indicated the rates of vertical and backward corrasion which have operated in post-capture times to produce the gradient profiles of the valleys concerned.

Using the age of the Buffalo/Slang Capture as a constant, the writer was then able to attempt a calculation of the age of the Letaba/M'Thlapitsi example. A number of variables enter this which complicate matters considerably and appear to render precision almost impossible. It has already been stated that precipitation is very different in this area, being, on average, much higher. In addition, the slopes from which the alluvium has been derived in post-capture times are almost four times as steep, of different geological structure and covered by a more vigorous species of natural grass. By combining these factors in an equation incorporating the constant derived from the first age determination, a figure slightly in excess of 4,000 years was obtained for the date of the Capture of the M'Thlapitsi by the Groot Letaba. Further applications of this to vertical and backward corrasion rates yielded not improbable figures for these in view of the nature of the geological formations concerned.

Since this is a Geographical exercise, the writer has not confined attention solely to the geormorphic aspects, but has shown that certain economic possibilities have resulted from the Captures. In the case of the Buffalo/Slang Capture these are potential rather actual at present, and depend for their realisation on the construction of a large dam; those resulting from the second example have been very largely exploited in the development of the Letaba Irrigation Scheme and its stabilising by the construction of the Ebenezer Dam.

The Dissertation makes an original contribution to knowledge of the morphometric analysis of River development in the Eastern Transvaal.

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Title/Titel:	*Die verstedeliking van die Bantoegebiede van Transvaal*
Medium:	Afrikaans.

Tot by sy aanraking met die Blanke beskawing verkeer die Bantoe op 'n neolitiese peil van ontwikkeling, waarskynlik as gevolg van isolasie en gebrek aan prikkeling gedurende sy eeue-oue migrasiegang suidwaarts. Eerste kontakte met die Blanke beskawing dien wel as 'n uitdaging soos te sien is in die aanpassing van die inheemse boukonstruksie by Magor in die Laeveld en elders waar skansdorpe met ystersmedery, wapenvervaardiging en 'n falliese altaar maklik aanleiding kon gee tot die Acropolis of bergvesting as prototipe van 'n nuwe, funksionele verstedeliking. Die poging om homself te handhaaf stuit egter teen 'n oorweldigende Blanke tegnologiese superioriteit en die Bantoe verval in 'n verslae minderwaardigheidsposisie met 'n afvalligheid van eie kultuur en tradisie. Geleidelik word die Blanke lewensmiddele, waaronder klere en voedsel, aanvaar. Boekgeleerdheid word 'n simbool van rehabilitasie. Die eerste behoefte is diensneming by Blankes vir lone waarmee die nuwe lewensmiddele en belastings betaal moet word.

Die eerste verstedeliking geskied in die vorm van plakkerskampe van migrasie-arbeiders om die Blanke dorpe wat, veral na die 1913 wetgewing, vinnig toeneem. Hierdie wanordelike en massiewe plakkery word eers na 1952, met die instelling van die Hervestigingsraad en die uitvoering van die voorstelle van die Mentzkommissie gesistematiseer deur voorsiening van goeie behuising, stedelike dienste en die strenge beheer oor verdere toestroming uit die Gebiede. Die aanvanklike morele verval en verdwyning van die volksanksies word nou verdring deur 'n ernstige begeerte om die Westerse leefwyse, bouvorm, onderwys en die stedelike klimaat te aanvaar.

Die ontstaan en aanwassing van die Bantoe besettingsgebiede in Transvaal, vanaf die vroegste nedersettings tot by die 1913 en die

1936 afbakenings, word nagespoor en 'n beskrywing gegee van die inheemse besettingsvorm, die handel, die nywerheid en die sosiale struktuur. Die Bantoe in die Gebiede kan, weëns ontoereikende ruimtes, uit die landbou alleen geen menswaardige bestaan vind nie en verstedeliking is dringend noodsaaklik. Uit 'n studie van die bevolkingsgetalle en die bodempotensiaal kan die vereiste verstedelikingstempo statisties bepaal word.

Die sosiale en ekonomiese struktuur van die nuwe Bantoegemeenskappe in die dorpe om die Blanke stede word ondersoek en ontleed teneinde rasionele verstedelikingsvorms te vind vir die Gebiede, binne die bestaande politieke raamwerk. Dit is duidelik dat verstedeliking in die Gebiede slegs op Westerse patroon kan geskied en op 'n funksionele en ekonomiese grondslag moet berus. Dorpstigting moet dus eerstens gebaseer wees op die basiese landbou- en mynbou-produksietakke om die grootste aantal lonende werksgeleenthede te skep en tweedens moet dit gemik wees op verskaffing van stedelike dienste aan die breë hinterland. Diversifikasie van die nywerheid en handel sal aanleiding gee tot funksionele ontplooiing en die stedelike kernea 'n dinamiese groeikrag verleen.

Die nuwe Vrystaatse Goudvelde dien as voorbeeld van die enorme verstedelikingspotensiaal van 'n dinamiese groeipunt gebaseer op 'n sterk basiese nywerheid in 'n voorheen onder-ontwikkelde gebied. 'n Statistiese analise van die Witwatersrandse stadswerm toon ook die bedryfsverspreiding, die indiensneming en die bevolkingsverspreidingspatroon wat volg uit die rypwording van so 'n groeipunt. Hierdie simbiotiese struktuur moet deur ekstrapolasie in die Gebiede geskep word.

Wat die vorm van die stad aanbetref het die Westerse argitektuur en planologie reeds internasionale inslag gevind en is dit ook vir die Bantoe die aangewese bouvorm. Die lapamotief word soms nog deur party instansies aangewend sonder dat sy oorspronklike geestelike en funksionele betekenis in 'n vergange milieu verstaan word. Moderne argitektuur en stedebou verskaf meer doeltreffende woonruimtes as die „lapa", wat vir die stedelike Bantoe eweveel 'n anakronisme is as die hartebeeshuisie vir die Afrikaner.

Die funksionele en dinamiese verstedeliking van die Gebiede sal op regionale grondslag moet berus teneinde 'n behoorlike verband tussen die kern en die hinterland te verseker terwille van die wisselwerking tussen grondstowwe en fabrieke en tussen die stedelike dienste en die plattelandse bevolking deur 'n saamgesnoerde kommunikasie- en organisasiepatroon. Maatstawe vir die afbakening van hierdie sosio-ekonomiese ontwikkelingstreke word opgestel om die stedelike groeipunte te kan integreer met die geografiese bevolkingsverspreiding en die beskikbare hulpbronne.

Voorstelle word gemaak vir die konsolidasie van die bestaande Bantoegebiede deur verwydering van „swart kolle" en omruiling van grond. Vyf sulke homogene ontwikkelingstreke word kartografies afgebaken op grondslag van (*a*) die bevolkingsverspreidingspatroon en die getalleverhoudings tussen die onderskeie rasse; (*b*) optimale grootte vir 'n selfstandige en gebalanseerde ekonomie; (*c*) optimale afstande vir lewering van spesialiteitsdienste, waaronder mediese verpleging, handel en finansies en administrasie vanuit die administratiewe hoofstad en (*d*) die bestaande kommunikasiepatroon en veral die topografiese grense tot die sosiale en ekonomiese samehang, soos byvoorbeeld skerp waterskeidings en onherbergsame terreine.

Aan die hand van 'n voorbeeld, naamlik die Rustenburgse ontwikkelingstreek, word 'n metodologie vir die beplanningsopnames van die bodempotensiaal en van die kulturele hulpbronne aangedui. Die prosedure vir rasionalisasie en opstel van 'n gesonde ontwikkelingspatroon word aangedui, insluitende die daarstelling van die stedelike groeipunte en 'n doeltreffende kommunikasiepatroon.

In die uitvoering van die plan sal 'n liggaam soos die Bantoebeleggingskorporasie, aanvanklik met Blanke kapitaal en -tegniek, 'n belangrike rol moet speel, maar dit word in die vooruitsig gestel dat die kapitaal — deur administratiewe reëling — deur die Bantoe geïlkwideer sal word soos hulle mettertyd kapitaalkragtig word. Die ontwikkelingsmodel beoog ook die optimisering van die beleggings om die grootste indiensneming — aanvanklik van ongeskoolde arbeid — te bewerkstellig en gevolglik die vinnigste moontlike tempo van verstedeliking te bereik.

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Medium:	Afrikaans

Met hierdie verhandeling het ons probeer ingaan op die stigting, ontwikkeling en probleme van een van die ou grensgemeentes van die Kaapkolonie, Colesberg, gedurende die eerste 50 jaar van sy bestaan. Verskeie faktore en gebeurtenisse het gedurende hierdie tydperk 'n diepgaande invloed op die gemeente gehad.

Op versoek van die mense in die omgewing van die Torenberg, in die distrik Graaff-Reinet, het Lord Charles Somerset in 1825 sy toestemming tot die stigting van 'n nuwe gemeente verleen. So is dan op die plek waar Erasmus Smit vroeër sy bekende sendingstasie onder die Boesmans gehad het die gemeente Torenberg (in 1830 verander tot Colesberg) van Graaff-Reinet afgestig. In 1830, na die ontvangs van die eiendomsbewyse en 'n skenking aan die gemeente van 18,138 morg grond, wat deur die kerkraad beheer sou word, is ook 'n nuwe dorp aangelê.

Ten spyte van die periodieke besoeke en die bediening van die Woord en sakramente deur die godvrugtige ds. Andrew Murray van Graaff-Reinet, moes die nuwe gemeente gedurende die eerste elf jaar van sy bestaan die bediening van 'n eie permanente leraar ontbeer. Dit het ongetwyfeld die geestelike lewe van die gemeente benadeel, soos o.a. die handel oor „kerknaweke", selfs met drank tot op Sondae en die smokkelhandel in drank en ammunisie met die Basters, Griekwas en Koranas getuig.

Reeds voor die stigting van die gemeente en ook nog in die jare na die koms van ds. Reid, die eerste permanente leraar, in 1836, vind a.g.v. droogtes, sprinkane en trekbokke die periodieke trekke van die boere vanuit die Noordoostelike grensveldkornetskappe oor die Oranje plaas om weiveld vir hul vee te soek. Hierdie gedurige afwesigheid van 'n groot aantal lidmate het 'n belangrike uitwerking op die kerkbywoning en gemeentelike bedrywighede gehad. Baie van hierdie boere, waarvan die meeste uit die Colesbergse distrik afkomstig was, het hulle ook mettertyd permanent in Trans-Oranje gaan vestig.

Terwyl hierdie trekkery en natuurlike uitbreiding oor die noordgrens op spontane manier aan die gang was, vind gedurende die middel van die dertiger jare a.g.v. politieke e.a. oorsake die Groot Trek, 'n georganiseerde emigrasiebeweging onder leiers, plaas. Alhoewel min mense vanuit Colesberg aan die Groot Trek deelgeneem het, het die trek ook die Colesbergse gemeente indirek geraak. Net soos in die geval van die lojale trekkers wat hulle mettertyd oorkant die Oranje gevestig het of rondgeswerf het op soek na beter weiveld, was Colesberg, as grensgemeente, ook vir die Voortrekkers 'n belangrike skakel met die Kolonie waarheen hulle van tyd tot tyd gekom het om o.a. kerklike voorregte te geniet.

Die Kaapse Kerk wat toe nog in 'n groot mate onder staatsoorheersing gestaan het, het hom aanvanklik doelbewus aan die kant van die owerheid, wat die Groot Trek nie goedgekeur het nie, geskaar. Dié houding van die Kerk vind ons ook duidelik weerspieël in die standpunt van die ring van Graaff-Reinet toe die Colesbergse kerkraad die geldigheid van die uitgewekenes se lidmaatskapsregte ter sprake gebring het en toe ds. Reid, wat hom die lot van die uitgewekenes aangetrek het, hulle herderlik wou gaan besoek.

Ons het gevind dat die stigting en vroeë bestaan van die Colesbergse gemeente in 'n tydperk geval het toe daar 'n belangrike ontwikkeling van die algemene kerkorganisasie en -bestuur plaasgevind het, veral ook wat die vrywording van die kerk van staatsoorheersing en die ontstaan van 'n sinodale- en ringsverband tussen die verskillende gemeentes betref.

As gevolg van die konserwatisme van die mense in die Noordelike en Noordoostelike distrikte weier baie om die gesange wat in die N.G. Kerk ingevoer is en wat hulle as teenstrydig met Gods Woord beskou, te sing. In Colesberg is die anti-gesangegees a.g.v. die herderlike brief van die ring van Graaff-Reinet (1841) en ds. Reid se optrede deur die gesange op die mense af te dwing sodanig aangewakker dat dit daar voor die afskeiding tot 'n jarelange ongure en bittere stryd gelei het.

Reid se optrede, sy gemis aan takt, sy hardkoppige en eiemagtige houding gee ook aanleiding tot verdere ongelukkige gebeurtenisse en verskeie klagtes teen hom sodat sy verwydering mettertyd die groot strewe van die beswaardes in Colesberg word. Alhoewel die Colesbergse kwessie telkemale na die ring en sinode verwys is, wat sekere oplossings aan die hand gedoen het, het hulle in gebreke gebly om 'n finale oplossing te vind. Met Reid se bedanking in 1854 het die beswaardes wel hulle doel bereik, maar die gemoedere wat tot die uiterste toe verbitterd was, kon nie weer tot bedaring kom nie.

Tydens dr. Servaas Hofmeyr (ds. Reid se opvolger) se bediening in Colesberg het die afskeidingsbeweging begin vorm aanneem en vind in 1859, na die koms van ds. Postma, die stigting van die Gereformeerde (Dopper) Kerk in die Z.A.R. plaas. Daarvandaan brei die afskeidingsbeweging ook na die Vrystaat en die Kaapkolonie uit en in 1860, net na dr. Hofmeyr se vertrek van Colesberg, word daar op versoek van 'n aantal gemeentelede deur ds. Postma een van die eerste Gereformeerde gemeentes in die Kaapkolonie gestig.

Toe ds. Lückhoff in 1861 as jong leraar na Colesberg kom, brand die vuur van afskeiding nog hewig en 'n bitsige stryd en polemiek vind tussen lidmate van die twee gemeentes plaas. Alhoewel ds. Lückhoff sterk optree en probeer verhoed dat meer van sy lidmate deur Postma en die Doppers oorgehaal word en selfs Postma tot 'n openbare samespreking uitdaag, tree hy tog baie verstandig en toegewend op teenoor nie-gesangesingers wat in die N.G. Kerk gebly het en dwing niemand om die gesange te sing nie.

In teenstelling met ds. Reid, was di. Hofmeyr en Lückhoff baie gewild in die Colesbergse gemeente. Hulle arbeid was baie geseënd en hulle het inderdaad veel bygedra tot die geestelike vooruitgang van die gemeente. Tydens hulle bediening daar het beide leraars in die kerklike lewe van hulle tyd 'n belangrike rol gespeel en vir die kerk in die algemeen veel beteken.

Teen die einde van ds. Lückhoff se bediening en met die afsluiting van ons tydperk onder bespreking was die stryd aan beide kante uitgewoed en is die bestaan van twee Hollandse kerke naas mekaar in Colesberg as 'n voldonge feit aanvaar. Na die eerste vyftig jaar van probleme en worsteling volg daar dus in 1875 'n tydperk van rus en kalmte in die N.G. gemeente.

Tydens ds. Lückhoff se dienstyd is, nadat die eerste kerkgebou (in 1832 opgerig) reeds in 'n vervalle toestand verkeer het, ook die nuwe sierlike kerkgebou, wat vandag nog in Colesberg te sien is, opgerig. Alhoewel die oprigting daarvan ook met veel vertraging weens geldelike en ander probleme gepaard gegaan het, was dit na die inwyding in 1866 waarlik 'n sieraad vir die Colesbergse gemeente en inderdaad 'n monument vir 'n nuwe bedeling in sy geskiedenis.

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Title/Titel:	*The Position and Status of the Proselyte in Jewish Law*
Medium:	English

Chapter I begins with an Introduction wherein the term "proselyte" is explained. The Chapter then proceeds to consider the position of the proselyte as regards the observance of the precepts of Judaism, the reading of prayers and benedictions.

In the second Chapter the position of the proselyte is discussed with reference to his relatives, to marriage, to transgressions from the pre-conversion period, and ritual cleanness.

In Chapter 3 a discussion of the laws that are incumbent on the Jew with regard to the proselyte; the legal position in case of a proselyte's death with no heirs and of proselytes born in sanctity is described. There follows a consideration of the laws connected with the assumption of proselytism and the proselyte who returns to his former practices.

Chapter 4 digresses from the main theme, that of the Righteous Proselyte, in order to outline the position of the Resident Alien. He is defined and the various aspects of his position considered i.e. his place of settlement, his relationship to the community of Israel, where he is equated to the non-Jew and where he stands legally as regards the observance of the Sabbath. The Chapter then proceeds to deal with idolatry and the wine of the Resident Alien.

In Chapter 5 we return to the main line of enquiry i.e. that concerning the Righteous Proselyte. Here is considered how he is accepted, his entry into the Covenant, his appearance before *Beth Din*, the Benedictions relative to the ceremony of acceptance and the right time for conversion. The Chapter concludes with a discussion of the position of the minor proselyte.

Chapter 6 is devoted to the position of the female proselyte. Here are dealt with her invalidity as regards marriage with the priesthood, her marriage-contract, the law with reference to a fine for rape or seduction, as regards adultery, the distinguishing period and ritual impurity.

Chapter 7 is devoted to a study of the position of the proselyte as it is reflected in the work of Maimonides, the *Mishneh Torah.*

Chapter 8 describes a treatment of the position of the proselyte as it is summarised in the work of Joseph Caro — the "Shulchan Aruch".

Chapter 9 analyses the small Tractate devoted to the laws of the proselyte entitled *Tractate* "*Gerim*" (i.e. "Proselytes").

Chapter 10 considers the position of the proselyte, not as in the legal sources (*Halakhah*), but as it is to be found in the *Aggadah* i.e. the story and parable sections of the Talmud. It is evident therefrom that there exists a divergence of opinion with reference to proselytes.

In Chapter 11 the historical background of proselytism is examined. The works of some historians is being analysed on topics such as "Naaman, the Babylonian Exile, the Return, Ezra and Nehemiah, the Essenes, Shammai and Hillel, Tiberius, the Spread of the Jewish Teaching, Shemaya and Abtalion, the Mishnah, the Christian Missionaries, Matthew 23:15, Rome, Aquila, Domitian, Nerva, Jewish Babylon, Constantine, Constantius".

Certain conclusions are drawn from this historical survey e.g. that conversionist activities were subject to various influences at different periods of history and that these were the cause of changing attitudes.

Chapter 12 surveys conclusions that emerge from the material that has been adduced hitherto. The writer puts forward what he considers to be the correct assessment of the position and status of the proselyte in Jewish Law. He examines such doctrines as "Jewish Universalism", "Jewish Particularism" and "Noahism" and finally weighs up the various factors from which emerge a picture of the position of the proselytes in Jewish teaching.

The broader attitude of Universalism and Noahism towards the question of proselytism is narrowed by the attitude of Particularism and from the interplay of these factors emerges the final ruling on the position of the proselyte in Jewish Law.

The purpose of Chapter 13 is to consider new attitudes towards the question of the convert to Judaism. In the beginning of the modern period we see the policy of exclusion being practised. From the seventeenth century onwards the concept of Noahism was applied. The *Haskalah* points out the influence of the spirit of toleration. A section entitled "Later Generations" deals with the distinction between the Orthodox and Reform Jewry as regards the proselyte. Another, "The Influence of Zionism" discusses the impact of this national movement on proselytism. Further on the writer bears on the most recent aspects of the subject, particularly as manifested in America, and he adduces the statements of leading Orthodox and Reform authorities anent present-day proselytism.

The Chapter terminates with an account of the personal experience of the writer on proselytism in the Jewish communities wherein he has served as Rabbi. He describes the procedure of proselytism, the course of study, the time factor and the attitude of the Jewish community towards the proselyte.

The final conclusion is that the genuine proselyte will receive fair treatment and the process of integration will secure for him a worthy position and status within the Jewish community.

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Medium: Afrikaans

The Doctrine of Ultra Vires in Company Law

The legal capacity of persons is subject to various limitations, for instance, the limitation imposed on minors, lunatics, and persons subject to contractual, statutory or administrative restrictions, etc. A company, be it incorporated in terms of a general enabling act (such as the Companies Act) or in terms of a special act, is likewise restricted in its legal capacity.

While the normal adult person can be said to possess inherent unlimited capacity in the absence of certain specific restrictions, the capacity of a company is by its very nature circumscribed, first and foremost by its natural inability to perform acts intrinsically associated with human conduct, such as entering into a marriage, etc. The distinctive status attributed to a company as a legal entity determines certain limitations, whereas others again are attributable to general law or to statutory provisions. These limitations are common to all companies; in contrast the doctrine of *ultra vires* imposes restrictions which vary from company to company. This doctrine implies that a company's objects clause limits its power to act to those objects expressly stated therein and to those ancillary thereto. Every act beyond the ambit of the objects clause is *ultra vires* the company and for that reason invalid. This principle was in the first instance designed to protect creditors and shareholders of the company. The wording of the objects clause accordingly determines the extent to which each company is limited in its capacity.

Though the term *ultra vires* is sometimes used to denote acts beyond the capacity of natural and fictitious persons, the *ultra vires* concept is here examined only in so far as it relates to the doctrine of *ultra vires* in company law.

The practical difficulties which attend the doctrine derive from the premise that a company's sphere of existence is inevitably determined by its stated objects. Furthermore, since a company's objects can be ascertained from its public documents, it is, in terms of the

doctrine, irrebuttably presumed that every person dealing with a company is fully acquainted with the contents of its objects clause. In view of these considerations it cannot be assumed that a company is empowered as a matter of course to perform any given act. If a person acts on such a presumption and the transaction happens to be *ultra vires*, he cannot hold the company to the undertaking purportedly assumed on behalf of the company. In these circumstances even a plea of estoppel is of no avail since the company is held to be incapable of extending its sphere of existence by its own acts and the third party is in addition legally presumed to have been aware of the extent to which the company's capacity had been limited.

The *ultra vires* doctrine is not the result of prior investigation into the nature of the corporate entity in legal theory. The first indications of the eventual doctrine are to be found in the law relating to chartered companies which was the prevailing corporate form in the centuries prior to the first general enabling English Joint Stock Companies Act of 1844; these became even more apparent subsequent to the passage of the so-called Bubble Act of 1720. After the emergence of the company incorporated by statute in the 18th century the notion crystallized that the powers of a statutory creature must inevitably be confined to the objects for which it was created. When the company incorporated in terms of a general enabling act became a reality in the mid 19th century, the English courts vacillated in their approach towards this new entity. They wavered between adopting the law relating to partnerships (more specifically that relating to the so-called deed of settlement association) or the law relating to statutory companies. The House of Lords in *Ashbury Railway Carriage and Iron Co. v. Riche* (1875), L.R. 7 H.L. 653, eventually favoured the analogy of the statutory corporation. Henceforth the basis of the doctrine was firmly established in English case law. This doctrine was thereafter received into South African law in its entirety. Though it was never afforded formal recognition in South African or English legislation, the doctrine was none the less applied and developed as a substantive part of the law.

An analysis of the practical application of the doctrine reveals many unsatisfactory aspects. To begin with, the desired protection of shareholders and creditors failed to materialize. Not only is the basic consequence that a third party runs a risk in order to ensure that the interests of shareholders and creditors are not jeopardized without merit, but it also fails to secure the much vaunted protection of shareholders. With regard to creditors, the doctrine, far from providing protection, creates a real threat. The rule underlying the doctrine implying constructive notice of the objects has produced most undesirable results: it presents the company with the opportunity of taking refuge behind its own limited capacity while the other contracting party is at all times deemed to have been aware of these limitations. Similarly estoppel cannot be raised against a company with a view to holding it to an *ultra vires* transaction. Yet a company preferring extensive powers can easily circumvent the limitations imposed by the doctrine by virtue of the rules of interpretation applied to the so-called independent objects clause. The ordinary rules of agency, especially those relating to the right of recourse against an agent who exceeds his authority, have been modified, as a result of the doctrine, to the detriment of third parties. Since an *ultra vires* contract is void *ab initio*, the third party is unable, even on judgment by default or judgment at the consent of the company, to enforce any rights under such an agreement. In addition, the exceptions which have been made to the strict application of the doctrine, reveal striking inconsistencies.

To determine whether the doctrine is indeed such an integral part of the dogmatic concept of company law as to be indispensable, it is necessary to examine, firstly, administrative law, where a similar doctrine obtains, and, secondly, the company law of other civilized countries. In administrative law the doctrine serves as a useful restraint against arbitrary exercise of executive power and is, in any event, applied much more flexibly than in company law. Consequently the same problems have not arisen. Turning next to a comparative study of other legal systems, we find that the company law of Germany (which is representative of the countries applying German orientated company law) and the company law of France and Holland (which are representative of the countries applying French orientated company law) afford clear proof that these systems function well despite the absence of anything comparable to the *ultra vires* doctrine. Even the company law of the majority of the states in the U.S.A., which adopted English company law at the outset and then achieved a higher level of development, bears witness to the fact that rejection of the doctrine, be it by way of legislation or judicial evolution, presents distinct advantages without any corresponding disadvantages.

There can be little doubt that South African company law should rid itself of the doctrine. It did not form part of the English company law prior to the decision in 1875 in *Ashbury Railway Carriage and Iron Co. v. Riche*. Nor is it indispensable today. The chartered company of English law still serves as a living example of a corporate entity successfully functioning unfettered by any doctrine of *ultra vires*: it simply performs all acts which a corporate entity is by its nature capable of performing.

Since acts of directors which fall beyond their power are continually referred to as acts *ultra vires* the directors and since the rules relating to such acts are often (if erroneously) treated as part of the *ultra vires* doctrine, it is important to establish the exact legal position of a company director. In the internal organisation of a company, the board of directors (and occasionally even individual directors) assumes the role of an organ of the company with the exclusive authority to decide on matters within their jurisdiction.

However, as soon as external acts are performed on behalf of the company the board or individual directors (unlike their counterpart in Continental systems) are acting not as its organ but as its agent. Ordinary principles of agency thus apply. And in this situation the doctrine of *ultra vires* is only concerned with the legal capacity of the principal (the company) and not with that of the agent. It is in this light, too, that the so-called rule in *Royal British Bank v. Turquand* must be viewed.

A reform of that part of the law at present governed by the *ultra vires* doctrine is hardly feasible without the abolition of the entire doctrine by legislation. In providing an alternative two fundamental principles must be observed: firstly, that directors act as agents of the company with regard to its external activities and not as its organs, and, secondly, that the powers of the company as principal cannot be limited by its objects. Nevertheless, each company should be required to state its basic object(s) which will (as is the case at present in terms of Section 16 of the Companies Act) serve as a contract between the company and its members and which they can invoke when the company proposes to depart therefrom. It is therefore suggested that legislation along these lines provide as follows:

(*a*) The capacity of the company can in no way be limited by its objects clause.

(*b*) If limitations are placed on the directors or other agents of the company, such limitations are to be stated in one of the public documents of the company. Whenever any agreement is entered into on behalf of the company a copy of such restrictions must be made available on request, but the onus must always rest on the agent of the company to draw the attention of the other party thereto. Failure to do so would render the company liable as if no limitations existed, but the company, or any of its members in a shareholders' representative action, will be entitled to claim damages from such agent.

(*c*) The rule relating to constructive notice must be abolished.

(*d*) The objects clause must be retained to constitute the contractual basis between shareholder and company. (Since the capacity of a company will no longer be limited by its objects, the necessity for the extensive objects clause will no longer exist.)

(*e*) Every member must have the right, as at present, to restrain the company from engaging in transactions which are not covered by the objects clause.

These recommendations substantially correspond with the more advanced company law systems founded on the precepts of English company law. A significant advantage will be that the company is deprived of the unjust and unequal advantage it has hitherto enjoyed at the expense of third parties.

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Title/Titel:	*The Local Geometry and External Surfaces of Areal Spaces*
Medium:	English

An areal space is a differentiable manifold X_n of n dimensions in which for some positive integer $m < n$, the area of m-dimensional surfaces is defined by a parametric surface integral of the form

$$\int \cdots \int \quad F\left(x^i, \frac{\partial x^i}{\partial t^\alpha}\right) dt^1 \ldots dt^m,$$

where the x^i $(i = 1, \ldots, n)$ are coordinates in X_n and the t^α $(\alpha = 1, \ldots, m)$ arc the surface parameters. The fundamental function F is assumed to be positive and to be such that the value of the above integral is independent of the choice of the surface parameters t^α. The study of these spaces was inaugurated by E. Cartan[1) in 1933 and has since been taken up by many investigators, notably the Japanese school under A. Kawaguchi. Most writers have approached the subject from the point of view of a generalisation of Finsler geometry, and, in consequence, the theory shows a decided dependence on concepts associated more with length than with area. This thesis is an attempt to re-develop the theory of areal spaces, in which we maintain area as the central notion. We are guided by the theory of multiple integral problems in the calculus of variations, and our principal results concern the class of parametric integral problems in this discipline. Apart from the purely introductory first chapter, the thesis may be regarded as being divided into two parts — dealing first with the local geometry and then with the extremal surfaces of areal spaces.

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1) E. Cartan: Les espaces métriques fondés sur la notion d'aire. Actualités Sci. Ind. **72** (1933).

In the second chapter we consider an n-dimensional *complex vector space* V_n (vectors denoted by X, Y, . . . etc.) the Grassmann cone GK^m_n of simple m-vectors $X_1 \wedge \ldots \wedge X_m$ of which is endowed a priori with a symmetric, bi-linear strictly-positive inner-product $(Y_1 \wedge \ldots \wedge Y_m, X_1 \wedge \ldots \wedge X_m)$. In terms of this innerproduct we define orthogonality of m-dimensional subspaces of V_n, and area of m-dimensional simplexes and parallelepipeds, and then establish counterparts of the theorem of Pythagoras, the Schwartz inequality and the triangle inequality. We define the orthogonal complement space $V^{\perp}_m$ of an m-dimensional subspace V_m, and characterise those inner-products for which the orthogonal complement $V^{\perp}_m$ is the intersection of all subspaces which are orthogonal to V_m. Such inner-products will be said to satisfy the simplicity condition.

In the third chapter we return to areal spaces, firstly applying the results of the previous chapter to "Riemannian" areal spaces in which the fundamental function assumes the form

$$F(x^i, \dot{x}^i_\alpha) = \sqrt{g_{IJ}(x^k)p^I p^J},$$

where

$$p^I = m!\dot{x}^{i_1}_{[1} \ldots \dot{x}^{i_m}_{m]}, \quad \dot{x}^i_\alpha = \partial x^i/\partial t^\alpha,$$

and a repeated capital latin index implies summations over all distinct combinations of its constituent small indices. In such spaces an inner-product of the type considered above is defined by the given 2m-tensor g_{IJ}. Guided by this simple case, we extend our considerations to general areal spaces, and arrive at the conclusion that the inner-product

$$(x^i, Y_1 \wedge \ldots \wedge Y_m, X_1 \wedge \ldots \wedge X_m) = F^{2-m}(x^i, Y^i_\alpha)$$

$$\det\left(\frac{\partial F(x, Y^j_\beta)}{\partial \dot{x}^i_\alpha} X^i_\varepsilon\right),$$

first considered by Iwamoto,[2] is the only inner-product which is unilinear, satisfies the simplicity condition, and is such that

$$(x^i, X_1\wedge\ldots\wedge X_m, X_1\wedge\ldots\wedge X_m) = F^2(x^i, X^i_\alpha),$$

while, if V_m is spanned by the vectors Y^i_α, then $V^\perp_m$ is the totality of vectors $\dot Z^i$ such that

$$\frac{\partial F(x^i, Y^i_\alpha)}{\partial \dot x^j_\varepsilon} \dot Z^j = 0.$$

This latter condition is necessarily true for Riemannian areal spaces, and also ensures the equivalence of the concepts of orthogonality and transversality, the latter as encountered in the calculus of variations. It is evident that the validity of the Schwartz inequality corresponding to the above inner-product is equivalent to the Weierstrass condition of the theory of Carathéodory[3] for multiple integral variational problems, and it is shown that if the fundamental function satisfies the well-known Hadamard necessity condition[4] then it is convex in each vector argument.

The remaining sections of the third chapter are devoted to the introduction of a Hamiltonian function H for areal spaces — the definition of this function is suggested by the foregoing work, but depends on the condition

$$\det\left(\frac{\partial^2\left[\frac{m}{2}F^{\frac{2}{m}}\right]}{\partial \dot x^i_\alpha \partial \dot x^j_\beta}\right) \neq 0,$$

which, for $m \geqslant 2$, is shown to be equivalent to the condition

$$\det\left(\frac{\partial^2 F}{\partial \dot x^i_\alpha \partial \dot x^j_\beta}\right) \neq 0.$$

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[2] H. Iwamoto: On geometries associated with multiple integrals. Math. Jap. **1**, 74–91 (1948).

[3] C. Carathéodory: Über die Variationsrechnung bei mehrfachen Integralen. Acta Szeged **4**, 193–216 (1929).

[4] H. Boerner: Über die Legendresche Bedingung und die Feldtheorien in der Variationsrechnung der mehrfachen Integrale. Math. Z. **46**, 720–742 (1940).

The Hamiltonian function is then used to impose a similar inner-product on each dual Grassmann cone.

In the final chapter we develop a canonical formalism and Hamilton-Jacobi theory for parametric multiple integral variational problems, utilising the abovementioned Hamiltonian function, while the covariant vectors

$$y_i^{\alpha} = F^{\frac{2}{m}-1}\left(x^j, \frac{\partial x^j}{\partial t^{\beta}}\right) \frac{\partial F\left(x^j, \frac{\partial x^j}{\partial t^{\beta}}\right)}{\partial \dot{x}^i_{\alpha}}$$

serve as canonical momenta. (The formalism of Carathéodory breaks down for parametric integrals, although his geodesic field theory is eminently suited to such problems). After discussing some properties of transversal (orthogonal) families of surfaces, we arrive at a Hamilton-Jacobi equation in the form

$$H\left(x^i, \frac{\partial S^{\alpha}}{\partial x^i}\right) = 1,$$

characterising geodesic fields, and conclude with a useful theorem concerning the integrability conditions associated with such a field.

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Title/Titel:	*Spinor Calculus and Lagrangian Formalism in Relativistic Quantum Mechanics*
Medium:	English

There are two distinct approaches to the relativistic theory of spin particles, namely the Hamiltonian and Lagrangian approaches, which are based upon variational principles involving single and multiple integrals respectively.

In the Hamiltonian approach as given by Rund [1], the equations describing the field corresponding to particles of arbitrary spin can be written in the form:

$$(\Gamma^{j} \frac{\partial}{\partial x} j + \mu) \psi = 0,$$

(to be referred to as G.F.E.), where the field functions ψ transform according to some representation of the proper Lorentz group Lp, which depends on the spin of the particles in question. From invariance considerations, it follows that the Γ^{j} satisfy the commutation rule:

$$\Gamma^{i} I^{jk} - I^{jk} \Gamma^{i} = \delta^{ij} \Gamma^{k} - \delta^{ik} \Gamma^{j}$$

(to be referred to as F.C.R.) where the I^{jk} are the infinitesimal operators of Lp corresponding to the representation in question. In addition it was shown in the above paper that for specific physical systems, the Γ^{j} satisfy distinct sets of commutation rules. The difficulty encountered in this approach is that the representation of Lp associated with the field functions ψ for different physical systems cannot be identified with irreducible representations of Lp.

The purpose of this thesis is to obtain a Lagrangian formalism such that the resulting field equations have the form G.F.E., and to investigate which representations of Lp correspond to the field functions ψ for different physical systems. We are also interested in whether the relevant commutation rules, in particular the commutation rule F.C.R., can be obtained from the Lagrangian formalism.

Section I is devoted to the necessary mathematical background. In Chapter 1, two-component spinors (or more briefly 2-spinors) are defined, using as the underlying differentiable manifold the Minkowski 4-world of the special theory of relativity (see for example Van der Waerden [1]). The well-known homomorphism between the 2×2 unimodular group and the proper Lorentz group in 4-dimensions is used to motivate the introduction of 2-spinors. The various 2-spinors which are invariant with respect to the 2-spinor transformation law are obtained. It is found that an invariant 2-spinor with mixed dotted and undotted indices does not exist, a fact which is of significance when we consider a Lagrangian formalism involving 2-spinors.

Certain fundamental spin-tensors, that is, entities with both tensor and spinor indices, are introduced, and are shown to satisfy an important commutation rule. The relationship between 2-spinors and the finite dimensional representations of Lp is discussed, and the relations between arbitrary 2-spinors and tensors are obtained, using the above-mentioned fundamental spin-tensors.

In Chapter 2, the concept of a four-component spinor (or more briefly, a 4-spinor) is introduced, and the relevant transformation laws are stated (see for example Corson [1]). The structures of general, and of completely symmetric, 4-spinors of arbitrary rank in terms of 2-spinors are investigated in detail. This section is incomplete, in that the structures of 4-spinors satisfying restrictions other than that of complete symmetry are not investigated. The invariant 2-spinors obtained in Chapter 1 are used to construct the corresponding invariant 4-spinors. However, additional invariant 4-spinors, which have no counterpart in the 2-spinor theory, may be formed; in particular, an invariant 4-spinor with one dotted and one undotted index does exist.

The fundamental spin-tensors in the 4-spinor theory are defined in terms of the spin-tensors of the 2-spinor theory and satisfy an analogous commutation rule. The relations between two spinors and tensors are extended in order to obtain the tensors corresponding to a 4-spinor of rank 2. In this respect, the 4-spinor theory is considerably more complicated than the 2-spinor theory. Finally it is shown that completely symmetric 4-spinors of arbitrary rank transform according to a direct sum of irreducible representations of Lp.

Section II is concerned with the application of the 4-spinor theory to the relativistic theory of spin particles. From the known connection between the type of 2-spinor field function and the spin of the associated particles, the connection between the type of 4-spinor field function and the associated spin is derived. It is then shown that the non-existence of an invariant 2-spinor with one dotted and one undotted index leads to difficulties in the use of 2-spinors in a Lagrangian formalism for particles with spin eigenvalues $\pm \frac{1}{2}h$. The postulates of the relativistic theory of spin particles are stated explicitly, and the consequences of the theorem of Noether in the Calculus of Variations, for 4-spinors of arbitrary rank, are examined. The theory is then applied to the specific case of spin $\frac{1}{2}$ particles. It is shown that the above-mentioned difficulty in obtaining a Lagrangian formalism is avoided by the use of 4-spinors. A Lagrange function, which arises very naturally in the 4-spinor theory, is chosen, and it is shown that the corresponding Euler-Lagrange equations have the form G.F.E., and are in fact, the usual Dirac equations for spin $\frac{1}{2}$ particles. The specific commutation rule satisfied by the matrices $\overset{\cdot}{\Gamma}{}^{j}$ in this case is obtained from the commutation rule satisfied by the fundamental spin-tensors of the 4-spinor theory. The current 4-vector, the energy-momentum tensor, and the total angular momentum tensor are constructed and it is shown that the commutation rule F.C.R. is a sufficient condition for the divergence of the last tensor to vanish. For this particular case, the problem discussed in the opening paragraph is completely solved. An analogous Lagrangian formalism is given for the case of spin 0 and 1 particles. The field equations are again obtained in the form G.F.E., but no information regarding the specific commutation rules satisfied by $\overset{\cdot}{\Gamma}{}^{j}$ in this case, is obtained from the Lagrangian formalism. Using the results of Chapter 2, the 4-spinor field equations are shown to be equivalent to the usual tensor field equations for particles with spin eigenvalues 0 and 1.

REFERENCES

CORSON, E. M. [1]: Introduction to Tensors, Spinors and relativistic wave equations. Blackie and Sons. Ltd. (1954).

RUND, H. [1]: Hamiltonian formalism in relativistic quantum mechanics. "Hlavaty Festschrift", University of Indiana Press. (1965).

VAN DER WAERDEN, B. L. [1]: Spinoranalyse. Nachrichten van der Gesellschaft der Wissenschaften zu Göttingen, Math-Physik Klasse, 100–109 (1929).

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Title/Titel:	*Further Aspects of the Hypergeometric and Factorial Series*
Medium:	English

The thesis makes a further investigation of the hypergeometric and factorial series, and defines some new factorial series and functions associated with them. Some probability generating functions associated with the new functions are discussed.

Chapter I

This chapter presents a general description of the scope and content and background of the thesis.

Chapter II

In this chapter is defined a new notation for the hypergeometric series, viz.

$[a + bt]^{!n} = a^{!n} F(-n, -b; a - n + 1; t)$ for all n for which $(a + n)$ and $(a + b - n)$ not negative integers, where

$a^{!r} = a(a - 1) \ldots (a - r + 1)$.

By proving properties of the $[a + bt]^{!n}$ series, properties of the hypergeometric series are proved. Differentiation and integration of the series are considered, and a reduction formula is found and extended to the hypergeometric series.

The new notation is extended to another variable, and this extension is shown to be associated with the first second order hypergeometric series of Appell, viz.

$[a + bt + cs]^{!n} = a^{!n} F_1(-n; -b, -c; a - n + 1; t, s)$.

The partial and continued differentiation of $[a + bt + cs]^{!n}$

is carried out, and a reduction formula obtained as in the univariable case.

Chapter III

In this chapter two new functions are defined: the Incomplete Factorial Beta Function,

$$\frac{Np}{N^{!(n+m-1)}} \int_0^1 [(Np-1)x]^{!\overline{n-1}} \, [N - Np + \overline{Np - n}(1-x)]^{!\overline{m-1}} \, dx$$

for $0 < p < 1$, and n and m positive integers, and the Incomplete Factorial Gamma Function,

$$\frac{e^{-\left(\frac{N-Np}{Np}\right)}}{(Np)^{!\overline{n-1}}} \; {}_0\!\int^{\infty} e^{-x}[N - Np + Npx]^{!\overline{n-1}} \, dx$$

for positive integer n.

The incomplete factorial beta function is found to be closely associated with the partial sums of the factorial binomial series

$$\frac{1}{N^{!n}} \sum_{x=0}^{k} {}^{n}C_{x} [Np]^{!\overline{n-x}} [N - Np]^{!x}$$ and hence with

the partial sums of the hypergeometric series of Gauss:

$$F_n(a, b; c; x) = \sum_{m=0}^{n-1} \frac{(a+m-1)^{!m} (b+m-1)^{!m}}{(c+m-1)^{!m} m!} x^m .$$

This association leads to the possibility of expressing both the partial sums of the factorial binomial series and the partial sums of the hypergeometric series in integral form.

The incomplete factorial beta function can also be expressed as a terminating ${}_3F_2$ series, where ${}_3F_2$ has its ordinary meaning as a generalised hypergeometric series, and hence a theorem connecting the partial sums of the hypergeometric series and a ${}_3F_2$ series is obtained. Special cases of the incomplete factorial beta function are considered, e.g. $n = 1$, $n = 2$, etc., and $m = 1$, $m = 2$, etc. A multivariable incomplete factorial beta function is also defined in a form similar to a Dirichlet integral. This function is then expressed in terms of the partial sums of the F_1 multivariate series of Appell, viz.

$F_1(a; b_1, b_2, \ldots, b_k; c; 1, 1, \ldots, 1)$ and in terms of the partial sums of the factorial multinomial series

$$[Np_0 + Np_1 + \ldots + Np_k]^{!n}.$$

The integrand of both the incomplete factorial beta function and the multivariate extension are considered as probability distributions which are analogous in the factorial case to the Pearson Type I distribution, and the moments of the probability distributions are obtained.

The incomplete factorial gamma function, also defined in this chapter, can be expressed in terms of the Partial Sums of the well known Confluent Hypergeometric Series. It is also found to be a series of ordinary gamma functions, and some special values of it are obtained.

Chapter IV

A factorial logarithmic series

$$f(p, N) = Np \int_0^1 [\overline{N-1} - \overline{Np-1}\, t]^{!-1}\, dt$$

$$= \sum_{r=1}^{\infty} \frac{(Np)^{!r}}{rN^{!r}}$$

is introduced, and is seen to be a special case of the incomplete factorial beta function as defined in Chapter III. This function corresponds in the factorial case to the ordinary logarithmic series. It is also found to be associated with the digamma function, and by using properties of the digamma function, properties of this series are established. A dibeta function is also defined as

$\frac{\partial}{\partial a}[\log B(a, b)]$ and is seen to be a difference of digamma functions,

and hence the factorial logarithmic series is a dibeta function.

In the second part of this chapter a bivariable and a multivariable factorial logarithmic series are also defined and properties similar to those above in the univariable case are obtained. Using these functions, a theorem in more variables similar to the known theorem $F_1(a; b_1, b_2; c; 1, 1) = F(a, b_1 + b_2; c; 1)$ is obtained.

Chapter V

The final chapter deals with a special case of the four second order hypergeometric series of Appell; the case where the two variables x and y are connected by the relationship $y = x^2$.

These series are of particular interest as probability generating functions, and further properties of these are established. Firstly the coefficient of x^2 is obtained in the four series, and the series are then expressed as power series with the coefficients found to be hypergeometric series. The series are also differentiated, and integral representations are established. The probability generating function associated with $F_1(a; b_1, b_2; c; t, t^2)$ is considered. The factorial moment generating function $z = F_1(a; b_1, b_2; a + b_1 + b_2 - c + 1; -\alpha, -2\alpha)$ is found to satisfy a differential equation found by J. L. Burnchall. Using the above differential equation the factorial moments are obtained, and a recurrence relation between these moments is found. The moment generating function is established, and hence the ordinary moments.

Further, the bivariable and trivariable extensions of the first of these hypergeometric series are discussed. Partial differentiation and integral representations of these series are also established, and the probability generating functions corresponding to them are investigated. Differential equations which are satisfied by the factorial moment generating functions are obtained in a manner similar to that for the univariate case, and the moments are established.

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Degree/Graad: D.Com.

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Title/Titel: *'n Statistiese studie van frekwensieverdelings van die logaritmiese normale tipe wat voorkom in die Suid-Afrikaanse ekonomie*

Medium: Afrikaans

Doel van hierdie studie

Die doel van hierdie studie in verband met die verdeling van ekonomiese populasies is tweeledig: *eerstens* is dit 'n poging om aan te toon tot welke mate die ekonomiese verdelings in die Republiek van Suid-Afrika by benadering lognormaal verdeel is, of saamgestel is uit verskillende benaderde lognormale komponente; *tweedens* is die doel van hierdie studie om die doeltreffendheid van die belangrikste skattingsmetodes soos toegepas op steekproewe uit lognormale verdelings of saamgestelde lognormale verdelings, onderling te vergelyk.

In hierdie studie word hoofsaaklik van grafiese voorstellings gebruik gemaak om die onderlinge verwantskap tussen die belangrikste parameters van lognormale- en saamgestelde lognormale verdelings te illustreer en die vorm van die verskillende tipe verdelings uit te ken. Daar word hoofsaaklik empiries te werk gegaan om die bestaande skattingsmetodes uit te toets, die eienskappe van saamgestelde lognormale verdelings te ondersoek en na te gaan onder welke omstandighede die saamgestelde verdelings in hulle komponente opgesplits kan word.

Inhoud van die studie

Die verhandeling het vier hoofstukke. In die begin van hoofstuk een van die studie word die eienskappe van 'n lognormale verdeling breedvoerig behandel, en in die laaste helfte van die hoofstuk word die verdelings wat saamgestel is uit twee lognormale komponente van nader besigtig. Die vernaamste momente van die saamgestelde verdeling word uitgedruk in terme van die momente van die komponente. Die verandering wat die momente van die saamgestelde verdeling ondergaan indien die verhouding van die saamgevoegde komponente verander, word empiries ontleed en grafies voorgestel.

In hoofstuk twee word die skattingsmetode van momente en die metode van maksimum aanneemlikheid op lognormale verdelings toegepas ten einde 'n vergelyking te kan tref tussen die doeltreffendheid van die twee skattingsmetodes. Deur die gebruikmaking van tabelle met ewekansige normaalverdeelde veranderlikes is twintig kunsmatige steekproewe van 50 elk uit vier hipotetiese lognormaalverdeelde populasies saamgestel. Vir elk van die steekproewe is die vernaamste parameters bereken. Die spreidings van die steekproefskattings om hulle populasie parameters is bereken ten einde te kan bepaal watter skattingsmetode die doeltreffendste resultate lewer. Hoofstuk twee word afgesluit met 'n studie van die doeltreffendheid van die skatting van die rekenkundige gemiddelde van 'n lognormale verdeling uit 'n gestratifiseerde ewekansige steekproef. Die populasie word in verskillende grootte groepe verdeel wat as strata dien.

In hoofstuk drie word bogenoemde twee skattingsmetodes uitgebrei tot verdelings wat saamgestel is uit twee lognormale verdelings. Daar word 'n onderskeid gemaak tussen saamgestelde verdelings waarvan die lognormale komponente voor die trekking van die steekproef reeds bepaal is, en die waar die twee lognormale komponente uit die steekproewe geskat moet word. Die doeltreffendheid van die skatting van 'n saamgestelde populasie se rekenkundige gemiddelde deur die trekking van 'n gestratifiseerde steekproef word ook nagegaan.

Ten einde die eienskappe van saamgestelde lognormale verdelings te ondersoek word in die tweede gedeelte van hoofstuk drie 'n paar kunsmatige verdelings saamgestel. Ook word aan die einde van die bespreking van elk van die kunsmatige verdelings, nagegaan tot welke mate die saamgestelde verdeling, met behulp van bestaande statistiese metodes, in sy lognormale komponente opgesplits kan word.

Die studie word afgerond in hoofstuk vier met die praktiese toepassing van die bevindinge op voorbeelde van statistiese verdelings wat verkry is uit 'n aantal ekonomiese bedrywighede in die Republiek van Suid-Afrika.

Vernaamste gevolgtrekkings

By die skatting van die populasie rekenkundige gemiddelde deur die m.a.-metode word van die verwantskap wat vir 'n lognormale verdeling tussen die meetkundige- en rekenkundige gemiddelde bestaan, gebruik gemaak. In die praktyk is die verdelings egter benaderd lognormaal verdeel en toon meestal relatief groot afwykings by die begin en eindwaardes van die verdeling. Dit maak die m.a.-skattingsmetode minder doeltreffend. Die momenteskatter kan maklik bereken word en lewer vir lognormale verdelings met standaardafwyking-verhouding van ongeveer 2.5 bykans net so doeltreffende resultate as die m.a.-metode. Vir 'n standaardafwyking-verhouding groter as 2.5 neem die doeltreffendheid vinnig af.

Beide metodes lewer by die skatting van die standaardfout minder doeltreffende resultate as by die skatting van die rekenkundige gemiddelde. Die momenteskatter is gemiddeld laer as die m.a.-skatter, en onderskat in die meerderheid gevalle die populasie-parameter $\sigma_{\overline{X}}$.

Ten einde die standaardfout van die steekproefgemiddelde binne redelike grense te beperk, en ten einde van die normale benadering gebruik te kan maak, moet 'n eenvoudige ewekansige steekproef vir beide skattingsmetodes so groot wees dat net so wel 'n totale opname gemaak kan word.

Vir beide skattingsmetodes is die skatter $S_{\overline{X}}$ positief gekorreleerd met die steekproefgemiddelde $\overline{X}$. Dit het die gevolg dat in die meerderheid van gevalle waar die interval $\overline{X} \pm 1.96\ S_{\overline{X}}$ nie die populasie rekenkundige gemiddelde insluit nie, die steekproefskatter $\overline{X}$ kleiner is as die populasie rekenkundige gemiddelde. Die spreiding van die onderste vertroubaarheidsgrense is vir die twee metodes baie dieselfde en is kleiner as die spreiding van die boonste grens. Soos die standaardafwyking-verhouding toeneem, so neem die verskil tussen die spreiding van die boonste- en onderste grens ook toe.

Waar die waardes van die onderskeie items van die populasie uit 'n vorige opname bekend is, en waar die waarde nie vinnig verander oor die tyd nie, kan die populasie gemiddelde baie doeltreffender geskat word deur die trekking van 'n gestratifiseerde steekproef. Die verskillende grootte groepe word as strate gebruik. Hoe groter waardes die standaardafwyking-verhouding aanneem deste voordeliger is dit om van 'n gestratifiseerde steekproef in plaas van 'n eenvoudige ewekansige steekproef, gebruik te maak. Dit geld ook vir saamgestelde lognormale verdelings.

By die berekening van die momenteskatter van 'n saamgestelde populasie waar die lognormale komponente nie vooraf bepaal is nie, is dit ook nie nodig om die steekproef in sy lognormale komponente op te splits alvorens 'n momenteskatting van die populasie se rekenkundige gemiddelde gemaak kan word nie. By die berekening van die m.a.-skatting van die populasie se rekenkundige gemiddelde is dit wel nodig om die steekproef in sy lognormale komponente op te splits. Die metodes waarvan gebruik gemaak word om 'n steekproef in sy lognormale komponente op te splits, is op die oomblik nog so onbetroubaar dat die m.a.-skattingsmetode onder bogenoemde omstandighede nie aanbeveel word nie.

Die verdelings van ekonomiese data vir die Republiek van Suid-Afrika wat in die studie ontleed word, bestaan uit een of meer komponente waarvan minstens een lognormaal verdeel is. Die belangrikste komponente van die verdeling is in al die gevalle benaderd lognormaal verdeel. Vir gevalle waar die aantal items van die residue komponente, wat meestal aan die begin en einde van die verdeling voorkom, klein is, kan die verdeling sonder groot verlies van akkuraatheid as 'n enkelvoudige lognormale verdeling beskou word. 'n Residue komponente aan die bopunt van die verdeling het egter 'n baie groter invloed op die rekenkundige gemiddelde van die verdeling as een aan die beginpunt.

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Title/Titel:	*The Musical Aptitude of Bantu Subjects with Special Reference to its Visual, Auditory and Psychomotor Determinants*
Medium:	English

Although the South African Bantu for generations has been in contact with European civilization, factors such as poverty and lack of training have prevented them from developing their musical talent. During the last few decades they have also been brought into contact with the less desirable aspects of European music, especially by means of the cinema and the radio. On account of these reasons it would be advisable to detect real potential musical aptitude in the Bantu child and to develop this by suitable practice before the contaminating factors have had time to affect the Bantu's musical tastes.

This dissertation represents a pilot study of the problem of the testability of the musical aptitude of urban Bantu children. Since a close relationship may be expected to exist between muscular dexterity and musical aptitude it was decided to trace the relationship between musical aptitude and certain visual, auditory and psychomotor determinants in the subjects selected for the experiment.

The subjects were Bantu school children, living in an urban environment, and aged from 10 to 18 years. They had been born and had lived all their lives in an urban environment. Nonetheless, their only contacts with European music had been the music used in religious practice, music heard in cinemas, on the radio and gramophone records, plus some training received in Sol-fa at school. However, since the ordinary white child's contact with western music is not very dissimilar from that of the urban Bantu child, except, perhaps that the white child goes to the cinema more frequently and has more time to listen to jazz music, it was assumed in this study that tests for musical aptitude suitable for white children could also be used with Bantu children. For this reason the Seashore Test for Musical Talents was selected, and this test was applied together with certain tests of visual-motor muscular dexterity.

Certain hypotheses were drawn up, the principal ones being that a relationship exists between musical talent and muscular reaction time, that sex differences in performance, as well as age differences can be expected, that educational status will affect achievement, and that a correlation can be expected between pitch, loudness, rhythm, time, timbre discrimination and tonal memory.

The subjects consisted of 109 girls and 95 boys. Since tribal differentiation was not recognized in their educational system, the children were not divided into tribal groups.

The relationship between musical talent and muscular reaction time

(*a*) Pitch discrimination: No relationship was found to exist between visual and auditory reaction time on the one hand, and pitch discrimination on the other hand; the same applied to two-handed co-ordination.

(*b*) Loudness: Statistically significant correlations between loudness discrimination, visual reaction time and auditory reaction time were found but no significant correlation could be established between loudness discrimination and two-handed co-ordination.

(*c*) Rhythm: A proven relationship was found to exist between rhythm discrimination, visual reaction time, and two-handed co-ordination (although in the negative in the latter case).

(*d*) Time: A proven relationship was found to exist between time discrimination and visual and auditory reaction time.

(*e*) Timbre: Only auditory reaction time correlated significantly, though negatively, with timbre discrimination.

(*f*) Tonal memory: A proven inverse relationship was found between tonal memory discrimination and auditory reaction time.

The conclusion could, therefore, be drawn that the only nearly common denominator between the Seashore Test of Musical Talents and the Dexterity Tests was the auditory function, which was obviously very important in the Talents Test as well as in the auditory reaction test. The number of positive correlations between visual reaction time and the Seashore Test, as well as the two-handed co-ordination test and the Seashore did not warrant the conclusion that visual reaction time and two-handed co-ordination were of very great importance in musical aptitude.

As regards the relationship between musical reaction time and musical talent the results showed both positive and negative correlations. However, these correlations were found to be inconsistent, unpredictable and inexplicable.

Sex differences

Boys seemed to yield performances superior to those of girls in the fields of loudness, rhythm and tonal memory. Their performance in the dexterity tests was equal to that of the girls. Although their performance was not superior in all the musical talent tests, the boys, on the whole, yielded better results on the Seashore tests than the girls. These results were consistent but, objectively speaking, inexplicable.

Age differences

The results showed that, on the whole, achievement improved with age, but the difference in achievement was greater at the lower age levels (12 and 14 years) than at the higher age levels (14 and 16 years). The improvement with age was, however, inconsistent in the sense that the different talents did not appear to improve at a consistent rate.

The correlation between pitch, loudness, rhythm, time, timbre discriminations and tonal memory

Except in the case of time discrimination, the general tendency was towards individual rather than unitary functioning. The overall impression was that each of the musical talents had a definite individualistic function in the Gestalt of musical aptitude as measured by the Seashore Tests.

The above conclusions apply in respect of the sample used in the experiment only — a group of urban Bantu children — and the author does not suggest that similar results will be found with other Bantu population groups. However, a vast field of future research is possible, especially investigations among Bantu people who have had little or no contact with Western European music.

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Title/Titel:	*Effects of training Bantu Supervisors using training within Industry (T.W.I.) Programmes*
Medium:	English

Statement of the problem

The purpose of this investigation was the study of training Bantu Supervisors using T.W.I. programmes. Literature on the various training methods and courses used elsewhere and in this country was reviewed. The majority of these courses were found to be biased either towards human relations or technical training. A marked imbalance existed between the human relations content and technical knowledge content in such courses. A case study of a method used to train Bantu Supervisory personnel on the mines is cited.

The objectives in this experiment were broad, being to determine:

(i) Whether trainee Bantu Supervisors did learn anything from taking T.W.I. courses.

(ii) What they learned from these courses.

(iii) What they failed to learn from T.W.I. courses and what the possible reasons were for this failure.

(iv) What difficulties the trainee Bantu Supervisors experienced in learning T.W.I. principles

(v) How they evaluated the T.W.I. course.

(vi) What problems they anticipated when applying the principles in the work situation.

Method of research and procedure

Sample: A sample of 36 subjects took part in the experiment and were given a number of tests. This sample was divided into 2 groups each comprising 9 supervisors and 9 non-supervisors with supervisory potential. The two groups were equated on population variates, namely age, education, intelligence and experience. The samples were derived from two mining groups, namely a diamond mining group and a gold mining group.

Training: Samples were tested and selected initially. The experimental group was subjected to three weeks' training using the three T.W.I. programmes, namely Job Instruction, Job Methods and Job Relations. The experimental and control groups were then tested again using the three measures of learning of T.W.I. principles, viz, T.W.I. test, problem test and How Supervise? test, and C.M.I. test.

Results

F-tests showed a significant difference between the performance of the experimental group and control group, indicating that learning did in fact, take place among the training group.

The trained group learned to respond positively to those items of the test *How Supervise*? which are relevant to their perception of and experience in the work situation. They have learned that they need to be trained in order to create healthy work climates in which the needs of the worker can be satisfied.

The trained group fails to see the area of supervision in which they require training. This response results from their failure to comprehend the scope of their function. It also stems indirectly from their failure to reconcile the conflict between the ideals set by the T.W.I. principles and the hard reality of the work situation which often tends to go counter to these ideals.

The three measures of learning of T.W.I. principles differentiate significantly between the trained and untrained groups. They all seem to be adequate measures of learning of T.W.I. principles.

The How Supervise? test seems to measure something more than reading ability. It seems to be related to principles of supervision.

The conformance score (CF) of the Welsh Figure Preference Test correlates positively and significantly with the T.W.I. test and the SP and SO sub-tests of Form A of the test How Supervise?. There is some indication that this test could be used as a useful screening tool when selecting those who are likely to benefit from supervisory training. Further research into the use of this test for the screening of those with supervisory potential is advised before conclusions can be reached.

Learning difficulties are mainly connected with Job Methods, and fall into two categories:

(*a*) Management Problems: These problems relate to established practice on the mines wherein Method study falls outside the domain of a boss-boy. Trainees therefore fail to visualise the role which they should play in method improvement since it does not fall within their scope of function.

(*b*) Personal Problems: Job Methods fail to motivate trainees. We established that individuals tend to learn selectively, and that they will learn best in those areas which appear to be relevant to their needs. Job Methods has no cush relevance.

Job Methods is also highly technical and trainees find difficulty in understanding it fully.

In evaluating the courses, trainees stress the importance of Job Relations and Job Instruction in that order.

Problems anticipated by the Bantu Supervisors in their attempts to apply the T.W.I. principles fall into two categories:

(*a*) Black-White Supervisor relations: The training of the Bantu supervisors is seen as being undermined by the White Supervisor who is the Bantu Supervisor's immediate senior. The white supervisor is seen as lacking confidence in the Bantu supervisor's leadership and technical competence.

(*b*) Management Problems: Inadequacy of management support is cited as a factor limiting the development of the Bantu supervisor.

Implications of the investigation and conclusion

This exercise strongly indicates the need to increase efforts in training Bantu Supervisors and also points to their trainability.

With modifications to suit different work situations the present T.W.I. programmes, namely, Job Instruction and Job Relations, seem adequate for developing Bantu Supervisors. Job Methods seem, at present, to be beyond the scope of comprehension of the average Bantu mining Supervisor.

Management support of any training effort and a judicious follow-up of which training should give us an answer to the question whether Bantu Supervisors can put T.W.I. principles into practice in the work situation.

T.W.I. training should be supplemented by other forms of training such as induction and skills training.

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Title/Titel: *Die opstel en voorlopige standaardisering van 'n battery skolastiese aanlegtoetse met die oog op die voorspelling van sukses in die Bantoe Junior Sekondêre Skool*

Medium: Afrikaans

Probleemstelling en doel van ondersoek

As gevolg van 'n tydelike tekort aan klaskamers en ander noodsaaklike fasiliteite by sekere na-primêre Bantoeskole, het die keuring van leerlinge vir toelating tot die junior sekondêre skool 'n noodsaaklikheid geword. Waar tot dusver slegs die resultate van die standerd-VI-eindeksamen gebruik is vir die oorplasing van leerlinge na die junior sekondêre skool, blyk dit dat daar naas hierdie eksamen ook 'n groot behoefte aan gestandaardiseerde toetse bestaan. Hierdie ondersoek is aangepak om 'n begin te maak met die standaardisering van 'n battery Skolastiese Aanlegtoetse met die oog op die voorspelling van sukses in die Bantoe Junior Sekondêre skool.

Metode van ondersoek

Die uitvoering van hierdie ondersoek het uit twee hoofstappe bestaan. As eerste stap is besluit om 'n battery van agt sub-toetse, waarvan sommige reeds op Blankes in Suid-Afrika gestandaardiseer was, saam te stel en vir eksperimentele doeleindes op vyf van die sewe hoof Bantoetaalgroepe van die Republiek toe te pas. Hierdie toepassing was hoofsaaklik daarop gemik om tekortkominge en swakhede in die toetsprosedures en toetstegnieke waarop besluit was, bloot te lê. Daar is verwag dat 'n ontleding van die resultate wat met hierdie toepassing verkry is, lig op doeltreffende tegnieke en prosedures sou werp wat veral van waarde sou wees by die opstel en voorlopige standaardisering van die battery Skolastiese Aanlegtoetse.

Op grond van die gegewens en bevindings wat met die eksperimentele toepassing ingewin is, is as tweede stap 'n battery van ses subtoetse opgestel en op 'n steekproef gelyksoortig aan die bevolking vir wie die finale toets bedoel was, toegepas. Resultate is eerstens ontleed om 'n aanduiding te kry van hoe die toetse in die geheel in die praktyk funksioneer. Tweedens is alle items van elke afsonderlike toets ontleed met die doel om swak items te identifiseer. Hierna is 'n finale battery toetse saamgestel en in gereedheid gebring vir finale standaardiseringsdoeleindes.

Die eksperimentele ondersoek

Op grond van 'n studie van bepaalde literatuur in verband met tegnieke wat reeds ontwerp is om in die behoeftes van die voorspelling van sukses op skool te voldoen, is besluit om toetse wat 'n aanduiding van leerlinge se bekwaamheid in die amptelike tale, rekenkundige vermoë, verbale en nie-verbale redenering sou gee, op te stel en verder te ontwikkel.

Die battery toetse is gedurende September en Oktober 1960 deur opgeleide Bantoe-toetsafnemers afgeneem. Die doel van hierdie toepassing was hoofsaaklik eksperimenteel van aard, maar was daarop gemik om gebreke en tekortkominge in die toetsprosedure bloot te lê en om die beste subtoetse op grond van betroubaarheid- en geldigheidstudies te keur vir verdere ontwikkeling. 'n Totaal van 2,408 leerlinge wat vyf Bantoe-taalgroepe verteenwoordig, is tydens die eksperimentele ondersoek betrek. Met die uitsondering van die nie-verbale Klassifikasietoets is daar deurgaans bevredigende betroubaarheids- en geldigheidskoëffisiënte vir alle toetse en alle taalgroepe verkry. Weens die lae indekse wat in die geval van die Klassifikasietoets verkry is, is besluit om hierdie toets nie verder te ontwikkel nie.

Dit het geblyk dat alle standerd VI-Bantoeleerlinge nie in staat was om die toetsaanwysings wat direk op die toetsboekies aangebring was, te volg en uit te voer nie. Aanwysings wat mondelings aan die leerlinge gegee word, skyn bevredigende resultate te lewer.

Aangesien 'n subjektiewe faktor wel 'n rol by die nasien van die voltooiingstoetse gespeel het, is besluit om slegs van veelkeusige toetsitems gebruik te maak. Hierdie besluit sou groter objektiwiteit by die nasien van die toetse teweegbring en ook die nasienproses vereenvoudig.

Spoed, akkuraatheid en ekonomiese voordele was die belangrikste oorwegings vir die besluit om van spesiale antwoordblaaie gebruik te maak. Moontlike nadele wat die gebruik van spesiale antwoordblaaie by die Bantoe wat nie so toetsgesofistikeerd as die Blanke is nie, inhou, verdien egter verdere aandag en moet deur basiese navorsing opgevolg word.

Samestelling van die toetsbattery

Aan die hand van inligting wat op grond van die eksperimentele ondersoek ingewin is, is die battery Skolastiese Aanlegtoetse opgestel. Die battery het uit die volgende subtoetse bestaan:

Taaltoetse in die amptelike tale en in die moedertaal van die leerlinge.

Rekenkundetoets.

Verbale Redenering wat in die moedertaal voorgelê word.

Nie-verbale Redenering wat uit 'n Patroonvoltooiingstoets bestaan.

Voorsiening is vir twee voorlopige vorms gemaak sodat daar na 'n proses van itemontleding een finale reeks toetse opgestel kon word. Alvorens die battery Skolastiese Aanlegtoetse vir die doeleindes van itemontleding toegepas kon word, was dit nodig om die toetsaanwysings eers in die praktyk uit te toets. Dit is op 'n steekproef van 124 Tswana-, 137 Sepedi-, en 60 Zoeloe-leerlinge in Pretoria en omgewing gedoen. Hierdie uittoetsing het aan die lig gebring dat gedetailleerde aanwysings wat mondelings deur die toetsafnemer in die moedertaal van die betrokke leerlinge gegee word en wat sover moontlik met demonstrasie op die swartbord aangevul word, die beste resultate lewer.

Veel klem moet op die oefenvoorbeelde gelê word sodat leerlinge oefening in alle soorte response wat van hulle tydens die werklike beantwoording van die toetsitems verwag word, kan ontvang. Die moeilikheidsgraad en diskriminasiewaardes van elke item is by wyse van 'n itemontleding vir die vyf hoof etniese taalgroepe verkry. Die toepassing het op 2,150 standerd-VI-Bantoeleerlinge geskied.

Vir elke subtoets is 40 items uit albei vorms gekeur om in die finale toetse opgeneem te word. Hierna is die finale battery toetse saamgestel.

Die volgende resultate gee 'n aanduiding van die betroubaarheid en geldigheid van die voorlopige toetse. Die laagste en hoogste betroubaarheidskoëffisiënte wat op grond van die K-R 20 formule bereken is en eintlik 'n skatting van die homogeniëteit van die toetse is, wissel van .52 tot .89.

Omdat die voorlopige toetse aan 'n proses van itemontleding onderwerp is en die finale battery toetse met bykans 50% verleng is, kan verwag word dat die finale toetse heelwat hoër betroubaarheidskoëffisiënte as die voorlopige toetse sal toon. Geldigheidskoëffisiënte van die voorlopige toetse ten opsigte van eindeksamenprestasies is vir die vyf taalgroepe afsonderlik bereken. Beduidende koëffisiënte wat wissel tussen .200 en .646, is vir die voorlopige battery Skolastiese Aanlegtoetse gevind. Uit 'n totaal van 60 korrelasies was slegs een korrelasie van .184 nie beduidend nie. Die Taaltoetse en Rekenkundetoetse neig deurgaans om hoër met eindeksamenresultate te korreleer as die Verbale- en Nie-verbale Redeneringstoetse.

Besluit

Heelwat intensiewe navorsing moet nog gedoen word in verband met die ontwikkeling van sielkundige meetinstrumente ten einde geskikte toetse vir die Bantoe daar te stel. Die benadering wat in hierdie ondersoek gevolg is, naamlik die aanpassing van bestaande toetstegnieke by die kulturele agtergrond van die Bantoe sal ongetwyfeld verder uitgebrei en verfyn moet word. Die resultate van hierdie ondersoek het veral aangetoon dat dit nie alleen die toetse en toetsinhoud is wat by die opvoedkundige peil en agtergrond van die Bantoe aangepas moet word nie, maar ook die hele toetsprosedure waaronder die toetsaanwysings seker die belangrikste is. Die sukses en vordering wat met hierdie aanpassing gemaak is, het volgens oordeel van die skrywer afdoende bewyse gelewer dat dit wel moontlik is om effektiewe hulpmiddels vir die Bantoe daar te stel om in die behoefte van keuring en opvoedkundige leiding te voorsien.

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Title/Titel:	*Die gesinstruktuur en funksionering van 'n aantal kleinhoewegesinne om Pretoria*
Medium:	Afrikaans

Teoretiese fundering

Die huidige stand van die stedelike sosiologie met besondere verwysing na die V.S.A. en Suid-Afrika word geskets en die noodsaaklikheid van voortgesette navorsing word beklemtoon ten aansien van die leemtes in die verskillende teoretiese uitgangspunte wat vir die stedelike sosiologie gestel word. Die skrywer kom tot die gevolgtrekking dat die heersende teoretiese uitgangspunte nie bevredigend vir die verklaring van die stedelike ekologiese prosesse en die sosiale organisasie van die omstedelike oorgangsgebied wat as produk van die stedelike ekologiese prosesse gesien geword, is nie. 'n „Eie" teoretiese uitgangspunt vir die stedelike sosiologie wat ook 'n teoretiese raamwerk vir die sosiale organisasie van die omstedelike oorgangsgebied bied, word gestel.

Doel van die ondersoek

Die studie is eksplorerend van aard, naamlik die vasstelling van die gesinspatrone binne die omstedelike oorgangsgebied wat tot nog toe 'n onontgonne terrein is. As voorwerp van studie is die omstedelike oorgangsgebied van Pretoria geneem en wel die gebiede wat onder die Plaaslike Gebiedskomitees van die Gesondheidsraad vir Buitestedelike Gebiede ressorteer.

Uit die vasstelling van die gesinspatrone van die onstedelike oorgangsgebied vloei ook die moontlikheid vir die verifiëring van die volgende hipotese voort:

Dat die omstedelike landelik-stedelike oorgangsgebied 'n gebied van akkulturasie tussen die stedelike- en landelike leefwyses is en daarom in sekere opsigte meer landelike en in ander opsigte meer stedelike eienskappe sal vertoon; asook dat weens die proses van seleksie en aanpassing by die spesifieke omgewing eienskappe mag bestaan wat eie aan die gebied is. By implikasie beteken die vasstelling van eie onderskeidende eienskappe van die omstedelike oorgangsgebied dat nòg die ideëel-tipiese nòg die kontinuumbenadering as teoretiese raamwerk vir die stedelike sosiologie bevredig aangesien daar tog nie van 'n kontinuum sprake kan wees indien die gebied eienskappe vertoon wat nòg by die platteland nòg by die stad aangetref word nie.

Omgewingseienskappe

Die omgewingseienskappe wat 'n invloed op die gesinsfunksionering het, word ontleed.

(*a*) Fisiese omgewingseienskappe: Faktore soos afstand vanaf stedelike fasiliteite, grootte van kleinhoewes en digtheid van bevolking beïnvloed die sosiale omgewingseienskappe van die gebied deurdat die bewoners van die semi-landelike omgewing aan die beïnvloeding van die stad onderhewig is.

(*b*) Sosiale omgewingseienskappe: Eienskappe soos huwelikstaat, ouderdomsamestelling, huistaal, beroep, inkomste, opvoedingspeil, ens. word ontleed. In die geheel vertoon die sosiale omgewingseienskappe sommige eienskappe kenmerkend van die platteland, ander kenmerkend van die stad, sommige eienskappe „tussen" platteland en stad maar ook eienskappe kenmerkend van die gebied van ondersoek. Hierdie patroon wat die sosiale omgewingseienskappe aanneem word in verband gebring met die groot persentasie hoewe-eienaars, landelike oriëntering van die bewoners en die proses van verstedeliking en beïnvloeding van die stad.

(*c*) Die huislike omgewing: Grootte van woning en oorbewoning, asook geriewe soos sanitasie, kraanwater, beligting, telefoon, radio, ens. word bespreek. Die gevolgtrekking waartoe gekom word is dat woningstoestande goed is en dat verreweg die grootste persentasie gesinne oor alle geriewe beskik aangesien genoemde geriewe eerder 'n noodsaaklikheid dan 'n luukse is.

Die sosiale en ekonomiese identifikasie van die bewoners word ontleed ten opsigte van voor- en nadele verstrek i.v.m. hoewebewoning, vriendskapsverhoudings, deelname aan verenigingslewe, en die plek van aankope of diens van noodsaaklike items. Wat ekonomiese afhanklikheid en sosiale verhoudings betref, is die bewoners deels met die stad en deels met die omstedelike oorgangsgebied geïntegreer en daarom aan sowel die invloed van die stad as die invloed van die gebied self onderhewig.

Familisme, Gesinstruktuur en rolverdeling

Omdat rolverdeling binne die gesin ten nouste saamhang met familistiese geöriënteerdheid van die gesinshoofde en die gesinstruktuur word allereers die familistiese geörïenteerdheid van die gesinslede en die gesinstruktuur ontleed. Daarna word die wedersydse rolverrigting en rolverwagting van gesinshoofde d.m.v. sekere hulptegnieke bepaal en kruisontledings gemaak tussen die oorname van die vrou van een instrumentele gedragsarea en ander areas van gesinsfunksionering. Daar is gevind dat deelname van die eggenotes aan boerderybedrywighede *gepaard gaan met 'n oorname van die instrumentele rol van die man slegs ten opsigte van beheer van finansies en straf van die kinders terwyl daar aan die kant van die man geen oorname van die ekspressief-integrerende rol van die vrou is nie.*

Gesinsfunksionering

Sekere eienskappe eie aan die omstedelike oorgangsgebied as spesifieke tipe residensiële kollektiwiteit beïnvloed die gelykmatige verloop van die platteland-stedelike kontinuum ten opsigte van gesinsfunksionering, naamlik:

(i) Omgewingseienskappe soos digtheid van die bevolking en nabyheid van die stad sodat 'n stedelike beroep sowel as boerdery-bedrywighede beoefen kan word.

(ii) Beïnvloeding vanaf die stad vanweë die feit dat die omstedelike oorgangsgebied binne die stedelike invloedsfeer geleë is.

(iii) Stedelike ekologiese prosesse verantwoordelik vir die totstandkoming van die omstedelike oorgangsgebied waardeur oorwegend landelik geöriënteerde en/of familisties-geöriënteerde persone na die omstedelike oorgangsgebied uitskuif.

(iv) 'n Spesifieke rolverdeling tussen gesinslede voortspruitende uit die beoefening van 'n stedelike beroep deur die manlike gesinshoof sowel as boerderybedrywighede.

Hoofsaaklik a.g.v. bogenoemde faktore vertoon die omstedelike oorgangsgebied van Pretoria:

(i) Sommige eienskappe wat meer landelik van aard is.

(ii) Sommige eienskappe wat meer stedelik van aard is.

(iii) Sommige eienskappe „tussen" platteland en stad.

(iv) Maar ook eienskappe wat as kenmerkend van die omstedelike oorgangsgebied beskou kan word.

Ten opsigte van die resultate verkry m.b.t. die sosiale aanpassing van die kinders is gevind dat die seuns van die omstedelike oorgangsgebied 'n swakker aanpassing vertoon as die gemiddelde vir die Republiek terwyl die meisies 'n gemiddelde aanpassing min of meer soortgelyk aan dié van die gemiddelde van die Republiek vertoon. Die sosiale waarde van die kleinhoewes as woonplek kan dus nie sonder meer aanvaar word nie.

Die hipotese dat die sosiale organisasie van die omstedelike oorgangsgebied nie in terme van nòg die ideëel-tipiese benadering (soos vir die huidige slegs vir platteland en stad gekonstrueer) nòg die kontinuum benadering verklaar kan word nie en dat genoemde benadering daarom ook nie as teoretiese uitgangspunt vir die stedelike sosiologie bevredig nie, skyn deur die vasstelling van eie onderskeidende eienskappe van die gebied bevestig te word.

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Title/Titel:	*The Alcoholic and Group Affiliation and Participation*
Medium:	English

This is a hypothesis testing empirical-theoretical combination study of the group affiliation and participation of a group of 100 White Male Alcoholics in the Republic of South Africa.

The sample was divided into two, 50 from Alcoholics Anonymous in Cape Town, East London and Pretoria using the snowball sampling technique. The other 50 were obtained from the Park Road Hospital for Alcoholics, Rondebosch, Cape and the Castle Carey Clinic, Pretoria by means of consecutive names from the admission register.

In Chapter one the group and the associational group (association) was discussed at length as well as the mechanism of the group.

In Chapter two alcoholism and the alcoholic were discussed at length and alcoholism was defined as "loss of control over an individual's drinking habits which result in disengagement and disintegration of that individual's patterns of social interaction in the personal, occupational and community sectors of his activity".

In Chapter three the group affiliation and participation history of the sample was examined. Twenty per cent of the total sample had never belonged to an organized group. There was no significant difference between group affiliation participation in the A.A. and clinics samples. The A.A. sample, however, was more disorganized at the time of seeking treatment than was the case with the clinic sample. This would seem to be in line with the saying in A.A. that an alcoholic usually never turns to them for help before he has reached the gutter.

In chapter four the work and residential mobility of the sample was examined with reference to factors that may influence it. The mean age of the A.A. sample when seeking treatment was 41.26 years and for the clinics sample it was 39.44 years. There was no statistically significant difference between these two means. As far as formal education is concerned the mean number of years of formal education in the A.A. sample was 11.2 and in the clinics sample 10.6. There was no statistically significant difference between these two means. A statistically significant greater number of units of the A.A. sample saw war service than was the case with the clinics sample. The sample closely approximates the language division in the population as a whole. As far as residential mobility is concerned there was no statistically significant difference between the A.A. and clinics samples. As far as job mobility is concerned there was a statistically significant difference between the A.A. and clinics samples, the A.A. having changed jobs more frequently.

This chapter also tended to suggest that the A.A. sample was more disorganized at time of seeking treatment than was the case with the clinics sample.

In chapter five the relationship between the alcoholic and his families of orientation and procreation is examined.

More than half the parents of the units in the sample were abstainers and 166 of 196 were either abstainers or occasional drinkers. Assuming that if so many of the parents were abstainers or occasional users of alcohol the children would not have been introduced to alcohol in the home the place of introduction to alcohol was examined. It was found that 11% had their first drink within the family circle and 89% outside the family circle. There was no statistically significant difference between the A.A. and Clinics samples in this respect. We thus see that as so few have their first drink within the family circle the family does not socialize the child or adolescent in the drinking patterns acceptable to the group and his socialization in this respect is left in the hands of haphazard agents and conditions. Further it was found that in 76% of the cases the parents were in agreement as to the use of alcohol. Eighty-two per cent of the units got on well with their siblings. The mean size of the family of orientation was 4.9 and first born children formed 33%. Regarding the families of procreation of the units in the sample there was a divorce incidence of 40.5% this was statistically greater than the incidence of divorce among their own parents. There were definitely statistically significant differences between the drinking patterns of the alcoholic husbands and wives in the A.A. Clinic and total samples at the .001 level of confidence.

In chapter six the alcoholic and group affiliation and participation was examined in relation to religion and recreation. The restraining influence of religion was examined as well as in how far recreation produced pressure to drink. It was seen that recreational group affiliation was eight times as frequent as religious group affiliation so there was more *exposure* to alcohol and social pressure to drink than deterrent to such pressure. Added to this was the fact that the degree of participation in religious groups was significantly lower than the degree of participation in groups in general in the sample. Although the families of orientation were strongly religious this appears to have been countered by the acceptance of peer group drinking norms by the units in the sample and the rejection of the drinking norms of the families of orientation.

In chapter seven the drinking histories of the units in the sample was examined in relation to group affiliation and participation. It appears that group affiliation decreased as the person progressed from a social drinker to an addictive drinker and still more as the addictive phase continued. At first only 20% did not belong to any group; at the time when treatment was sought 87 per cent did not belong to any group. This difference was statistically significant.

In chapter eight it was found:

(*a*) that there was no statistically significant difference between the A.A. Clinics samples in respect of group affiliation and participation.

(*b*) that the statement that alcohol addiction results in a reduction of group affiliation and participation can be cautiously accepted.

(*c*) that we can accept the statement that the alcoholic would become disorganized in various sectors of activity due to continued drinking.

Finally a statement toward a theory of alcoholic addiction was drawn up in which use is made of the alcohol tolerance threshold and the *frustration relief threshold*. When the *frustration relief threshold* at least equals the alcohol tolerance threshold the person is considered an alcoholic.

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Title/Titel:	*Die ontwikkeling van die gevangeniswese in die Kaapkolonie vanaf* 1806 *tot en met unifikasie* 1910
Medium:	Afrikaans

Gevangesetting as selfstandige strafmetode het in die jare 1652-1806 nie in die Kaapkolonie bestaan nie. Wat hier in daardie tydperk wel bestaan het, was martelingstrawwe en verbanning. Sodanige strafmetodes was nie net in die Kaapkolonie in gebruik nie, maar dwarsdeur die destydse beskaafde wêreld.

Robbeneiland was gedurende die jare 1652-1806 die vernaamste verbanningsoord vir misdadigers van oor die hele Kaapkolonie.

Die tydperk 1806-1828 dui die begin van 'n besliste keerpunt in straftoepassing dwarsdeur die beskaafde wêreld aan. 'n Mensliker strafbeleid en menslikerstrafmetodes tree in werking. Hierdie neiging is terug te voer tot die Filantropiese strominge van daardie jare in Europa.

Hierdie invloede sou hulle ook in die Kaapkolonie laat geld.

Daar kan beweer word dat gevangesetting as strafmetode tot 1828 nog nie in 'n georganiseerde stelsel in die Kaapkolonie ontwikkel het nie. Hierdie periode word dus slegs gekenmerk deur die voortsetting van die Hollandse beleid. Al opvallende verskil was die neiging om wrede martelingstrawwe te verminder.

In die periode 1828-1854 vind belangrike veranderinge t.o.v. gevangenisstraf in die Kaapkolonie plaas.

Tot 1840 is voortgegaan met bogenoemde beleid van verbanning van misdadigers na Robbeneiland, maar van daardie datum af het die Britse regering die Kaapse owerheid gelas om die termyne van verbanning in termyne van gevangenisstraf te omskep. Die gevolg was dat die bandietstelsel in die Kaapkolonie net soos in ander lande herorganiseer moes word. Die aard en omvang daarvan sal in die verloop van onderstaande bespreking aangetoon word.

Wat betref *gevangenisadministrasie en -organisasie* in die Kaapkolonie tussen 1806 en 1910, is dit opmerklik dat gevangenisse altyd onder die direkte sentrale beheer van die regering was, en dat hier nie private of half-amptelike besit van gevangenisse, soos in Europa was nie.

Die bandiete of langtermyngevangenes is van Robbeneiland gebring en in bandietstasies in die kolonie aangehou. So 'n bandietstasie was onder beheer van 'n Superintendent en hy is bygestaan deur hoofopsigters, onderopsigters en konstabels.

In die tronke is korttermyngevangenes aangehou. Tronke was onder beheer van sipiers en konstabels.

Hierdie toestand het onveranderd tot 1910 gebly. Wat *gevangenishuisvesting* betref, is die ondoeltreffendheid daarvan in die tydperk 1806-1910 baie opmerklik. Dit moet eerstens aan die verbanningsbeleid van die jare 1806-1840 toegeskryf word. Tweedens is swak gevangenisse vir korttermyngevangenes in die kolonie opgerig.

Die beleid om bandiete na Robbeneiland te stuur, het voortgeduur tot 1845 toe die destydse Koloniale Sekretaris, John Montagu, die bandiete daarvandaan gebring het, en hulle in mobiele bandietstasies dwarsdeur die kolonie gehuisves het.

Opmerklik is dat hierdie bewegende gevangenisse iets nuuts en enig in die geskiedenis en ontwikkeling van enige gevangenisstelsel was. Dit het dan ook die gevangeniswese tot 1910 oorheers.

Verder was die gevangenisse in die kolonie wydverspreid.

Opvallend is ook die afwesigheid van gespesialiseerde inrigtings, m.a.w. verskillende inrigtings vir verskillende tipe misdadigers.

Die Uniale Gevangeniswet nr. 13 van 1911 het vir die eerstemaal voorsiening vir 'n verskeidenheid inrigtings gemaak bv. staatsnywerheidskole, werkkolonies ens.

Dit is opmerklik dat in die aanwending van *gevange-arbeid* in die jare 1806-1843 geen spesifieke doel nagestreef is nie. Gevangearbeid het gewissel van absolute ledigheid tot halfhartige pogings deur die bandiete aangewend om paaie en strate te repareer.

Dit is interessant om op te merk dat toe verbanning van bandiete uit die Kaapkolonie sedert 1840 gestaak is, die aanwending van gevangenearbeid noodwendig aandag geverg het.

Montagu het gevolglik die bandiete van Robbeneiland af laat bring met die doel om belangrike openbare werke aan te pak. Sodoende is 'n netwerk van verbindings in die vorm van paaie, passe en brûe kruis en dwars oor die lengte en breedte van die Kaapkolonie gebou.

Om die onderhoudskoste van gevangenes te verminder, is gevangenes van 1884 af aan munisipaliteite en ander openbare liggame teen betaling verhuur.

In die jaar 1890 vind 'n belangrike ontwikkeling op die gebied van gevangearbeid in die Kaapkolonie plaas, nl. die oprigting van 'n kleremakery, 'n skoenmakery ens. in die Breekwaterstasie te Kaapstad. Ons vind hier dus die begin van nywerheidsarbeid in die gevangeniswese van Suid-Afrika.

Die afwesigheid van *klassifikasie* van gevangenes tussen die jare 1806 en 1843 is ooglopend. Montagu het in die reorganisasie van die bandietstelsel ook hieraan aandag geskenk.

Bandiete by die bandietstasies is, afgesien van kleur en ras, in kettingspanne en padspanne ingedeel. In 1854 is 'n derde klas, die proefklas bygevoeg. Sodanige indeling was gegrond op lengte van vonnis en nie karakter nie. Verder het hierdie indeling in klasse slegs buite die stasie terwyl die bandiet gewerk het, bestaan en nie binne die geboue self nie. Daar is hulle deurmekaar aangehou. Hierin lê dan ook die swakhede van die stelsel.

Die klassifikasiestelsel in die gevangeniswese van die Kaapkolonie was dus die vrye omgangstelsel.

Die verskillende klasse was feitlik net bedags van mekaar afgesonder en snags was daar geen onderskeiding nie.

Wat afsonderlike aanhouding van rasse betref, het dieselfde beginsel gegeld.

Ook wat die indeling van korttermyngevangenes in tronke betref, was dit op die groepsbeginsel. Teen die einde van 1909 verklaar die gevangenisinspekteur dat in die meeste tronke skeiding van gevonnisdes van verhoorafwagtendes gedurende die dag plaasvind, en behalwe in 'n paar gevalle, blankes en nie-blankes snags geskei word.

Geen wonder dat die eerste Direkteur van Gevangenisse in 1910 die vermenging van rasse ernstig kritiseer nie en die selsisteem as alternatief vir groepsindeling aanbeveel nie.

Opmerklik is die *swak sosiale toestande* waarin gevangenes aangehou is.

Hoewel sosiale toestande in die gevangenisse tot 1910 ietwat verbeter het, laak die Direkteur van Gevangenisse in 1910 veral die euwel van homoseksualiteit by gevangenes, vermenging van rasse en toesig van nie-blanke amptenare oor blanke gevangenes.

Dit is dus begryplik dat in swak sosiale toestande doeltreffender hervormingsmaatreëls nie toegepas kon word nie.

Nie 'n wonder dat die hoof van die gevangeniswese aan die einde van 1909 verklaar, dat die kolonie geen vooruitgang i.v.m. moderne penologiese beginsels gemaak het nie, en selfs baie ver agter is by ander lande nie.

Die gevangeniswese in die Kaapkolonie het in 'n ruwe, barre rigting ontwikkel met feitlik geen inagneming van die humanistiese tendense nie.

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Title/Titel:	*Review of Echinococcus Species in South Africa*
Medium: ..	English

The taxonomy of the genus *Echinococcus* has become unsatisfactory in that different workers have been using different features, or combinations of features, as criteria for generic, specific and subspecific identification. In an attempt to establish the validity of the criteria, which have been used in the classification of this genus, it was decided to study the various features in material derived from intermediate hosts and checked experimentally in different definitive hosts. Using the features which were established as sound criteria in these experimental infestations of known origin, the validity of the species and subspecies described to date were reassessed.

Part I

The study of the structural features gave the following findings:

Strobila

1. The number of segments and the position of the sexually mature segment are relatively constant. These two characters may be used in conjunction with other characters.

2. The size of the strobila and its constituent parts, as well as the ratio of these parts to one another, is subject to extreme variability. It is dependent not only on the fixation methods employed, but also on the age of the parasite and the identity of the definitive host. It is, therefore, inadvisable that taxonomic significance be attached to the size of the strobila.

Rostellar Hooks

The size of the rostellar hooks is dependent on the age of the infestation and the identity of the definitive host. Furthermore, it shows variability in successive generations as well as in material of the same genotype. It is undesirable that taxonomic significance be attached to either the size or the shape of these structures.

Genital Pore

The position of the genital pore appears to be of value, but mainly at the species level.

Male Genitalia

1. The number and the distribution of the testes show but slight variability; these characters may thus be used in conjunction with other characters.

2. The actual size of the cirrus sac differs in the mature and gravid segment, and is therefore of no value in the taxonomy of this genus.

Female Genitalia

The structure of the female genitalia, in the present experimental material, does not differ in specimens showing other morphological differences. Variations in the structure of the female genitalia would, therefore, be of taxonomic significance.

Host specificity

The degree of host specificity as shown by the experimental infestations varies; being marked in some strains but less so in others.

Host specificity may be used in conjunction with the number and arrangement of the segments, as well as the number and distribution of the testes. From the above it is seen that no one character alone may be used for the specific or subspecific identification of members of this genus.

Part II

The application of the above criteria to both type material (where available) and to the experimental material has allowed for:

(*a*) the redesignation of the nominate species (or subspecies) *E. granulosus granulosus* (Batsch, 1786) from the type locality, Europe;

(*b*) the reassessment of species/subspecies from other parts of the world.

Five of these have been described from South African carnivores.

1. *Echinococcus granulosus granulosus* resulted from infestations with infestive material from pigs and from a human being. The sexual stage recovered from jackals and dogs correspond with those from the type locality, Europe.

2. *E.g. africanus* subsp. nov. resulted from infestive material from cattle and sheep. The Cape hunting dog, *Lycaon pictus*, and

the black-backed jackal, *Canis* (*Thos*) *mesomelas*, were more susceptible to infestation with this subspecies than were domestic dogs, dingos (*Canis dingo*) or silver foxes (*Vulpes chama*); the domestic cat was the least susceptible.

3. *E. g. lycaontis* Ortlepp, 1934 n. comb. resulted from infestive material from sheep. The sexual stage appears to be markedly host specific to the Cape hunting dog.

4. *E. g. ortleppi* Lopez-Neyra and Soler Planas, 1943 n. comb. was recovered from dogs and jackals infested with hydatid cysts of bovine origin, and was also recovered from three naturally infested dogs. The domestic dog and the black-backed jackal appear to be equally susceptible.

5. *E. g. felidis* Ortlepp, 1937 n. comb. was recovered from naturally infested lion, *Pantbera leo*. The intermediate host is unknown.

Part III

Hosts as maintainers and disseminators of infestations.

The domestic dog appears to be the most important source of infestation to domestic livestock. Wild carnivores are important disseminators in various parts of the country. The black-backed jackal is probably as important as the domestic dog in sheep rearing areas; the Cape hunting dog and the lion are of importance in restricted areas only. The silver fox is of negligible importance.

Domestic livestock are the most important source of infestation to carnivores. The role of wild herbivores as disseminators is unknown, but they are probably of importance only in restricted areas where they are abundant.

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C. 9. Potgieter, E. F.: *Enkele Volksverhale van die Ndzundza van Transvaal.* 1958, 36 p. (20c).

C. 10. Blignaut, F. W.: *Oor- en Dwangmatige Verbruik van Alkohol as Afwykende Gedrag by Eete en Drinke.* 1959, 21 p., bibl. (20c).

C. 11. Crause, H. L.: *Immigrasie-ontplooiing en Immigrasieproses; Die Immigrasiepatroon, -beleid en -administrasie in Kanada.* 1959, 39 p. (30c).

C. 12. Van Rooyen, I. J. J.: *'n Ontleding van die Gesinsagtergrond van Blanke Sorgbehoewende Kinders in Suid-Afrika en van die Rehabilitasiemetodes wat in die verband aangewend word.* (Nie meer beskikbaar nie./No longer available.)

C. 13. Muller, C. F. J.: *Karel Landman op Trek: van Melkhouteboom na Bloukransrivier, Oktober* 1837 *tot Maart* 1838. 1959, 33 p. (30c).

C. 14. Whittock, Trevor: *An Essay on Poetic Diction.* 1959, 59 p. (30c).

C. 15. Swanepoel, J.: *Europese Ekonomiese Samewerking sedert die Tweede Wêreldoorlog.* 1959, 48 p., bibl. (30c).

C. 16. Broos, J. A. R.: *'n Definisie en Indeling van Modaliteit.* 1959, 47 p (50c).