VIRTUAL ART; USING COMPUTER ARTISTRY TO EVOLVE PAINTING AND SCULPTURE

BY
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Faculty of Fine Art, College of Art and Social Sciences

DECLARATION

I hereby declare that this thesis is an account on my project topic, solely done under the guidance of my supervisors, Mr. G. Y. Annum and Mr. Lee Nukpe, both from the Faculty of Fine Art, College of Art and Social Sciences, KNUST. It has not been presented partially or wholly to any other university of institution in the award of any degree.

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ACKNOWLEDGEMENT

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CHAPTER ONE

INTRODUCTION

Background to the Study

The advent of digital technologies, have brought about an ostensibly ubiquitous and highly expressive paradigms, in various fields of human existence. In the field of art, digital technology is transforming activities such as painting, drawing and sculpture. These transformations are also, creating new forms of artistic expressions such as virtual art, net art, digital installation art, etc. which are also gaining significance as recognised artistic practises.

Presently, people are venturing into global communication networks in information and communication technologies, as well as other media tools to create new aesthetical representation of forms. This is creating the vogue of a new citizenry in the milieu of art, commonly referred to as ‑Digital Artistsø

Thus, within the scope of the articulation of contemporary African Artists, or more specifically Ghanaian Artists, a challenge is presenting itself to the up and coming, to join the few daring pioneers, who are making strides to join this new and creative citizenry in the field of digital art, who create new forms and representation related to the artistic and cultural heritage of their people.

Problem Statement

Since the inception of the Department of Painting and Sculpture the works of art produced under these disciplines have earnestly been pursued in the physical domain, that is, works created are within the laws of physical materials, as we know them. For instance Paintings appear in composite as pigments on canvas, walls, boards, Fresco, etc or Sculpture - carvings, modelled works, casting, assemblage, installation etc. All of which requires the skilful use of actual tools and materials.

The Art of producing Digital paintings and sculpture developed within the traditional and renditional approaches of visual art practice is lacking in resonance for most local African audiences, of which Ghana is no exception. There is, therefore, the need to embrace the numerous finishing extensions of virtual art ó painting and, or sculpture in digital format ó as a fully acceptable genre of the local visual art practice.

Objectives

By undertaking this project the researcher sought to make a virtual art exposition by fusing both the aesthetic and technological potential of computer artistry to create works that show the new dimensions that digital artistry lends to conventional painting and sculpture.

Hence this report depict proof of experimentation, research as well as an exposition in a new dimension that sets innovative grounds in the painting and sculpture practices.

Justification of objectives

The underlining feature for presenting these works; is artistically within the idiom of interactivity by amalgamating the exploratory and functional value of an artistic yet to be adequately explored in the department's pedagogical practices.

As there are easily accessible sites for exhibition of works in digitized format, the virtual realm, within which the project has been executed, is expected not only to offer a significant prospect of making it accessible to a larger public but to make it perpetually available for a longer period of time. Today, global file protocols have been useful in creating the ease of locating such digitized sites and this has boosted teaching and learning at all levels of education, including research.

This project is arguably the first audio-visual reference material in the department, which fused the tenets of the painting and sculpture practice.

Scope and Delimitation

Paintings and or Sculptural works have been created using graphical application software such as Coral draw, Adobe Photoshop, Adobe illustrator, Adobe Premier, Lightwave 3D suite etc. Final renderings including some experimental works have been generated purely with the computer from scratch to finish, and not actual pictorial images. The style is in accordance with the usual traditional approach in both painting and sculpture with themes being Ghanaian or African in context. The final project is an audiovisual document depicting a hybrid of painting and sculpture in a dynamic pictorial transmutation.

Facilities Available

- MFA Painting studios at the College of Art and Social Sciences, Kwame Nkrumah University of Science and Technology (KNUST), Kumasi.

- Central Library at KNUST, Faculty of Art library and The British Council library

- The Internet

- Computer and accessories

- Audiovisual tutorials (for relevant graphical application software)

- Secretarial services

Resources for the Study

Some lecturers, artists and students with enough knowledge in the field were consulted.

Organization of Text (Chapters)

- Review of Related Literature (Chapter Two)

  This chapter borders on the general overview of computers, classification of its types, its History, and its existing global information system. This is followed by highlights on computer art with focus being on the usage of computers as an art medium ówith excerpt on computer artist in Africa and the department. Finally the digital age and the onus it has on visual artist are touched upon.

- Methodology (Chapter Three)

  This chapter covers the whole trajectory outlay of the project. It looks at the materials and tools involved in executing the project, as well as the general procedures; in this case the descriptive method is employed. The description takes the form of a sequential order on how the whole project was done from the stages of idea development to the finish.

- The Project (Chapter Four)

  This chapter is a gallery showing the snap shots of resultant transmutation - the experimental and final works, which is a hybrid of painting and sculpture. This is tagged with the general analysis, views, comments, criticism and, or appreciation.

- Summary, Conclusions and Recommendations

  The entire outcome is summed up here, leading to various conclusions, the next is, the final recommendation and then as a wrapping up the bibliography.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

As technology evolved slowly through the ages of human existence, various forms of Art have also dominated the chronological passage of time. In this age, the dominant force gaining magnitude has been the creative fusion of these two worlds of art and technology. Interestingly, the backdrop medium of this force, which is fast growing into a necessity, is the computer. Its bearing in manøs life can be said to have gained inordinate vogue in history within the 20th century when the computer as a machine which uses binary digits electronically to store and process information was used in diverse ways to facilitate the operations of certain indispensable machines in human endeavours, hitherto, done manually or by some other means.

Computer by definition can be said to be a machine that stores and processes data. Fundamentally there are two types: the **Digital** and **Analogue** computer. The basic differences between these two are that, in a digital computer, some of the information is distributed throughout large sections of the system rather than localized in specific places. Analogue computers use mechanical changing variables whiles the Digital computers break the data into binary forms i.e. a series of zeros and ones. An example of a simple analogue mechanism is the Mercury thermometer. Presently, however, it must be noted that virtually all

computers in use are basically digital in nature. Today, companies, individuals and institutions use digital computers in many ways.

It is the face of this pervading and indispensable use for digital technology that this epoch, was consequently labelled as and accepted in many intellectual circles as the ―digital age‖

One US business executive and writer Nicholas Negroponte once asserted prophetically that like a force of nature, the digital age cannot be denied or stopped. It has four very powerful qualities that will result in its ultimate triumph: decentralizing, globalizing, harmonizing, and empowering.

As visual artists these four very powerful qualities are making indelible marks as we ply our professional pursuits as painters and or sculptors and creating unlimited advantages for Art, be it in its visual literary or performance context. It is decentralizing the arts in essence by creating a common media for which artists in whatever field of expertise can take advantage of.

Brief History of Computers

Looking at the original intent from which the computer developed, it is obvious that it was not initially intended to be a medium for art expression. It is in a school of thoughts, that, the idea for the development of a machine like the computer could have developed from the abacus. The abacus as an instrument dates as back

far as 2000 BC and it is believed to have been invented in Babylonia. It consists essentially of a tablet or frame bearing parallel wires or grooves on which counters or beads are moved. It is usually seen as a plastic or metal frame with beads on parallel wires. These beads moved in accordance with given set rules, aiding calculations. Many ancient civilizations used the abacus. In ancient Roman culture, it was a sand-covered wax table, marked table or grooved table or tablet. A simplified form of the abacus was used in medieval England. It is still used in China and Japan. And sometimes it is used in most elementary school as a ‑start upøcalculating device in arithmetic. (Soukhanov, 2001)

The earliest attempt to build a digital computer was by Blaise Pascal, in 1642. It simply added numbers entered with dials. He was followed by Gottfried Wilhelm von Leibniz who in 1671 invented a computer that was built in 1694. It could add and multiply, though the multiplication process was only possible by changing some components of the computer. Charles Babbage in 1822 developed a model of a computer he named õdifference engineö. It was supposed to be a general purpose, fully program-controlled, automatic mechanical digital computer later named õAnalytical Engineö. This model machine operated automatically by steam power and required only one person to be present in running it. By 1890 automated computing in the form of devices, which could automatically read information that has been punched into card, had been built by Herman Hollerith and James Powers. These were in vogue for a long time, even while J. V. Atanasoff, a professor of physics and mathematics at Iowa State in 1937 built a machine that helped solve systems of partial differential equations. John P.

Eckert, John W. Mauchly and their associates at the Moore School of Electrical Engineering of University of Pennsylvania built a high-speed electronic computer known as ENIAC (Electrical Numerical Integrator and Calculator). This was the first general purpose programmable electronic computer. (Soukhanov, 2001)

From then on major advances were made in the development of the computer. These came in the form of components of the computer and peripherals that made the computer relatively high in reliability. These technical discoveries quickly found their way into new models of digital computers.

It is Charles Babbage¢s Difference Engine developed in the 1820¢s that is, however, considered by many to be the direct forerunner of modern computers (Fig 1). This is because its key concepts can be found in many modern computers. It is believed that a later idea for this analytical engine would have been a true programmable computer if the technology of his time had been able to build it effectively.

Figure 1: Charles Babbage's Difference Engine (Soukhanov, 2001)

Chronologically a lot of processes and concepts have been digested, applied and experimented with to bring about the computer as we have it today. In essence it is now believed to be one of the gadgets fast growing into becoming an indispensable machine in our everyday life linking art and technology as the moving force of our human existence.

The account of the handling of the computer as an art medium can, however, be traced to 1956 when Ben Laposky, a mathematician and an artist, was motivated to investigate and try out with the computer as a means of producing art works, having come into contact with abstract geometric painting, cubism, synchronism and futurism.

John Whitney Snr another pioneer of computer art, in 1958 used an analogue computer to make art animation; he described his works in terms of harmony. This is in relation to the harmonies that inspired or informed the renaissance and religious painters of history in the western world; Whitney tried to utilize the computer to visualize this. Jackson Pollock another computer art pioneer showed influences of Dadaism and the shamanistic art forms of Native Americans.

Herbert W. Franke who was born in Vienna in 1927 is also considered as one of the pioneers in computer artistry, as well as one of the most important German science fiction authors. He is active in the fields of future research, cave research as well as computer graphics and digital art.

Franke studied physics, mathematics, chemistry, psychology and philosophy in Vienna where he was born. In 1950 he did his doctorate in theoretical physics by writing a dissertation about electron optics. In 1957 he actively began work as a freelance author. Franke attended numerous art shows the most prominent one being the Siggraph Art Show in Orlando and was a juror at prestigious cyber festivals, the most prominent being the õVideoMath Festival" Konrad Zuse-Zentrum, Berlin. Moreover he took part in innumerable performances and presentations. (Kopplin, 2002)

The well-known weekly German newspaper "Die Zeit" labeled him as "the most prominent German author writing Science Fiction" who made pioneering steps in digital artistry.

The first computer art competition is believed to have been held 1963; this was funded by the US Journal Computers and Automation. In the same year the first computer generated film was exhibited by Edward Zajec (Bell Labs, US), while Charles Csuri made his first computer generated artwork in the US. Further exhibitions and works by various artists were on display and available till 1965, when the first three public exhibitions of computer art were held, these were, *Generative Computergrafik*, held at Studien-Galerie des Studium Generale in TH Stuttgart, opened by Max Bense (Germany), Feb. 5-19 1965, *Computer-generated pictures*, by A. Michael Noll, Bela Julesz. Howard Wise Gallery, New York (US) April 6-24 1965 and finally, *Computergrafik*, by Frieder Nake, Georg Nees at the

Galerie Wendelin Niedlich, Stuttgart, opened by Max Bense (Germany) Nov. 5-26, 1965.

Some remarkable progresses in the computer art field were the procurement of Csuri's ̶Hummingbird ̶by the Museum of Modern Art (US) for its permanent collection in 1968. The publishing of ̶Generative Computer-Grafik ̶, by Georg Nees, the first published doctoral dissertation on computer art. This was submitted to the Universität Stuttgart Germany. In 1971 the world ̶s first museum based solo exhibition of computer generated art; was organized by Manfred Mohr, Musee d'Art Modern, Paris, France. Later on and in 1988, computer programs such as Qantel Paint box, Paint System and Amiga were invented and used by various artists. The First International Symposium on Electronic Arts was held in Utrecht Holland. In 1998 Wolfgang Lieser created a digital art museum.

Though the creation and manipulation of graphic images by means of a computer pervaded the first attempts to use the computer as an art medium, it was basically two-dimensional (**2D**). During the mid eighties, with the rise of micro ̶computing, sculptors, architects and designers began to produce 3D images of their art projects. The development of programs and formats for these types of images encouraged the vigorous growth of virtual sculptures without a truly noticeable upgrading of art instruction, or any serious interest from art critics, who could have at least tried to prevent these rapid changes that are being brought about in the practice digital sculpture.

Digital sculpture has been referred to in earlier years as, õinfo sculptureö (Vitkine and Roignard), õRobo sculptureö (Lavigne, 1988), or õTelesculptureö (Lavigne and Vitkine, 1995), because it is possible to create in one location and to operate a machine by remote control for manufacture in another. The first transcontinental Tele-sculpture occurred in September 1995 during the preparations of inter sculpts, a two-year Teleóconference exhibition between Paris and Philadelphia were devoted to these new disciplines. Christian Lavigne defines a cyber sculpture or virtual sculptures as a nonómaterial digital sculpture presented in the form of 3D image either locally or via the Internet. When several virtual sculptures are collected it is called a virtual gallery. On the web, virtual sculptures are either seamless sequential images that present all angles around the objects (3D view) or truly, 3D objects described in VRML (virtual reality modelling language) code form which any view can be chosen.

In 1992 single artists begun to form groups. Bruce Beasley, Rob Fisher; Tim Duffield and David Smalley founded the Computers and Sculpture Forum (CSF) in the USA. Christian Lavigne and Alexandre Vitkine founded France Ars Mathematica in the same year, and in 1993 Intersculpt, a biennial computer sculpture exhibition, conceived by the same artist, was organized by the France organization Ars Mathematica. The groups have by now collaborated on several events. Artist then went online with virtual galleries of works in VRML on the internet, or to virtual sculpture park of DAAP founded in 1996 on ‑active worldø (a metaóworld where one can õwalkö through with the presence of an avatar and

converse with other visitors) by Derick Woodham, sculptor and professor at the University of Cincinnati College of Art. The exact date or year that ushered in the vogue of digital art like the birth of any art form or artistic technique is not known and might even be a fruitless venture. It is safe, however to say that the 1990s is the decade when digital/ virtual sculpture officially began to exist; even though it had its roots in earlier experiments.

Today, most digital sculptors (This term is used to describe all sculptors who use the computer at any point in time to help create their art, be it virtual, or traditional tangible art works) use computer tools to conceive, visualize and present their projects that will eventually be traditionally realized. The software can be specially adapted to engineering and architecture such as CAD (Computer Aided Design) softwares e.g. AutoóCAD, or the softwares can be relatively more flexible, such as the ones used by artist e.g. Rhinoceros 3D. Most sculptors, however, use more than a single software. The work to be done, determines the software the artist will use to sketch his idea. For example the artist Paula Castillo, born and raised in Belen, New Mexico, draws large-scale metal form in Auto-CAD before construction. This is because her works are mostly wooden and metal constructions and their large dimensions; make her sculptures more architectural and thus the use of CAD software. Luckily, most software programs, can receive an importation from other softwares to 3D Studio Max for rendering.

Leading sculptor and landscape architect, Tim Duffield (USA) digitally designs

gardens with sculptures, fountains and furniture, then, creates realistic animations to better inform his clients. Daniel ó Jean Primeau (Quebec) on the other hand, models by computer, the growth of his õparasitic treesö, trees that absorb within their trunks various objects against which they grow e.g. wired fence walls, forgotten tools etc. With the 3D software, the sculptorsø limitations are almost software. 3D Studio Max seems to be the most widespread while scientifically trained artists willingly use Mathematica.

Although most of the artists are users rather than creators of the technology they employ, they have an influence on its development. There are alpha ó testers, beta ó testers and all grades of testers and all grades of tests made up of mostly artists who test the prototypes of 3D input devices, games and all types of art softwares.

The softwares companies contact top computer artists to implement ideas in their product. Artists are contacted at almost every stage of software development even if their contribution may be more conceptual and aesthetic than technological. Of course there are also artists who are computer scientists and software developers, but they still contact the real users of the art softwares.

Interestingly, though computer artistry is lending alternate forms to artistic expression, the advent of the extensions of 3 Dimensional technologies has made its development more inert when it comes to the visuals and hence the need for a hybrid. However, within the face of the rapid development in digital technologies

there seems to be a magnitude of surprises yet to be unearthed.

It is soothing to know that, in the exponents of this creative citizenry, Africa is not left out; a well-known figure is in the person of Achayeleh Debela. He was born in 1949 in Addis Ababa, Ethiopia in the Merkato neighbourhood known as Teklai Biro. Acha Debela had a difficult childhood but the tenacity and doggedness to break the boundaries of expression innate in him as an African, helped him anticipate his dream as well known exponent in computer artistry. Today, he is a Professor of Art and Director of Computing in the Center for Arts, North Carolina Central University, Charlotte, North Carolina. It was during his association with the College of Art that helped to accentuate the notions of Digital Artistry, which was already trickling into the pedagogy of the Department of Painting and Sculpture, College of Art, Kumasi, Ghana. Today, another known personality who is making very brave strides in the usage of computer artistry to complement his work as a professional practicing artist is in the person of Godfred Y. Annum.

An Overview of Computer Art

As a result of the rapid development that pervades this field, it is always lending itself to new essences, however, **Wikpedia** an encyclopedia on the World Wide Web tries to advance a definition for computer **art** as õany art in which computers played a role in production or display of the artwork. Computer art is by nature evolutionary, it relies on rapid changes in technology and software for the substance of its creative work. With so many traditional disciplines integrating

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digital technologies, the lines between traditional works of art and new media works created by computers continue to blur. Defining computer art by its end product proves to be quite difficult, the finished work can exist as an image, sound, animation, video, CD-ROM, DVD-ROM, Web site, algorithm, performance or gallery installation. The only true definition of computer generated art, can be found with the creator, a person who, in fact, uses the computer as his or her primary tool.

Computer art in itself is also divided into two main parts-: computer generated and computer aided art. Computer Aided art means that, the computer is only a very powerful tool controlled and used by the artist and the work is created by humans through the usage of a program. Computer generated art means, creating artworks using autonomous processes with no direct human control. The role of the human is to create the process, in that the person develops a computer program to start the process and to make the selection of generated works. Pure computer generated artworks are not influenced by any kind of artist emotions. The program can be run at any time and space. Under computer generated art, we have generative art, algorithmic art, random art, software art, artificial art, mathematical art, cellular automaton art and fractal art.

For the purposes of this project it is important to note that, generally the terms computer art and digital art are sometimes used in synonymy with each other.

The utilization of the computer as device or medium in the painting and sculptural practice, however, are basically just a part of computer or digital art.   This

definition is put forward for **digital art**: õĭ art that uses digital technology in any of the three ways: as the product, as the process, or as the subject. The product way means that, the final form is digital in nature, the process way, means that, in the process of creation, digital technology is used and the subject way, means that digital technology controls the depicting machineö.

According to the Wikpedia Online encyclopedia this form of art is referred to as, art created on a computer in digital form. The term is usually reserved for art that has been non-trivially modified by the computer. Text data, raw audio and video recordings are not usually considered digital art in themselves, but can be part of a larger project, since the computer is merely the storage medium or tool which is used to create the work. Digital art can be categorized into six main fields, namely;

Computer Generated

Digital art can be purely computer-generated, such as fractals. This is usually Artwork rendered from models created by the artist as included in Computer-generated (CG) art, CG artwork and Computer graphics software. In some of these applications, the models are sometimes already incorporated in the software by the programmers.

Digital Illustration

Artwork created using, generally, vector graphics software, and vector-based tools. Digital illustrations can sometimes be done using either a mouse or graphic software.

Photography and Cinematography

Most often, this Artwork is created from an image or images taken from another source especially through the camera which may then be manipulated. Sometimes images can also be obtained through scanning. In this vein examples include photography, Movie Special effects, Digital imaging, and Photo manipulations.

Game Related

This is primarily Artwork that relates to computer games. Under this is Video game design, Artistic computer game modification, Demoscene: A subculture that concentrates on the making of digital art scene and, or Computer art scene which is also another subculture with many parallels and ties to Demoscene.

Digital Painting

This is an emerging art form in which traditional painting techniques such as watercolor, oils, impasto, etc. are applied using digital tools by means of a computer, a digitizing tablet and stylus, and software. Digital painting differs from other forms of digital art and computer-generated art, in particular, in that it

does not involve the computer rendering from a model. The artist uses painting techniques to create the digital painting directly on the computer.

The main difference between digital and traditional painting is the non-linear process. That is, an artist can often arrange his painting in layers that can be edited independently. Also, the ability to undo and redo strokes frees the artist from a linear process. But a digital painter must employ many, if not all, of the techniques and study of a traditional painter. The digital artist has at their disposal several tools not available to the traditional painter. Some of these include: a virtual palette consisting of millions of colors, almost any size canvas or media, the ability to take back mistakes, erasures, pencils, spray cans, brushes, combs, and a variety of 2D and 3D effect tools. A graphics tablet allows the artist to have very precise hand movement simulating a real pen and drawing surface.

Digital painting is a computer-based work whose original is of virtual nature. It is created in similar fashion to non-digital paintings by means of software.It is a new field of artistic exploration that brings not only an original formal construction but also a vibrant conceptual approach to the visual arts. Due to the great flexibility of the digital age this work can be instantly displayed at a universal level.

Digital Sculpture

This is also a transpiring art form in which objects are created in the round, that is, it can be viewed from different points. The rubrics of artist who ply this course are dependent on the concepts of dimensions.

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The *Oxford English Dictionary (OED)* defines sculpture as ÷...that branch of fine art which is concerned with the production of figures in the round...øSo what does "in the round" mean? The *OED* gives this term as the definition to three-dimensionality. In order to understand sculpture it is necessary to look at what the term "three-dimensional" means within the known philosophies of dimensions.

- **One-dimensional**

  The Oxford English Dictionary defines one-dimensional as having, or pertaining to, a single dimension... An example of a one-dimensional object would be a line that extends in only one direction. True one-dimensionality cannot be represented visually, but a good way to try to visualize the concept is to picture a line. It starts at a point in space and extends infinitely in one direction. The next step is to examine two-dimensionality.

- **Two-dimensional**

  The Oxford English Dictionary defines two-dimensional as having or appearing to have length and breadth but no depth. This is represented mathematically on an x, y grid, and visually as drawings. Cartoons are good examples of two-dimensionality.

- **Three-dimensional**

  The Oxford English Dictionary defines three-dimensional as having, or appearing to have, the three dimensions of length, breadth, and depth. This is represented mathematically on an x, y, z grid, and visually as three dimensional (often physical, tangible) objects. Another important aspect of three-dimensionality is the fact that the viewer can experience the object from many different points of view. It is this essence of three-dimensionality that, is serving as a backdrop for the creation of objects that can be viewed in the round in digital space and hence digital sculpture.

  The term õ**digital sculpture**ö, covers three different activities that can be complimentary:

  1. Creation and visualization by computer, of forms or constructions in three dimensions (3D computer models or digital models).
  2. Digitizing real objects and their eventual modifications made possible by computer calculations.
  3. The production of physical objects by numerically controlled machines that are used to materialize the synthetic images (Rapid Prototyping techniques) either subtraction or addition of material.

Electronic Music and Code Poetry

This is also another form of digital art though not in the visual form.

Works of Selected Digital Painters and Sculptors

Daniel-Jean Primeau

Virtual Time:
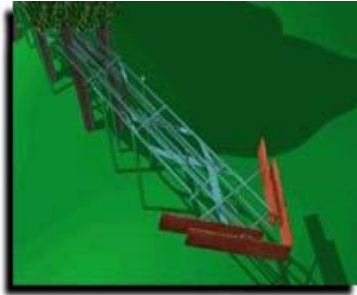
Figure 1a: Primeau's Millennium Project Project

Figure 1b: Primeau's Millennium

The Gourmand tree project (selected captions):

Figure 1c: Primeau's Gourmand tree project project

Figure 1d: Primeau's Gourmand tree

In the artist's words: õCareful observations of trees maturing near obstacles lead me to a refreshing concept in sculpture. While growing, a tree can swallow most objects, thus warping the trunk in a stunning manner, harmlessly.ö

This led to his -Gourmand tree projectø which began in 1992. He uses Computer assisted imagery on simple software(s) to illustrate the trees evolution. From his observation, inferring theoretical model, he designed works in progress as outdoor art for his final works.

Dominic Rouse

Figure 2: Dominic Rousse's Monochrome Composition

In the artist's words:õMonochrome compositions comprising the human form (or parts thereof), interiors (ecclesiastical and otherwise) and occasional landscapes, acknowledging the writings of Franz Kafka, Philip Larkin and Friedrich Nietzsche with obeisance due to M.C. Escher, Salvador Dali and Rene Magritte; being attempts to convey anger, heartache, confusion and hatred (that most potent of emotional cocktails) and their antidotes: obsession and desire the highest forms of which, despite the prison of our existence, somehow manage "to prove our almost-instinct almost true: What will survive of us is love.ö

Achameyelah Debelah

Spirit at the Door
1992
Digital image cibachrome print
68.5 x 48 cm. (27 x 19 in.)

Scarification II
1991
Digital image cibachrome print
48 x 66 cm. (19 x 26 in.)

Song for Africa
No date
Digital image cibachrome print
100 x 74.5 cm. (39 x 29 in.)

The Priest
1990-91
Digital image cibachrome print
40.5 x 50.8 cm. (16 x 20 in.)

Collection of the artist;
courtesy Contemporary African Art Gallery,
New York

Kenneth Snelson

Figure 3: Snelson's 'Polescape'

From Kenneth Snelson's own article –The Lyricism of Structureø in the Sculpture Magazine of October, 1999, it can be deduced that, his work poses the question of how scientific knowledge may be translated into aesthetics, and whether there are possibilities for new visuals without simple visualization. His sculptural work creates a dialogue on the interaction between the actual and the hypothetical - which potentially is of great benefit to both the arts and sciences. By pursuing scientific interests with artistic methods, Snelson has been probing the nature of representation itself and the way artistic and scientific models of representation both reflect and structure the awareness of our culture.

The innovation is not only in the technology, but in the collaborative aspects of their work. Digital media lends itself to sharing and augmenting by a creative effort similar to the **open source** movement, and the **creative commons** in which users can collaborate in a project to create unique pieces of art.

In his dissertation ―Rethinking Learning in the Digital Age‖ Mitchel Resnick of the Media Laboratory of the Massachusetts Institute of Technology, made an assertion that,

> ―The proliferation of digital technologies has accentuated the need for creative thinking in all aspects of our lives, and has also provided tools that can help us improve and reinvent ourselves. Throughout the world, computing and communications technologies are sparking new entrepreneurial spirit, the creation of innovative products and services, and increased productivity. The importance of a well educated, creative citizenry is greater than ever before.‖

In this vogue of creative citizenry the artist‖s empowerment would be complete and global, in that the wake of digital technology brought with it a lot of graphical interfaces which needs a fusion of artistry and technology moulded with creativity to bring into fruition. Thus a painter / sculptor who is abreast with how to position him or herself within this fusion would definitely be empowered to become the indispensable link between art and technology in this age of ―digital technology‖

An Overview on Computer as a Background for the Explanation of

Technical Terms

A computer performs its tasks such as calculations, electronic communication or artistic manipulation under the control of a set of instruction called **program**. Programs or the set of instructions usually reside within the computer and are retrieved and processed by the computer electronics. The program results are stored or routed to output devices such as video display monitors or printers. Computer performs a wide variety of activities reliably, accurately and quickly.

The physical computer and its components are known as **hardware**. Computer hardware includes the **memory** that stores data and program instructions; the **central processing unit (CPU)** that carries out program instructions; the input devices, such as a keyboard or mouse, that allow the user to communicate with the computer; the output devices, such as printers and video display monitors, that enable the computer to present information to the user, and **buses** (hardware lines or wires) that connect these and other computer components. The programs that run the computer are called **software**. Software generally is designed to perform a particular type of taskô for example, to write a letter, to display and modify a photograph, or to direct the general operation of the computer.

When a computer is switched on it searches for the set of instructions that makes it work. The software or this component that makes the computer work is called

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operating system. The operating systems are given various names by its developers for example Windows, Macintosh, Oracle etc. Operating systems like Macintosh and Windows have **graphical user interface (GIU s),** that, uses tiny pictures or **icons** to represent various files and commands. What performs the tasks is called the **Processor** and it is categorized depending on how fast it is able to perform its task. For instance Pentium IV is faster than Pentium II.

To process information electronically, data is stored in the computer in the form of binary digits called **bits**. Eight bits is called a **byte**. A **kilobyte** ó 1,024 bytes ó can store 1,000 characters; **megabyte** can store about 1 million characters, 1 **gigabyte** can store about a billion characters and a **Terabyte** about 1 trillion characters.

A computer **memory** is what stores the data and it is made up of tiny chips (Fig 5) that can hold millions of information. It is usually categorized as **Random Access Memory (RAM)** or **Read Only Memory (ROM).** The Random Access Memory can be read and changed by the User whilst the Read only Memory can be read only by the computer.
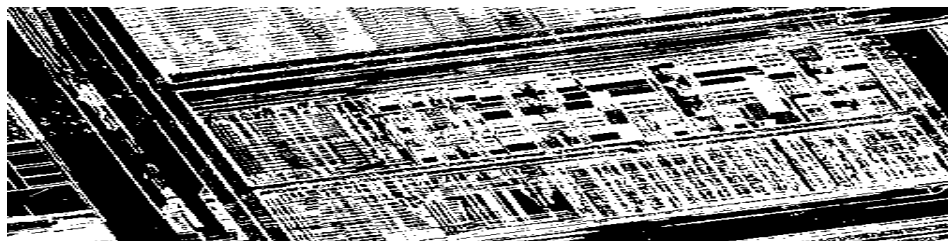

Figure 4: Cross-section of a computer memory

Memory can be stored outside the computer circulatory or external storage devices such as Hard Drives (Fig 6), Magnetic Floppy Disks, Compact Disks **(CD)** [which can store about 700 megabytes of information], Digital Video Disks **(DVD)** [which can store up to about 8.5 gigabytes of information].
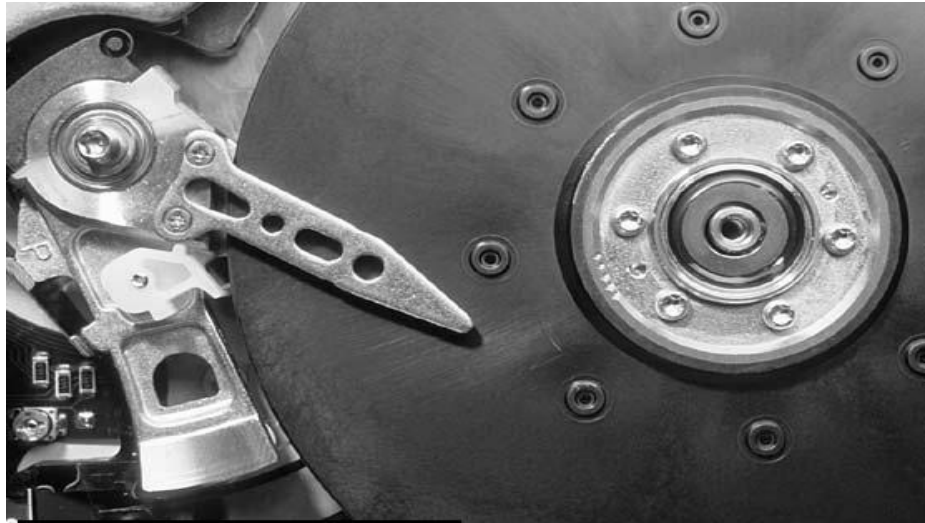

Figure 5: Inside a computer hard drive without the chassis that encases it.

In using the computer as a tool or medium for art the most essential feature to consider is the Random Access Memory (RAM). It is the component of the computer where, all the present working programs of a computer takes place. Until the work is done and saved, it would remain in the RAM. The state and size of a Computers RAM would determine the performance of the computer. A computer with a relatively large RAM is less likely to freeze or suffer system errors during operations. It also can run a wider variety of applications, switch between tasks with greater speed and at the same time keep open more applications than otherwise.

There are four basic types of RAM (That is EDO, SDRAM, DDR SDRAM, and RDRAM). The type of RAM an individual uses is determined by the computers requirement. SIMM, DIMM, and SODIMM, and RIMM refer to the different kinds of boards and connectors used by RAM cards to plug into a computer's **motherboard** or main board. Computersø RAM come in various sizes and that includes 32MB through 64MB, 128MB, 256MB, and 512MB to 3GB. Present generation computers can take RAM sizes up to 3GB. When using your computer for **Digital Art**, the minimum requirement of RAM for most of the software is 256MB.

General Classification of Computer Types

Presently there are many different kinds of computer models. These can however, be classified into three major groups namely;

Pocket computers; These are designed to allow people to keep lots of information close to hand and at any place they happen to be. The characteristics of a pocket computer includes small, light batteries that last a long time so that the whole computer is light and small enough to be carried around in the individualsø pocket. These computers have special operating systems suited to pocket computers. As much as most of the earlier pocket size computer had no full size keyboards, later editions have been provided with this. Another characteristic is

that, most of these computers use special pens and touch-sensitive screens to enter data as well as a number of small buttons or keys.

Laptop computers; The laptop is basically a desktop computer which has the capability of being moved about easily anywhere, though always bigger in size than the pocket computers. The laptop runs all the same software that a desktop computer runs. They have the same types of operating system as desktop computers. Modern laptops have CD-ROM drives and CD re-writers, DVD drives. The screen is usually large Liquid Crystal Display (LCD). Laptops are usually more expensive than desktop computers. They have expensive battery packs. The batteries generally don't last very long and for this reason they have to be constantly recharged. The main advantage of a laptop is that, the person using it can have all the programs and data from their desktop computer on a portable computer.

Micro or desktop computers; There are two main types of desktop computer available, the Macintosh, produced by Apple Computers is usually distinguished by its stylish looks and bright colors. The latest operating system for the Apple Mac (in 2002) is OS X. The other is the 'IBM-compatible' computer based on an Intel or similar microprocessor, commonly known as the PC. This usually uses the Microsoft operating system, known as Microsoft Windows. The latest version is Windows XP. The desktop computer is presently the most common type of computer in use, though recently laptops have began gaining good grounds.

Mainframe or super computers; These computers are used for performing many millions of complex calculations in a short time. They are very large and expensive, mostly owned by organizations and governments. Some of the uses of mainframe computers include the prediction of the weather, handling of bank accounts, holding insurance details and high level research and data analyses.

The Global Networking of Computers Systems

Connecting individual computers to each other creates a **network**. The **Internet** is a series of interconnected network, which is done through a modem or standard phone line, that is, the digital subscriber line. The **modem** is a device and cable that can send and receive both data and TV signals. The **Digital Subscriber Line** (DSL) can send and receive both data and telephone calls at the same time. Sometimes the ordinary Telephone and cable television companies need an upgrade in lines to handle high-speed data transmission.

Each network may link tens, hundreds or even 1,000 of computers enabling them to share information with one another. An organization that has many computers usually own and operate a private network called an **intra-net** which connects all computers within the organizations. To provide Internet service the organization connects its intra-net to the Internet. Unlike public access sometimes the intra-net is restricted to provide security. Only authorize computers within the organization

can connect to the intra-net and this restricts communication between the intra-net and the global network. The Internet does not have a centralized distribution system. It allows connection to any kind of computer network. The Internet has therefore become a computer ó based global information system.

Before it was created it was the brainchild of the U.S. military. Its use, restricted to military personnel and the researchers who developed the technology. It was known as the **APRANET**. It was believed to be what brought about the internet. From the 1970ǿs until the late 1980ǿs the Internet was a U. S. government funded communication and research tool restricted almost exclusively to academic and military uses. The National Science Foundation (NSF) of the United States controlled it. In the 80ǿs the NSF relaxed its restrictions and allowed faculties as universities to use the Internet for research and scholarly activities. It restricted commercial use. By 1995 the NSF ceased its administration. It was privatized, and commercial use was permitted. It grew in popularity as World Wide Web abbreviated **WWW,** as it is now commonly known.

The web consists of programs running on different computers that allow the user to find and display **multimedia documents**, that is, a document that contain a combination of text, photographs, graphics, audio and video. One other way through which people share information is by **Electronic Mail (e-mail)**, which is simply a text-based message sent electronically via a network of computers.

CHAPTER THREE

METHODOLOGY

Overview

The whole trajectory outlay of this comprehensive project had this backdrop; to create digital art formats of paintings and sculpture developed within the traditional renditional approaches of the visual Art practice, as evident in the researcherøs objective. That is a hybrid of painting and sculpture in a vane that replicates an art installation, which, in format, is digitally prone or virtual in nature ówith specificity to the ditties of African Art experience either in theme or approach.

This combination of artistry and technology was to sublime the acuity that surges relentlessly to break the barriers of cultural stagnation within the corridors of expression. As if to say ─Culture is dynamic and susceptible to influence and change especially when it comes to the conventional modes of expression within the Painting and Sculpture discipline.

Research Design

The main research method use is qualitative or descriptive in nature. The approach followed a general survey of the graphical application softwares that was available such as Adobe Photoshop, Adobe Premiere, 3D Max, Lightwave

3D , Corel Draw etc. Some interviews were conducted with experts in the area, to gather varied approaches to using the programs in Painting and Sculpture. This was done to help the researcher understand, choose and build capacity on the appropriate software for the studio work. The experimental method was employed based on the skill built on the survey, to develop and explore the various approaches the researcher could use to evolve painting and sculpture through computer artistry.

The Execution of the Project

The project began with the idea development on the preliminary works through drawings with the appropriate software. The experimental studio work then followed, with a strong focus on the various approaches that the artist could employ in Digital Painting and, or Sculpture. The selected approach, which, bothered on employing a style that could innovatively show, mastery in the technique of exploring the researchers intended themes in Painting and Sculpture, was then used in the final project.

Idea Development

In order to create an epiphany of realities that within the various times and settings happens to be a multiple of alternatives and an application of various qualities in digital art and, or computer artistry, the artist had to acquaint himself with his tools and the relevant software(s).

Medium and Tools

In this project the computer, its output devices, accessories and its software programs used served as tools; and since the output is digital or virtual in nature these selfsame gadgets served as a complementing media.

The personal computer of the researcher was a Dell Table Top Tower computer with an Intel Pentium IV processor of 2.5GHz, 512MB RAM size and Microsoft Windows XP professional, version 2003. The Hard Disk Size was 120 Gigabytes. The only output device apart from the Projector intended for the final exhibition was a 17 inch Flat panel Monitor, also a Dell.

Available to the digital artist, were the various software(s), all of which provide, different uses and capabilities. These were Adobe Photoshop, Corel Draw, Photo Paint, Adobe Premiere and the Lightwave 3D program.

Experimental Work

DRAWINGS

These preliminary works are categorized as drawings. The main intent was to get acquainted with the drawing features of the graphical application software(s); the artists had the intention of using in his final works. These were namely Coral Draw 12, Adobe Photoshop CS and Adobe Illustrator. The elements created, were

done spontaneously with the pure psychic automation of a practicing artist. Thus, these are the rubrics that personify the initial acquiescence and strife the artist anticipated, in exploring the potential that these new media of digital technology, brought to bear upon his already acquired skill as an artist. (Plate 01-15 pg 39, 40)
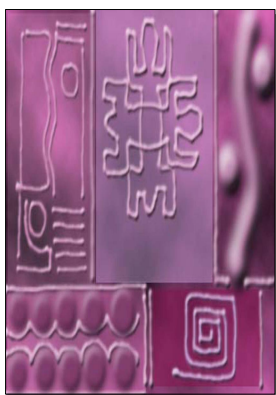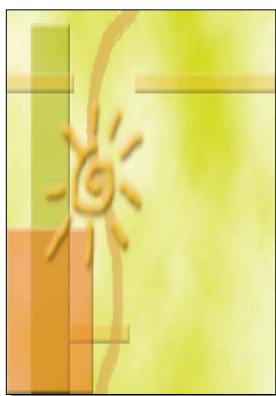
DRAWINGS

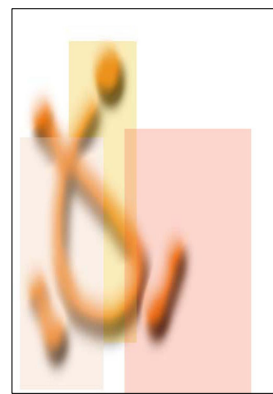**Plate 1: Lines and Embossment**

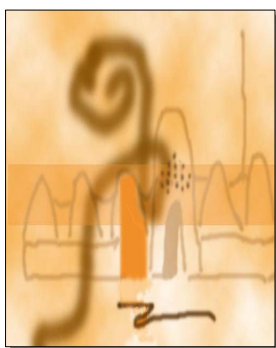

Plate 2: Ambience

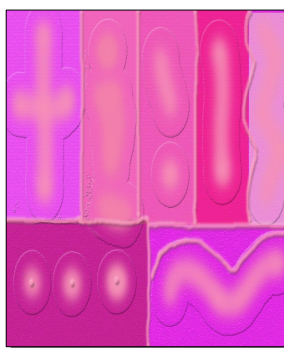**Plate 3: Movement**

Plate 4: Transparency and Opacity
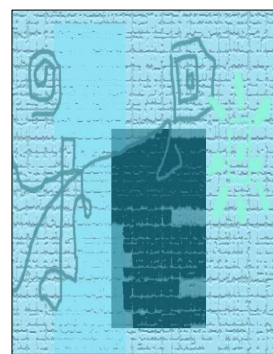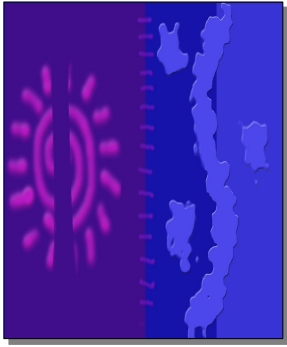

Plate 5: Patterns
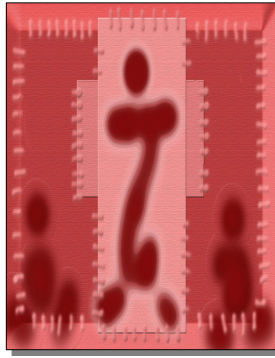

Plate 6: Shaped Texture

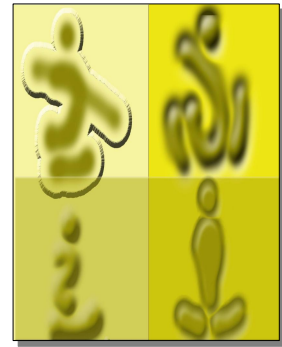**Plate 7: Fusion**

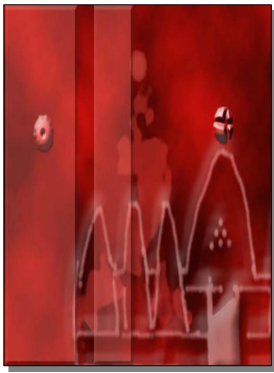**Plate 8: Abstract Seams**

Plate 9: Abstract Action

Plate 10: Sky in Abstract
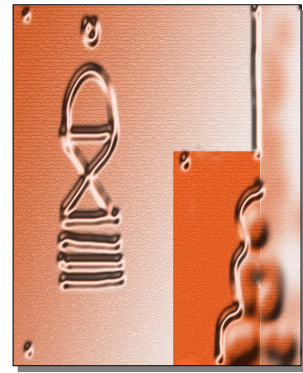

Plate 11: Rider

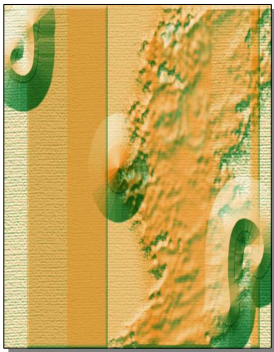**Plate 12: Metallic Melt**

Plate 13: Cones in Texture

Plate 14: Imaginative Symbols

Plate 15: Domes in Shadows

<u>PAINTINGS</u>

Experiment 1.

Objective:

- To fuse snapshots with drawings

Medium and Tools:

- Adobe Photoshop CS.

- Adobe Illustrator.

- Digital Camera (Konica Minolta).

Method:

Emulating the cubist grid structure, this posited a new conception of a picture as a continuous surface on which a painter makes new marks. Pictures were taken with a digital camera and imported into the working area of the application software. The initial alterations were made in Adobe Illustrator and imported to Adobe Photoshop CS. Using the picture editing and drawing qualities of the software elements were drawn to harmonize with the pictures. The colour schemes were then changed to give an ambience that synchronizes with the thematic intent of the artist.

Results:

Two paintings resulted from this experiment. The first piece consists of a bare-chested man shackled in chains and quarantined with a metallic bar. To give the ambience of void and nothingness, the colour scheme was set with an inclination to dark colours, which is almost black with fades of ash. (Plate 16, pg. 43)

The second piece shows a corrugated metallic wheel, scattered with a conglomeration of human skulls set in bright colours of poster finish, which is very suggestive of the temporal and transient nature of life. The background area is in blue, the wheel in brown and cream, spluttered with artistic poster finish in nature. The skulls provide the smoky light creamy fore which is a fair contrast, making the composition reasonably balanced. (Plate 17, pg. 43)

Observation:

Digital pictures could be worked upon to produce works with new pictorial essence.

Plate 16: Slavery

Plate 17: Aftermath

Experiment 2.

Objective:

▪ To fuse digital snapshots with drawings to produce abstract paintings.

Medium and Tools:

▪ Adobe Photoshop CS.

▪ Adobe Illustrator.

▪ Digital Camera (Konica Minolta).

Method:

Using the same concept of a picture as a continuous surface on which a painter makes new marks. Pictures were again taken with the digital camera and imported into the working area of the application software. The initial amendments were made by mingling shape and form with already existing photographs. Using the picture editing and drawing qualities of the application software, the elements introduced were done in such a way that supplanted the graphical features of these photographs with some sort of abstract expressiveness. The colour schemes were sometimes altered using the adjustment options of the software to give it a different feel.

Results:

Two paintings resulted from this experiment. The first painting is engulfed in harmonious browns of different tints and shades with very dark brown grouped

sparingly on the left side. It has a very large patch on its opposite upper side creating some sort of balance. The general pictorial impression that this painting gives is that of an open bark of a tree in a mutt polished finish. (Plate 18, pg. 46)

The second is composed in the hues of bright navy blue, with the impression of broken pieces of a brown wooden mask lurking dauntingly in the background, bringing to life that sort of mythical enigma that is most often associated with masks within the cosmology of most traditional African beliefs. (Plate 19, pg. 46)

Observation:

Digital pictures could be worked upon to produce works with an entirely different essence from its original, in terms of style.
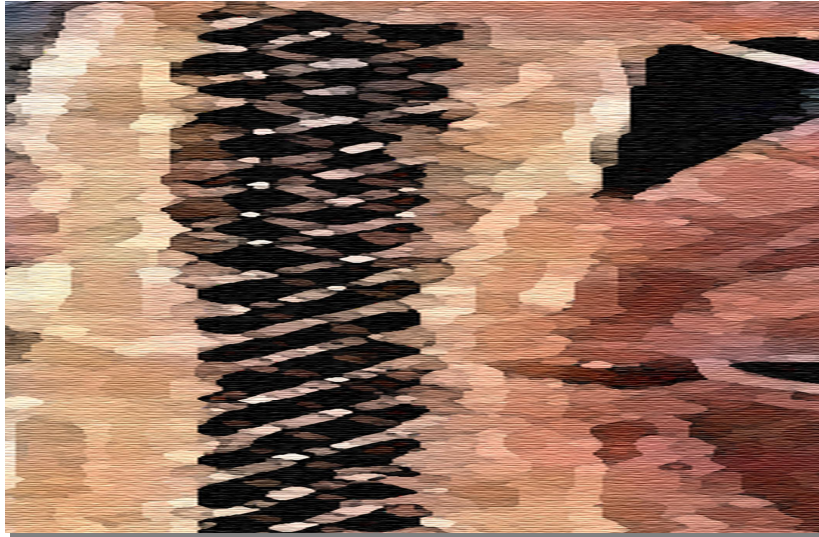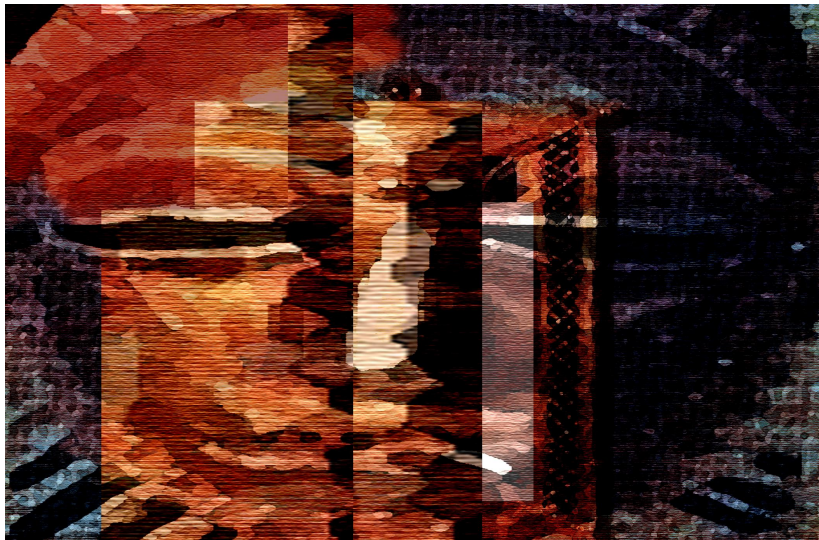
Plate 18: Beyond Recognition

Plate 19: Faces

Experiment 3.

Objective:

- To do digital paintings (impressionistic) devoid of actual photographical referencing.

Medium and Tools:

- Adobe Photoshop CS.

Method:

In this the artist used the same tools synonymous to those that the traditional painter would use namely, the brush, paint bucket, airbrush tool etc. These were selected from the tool palette, incorporated within the interface of the application software. The initial approach was to develop the empty working space subtly with inflected expanses of colour to create the receding landscape. The other elements like trees, stones, were then incorporated in the selfsame way the artist executed landscape paintings on canvas. The opacity of some of the soft elements were sometimes reduced to emphasize the idea of distance on the two dimensional working interface.

Results:

Two paintings resulted from this experiment. The first painting is an azure blue sky with an almost rounded moon overlooking an isolated coconut tree in a

distance, which in totality evokes nostalgia very suggestive of the break of dawn. (Plate 20, pg. 49)

The second is composed in the hues and values of yellow that convey the arid savannah found within the geographical demarcations of the Northern Regional part of Ghana. On the receding landscapes are two baobab trees, an impressionistic expanse of activity in the shadows and a complementing stone on the foreground. To emphasize the pathos of peasant earthiness is the figure of a man in red riding on an elephant. (Plate 21, pg. 49)

Observation:

Paintings can be rendered with the computer with an approach as found within the traditions of the painting discipline.

Plate 20: The Dawn Glory

Plate 21: High Places

Experiment 4.

Objective:

- To do digital paintings (expressionistic) devoid of actual photographical referencing.

Medium and Tools:

- Adobe Photoshop CS.

Method:

Having overcome the initial inhibitions in using the software, the artist delicately applied the options in the tool palette to make a perfectly controlled application of colour on the blank-surfaced working area of the application software, to create paintings with ambiguous allusions. Sometimes different modes were applied to the sweeps of brush, to create strokes with different artistic effects.

Results:

Four paintings resulted from this experiment. The first painting consists of large brush flounce, with transparencies that give the feel of the delicate application of watercolour. (Plate 22, pg. 52)

The second, composed in the scheme of browns, consists of dark drawings in the form of abstracted human shadows. The embossed brown drawings at the top create some form of special balance. (Plate 23, pg. 52)

The third is made up of brush strokes in the likeness of a pigmented paint poured as an overlay on a painted canvas. It follows the colour scheme of vermillion, orange and yellow with their complementing overlays. The inflected expanses of colour seem to be applied economically in disposed planes. (Plate 24, pg. 53)

The fourth can be said to be the embodiment of refreshing delicate contours of brown, yellow, green, cream, blue and black in an unimaginable delicate spread of colour perfectly controlled in an unimaginable fluency in harmony. The dark patches in the work evoke the sense of infinite space. (Plate 25, pg. 53)

Observation:

The combination of the features in various graphical application software(s) can produce almost, if not all the effects given by the renderings of pigmented paint on any physical support; sometimes, with added effect.
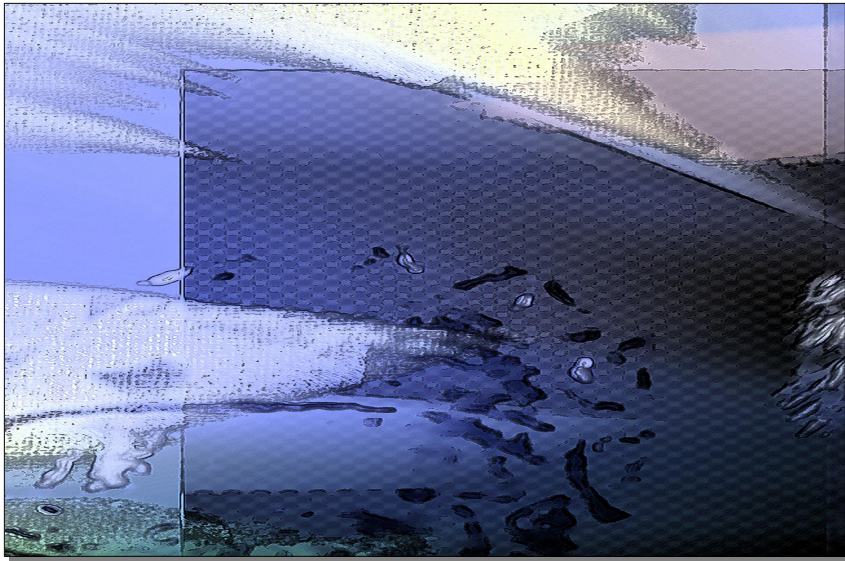
Plate 22: Tuesday

Plate 23: The Lepers Grace
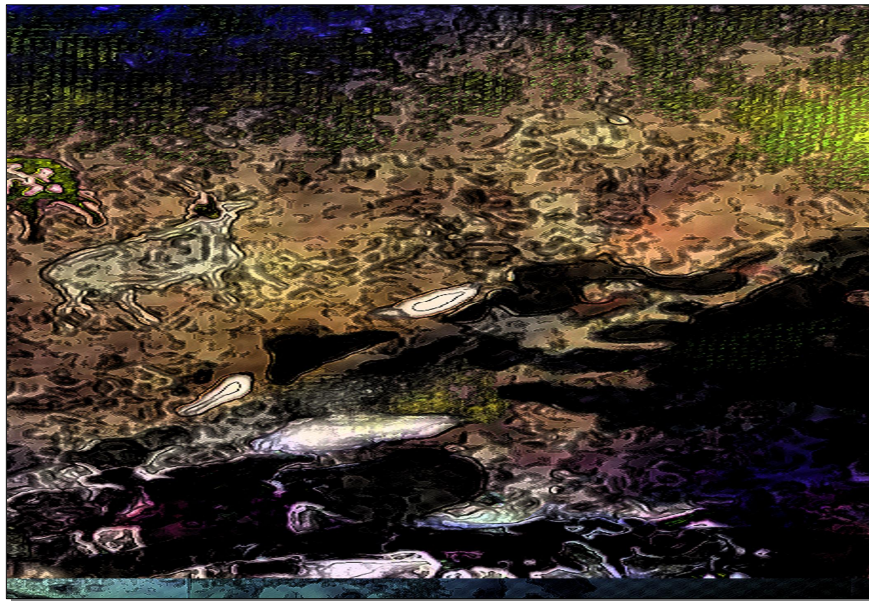
Plate 24: All I See Is You

Plate 25: Mood

Experiment 5.

Objectives:

- To create three dimensional models in digital space ó (Virtual sculpture).

Medium and Tools:

- Lightwave 3D modeller.

Method:

The Lightwave Three Dimensional Software comes in component as two infused software(s), the Modeller and the Layout. The models were created using the additive and subtractive methods as one would use working with the traditional physical tools in sculpture. However, within the features of the software it is made possible through a series of command. Object during the process of modelling can be viewed in different angles through the four view ports of its working interface. (Figs. 6, 7, pg. 56)

After the objects, that is, the masks, stones and *Adinkra* symbols have been successfully created, they were then exported to the layout where the various forms of effects were added including lighting and animated rendering, depending on the angle on which the artist wanted the work to be perceived. Each transitional animation was done separately. And on the average each object took about eight man hours to render. (Figs. 8, 9, pg. 57)

Results:

All the three dimensional models were used in the final project.

Observation:

In digital space, the three dimensional modelled objects had the same potency of visualization as that of sculpture in the round. It even had the advantage of animation.
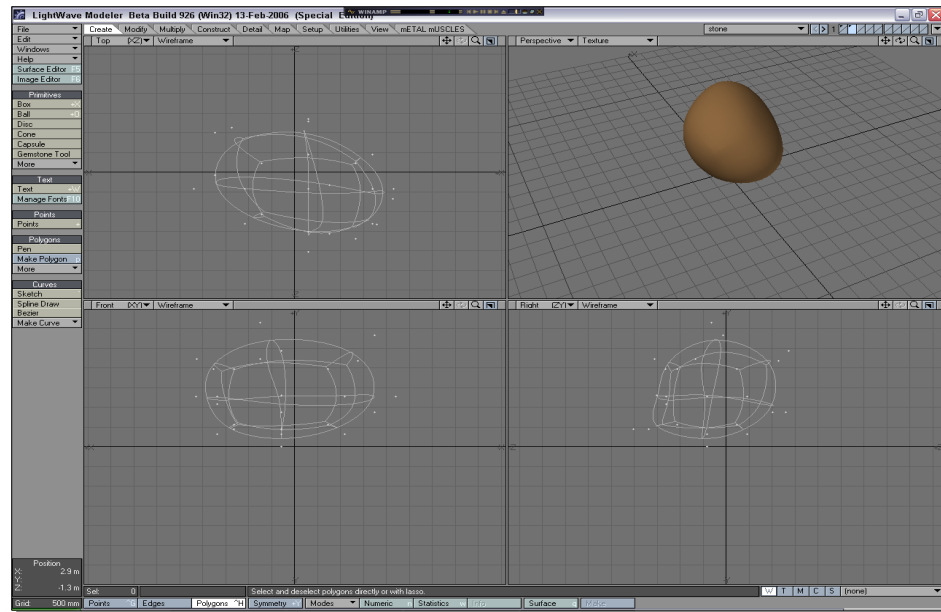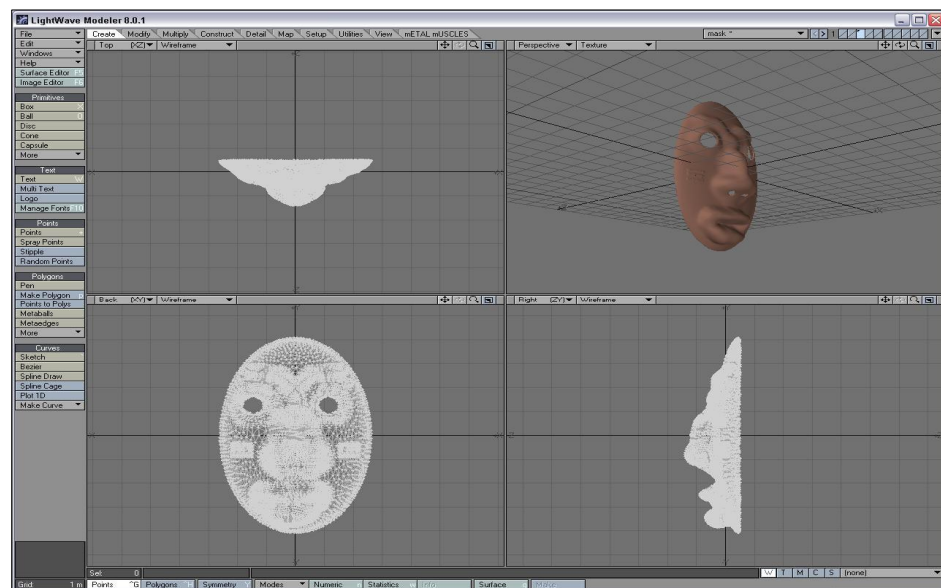
Figure 6: Lightwave Modeller view ports

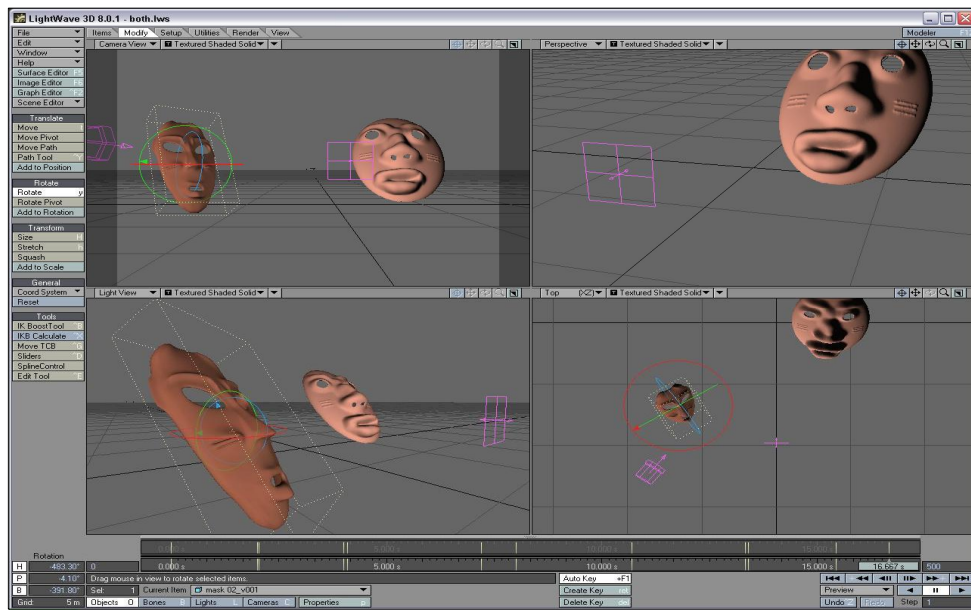**Figure 7: Lightwave Modeller view ports**

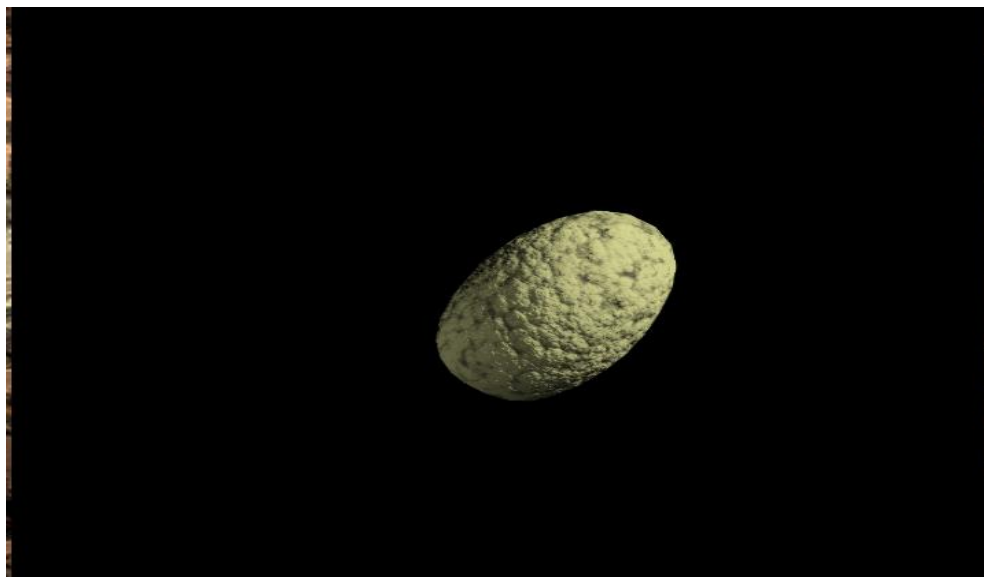**Figure 8: Lightwave layout view ports**

Figure 9: Rendered layout display

CHAPTER FOUR

THE PROJECT

To satisfy the conventional requirements of the painting and sculpture discipline, the final work created welded two major essences; the digital paintings that depicted the landscape drawings and the digital sculptures developed within the traditional rendition principles of the discipline.

The Digital Paintings

The paintings depict landmarks which have a strong bearing to the geographical margins of the people of Northern Ghana; a subject matter yet to be explored adequately in the milieu of digital art. To emphasise the originality of the artist, as well as mastery in technique, the works are imaginary and devoid of direct photographic referencing.

Digital Sculptures

The works are abrupt painterly and sculptural transmutation with the paintings in the background and the three dimensional objects in a beautiful array at the fore. Some of these works had their roots in the experimental works developed with the other element as a compliment for the final works. Its creation follows a combination of two or even all of the methodologies and their complementary software(s) outlined in the previous chapter.

The Digital Paintings

High Places

─High Placesø was created using the Adobe Photoshop application software as a medium or tool. The initial development was done using Adobe Photoshop in similitude to the usual approach of the artist composing landscape drawings on canvas. Hence the tools explored within the Adobe Photoshop working area are the paintbrush, airbrush, paint bucket tool etc.

The white blank working area of Adobe Photoshop CS is stained with the different hues of yellow ochre to emphasise the area of dryness, using the paintbrush tool. The receding impressions of landscapes are done with and edge sharpness of about 90%. The opacity in the brush option was set between 10 and 15 (Plate 26a, pg 61).

The foreground was then developed sing the general principles of perspective to create the impression of distance on the receding landscape by an overlay of light colours (plate 26b, pg 61)

To incorporate into the landscape elements that had peculiarity to the geographical demarcations of the Northern Regions of Ghana, the baobab trees were introduced with the deeper shades of ochre in synonymity (note: using the paintbrush tool and the airbrush tool). The opacity of the different layers was

varied to blend the shades of the various elements i.e. trees, stones etc. (Plate 26d, pg 62).

An impressionistic silhouette of an approaching elephant was then introduced using darker shades of brown to stimulate form. Highlights were introduced systematically and painstakingly starting from the head and then to other parts of the figure until such a time when an almost pictorial realism was achieved (Plate 26e, pg. 62) to (Plate 26g, pg 63).

Finally, the rider in crimson and traditional wear was introduced on top of the elephant- to give the final paintings some animated vigour (Plate 26h, pg 63).

Plate 26a: Initial rendering of landscape with receding impressions

Plate 26b: Landscape with developed foreground

Plate 26c: Painting with developed foreground and other detailed elements

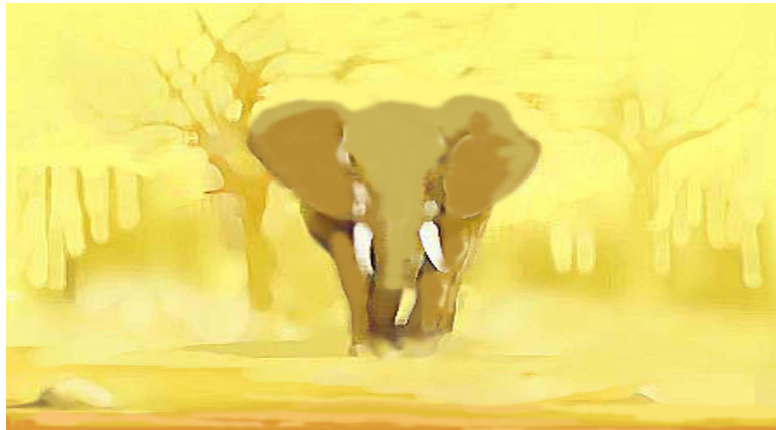**Plate 26d: Painting with a well developed background an foreground**

Plate 26e: Developing the elephant in the painting from its silhouette
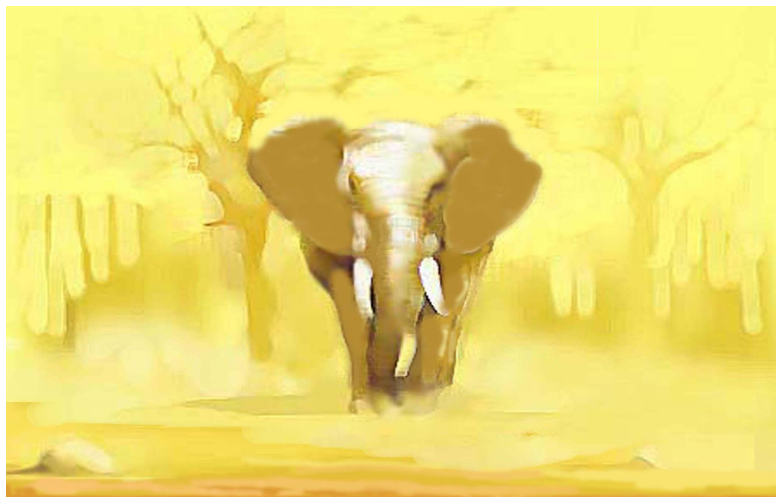

Plate 26f: The elephant's silhouette with detailing highlight

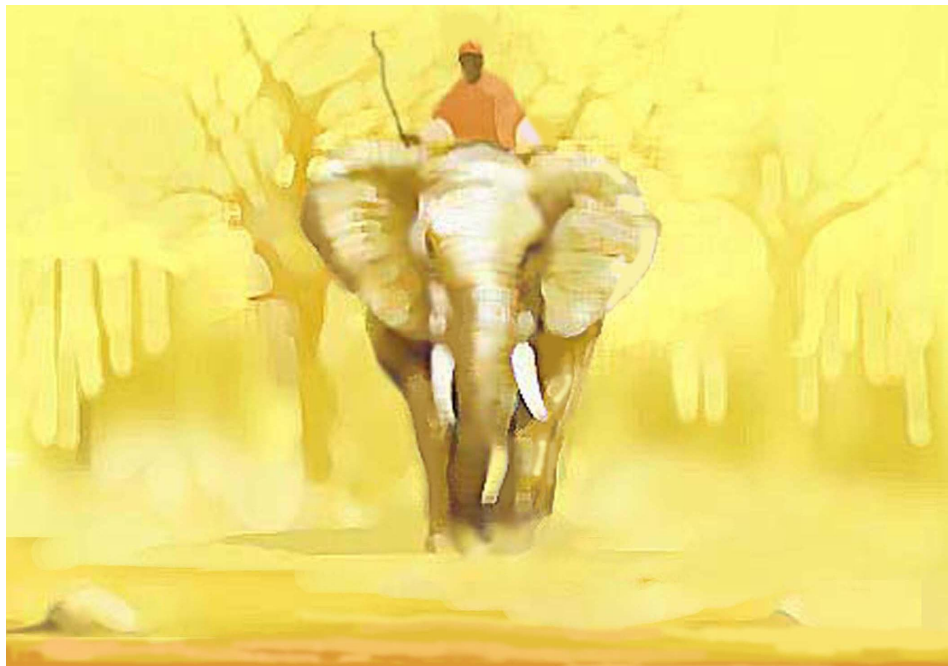**Plate 26g: The final rendering of the elephant in the painting**

Plate 26h: The final rendering of 'High Places'

The Dawn Glory

The painting is also a landscape created entirely with Adobe Photoshop CS graphical application software. In similitude to the previous landscape, the canvas white of the application software was stained with azure blue and the round selection tool was then used with the paint bucket tool to create the dawn of a fading moon. This was done with a shade of luminous blue to create contrast (Plate 27a, pg 66).

The receding landscape was then introduced with the air brush tool with 100% flow and set opacity of about 58%. The seine blue was blended with violets and other cool colours to give the illusion of depth. The impression of the solitary coconut tree was then created with the paint brush tool on the tools palette. Since it was done on a different layer, the opacity was then decreased gradually until it blended into the receding sky (Plate 27b, pg 66)

The mountains in the background were then worked on with the different brush strokes and earth colours to give texture and form (Plate 27c, pg 66). Using the paint brush potion, bold horizontal strokes were introduced with different opacity (ies) to create the foreground. The principles of perspective served as a backdrop in creating the illusion of distance and depth. An amorphous shade of cream was placed on the foreground and different shades of brown introduced to create the impression of a stone on the foreground (Plate 27d, pg. 67).

The selection lasso tool was used in creating the selected form, and the paint bucket tool used to create the colour õblockö on which to introduce the different shades to form the folds on the fabric, (Plate 27e, pg 67) as well as, animate the other parts of the figure. Since it was created on a different layer, the blue tool on the tools palette was used to fuse sharp edges into the general composition (Plate 27f, pg 67).

Using the rectangular marquee tool and the paint bucket, a slender staff was created in a different layer. This was placed in the figureøs hand using the free transform command to fit it into position. The eraser tool was then used to break the sharpness and add contours to the staff. Throughout the composition, the opacity levels were varied to give some transparencies and to give the conventional painterly impression of a water base pigment, which is the favourite media usually used by the artist in his conventional canvas works.

The final painting is an azure blue sky with an almost rounded moon overlooking a lone coconut tree in the distance. Consequently, the painting evokes the ambience very suggestive of the breaking of dawn. The African in his traditional clothing, holding a staff, looks with longing towards the vibrant mountain beyond (Plate 27g, pg 68).
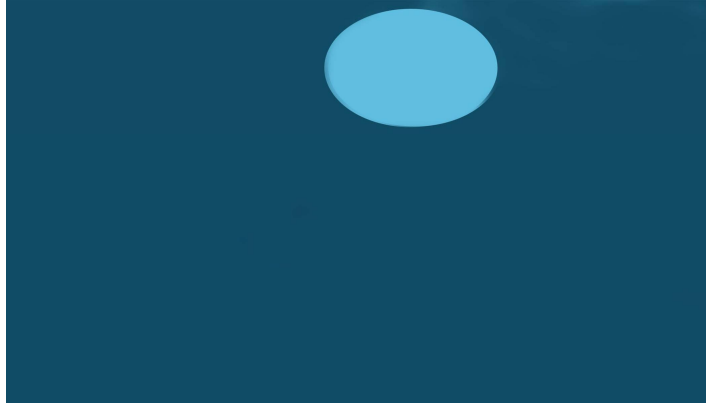
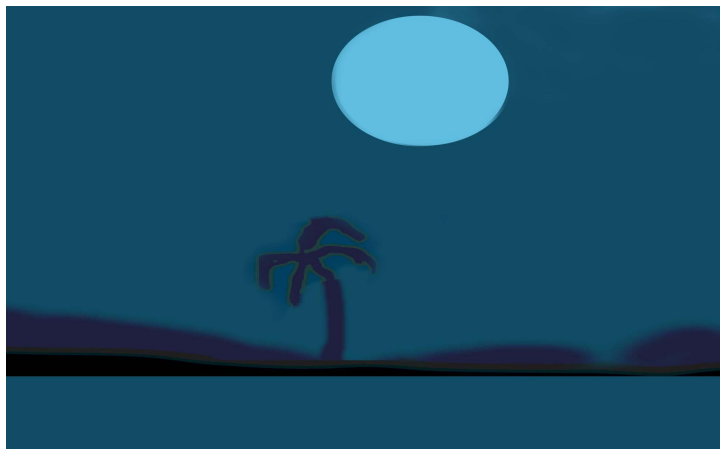**Plate 27a: The initial development of the plane blue sky and moon**

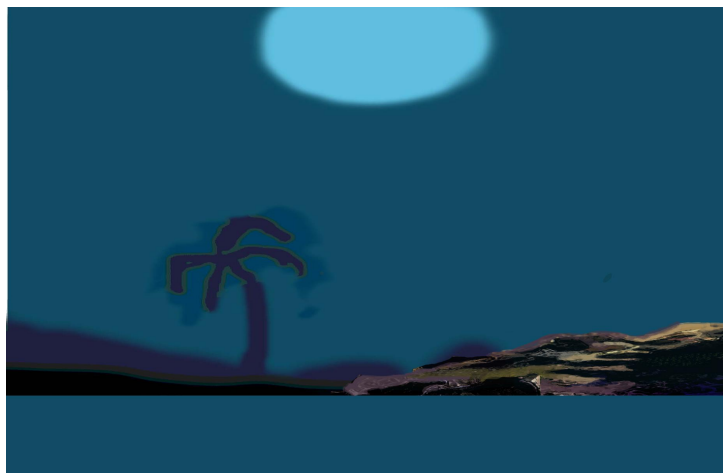**Plate 28b: The lone coconut tree and the receding landscape**

Plate 29c: Composition of the receding landscape with the mountain

66

Plate 30d: Development of the foreground
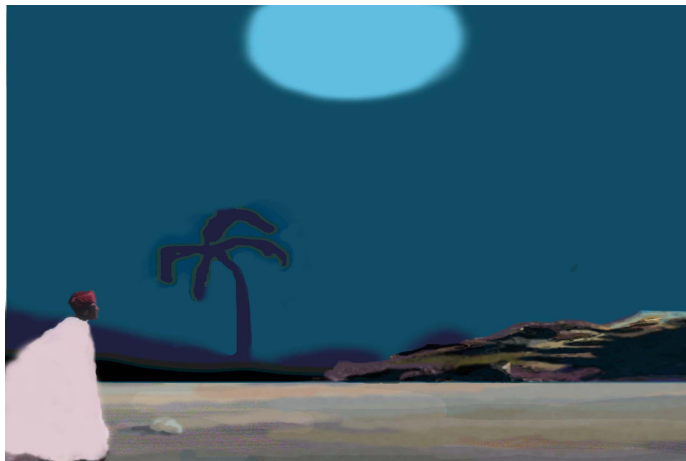

Plate 31e: Initial Development of the human figure

Plate 32f: Detailed human figure in the landscape

Plate 33g: Final rendering of 'The Dawn Glory'

The Digital Sculptures (3D Modelling and Animation)

<u>Method</u>

The backgrounds for the various sculptural transmutations were first developed using the Adobe Photoshop CS. The backgrounds were developed without any photographic referencing. Some were also enhanced work from some of the experimental work. To depict the alacrity of renditions, all the backgrounds were developed using the blank canvas white option of the Adobe Photoshop working interface.

<u>Background 1</u>

The azure blue was used for the sky of the ‑Dawn Gloryø This was without the detailed landscape features or the ensuing human figure. It was just the general azure blue ambiance, the moon and the solitary coconut tree in the distance. The left of the landscape was then developed, drawing an antelope-like skull to the extreme of the digital painting to serve as a motif for the intended 3D models (Plate 28a, 28b pg 71).

<u>Background 2</u>

In a conventional painterly approach using the various options of the brush tool, the new white blank document of the application software was used as the background. The general scheme of reddish brown earth colours were introduced to the left and right of the working area and given the tonal balance of little expanses of blue violets. The white area almost to the middle was left untendered,

but, for some traces of blues that trickled sparingly into it. For this painting, however, and extra feature of the software embossment option was employed. Given the added feature, it made the brush strokes have some two dimensional feel. This was painstakingly employed to draw an imaginary mask that had features similar to that of the ÷Akuabaø Doll. In developing this mask, the technique employed was the additions and subtractions, in similitude, to how a conventional sculptor would mould a relief sculpture work (Plate 29a, 29b, 29c, pg 72).

Background 3

This is an abstracted background with harmonious streaks of golden brown scribbled to depict some interesting amorphous forms (Plate 30a, 30b, 30c pg 73)

Background 4

Having explored a great deal of colour schemes, the Artist set the colours of the software to Gray scale to create some blended patterns using the embossment option. Three background masks were moulded with darker tones into the background. An abstracted chain was then drawn around the neck of the masks, in a vertical array on the background, to emphasize the sense of bondage and pain the artist wanted to develop in the theme (Plate 31a, 31b, pg 74).In developing these background, care was taken not to flood the background with the complementing elements that would conflict with the intended three dimensional models.

Plate 28a: The initial painting adopted for the background

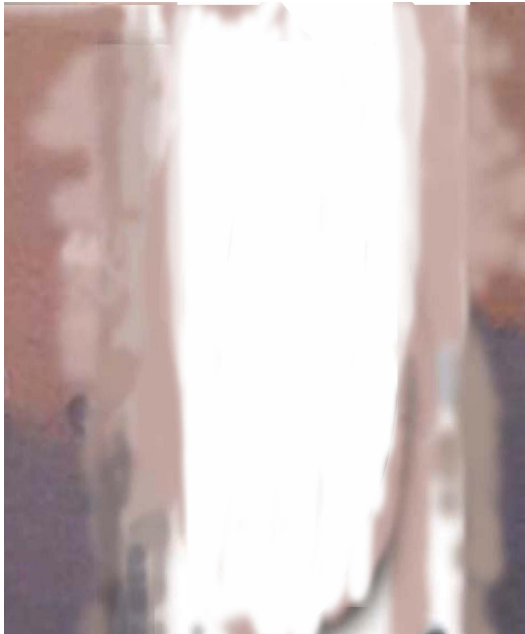**Plate 28b: The background with the complementing drawing**

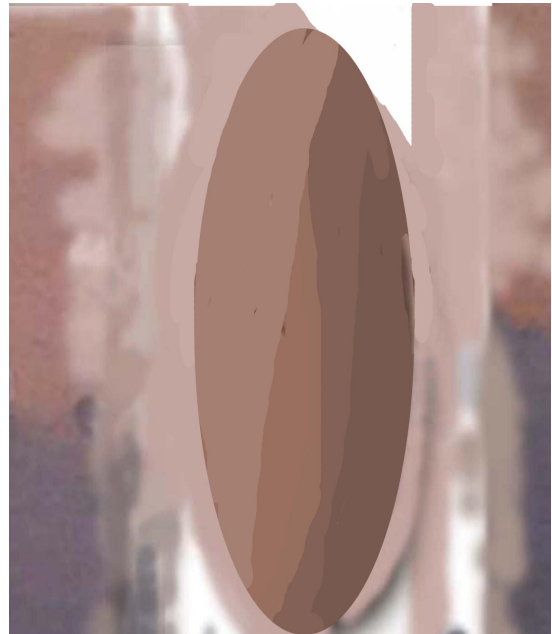**Plate 29a: The initial rendering of background 2**

Plate 29b: rendering the mask in background 2

Plate 29c: Final rendering of background 2

Plate30a: Initial renditions of background 3

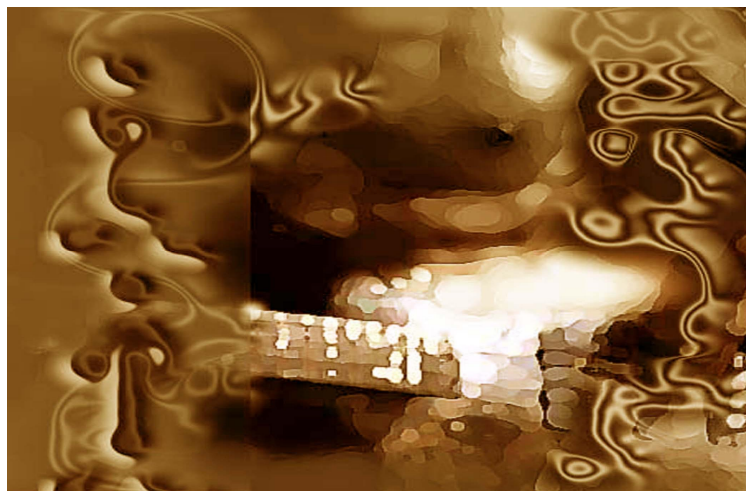**Plate30b: Adding texture to initial renditions of background 3**
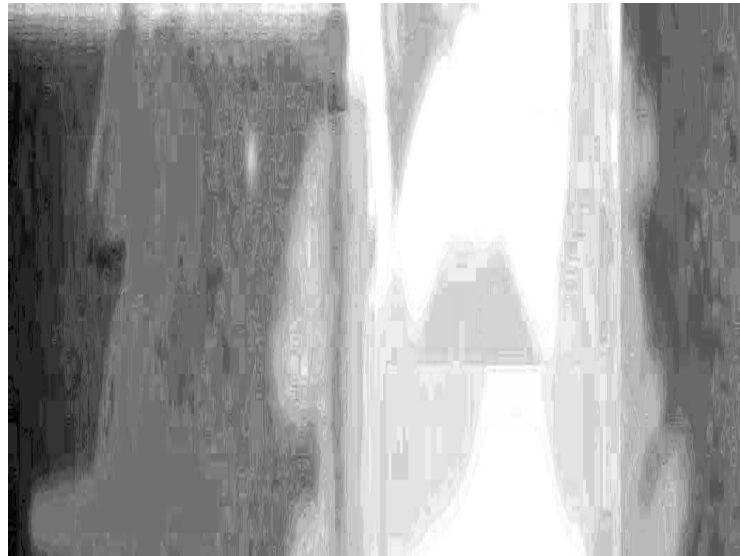

Plate30c: Final rendition of background 3

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Plate31a: Developing the layout of background 4

Plate31b: Final layout of background 4

Developing the Three Dimensional Models

The initial development of the three dimensional models started with the 2brush graphical application software, which, acted as a sort of plug-in for the Lightwave 3-dimensional modeller. The 2brush graphical application software works in a virtual space dimension of 2.5 which makes drawn objects look automatically like relief sculpture pieces.

The objects were then systematically imported onto the modeller interface of the Lightwave 3-dimensional modeller. The extra intricate features were then added or taken away until the gridded objects on the interface reached the desired form. It was then exported to the layout where the lightening and the desired effects were then added to give the complementing colourful effects seen in the final works. The renditional effect finally, had certain colours that had a harmonizing and complementing effect to the backgrounds already cited in the preceding pages (Fig 10, 11, pg 76) and (Fig 12, 13 pg 77).
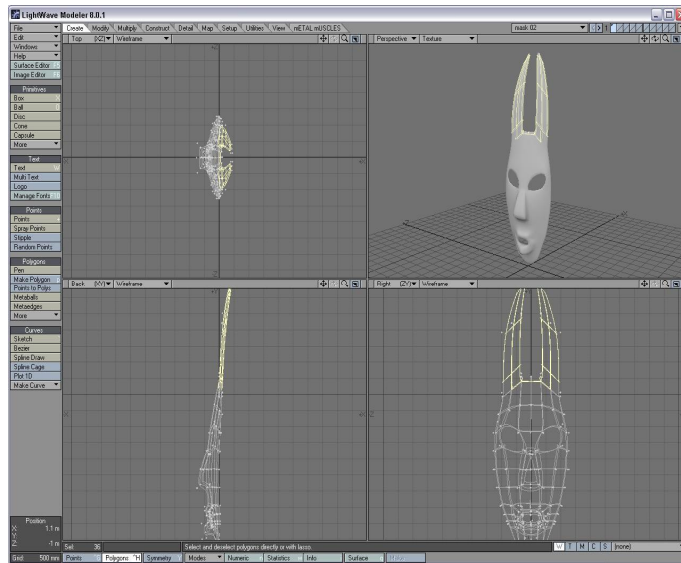
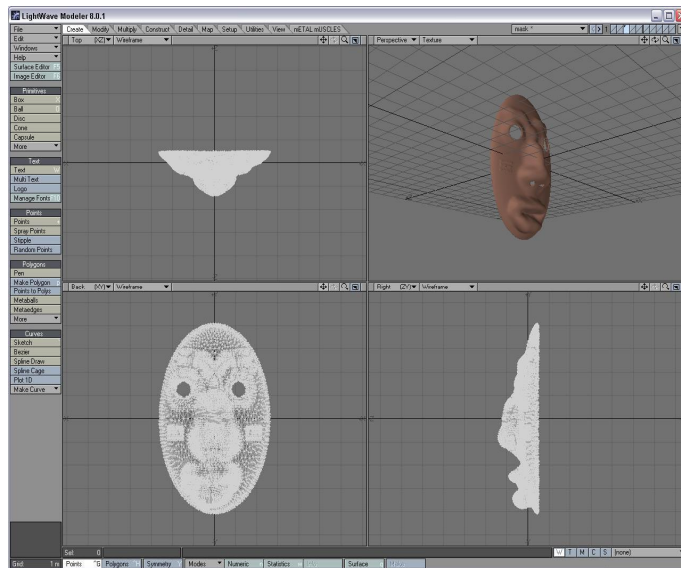**Figure 10: The Lightwave Modeller interface**

Figure 11: The Lightwave Modeller interface

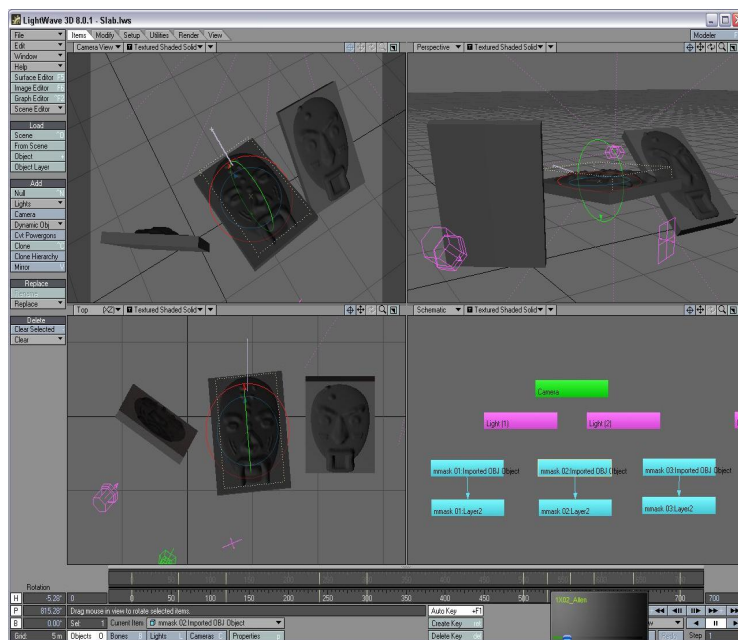**Figure 12: The Lightwave Modeller interface**

Figure 13: The Lightwave Modeller interface

The Final Results of the 3D Modelling and Animation

The works were then exported onto the timelines of the Adobe Premiere Software. The series of drawings were placed behind the 3D models and certain transitional effects added. The resultant transmutations were then rendered with the software application features into an ÷aviø movie format. Each transition took about eight hours to render.

The four transmutations that resulted thereof is a hybrid of digital paintings and sculptures, that consist of masks and other elements that is very connotative in theme to the cosmological beliefs of the people of Northern Ghana, as well as, other parts of Ghana and Africa with people, that have similar beliefs or religious tendencies. The Final fusion was done with Adobe Premiere with an accompanying track of OSIBISAøs ÷Welcome Homeø set to it to evoke the indulgence of its targeted audience. A brief description of the final digital fusion is as follows:

The Dawn Glory

The resulting effect of the 3D modelling and animation is that of a background landscape, in an azure blue-sky setting, and a fading full moon in air of the rising of dawn. Then suddenly, a mask with a polished wooden finish revolves around in the fore to flaunt its beauty, thereby exposing the imposing antelope skull in striking semblance to the fertility mask ÷the chiwaraø wedged in the background. ÷Welcome home!ø

Africa Would be There

This work ʻsets inʼ, with the reddishness of an emerging mask, sculpted on a relief background. The different array of masks then evolves and dissolves in front of an emerging relief mask that, is, the look-alike of the ʻAkuabaʼ doll of the Akans in Ghana. In a move that seems to emphasize the cosmological significance that these masks have on our existence as Africans. **'**Welcome home!ʼ

Sedative

This transition then moves in. The abstracted background engulfed in the hues and values of golden brown move gracefully into each other. To know more about the beauty of a people one definitely has to go after their history. This is what the array of 3 Dimensional Adinkra symbols in-the-round with metallic finish seems to connote. They then move in unison towards and away from the background. ʻWelcome home!ʼ

Tears

This work is very reminiscent of the blood and toil of our ancestors who found themselves in an era plagued with the evils of slave trade. The colours set in Greyscale, create a sense of forlorn longing. Three tablets, with replicas of the background masks modelled in relief on them, emerge simultaneously from the background, levitate, revolve and dissolve to show their three-dimensional artistic features. They are then absorbed into the complementing backgroundn ʻWelcome home!ʼ

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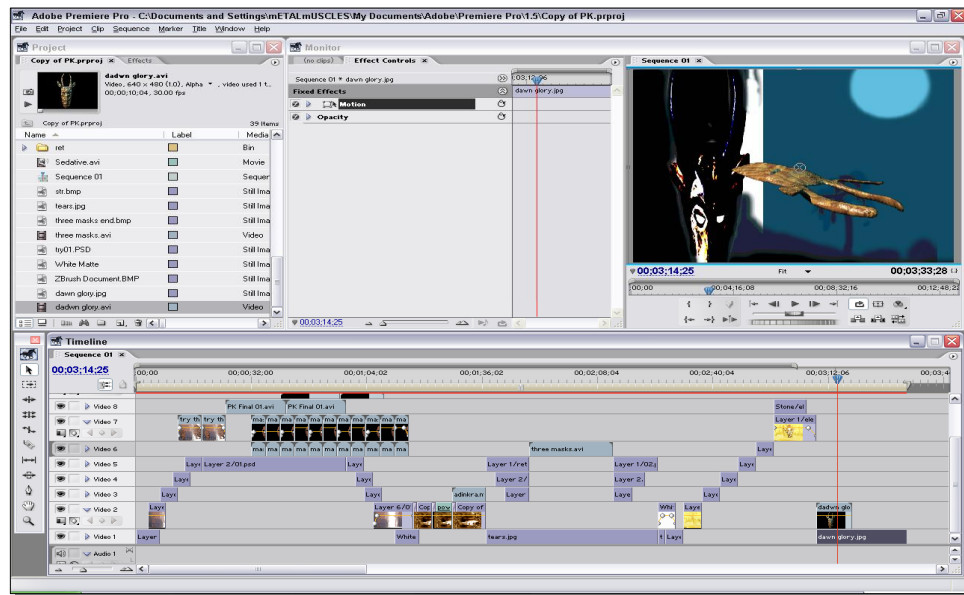**Figure 14: Adobe Premiere working interface for "The Dawn Glory"**
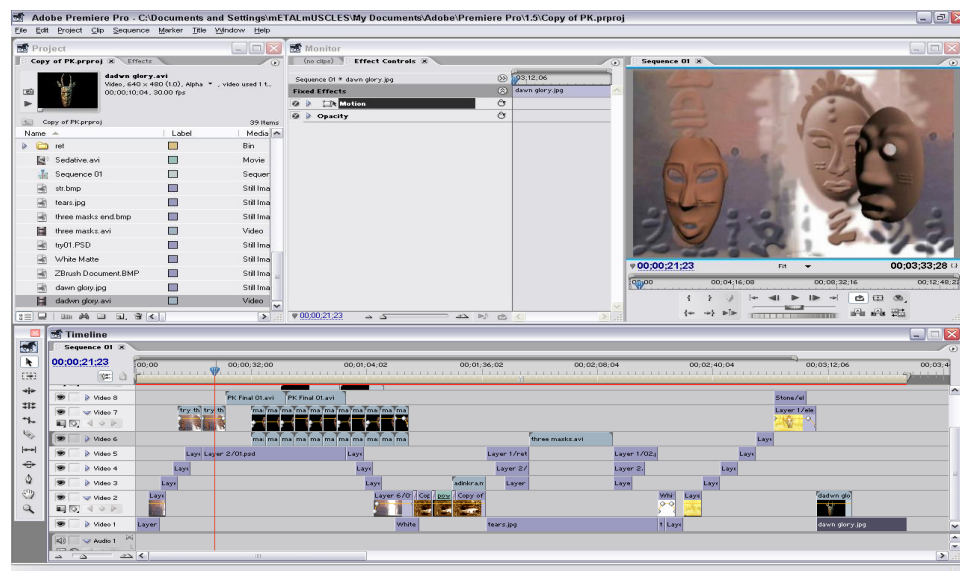
Figure 15: The Adobe Premiere working interface for" Africa Will Be There"
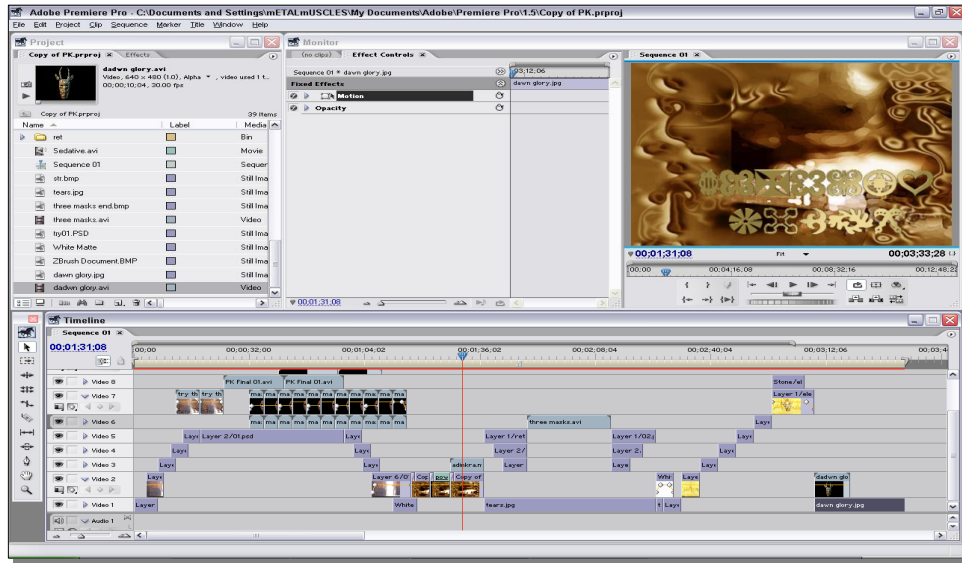
Figure 16: Adobe Premiere working interface for "Sedative"
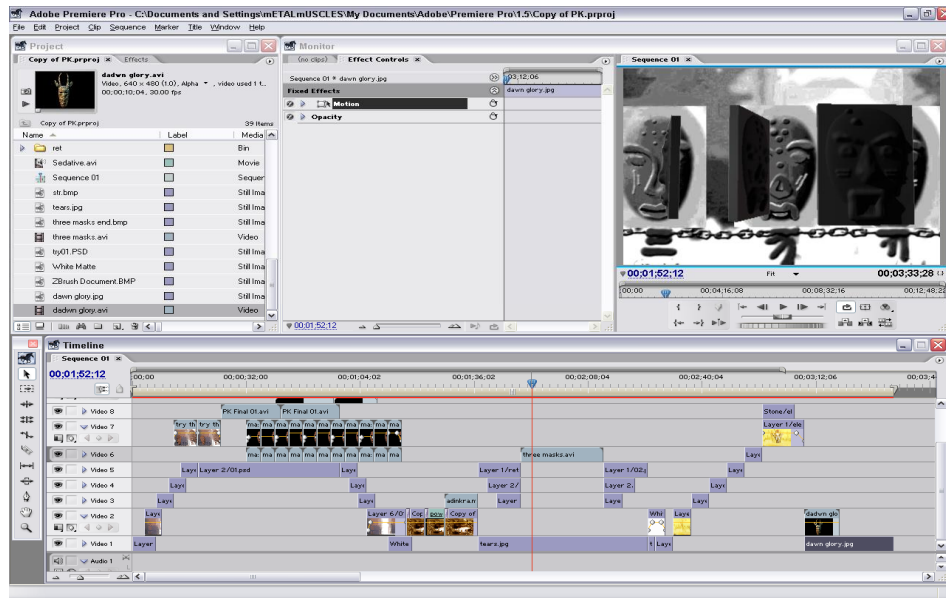
Figure 17: Adobe Premiere working interface for "Tears"

Pictorial Stills of Final Work

Plate 32a: The Dawn Glory

Plate 32b: The Dawn Glory

Plate 32c: The Dawn Glory

Plate 33a: Africa will be there

Plate 33b: Africa will be there

Plate 33c: Africa will be there

Plate 34a: Sedative

Plate 34b: Sedative

Plate 35a: Tears

Plate 35b: Tears

Plate 35c: Tears

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SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary

It factors in, on contemporary African artists to have a gist on computers, how it came about and the essences in virtual reality it brought about in its wake.

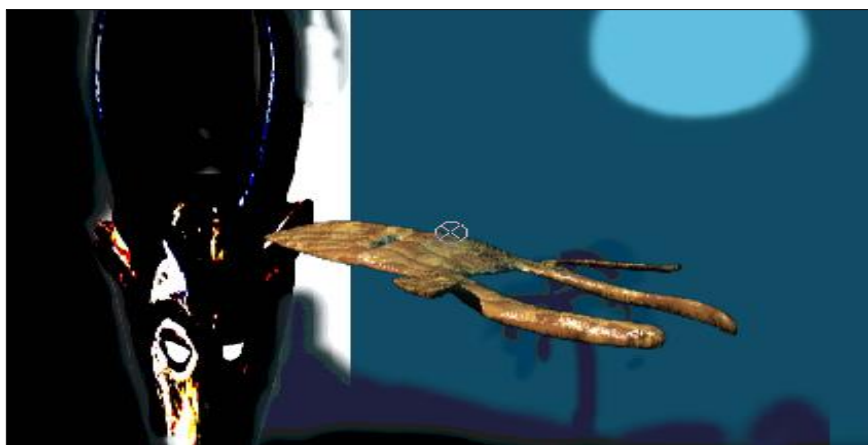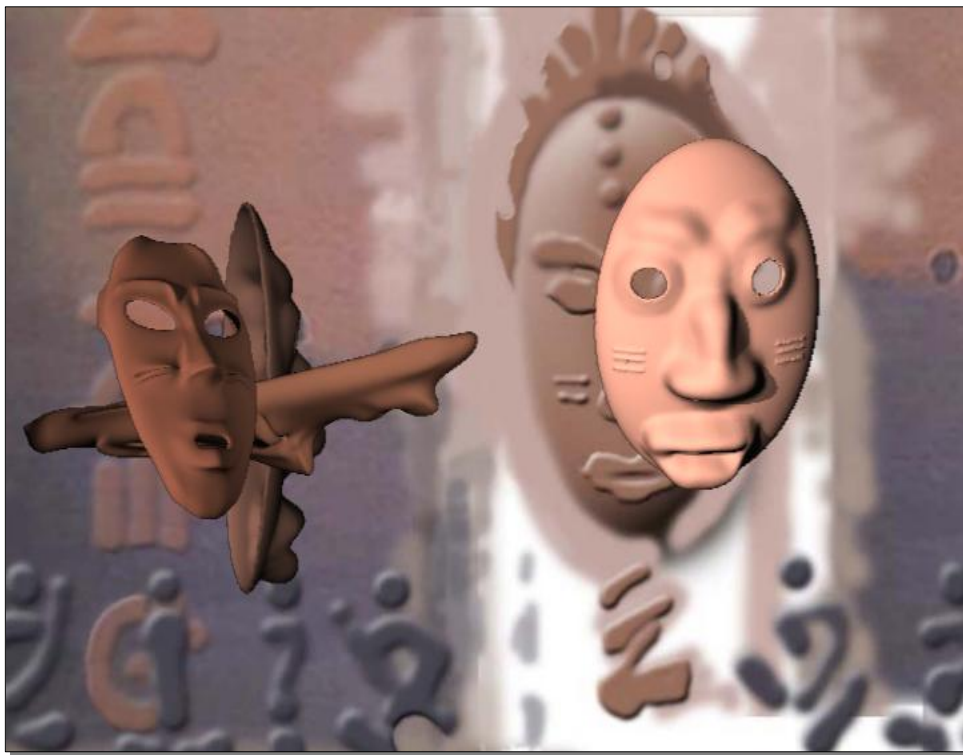Through the virtual information system –the internetø that has been created by the vogue of digital technology, the painter or sculptor is able to acquaint himself easily with the dynamisms of media technology, graphical application software(s), general knowledge etc .that hitherto might have been difficult to come by. Also, because of the alternate forms of renditions that digital technology offers it is easy for the painter or sculptor who has acquainted himself or herself with the appropriate software to strategically place him or herself within the line of production in any industrial domain apart from the conventional mode of expression that his discipline places him. In this vogue of creative citizenry the artistøs empowerment is complete and global, in that, the advent of digital technology brought with it a lot of graphical interfaces which need a fusion of artistry and technology, melded with, creativity to bring into fruition. Hence, a painter or sculptor who, is abreast with how to position him or herself within this fusion, would definitely be empowered to become the indispensable link between art and technology in this age of –digital technologyø

Conclusions

For, as we strive for the articulation of our concept and works into the diurnal endeavours of our targeted audience, digital mediaøs magnitude in empowering the artist cannot be overlooked. This is because in expressing himself within the conventional mode of expression, an artistøs works gain vogue when it is combined with the various domains of digital technology to give it a universal appeal. For instance, contemporary painters/sculptors, are reaching out to a greater number of audience through the creation of websites or interactive(s), combined with brochures, posters etc. on their profile and backdrop concepts. All of which are created by the employment graphical application softwares.

However, despite these sweeping underlining merits that the wake of digital technology is giving the artist, its impact on the arts, echoes the revolution it has spurred on society. However, there are some underlining demerits, ‑While it has improved lives in many ways, this revolution has brought deep insecuritiesí ø(Rinder et alí). To artists, this insecurity revolves round the conventional modes of expressions, that the disciplines they ply, place them. To many artistic minds, this vogue is stifling creativity in the traditional modes of expression.

There is also the issue of the manipulation of pre-existing imagery. The manipulation of pre-existing imagery and the creation of special effects, as it

stands, began long before the creation of digital technology. What is different today is that unaltered images may become the exception rather than the rule. Frequent exposure to altered images has profoundly affected our belief in the veracity of photography and indeed information of all kinds. Cotemporary artistsø work reflects this unstable representational terrain, offering images that abound in glaring gaps, sudden shifts, and imperceptible transformations. This could go a long way in misinforming many audiences through the employment of ÷virtual realityø

Also, when we have access to unlimited information, this information, can in its infiniteness, become indistinguishable from noise. This sense of a fantastic surfeit of information can transform instantaneously into a suspicion that digital technologies are limiting our access to objective reality not only in the milieu of art but the world at large.

Despite these demerits, however, it can be concluded confidently that the merits are so encompassing that one is tempted to stand in oneness with a few contemporary artists, be they painters or sculptors, who are daring into the use of digital media as a complement to their works; especially, those who stand strongly by the belief that as artists,

÷í we all bring to our work a uniqueness that is ours, a special gift. Our artistic endeavours should therefore act as a bridge allowing us to move freely from one

reality of another. We should therefore step out of ourselves at will and satisfy that insatiable hunger to be all things. This interface is what frees us from conventioní . Let us freely give of our energies without compromise andí ø í exploit the alternatives that digital technology as a medium offers us painters and / or sculptors.

Recommendations

Finally, the computer as a machine has gain inordinate vogue and its network has become a major source of information in this modern world. In our bid to reach out to the world as contemporary African Artists, it will augur well for us, to acquaint ourselves with the computer in addition to our conventional media of expression to give new dimensions to our work. This can be done by acquainting ourselves with the various graphical application software and others, which offer various possibilities in linking us to the other domains of art, be it in its Visual, Literary or Performing context. Also, to enable our work gain magnitude and recognition, as contemporary African Artists, we could make use of the creation of websites and software interactive(s) which have the potential of bringing our works and concepts to the doorsteps of many. This will consequently, give us the vogue we need, to remove the pall on our works and strategically position us to make the needed impact that would lay footprints on the sands of time.

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