Contents

LIST OF TABLES	8
LIST OF FIGURES	
PREFACE	
ACKNOWLEDGMENTS	
INTRODUCTION	

CHAPTER 1. THE MEDICAL PAPYRI

1.1The development of medicine	
1.2 The medical papyri.	
1.3 Dental references in the medical papyri.	
1.4 Vocabulary used for dental terms.	
1.5 The medical papyri with dental references.	
1.5.1 The Kahun Papyrus.	
1.5.2 The Edwin Smith Papyrus	
1.5.3 The Ebers Papyrus.	
1.5.4 The Hearst Papyrus.	
1.5.5 The Rylands Greek Papyrus	
1.6. Anatomical knowledge.	

CHAPTER 2. GEOGRAPHY, CLIMATE AND DIET IN ANCIENT EGYPT AND THE CONSEQUENTIAL MEDICAL CONDITIONS

2.1	Geography of Egypt.	
2.2	Irrigation	
2.3	Cultivation	
	Livestock	
	Diet	
2.5	5.1 Meat and fish.	
2.5	5.2 Wine, beer and bread.	
2.5	5.3 Fruit and vegetables.	
2.5	5.4 Honey and other sweetening agents	
2.5	5.5 Masticatories.	
2.6	Dietary causes of disease	
	Malnutrition. (P.E.M)	
2.8	Scurvy	
	Hypocalcaemia.	

CHAPTER 3 THE TITLE OF DENTIST IN ANCIENT EGYPTIAN HISTORY and CONFLICTING EVIDENCE OF THE PRACTICE OF RESTORATIVE DENTISTRY

3.1	Dental practitioners in Ancient Egypt.	28
3.2	A dental profession?	28
3.3	Dental disease	28
3.4	Dental disease experienced by the Ancient Egyptian	29
3.5	Aetiology of caries.	29
3.6	Evidence of dental treatment.	29
3.6.	1 A bridge from 4 th Dynasty	29
3.6.	2 Another bridge from 4 th Dynasty	29
3.6.	3 Root canal treatment?	30
3.6.	4 Extraction of teeth	30
3.6.	5 Drainage of abscesses.	30
3.6.	.6 Filling of teeth	31
3.7	?Lack of Evidence of dental treatment.	31
	vidence of surgical intervention	

CHAP	TER 4.	PREVIOUS	DENTAL	EXAMINA	FION OF	ANCIENT	SKELETAL	AND	MUMMIFIED
MATE	ERIAL								
4.1	The examin	ation of the de	entition in sl	celetal materia	ıl				
4.2	Gender								

4.2.1 Gender from skull landmarks	32
4.2.2 Gender from the dentition	
4.3 Age determination from the skull and the dentition	33
4.3.1 Age determination from the skull.	33
4.3.2 Age determination (from the dentition)	
4.3.2.1 Development of the dentition.	
4.3.2.2 Age changes in the mature dentition	
4.3.2.3 Age assessment from 'attrition' (wear)	34
4.4 Level of Wear (Attrition)	
4.5 Examination of the mandibular condyle	35
4.5.1 The mesio-lateral measurement.	
4.5.2 Form and surface of the condyle	
4.6 Continuous eruption.	
4.7 Angle's classification.	
4.7.1 Angle's Class 1	
4.7.2 Angle's Class 2.	
4.7.3 Angle's Class 3.	
4.8 Additional information.	
4.9 Mummified specimens.	
4.9.1 Technique of mummification	
4.9.2 Examination of mummified specimens	38
4. 10 Radiographic examinations.	
4.10.1 Cephalograms.	
4.10.2 Orthopantomograms.	
4.10.3 Intraoral radiographs	
4.10.4 Computed tomography.	
4.11 Dental pathology found in Ancient Egypt.	
4.11.1 Attrition.	
4.11.2. Abrasion	
4.11.3 Erosion	
4.12 Caries	
4.13 Periapical lesions	
4.14 Periodontal changes	
4.14.1 Horizontal bone loss	
4.14.2 Vertical bone loss	
4.14.3 Physiological bone loss	
4.15 Cysts	
4.15.1 Radicular cysts	
4.15.2 Dentigerous cysts.	
4.15.3 Nasopalatine cysts	
4.15.4 Rare Bone Cysts	
4.16 Osteoarthritis of the TMJ.	
4.17 Osteomyelitis.	
4.18 Dental Anomalies.	
4.18.1 Hypodontia, supernumerary teeth and rudimentary teeth.	
4.18.2 Gemination or Fusion	
4.18.3 Hypercementosis	
4.18.4 Taurodontism.	
4.19 Alignment of arches and jaw relationships.	
4.20 Aims and objectives of this study	
4.20.1 The Null Hypotheses for this study.	43

CHAPTER 5. MATERIALS AND METHODS

5.1 Source material	4
5.1.1 The Duckworth Collection	
5.1.2 The Natural History Collection	4
5.2 Data collection	4
5.2.1 Sample size	4
5.2.2 Changes in prevalence with time	
5.3 Examination of crania	4
5.3.1 Predynastic Period	4
5.3.2 Archaic and Old Kingdom Periods	

5.3.3	3 Middle Kingdom	45
5.3.4	1 New Kingdom	45
5.3.5	5 Late Period	45
5.3.6	6 Graeco-Roman Period	45
5.3.7	7 British Neolithic skulls.	45
5.4 S	Specific parameters evaluated	45
5.4.1	Gender.	45
5.4.2	2 Age determination (from skull)	46
5.5 Den	ntal Investigations.	46
5.5.1	Age determination (from dentition).	46
5.5.2	2 Teeth present: Ante and post-mortem loss	46
5.5.3	B Level of Attrition. (Wear).	46
	Caries	
	5 Examination of the mandibular condyle	
	5.5.1 The mesio-lateral measurement	
5	5.5.2 Form and surface of the condyle	47
5.6 I	Periodontal breakdown	
5.6.1		
	2 Vertical bone loss	
5.6.3		
5.7 C	Continuous eruption and crown height ratio.	
5.7.1		
	2. Relationship between continuous eruption and crown height and wear.	
	Relationship between the osteoarthritis (F+S) and wear	
	Damage attributed to periapical and periodontal disease.	
	Angle's classification.	
	Additional information.	
	Iair analysis to determine nutritional status of red haired individuals in Ancient Egypt	
	1 Preparation of hair for analysis.	
	2 Analysis by Gas Chromatography – Mass Spectrometry	
	3 Hair Analysis by the Scanning Electron Microscope.	
	ntra observer variability.	
	nter observer variability.	
5.14 S	tatistical Analysis.	49

CHAPTER 6. RESULTS

6.1	Age	. 50
6.2	Gender identification.	. 50
6.3	Antemortem tooth loss.	
6.4	Wear in 1 st , 2 nd and 3 rd mandibular molars	. 50
6.5	Condylar measurement.	. 51
6.5	.1 Gender estimate by condylar measurement.	
6.6	Form plus surface measurement as index of osteoarthritis.	. 51
6.7	Caries	
6.8	Horizontal periodontal changes.	51
6.9	Vertical periodontal breakdown.	. 51
6.10	Alveolar breakdown.	. 51
6.1	0.1 Damage to the alveolar bone attributed to apical or periodontal infection	. 51
6.1	0.2 Damage to the alveolar bone attributed to cysts.	. 52
6.11	Dental anomalies, mismatched mandibles, and excerebration through the ethmoid bone.	. 52
6.12	The relationship between age and wear	. 52
6.13	Relationship between osteoarthritis and age	
6.14	Relationship between wear in the 1 st molar / osteoarthritis.	. 52
6.15	Measurement of continuous eruption.	. 52
6.16	Relationship of the ratio of continuous eruption and crown height to wear of 1 st molar	. 52
6.17	Relationship of ratio of continuous eruption and crown height to measurement of Form plus Surface of	the
	condyle	. 52
6.18	Angle's Dental relationship.	. 53
6.19	Hair analysis by Gas Chromatography-Mass Spectrometry	. 53
6.20	Reliability	
6.2	0.1 Intra-observer reliability.	
	0.2 Inter-observer reliability.	

CHAPTER 7. DISCUSSION

7.1 History of the collections	
7.1.1 Predynastic collections	
7.1.2 Archaic and Old Kingdom	55
7.1.3 Middle Kingdom.	
7.1.4 New Kingdom	
7.1.5 Late Period	
7.1.6 Graeco Roman Period	
7.1.7 Intermediate Periods.	
7.2 Skull anomalies.	
7.2.1 Metopic sutures	
7.2.2 Wormian bones.	
7.3 Skull pathology	
7.3.1 'Pseudopathology' or pitfalls in the examination of crania.	
7.3.1.1 Physical.	
7.3.1.2 Chemical	
7.3.1.3 Animal damage	
7.3.1.4 Excavation hazards.	
7.3.2 Valid pathology of the skull	
7.3.2.1 Cribra orbitalia	
7.3.2.2 Biparietal depressions.	
7.3.2.3 Osteomata	
7.3.2.4 Neurofibromas.	
7.3.2.5 Multiple myeloma.	
7.3.2.6 Cleft Palate.	
7.3.3 Wounds	
7.4 Age at death	
7.4.1 Malnutrition.	
7.4.2 Epidemics.	
7.4.3 Disease.	
7.4.4 Trauma	
7.4.5 Poisoning.	
7.4.6 Malignancies	
7.5 Gender	
7.5.1 Gender from the skull.	
7.5.2 Tooth gender.	
7.6 Ante mortem tooth loss.	
7.7 Wear in 1 st , 2 nd and 3 rd mandibular molars.	
7.8 Condylar Measurement and gender corroboration.	
7.9 Form + surface assessment of the condyle as an index of osteoarthritis.	
7.10 Caries	
7.11 Periodontal breakdown.	
7.11.1 Horizontal periodontal breakdown	
7.11.2 Vertical periodontal breakdown.	
7.11.3 Localised aggressive periodontitis.	
7.12 Damage to the alveolar bone attributed to apical or periodontal infection	
7.13 Damage to the alveolar bone attributed to the presence of cysts.	
7.14 Anomalies	
7.14.1 Hypodontia	
7.14.2 Hyperdontia.	
7.14.3 Taurodontism.	
7.14.4 Hypercementosis	
7.15 Excerebration through the ethmoid bone.	
7.16 Jaw Relationships (Angle's Classification).	
7.17 Hair Analysis	66
CHADTED & CONCLUSIONS	

CHAPTER 8 CONCLUSIONS

8.1	The scope of the study	. 68
	Antemortem tooth loss.	
	Diet and wear	
8.4	Osteoarthritis in the mandibular condyle	. 6

8.5	Dietary influences on caries and periodontal disease.	
8.6	Periodontal disease and periapical disease.	
8.7	Abscesses and cysts	
8.8	Continuous eruption and the relationship between it and ostcoarthritis/age/wear	
8.9	Hair and dietary intake.	
8.10	Gender and age at death.	
8.11	The gender and condylar size	
	Anomalies	
8.13	Excerebration through the ethmoid bone	
8.14	Radiology.	
8.15	RECOMMENDATIONS for further study	