

Three Heroes: Archimedes, Hypatia, Boethius

ACT I – PREAMBLE

THESE ARE THE HEROES THAT SHOULD HAVE BEEN.

THESE WERE VOICES DROWNED BY THE RISING TIDE OF EVENTS
BEYOND THEIR CONTROL.

THESE WERE PEOPLE WHO STOOD THEIR GROUND TO THE LAST
INSTANT OF THEIR LIVES, FIGHTING IGNORANCE AND
DESTRUCTION, WITH ONLY A HOPE FOR A BETTER FUTURE
THEY KNEW THEY WOULD NEVER SEE.

THEY WERE NOT ANGELS; THEY WERE HUMAN BEINGS. THEY
MADE MISTAKES. BUT THEY NEVER, EVER, QUIT. THEY NEVER
GAVE UP.

THEY DID NOT MAKE THE WORLD ANY BETTER.

BUT IN THE END, THEY DID.

INTEGRITY WON.

THEY FAILED – AND EVEN IN VIOLENT DEATH, THEY
SUCCEEDED.

THE DEATH OF EACH SIGNALLED THE END OF A GREATER AGE,
AND THE BEGINNING OF A NEW, LESSER ONE.

BUT THEN, ONE DAY, AGAINST ALL ODDS – AGAINST THE GODS
THEMSELVES, AND ALL THEIR VILLAINS AND ALL THEIR
MINIONS – THE HEIRS OF THOSE HEROES BUILT A TRUE
REBIRTH.

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ACT II – THE LEAD-UP: GETTING A FEEL FOR HISTORY



RECAP - HISTORY OF THE WORLD

STONE AGE – PRIOR TO METALLURGY

BRONZE AGE – 3500 BC – 800 BC

SOUTHWEST ASIA – ELSEWHERE LATER

IRON AGE – FROM 800 BC

SUMER – 2800-2350 BC – FIRST HISTORIC CULTURE

NOT SEMITIC

WRITING PRIOR TO 3000 BC - CUNEIFORM

AKKADIANS – 2335-2154 BC

DARK AGE

NEO-SUMERIAN 2112-2004 BC

TIME OF ABRAHAM

EARLY CODE OF LAW

ELAMITES

AMORITES – NOMADIC, NO AGRICULTURE

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FORMED BABYLON

BABYLONIANS – 1894-1595 BC

HAMMURABI – 1792-1750 BC

CODE OF HAMMURABI

ASSYRIANS

HITTITES – 1595-1160 BC

CITY OF TROY WAS HITTITE

ASSYRIANS – 1160-608 BC

BABYLONIANS – TO 539 BC

JEWS FORCED TO MOVE TO BABYLON

PERSIA – CYRUS THE GREAT – 559-530 BC

JEWS ALLOWED TO RETURN TO ISRAEL – CYRUS A HERO

SEA PEOPLES – 1200-900 BC

COLLAPSE OF HITTITES AND EGYPT

END OF MYCENEAN GREECE

PHILISTINES WERE SEA PEOPLE

STORY OF SAMSON, DAVID, SAUL

FENDED OFF BY EGYPT'S RAMSESES III (R. 1186-1155 BC)

ABSORBED INTO POPULATIONS OF PHOENICIAN CITIES

SUPPLIED KEELED BOAT DESIGN

MAKING SEAFARING POSSIBLE

PREVIOUSLY ONLY FLAT-BOTTOMED BOATS

TO EGYPT

PHOENICIANS – MERCHANTS; BUILT TRADE NETWORKS

NOT EMPIRE-BUILDERS; TYRANTS

SEMITES MIGRATED FROM SINAI PENINSULA

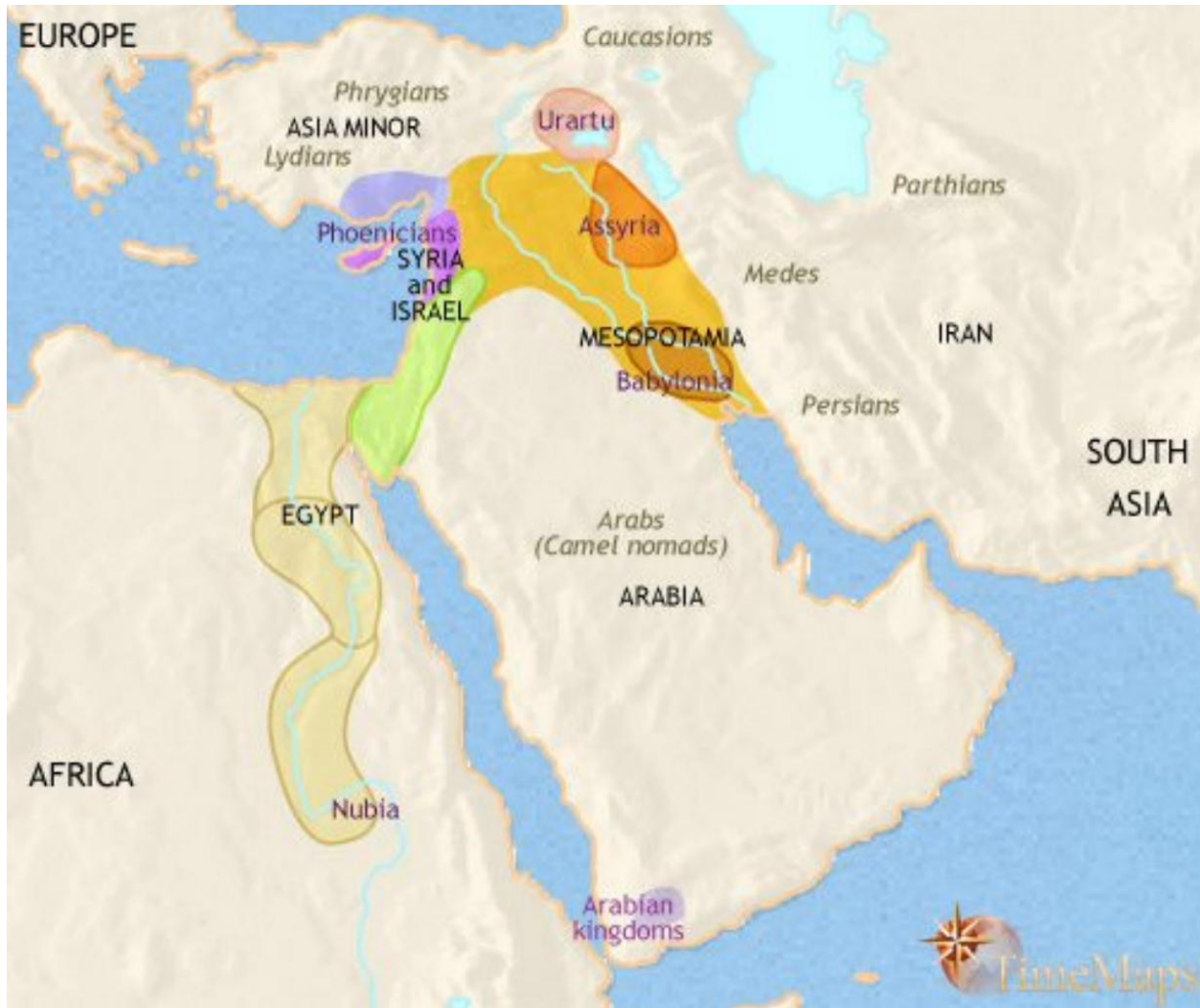
MERGED WITH EXISTING LEVANT CANAANITES-SEMITES

TRADE WITH EGYPT

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FLAT-BOTTOMED BOATS – COASTAL ONLY
ASSIMILATED INVADING SEA PEOPLES
SUPPLIED KEELED BOAT DESIGN – OCEAN-CAPABLE
EGYPT TRADE FADED

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1200-800 – PHOENICIAN GOLDEN AGE

EARLY

PORTS, WAREHOUSES, MARKETS, SETTLEMENTS

MEDITERRANEAN, SOUTHERN BLACK SEA

LATER

INCREASING CONTROL BY ASSYRIA, BABYLON

ABOUT 814 PHOENICIAN CITY OF CARTHAGE FOUNDED

CONSTANT COLONIZATION STRUGGLE VS. GREEKS

GREEKS COLONIZED SYRACUSE, SICILY ABOUT 700 BC

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100 YR. BEFORE SOLON, THALES, SAPPHO
COLONIZED MASSALIA / MARSEILLES ABOUT 600

ABOUT 610-594 BC CIRCUMNAVIGATED "LIBYA" = AFRICA
REQUESTED BY EGYPTIAN KING NECHO II
SAILED FROM THE RED SEA, RETURNING THROUGH THE
PILLARS OF HERCULES INTO THE MEDITERRANEAN
NOTED "THE SUN WAS ALWAYS ON THE RIGHT"

WRITING / RECORD-KEEPING – PROGRESSION

PICTOGRAPHS / PICTURES - CUNEIFORM
SYMBOLS FOR SENTENCES

SYMBOLS FOR WORDS / IDEAS – HIEROGLYPHICS

SYMBOLS FOR SYLLABLES

SYMBOLS FOR SINGLE SOUNDS – CONSONANTS

INVENTION OF LETTERS

SYMBOLS / LETTERS JOINED TOGETHER

ALPHABET 1500 BC – 1200 BC

PROTO-PHOENICIANS

GREEKS ADDED VOWELS ABOUT 800 BC

REQD FOR GREEK LANGUAGE

Three Heroes: Archimedes, Hypatia, Boethius

ACT III – PHOENICIANS vs. GREEKS – and a NEWCOMER

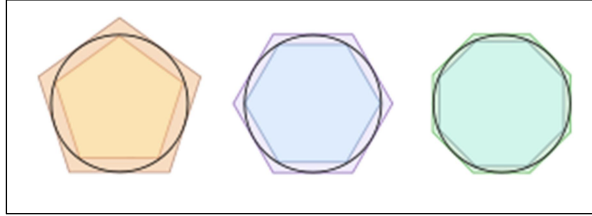


ARCHIMEDES – 287-212 BC – CREATOR OF KNOWLEDGE

GREEK MATHEMATICIAN, PHYSICIST, ENGINEER, ASTRONOMER, AND INVENTOR

Three Heroes: Archimedes, Hypatia, Boethius

ARCHIMEDES ANTICIPATED MODERN CALCULUS AND ANALYSIS BY APPLYING THE CONCEPT OF THE INFINITELY



SMALL AND THE METHOD OF EXHAUSTION TO DERIVE AND RIGOROUSLY PROVE A RANGE OF GEOMETRICAL THEOREMS, INCLUDING: THE AREA OF A CIRCLE; THE SURFACE AREA AND VOLUME OF A SPHERE; AREA OF AN ELLIPSE; THE AREA UNDER A PARABOLA; THE VOLUME OF A SEGMENT OF A PARABOLOID OF REVOLUTION; THE VOLUME OF A SEGMENT OF A HYPERBOLOID OF REVOLUTION; AND THE AREA OF A SPIRAL.

PROVIDED VIA THE METHOD OF EXHAUSTION:

THE BOUNDS $3 + 10/71 < \pi < 3 + 10/70$, (GIVING A RANGE OF $1/497$) BY COMPARING THE PERIMETERS OF THE CIRCLE WITH THE PERIMETERS OF THE INSCRIBED AND CIRCUMSCRIBED 96-SIDED REGULAR POLYGONS.

THE AREA BOUNDED BY THE INTERSECTION OF A LINE AND A PARABOLA IS $4/3$ THAT OF THE TRIANGLE HAVING THE SAME BASE AND HEIGHT;

THE AREA OF AN ELLIPSE IS PROPORTIONAL TO A RECTANGLE HAVING SIDES EQUAL TO ITS MAJOR AND MINOR AXES;

THE VOLUME OF A SPHERE IS 4 TIMES THAT OF A CONE HAVING A BASE OF THE SAME RADIUS AND HEIGHT EQUAL TO THIS RADIUS;

THE VOLUME OF A CYLINDER HAVING A HEIGHT EQUAL TO ITS DIAMETER IS $3/2$ THAT OF A SPHERE HAVING THE SAME DIAMETER;

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THE AREA BOUNDED BY ONE SPIRAL ROTATION AND A LINE IS 1/3 THAT OF THE CIRCLE HAVING A RADIUS EQUAL TO THE LINE SEGMENT LENGTH;

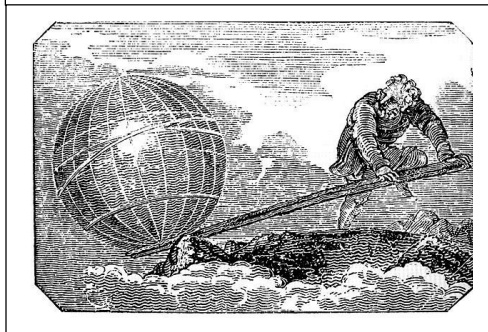
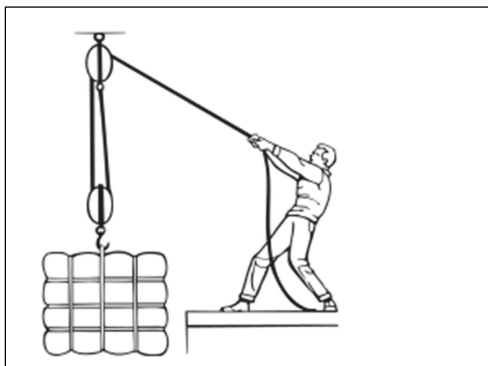
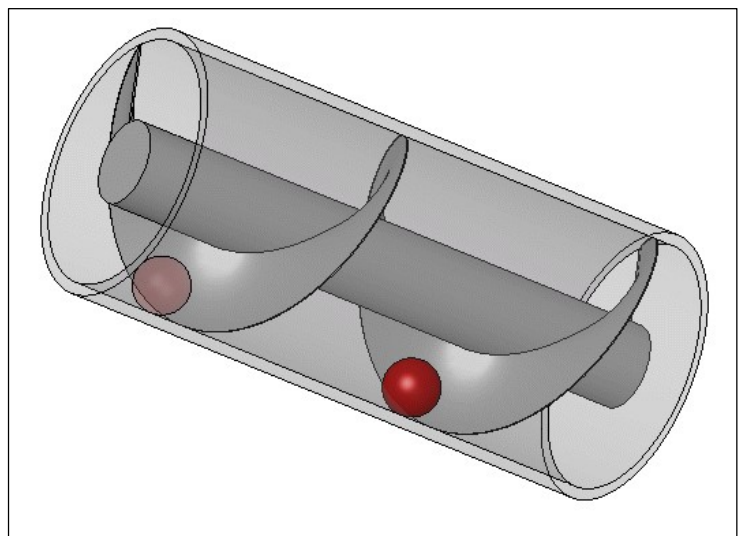
USE OF THE METHOD OF EXHAUSTION ALSO LED TO THE SUCCESSFUL EVALUATION OF AN INFINITE GEOMETRIC SERIES (FOR THE FIRST TIME);

FOUNDED HYDROSTATICS AND STATICS – ONE OF THE FIRST TO APPLY MATHEMATICS TO PHYSICAL PHENOMENA;

PROOF OF THE PRINCIPLE OF THE LEVER, THE WIDESPREAD USE OF THE CONCEPT OF CENTER OF GRAVITY, ENUNCIATION OF THE LAW OF BUOYANCY.

ARCHIMEDES' SCREW – PUMP UP-HILL OR DOWN-HILL FLOW TO GENERATE POWER

BLOCK-AND-TACKLE PULLEYS



DIED 212 DURING 2ND PUNIC WAR – ROME VS. CARTHAGE AND GREECE ON SICILY IN SIEGE OF SYRACUSE

ON THE EQUILIBRIUM OF PLANES – CENTER OF GRAVITY, PARABOLIC SEGMENTS, LEVERS:

"GIVE ME A PLACE TO STAND ON, AND I WILL MOVE THE EARTH."

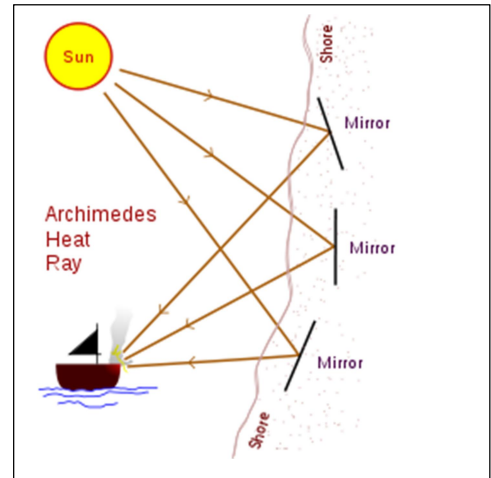
Three Heroes: Archimedes, Hypatia, Boethius

THE ROMANS UNDERESTIMATED SYRACUSE'S DEFENSES, DUE IN PART TO SEVERAL MACHINES DESIGNED BY ARCHIMEDES, INCLUDING IMPROVED CATAPULTS, CRANE-LIKE MACHINES THAT COULD SWUNG AROUND IN AN ARC, AND STONE-THROWERS. ALTHOUGH THE ROMANS ULTIMATELY CAPTURED THE CITY, THEY SUFFERED CONSIDERABLE LOSSES DUE TO THE INVENTIVENESS OF ARCHIMEDES. ROMAN GENERAL TOOK ARCHIMEDES' ORRERY.

GREECE CONQUERED BY ROME 146 BC

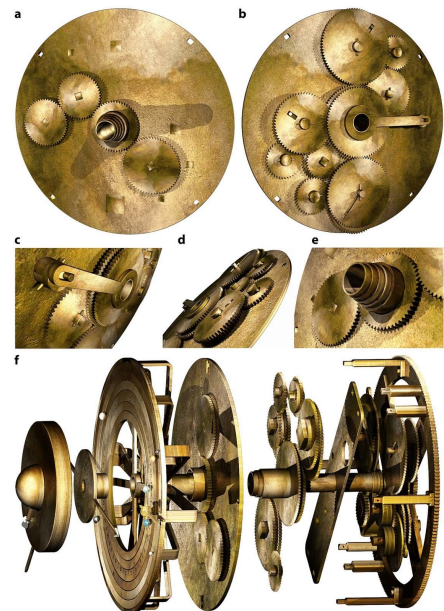
“IN THE YEAR 1500 EUROPE KNEW LESS THAN ARCHIMEDES, WHO DIED IN THE YEAR 212 BC.” – 1700 YEARS

“SINCE ARCHIMEDES LED MORE THAN ANYONE ELSE TO THE FORMATION OF THE CALCULUS AND SINCE HE WAS THE PIONEER OF THE APPLICATION OF MATHEMATICS TO THE PHYSICAL WORLD, IT TURNS OUT THAT WESTERN SCIENCE IS BUT A SERIES OF FOOTNOTES TO ARCHIMEDES. THUS, IT TURNS OUT THAT ARCHIMEDES IS THE MOST IMPORTANT SCIENTIST WHO EVER LIVED.”



ORRERY

RECONSTRUCTED ANTIKYTHERA



Three Heroes: Archimedes, Hypatia, Boethius



ARCHIMEDES DIRECTING THE DEFENSES OF SYRACUSE
NO GREEK EVER AGAIN ROSE TO COMPETE AT THE LEVEL OF
ARCHIMEDES.

ROME BEGAN AS A WARRIOR TRIBE, AND WOULD ALWAYS BE
SO TO THE END OF HER DAYS, EVEN AFTER MOVING TO
CONSTANTINOPLE. NO ROMAN WOULD EVER BE A
MATHEMATICIAN.

THERE WOULD BE LIBRARIES IN CONSTANTINOPLE; BUT NO
MORE THAN THAT.

Three Heroes: Archimedes, Hypatia, Boethius

ACT IV - THE FINAL PHILOSOPHER AND THE MOB



HYPATIA – ~360-~415 – TEACHER OF KNOWLEDGE

**GREEK NEOPLATONIST PHILOSOPHER, ASTRONOMER,
MATHEMATICIAN IN ALEXANDRIA, EGYPT**

“NEOPLATONISM” – NEBULOUS MODERN GROUPING

SEVERAL STAGES / PHASES / GROUPS

RECASTED PLATO’S PHILOSOPHY

ALL OF REALITY CAN BE DERIVED FROM

A SINGLE PRINCIPLE, "THE ONE"

FOUNDED BY AMMONIUS SACCAS (175-242)

AND HIS STUDENT PLOTINUS (204-271)

ALEXANDRIAN SCHOOL

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DEVELOPED / EVOLVED 400s-500s
BECAME CHRISTIAN

ROMAN EMPIRE CAPITAL MOVED

FROM ROME TO CONSTANTINOPLE 330

ROMAN EMPIRE SPLIT INTO WEST AND EAST IN 395

EAST RULED FROM CONSTANTINOPLE

WEST RULED FROM ROME 395-402

FROM RAVENNA 402-476



POPULACE KNEW ROME AND THE EMPIRE WERE IN DECLINE

ROME SACKED BY GOTHS 410 ... BY VANDALS 455

HYPATIA WAS ONE OF THE MOST EMINENT MATHEMATICIANS
AND ASTRONOMERS OF LATE ANTIQUITY. SCHOLARS TRAVELED
FROM AROUND THE CLASSICAL WORLD TO LEARN
MATHEMATICS AND ASTRONOMY AT HER SCHOOL.

HER BRUTAL KILLING AT THE HANDS OF A FRENZIED MOB OF
CHRISTIAN FANATICS SHOCKED THE GRECO-ROMAN WORLD.

HYPATIA'S MURDER WAS A HISTORICAL MILESTONE. A

THOUSAND YEARS OF MEDITERRANEAN-CENTERED EUROPEAN

Three Heroes: Archimedes, Hypatia, Boethius

CLASSICAL CULTURE WAS IN CRISIS – FIVE YEARS EARLIER ROME HAD BEEN SACKED BY THE VISIGOTHS. THE EUROPEAN MEDIEVAL PERIOD, CHARACTERIZED BY A THOUSAND YEARS OF RELATIVELY MINIMAL SCIENTIFIC PROGRESS, WAS BEGINNING.

HYPATIA WAS BORN IN THE GRECO-ROMAN CITY OF ALEXANDRIA, EGYPT. LIKE MOST EDUCATED PEOPLE IN THE EASTERN MEDITERRANEAN IN LATE ANTIQUITY, HYPATIA WAS A GREEK SPEAKER. HER NAME MEANS “SUPREME”.

HYPATIA’S FATHER WAS THEON OF ALEXANDRIA, AN EMINENT MATHEMATICIAN AND ASTRONOMER FAMOUS FOR HIS ‘STUDENT EDITION’ OF EUCLID’S ELEMENTS. THEON’S EDITION BECAME THE GO-TO VERSION FOR OVER A THOUSAND YEARS. EDITIONS BASED ON THEON’S WERE THE ONLY ONES KNOWN UNTIL ONE PREDATING IT WAS FOUND IN THE VATICAN LIBRARY IN 1808.

THEON WAS HEAD OF THE MOUSEION, AN ACADEMY THAT TAUGHT NEOPLATONIST PHILOSOPHY. HYPATIA FOLLOWED IN HER FATHER’S FOOTSTEPS, BECOMING A MATHEMATICIAN, ASTRONOMER, AND PHILOSOPHER.

COMPARED WITH THE STUNNING PROGRESS MADE BY THE LIKES OF EUCLID AND ERATOSTHENES IN ALEXANDRIA SOON AFTER THE CITY WAS FOUNDED, THE OUTPUT OF NEW IDEAS FROM THE CITY’S INTELLECTUALS HAD ALMOST DRIED UP IN HYPATIA’S ERA. NEVERTHELESS, ALEXANDRIA STILL HELD AN ALMOST MAGNETIC ATTRACTION FOR SCHOLARS. AFTER ATHENS, IT WAS THE GRECO-ROMAN WORLD’S LEADING CENTER OF PHILOSOPHY.

Three Heroes: Archimedes, Hypatia, Boethius

OUR BEST SOURCE OF INFORMATION ABOUT HYPATIA AND HER ACHIEVEMENTS IS SOCRATES SCHOLASTICUS, A GREEK CHRISTIAN HISTORIAN WHO LIVED IN THE SAME ERA AS HYPATIA. IN HIS MAJOR WORK THE HISTORIA ECCLESIASTICA, SOCRATES SCHOLASTICUS WROTE:

“HYPATIA OF ALEXANDRIA, DAUGHTER OF THE PHILOSOPHER THEON, MADE ATTAINMENTS IN LITERATURE AND SCIENCE THAT FAR SURPASSED ALL THE PHILOSOPHERS OF HER OWN TIME. HAVING SUCCEEDED [THEON AS DIRECTOR OF] THE SCHOOL OF PLATO AND PLOTINUS, SHE EXPLAINED THE PRINCIPLES OF PHILOSOPHY TO HER STUDENTS, MANY OF WHOM TRAVELED FAR TO RECEIVE HER INSTRUCTIONS.”

THE HISTORIA ECCLESIASTICA IS ONE OF THE FEW SOURCES OF INFORMATION ABOUT HYPATIA, THE FEMALE MATHEMATICIAN AND PHILOSOPHER OF ALEXANDRIA, WHO WAS BRUTALLY MURDERED BY A MOB, PROBABLY BY ORDER OF PATRIARCH CYRIL OF ALEXANDRIA. SOCRATES PRESENTS HYPATIA'S MURDER AS ENTIRELY POLITICALLY MOTIVATED AND MAKES NO MENTION OF ANY ROLE THAT HYPATIA'S PAGANISM MIGHT HAVE PLAYED IN HER DEATH, ARGUING INSTEAD THAT SHE WAS KILLED FOR SUPPORTING LOCAL PREFECT ORESTES IN HIS POLITICAL STRUGGLE AGAINST CYRIL. SOCRATES UNEQUIVOCALLY CONDEMNS THE ACTIONS OF THE MOB, DECLARING, "SURELY NOTHING CAN BE FARTHER FROM THE SPIRIT OF CHRISTIANITY THAN THE ALLOWANCE OF MASSACRES, FIGHTS, AND TRANSACTIONS OF THAT SORT."

HYPATIA WAS THE LAST SIGNIFICANT NATURAL PHILOSOPHER OF CLASSICAL TIMES, AND HER DEATH CAN BE SAID TO BE THE

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SIGNAL CLOSING THE CLASSICAL ERA AND HERALDING THE EUROPEAN DARK AGES.

Three Heroes: Archimedes, Hypatia, Boethius

ACT V – FOR THE PAST, NO FUTURE



BOETHIUS – 477-524 – PRESERVER OF KNOWLEDGE

ANICIUS MANLIUS SEVERINUS BOETHIUS

LIVED IN RAVENNA, ITALY, IN THE COURT OF THE OSTROGOTH KING THEODORIC THE GREAT

WEST ROMAN EMPIRE ENDED 476

ODOACER RULED 476-393; KILLED BY THEODORIC

KNOWLEDGE OF ARISTOTLE'S WORKS HAD BEEN VIRTUALLY ABSENT IN THE EUROPEAN (LATIN) PART OF THE ROMAN EMPIRE, AND DID NOT SURVIVE ROME'S FALL IN 476.

BOETHIUS WAS A ROMAN SENATOR, CONSUL, MAGISTER OFFICIORUM, AND PHILOSOPHER OF THE EARLY 6TH CENTURY.

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HE WAS BORN ABOUT A YEAR AFTER ODOACER DEPOSED THE LAST WESTERN ROMAN EMPEROR AND DECLARED HIMSELF KING OF ITALY. BOETHIUS ENTERED PUBLIC SERVICE UNDER OSTROGOTHIC KING THEODORIC THE GREAT, WHO LATER IMPRISONED AND EXECUTED HIM IN 524 ON CHARGES OF CONSPIRACY TO OVERTHROW HIM.

WHILE JAILED, BOETHIUS COMPOSED HIS "CONSOLATION OF PHILOSOPHY", A PHILOSOPHICAL TREATISE ON FORTUNE, DEATH, AND OTHER ISSUES, WHICH BECAME ONE OF THE MOST POPULAR AND INFLUENTIAL WORKS OF THE MIDDLE AGES.

HIS TREATISE ON MUSIC "DE INSTITUTIONE MUSICA" WAS EXTREMELY INFLUENTIAL ON MEDIEVAL MUSIC, THEORY AND PRACTICE; IT WAS THE MOST WIDELY TRANSMITTED MEDIEVAL WRITING ON MUSIC.

AS THE AUTHOR OF NUMEROUS HANDBOOKS, AND TRANSLATOR OF PLATO AND ARISTOTLE FROM GREEK INTO LATIN, HE BECAME THE MAIN INTERMEDIARY BETWEEN CLASSICAL ANTIQUITY AND THE FOLLOWING CENTURIES.

BOETHIUS' FAMILY, THE ANICII, INCLUDED EMPERORS PETRONIUS MAXIMUS AND OLYBRIUS AND MANY CONSULS. HIS GRANDFATHER, A SENATOR BY THE SAME NAME, WAS APPOINTED AS PRAETORIAN PREFECT OF ITALY. HE DIED IN 454, DURING THE PALACE PLOT AGAINST MAGISTER MILITUM FLAVIUS AETIUS. BOETHIUS' FATHER, MANLIUS BOETHIUS, WHO WAS APPOINTED CONSUL IN 487, DIED WHILE BOETHIUS WAS YOUNG. ANOTHER PATRICIAN, QUINTUS AURELIUS

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MEMMIUS SYMMACHUS, ADOPTED AND RAISED BOETHIUS, INSTILLING IN HIM A LOVE FOR LITERATURE AND PHILOSOPHY.

BOTH MEMMIUS SYMMACHUS AND BOETHIUS WERE FLUENT IN GREEK, AN INCREASINGLY RARE SKILL AT THAT TIME IN THE WESTERN EMPIRE; FOR THIS REASON, SOME SCHOLARS BELIEVE THAT BOETHIUS WAS EDUCATED IN THE EAST; PERHAPS IN ATHENS.

THE ONLY WORKS OF ARISTOTLE (1425 PAGES) KNOWN AND TAUGHT DURING EUROPE'S DARK AGES (476-1200s) WERE THOSE (222 PAGES; 15.6%) TRANSLATED FROM THE GREEK INTO LATIN BY BOETHIUS, 477 AD - 524 AD:

CATEGORIES (17 PAGES),
ON INTERPRETATION (34 PAGES),
PRIOR ANALYTICS (57 PAGES),
TOPICS (85 PAGES), AND
SOPHISTICAL REFUTATIONS (29 PAGES).

TRANSLATOR OF PLATO AND ARISTOTLE FROM GREEK INTO LATIN AND EUROPE'S PRIMARY INTERMEDIARY BETWEEN CLASSICAL GREECE AND ROME PRIOR TO 500 THROUGH EUROPE'S DARK AGES

CHARLEMAGNE'S FALSE RENAISSANCE 800
THE FIRST CRUSADE, 1096-1099, AND
BEYOND ADDITIONAL INFLUENCES, INCLUDING

1. THE ARRIVAL OF GREEK SCHOLARS
AND THEIR TEXTS TO ITALY
FOLLOWING THE FALL OF CONSTANTINOPLE
TO THE OTTOMAN TURKS IN 1453
GRAMMARIANS, HUMANISTS, POETS, WRITERS,

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PRINTERS, LECTURERS, MUSICIANS, ASTRONOMERS,
ARCHITECTS, ACADEMICS, ARTISTS, SCRIBES,
PHILOSOPHERS, SCIENTISTS, POLITICIANS,
THEOLOGIANS

2. AS WELL AS TEXTS OBTAINED VIA VISITS
TO MOSLEM LIBRARIES IN SEVILLE, SPAIN
AND BAGHDAD BEFORE 1258 MONGOL SACK
FOSTERED THE RECOVERY OF ARISTOTLE
AND GREEK CLASSICS GENERALLY
THOMAS AQUINAS' WORK THROUGH 1274
INTO THE RENAISSANCE, 1400s -1500s.

THOMAS AQUINAS' WORKS INCLUDE SUMMA THEOLOGICA (1274), COMMENTARIES ON SCRIPTURE AND ON ARISTOTLE – LEGITIMIZED ARISTOTLE, EASING TRANSITION. THE CATHOLIC CHURCH MADE THE STUDY OF HIS WORKS THE CORE OF THE PROGRAM FOR ORDINATION AS PRIESTS AND FOR OTHERS.

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ACT VI – DARK AGES ALWAYS END

300 YEARS LATER

CHARLEMAGNE'S FALSE RENAISSANCE 800

HEIRS TO ARCHIMEDES 287 BC - 212 BC

FRANCIS BACON 1561-1626

GALILEO GALILEI 1564-1642

ISAAC NEWTON 1643-1727

INDUSTRIAL REVOLUTION 1760-1820

HEIRS TO HYPATIA 360-415

NICOLAUS COPERNICUS 1473-1543

TYCHO BRAHE 1546-1601

JOHANNES KEPLER 1571-1630

HEIRS TO BOETHIUS 477-524

THOMAS AQUINAS 1225-1774

THE RENAISSANCE 1400s-1600s

HEIRS TO FRANCIS BACON and ISAAC NEWTON

JOHN LOCKE 1632-1704

HEIRS TO BACON, NEWTON, AND LOCKE

THOMAS JEFFERSON 1743-1826

JOHN ADAMS 1735-1826

AMERICA'S FOUNDING 1763-1789

