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fig. 22: 26. An incised bone radius from Kharaneh IV, phase D, may also date from the same period. Mujahed Muhaisen, "The Epipalaeolithic Phases of Kharaneh IV," *Colloque International CNRS, Préhistoire du Levant* 2 (Lyons, 1988), p. 11, fig. 7.

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of daily life, with ritual and game. The symbols which opened new for communication background for

B MEDIA IN ANCIENT EMPIRES

Harold Innis

Harold Innis (1894-1952) was a Canadian scholar of world renown. He was trained in economics at the University of Chicago and, toward the close of his life, extensively explored the field of communication history. Two of his books on the subject have become classics, Empire and Communications and The Bias of Communication.

FROM STONE TO PAPYRUS

The profound disturbances in Egyptian civilization involved in the shift from absolute monarchy to a more democratic organization coincided with a shift in emphasis on stone as a medium of communication or as a basis of prestige, as shown in the pyramids, to an emphasis on papyrus.¹ Papyrus sheets dated from the first dynasty and inscribed sheets dated from the fifth dynasty (2680-2540 B.C. or 2750-2625 B.C.).

Brushes made from a kind of rush (*Furcraea maritima*) were used for writing. Lengths ranged from 6 to 16 inches and diameters from 1/16 to 1/10 of an inch. The rushes were cut slantingly at one end and bruised to separate the fibres.² The scribe's palette had two cups for black and red ink, and a water-pot. He wrote in hieratic characters from right to left, arranging the text in vertical columns or horizontal lines of equal size which formed pages. The rest of the papyrus was kept rolled up in his left hand.⁴

Writing on stone was characterized by straightness or circularity of line, rectangularity of form, and an upright position, whereas writing on papyrus

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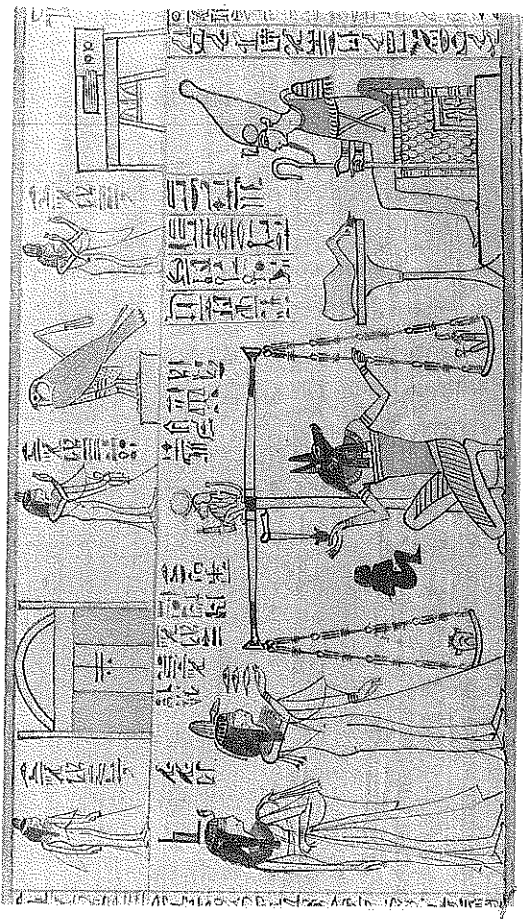
EFFECTS OF WRITING AND EQUALITY

New Religions

The spread of writing after the democratic revolution was accompanied by the emergence of new religions in the immortality cult of Horus and Osiris. Ra worship had become too purely political, and individuals found a final meaning and a fulfillment of life beyond the vicissitudes of the political arbitrator.¹⁰ Osiris, the god of the Nile, became the Good Being slain for the salvation of men, the ancestral king and model for his son Horus. As an agricultural god, he had faced death and conquered it. His wife Isis, the magician, made codes of law and ruled when Osiris was conquering the world. She persuaded the Sun-god Ra to disclose his name, and since knowledge of a person's name¹¹ gave to him who possessed it magical power over the person himself, she acquired power over Ra and other gods. In the twelfth dynasty, Osiris became the soul of Ra, the great hidden name which resided in him. With Ra, he shared supremacy in religion and reflected the twofold influence of the Nile and the Sun. Night and day were joined as complementary—Osiris, yesterday and death; Ra, tomorrow and life. Funerary rites invented by Isis were first applied to Osiris. Conferring immortality, they have been described by Moret as "the most precious revelation which any Egyptian god had ever made to the world."¹²

Magic and Writing

Osiris was served by Thoth as vizier, sacred scribe, and administrator. As the inventor of speech and writing, "Lord of the creative voice, master of words and books,"¹³ he became the inventor of magic writings. Osiris became the centre of a popular and priestly literature to instruct people in the divine rights and duties. Words were imbued with power. The names of gods were part of the essence of being, and the influence of the scribe was reflected in the deities. Since religion and magic alike were sacred, they became independent. The priest used prayers and offerings to the gods, whereas the



A detail from an Egyptian painted papyrus, known as the Papyrus of Nany. The complete illustration is 17 feet in length and 2.5 inches wide, ca. 1039-991 B.C. *The Metropolitan Museum of Art, Museum Excavations, 1928-1929, and Rogers Fund, 1930 (30.3.31).*

magician circumvented them by force or trickery. Family worship survived in the Osirian cult, and because of a practical interest, magic was used by the people. Since to know the name of a being was to have the means of mastering him; to pronounce the name was to fashion the spiritual image by the voice; and to write it, especially with hieroglyphics, was to draw a material image. In the manifold activity of the creative word, magic permeated metaphysics. Polytheism persisted, and names were among the spiritual manifestations of the gods. Magical literature and popular tales preserved the traditions of the great gods of the universe.

Redistribution of Power

The king gained from the revolution as the incarnation of the king gods: Falcon; Horus-Seth; Ra; Ra-Harakhti; Osiris; Horus, son of Isis; and Amon-Ra, who ruled Egypt. The king's devotion created a great wave of faith among the people. Ritual enabled him to appoint a proxy to act as prophet. Power was delegated to professional priests, who first incarnated themselves in the king

and performed the ceremonies in every temple every day. The worship of Ra and the celestial gods was confined to priests and temples. The priests of Atum condensed revelation in the rituals of divine worship, and a cult supplied the needs of living images in statues in the temple.

EFFECTS OF CHANGE

Invasion

The shift from dependence on stone to dependence on papyrus and the changes in political and religious institutions imposed an enormous strain on Egyptian civilization. Egypt quickly succumbed to invasion from peoples equipped with new instruments of attack. Invaders with the sword and the bow and long-range weapons broke through Egyptian defence which was dependent on the battle-axe and dagger. With the use of bronze and, possibly, iron weapons, horses, and chariots, Syrian Semitic peoples under the Hyksos or Shepherd kings captured and held Egypt from 1660 to 1580 B.C.

permitted cursive forms suited to rapid writing. "When hieroglyphs were chiselled on stone monuments they were very carefully formed and decorative in character. When written on wood or papyrus they became simpler and more rounded in form . . . The cursive or hieratic style was still more hastily written, slurring over or abbreviating and running together . . . they ceased to resemble pictures and became script."⁵

"By escaping from the heavy medium of stone" thought gained lightness. "All the circumstances arouse interest, observation, reflection."⁶ A marked increase in writing by hand was accompanied by secularization of writing, thought, and activity. The social revolution between the Old and the New Kingdom was marked by a flow of eloquence and a displacement of religious by secular literature.

The Organization of Scribes

Writing had been restricted to governmental, fiscal, magical, and religious purposes. With the increased use of papyrus and the simplification of hieroglyphic script into hieratic characters—in response to the demands of a quicker, cursive hand and the growth of writing and reading—administration became more efficient. Scribes and officials charged with the collection and administration of revenues, rents, and tributes from the peasants became members of an organized civil service, and prepared accounts intelligible to their colleagues and to an earthly god, their supreme master.

After 2000 B.C. the central administration employed an army of scribes, and literacy was valued as a stepping-stone to prosperity and social rank. Scribes became a restricted class and writing a privileged profession. "The scribe comes to sit among the members of the king's house."⁷ "Put fails to eat the victuals of the king's house."⁸ "Put writing in your heart that you may protect yourself from hard labour of any kind and be a magistrate of high repute. The scribe is released from manual tasks."⁸ "But the scribe, he directeth the work of all men. For him there are no taxes, for he payeth tribute in writing, and there are no dues for him."⁹

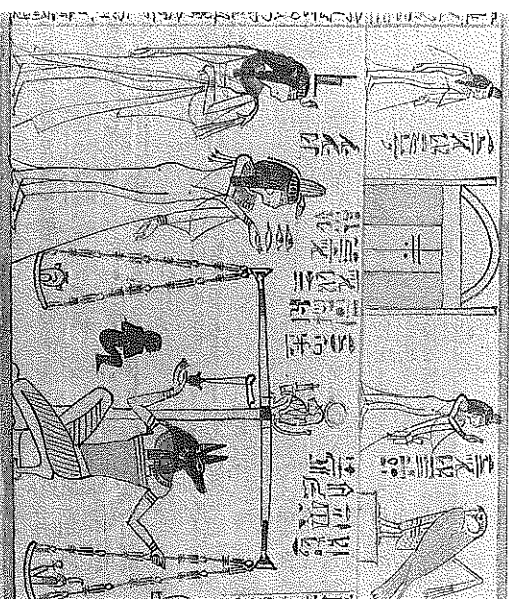
EFFECTS OF WRITING AND EQUALITY

New Religions

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medicine became a matter of rites and formulae¹⁶ and opened the way to Greek physicians and anatomists in Alexandria. . . .

THE CITY-STATES OF SUMER

In Egypt, ability to measure time and to predict the dates of floods of the Nile became the basis of power. In the Tigris and Euphrates valleys in southern Mesopotamia, the rivers¹⁷ were adapted to irrigation and organized control, and less exacting demands were made on the capacity to predict time. Sumer was a land of small city-states in which the chief priest of the temple was the direct representative of the god. The god of the city was king, and the human ruler was a tenant farmer with the position and powers of a civil governor.

It has been suggested that writing was invented in Sumer to keep tallies and to make lists and, hence, was an outgrowth of mathematics. The earliest clay tablets include large numbers of legal contracts, deeds of sale, and land transfers, and reflect a secular and utilitarian interest. Lists, inventories, records, and accounts of temples and small city-states suggest the concerns of the god as capitalist, landlord, and bank. Increased revenues necessitated complex systems of accounting and writing intelligible to colleagues and successors. Temple offices became continuing and permanent corporations. Growth of temple organizations and increase in land ownership were accompanied by accumulation of resources and differentiation of functions. Specialization and increased wealth brought rivalry and conflict.

CLAY AND CUNEIFORM

Alluvial clay found in Babylonia and Assyria was used for the making of brick and as a medium in writing. Modern discoveries of large numbers of records facilitate a description of important characteristics of Sumerian and later civilizations, but they may reflect a bias incidental to the character



Old Babylonian period cylinder seal and its impression. Royal Ontario Museum.

of the material used for communication. On the other hand, such a bias points to salient features in the civilization.

In preparation for writing, fine clay was well kneaded and made into biscuits or tablets. Since moist clay was necessary and since the tablet dried quickly, it was important to write with speed and accuracy.¹⁸ Pictographs of fine lines made by an almost knife-sharp reed were probably followed by linear writing such as might be easily cut on stone records. But the making of straight lines tended to pull up the clay, and a cylindrical reed stylus was stamped perpendicularly or obliquely on the tablet. A triangular stylus of about the size of a small pencil with four flat sides and one bevelled end was introduced, probably in the second half of the third millennium. It was laid on a sharp edge, and if the tip was pressed deeply, a true wedge or cuneiform appeared on the tablet. If the stylus was pressed lightly, a large number of short strokes was necessary to make a single sign.

Economy of effort demanded a reduction in the number of strokes, and the remnants of pictorial writing disappeared. As a medium, clay demanded a shift from the pictograph to formal patterns. "The gap between picture and word is bridged."¹⁹ Cuneiform writing was characterized by triangles and the massing of parallel lines. The complexity of a group of wedges of different sizes and thicknesses, and an increase in the size of the

tablets, which changed the angle at which they were held in the writer's hand, hastened the tendency towards conventionalization. A change in the direction of the angle²⁰ meant a change in the direction of the strokes or wedges and hastened the transition from pictographs to signs.²¹ Conventionalization of pictographs began with signs most frequently used and advanced rapidly with the replacement of strokes by wedges. Pictographic expression became inadequate for the writing of connected religious or historical texts, and many signs were taken to represent syllables.

By 2900 B.C. the form of the script and the use of signs had been fully developed, and by 2825 B.C. the direction of writing and the arrangement of words according to their logical position in the sentence had been established. Signs were arranged in compartments on large tablets. The writing ran from left to right, and the lines followed horizontally. Cylinders could be rolled on wet clay to give a continuous impression, and cylinder seals of hard stone were introduced. Engraved with various designs, they served as personal symbols and were used as marks of identification of ownership in a community in which large numbers were unable to read and write. Seals were carried around the neck and served to stamp signatures on contracts concerning property and ownership.

Concrete pictographs involved an elaborate vocabulary with large numbers of items. To show

modifications of the original meaning, signs were added to the pictures. As many as 2,000 signs were used. By 2900 B.C. the introduction of syllabic signs in a vocabulary which was largely monosyllabic had reduced the number of signs to about 600. Of these signs, about 100 represented vowels, but no system was devised for representing single consonantal sounds or creating an alphabet. Cuneiform writing was partly syllabic and partly ideographic, or representative of single words. Many of the signs were polyphonic or had more than one meaning. Sumerian had no distinctions of gender and often omitted those of number, persons, and tenses. An idea had not fully developed to the symbol of a word or syllable. Pictographs and ideograms took on abstract phonetic values, and the study of script became linked to the study of language.

Sun-dried tablets could be altered easily; this danger was overcome by baking in fire. Indestructibility assured inviolability for commercial and personal correspondence. Though admirably adapted by its durability to use over a long period of time, clay as a heavy material was less suited as a medium of communication over large areas. Its

general character favoured the collection of permanent records in widely scattered communities.

CLAY AND SOCIAL ORGANIZATION

Religious Power

Adaptability to communication over long distances emphasized uniformity in writing and the development of an established and authorized canon of signs. Extensive commercial activity required a large number of professional scribes or those who could read and write. In turn, the difficulties of writing a complex language implied a long period of training and the development of schools. Temple accounts and sign lists with the names of priests inventing the signs were made into school texts. In order to train scribes and administrators, schools and centres of learning were built up in connection with temples, and special emphasis was given to grammar and mathematics. Since the art of writing as the basis of education was controlled by priests, scribes, teachers, and judges, the religious point of view in general knowledge and in legal decisions was assumed.

Clay tablet and envelope, later Persian period. Royal Ontario Museum.



Scribes kept the voluminous accounts of the temples and recorded the details of regulations in priestly courts. Practically every act of civil life was a matter of law which was recorded and confirmed by the seals of contracting parties and witnesses. In each city, decisions of the courts became the basis of civil law. The growth of temples and extension in power of the cult enhanced the power and authority of priests. The characteristics of clay favoured the conventionalization of writing, decentralization of cities, the growth of continuing organization in the temples, and religious control. Abstraction was furthered by the necessity of keeping accounts and the use of mathematics, particularly in trade between communities.

The accumulation of wealth and power in the hands of the priests and the temple organization, which accompanied the development of mathematics and writing, was probably followed by ruthless warfare between city-states and the emergence of military specialization and mercenary service. It has been suggested that the control of religion over writing and education entailed a neglect of technological change and military strength. Temple government or committees of priests were unable to direct organized warfare, and temporal potentates appeared beside the priest. The latter enjoyed a prerogative and led the prince into the presence of the deity.

NOTES

1. In particular heavy emphasis on papyrus as a basis of feudalism in contrast with alphabet and bureaucracy of Roman Empire.
2. Naphthali Lewis, *L'industrie du papyrus dans l'Égypte Gréco-Romaine* (Paris, 1834), p. 117. See F. G. Kenyon, *Ancient Books and Modern Discoveries* (Chicago, 1927).
3. Alfred Lucas, *Ancient Egyptian Materials and Industries* (London, 1934), pp. 133 ff.
4. Alexander Moret, *The Nile and Egyptian Civilization* (London, 1927), p. 457 n.
5. Lynn Thorndike, *A Short History of Civilization* (New York, 1927), pp. 37-8.

6. Moret, *op. cit.*, p. 457 n.

7. Cited I p. 270.

8. Cited V don, 1947, p. 194.

9. Cited V don, 1947, p. 194.

10. Reinhold Niebuhr, *Mythology* (New York, 1947), p. 147 n.

11. Cassirer, *op. cit.*, p. 147 n.

12. Moret, *op. cit.*, p. 457 n.

13. Ibid., p. 457 n.

14. Sir William Mitchell, *op. cit.*, p. 147 n.

15. h 1479 (

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4. Alexander Moret, *The Nile and Egyptian Civilization* (London, 1927), p. 457 n.
5. Lynn Thorndike, *A Short History of Civilization* (New York, 1927), pp. 37-8.

6. Moret, *The Nile and Egyptian Civilization*, p. 457. *Till to astonish'd realms POPYRA taught To paint in mystic colours Sound and Thought. With Wisdom's voice to print the page sublime. And mark in adamant the steps of Time.* (Erasmus Darwin, *The Loves of the Plants*, 1789.)
7. Cited Moret, *The Nile and Egyptian Civilization*, p. 270.
8. Cited V. Gordon Child, *Man Makes Himself* (London, 1936), p. 211.
9. Cited V. Eric Peet, *A Comparative Study of the Literature of Egypt, Palestine, and Mesopotamia* (London, 1931), pp. 105-6.
10. Reinhold Niebuhr, *The Children of Light and the Children of Darkness* (New York, 1945), p. 80.
11. Cassirer had described language and myth as an original and indissoluble correlation with one another and as emerging as independent elements. Mythology reflected the power exercised by language on thought. The word became a primary force in which all being and doing originate. Verbal structures appeared as mythical entities endowed with mythical powers. The word in language revealed to man that world that was closer to him than any world of material objects. Mind passed from a belief in the physio-magical power comprised in the word to a realization of its spiritual power. Through language the concept of the deity received its first concrete development. The cult of mysticism grasped with the task of comprehending the Divine in its totality and highest inward reality, and yet avoided any name or sign. It was directed to the world of silence beyond language. But the spiritual depth and power of language was shown in the fact that speech itself prepared the way for the last step by which it was transcended. The demand for unity of the Deity took its stand on the linguistic expression of Being, and found its surest support in the word. The Divine excluded from itself all particular attributes and could be predicated only of itself.

12. Moret, *The Nile and Egyptian Civilization*, p. 383.
13. *Ibid.*, p. 403.
14. Sir William Ridgeway, *The Origin and Influence of the Thoroughbred Horse* (Cambridge, 1903). On the significance of the Hyksos invasion in introducing the horse and chariot, see H. E. Wenlock, *The Rise and Fall of the Middle Kingdom in Thebes* (New York, 1947), ch. 8.
15. h 1479 (?) Breasted.

an period. Royal Ontario Museum.

