POPULAR SCIENCE

EDUCATION IN ANCIENT EGYPT

By WARREN R. DAWSON

Our alphabet consists of twenty-six letters, and the child who places his foot upon the lowest rung of the educational ladder when he begins to learn his A B C doubtless thinks these letters to be quite needlessly numerous. In the written language of ancient Egypt—the hieroglyphs—over three thousand signs are known, and whilst it is true that many of them are very rare, several hundreds were in common use. And whereas all our letters have one value only, namely alphabetic, the Egyptian signs might under various conditions be alphabetic, syllabic, ideographic, or determinative. Moreover, one and the same sign may, in certain circumstances, play any of these rôles, and may in addition have more than one phonetic value; consequently it will readily be understood that the youthful Egyptian, in beginning his career along the noble path of learning, had from the outset far more to assimilate than the modern child before starting on the more complex problems of grammar and syntax.

We are unfortunately without information as to the method by which the Egyptians arranged and taught their enormous syllabary in the earlier periods of Pharaonic history, but a few documents have survived from the later periods which we will examine hereafter.

It is certain that the *fellahin* and most of the working classes in Egypt could not read or write, and they probably received no education at all. An exception must be made in the case of the workmen engaged in engraving and painting inscriptions on the tombs, etc. These men were able to read and write, a fact upon which we have quite definite documentary evidence. The man who could read and write was called a *scribe*, a term which in general corresponds to the mediæval significance of the word *clerk*. We have abundant evidence that the scribe's profession was held to be one of the greatest dignity and importance, as we shall presently see. We know, moreover, that definite schools existed attached to the great temples and to the government departments, where boys were

trained in reading, writing, and arithmetic to equip them for their future careers. Whilst it is true that Egyptian learning was severely practical and in general did not extend beyond the every-day requirements of life, nevertheless one cannot help feeling that this aspect of the question has often been exaggerated, and that the moral and æsthetic aspects of education were by no means neglected. On this point we are fortunately well informed, for antiquity has spared to us a considerable quantity of school exercise-books from which we are able to examine the nature of the subjects taught. Before we examine these, however, we must say a word as to the script and the writing materials employed.

The hieroglyphic signs (which, as is well known, represent human beings, mammals, birds, and other animals in various attitudes, plants, natural, and artificial objects of various kinds) were employed chiefly for monumental purposes, and they are to be found sculptured or painted in great detail upon the temples, tombs, and other monuments throughout Egypt. For every-day purposes, and for manuscripts generally, a cursive script was derived from hieroglyphic, and this is known by the somewhat misleading name of *hieratic*. In this script the signs assume a cursive and abbreviated form, and it bears the same relationship to the formal hieroglyphic writing as handwriting with us bears to printed type. It is merely a question of difference in *writing*, the grammar and syntax being identical with that of hieroglyphic inscriptions. Hieratic manuscripts are always written from right to left in ink with a reed-pen. Red ink is used for headings, dates, colophons, and other similar purposes, and in literary compositions red dots, known as verse-points, placed just above the line, divide the text into verses or paragraphs. The writing material was of several kinds: *papyrus*, a kind of paper made of two or more layers of the fibres of the papyrus-plant gummed together with the fibres of the respective layers at right-angles to one another; *tablets* or wooden boards covered with plaster and whitened; *parchments* or leather rolls; and *ostraca*, *i.e.* potsherds or flakes of white limestone. Papyrus was used chiefly for literary works, letters, and generally for documents of an important nature or intended for permanent use. Tablets were used much in the same way as school slates are used to-day: the writing could be washed out and the surface re-whitened and used again; leather rolls are rare, but commonest of all are ostraca. Jottings and memoranda of an ephemeral nature were scribbled on ostraca, which were thrown away after they had served their purpose, and many school exercises were written on ostraca, as papyrus was expensive and too good for such temporary uses. Papyrus was, however, largely used for

school-books, when the pupil had attained sufficient progress to embark upon long texts for which ostraca were too small, and as we have already stated, a number of such papyrus rolls has survived. These school-books may be generally characterised as *Miscellanies* or collections of subjects of a most varied character.

Most of these miscellanies consist mainly of collections of model letters, interspersed with literary exercises often cast in epistolary form. In this we see the practical side of Egyptian education, for it was an essential part of a scribe's duties to be able to compose letters relating to the affairs of business and of civil life. The best known documents of this type are the *Papyri Anastasi I–VI*, *Sallier I*, and *Lansing*[1] in the British Museum, the *Papyrus Koller* in Berlin, the *Papyrus No.* 1094 at Bologna, and the *Papyrus No.* 348 at Leiden. In addition to these, others are known, and also some similar but shorter works written upon ostraca. The names of the pupil and his teacher are often introduced into the letters as those of the sender and the addressee. Egyptian letters can be divided into three classes, (i) Superior to Subordinate, (ii) Equal to Equal, (iii) Subordinate to Superior. The three classes can be readily distinguished by the formulæ employed in them. In the first class, the writer issues instructions to his subordinate without any introductory salutations or courtesies and ends the letter with the curt phrase " Now look to it ! " In the second class, greetings and good wishes are exchanged, and the letter ends with " good health to you." Finally, in the third class, when the subordinate writes to his superior, the greater part of the letter is filled with elaborate and servile salutations and prayers, and assurances of fidelity, industry, and close attention to all duties. Many specimens are to be found in the papyri just mentioned of letters of all three types. As to the subject-matter of the letters (as distinct from the epistolary formulæ), we have the most varied topics presented to us. Amongst the letters of the first class we find instructions from absent masters to the servants of their estates to feed their cattle, exercise their horses, and attend generally to their affairs. Again, orders are given to make ready for a visit of the Pharaoh or some important member of his staff, or to collect taxes and tribute. Other letters, again, contain instructions to despatch or receive various commodities by river, or to erect and repair monuments. In the second class we have letters that are little more than elaborate and reiterated good wishes, prayers to the gods addressed by the sender for the recipient's welfare ; others, again, give news of absent relations

[1] I have given an account of this newly-published papyrus in the *Asiatic Review*, April 1925, pp. 309 ff.

and friends or describe the doings of the sender for the entertainment of the recipient. In the third class we find letters sent by officials to their absent lords, reporting on the good condition and prosperity of their estates, not forgetting to mention that this happy state of affairs is due to their own industry and integrity. The subordinate respectfully prays for the health and prosperity of his lord, " assuring him of his best attention at all times." The educational aim of these model letters is nowhere better exemplified than in the passages which contain long lists of commodities, of articles manufactured or unmanufactured, of food-stuffs, plants, birds, fishes, and minerals, many of them of foreign origin, and obviously introduced to enlarge the pupil's vocabulary and to make him familiar with rare and difficult words. A long list of technical terms—the various parts of the chariot and its equipment—occurs in one letter and evidently has the same purpose in view. Many of these model letters were evidently stock copies, for duplicates of them are found in several papyri. Interspersed amongst the letters we find purely literary exercises in which poetical expression and style are aimed at. Such are the hymns to Amen, the god of Thebes, and to Thoth the god of learning, and to other divinities, which occur. Again, we have flowery and eulogistic descriptions of Thebes, Memphis, and other cities, and complimentary addresses to the Sovereign. It is this feature which leads one to the opinion that the scribe's education was not so severely practical as many writers have suggested, but that the purely literary elements of education were appreciated and encouraged. These little pieces appear amongst the model letters without introductory formulæ, but other passages quite as literary are introduced by the usual epistolary phrases and drafted in the form of letters. Amongst such, a very favourite theme was the admonition of the idle scribe. Several of the papyri contain short passages in which warnings and threats to lazy and indolent pupils are propounded, and the master improves the occasion by dilating on the disgrace which bad habits bring upon the esteemed profession of the scribe and exhorts the erring pupil to mend his ways. Thus in the *Papyrus Koller* the lazy scribe is compared to a careless sailor who stands on the prow of his boat heedless of contrary winds and dangerous currents, and who courts disaster by his negligence. Another similar passage holds up to contempt the scribe who is sowing his wild oats, and pursuing habits of drunkenness and vice. He is stigmatised as being " like a boat that has lost its rudder, like a shrine without its god, like a household without bread," and as being shunned by decent people. A similar passage in the *Papyrus Sallier No. I*, of which several duplicates are known, exhorts the idle

scribe to consider the dignified profession to which he belongs and the prospects which his lazy habits are endangering, and draws a lurid comparison between the honourable life of the scribe and the terrible hardships of the field-labourer, who toils from morning till night to raise a poor crop, which is so denuded by vermin and by thieves that he cannot pay his taxes, and is seized, beaten, and thrown in prison. This comparison of the scribe's profession with other callings was perhaps the most favourite of all literary *motifs*. Again and again in the model letters the advantages of the literary career are shown against the lurid background of other callings. The soldier complains that he has too many officers, that he is overworked and badly fed, that he has hardships and feats of endurance to perform which tax him to the uttermost. The charioteer's life is no better, and the manual labourer's life is scarcely worth living. The greater part of the *Papyrus Lansing* is concerned with this topic, and the whole of another literary work known to scholars as the *Satire des Métiers* is devoted to a description of the hardships of workers and craftsmen of various kinds. A complete copy of this work is found in the *Papyrus Sallier No. II*, another copy is contained in *Papyrus Anastasi VII*, and innumerable copies of parts of the text are found on ostraca. This work, from the numbers of duplicates known, must have been the most popular of all literary pieces in the Theban schools under the Ramesside kings. The author admonishes his pupil to pay attention to learning and to uphold the dignity of the scribe's profession, for " I have never seen a smith sent on an embassy, nor a smelter sent on a mission, but I *have* seen the metal-worker at his toil, at his furnace and his forge, his fingers as rough as crocodile-skin and stinking more than fish-spawn." The long text recounts the toils and sufferings of the stone-mason, the barber, the boatman, the field-labourer, the builder, the gardener, the weaver, the dyer, and a host of others.

We owe to the youthful scribes and schoolboys of Egypt a number of ancient literary works, the originals of which are lost, but which have survived wholly or partly in school copies. The celebrated *Story of the Two Brothers* has come down to us in the copy made by the schoolboy Ennene, who lived in the reign of Sety II (about 1205 B.C.), and to whom we are indebted for the *Papyrus Sallier No. II*, which contains three literary works, and the *Papyri Anastasi IV* and *VI*, which are collections of model letters. Another youthful scribe, Pentowere, who was educated in the reign of the Pharaoh Meneptah, successor to Ramesses the Great, has left us two of his school books, known to-day as the papyri *Sallier I* and *Sallier III*. The first of these opens with an historical romance in which

the Theban king Sekenenre quarrels with the Hyksos ruler Apophis ; unfortunately Pentowere did not finish the story, but broke off in the middle of a sentence, probably when dismissed from school, to resume with " the beginning of the manual of letter-writing made by the scribe Pentowere in the year 10, seventh day of the month of Hathor " (November 16). The other papyrus contains a copy of the poetical account of the victory of Ramesses II over the Hittites which the king won in the fifth year of his reign.

Another literary classic which was very popular in the Theban schools of the new kingdom is a book entitled " The Instruction of Amenemmes to his Son." This Amenemmes was a celebrated Pharaoh, the founder of the Twelfth Dynasty (about 2000 B.C.), who made a kind of political testament confiding a prosperous and pacified kingdom to his son's charge. No contemporary copy of this book has survived, and we are therefore indebted to the pupils Pentowere, Ennene, and others who have left us their school copies made several centuries later. The same may be said of several other Egyptian literary works. Incidentally it may be noted that these literary classics must have been very limited in number, for in almost every instance duplicate texts have been found. The most notable exceptions to this statement are afforded by the stories of the magicians of the Pyramid Age preserved in the *Westcar Papyrus* at Berlin, and the *Story of the Two Brothers*, mentioned above, each of which is known to us from a single manuscript.

Mathematical exercises have been found, but are not common. The *Rhind Mathematical Papyrus*, which is a large document containing tables, calculations, and geometrical problems, is the principal source of our knowledge of Egyptian mathematics, and this supplemented by a number of lesser fragments. An account of this papyrus and of Egyptian mathematics in general by the present writer appeared in SCIENCE PROGRESS, July 1924, Vol. XIX, pp. 50–9. For the ancient Egyptian, mathematics was a science entirely for practical purposes, and having attained its purpose, tended to stagnate ; but as I have shown elsewhere, the Egyptians had very considerable knowledge of mathematics and were capable of making abstruse calculations. Ostraca covered with figures are frequently found, but little can be learned from these detached fragments. In the writer's collection is an ostracon on one side of which is an extract from a literary work, a full copy of which is preserved in a papyrus which is now in Russia, and on the other side is an exercise in numbers, the numerals from 1 to 70,000 being written in their hieratic forms in units, tens, hundreds, etc. Arithmetic, and especially weights and measures, play a prominent part in the papyri

and ostraca containing accounts of which innumerable specimens have been found.

With regard to Egyptian lesson-books in general, it may be said that most of the texts so preserved to us are very corrupt, and contain all the offences against grammar and spelling which the schoolboy has kept as a living tradition throughout the ages. Corrections by the teacher's hand are often to be seen in the margins, and it was customary for the pupil to write the date in red ink at the termination of each day's lesson. The writing is, generally speaking, very good. The pupil was required, naturally, to write his exercises in his very best handwriting, and consequently the school-books are easy to read, far easier than the very cursive and ligatured writing of the professional scribes, as we see in the many juristic and business documents which have survived. The writing of actual letters (that is to say real letters missive, as opposed to the model letters described above) is often extremely difficult to decipher. In idle moments the schoolboy frequently drew pictures of animals, etc., in the margins of his book, and indulged in aimless scribblings.

The tuition in Egypt seems to have been carried out by professional scribes in various administrative offices to juniors whose status must have been very like that of apprentices. In the temple-schools the teaching was done by priests. We have no information as to the details of the schools, but from many indications we may gather that discipline was strict, and was rigidly enforced. We may merely quote a sentence in the *Papyrus Anastasi III* in support of this view : "A boy's ears are on his back ; he hears when he is beaten," says the teacher.

The papyri described above and the comments we have made thereon refer to the period of the Eighteenth–Twentieth Dynasties. When we come to later times we have some scraps of evidence of another kind to consider, but before going on to these we may mention in passing that books of reference were compiled, doubtless for educational purposes, and these include vocabularies, or classified lists of words. The most important of these glossaries have not yet been published, so that in the meantime we may merely note their existence.

In the spring of 1884, whilst exploring the ruins of the city of Tanis in the Delta (the Sân of the Old Testament) Sir Flinders Petrie found the charred remains of a batch of papyri in the debris of a house that had been burnt. Amongst these charred remains was one papyrus of quite exceptional interest, and with almost incredible patience and skill Prof. Griffith pieced the blackened fragments together and deciphered them, the results of his labour being published by the Egypt Explora-

tion Society in a special memoir. The papyrus is of late date (Greco-Roman) and contains a list of well-drawn hieroglyphs, with an explanation written in hieratic against each sign. It is the first and only native list of hieroglyphs which has come down to us. The first sign is the bee, a royal emblem, and it is followed by a number of signs representing human beings in various attitudes. These are succeeded by the frog, fishes, reptiles, and various other animals. For a space the classification is not so definite, but it is resumed in a series of parts of the human body and parts of animals. The sky, sun, and moon follow next, then the earth, after which classification ceases and the remaining signs are presented in quite arbitrary order. The two first columns, namely the hieroglyphs and their hieratic equivalents, have an obvious educational value, and the notes in the third column, which give either the phonetic value or meaning, is doubtless intended to convey the names by which the signs were generally known or might be recognised. Professor Griffith in commenting on the papyrus says " the need must have been felt in Egypt for some means of distinguishing hieroglyphic signs *viva voce*, both in the schools and in ordinary life. Names must therefore have been attached to the immense hieroglyphic syllabary, and taught with care, from the earliest times. If we consider the third column as devoted to the names of the signs, we shall find a fair explanation " (*Two Hieroglyphic Papyri from Tanis*, p. 5).

After the Twenty-sixth Dynasty (about 650 B.C.) hieratic writing gradually gave place to a later and still more cursive script known as *demotic*, and in Ptolemaic times demotic was used almost exclusively for all but religious purposes. We have, however, no demotic school papyri corresponding to those described above—the hieratic papyri of the Eighteenth–Twentieth Dynasties, but a few ostraca have survived which are of extreme interest in the history of education. These ostraca, several of which are known, are inscribed with paradigms and are actual lessons in the conjugation of verbs. To those already known another has been added and recently published (N. Reich, *Journal of Egyptian Archæology*, vol. x, p. 285), and conjugates the past tense of the verb " to say." The order is the same as that which we should use in a modern grammar-book, *i.e.* 1st person ; 2nd person, masculine and feminine ; 3rd person, masculine and feminine : and similarly for the plural.

" *Singular.* I said.
Thou saidst (masc.).
Thou saidst (fem.).
He said.
She said.

Plural. We said.
Ye said.
They said."

When Christianity was introduced into Egypt, demotic writing finally gave place to *Coptic*. The Coptic language is the ancient language of the hieroglyphs (greatly modified of course by the lapse of time, just as modern Italian differs from classical Latin), written in Greek characters, but with six additional letters borrowed from demotic to represent sounds not known in Greek. The Coptic Christians often took possession of the great tomb-chambers of earlier ages and occupied them as houses, churches, and schools. The famous tombs of Beni Hasan which date from the Twelfth Dynasty were so occupied, as many Coptic *graffiti* on the walls prove, and in one of them, Tomb No. 12, is a most interesting Coptic inscription which is a spelling lesson. The original, a reduced facsimile of which is here reproduced, is roughly and irregularly traced, and is partly effaced, but it is easy to restore the missing parts of the columns.

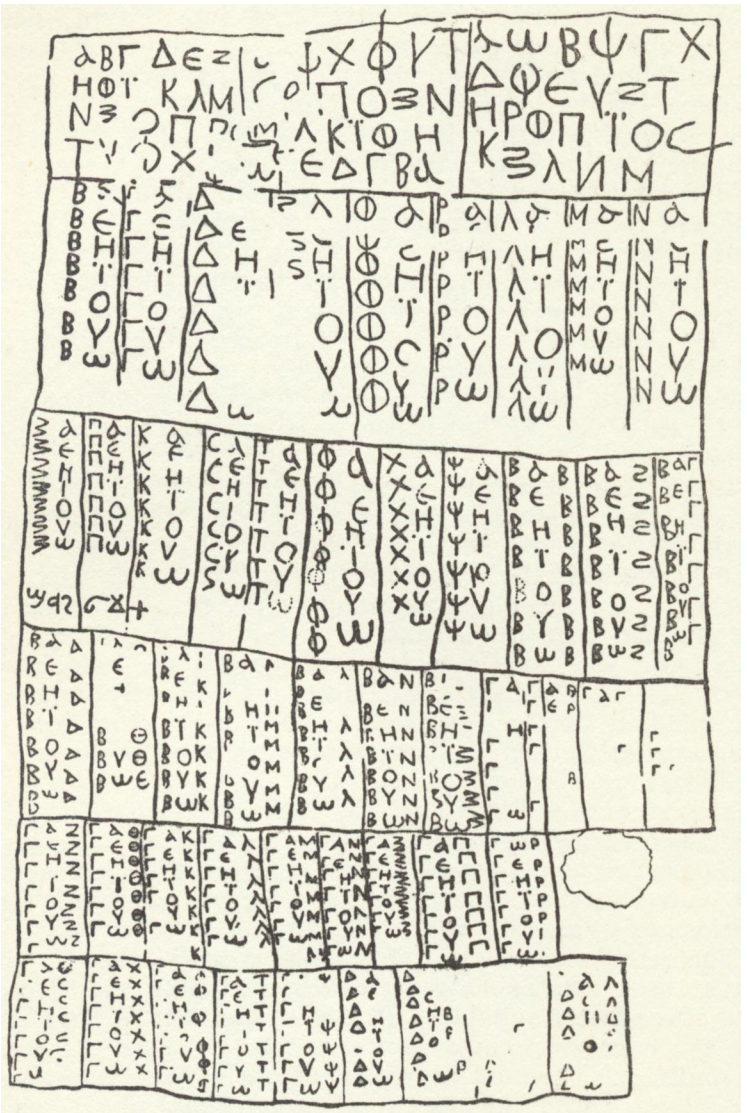
In the first register are three columns, the first of which contains the Greek alphabet (written with the characteristic Coptic forms of the letters) in its normal sequence. In the second column is the same alphabet written backwards, and in the third it is written in an arbitrary order thus : the first letter and the last, then the second letter and the penultimate, and so on ; but with an error, for Σ is out of place, which upsets the true order. These three columns are evidently for teaching the alphabet, for the pupil had to know each letter, and to be able to recognise each in its normal order, then backwards, and finally in a promiscuous order.

The second register and the first eight columns of the third are occupied by simple two-letter syllables each composed of a consonant and a vowel. Each consonant is combined with each vowel in turn, but again an error has occurred, for the positions of κ [1] and ρ are transposed.

The remainder of the third register, and cols. 1–7 of the fourth, sets out another series of combinations. Here we have three-letter syllables, all beginning with β and ending with the consonants in order from β to ξ. Thus the series is incomplete, as the final consonants from π to ψ are wanting. The column ending in ζ is out of order, being placed, as it is, between γ and δ. The next series, which extends from the eighth column of the fourth register to the fifth column of the last register, is a similar set of compounds beginning with γ,

[1] In these paragraphs the Greek type equivalents are used for the Coptic forms on the original, as being more easily understood.

which is in correct order following the series with β. All the consonants are used in this group ; but as usual, with errors, for the final χ, ϕ, τ, and ψ are in wrong order. Another series



of the same type, beginning with δ, was commenced in the last three columns of the lowest register, but this comes to a premature end through lack of space after the group $\delta a \delta$. It may be noted that the last two series, $\gamma a \beta$ and $\delta a \beta$, are

preceded by the simple combinations γα and δα, but the first series βαβ omits this introductory column.

This table is of the greatest interest, for it shows a method of teaching exactly similar to our g-o = " go," c-a-t = " cat." The table is full of mistakes, some of which we have pointed out, and to these we may add that θ in cols. 1, 2, 3, and 8 is written ϑ; in col. 3 Ν is written backwards; in the last column of the fifth register γωρ is written in the first line instead of γαρ; and finally in the fourth register the ruling cuts the syllable γαγ after the second letter, to remedy which another line was traced to divide the column from the one in front of it, which has two letters only.

We may also note that the six Coptic letters, which are not employed at all in the table, are written at the foot of cols. 1–3 of the third register.

From the above remarks it must be admitted that from material at present available we can do no more than indicate some general facts regarding education in Egypt. Perhaps future discoveries may enlighten us as to the exact manner in which the alphabet, syllabary, and grammar were taught in ancient times. Although unknown to us, a method, and a very efficient one, must have been devised and used, otherwise the innumerable hieroglyphic, hieratic, and demotic texts now available to scholars could never have been written.