place in the space of five or ten years. This statement is abundantly supported by experimental evidence. The necessity for giving names to these incipient species is, therefore, obvious.

Taxonomy is but a tool which is used for the interpretation of life processes, and yet its value is beyond question and can not be denied by any one. It is the foundation upon which all the biological sciences rest. The alleged overmultiplication of generic and varietal names is but an attempt to inquire more closely into the true relationships of organisms. More attention should be given to this subject in university curricula in order that the student may have a just appreciation of its importance and an understanding and sympathetic attitude toward the systematist who is endeavoring to make a just and true interpretation of the relation of life to the laws through which it has come into existence. This can not be accomplished by the kind of criticism which has been in vogue, but by an increase of workers who will help to untangle much of the chaos that now surrounds the classification of many groups of animals.

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EGYPTIAN MATHEMATICS

IT may be well to make generally available information supplementing, or correcting, some matters referred to in my address on "Mathematics before the Greeks" recently published in SCIENCE,[1] since the matters in question are of somewhat general interest.

(1) Following other writers I referred to the hieroglyph for 1,000 as "a lotus flower" when further investigation would have shown that I should have said "a stem with a lotus leaf."

(2) In giving references to discussions as to "whether the Egyptian had a conception of the general fraction" I might very appropriately have given a reference to a recent discussion by Kurt Vogel who concludes[2]: "Es wird also jetzt von allen Seiten anerkannt, dass der Ägypter den klaren Begriff des allgemeinen Bruches (in dem nicht-komplexen Sinn) gehabt hat."

(3) Quoting Breasted's "Ancient Times," 1916, I noted that "the earliest dated event in history was the establishment in 4241 B. C. of the Egyptian calendar of twelve months of thirty days plus five feast days." Breasted's statement is doubtless based on Eduard Meyer's "Ägegyptische Chronologie."[3] In 1917 Borchardt showed[4] that the date 4241 should be 4236 (with a possible error of two years), and up to 1925 this was the accepted date.[5] Mr. S. R. K. Glanville, of the British Museum staff, has, however, kindly pointed out to me that in a recent study of this question, Alexander Scharff[6] makes clear the possibility that 2776 instead of 4236 might in fact be the year when the Egyptian calendar was inaugurated.

(4) One of my statements concerning the Cheops pyramid needs to be revised as follows: "It is said that 100,000 workmen were kept constantly employed on this structure for thirty [not *fifty*] years, ten years of this period being used in constructing a road to the Nile, 1,017 yards [not *limestone quarry some miles*] distant." In the history of Herodotus, written in the fifth century B. C., there is a passage which informs us in this connection as follows[7]:

> Till the time of Rhampsinitus Egypt (so the priests told me) was in all ways well governed and greatly prospered, but Cheops, who was the next king, brought the people to utter misery. For first he shut up all the temples, so that none could sacrifice there; and next, he compelled all the Egyptians to work for him, appointing to some to drag stones from the quarries in the Arabian mountains to the Nile: and the stones being carried across the river in boats, others were charged to receive and drag them to the mountains called Libyan. They worked in gangs of a hundred thousand men, each gang for three months. For ten years the peoples were afflicted in making the road whereon the stones were dragged, the making of which road was to my thinking a task but a little lighter than the building of the [great] pyramid, for the road is five furlongs long and ten fathoms broad, and raised at its highest to a height of eight fathoms, and it is all of stone polished and carven with figures. The ten years aforesaid went to the making of this road and of the underground chambers on the hill whereon the pyramids stand; these the king meant to be burial-places for himself, and encompassed them with water, bringing in a channel from the Nile. The pyramid itself was twenty years in the making. Its base is square, each side eight hundred feet long, and its height is the same; the whole is of stone polished and most exactly fitted; there is no block of less than thirty feet in length.

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[1] SCIENCE, 71: 109, January 31, 1930.

[2] K. Vogel, "Die Grundlagen der ägyptischen Arithmetik in ihrem Zusammenhang mit der 2: n-Tabelle des Papyrus Rhind" (dissertation), Munich, 1929, p. 185.

[3] *Phil. u. hist. Abhandlungen d. k. preuss. Akad. d. Wiss.*, 1904, no. 1, pp. 38–44; French translation by A. Moret, Paris, 1912, pp. 48–55.

[4] L. Borchardt, "Die Annalen und die zeitliche Festlegung des alten Reiches der ägyptischen Geschichte," Berlin, 1917, p. 58.

[5] E. Meyer, "Die ältere Chronologie Babyloniens, Assyriens und Ägyptens," Stuttgart, 1925, p. 45.

[6] A. Scharff, "Grundzüge der ägyptischen Vorgeschichte," Leipzig, 1927, pp. 54–57.

[7] Herodotus with an English translation by A. D. Godley (Loeb Classical Library), London, vol. 2, 1921, pp. 424–427.