Once, when I asked the captain of a Cape Ann fishing schooner what names they gave to certain actinians, holothurians, ascidians, etc., he said, "We should not dare to tell our wives and daughters," and I agreed with him. Such are the names that McMurrich and some others would like to revive!

It is rather embarrassing, when asked by an educated lady the name of a beautiful sea-anemone, to have to say that its name is "*Priapus senilis,*" or even *Metridium senilis;* or "*Priapus humanus*" Linné, for another creature; or to give other equally unjustifiable names.

That Linné used these and other names in an obscene sense is evident, not only because often derived from fishermen's dirty names, but because he described his species in the terms of human anatomy of sexual organs, in many cases, too absurd to mention.

It is, therefore, unfortunate that a zoologist of such excellent ability as Professor McMurrich, should waste his time trying to revive these old, dirty, indeterminable names, which he himself admits can not be definitely applied to any species by means of the descriptions themselves, while his indirect evidence is equally uncertain. The names that he thus adopts are *Metridium senilis* for *M. dianthus; Urticina felina* for *U. crassicornis; Priapus equinus* for *Actinia mesembryanthemum.*

In the tenth edition of the "Syst. Nat.," 1758, p. 656, the two species of "*Priapus*" are *P. equinus* and *P. humanus.* The latter is a sipunculoid worm. I do not know that any one has recently tried to revive this name. It has better claims than some of the others.

For *P. equinus* the only description (1758) is "semiovalis læviusculus." Surely not very edifying! In Fauna Suecica, p. 510, he has three more species: *P. senilis; P. judaicus; P. felinus.* The first has, as a diagnosis, only this: "subcylindricus rugosus," with a three-line descriptive note, to the effect that it is the size of the last joint of a finger; that it is fuscous, sordid, rough, with a subcoriaceus tunic, with the upper part soft, thin and sanguineous. These characters surely do not apply to *M. dianthus,* which is large, soft and smooth throughout, and especially delicate and translucent, when as small as the one mentioned by Linné. It does not have the upper part sanguineous, however much it may vary in color. There are other species on the Norwegian coast that agree with the brief description far better. This identification by McMurrich is then in itself untenable, as well as undesirable.

As for "*Priapus felinus,*" 1761, the case is no better. The diagnosis is "cylindricus lævis glande muricata." The descriptive note is "simillarius priori," "sed glande muricata." No reference to earlier works. What he means by a "muricate glans" is hard to understand, if he had a soft actinian before him, like *Actinia mesembryanthemum.* Perhaps he refers here to another sipunculoid worm.

As for the generic name *Priapus,* 1758, if it is to be used at all, it must be applied to the second species, *humanus,* as the type, for the first species was very early (1767) placed in *Actinia.* Whether helminthologists will adopt the name remains to be seen.

A. E. VERRILL

THE EDUCATIONAL VALUE OF MATHEMATICS

TO THE EDITOR OF SCIENCE: In a speech before the Cincinnati Schoolmaster's Club on February 21, 1914, Professor E. L. Thorndike, of Columbia University, made certain statements with regard to the educational value of mathematics and the classical languages, which were quoted in the issue of the *Cincinnati Enquirer* for February 22. One of the statements as quoted was that

> the old notion that Latin or mathematics made the mind more effective in all the work of business, law or other professions was largely superstition.

The phraseology of this statement is certainly misleading. By the use of the expression "old notion" Professor Thorndike tends to convey the impression that no up-to-date, intelligent person has such a notion. That this is the very reverse of the truth may be seen by quoting from an article by Professor C. J. Keyser in the issue of SCIENCE for

December 5, 1913, entitled "The Human Worth of Rigorous Thinking." Professor Keyser is the head of the department of mathematics at Columbia University, Professor Thorndike's own institution, and is a writer of international repute on mathematical subjects and particularly on the educational value of mathematics. I leave it to any one to judge as to who is better qualified to speak with authority on the subject of mathematics and the pedagogy of mathematics, Professor Thorndike or Professor Keyser.

Professor Keyser says in the course of his paper:

> We are beginning to see that to challenge the human worth of mathematics, to challenge the worth of rigorous thinking, is to challenge the worth of all thinking, for now we see that mathematics is but the ideal to which all thinking, by an inevitable process and law of the human spirit, constantly aspires. We see that to challenge the worth of that ideal is to arraign before the bar of values what seems the deepest process and inmost law of the universe of thought. Indeed we see that in defending mathematics we are really defending a cause yet more momentous, the whole cause, namely, of the conceptual procedure of science and the conceptual procedure and activity of the human mind, for mathematics is nothing but such conceptual procedure and activity come to its maturity, purity and perfection.

If Professor Thorndike had read Professor Keyser's paper, of which I have only quoted a brief extract, I doubt if he would have characterized as "superstition" ideas which are so vigorously maintained by one of the men best qualified to speak with authority on the subject in question.

Another statement by Professor Thorndike is that

> Mathematics improves mathematical reasoning but not the power to reason in general.

I am yet to be convinced that there is more than one kind of reasoning; whether one reasons in mathematics or in some other subject, he is going through the same process. Mathematics furnishes the best training in reasoning because the student is required to reason more frequently than in any other subject, and because he is always in a position to test the validity of his reasoning by means of exact concepts.

However, I am not writing this letter because the opinion of some of the educational faddists of the day with regard to the educational value of mathematics is a matter of much significance to a mathematician, in itself. I *am* writing it in defense of a rational curriculum in the high schools and the elementary schools. Having received my own preliminary education in the Cincinnati schools, and having had considerable opportunity of late to observe the preparation of students entering college from this community as compared with that preparation some fifteen years ago, I can only deplore the modern tendency to give at most a superficial attention to fundamental subjects, and to divide the student's energy and attention among a multitude of subjects in such a manner as to create in his mind hopeless confusion and to prevent his having really definite ideas about anything in particular.

The teachers in the high schools and the elementary schools are working just as hard as ever, are just as efficient as ever, but they can not obtain as good results under the handicap of present-day curricula. The student can not be trained to think in as effective a manner as he was fifteen or twenty years ago, under present circumstances. And I believe any reasonable person will agree that the primary object of education is to teach the student to think, whether he is going to enter college or is going out into the world at the end of his high-school course.

But those who have been most responsible for this unfortunate state of affairs in the high schools and the elementary schools, far from realizing the work of destruction that they have already done, are now endeavoring to complete it by attacking what is left of valuable educational training in the curricula of to-day. It is high time that those who see the danger of this movement, and I know there are many, make a resolute stand against it. If such statements as those of Professor Thorndike are allowed to go unchallenged, and thus

to appear to the general public as having the weight of authority behind them, there is no telling where we shall be before the inevitable reaction sets in.

Personally I believe that every student who takes a four year course in high school should be required to study the English language during those four years, and at the same time he should be getting some definite knowledge of either mathematics or the classical languages, preferably of both. Distinct vocational training might well be left in the background until the student has had an opportunity to get some real mental training. I know this is the opinion of the great majority of my colleagues at the University of Cincinnati, including Dean Schneider, of the college of engineering, who is a recognized expert on vocational training. And I do not doubt that it is the opinion of the great majority of college teachers throughout the country.

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SEX IN MULTIPLE BIRTHS

IN a copy of lectures delivered by Dr. Raymond Pearl at the 1912 Graduate School of Agriculture at Lansing, Mich., I find the following tables given, indicating that in multiple mammalian births as the numbers per birth increase, the ratio of males to females decreases.

Man

No. Young per Birth	Males per 1,000 Females
1	1,057
2	1,043
3	548

Sheep

3 Males	3 Males; 1 Female	2 Females 1 Male	3 Females
16	39	22	38

In the sheep there are 215 females to 130 males.

It is worthy of note that these data are from normally uniparous species. In swine where the number at a birth may vary from one to twenty-three (in an exceptional instance) this excess of females is not apparent. In 174 litters the number of males per litter and the expectation based on chance, using the relative frequency of the different-sized litters (fourteen per litter being the largest) was as follows:

No. Males per litter.....	0	1	2	3	4	5
Expectation ..	3.4	12.8	24.6	33.4	34.7	28.5
Actual	2	13	26	28	31	28
No. Males per litter.....	6	7	8	9	10	11
Expectation ..	19.0	10.4	4.6	1.7	0.48	0.11
Actual	21	12	8	2	2	1

This shows but a slight departure from expectation and is within the limits of error for such small numbers. It seems doubtful if there is a tendency toward increased proportions of females in multiparous births. In fact the excess is slightly on the male side here.

In 126 births from various private collie, fox terrier, Scottish terrier and Boston bull terrier records, the following results appear:

No. male pups	0	1	2	3	4	5	6
Expectation	15.1	35.75	37	24.5	10.86	2.8	.3
Actual	14	36	39	22	11	4	0

These statistics give qualitatively the same result. That this accordance with expectation on the basis of chance is not necessarily a property of normal multiple births, is shown by the following statistics on sheep triplets from the Iowa State College flock and two farmers' flocks located near there. The total number of lambings is 146.

	3 Males	2 Males; 1 Female	1 Male; 2 Females	3 Females
Expectation...	18.25	54.75	54.75	18.25
Actual.....	21.00	56.00	51.00	18.00

This gives 226 males and 212 females. The smallness of these numbers does not conclusively indicate that influences other than mere chance do not operate, but they are interesting since they give opposing evidence on the point discussed by Dr. Pearl.

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