mical text books for nearly half a century. Witness also those mathematical tables "independently computed for this work" containing errors identical with older tables. The definitions given by a professional teacher, whose knowledge is gained from and chiefly confined to text books, will therefore be found to differ from those of a mathematician, astronomer or physicist, whose conceptions are drawn from memoirs and documents differing radically from text books. If a mathematician, not a teacher, should write an algebra he would probably reflect usage of mathematical terms by mathematicians better than the teacher; at the same time the teacher might express himself with more clear conciseness and in a manner better adapted to the class room.

The differences pointed out above are illustrated in the work before us. A co-efficient is defined as a *known* factor, in accordance with the usual custom of defining it; it is certain that this restriction is not kept up even in algebraic text-books, as they speak of indeterminate (meaning undetermined) co-efficients. That the leading letters of the alphabet usually stand for known quantities is something which the student has to *un*learn as soon as he gets out of the elements, and often before, as is the case in this work when Interest, Annuities, etc., is reached. The statement (p. 27) that "it is usual to prefix to the parenthesis the sign of the first term that is to be enclosed within it," may be questioned.

"An equation" according to this book "is a statement that two expressions are equal." Suppose we make this statement: "One pound is equal to sixteen ounces," will not this conform to the definition and at the same time will it not fail to represent the algebraist's conception of an equation? According to the definition of "Equation of Condition" $x^2 =$ my is not an equation of condition. "To solve an equation is, to find *the* value of the unknown quantity," thus implying that there is but one value that will satisfy the equation, an impression that will subsequently require correction. The terms *cancel* and *reduce* so much used are not defined. The usage of the first is in accordance with general use but not in accordance with the usual definition. In fact no definition of it in any algebra (I am ready to be corrected) conforms to mathematical usage.

The definition of fraction is purely the arithmetical one in which the numerator and denominator are supposed to be integers and hence fails as a general definition, just as the definition of *index* or *exponent* fails through too great limitation or from tacitly assuming that a general symbol will only have special values.

In spite, however, of the points to which we have called attention above we consider this algebra a useful one. The numerous examples afford the student ample resources for getting practically familiar with algebraic manipulation, and the conspicuous absence of set rules compels the work to be done thoughtfully rather than by rule of thumb. Factoring, that important branch of algebra is fully treated, though the same can hardly be said of radicals. The chapter on logarithms is well done, much better than is common, and to our mind is decidedly the best chapter in the book. The book is well printed and attractive in appearance in spite of the lines at the top of the page and is very free from typographical errors. We have only noticed one, p. 349, Ex. 20, where $10 should read $5.

MARCUS BAKER.

U. S. COAST AND GEODETIC SURVEY OFFICE,
WASHINGTON, D. C., *August* 11, 1881.

METEOROLOGICAL REPORT FOR NEW YORK CITY FOR THE WEEK ENDING SEPT. 10, 1881.

Latitude 40° 45′ 58″ N.; Longitude 73° 57′ 58″ W.; height of instruments above the ground, 53 feet; above the sea, 97 feet; by self-recording instruments.

SEPTEMBER.	BAROMETER. MEAN FOR THE DAY. Reduced to Freezing.	BAROMETER. MAXIMUM. Reduced to Freezing.	BAROMETER. MAXIMUM. Time.	BAROMETER. MINIMUM. Reduced to Freezing.	BAROMETER. MINIMUM. Time.	THERMOMETERS. MEAN. Dry Bulb.	THERMOMETERS. MEAN. Wet Bulb.	THERMOMETERS. MAXIMUM. Dry Bulb.	THERMOMETERS. MAXIMUM. Time.	THERMOMETERS. MAXIMUM. Wet Bulb.	THERMOMETERS. MAXIMUM. Time.	THERMOMETERS. MINIMUM. Dry Bulb.	THERMOMETERS. MINIMUM. Time.	THERMOMETERS. MINIMUM. Wet Bulb.	THERMOMETERS. MINIMUM. Time.	MAXI'M In Sun.
Sunday, 4--	30.008	30.032	12 p. m.	29.950	0 a. m	68.3	64.7	71	3 p. m.	66	3 p. m.	65	6 a. m.	62	6 a. m.	91.
Monday, 5--	30.051	30.096	9 a. m.	30 008	6 p. m.	75.3	70.6	82	4 p. m.	75	4 p. m.	68	5 a. m.	66	5 a. m.	132.
Tuesday, 6--	30.007	30.042	9 a. m.	29.988	4 p. m.	84.6	76.0	97	4 p. m.	81	4 p. m.	74	5 a. m.	72	5 a. m.	150.
Wednesday, 7 -	29.934	29.992	9 a. m.	29.894	5 p. m.	90.6	76.0	101	3 p. m.	83	6 p. m.	79	6 a. m.	73	6 a. m.	154.
Thursday, 8--	30.031	30.088	9 p. m.	29.928	0 a. m.	79.0	71.3	89	2 p. m.	78	2 p. m.	69	12 p. m.	63	12 p. m.	133.
Friday, 9--	30.003	30.082	0 a. m.	29.950	7 p. m.	73.3	68.0	78	4 p. m.	72	4 p. m.	68	5 a. m.	64	5 a. m.	96.
Saturday, 10--	29.933	29.994	9 a. m.	29.900	12 p. m.	72.0	69.3	75	9 a. m.	71	9 a. m.	66	12 p. m.	65	12 p. m.	117.

		Dry.	Wet.
Mean for the week	29.995 inches.	77.6 degrees	70.8 degrees.
Maximum for the week at 9 a. m., Sept. 5th	30.096 "	101. " at 3 pm 7th,	83. " at 6 pm 7th,
Minimum " at 5 p. m., Sept. 7th	29.894 "	65. " at 6 am 4th,	62. " at 6 am 4th,
Range	.202 "	36. "	21. "

SEPTEMBER	WIND. DIRECTION. 7 a. m.	2 p. m.	9 p. m.	VELOCITY IN MILES. Distance for the Day.	FORCE IN LBS. PER SQR. FEET. Max.	Time.	HYGROMETER. FORCE OF VAPOR. 7 a. m.	2 p. m.	9 p. m.	RELATIVE HUMIDITY. 7 a. m.	2 p. m.	9 p. m.	CLOUDS. CLEAR, 0 OVERCAST. 10 7 a. m.	2 p. m.	9 p. m.	RAIN AND SNOW. DEPTH OF RAIN AND SNOW IN INCHES. Time of Beginning.	Time of Ending.	Duration. h. m.	Amount of water	OZONE. 0 10
Sunday, 4-	s. e.	s.	s.	87	¾	11.30 pm	.516	.572	.599	83	75	84	8 cu.	9 cu.	9 cu.	-----	-----	-----	--	0
Monday, 5-	s. w.	s.	s. s. w.	158	2½	0.50 am	.599	.717	.757	84	70	81	6 cu.	8 cu.	0	-----	-----	-----	--	0
Tuesday, 6-	w. s w.	n. w.	s. w.	81	¾	5.30 pm	.757	.741	.850	90	46	68	10	3 cir. cu.	1 cir.cu.	-----	-----	-----	--	1
Wednesday, 7-	w. s. w.	w. n.w.	w.	122	2½	2.00 pm	.717	.559	.827	70	28	57	1 cu.	4 cir. cu.	1 cir.	-----	-----	-----	--	6
Thursday, 8-	n. n. w.	e. n. e.	e.	117	1¼	3.20 pm	.690	.809	.529	70	59	74	0	10	10	-----	-----	-----	--	1
Friday, 9-	e. s. e.	s. s. e.	s. e.	63	¼	4.00 pm	.529	.625	.693	74	65	85	10	10	10	-----	-----	-----	--	0
Saturday, 10-	s. e.	n. e.	n. e.	104	7	8.40 pm	.706	.704	.635	90	81	89	10	8 cu.	10	10⅓ am 4.40pm	11½ am 10 pm	1.00 5.20	.01 .08	9

Distance traveled during the week	732	miles.	Total amount of water for the week .09 inch.
Maximum force	7	lbs.	Duration of rain 6 hours, 20 minutes.

DANIEL DRAPER, Ph. D.

Director Meteorological Observatory of the Department of Public Parks, New York.