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Notes & Queries

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References to former articles or answers should give date of paper and page or number of question.

Inquiries not answered in reasonable time should be repeated: correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all either by letter or in this department, each must take his turn.

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(7662) J. S. R. asks: When does the 19th century end? A. The 19th century closes with December 31, 1900. The 20th century begins January 1, 1901. Reasons: 1. There never was a year numbered 0 in chronology, though astronomers have called the year before the Christian era the year zero. The reckoning in chronology is B.C. 3, 2, 1, A.D. 1, 2, 3, etc. The year 1 B.C. was followed directly by 1 A.D. in all historical reckoning. See Ency. Brit., under Chronology. In astronomical reckoning the year 0 preceded the Christian era. The first year A. D. was the "year 1." The year 1 was completed on December 31, twelve months after the beginning of our present reckoning. There is much confusion on this point; but it is just as simple as reckoning the years of a baby's life. When is the year 1 of a baby's life finished? Who ever heard of a baby's 0 year? 2. The year 100 belonged to the first Christian century. The reason for this is the same as for putting the 100th article into a package which is to contain 100 articles. The 2d hundred articles begin with No. 201. In counting articles by hundreds we proceed as follows:

1st hundred	Nos.	1	to	100	inclusive.
2d "	"	101		200	"
19th "	"	1801		1900	"
20th "	"	1901		2000	"

Dollars, years, or centuries follow the same law. A man is 100 years, a century, old when he has completed a full 100 years. Not when his 100th year begins, but when it ends. Its full twelve months belong to him. The writer remembers very well, though only 9 years old, the discussion of this question in 1850 and the conclusion that 1850 belonged to the first half of the 19th century. It will certainly be premature to write centennial sermons or lectures or articles for 1899. If this is done, it will be found necessary to repeat them in 1900, as not a few did in 1849 and 1850 for the half century. This view accords with the statement of both the Century and Webster's Dictionaries. We quote from the former; "The first century of the Christian era began with the year A. D. 1 and extended to the end of the year 100; the 18th century began with 1701 and ended with 1800, the year completing the hundred year period in each instance giving name to the century. The centuries before Christ are reckoned backward in their order from the Christian era, as the 4th century B.C. from 301 B. C. backward to 400.

(7663) L. S. T. writes: I have ascertained the theoretical horse power of a stream under a given head to be 1000. I wish to transmit that power by means of electricity five miles for use as a motive power in two mills. Will you please inform me how much of the 1,000 horse power may be safely relied on for practical use, from motors at terminus of the line? Will you tell me, also, what is the percentage of loss in practice at the several stages of conversion and transmission of the power: (1) Loss in making the 1000 available by means of turbines, (2) the loss in generating the electricity, (3) the loss under ordinary conditions in transmission, and (4) the loss at the motors? A. We can only give a general answer to these inquiries, since the conditions peculiar to the special case affect results. The efficiency of turbine wheels is from 75 to 87 per cent at full gate. For anything less the figures drop off rapidly. The dynamo will return from 85 to 93 per cent of the power of the turbine. The loss in transmission depends on the size of the wire used, but may be put down at from 5 to 10 per cent, so that from 90 to 95 per cent of the current delivered by the dynamo will reach the transformers. The transformers will turn about 95 per cent of the current they receive to the motors, which will in turn give 85 to 90 per cent of this to the machinery. As a total then about 60 per cent of the power of the waterfall will be received by the machinery. This is based on the supposition that everything works at full load. Much depends on the machines used, and only an engineer on the spot can give reliable figures.

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