

and obtains a result equivalent to

$$\frac{B(p+n', q)}{B(p'q)} = \frac{p(p+1)\cdots(p+n-1)}{(p+q)(p+q+1)\cdots(p+q+n-1)}.$$

The third part of the book is the most important, both in volume and in the additional light which it throws upon Stirling's work in its relation to his contemporaries. Thus there are 11 letters from Maclaurin to Stirling, 10 from Cramer, 3 from Nicholas Bernoulli (1687-1750), the nephew of John Bernoulli, 2 from Machin, and one, perhaps the most valuable in the entire collection, from Euler. There are 9 letters written by Stirling (4 to Maclaurin, 1 to Cramer, 1 to N. Bernoulli, 1 to Castel, 1 to Bradley, and 1 to Euler). All the letters to Stirling testify to the high regard in which the writer held him, and to the influence which his writings exerted upon contemporary mathematics. The letter from Euler mentioned above, contains a rich fund of information about his work in series, including  $\sum_{n=0}^{\infty} 1/n^k$ ,  $\sum_{n=0}^{\infty} 1/(2n+1)^k$ , and others. A curious infinite product which he gives is perhaps not generally known:

$$\frac{3 \cdot 5 \cdot 7 \cdot 11 \cdot 13 \cdot 17 \cdot 19 \cdot 23 \cdot 29 \cdots}{4 \cdot 4 \cdot 8 \cdot 12 \cdot 12 \cdot 16 \cdot 20 \cdot 24 \cdot 28 \cdots},$$

where the factors of the numerator are the successive prime numbers, and each factor of the denominator is the integer of form  $4k$  nearest to the corresponding factor in the numerator. Euler says the limit of this fraction is  $\pi/4$ , but does not give any hint as to his method of proof.

Mr. Tweedie has done a valuable piece of work, which will be found useful not only as a contribution to the history of mathematics, but also as giving in very readable form a source of information as to one of the founders of the modern theory of finite differences.

R. B. McCLENON

*The Fourth Dimension and the Bible.* By W. A. Granville. Boston, Richard G. Badger, 1922. 9 + 119 pp.

The author of this little book points out in his preface that there is little hope of building a system of theology on a foundation either of philosophy or of the physical sciences, owing to the fact that neither of these branches of knowledge present results of a sufficiently authoritative character. He calls attention to the fact that the very foundations of the physical sciences themselves are at the present time open to the most serious challenge. Mathematics is the only existing body of knowledge which may be regarded as entirely authoritative. The author accordingly hopes "to throw some light, even though very dim, on some of the questions connected with our Christian beliefs." His chief aim is "to point out the remarkable agreement which exists between numerous Bible passages and some of the concepts which follow naturally from the mathematical hypothesis of higher spaces." As a popular introduction to some of the fundamental notions of four-dimensional space, the book is well done, although it seems to the reviewer that the author has rather over-emphasized the notion of reasoning by analogy. As to the value of his contribution to theology, let others speak.

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