42. Dr. Gronwall solves the following problem: given a power series in z defining an analytic function with the sole singularity $z = -1$ at finite distance, what is the minimum number m of intermediate points $a_1, a_2, \cdots, a_m$ needed to effect the analytic continuation of the given power series to a given point z_0? Writing $z = -1 + re^{\theta i}, -\pi \leqq \theta \leqq \pi$, it is found that the set of points z_0, for which no more than m intermediate points are necessary, is formed by the interior of the curve

$$r = \left(2 \cos \frac{\theta}{m+1}\right)^{m+1}, \quad (-\pi \leqq \theta \leqq \pi).$$

The totality of possible positions of the last intermediate point a_m for a given z_0 is also determined.

43. The four series in question are known to converge absolutely and uniformly for $R(z) \geqq \epsilon > 0$, but diverge for $R(z) < 0$ ($R(z)$ = real part of z, and ϵ arbitrarily small). Dr. Gronwall investigates the convergence on the boundary line $R(z) = 0$, and finds that all four series converge uniformly for $R(z) \geqq 0$, $|z| \geqq \epsilon$; two of the series are absolutely convergent in the same region, while the remaining two do not converge absolutely for any purely imaginary value of z.

44. In his Handbuch der Gammafunktion, Nielsen shows that the function

$$\beta(z) = \frac{1}{2}\left[\psi\left(\frac{z}{2}\right) + \psi\left(\frac{1-z}{2}\right)\right],$$

where $\psi(z) = d \log \Gamma(z)/dz$, has no real zeros, and raises the question whether any complex zeros exist. In the present paper, Dr. Gronwall establishes the existence of an infinity of such zeros, and gives their asymptotic expressions.

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THE CAMBRIDGE COLLOQUIUM.

The eighth colloquium of the American Mathematical Society was held in connection with its twenty-third summer meeting at Harvard University, Cambridge, Massachusetts. At the April, 1915, meeting of the Council the invitation of