NOTE ON A PAPER BY MANDELBROJT AND MACLANE

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The results obtained by J. Dufresnoy and J. Ferrand(1) enable us to extend Theorems I, II, and III of the preceding paper to more general strip regions.

Let $g_i(\sigma) > 0$ ($i = 1, 2$) be defined and continuous for $\sigma \geq a$ ($-\infty \leq a < \infty$) with $\lim_{\sigma \to \infty} g_i(\sigma) = \pi/2$. Let

$$S(\sigma) = \pi \int_{c}^{s} \frac{du}{g_1(u) + g_2(u)}.$$

Let $\Delta_\sigma$ be the domain in the $s$-plane ($s = \sigma + it$) defined by $-g_1(\sigma) < t < g_2(\sigma)$.

If $g_1(\sigma) = g_2(\sigma)$ we have the symmetrical domain considered above.

Lemmas I, II, III, and IV are true for the new domain if we suppose that $g_1(\sigma)$ and $g_2(\sigma)$ separately satisfy all the conditions given for $g(\sigma) : g_1(\sigma)$ and $g_2(\sigma)$ must be of bounded variation(2) and satisfy the condition (11), $|g_i'(\sigma)| < A$, $g_i'(\sigma + h) - g_i'(\sigma) > -Ah$. The proofs of Theorems I, II, and III are the same, with the new function $S(\sigma)$.

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(2) In fact the conclusions hold if this first condition is replaced by $\int_{c}^{s} |g_i'(\sigma)| d\sigma < \infty$. 

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