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All these seem to justify the emphasis we have put on our fundamental problem. Unfortunately, for higher dimensions, even when the image manifold is P_n , our knowledge on the problem is still very limited. For a holomorphic mapping $f: M \rightarrow P_n$, with M compact, this leads us back to the old theory of projective invariants in algebraic geometry. With recent advances in algebraic geometry, it might be possible and worthwhile to organize the classical results in a better form. The case of non-compact M awaits much further work.

I hope to have pointed out a few guiding ideas on the subject of holomorphic mappings. Only the future can tell whether the topic will lead to results of general mathematical interest. I cannot help to feel, however, that so long as the complex structure remains a subject of investigation, the study of holomorphic mappings should be a logical objective.

In conclusion I wish to say that, while I have discussed the subject from a geometrical viewpoint, there has been an extensive literature to which I am indebted and which it would be impossible to quote in detail. Many of the ideas in geometrical function theory in one variable originated from L. Ahlfors. In the case of high dimensions I should mention in particular the works of H. Schwartz and W. Stoll [8, 10], although they do not seem to have a close contact with the viewpoints envisaged here.

REFERENCES

- [1] BOREL, A. et J.-P. SERRE, Le théorème de Riemann-Roch. *Bull. Soc math. France*, 86, 97-136 (1958).
- [2] CHERN, S. S., Complex analytic mappings of Riemann surfaces, I. *Amer. J. Math.*, 82, 323-337 (1960).
- [3] ——— The integrated form of the first main theorem for complex analytic mappings in several complex variables. *Annals of Math.*, 71, 536-551 (1960).
- [4] ——— Some remarks on the quantitative theory of holomorphic mappings, to be submitted to *Comm. Math. Helv.*
- [5] PORTEOUS, I. R., *On the Chern classes of algebraic varieties related by a regular algebraic correspondence*, to appear.
- [6] REMMERT, R., Holomorphe und meromorphe Abbildungen komplexer Räume. *Math. Annalen*, 133, 328-370 (1957).
- [7] DE RHAM, G., *Variétés différentiables*. Paris, 1955.

- [8] SCHWARTZ, Marie-Hélène. Formules apparentées à la formule de Gauss-Bonnet pour certaines applications d'une variété à n dimensions dans une autre. *Acta Math.*, 91, 189-244 (1954).
- [9] STERNBERG, S. and R. G. SWAN, On maps with non-negative Jacobian. *Mich. Math. J.*, 6, 339-342 (1959).
- [10] STOLL, W., Die beiden Hauptsätze der Wertverteilungstheorie bei Funktionen mehrerer komplexer Veränderlichen. Teil I: *Acta Math.*, 90, 1-115 (1953); Teil II: *Acta Math.*, 92, 55-169 (1954).

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