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algebraic geometry] could be handled had already been developed... ([34], p. 32).<sup>1)</sup>

Emmy Noether was a visiting professor in Moscow in 1928-1929. Alexandrov described the impact she has had on Pontryagin's work in the theory of continuous groups (topological algebra):

It is not hard to follow the influence of Emmy Noether on the developing mathematical talent of Pontryagin; the strong algebraic flavour in Pontryagin's work undoubtedly profited greatly from his association with Emmy Noether ([2], p. 175).

I will give the last word to Garrett Birkhoff who, in an article in 1976 describing the rise of abstract algebra from 1936 to 1950, said the following ([5], p. 81):

If Emmy Noether could have been at the 1950 [International] Congress [of Mathematicians], she would have felt very proud. Her concept of algebra had become central in contemporary mathematics. And it has continued to inspire algebraists ever since.

## BIBLIOGRAPHY

- [1] ADAMS, W. W. and L. J. GOLDSTEIN. *Introduction to number theory*. Prentice-Hall, 1976.
- [2] ALEXANDROV, P. S. In memory of Emmy Noether. In: *Emmy Noether, 1882-1935*, by A. Dick, Birkhäuser, 1981, pp. 153-179.
- [3] ATIYAH, M. F. and I. G. MACDONALD. *Introduction to commutative algebra*. Addison Wesley, 1969.
- [4] BIRKHOFF, G. Current trends in algebra. *Amer. Math. Monthly* 80 (1973), 760-782.
- [5] —— (a) The rise of modern algebra to 1936. (b) The rise of modern algebra, 1936 to 1950. In: *Men and institutions in American mathematics*, ed. by D. Tarwater et al, Texas Tech Press, 1976, pp. 41-63 and 65-85.
- [6] BOURBAKI, N. Historical note. In his *Commutative algebra*, Addison-Wesley, 1972, pp. 579-606.
- [7] BREWER, J. W. and M. K. SMITH (eds). *Emmy Noether: a tribute to her life and work*. Marcel Dekker, 1981.
- [8] CARTAN, H. and S. EILENBERG. *Homological algebra*. Princeton Univ. Press, 1956.

<sup>1)</sup> To put this statement in perspective, van der Waerden precedes it with the following comments: "In the beginning of our century, many people felt that the theory of invariants was a mighty tool in algebraic geometry... I soon discovered that the real difficulties of algebraic geometry cannot be overcome by calculating invariants and covariants" ([39], p. 32).

- [9] CHEVALLEY, C. *Introduction to the theory of algebraic functions of one variable*. Amer. Math. Soc., 1951.
- [10] CRILLY, T. (a) The rise of Cayley's invariant theory (1841-1862). (b) The decline of Cayley's invariant theory (1863-1895). *Hist. Math.* 13(1986), 241-254, and 15(1988), 332-347.
- [11] CURTIS, C. W. and I. REINER. *Representation theory of finite groups and associative algebras*. Wiley, 1962.
- [12] DICK, A. *Emmy Noether, 1882-1935*. Birkhäuser, 1981.
- [13] DIEUDONNÉ, J. The work of Nicolas Bourbaki. *Amer. Math. Monthly* 77 (1970), 134-145.
- [14] —— *History of algebraic geometry*. Wadsworth, 1985.
- [15] DUBREIL, P. Emmy Noether. *Cahiers du Sém. d'Hist. des Math.* 7 (1986), 15-27.
- [16] EICHLER, M. *Introduction to the theory of algebraic numbers and functions*. Academic Press, 1966.
- [17] EVANS, R. J. *The feminist movement in Germany, 1894-1933*. Sage Publ., 1976.
- [18] FLEXNER, A. *Universities: American, English, German*. Oxford Univ. Press, 1930.
- [19] GILMER, R. Commutative ring theory. In: *Emmy Noether: a tribute to her life and work*, ed by J. W. Brewer and M. K. Smith, Marcel Dekker, 1981, pp. 131-143.
- [20] HAWKINS, T. Hypercomplex numbers, Lie groups, and the creation of group representation theory. *Arch. Hist. Ex. Sc.* 16 (1976/77), 17-36.
- [21] JACOBSON, N. *Basic algebra, I and II*. Freeman, 1974 and 1980.
- [22] —— (ed). *Emmy Noether: collected papers*. Springer-Verlag, 1983. (Contains an introduction by Jacobson to Emmy Noether's works.)
- [23] KAPLANSKY, I. Commutative rings. In: *Proc. of Conf. on Commutative Algebra*, ed by J. W. Brewer and E. A. Rutter, Springer-Verlag (Lecture Notes in Mathematics, No. 311), 1973, pp. 153-166.
- [24] KIMBERLING, C. H. Emmy Noether and her influence. In: *Emmy Noether: a tribute to her life and work*, ed. by J. W. Brewer and M. K. Smith, Marcel Dekker, 1981, pp. 3-61.
- [25] KLEINER, I. A sketch of the evolution of (noncommutative) ring theory. *L'Ens. Math.* 33 (1987), 227-267.
- [26] KLINE, M. *Mathematical thought from ancient to modern times*. Oxford Univ. Press, 1972.
- [27] LAM, T. Y. Representation theory. In: *Emmy Noether: a tribute to her life and work*, ed. by J. W. Brewer and M. K. Smith, Marcel Dekker, 1981, pp. 145-156.
- [28] MACLANE, S. History of abstract algebra. In: *American mathematical heritage: algebra and applied mathematics*, ed. by D. Tarwater et al, Texas Tech Press, 1981, pp. 3-35.
- [29] —— Mathematics at the University of Göttingen (1931-1933). In: *Emmy Noether: a tribute to her life and work*, ed by J. W. Brewer and M. K. Smith, Marcel Dekker, 1981, pp. 65-78.
- [30] MERZBACH, U. Historical contexts. In: *Emmy Noether in Bryn Mawr*, ed. by B. Srinivasan and J. Sally, Springer-Verlag, 1983, pp. 161-171.
- [31] MODENOV, P. S. and A. S. PARKHOMENKO. *Geometric transformation*, 2 vols. Academic Press, 1965.
- [32] MONNA, A. F. *L'algébrisation de la mathématique, réflexions historiques*. Comm. Math. Inst., Rijksuniversiteit, Utrecht, 1977.

- [33] PARIKH, C. *The unreal life of Oscar Zariski*. Academic Press, 1991.
- [34] POLLARD, H. and H. G. DIAMOND. *The theory of algebraic numbers*. Math. Assoc. of Amer. (a Carus monograph), 1975.
- [35] SMITH, M. K. Emmy Noether's contributions to mathematics. Unpublished notes (13 pp, ca 1976).
- [36] SRINIVASAN, B. and J. SALLY (eds). *Emmy Noether in Bryn Mawr*. Springer-Verlag, 1983.
- [37] VAN DER WAERDEN, B. L. Obituary of Emmy Noether. In: *Emmy Noether, 1882-1935*, by A. Dick, Birkhäuser, 1981, pp. 100-111.
- [38] —— The foundations of algebraic geometry from Severi to André Weil. *Arch. Hist. Ex. Sc.* 7 (1970-71), 171-180.
- [39] —— On the sources of my book *Moderne Algebra*. *Hist. Math.* 2 (1975), 31-40.
- [40] —— The school of Hilbert and Emmy Noether. *Bull. Lond. Math. Soc.* 15 (1983), 1-7.
- [41] WEYL, H. Memorial address. In: *Emmy Noether, 1882-1935*, by A. Dick, Birkhäuser, 1981, pp. 112-152.
- [42] —— Universities and science in Germany. In his *Gesammelte Abhandlungen*, Vol. 4., ed. by K. Chandrasekharan, Springer-Verlag, 1968, pp. 537-562.

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