

100-YEAR OLD HAEMATOLOGICA IMAGES: THE QUARREL ABOUT THE ORIGIN OF PLATELETS (I)

Carlo L. Balduini

Ferrata-Storti Foundation, Pavia, Italy

E-mail: CARLO L. BALDUINI - carlo.balduini@unipv.it

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The textbook of Adolfo Ferrata on Blood Disorders published in 1918, two years before the foundation of *Haematologica*, devoted six chapters to the origin of platelets.¹ The titles of these chapters are: I. Are platelets precursors of red cells? II. Are platelets living and independent cells? III. Are platelets elements of variable and multiple origin, from erythrocytes, leukocytes and possibly from the vascular endothelium? IV. Are platelets derived from leukocytes? V. Are platelets derived from erythrocytes? VI. Are platelets derived from megakaryocytes? So, at the time of the birth of *Haematologica*, the origin of platelets was still the subject of vigorous debate.²

The image on the cover of this issue has been taken from an article published in *Haematologica* in 1921 by Aldo Perroncito, who studied under Camillo Golgi when he taught at the University of Pavia.³ The author was convinced that platelets do not derive from red or white blood cells, and, based on his observation that the number of megakaryocytes does not increase in animals with thrombocytosis induced by bloodletting, he also thought that platelets are not produced by these cells. Although he believed that the origin of the platelets was still to be identified, he gave credit to the hypothesis that these elements are real cells. Moreover, he hypothesized that platelets have the unique ability to duplicate in the peripheral blood. He observed that dog and cat blood with experimentally induced thrombocytosis contained very “large, elongated, biscuit-shaped, and sometimes eight-shaped, platelets” (Figure 1). Moreover, he documented that the number of platelets increased by incubating the blood at 38°C for one or two hours, and concluded that the large and abnormally shaped platelets he identified in peripheral blood are able to divide. Recent studies with refined methodological approaches confirmed his conclusion, a conclusion that he had reached by simple morphological evaluation of blood. Based on current knowledge, the “large, elongated, biscuit-shaped and eight-shaped” elements shown in Figure 1 are proplatelets which have been released, and which have the ability to divide both *in vivo* and *in vitro*, each proplatelet giving the origin to two platelets.

Although Perroncito did not recognize the megakaryocytic origin of platelets, he identified an aspect of platelet biogenesis that has been rediscovered quite recently.⁴ Revisiting the *Haematologica* issues of a century ago shows us that knowledge in the field of hematology was often much more

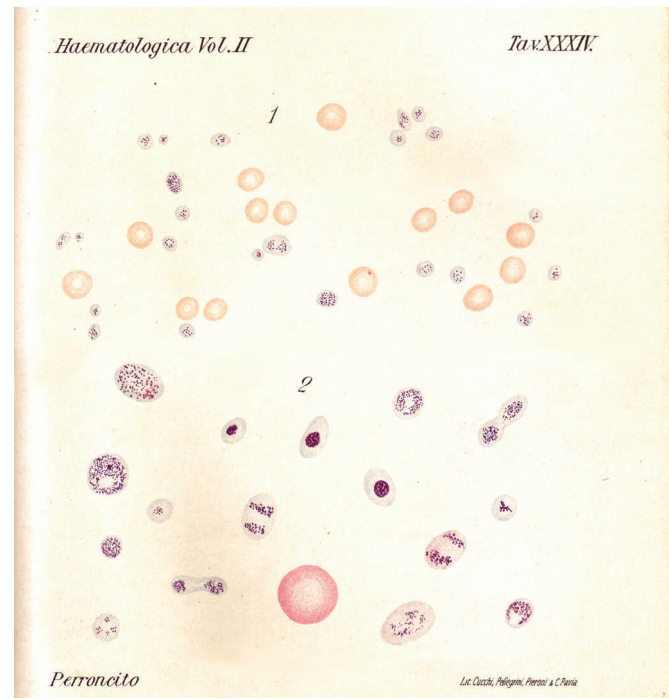


Figure 1. Hand-drawn table that appeared as an illustration in Perroncito's paper "On the derivation of platelets", published in *Haematologica* in 1921.³ Based on morphological evaluation of cat and dog blood, the author suggested that the large, elongated, biscuit-shaped platelets shown in the lower part of the figure are able to divide both *in vivo* and *in vitro*. We know today that these elements are proplatelets just released into the blood by megakaryocytes, and that each of them is destined to divide and give the origin to two platelets.

advanced than is commonly thought, this serving to heighten our esteem for the old masters of hematology.

References

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