Edmund Faustyn Biernacki, professor of general and experimental pathology, University of Lvov, was born on December 19, 1866 in Opoczno. He attended the secondary school in Kielce and Lublin from 1876 to 1884 and graduated *eximia cum laude* from the Faculty of Medicine, University of Warsaw, in 1889. After brief spells in medical practice he was awarded a fellowship of the foundation "Kasa im. Mianowskiego" and in 1890 went abroad for further studies. At that time he attended lectures given by Charcot and Déjérine in Paris, by Erb and Hoffmann in Heidelberg, by Riegel and Baström in Giessen. He also did research work in Heidelberg under Kühne, in Paris under Hayem and in Giessen under Riegel. Coming back to Warsaw, he joined the University Diagnostic Department directed by Zieniec.

His interest in research appeared early. Already in 1888—1889, still being an undergraduate student, Biernacki published a few papers on works, done at the Department of Pharmacology under Tumas; one of them gave him a gold medal from the Faculty of Medicine. Both during his studies abroad and after return to Warsaw Biernacki engaged himself vigorously in clinical and laboratory research. His scientific achievements grew rapidly and in a short time gave him a well-founded reputa-
tion. Biernacki described in 1894 analgesia of the ulnar nerve in paretic dementia and tabes dorsalis — a symptom known in neurological literature as Biernacki’s symptom. Since 1893 he was mainly interested in metabolic and haematologic problems. The first report announcing the discovery of the erythrocyte sedimentation rate (ESR), with a short remark indicating its changes under pathologic conditions, was given to the Warsaw Medical Society on February 20, 1894. This paper was published in the proceedings of this Society (Pamiętnik Towarzystwa Lekarskiego Warszawskiego 1894, vol. 90, pp. 32—72). On June 22, 1897, Biernacki delivered to the same Society a lecture entitled "Spontaneous blood sedimentation as a method for research and clinical practice" (Gazeta Lekarska 1897, vol. 17, pp. 962—968 and 996—1004). The former observations were now enlarged and the increase of ESR during febrile diseases (rheumatic fever included) was reported. It should be therefore remembered that Biernacki was the first, in modern times, to draw attention to the increase of ESR in various pathologic states. Moreover, Biernacki found that the changes of ESR were due to the actual level of "fibrinogens" in the blood plasma (nowadays, the relative proportions of the fibrinogen, globulin and albumin fractions are known to be of importance in determining the ESR).

The scientific work of Biernacki was recognized soon. In appreciation of his accomplishments he received the Kaczorowski Award of the Warsaw Medical Society (in 1895 and 1898) as well as the Natanson Award of the foundation "Kasa im. Mianowskiego" (1897). Nevertheless, despite these honours awarded by the Polish civic organizations, Biernacki’s position at the Warsaw Medical Faculty was difficult. At that time the Faculty was intensively russianized according to the actual policy of tsar’s government in St. Petersburg. This atmosphere certainly did not foster the research: in 1897 Biernacki left the Faculty and assumed the position of department head at the Wola Hospital in Warsaw.

In spite of the rewards granted by respectable scientific institutions, Biernacki was heavily criticized: his success in research obviously caused envy of some people who were more eager to pass judgement upon the work done by somebody else than to work themselves. It seems that the names of a certain Dr. Dydyński and a certain Dr. Gościcki are nowadays remembered only because of their inessential and malicious remarks about Biernacki’s work on the ESR. In 1897 they published an article written in a strongly caustic, even unpolite manner. At that time, Biernacki did not engage himself in such discussion accompanied by insidious and dirty intrigues, but felt it as a keen affront.

Simultaneously, Biernacki was attacked from another side as well. He wrote a few monographs on the philosophy of medicine: as a philo-
sopher, however, Biernacki was but a self-educated man and was considered to be a newcomer in this field. His advanced, perspicuous ideas were at that time hardly acceptable (They were recognized after many years). Thus, he exposed himself to a storm of violent, personal and unjustifiable criticism. After the publication of The Essence and Frontiers of the Medical Science (1899) the opinions were so unfavourable that Biernacki could not find the editor for his Principles of Medical Knowledge; this book was published in 1902, when an appropriate sum of money was collected among some friends. So in addition to misfortunes in his scientific career, the financial position of Biernacki (who still had no private practice) became worse and worse: in 1902 Biernacki asked to cancel his membership at the Warsaw Medical Society because of the impossibility to pay annual dues owing to his poor financial situation.

Under all these circumstances, in 1902 Biernacki decided to move to Lvov (then in the Austrian empire) where the Polish population had a certain autonomy and the university was gaining its standing as a reputable higher learning institution of Polish language and character. The Medical Faculty in Lvov acted favourably towards Biernacki, whose scientific work was well known there. On December 12, 1902, the Russian (i.e., delivered in Warsaw) diploma of Biernacki was confirmed by the Faculty without taking appropriate examinations. Two days later Biernacki passed the examination for the right to teach the general and experimental pathology as docent (associate professor). In Warsaw, however, the official formalities were more time-consuming. In the personal dossier of Biernacki, pertaining to his employment in the Wola Hospital (preserved by happy chance in 1944) the dismissal from his post as department head, by his own request, is dated October 27, 1904.

From there on, Biernacki was engaged in teaching and research at the Lvov University. Each summer he passed in the famous spa of Karlsbad, where he had an extensive private practice. In 1908 he became extraordinary professor of general and experimental pathology; however, it was but a title: the Austrian authorities rejected the application for a regular employment as permanent professor.

The research activity of Biernacki was still very high. He wrote a lot, also as a philosopher: in 1905 an interesting essay What is disease was published. Biernacki was undoubtedly on the threshold of a new period of his career. Yet, his best scientific achievements were still those made during the hard years spent in Warsaw.

In Poland again independent, the National Congress of Internal Medicine (Vilno, 1923) proposed to designate the estimation of ESR as "Biernacki’s reaction". Outside our country, however, Biernacki is cited rather
seldom. With rare exceptions, his work on the ESR seems to have been overlooked. It should be, therefore, reminded that the appropriate data of Biernacki are to be regarded as the starting point for the contemporary pathophysiology of plasma proteins.

"L'home n'est qu'un roseau...": Biernacki died suddenly in Lvov on December 29, 1911; his grave probably no longer exists there". ...Mais c'est un roseau pensant": the imponderables of his heritage as well as his contribution to medical progress remain still alive in medical practice and will survive in history of medicine.

EDMUND BIERNACKI

THE RELATION OF PLASMA TO ERYTHROCYTES IN CIRCULATING BLOOD AND THE VALUE OF DIFFERENT METHODS FOR DETERMINING THE VOLUME OF BLOOD CORPUSCLES

Pamiętnik Towarzystwa Lekarskiego Warszawskiego, 1894, pp. 32—72
Text from: page 36, line 19 from the top
to: page 38, line 7 from the top

(... ) All experiments and observations were done on the human blood obtained by venesection. In parallel experiments I observed the sedimentation of erythrocytes in the blood defibrinated or not-defibrinated as well as in the blood diluted, in various proportions, with 0.6 per cent saline. 25 ccm of blood was transferred to calibrated cylinders. To prevent the coagulation of blood, 0.025—0.03 g of oxalic natrium was added following Arthus and Pagas; the powder was simply poured into the cylinder (in the case the blood had to be not diluted) or it was solved in appropriate volume of saline (5, 10 or 25 ccm), if the blood had to be diluted. During venesection, venous blood was collected into a porcelain dish, quickly transferred into cylinders containing dry powder or appropriate solution and immediately mixed, the cylinder's aperture being closed with the palm (...).

The remaining blood was defibrinated by beating with a stick. The clot was then pressed with fingers and transferred to several cylinders containing appropriate amounts of saline; in one cylinder the blood was not diluted. (...)

So I could observe the sedimentation of blood even in six cylinders simultaneously. (... ) For the most cases, however, I filled only 2—4 cylinders. Immediately thereafter I took from the cylinders 0.02 ccm of blood for the determination of the haematocrit. Furthermore, in a sample of not defibrinated blood the dry residue was estimated. The cylinders always stayed in a cold place.

The separation of two distinct layers (the upper: light yellow plasma, respectively serum, and the lower: the red corpuscles) is visible in some samples as early as after one half to one and a half hour. Little by little, the upper layer increases when the lower one decreases. Finally, the volume of the lower layer becomes stable — after some days one cannot observe its diminution, even for one fourth of a centimeter. Yet, the rate of sedimentation of erythrocytes ,i.e. the time necessary for the development of a stable sediment as well as the size of the latter are quite variable in various cylinders, although the same amount of blood was used in all vessels. In this respect there are characteristic differences between the defibrinated and not defibrinated, diluted and not diluted and — at least — between the normal and the pathologic blood (...)

From Polish translated by Jan W. Guzek
GAZETA LEKARSKA

I. SAMOISTNA SEDYMENTACJA KRWI,
JAKO NAUKOWA I PRAKTYCZNO-KLINICZNA METODA BADANIA.

(Wolga wybuch, wypisanyemu ze sąsiedztwa Tom. Lekar., tetr. 3, 1897 r.)

Rok XXXI

Księgarnia Lekarska

Badając przed kilka lat zaszczytne wyniki niektórych badań do określenia objaścią krążków czernych, zbieraliśmy wszelkie spostrzeżenia nad tak zwana samoistna sedymentacja krwi, przyczyn naświadczających, że krwią odwilkowana lepiej sedymentuje, niż krwa niedowilkowana, nie skrobiąca za właściwe zasawięzenie pod pręt do prawdziwej, jeśli sedymentacja krwi nie może być zbyt szybko mechanizm, przez opadanie optycznych pusty lat czarnych z czarna, ale że jednocześnie jest to wydolniejsze mocne lub soczewy z winienając stron czernych. Innymi słowy, chlum czarnego w krwi kątowej zasiewa w półką czerwona 2.

W celu lepszego zrozumienia tego poglądu spostrzeżenia nad sedymentacją samoistną przerzucowanych w dalszym ciągu, w wielu razach badając jednocześnie krwi w innych kierunkach. Samowolnie zamoszczano się również wodziste skrzyniach pod pręty również wielokilka w asumowaniu, a więc zasiewy pod pręty chłodne stawowy. Szybko sedymentacja z Cm23—60 sporych tak w glebi głębokiej, a poden przeprowadziło zasawięzione lewą gęsicką [Tal. II, 19] zasiewa, zasawięzione chłodne, jak żeby zasiewy pod pręty stawowy. Przyniosła sedymentacja była w przypadku inflansy; nałożono bardzo czerwoną również do do

(...) For the determination of sedimentation for clinical purposes, small glass cylinders (designed by myself and made by G. Gerhardt, Bonn) are used; they are shown here in natural size. The volume of the sedimenting blood is 1 cm, the height of blood column always 20 mm. Sodium oxalate is used to prevent blood clotting — always, because blood dilution, even inconceivable, may be estimation of sedimentation rate in articular rheumatism".

EDMUND BIERNACKI

SPONTANEOUS BLOOD SEDIMENTATION AS A METHOD FOR RESEARCH AND CLINICAL PRACTICE

Gazeta Lekarska, 1897, pp. 962—968, and 996—1004.

Text from: page 964, line 10 from the bottom to: page 964, line 2 from the bottom
Three parameters: 1) the sedimentation rate of the defibrinated and not defibrinated blood; 2) the relation of the sedimentation rate during the first 30 minutes to that during the second 30-min period; 3) the relation of the volume of the sediment to the number of red cells; all fluctuate only slightly in normal blood. On the contrary, under pathologic conditions they show very characteristic variations. In some cases, the changes in question are parallel to changes in the number of red and white cells, the specific gravity of blood, the content of water in the blood, etc. In other cases, however, considerable changes of sedimentation are present, although the mentioned parameters (e.g., the number of red and white cells, the content of mineral substances in the blood, etc.) are quite normal. The estimation of the sedimentation rate enables detection of disturbances of the blood in such cases, where other methods we have used so far cannot find any changes. The estimation of blood sedimentation appears to be important, because the possible changes are a sign of disturbed blood function. This is proved by the facts as follows: first of all, it seems to be sure that the sedimentation rate is closely related to the content of fibrinogens in the blood. (...)

So far, I did not find any case of whatever disease without disturbed blood sedimentation rate: this method should be, therefore, considered as the most sensitive haematological reaction to the disease. The estimation of sedimentation rate enables us to detect pathologic signs in such cases where only subjective signs exist, or where there are no signs at all.

High sedimentation rate is characteristic, first of all, of febrile diseases, and — in general — of these conditions which used to be regarded formerly as "phlegmasias", that is, pneumonia, rheumatic fever. (...) Especially valuable, for practical purposes, may be the estimation of sedimentation rate in arthritic rheumatism. It is important that in this disease increased sedimentation rate may exist, although no fever as well as no pain and no inflammatory swelling in the joint areas can be observed.

So far, we have no method for demonstration that the extinction of rheumatic disease is complete as well as for the answer, if a possible relapse is then to be expected. I suppose that the estimation of the blood sedimentation rate is to be regarded as such a method. Indeed, if the sedimentation rate continues to be increased, the patient cannot be considered as a healthy person, although no other signs of rheumatic arthritis are present. The real recovery has to be characterized by normal sedimentation rate of erythrocytes.