FROM OUR SCIENTIFIC RESEARCH INSTITUTE

For decades, Dr. Ru cl 0 I f First in the field of almost all individual sciences, but especially the natural sciences, which are of fundamental importance for the renewal of all science. In the scientific introductions to Goethe's scientific writings published in 1883, he expressed the hope of finding understanding, especially among empirical researchers who were not prejudiced by any kind of world view. This was only the case in insufficient malt; there was a lack of free research institutes, that is, scientific workplaces outside of the ordinary scientific enterprise and that was decisive, because the ordinary scientific enterprise is not only based on empirical research, but also on the prejudices that arise resulting from a materialistic worldview that has become traditional. Only now are we carried so far, through the good will that inspires us, to make those institutes available for cooperation; the necessary funds flow to us from the economic enterprise of the coming day A. -G. to. In this way we want to realize what has remained unnoticed for decades due to a lack of understanding.

In our institute, the valuable suggestions from Dr. Ru d 0 I f S t a ers, which he has expanded to the extent that he strives for understanding on the part of scientifically
Kolisko, spleen function.
1
1

the man is pushed, finally empirically proven exact methods of ordinary knowledge w economy operation, but supported by a completely different, namely the unprejudiced anthroposophic knowledge-economy ethos, to be worked out. Until seeking arrangements in Ver-new into the methods of modems science expands, so that the phenotype w mene of the individual scientific fields and their TO w interrelationships with cosmic proportions in which they are indeed actually inside, reveal. But such a view of the world can only be a spirit contemporary, and the realm of spirit with scientific, but the reason redesigned from · means and with the today people available mental powers to it w upper, is the goal of anthroposophical spiritual science. Out of the good will of individuals who are still isolated for the time being, it must strive to realize what would actually be the task of all spiritually striving humanity today.

THE LADDER:

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L.KOLISKO

SPLEEN FUNCTION AND

TILE QUESTION

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D ie spleen is one of the organs in the human organism, the meaning of which today's knowledge-economy is still very remained in the dark, rich-paid despite their, arduous and

painstaking investigations; yes, one could say that it is the organ whose function could not be determined. If one traces the literature back to the earliest times, one finds a mystical darkness spread over all, especially about the function of this organ, while otherwise one knew pretty well about the structure of the human body

and the function of the various organs.

The Chinese believed that the M i I z and the stomach took care of digestion.

The Eclectics around P neumatiker (1st century AD) were of the opinion that the blood is formed from the useful nutrients (after completion of the digestive process in the gastrointestinal tract) in the liver due to the implanted warmth and from this be brought to the heart; M i I z serve as R ei - ni gun gs 0 rgan (separation of impure substances of black blood) 1).

G ale n referred to the spleen as a mys terii ple-n around 0 r ga non.
If we go over to more recent times, in all medical writings in the chapter "Spleen", following the usual anatomical and histological description, we usually come to the conclusion: The function of the M i I z is obscure.

1) See History of Medicine by Dr. M. Neuburger.

7th

As proof of this, I would like to briefly pick out from various textbooks in anatomy, histology, physiology, and pathology what one can say about the spleen.

H yrt I, Textbook of Anatomy, 1873 (p.643): "The spleen is only forced to join the digestive organs. The still lack of information about its advisable (1 ha) performance could alone decide whether it should Right or wrong is counted among the digestive organs ... "(This is followed by a description of the structure of the spleen, which I will pass over here.) Then Hyrtl (p.644) closes with the following words:" To follow this description "would be the spleen is architecturally related on the one hand to the lymph glands and on the other hand to the swelling tissues - an unfortunate middle thing between the two, about which much more writable bickering will revolve. The similarity with lymph glands would become even more satisfying when we go over the relationship between the lymphatic vessels and the pulp of the spleen would be better informed. Until we are this, we have to admit that the spleen is not much better today than what it was back then: a mystery pIe, in spite of so much microscopy and mass literature that increases the confusion every day num 0 rga non. It cannot therefore be explained at the moment why the extirpation of the spleen is not an absolutely fatal procedure in the process aimed at the formation or regression of blood cells in the pulp. "

Lectures on physiology of Ern st B r ü bridge, 1875, Vol I, p 209: "... We have only tried to give us an insight into the construction of the spleen; it is now a matter so much. as possible to get to know the function of the spleen. The shortest way to do this seems at first sight to be to cut out the spleen

') Blocked by me.

8th

and examines which functions fail, which has been done repeatedly. As a rule, the animals survived the operation well, but the purpose was not achieved, because afterwards the animals were just like they were before. Now from these experiments as much shows that the spleen, t red, for which it is such a large and powerful organ, none KardinaIfunktion exclusively before w st eh t 1) and we must therefore ask ourselves what they as may well otherwise afford ? It can serve as a blood reservoir as it can change the amount of blood that goes to other parts, especially the stomach. Because of the ana w stomoses that the splenic artery has with the other branches of the celiac, which go directly and indirectly to the stomach, the state of contraction of the spleen must have a significant influence on the circulatory conditions of the stomach. "

Textbook of Human Physiology by Dr. L. La n w d 0 is 1 1887, p. 196: Here under the chapter "The blood vessel glands" we find the spleen listed as the first gland and after the description of the structure we read:

"The funct ion of M i 1 z - is about rau s du n w keI l); the following seems remarkable.

The spleen can be 0 hne fter t eil for life ent w fe rnt who b to (G ale n), as proven for animals and humans (31 cases with 9 cures) (K ö he I e, Pe on, Z ac ara 11 a et al.). Hereafter not enlarge kon w stant the lymph glands, but rather the blood-ready border activity seems to have increased bone marrow ....

By virtue of its g 1 a tten Mus k eleven ase rn (K ö 1 w 1 i k s) is the spleen capable their V 0 1 umenzu ä n w n. Irritation of the spleen (R u d. Wa he gn, 1849) or their nerves (from cold, electricity, - quinine, euka w

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9

Iyptus, Sezale and R. l1Milzmittel ") (M 0 she r) causes a reduction in size of the same with peeling and being granulated. The spleen is found some spleen enlarged after digestion I) , at a time in which the digestive organs to work performed as-of be bloodless. It has thus

also want to see in the spleen a regulatory apparatus for blood content of the digestive tools. Taking the spleen in Rei-Zung together so enlarged the liver, as if by an injection stretch.

According to R 0 y, the circulation through the spleen is not only dependent on the blood pressure in the splenic artery, but in an excellent way on the contraction of the smooth muscle fibers of the capsule and the trabeculae, which are rhythmic movements of one minute ...

One wanted to recognize (G er la eh, Fun ke) a BI ut - bi I dun gs 0 r ga n in the spleen ...

Other researchers (K ö 11 he ik, Eck s) want in the spleen an A schme 1 wetness 0 B 1 utk ö r rgan - by before ns before n, for which in particular the so-called "blood-körperchenhaltigen" cells are grown.. According to the observations of K usnetz 0 w, these structures are large lymphoid cells which have absorbed red blood cells through the amoeboid movement (which are supposed to be found similarly in blood extravas-th, V ire h 0 v). The latter now gradually disintegrate within them and, as derivatives of hemoglobin, produce iron-containing pigments similar to hematin. The spleen therefore contains more iron than would correspond to its unchanged blood content. If one compares with this the occurrence of the decomposition products and higher oxidation products of the protein bodies in the spleen, then the spleen is indeed likely to act as a melting point.

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red blood cell organ. apply, which is also supported by the appearance of the salts of the red blood cells in the spleen juice. According to Schiff, however, the extirpation of the spleen should have no influence on the absolute and relative changes in the red and white blood cells. - Other changes in the blood in the spleen: Increase in water and fiber - smaller, lighter, less flattened, more resistant red blood cells in the splenic vein, which do not lie next to each other like money rolls - easier crystallization of the hemoglobin of the splenic vein, richer oxygen content in the blood the latter during digestion cannot be interpreted at the moment and should only be accepted with caution at all.

Finally, the view that after extirpation of the spleen the digestive activity of the pancreas suffers and that of the stomach is increased is doubtful (S chi f f). The voracious voracity of the animals is not constant.
The occurrence of the disease in various diseases has attracted the attention of doctors for ages. Even in its normal state, the spleen shows frequent changes in volume during the day, especially in accordance with the changing activity of the digestive organs. In this respect the spleen behaves similarly to the arterial vessels ... "
T 0 I dt, Textbook of Gewebelehre, 1888 (p. 401), his description of the spleen begins with saying:
"The following components of the spleen are to be distinguished: The

The outer cape and the associated inner connective tissue system, furthermore the adenoid tissue formations in the form of the so-called pulp strings and the malphi gical bodies ... ", then it continues like this about the vascular system and ends with a few words about the nerves of the spleen

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After the macroscopic and microscopic writing, you come to an end and make no mention of the function that is unknown to you.
In the textbook on special pathology and therapy, edited by Hofrat Prof. Dr. Not h na gel, 8th vol.,

Part, 0 ie K rankh ei t end er M i I z and the häm 0 rr hag isch end iathe sen, Vienna 1898. By Prof. Dr. M. Li kill in Berlin we read in the chapter "The physiology of the spleen" (page 16): L1U ns he e K enntn i s of the function of the spleen is still very ger in g 1). The path which is often taken to gain information about the importance of the organ, the extirpation of it, has only slightly lightened the darkness for the spleen. It was first established that the spleen can be removed without any significant detriment to the organism; this is proven by animal experiments and gical interventions in humans. "

Also in this book by Li tten are the results

of attempts at splenic extirpation are summarized. To

the operative interventions of bar dei e ben, 1841,

Z esa, V in 0 g rad 0 ff and V u I pius can be seen,

that extirpation of the spleen is tolerated, but

Changes in the blood and lymph glands occur. The

white blood cells multiply with often

early reduction of the red. The disorder is only one

temporary and temporary. According to the various

Tables that can be found in the book of Li tten and

up on blood tests after completion

pation appears on the second day after the

tion of the maximum rise for the leukocytes to occur. This maximum lasts for 1 or 2 days, then gradually decreases to the number before the operation; every now and then the white blood cell count seems to remain elevated. The

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12th

red blood cells gradually increase in number. Then it says on page 262:

"Vulpius' compilation from 1894 provides information about the final result of the splenic extirpation. V u I pius compiled 28 laparosplenectomies for leukemia. 25 of them were fatal immediately after the operation: namely 22 as a result of bleeding, 1 from collapse, 2 from septicemia Peritonitis. One of the operated survived the operation 13 days, another 8 months. The remaining case of Franzolini, which is said to have led to improvement (allegedly moderate leukemia and a small splenic tumor), is not perfect. "

Furthermore, it emerges from Li tten's book that

in amyloid spleen, congestive spleen and

Carcinoma of the spleen (which, moreover, is only secondary

occurs), also in the case of sarcoma of the spleen from one

pation of this organ is nothing to be hoped for. L itten drives

then continued (p. 268) that it was thus "proven to be certain that

this organ not absolutely for the continuation of life

is agile. About the function of the spleen as

and the vicarious entry of other organs

Failure, on the other hand, is a long way from reaching an agreement. "

A little later (p.269) it says: "Since the bone marrow was recognized as an important place of formation of the erythrocytes by Neumann, it was obvious to check the same in demilated animals and to make the findings

to utilize the activity of the spleen, because if both organs take part in the hematogenesis, the bone marrow must show increased activity after the spleen fails. That I can miss the

organs without disturbing the blood formation, was later proven by P 0 uchet through the uneventful demelting of fish that have no bone marrow. "

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P.271: "As for the assumption of a vicarious role of the lymph glands, the animal experiment has just as little to support this assumption as we saw it with the thyroid gland and the bone marrow. Quite considerable swellings of the mesen "terialen and retroperitoneal lymph nodes as they heard of T i EIE is n, G me one he ay in, M, H yrt I Dom I wr, F u hre around Lud wig, e Berhard and Ger w 1 alas, mostly on Dogs, also observed by Simin in cats, after deflation, were interpreted by Schi ff as meaningless remnants of a past peritonitis. P 0 u ehe t rejected the view that the lymph glands might become replacement organs of the spleen, in its general validity at least in that it was found in animals without lymph glands, e.g. B. Tritons, the spleen took away without damage .... "

Itten L of the book comes at the end to the conclusion: "We are forced all these observations to the conclusion on the basis that the spleen significantly revert the role that probably Deten in the lymphatic glands vorgebilw Leu k 0 z Y th z usa mmen with the K n 0 • chenmark w

deI n "l).

K ö 11 ikers Handbuch der Gewebelehre des Men w see, 1902, vol. M (p. 257). K ö 11 ik he says of the spleen that it is a so-called blood vessel gland, which has a certain relationship to the renewal of the blood and probably also to the secretion of bile. Then follows a w continuous description of the structure of the spleen and S. 276: logical relationship "In the present state of things can be in physiotherapy" on the spleen about to say the following: First, it is clear that the Mi 1 ewe zg bel) and the content of the mal phi gis ehe n body rows of the sitz

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14th

chemical conversion 1) , which, according to previous studies, is very considerable and must have a significant influence on the composition of the spleen blood.

Second, it is proven to be in the pulp of the spleen

young red blood cells are formed (K ö 11 ik er), as well as the fact that the venous blood of the spleen of adult creatures has an uncommonly large number of colorless cells (K ö 11 i - k er, spark), a ratio which is quite unusual in hypertrophy Grade occurs (V irch 0 v) .... "

Anatomy of the Spleen by Dr. J. So bot ta, Jena 1914

(P.288):

"The position of the spleen as an organ in the overall organism of the body is a peculiar kind of gel. If one wants to give a short name for the essence of the spleen, one can say that the spleen has a large, at higher Verte-roast also than The blood lymph gland is a uniform organ, which, in contrast to the small blood lymph glands of birds and mammals, especially ruminants, has intimate relationships with the intestinal canal; thus, for example, the purely lymphatic formations of the digestive tract (tonsils, Peyer's clusters, etc.)) takes the same position as the blood lymph glands to the ordinary lymph glands, only with the difference that at least in the higher vertebrates a more independent position of the spleen has developed, both topographically and organizationally.

As a blood lymphatic gland, in contrast to the actual lymphatic glands, the spleen has acquired an intimate relationship with the blood and vascular system, while it has completely lost that relationship with the lymphatic system, and the higher the spleen develops in the vertebrate row, the more this phenomenon becomes apparent. Among the most powerfully developed

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15th

The spleens of the placental mammals are the extremely strong splenic artery with most of its branches, the particularly strong splenic vein is one of the two main roots of the portal. In lower vertebrates, the splenic artery is usually only a very unsightly vessel, which, because of the more diffuse distribution of the organ or because of its caudal location (see above), often appears in plural or shows a completely different origin. Thr ough the relationships of the splenic vein to Pfort-ade r is au ch the S tell ung of 0 rg ans to the intestinal tract and its glands ge-k I ennze net 1), since the portal blood, which goes through the hepatic circulation, is to a large extent Milzvenenblut . Furthermore, the blood vessels are so closely related to the splenic parenchyma that their wall (Malpighian corpuscles, pulpasinus), which has been transformed in a characteristic way, directly forms part of the spleen substance. Because of this and the lack of lymph vessels in the organ (see below), the spleen differs primarily from the lymph glands. "

In the chapter "Special descriptive anatomy of the spleen" it says (p.292): "The color of the spleen is a peculiar one and differs from all other organs of the body. It is compared with the coagulated blood (H e nie, 66). It is a peculiar red that corresponds to the color of some red wine varieties ... The consistency of the spleen is extremely soft, the softest of all glandular organs in the body. "

Rau b he s textbook on human anatomy. Revised and edited by Prof. Dr. Fr. K 0 psch, Leipzig 1920, also first gives a description of the structure of the spleen and comes to the conclusion that the blood circulation in the spleen is nevertheless closed

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Orbits. An e st full ä Quantcast an i g gun is not yet erre in the relationship I tw 0 r to l), since, according to W eid I enre next to the closed path and an intermediate circuit running is still present. He also notes on p. 176 that large changes occur periodically, for example in digestion. Other changes in size are the result of illnesses. The meaning of the spleen is stated: "It is an important breeding site - place of colorless blood cells ... Numerous red blood cells perish in it, as the high iron content of the spleen of old animals shows. But they are of the greatest importance The ability of the spleen to expand and the slowing of the circulation that occurs within

, the capillary veins takes place. Both properties are based on the peculiarities of the finer structure described above. As a result of its ability to expand, the spleen has the role of a safety event for the. 0 organism ... "

Lectures on histology and histogenesis by Dr. J 0 sef S c ha ff er, Leipzig 1920. There it says about the functional importance of the spleen (p.309): "In young people it is a blood-forming part of the organ l), in that in the pulp erythroblasts in large quantity are. pre-hands In adults it can after severe blood loss (repeated bleedings, B iz 0 z zer 0 and S a I vi 0 I 0) are hematopoietic again. S 0 is nst they k blood the place of destruction of red ö r per chen l), which get into the pulp through diapedesis and disintegrate here; it is related to the formation of hemoglobin, since it contains a great deal of iron ...

Luckily it was ... brought into connection with the formation of the blueprints. "

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During the 18th meeting of the German Pathological Society from April 13-14, 1921 in Jena, Helley (St. Gallen) gave a lecture on "The spleen as a metabolic organ". In this lecture he explained that the spleen function has consequences for the metabolism as well as relationships with the liver and blood and thus with the organism. The activity of the spleen cannot only be grasped mechanically, but requires consideration of the vital processes in the individual elements that build up the spleen tissue as well as the whole organ as an

expression of a vital activity. The spleen shares with all organs the involvement in the general metabolism and therefore, like the others, has to influence it through its activity. But it also has an automatic influence through its specific activity, not because it works as a digestive organ or metabolic organ in the narrower sense, but because it is switched into the bloodstream as a lymph gland.

H ans H irschf eid says in his book about diseases of the spleen 1) that very little is known about the functions of the spleen, but: "The most important physiological role that the spleen plays in the organism is

probably hers in the blood metabolism. The knowledge of their relationship to the liver and the bone marrow are recent achievements "(p.2).

The attempts by Ban t i and then especially by Eppin ger to extirpate the spleen in haemolytic diseases come to the fore. After removal of the spleen in cases of hemolytic jaundice and pernicious anemia, there was an increase in the formation of new blood. In addition, many studies have shown that the spleen is a site of the death of red blood cells. Disintegrating

') In: Encyclopedia of the kl. Medicine, Berlin, Springer 1920.

Evidence of this is provided by the products of erythrocytes, the conversion of blood pigments and the storage of iron in the spleen. The spleen is therefore related to the destruction of the red blood cells and the increase in the formation of new blood was therefore attributed to the failure of the hemolytic function of the spleen after its extirpation.

In his comprehensive work on the hepatolienal diseases E ppin ger 1) summarizes in the chapter l1Die

tion of the spleen for the moulting of the blood "what was said there as follows:
Just as the spleen can take a lively part in the destruction of the erythrocytes through active activity, so it is also capable of dealing with what has perished through physiological wear and tear and pathological influences

rial from the bloodstream and possibly from the body. eliminate. The experiments with the injection of dyes, the storage of malaria plasmodia ...

gave sufficient clues to advocate extensive phagocytic activity of the spleen in relation to foreign bodies. No one thought of the possibility that the spleen could also pick up the body's own cells, such as the red blood cells, and destroy them. Because one now imagined

that the spleen only grabbed products that might be circulating in the body and therefore like a filter the flow of juices from

cleanses slag, which can also lead to an enlargement of the spleen, the theory of spodogenic spleen tumors arose. ... We'll be in the

endeavor in the chapters to illuminate the meaning of the "active" splenic tumor for pathological conditions .... It

It was therefore important to us to have shown how the spleen already did

') The hepatolic diseases (pathology of the W

between the spleen, liver and bone marrow) with a contribution by Ego n Ra nzi, Berlin, Springer 1920.

19th

is able to actively intervene in the intermediate hemoglobin metabolism under physiological conditions "!). (p.116.)

And elsewhere in the book mentioned it says: "The normal function of the spleen would be to choose from the throcytes who is already ripe for destruction and who is allowed to resize the spleen unchanged." (P.24) "... A disadvantage of my theory, which is primarily for the relationship between spleen function and blood damage}), is that it does not attach any significant importance to the spleen sinus spaces "In my opinion, the large network of sinus spaces would only be a bundle of excretory ducts."

The haemolytic function of the spleen was put into focus. Incidentally, the successes in switching off the spleen in mild anemia were only temporary. Tough has z. B. 16 cases of pernicious anemia operated on. Of these, only one is still alive (after 8 years). 4 cases died of hemorrhagic diathesis after a few days, 2 cases after 2 months, the others after 1 to

2 years. Of 16 patients E y I e nb urgs lived on

5 years only one, under 18 cases of

pation E ppin ger s were 4 deaths. A marriage i I ung therefore means as is commonly added, the splenectomy in pernicious A ä n m i s i t. Even with hemolytic jaundice, where hemolysis is in the foreground and where prolonged sions after splenectomies have occurred, it is evidently not a causal therapy, but rather a symptomatic therapy.

H. Sc hol z (Königsberg) comes to the view that the spleen is of importance as the primary focus of the disease

I) Blocked by me.

20th

does not apply, but rather one must assume primary damage to the blood or bone marrow. In this case, however, it would be difficult to make a decision to recommend a splenectomy, because one is not doing any chewing therapy.

It was also found that leukocyte decay also takes place in the spleen. Others, e.g. B. Schaff he again pointed to the erythropoietic function of the spleen, especially in adolescence. According to studies by Vi er-o rdt et al., There are many more white blood cells in the splenic vein than in the splenic artery, which indicates the production of white blood cells.

Finally, a relation of the spleen to the B 1 ut - PI ä ttch has also been found. In a strange disease, the so-called "essential thrombopenia" (Frank), where a kind of hemorrhagic diathesis occurs with a tendency to bleeding from the nose and gums, the number of blood platelets is always very low. Splenectomy has a very beneficial effect in these cases. The hemorrhagic disposition disappeared!). After splenectomy there is always an increase in platelets. Since the platelets are supposed to be related to clotting, this success is significant and interesting. This subheading also includes x-ray irradiation of the spleen, which has recently been carried out. After the irradiation, a kind of shrinkage of the spleen occurs, which disappears after a while.

Finally it was found that the spleen endothelia belong to the so-called reticuloendothelial metabolic apparatus, as A sc hof f called it. This l1 tissue system "is particularly in the liver (copper stem cells) the endo-

') Vg !. Frank, Essential Thrombopenia, Ber !. ld. Weekly 1915, nos. 18 and 19, also nos. 37, 41, 1916 nos. 21. Kaznelson, W. kl. Weekly 1916, $ .1451. Eppinger !. C. $ .311.

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thelia of the bone marrow and the hemolymph glands, as represented in the spleen and collateral spleen. The important thing, however, is not so much the histological aspect as that this whole system develops more strongly when the spleen is switched off. The "copper stellate cells", that "spleen tissue in the liver" 1), proliferate, as do the side spleen, etc. It turns out that the spleen is actually just an accumulation of this system and that these widely extending parts for the spleen partially can enter. In connection with this, it can be understood that F. Kr aus in a paper on jaundice 2) says that the essential role of the spleen lies in the interlocking with the liver in that it prepares the red blood cells for the formation of pigments. The extirpation of the spleen weakens this function. The breakdown of blood platelets also takes place in the spleen and these relationships with the liver are also present here.

So if I once again briefly summarize what is known today about the spleen and its function in the human body, it is very little. The question of whether the blood stream is open or closed has not yet been decided. On the one hand, the spleen is ascribed a certain connection with the digestive organs - a relationship is established between the liver and the spleen - on the other hand, it must be incorporated into the circulatory system and ascribed to it a share in the production of white blood cells and the destruction of red blood cells.

In pathological cases it can revert to the function of erythropoiesis; the blood platelets are also associated with it. The fact that it has to be brought into intimate relation with digestion is derived from the fact that the spleen swells about 5 hours after taking the meal. You notice

') See MB Schmidt, Verl. Der path. Gesell. 1912 and 1914, as well as E ppin ger, Die hepatolienalenillen, Berlin 1920.
2) German med. Weekly July 1921.

22nd

So rhythmis before K 0 ntr act ion s that are in to-connexion with food intake. Extirpations of the spleen have not provided any information about their function.

The attempts to extirpate spleen ge s and he individuals in order to determine the function must, however, be limited to animals, although one must take into account that the results obtained with a dog or a cat , or a rabbit, should not be passed on to humans without further ado. The cases that come into consideration in humans must also be assessed with a little caution, because a splenic extirpation is only used if a disease, be it in the metabolism - be it in the circulatory system, is present, the blood count may therefore not be clear picture.

The question of the spleen seems to be closely linked to the question of the spleen

B 1u tp 1ä tt ehe n zu Here, too, there is great confusion in the literature and the most contradicting opinions arise. For the first time, the blood platelets of Bi z 0 z zer 0 were described as extremely thin, colorless, round or oval discs that can also be detected in flowing blood. It is noteworthy that Bi z 0 z-zer 0 platelets as if bst like ndiges F 0 rm - element represented) of blood!. A. Petrone then demonstrated in 1901 that the microchemical reactions of the blood platelets have nothing to do with the nucleoids (endosomal particles), nor with the hemoglobin-carrying part of the red blood cells, nor do they agree with the nucleus or protoplasm of the leukocytes .

"As already mentioned, the origin of the blood platelets is v 0 11 coming unk e 1." It already says so

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Handbook of tissue theory by K ö 11 ike r mentioned once with regard to the function of the spleen. It's not much better today. If we were to go into all of the existing literature on the platelet question, that would be far beyond the scope of this work. Some researchers found that the blood platelets are closely related to coagulation, but the experiments of others again showed that the blood platelets are not necessarily primary centers of coagulation. Some came to the conclusion that the platelets originate from red blood cells, represent nuclear residues and can be stained with nuclear dyes, while others proved just as eagerly that the platelets represent constrictions of the protoplasm of megakarioocytes of the bone marrow.

The contradictions often go so far that one researcher finds that the blood platelets are more specific "I e i te r" than the erythrocytes and leukocytes. He therefore chooses his method of representation in such a way that he lets a drop of blood slowly sediment in a humid chamber and lifts off the "above" floating elements of the blood with a cover slip

and after fixation with stains. In this way he receives "blood platelets" or thrombocytes with a clear "nucleus". Another researcher comes to the conclusion that the blood platelets are specifically "heavier" than the erythrocytes and leukocytes, which is why his method of representation is also diametrically opposed to that mentioned above. He also lets sediment, but expects to find the platelets on the bottom and not on top

mend. Therefore, he pours off the upper layer of liquid and colors what has been left on the bottom. The stained by this method "platelets" are like h m 0 g lob in - for his egg and k s going on.

In the main, two theories are sharply opposed today: the theory of W right, the constriction

which represents the platelets of the outgrowths of the bone marrow giant cells, and the theory SchhilI in gs, who understands the platelets as the last physiological remnants of young, circulating erythrocytes. So on the one hand it is asserted that the descent from leukocytes and the nucleus nature is denied, on the other hand it is asserted that they are derived from the erythrocytes and the nucleus nature. S chi 1 "1i ng 1) himself admits: that the question" histologically visually "has not yet been decided. Both theories provide their proofs without being able to refute the other." Sch hilI ing now thinks he can bring about the decision by improving the technique and improves his principle of rapid fixation by constructing a special rapid fixation apparatus. According to him, the blood is sucked in according to the principle of the water jet pump and with it in fractions of a second mixed with a "multiple" amount of an instant fixing agent, breaking it up into tiny flakes. This

material is washed, glued on and dyed according to Giemsa's dyeing method. It is now generally assumed that the blood platelets are extremely easily changeable structures that can be damaged colossally quickly, and one must be amazed that flawless results are to be achieved with one of this kind of coarse examination method. There was an immediate response from interested scientific circles. Dr. D eg k "joke, who left a preparation made by himself according to his own method, confirms what every impartial person has to think when reading the description of the above rapid fixation method, namely:" How badly the blood is damaged by the rapid fixation, a look at the erythrocytes teaches us: "An enormous shrinkage" of the leukocytes had occurred and a finding

') D. ID. W. July 1921. About the clinical utilization of the blood "platelet findings by Priv." Doz. Dr. V. Sc Hili i ng, Berlin.

what is protoplasm and what is nucleus about the leukocytes seems almost impossible. Nor D egkwi could t such intermediate forms between Normoblastenkernen and find Plätt chen. He thinks that Schilling's view is to be regarded as settled as long as it has not been proven that the giant forms are not platelets!).

D egkwitz also comes to the opinion that the blood platelets are the thinnest, sharp-edged slices, neither Pro top 1 a smaku gel n nor Pro top 1 a smak 1 ü m pc he n 2). Also speak the fact that the sizes ratios so regular are that one can speak of a wafer image, to the adoption of a rule-free cytoplasm disintegration and for a re gel m ä ssi ge P 1 ä SLIDE new bi 1 dun g 2) . He comes to the following conclusion: "A solution of the platelet question only in the morphological sense is of Sc Hili ing certainly not found by one he Lös clothes the B 1 utp 1 ä ttche n-wonder at all we are still far de-fe rn "2).

An article by Dr. He inr I Zell er in the German medical weekly no. 18 from

May 1921 on "The Differentiation of Blood Platelets". His descriptions are so precise that you can get a vivid impression even without images, if you have dealt with the question to some extent. He differentiates the platelets firstly according to their shape into round or oval ones, half the size or smaller than an erythrocyte, into spindle-shaped giant platelets, rod-shaped, etc .; secondly, according to the content in granular, empty, filled with vacuole-granulated and full. In the summary of his work he comes to the following result:

For details see DMW, January 1921. From the university clinic in Munich (children's clinic). On Schilling's solution to the platelet question by Dr. R. D egk witz, assistant.

2) Blocked by me.

"First, it is possible to differentiate the platelets and to find differences in different disease states.

Second, it is possible to find differences in the agglutination ability of the platelets in vivo. The work continues. "

In the well-known textbook of clinical hematology, BI ut diseases and BI ut diagnostics by Dr. med. 0 t toN ae gel i, Berlin and Leipzig 1919, we find p. 312 cited: "The platelets are therefore specific products of the myeloid system, namely the mega-koryocytes" and a little later on the same page: "The chain of evidence for the The lineage of platelets is inferred from morphological, tinctorial, embryological, biological and clinical findings. " On p. 313, N ae gel i comments on the nucleoid theory as follows: "Some authors (first P appenhe im, then H irschf eid, M axim 0 w, Pr eis ich and He im, B rem e around W las s 0 w) the ancestry of the platelets derived from R. by assuming the existence of endoglobular bodies, nucleoids, inside the erythrocytes, which originate from the physiological karyolysis of the nucleus and would then be expelled as platelets Here, too, there are nothing more than species. It would be easy for me to 'show' a ' platelet leakage ' also from L., Monoz. And all possible cells. "

So here we see the same uncertainty with regard to the platelet question in all the relevant literature as we have found with regard to the functions of the spleen. This chaos of contradicting opinions and views should now be contrasted with a passage from the course that Dr. Ru d 0 l f S te i-ne r in the spring of 1920 in front of a number of doctors at the Goetheanum, the Free University of Spiritual Science

in Dornach near Basel (Switzerland). In this course, Dr. He stated, among other things, that the spleen is less connected with the actual metabolism than the other organs of the human abdomen, but to a large extent with the regulation of the metabolism. They react in extraordi-lich strong malts to the rhythm of human food intake and be as basically all organs, but the one more, the other less highly one unt erb ewusstes S it inn 0 rga n. People Eating continuously would induce a completely different spleen activity than people who also let in-between times. The activity of the spleen is therefore less based on the actual metabolism in humans than on the rhythmic processes.

This fact was presented to the doctors with an invitation to study it, and everything would be found to be true down to the smallest detail.

The attempt at such an experimental confirmation of the Dr. A view obtained through the humanities was undertaken by the biological department of the Scientific Research Institute

"The Coming Day" and the first attempts and their results are to be described in the following. In advance, however, it should be noted that these attempts are not completed, but should be expanded further in the most varied of directions.

It was based on the following consideration: The spleen is interconnected between the metabolic system and the circulatory system, which is clear from the anatomical relationships, in that on the one hand the splenic artery is almost directly connected to the aorta - mediation towards the circulation side - on the other the splenic vein is in connection with the portal vein, the liver, the bile - i.e. mediation after the ingestion of food. When the spleen

if he actually does a regulating activity in relation to these two general bodily functions, then it should be possible to induce a disturbance of the rhythm through arbitrary changes in the intake of food. How can we now determine this disturbance? Since the spleen is particularly related to the changes in the blood picture, an attempt was made to follow the effects of the disturbed feeding rhythm on the logical blood picture and to use the blood as a reagent

to use the disturbed mnd circulation rhythm.

First attempt:

A test person was chosen who was used to living an extraordinarily regular life, who ate breakfast, lunch and dinner punctually to the minute and did not take any breaks. We th prior to the V ' ersuches a blood smear and

stained according to the method. Then we asked the person concerned to eat one day at very short intervals, the next day again in the usual way and the third day only two instead of three meals and, moreover, to shift the hours. No breakfast, the first main meal around

4 p.m., the meal at 10 p.m. On the fourth day we checked the blood count again , but could not find anything remarkable about it. The test subject, an elderly man, was very dissatisfied with the disturbance in his way of life and complained of subjective malaise.

Second preliminary attempt:

A young girl was chosen as the second subject. It was a student of the

zin that goes to various colleges all day

and always have a meal when it fits into the schedule of the day. Here, too, a blood smear was taken before the experiment, which showed nothing special apart from a large number of blood platelets. She was also subjected to the above-mentioned change in rhythm for 3 days and the blood count was checked on the fourth day. The platelets seemed to have become more numerous, nothing else to be seen. The subjective well-being was not disturbed in the slightest, since she was used to irregularities with regard to food intake.

This first attempt was completely unsuccessful and you had to tell yourself that either the test persons were not chosen correctly or the test arrangement was not adequate. We now thought that the cause of the failure was perhaps to be found in the fact that in one case no rhythm disturbance was caused in the doctor, while in the other case the disturbance had not been carried out long enough. One could assume that the disorder can only show up in the blood count when the entire organism has become insensitive to it, ie when there is no longer any subjective sensation of the disorder. A different series of experiments was now carried out on this basis.

Case 1.

Test subject: Miss EM

Age: 23 years.

Pulse: 100.

Habitual meals: The test person states that he regularly takes 3 meals a day.

First blood test before the experiment (Sept. 26, 1921):

Completely normal blood count (see panel I, Fig. 1 a).

The following meals were now prescribed:

30th

Day: 1st meal at 7 a.m.

11 1 11 at noon

11 7 11 in the evening

Day: 1st meal at 8 o'clock in the morning

11 11 11 in the morning

11 1 11 at noon

11 4 11 in the afternoon

11 7 11 in the evening

11 10 11 in the evening

Day: 1st meal at 10 a.m.

11 4 11 in the afternoon.

Blood test on the 4th day: there was a clear increase in the number of platelets. Pulse 80 (see panel I, Fig. 1 b). Now we made another disturbance of the usual rhythm. According to the information, the test subject was used to taking 3 meals a day. We now demanded that 5 meals a day be consumed regularly for 8 days (i.e. 2 more meals, including one late in the evening).

Blood test on the 8th day (or 12th day): pulse 108. During the entire 8 days, subjective well-being, the blood count roughly the same as before the start of the experiment (see Table 11, Fig. 1 c).

Now a day was inserted with the previously kept rhythm of 3 meals per day. The subjective well-being was not disturbed by it, but the blood count showed something strange. In addition to the earlier platelets, which had no circumscribed design and also easily agglutinated into piles, there was another type of platelet that had a very sharp contour of a round or oval shape and had fine grains in the middle. It is surprising when one suddenly sees these sharply outlined, delicate shapes next to the completely amorphous platelets (see plate 11, Fig. 1 d).

The question naturally arose: does the appearance of this particular type of platelet have anything to do with the disturbed rhythm or not? This question was only able to find an unambiguous solution through extensive experiments on many test persons.

A number of experiments are now listed below. However, since for technical reasons it is not very possible to bring the drawings to the experiments, we want to list some of the most distinctive shapes of this special type of plate below in order to avoid any misunderstanding, but would like to keep the presentation brief choose a name for this type of tile. We believe, if it proves to be correct, that the regulation of food resp. Blood rhythm have something to do, to be able to briefly call it "R egu I a tor". As often as the term "regulator" is used in the experiments, it is to be understood as meaning this special type of platelet, oval or round, sharply contoured discs with a few granules in the center.

Case 2.

Test subject: Fr !. EF

Age: 19 years.

Pulse: 76.

Habitual meals: the test person stated that they regularly eat three times a day.

First blood test before the attempt: normal blood count, numerous platelets.

The following meals were now prescribed:

Day: 1st meal at 7 a.m.

" 1" at noon

" 7 11 in the evening

Day: 1st meal at 7 a.m.

" 10 T1 in the morning

" 1" at noon

" 4" in the afternoon

" 7" in the evening

Day: 1st meal at 1 a.m.

" 8 T1 in the evening.

Result of the blood test on the 4th day: numerous platelets, isolated "regulators".

Case 3.

Test subject: Fr !. Dr. R.

Age: 30 years.

Pulse: 100.

Usual meals: According to information, regular 5 meals.
First blood test from the attempt: normal blood count, with a moderate number of platelets.

The following meals were prescribed:

Day: 1st meal at 7 a.m.

" 1" at noon

" 7" in the evening

Day: 1st meal at 9 a.m.

" 1" at noon

" 9" in the evening

Day: 1st meal at 7 a.m.

" 11" in the morning

" 2" in the afternoon

" 6" in the evening.

Results of the blood test on the 4th day: slightly increased blood platelets. Pulse 90.

Since the three-day change in rhythm did not seem to be sufficient, the following meals were prescribed for 7 days:

K 0 li s k 0, spleen function. 3 33

Meal 1/ 2 8 am

" 1/2 2" in the afternoon

" 1/2 8" in the evening.

Results of the blood test on the 8th day: numerous platelets. Pulse 100. Subjective discomfort throughout the eight days.

The usual rhythm was returned to for one day (5 meals a day).

Results of the blood test on the 9th day: platelets and regulators. Pulse 84.

Case 4.

Subject: Miss. ED

Age: 45 years.

Pulse: 88.

Usual meals: According to the information, meals are taken very irregularly, about 4 times a day.

Years ago, the test subject suffered from gastric ulcers which had already led to bleeding several times. Even now she sometimes suffers from severe stomach pains and headaches, which are in some way related to meals. The consumption of coffee often makes the pain worse.

First blood smear before the experiment: normal blood count, few platelets.

The following meals were prescribed:

Day: 1st meal at 7 a.m.

" 10"   in the morning

11 1 11 at noon

11 4 11 in the afternoon

11 7 11 in the evening

Day: 1st meal at 7 a.m.

2.
11
1
11
at noon
3.
11
, 7
11
in the evening

Day: 1st meal at 10 a.m.

" 4" in the afternoon.

Result of the blood test on the 4th day: numerous "regulators". During the whole time subjective well-being "are located.

Since the test subject stated that he always eats very irregularly, he seems to have found himself in a very unstable state with regard to his eating rhythm and the 3 days of extreme arrhythmia had produced such a brilliant result. We now assumed that if we were to ask this test person to "eat their meals regularly" for a certain period of time, we would have to produce the opposite effect, ie the "regulators" would have to disappear and only reappear when they return to the un "regular lifestyle. The following meals were now prescribed for 7 days:

Meal 7 a.m.

" 10" in the morning

" 1" at noon

" 4" in the afternoon

" 7" in the evening.

Results of the blood test on the 8th day: no "regulators", but also almost no platelets. Pulse 88. The subject had felt great discomfort for the entire 8 days. Now another day of the accustomed, irregular way of life was inserted.

Results of the blood test on the 9th day: platelets and "regulators". The assumption made had thus proven correct.

Case 5.

Test subject: Mr. GR

Age: 30 years.

Pulse: 76.

Usual meals: According to information 3 times a day, irregularly.

First blood smear before the experiment: many platelets, "individual" regulators ".

The following meals were prescribed:

Day: 1st meal at 7 a.m.

" 10" in the morning

" 1" at noon

" 4" in the afternoon

" 7 11 evening

Day: 1st meal at 7 a.m.

" 1" at noon

11 7 "in the evening

Day: 1st meal at 10 a.m.

" 4" in the afternoon.

Result of the blood test on the 4th day: also many platelets, few "regulators". In spite of the three-day disturbance, there was no change in the blood count. In response to questions, the test subject stated that he actually did not feel disturbed at all because he had been living for work reasons for about the last few weeks The test subject could not be induced to make a second attempt.

Case 6.

Test subject: Fr !. E. v. G.

Age: 26 years.

Pulse: 90.

Usual meals: According to information, very irregular, approx. 4 times a day.
First blood smear before the experiment: numerous blood "platelets".

The following meals were prescribed:

1st day: 1st meal at 7 a.m.

2.
"
10 "
morning
3.
"
1"
at noon
4th
"
4 "
in the afternoon
5.
"
7 "
in the evening
2nd day: 1st meal at 7 a.m.
2.
"
1
"
at noon
3.
17th
7th
"
in the evening
3rd day: 1st meal at 7 a.m.
2.
17th
9
17th
In the morning
3.
17th
11
17th
morning
4th
17th
1
"
at noon
5.

17th
3
in the afternoon
6th
17th
5
"
in the afternoon
7th

7th
"
in the evening.
11
11
Result of the blood test on the 4th day: numerous "regulators". Pulse 78.

Fa II 7.

Test subject: Dr. St.

Age: 30 years.

Pulse: 80.

Usual meals: According to information, irregularly 4 times a day.

First blood smear before the experiment: normal blood count, few platelets.

The following meals were prescribed:

Day: 1st meal at 7 a.m.

77 1 "at noon

11 7 77 in the evening

Day: 1st meal at 10 a.m.

" 4" in the afternoon

Day: 1st meal at 7 a.m.

" 10" in the morning

" 1" at noon

" 4" in the afternoon

" 7" in the evening.

Result of the blood test on the 4th day: numerous beautiful "regulators". Pulse 76.

Case 8.

Test subject: Fr \. GE

Age: 30 years.

Pulse: 92.

Usual meals: According to information, irregular, 3 to

4 daily.

First blood smear before the experiment: normal blood count, moderate number of platelets.

The following meals were prescribed:

Day: 1st meal at 7 a.m.

" 1" at noon

" 7" in the evening

Day: 1st meal at 10 a.m.

" 4" in the afternoon

Day: 1st meal at 7 a.m.

" 10" in the morning

" 1" at noon

" 4" in the afternoon

" 7" in the evening.

The test person states that they only kept the 1st and 3rd day, on the 2nd day they both changed the prescribed time and added a meal. Result of the blood test on the 4th day: plenty of platelets, individual transitional forms to "regulators". Pulse 88.

This attempt can be described as neither positive nor negative, as the regulations were not complied with. A repetition of the experiment was taken.

Case 9.

Test subject: Dr. T.

Age: 39 years.

Pulse: 72.

Usual meals: According to the statement "quite"

moderately 4 to 5 daily.

First blood smear before the experiment: numerous platelets.

The following meals were prescribed:

Day: 1st meal at 7 a.m.

1 at noon

" 7 " in the evening
" "
Day: 1st meal 7 a.m. 3rd day
2.
"
9
"
morning
3.
11
morning
4th
"
1
"
at noon
5.
"
3
"

in the afternoon
6th
"
5
"
in the afternoon
"
"
7th
"
7th
"
in the evening
3rd day: 1st meal at 7 a.m.
2.
"
10
"
morning
3.
1
at noon
4th
"
4th
"
in the afternoon
5.
"
7th
"
in the evening.
"
"
Result of the blood test on the 4th day: numerous "regulators". Pulse 84.

Case 10.

Test subject: Ms. N. St.

Age: 30 years.

Pulse: 79.

Usual meals: According to information, fully regularly 5 daily.

First blood smear before the experiment: normal blood count, few platelets.
The following meals were prescribed:

Day: 1st meal at 9 a.m.

" 1" at noon

11 9 11 in the evening

Day: 1st meal at 7 a.m.

11 1 11 at noon

11 7 11 in the evening

Day: 1st meal at 10 a.m.

" 4" in the afternoon.

Result of the blood smear on the 4th day: numerous "regulators".
Case 11.

Test subject: Miss M. K.

Age: 36 years.

Pulse: 68.

Usual meals: According to information, quite regularly every day 3.

First blood smear before the experiment: normal blood count, few platelets.

The following meals were prescribed:

Day: 1st meal at 12 noon

" 5" in the afternoon

Day: 1st meal at 7 a.m.

" 10 11 from midday

" 1" at noon

" 4 11 pm

11 7 11 in the evening

" 10 11 in the evening

4Q

Day: 1st meal at 7 a.m.

" 1 17 noon

11 7 71 in the evening.

Result of the blood test on the 4th day: plenty of platelets. Pulse 78.

Immediately thereafter for 7 days:

Meal 7 a.m.

71 1 "at noon (just a sandwich)

" 5" in the afternoon (main meal)

" 7 71 in the evening.

Results of the blood test on the 8th day: numerous platelets. The test subject had "felt great discomfort all along.

Now another day was inserted with a return to the usual, regular way of life. Result of the blood smear on the 9th day: "Regulators". Pulse 68.

Case 12.

Test subject: Mr. NE

Age: 44 years.

Pulse: 68.

Usual meals: According to information, regularly daily 3.

First blood smear before the experiment: normal blood count, few platelets.

The following meals were prescribed:
1st day: first and only meal 1/ 2 1 pm
2nd day: 1st meal at 10 a.m.
2.
"
4 "
in the afternoon
3.
"
10 "
in the evening
3rd day: 1st meal at 7 a.m.
2.
"
10 "
morning
3.
"
12th
11
at noon
4th
3
"
in the afternoon
"
5.
71
7th
11
in the evening

41

Day: 1st meal at 8 o'clock in the morning

" 10" in the morning

" 12" at noon

" 4" in the afternoon

" 7" in the evening

" 10" in the evening.

Result of the blood test on the 5th day: numerous platelets, isolated "regulators". Pulse 78.

Case 13.

Test subject: Fr !. J. N.

Age: 20 years.

Pulse: 64.

Usual meals: According to information, irregularly I 3.

First blood smear before the attempt: blood count normal, platelets very sparse.

The following meals were prescribed:

Day: 1st meal at 7 a.m.

" 1" at noon

11 7 11 in the evening

Day: 1st meal at 10 a.m.

11 4 11 in the afternoon

Day: 1st meal at 7 a.m.

11 10 "in the morning

11 1 " at noon

" 4" in the afternoon

" 6" in the evening

11 8 "in the evening.

Results of the blood test on the 4th day: numerous platelets. Test subject states that the regulations are only the

To have complied with the 2nd and 2nd day, on the 3rd day she had changed the regulation as follows:

Meal at 9 a.m.

" 11" in the morning

" 1" at noon

" 4" in the afternoon

" 1/2 7" in the evening
" 1/2 9" in the evening.
The following meals were then prescribed for 7 days:

1st meal at 7 a.m.

2.
"
10
"
In the morning
3.
1
at noon
4th
"
4th
" 7T
in the afternoon
5.
"
7th
" 7T
in the evening
7T
6th
"
10
in the evening.
Result of the blood test on the 8th day: neither platelets nor "regulators"; subjective discomfort throughout the 8 days.

Now another day was inserted with a return to the usual way of life.

Result of the blood test on the 9th day: "Regulators". In order to see how long these "regulators" remain in the blood count, further blood changes were made while maintaining the usual irregular lifestyle.

searches made.

Result of blood test

on the 10th day: "regulators",

7T 11. " numerous plates,

" 12." only a few tiles left, as before the start of the experiment.

Fa 11 14.

Test subject: Mr. HS

Age: 29 years.

Pulse: 100.

Usual meals: According to information, regularly daily 3.

First blood smear before the experiment: normal blood count, very few platelets.

The following meals were prescribed:

Day: 1st meal at 7 a.m.

" 1" at noon

" 7" in the evening

Day: 1st meal at 10 a.m.

" 4" in the afternoon

Day: 1st meal at 7 a.m.

11 10 "in the morning

" 1" at noon

" 5 11 pm

" 8" in the evening.

Result of the blood test on the 4th day: few platelets. Pulse 72.

Immediately afterwards, the following meals for 7 days:
Meal 8 a.m.

" 1/2 11 ,, in the morning
" 1/2 2" at noon
11 1/ 2 5 "afternoon

" 1/2 8" in the evening.

Result of the blood test on the 8th day: "Regulators".

Pulse. 96.

In this case, too, we wanted to check how long the platelets can be found in the blood count. The test subject returned to the usual way of life, so it was to be expected that "regulators" would still be present on the 9th day.

Result of blood test

on the 9th day: "regulators", pulse 104 / ,, 10. “Regulators”, pulse 104, “11.” “Regulators”, pulse 72, “12. " " Regulators ", pulse 100.

In response to urgent questioning, the test subject states that he is living exactly as he used to, ie 3 meals very moderately; every now and then he eats something in between. This information determined us to look for Mr. S. to live really quite regularly for 4 days with only 3 meals. Result: tiles in moderate numbers, no "regulators". Pulse 88.

Case 15.

Test subject: Mrs. K. E.

Age: 35 years.

Pulse: 72.

Usual meals: According to information, regularly daily 3.

First blood smear before the experiment: normal blood count, few platelets.

The following meals were prescribed for 3 days:

Meal 7 a.m.

" 10" in the morning

" 1" at noon

" 4" in the afternoon

" 7" in the evening.

Result of the blood test on the 4th day: numerous platelets and also "regulators". Pulse 80.

Case 16.

Test subject: Miss M. L.

Age: 31 years.

Pulse: 68.

Usual meals: Irregular, mostly daily 3.

First blood smear before the experiment: normal blood count, few platelets.

The following meals were prescribed:

Day: 1st meal at 7 a.m.

" 1" at noon

" 7" in the evening

Day: 1st meal at 8 o'clock in the morning

" 10" in the morning

" 12" at noon

" 2" in the afternoon

" 4" in the afternoon

" 6 11 in the evening

" 8" in the evening

Day: 1st meal at 11 a.m.

" 6" in the evening.

Result of the blood test on the 4th day: isolated "regulators". Pulse 72.

Case 17.

Test subject: Miss R.

Age: 34 years.

Pulse: 80.

Usual meals: According to information, irregularly 3 to 4 a day.

First blood smear before the attempt: numerous platelets and also "regulators".

The following meals were prescribed:

Day: 1st meal at 8 o'clock in the morning

" 1" at noon

" 7" in the evening

Day: 1st meal at 8 o'clock in the morning

" 11" in the morning

" 1" at noon

" 4" in the afternoon

" 7" in the evening

" 10" in the evening

Day: 1st meal at 6 o'clock in the morning

" 1 11 noon

" 10" in the evening.

Result of the blood test on day 4: extraordi N Lich much platelets k a e "regulators". Pulse 84.

Immediately after this, the test subject was asked to eat as usual for 7 days, ie 3-4 times a day, the main meals regularly, the snacks as they go.

Result of the blood test on the 8th day: numerous "regulators". Pulse 120.

Case 18.

Test subject: Mr. E. B.

Usual meals: According to the information, regularly daily 4.

First blood smear before the attempt: an extraordinary amount of "regulators".

The following meals were prescribed:

Day: 1st meal at 7 a.m.

" 1" at noon

11 7 "in the evening

Day: 1st meal at 7 a.m.

10 am

" 1 " at noon
11 4 "in the afternoon

11 7 "in the evening
" 11

Day: 1st meal at 8 o'clock in the morning

" 1" at noon

" 6" in the evening

" 11" in the evening.

Results of the blood test on the 4th day: platelets, now and then a transitional form, but no “regulators.” Pulse 64.

Case 19.

Test subject: Dr. S.

Age: 32 years.

Pulse: 76.

Usual meals: According to information regularly 5.

First blood smear before the experiment: platelets and "regulators".

The following meals were prescribed:

Day: 1st meal at 7 a.m.

" 1" at noon

" 7" in the evening

Day: 1st meal at 7 a.m.

9 in the morning

" 11 "   in the morning
" 1 " at noon
" 3 " in the afternoon
" 5 " in the afternoon

" 7 " in the   evening
" "
Day: 1st meal at 1 a.m. 7.

2. " 8" in the evening.

Results of the blood test on the 4th day: platelets and "regulators", as before the experiment. Pulse 76.

The test person stated that he only took meals exactly as prescribed on the first day. At the

On the 1st day the following changes were made arbitrarily:

48

Meal 1/ 2 8 am to 7:00 instead
2.
"
10
"
morning
"
9
"
3.
11
1/ 2 1
11
at noon
11
11
11
4th
11
1/ 2 2
11
at noon
"
1
"
5.
"
4th
11
in the afternoon
11
3
11
6th
7th
"
in the evening

5
"
11

11
7th
"
9
in the evening
11
7th

"

"
On the third day:
Meal 1/ 2 8 am instead of 1 pm
2. "
1
"
at noon
"8" in the evening
3. "
6th
"
in the evening. No meal was prescribed
4th

7th

more time.
"
11
in the evening. No meal was prescribed

more time.
From the above illustration it is clear that the test person did not observe the regulations at all, and therefore basically nothing was changed in their accustomed way of life. The blood count could therefore show no change. Special attention must be paid to this case, because this failure to comply with the regulations actually occurred in the best faith that it does not matter if, in addition to the prescribed meals, you also enjoy some fruit or chocolate in between. One must therefore make each test person aware beforehand that they are actually not allowed to enjoy anything other than the prescribed times.

On this occasion, attention should also be drawn to the fact that the test subject's statement that he or she eats regularly cannot simply be accepted as correct, because our experiments have shown that the views about "regularly" and "irregular" can be very different for different people. Most people are perfect

K 0 li s k 0, spleen function. 4 49

convinced that they are eating "regularly" when they have the 3 main meals (breakfast, lunch and
eat) take every day at the same hours. In this case, you have to inquire whether snacks are not also taken. In most cases this question is answered in the affirmative and then the alleged regularity begins to transform itself into the greatest possible extent; because one day there will be

time to 10 o'clock in the morning pushed, the second time to 1/ 2 12, the next time it does not occur. The same thing

fetched himself from the afternoon snacks. Such a way of life must be considered for the

the attempt to determine the spleen function can already be described as a very irregular one. In most cases the "regulators" can be found before the search begins. But we will come back to this point later.

Fa1120.

Test subject: Dr. RM

Age: 34 years.

Pulse: 96.

Usual meals: According to information, regularly 3 to 4 times a day.

First blood smear before the experiment: a large number of "regulators".
The following meals were prescribed:

Day: 1st meal at 7 a.m.

" 1" at noon

11 7 11 in the evening

Day: 1st meal at 7 a.m.

11 10 11 in the morning

11 1 11 at noon

11 4 11 in the afternoon

11 7 11 in the evening

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Day: 1st meal at 10 a.m.

11 4 11 in the afternoon.

Result of the blood test on the 4th day: "Regulators" are still present, but very sparse. Heart rate 100.

In this case it would have been necessary to continue the search, since in all probability the gulators "would then have been made to disappear completely. Unfortunately, the test subject was unable to make himself available for a second series of tests.

Case 21.

Test subject: Dr. E. K.

Age: 28 years.

Pulse: 66.

Usual meals: Completely irregular, approx. 4 to 5 daily.

First blood smear before the experiment: numerous lators ".
The following meals were prescribed:

Day: 1st meal at 7 a.m.

71 1 11 at noon

11 7 71 in the evening

11 1 11 at night

Day: 1st meal at 9 a.m.

11 11 11 in the morning

11 1 11 at noon

11 3 11 in the afternoon

11 5 11 in the afternoon

11 7 11 in the evening

71 9 11 in the evening

Day: 1st meal 1/ 2 8 am
71 1/ 2 2 11 noon
3.
71
6th
11
in the evening
4th
11
11
11
in the evening.

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Result of the blood test on the 4th day: "Regulators" are still there, but not as numerous as that. Pulse 80.

Case 22.

Test subject: Mr. MW

Age: 40 years.

Pulse: 92.

Usual meals: According to the information, the main meals are regular, snacks are different.

First blood smear before the experiment: numerous small and also "regulators" "

The following meals were prescribed:

Day: 1st meal at 7 a.m.

11 1 11 at noon

11 7 "in the evening

Day: 1st meal at 7 a.m.

11 10 11 in the morning

" 1" at noon

" 4 11 pm

" 7" in the evening

Day: 1st meal at 7 a.m.

9 in the morning

" 11 " in the morning
" 1 " at noon

" 3 " in the afternoon
" 5 " in the afternoon
" 7 " in the evening.
" " 7.
Results of the blood test on the 4th day: numerous platelets, now and then transitional forms.

Immediately afterwards, 7 days were followed by the following times:

Meal 1 / 28lThr in the morning

11 10 "in the morning

11 1 11 at noon

4 . " 3" in the afternoon

5 . " 6" in the evening

6 . " 8" in the evening.

Results of the blood test on the 8th day: platelets, no "regulators".
On the 9th day, return to the first familiar rhythm. Result of the blood test on the 10th day :, "Regula-

goals ".

As is clear from cases I, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, the occurrence of the "regulators" is actually a parallel phenomenon disturbed rhythm of food intake. Cases 17 to 22 included in the series of experiments are particularly interesting because they ran in the opposite direction. Eat all subjects ga nzunre gel - m ä SSGIs, sometimes even at night a few times, as they are forced by their profession to night work. The first blood count therefore already showed the "regulators".

Case 17 ver I 0 r the "regulators" after the first

3 days. Now, in order to check the correctness, the request was made to live as usual for a week, ie the main meals regularly, the times between meals as desired. The blood smear on the 8th day turned out exactly as expected: it showed numerous "regulators".

Case 18. The first blood count shows numerous "regulators", after 3 days these disappeared.

Case 19 does not seem to be true. However, the negative success is not due to the test arrangement, but to the non-strict adherence to the same. Moreover, it has already been described in detail.
Case 20 is to be equated with case 17, as is case 21.

Case 22. Here the main meals were taken regularly beforehand and the snacks between meals were completely different, which was shown from the outset in the blood count by the presence of “regulators”.

After 3 days the "regulators" disappeared. Now a second attempt was made immediately, not as in case 17 that the earlier irregular rhythm had been repeated, but a completely new one with meals alternating after 2 resp . 3 hours through 8 days, ie a completely new rhythm of food intake was introduced until the organism could get used to it. The blood smear on the 8th day also showed no “regulators”. Now there was another setback carried out at the first rhythm by taking the main meals regularly for a day and taking the snacks at will, and the expected reaction occurred on the 10th day when "regulators" reappeared.

In general, the following can be said of the experiments: it is necessary to disturb the rhythm for several days. However, it is not necessary that a different rhythm be prescribed every day, but only one that is strongly dependent on the usual food intake differs.

It has also repeatedly been shown that the "regulators" are not found after the point in time when the organism has got used to the new way of life, but only when it returns to the old rhythm. That is completely understandable. If I assume that the spleen has the function of

acting as a mediator between digestion and circulation, then it has to exercise a corresponding regulating activity with a certain quantity of absorbed substances. I would like to here again point out that one can prove purely outwardly how it is in the existing literature "

That has already happened more often after each

take in when all other organs are already anemic again

have become, the spleen will not. The immediate

organs associated with digestion are therefore with their

Activity over when the spleen ceases its activity

puts. The spleen shows relationships with the rhythm of the

Food intake, as well as this after ours

looking to do the "regulators". Is someone used to

Regularly take 3 meals a day, then is

the spleen is also used to extending three times a day

resp. contract. I suddenly start 5 times a day

to eat, then I ask the spleen to do more.

She pays for it. In the first few days, the whole feels

Organism a disorder. Because the need comes

not from within, but becomes that from without

When more food is required of the organism, it feels it

as uncomfortable. The functions of digestion and

of metabolism in general

aware when they are okay. But you come to that

People in an uncomfortable way to awareness, though

they are disturbed. After a few days (but that is

duel very different) you get used to it, more often

eating during the day and the subjective discomfort

dwindles. If you now go back to 3 meals,

but within such a period that the

If he has not got used to the other rhythm so much that he now feels this new change in food intake as disturbing again, then the spleen, which is now already set in a certain direction, has to switch again. This reversal does not appear to be happening so quickly. It is not easy to turn one rhythm into the other so that it happens in one fell swoop. The spleen is still set on an increased output, more than corresponds to the consumption and in this case one can see this strange in the blood count,

find contoured discs that are absent from an absolutely normal blood count. Usually platelets seem to be present, abnormally the "regulators".

Now me was possible in many hundreds of pre M Paraten the various plates forms to study and imposed itself to me that the belief that the primary structures are the l1Regulatore "and da'nn a gradual transition takes place down to the ge M graining platelets which of coarse granules without Eigent M consist pictorial content and the appearance of decay do. Cf. table No. IV..

What the distinction between form and dyeability of M arrived, I came to about the same categories, as described by Dr. He was established in the article "Differentiation of blood platelets" mentioned earlier. For more details, see there itself.

The best, I might almost say the only dyeing M method to represent the platelets and "regulators" has become the Giemsasche staining proved. When other authors stained with HematoxilinMEosin, in my opinion they could never stain "platelets". There were countless control staining performed for this purpose in preparations, where there is only wim M melte in every field of platelets and had nothing about it or where to most every now and then just blurry "REGUM lataren" at Giemsascher staining, but stained with hematoxylin Could perceive hints.
We must also accept that the platelets neither nuclear remnants of erythrocytes still ProtoplasmaMAbschnürun M gen of leukocytes, but is bst ä Quantcast F 0 rm e'e men ted it BI ut there that are newly created again and again.

These experiments were followed by some animal experiments, which for the sake of completeness are here "

should be mentioned, but which have not yet led to a final result. An institute we are friends with provided us with three well-fed rabbits for this purpose. When the animals were taken over, the first blood test was carried out, which resulted in a completely normal blood count.

The following is a brief excerpt from our protocols on animal experiments:

Rabbit No. 1.

First preliminary examination of the blood on December 31, 1921:

Blood count perfectly normal.

The animal was now regularly fed three times a day. Blood test on January 3, 1922: "regulators" are already in place and these are likely to be due to the changed feeding; the previous owner only fed the animal twice a day, whereas we fed it three times.

He most F o t te ver run gs examined (6 January 1922):

Duration 3 days. Meals at different intervals.

Results of the blood test on the 4th day (January 9th):

numerous platelets, individual transitional forms.

Second feeding attempt (January 10, 1922): duration 3 days. The intervals observed during the first feeding attempt have been changed.

Results of the blood test on the 4th day (January 13th):

"Regulators".

It was now suspended for a week and fed regularly. Preliminary examination January 20, 1922: blood count normal, no "regulators".

Three feeding attempt (January 21, 1922):

Duration 3 days. Meals at different intervals.

Results of the blood test on the 4th day (January 24th):

isolated "regulators".

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Rabbit No. 2.

Preliminary examination on December 31 , 1921: normal blood count. The animal was fed regularly three times a day. Blood test on January 3 , 1922: "ReH gulators" are already in place. It is the same as for rabbits

Number 1.

He most F o t te ver run gs examined (6. January 1922):

Duration 3 days. Meals at different intervals.

Results of the blood test on the 4th day (January 9th):

numerous platelets, isolated transitional forms.

Z further feeding attempt (January 10, 1922): duration 3 days. The intervals that were held at an H during the first feeding attempts were changed again. Result of the blood test on the 4th day (January 13th): "Regulators".

They were now suspended for a week and fed regularly.

Preliminary examination January 20 , 1922: blood count normal.

Third feeding attempt (January 21 , 1922):

Duration 3 days. Meals at different intervals.

Results of the blood test on the 4th day (January 24th):

numerous plates, few "regulators".

Rabbit No. 3.

Preliminary examination on December 31 , 1921: normal blood count. The animal was fed regularly three times a day. Blood test on January 3 , 1922: platelets and "Re H

The same applies as for rabbits No. 1 and No. 2.

First feeding attempt (January 6, 1922): duration 3 days. Meals at different intervals. He H result of the blood test on the fourth day (January 9): zahlH rich platelets k a e "regulators".

Z further feeding attempt (January 10 , 1922):
Duration 3 days. An H at the first attempt at feeding

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held intervals have been changed. Result of the blood test on the 4th day (January 13th): "Regulators".
Now they were again suspended for a week and fed regularly.

Preliminary examination on January 20, 1922: blood count normal.

Third feeding attempt (January 21, 1922):

Duration 3 days. Meals at different intervals.

Results of the blood test on the 4th day (January 24th):

few "regulators".

M i 1 zexstirpat ion at 2 k aninche n.

The spleen was then switched off in two of the experimental animals mentioned above. The blood count of both animals showed an inundation with large "regulators" in the first few days after the switch-off. In the course of the next few days these decreased more and more.

In this regard, reference should be made to the various extirpations of the spleen which were carried out from other sources and in which a strong increase in platelets has also been described. It would be interesting to find out whether all these cases were just ordinary amorphous platelets or "regulators". After a hint!) That the few platelets in thrombopenia are noticeably large, one might suspect something similar in splenectomy.

As already mentioned, the animal experiments are still being continued.

It would now be possible to explain why, after extirpation of the spleen, the platelets not only do not disappear, but also increase in number and size. The explanation for this does not seem particularly difficult to us. Go

1) See Eppinger, 1. c., Pp. 296 and 313 and Kaznelson, W. kl. Weekly 1916, p.1451.

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from the spleen, whereupon Dr. R. S t a he pointed out

was, the rhythmization of the process of

recording off, so you don't have to assume that

these 11 regulators "are materially secreted by the spleen

the. It will only be about influencing the

speed of their appearance in the blood act. Perhaps this process could be visualized in the following way. If you take an incubator that has a regulator, that doesn't mean that the regulator generates the heat, but its function is based on keeping the heat that can come from any source at the same level, like this regulates that the temperature does not exceed a certain limit. If one takes away the regulator (in the organism the spleen) and does not change the other conditions, then the temperature will gradually rise, not ad infinitum, of course, but as far as is within the power of the power source.

If the spleen is removed from the organism, then not only do regulators appear "in the blood count, as in the case of a disturbed nutritional rhythm, but it is imperative that a flood with it set in. The spleen thus has an inhibitory effect on the production of platelets and regulators", such as yes it has already been proven by another side.

There seems to be a contradiction here in the present presentation. On the one hand, we say that the spleen causes the production of the 11 regulators. On the other hand, we say the spleen inhibits the production of the platelets and 11 regulators. \ How can this contradiction be made? It was pointed out at the beginning of our presentation that Dr. S t he a spleen than a unt erb ewusstes S Innes 0 responsive rgan whose activity less after the actual metabolism in humans by the rhythmic operations towards

is laying. Usually we are the processes that are in

our digestive tract play during the

ingestion and digestion, unconscious.

We face the outer world consciously and through V

mediation of our senses in the face of knowing. Lie differently

the conditions in relation to the inner workings of our

Organism. But now we know that everyone

passages inside us with great regularity

pull unless they are pathologically disturbed

would be. The task of the sense organs is, among other things,

to perceive external or internal experiences and the

To draw attention to the organism, if it has any

Has to perform the action. The sense organs themselves remain

limited to perception, be it one

or

taking; z. B. If I perceive the smell of chlorine gas, then I am induced by this smell perception either to open a window or to leave the room or to do the appropriate thing at that moment. If I perceive through my eye that a horse is running towards me, then I jump to the side, etc. I now apply this same principle to my internal organs, from
which spiritual research tells us that they all, that

one more, the other less, subconscious

are organs, then that means nothing else than when

it means the function of the spleen to keep the rhythm

so it takes the rhythm disturbances as a sensory organ

true and causes the organism to do the corresponding

to produce compensation , namely: the

goals ".

The "regulators" are thus generated at the instigation of the spleen, that is, the organ that is aware of the disturbance. If you extirpate the spleen, then there is no longer an organ to perceive the rhythm disturbances and the "regulators" are produced while they are straight

necessary or not. The analogous case occurs with the other sense organs. A person who suddenly goes blind is constantly in a state of tension; he always thinks that now and now

something could fall or he falls into a pit etc. And so his whole being is adjusted to a certain cautiousness, which is expressed in walking and in each of his unsafe, groping movements. It is similarly the case with someone who is hard of hearing. This, too, is always in a state of defense against the outside world with regard to the lost hearing perception. He I postulated for all people that they speak of him and fights constantly, which from all over the irritability of the nature and \ YJ where he really is else, such as a hearing impaired speaks is readily apparent, because he can no longer perform the moment has to defend himself. Of course, this extreme state does not last. The blind learns to use other sense organs, some of which replace the sense of sight. The dove learns to read the words from the lips, so he develops his sense of sight more sharply. The blind learns to distinguish between the finest sounds and sharpen their sense of hearing as well as their sense of touch. In short, other senses or other organs are used to replace what is missing. We can see something similar in the case of the spleen. There is a possibility that after removal of the physical spleen, collateral spleen may appear or small, brownish-red nodules form along the entire alimentary canal, which take on part of the spleen function. This proves without further ado that the organ is not the primary one, but the "functional" one and that this functional element can create a new replacement organ if the original organ has been destroyed. The "functional" is therefore a reality that only allows the organ to emerge from itself. Just as the blind man stops fumbling around in fear when his hearing and

When the sense of feeling has been increased, the organism gradually ceases to produce "regulators" in a pointless way if its function is partially taken over by other organs for a period of time after the extirpation of the spleen.

From the above experiments, this results on the one hand that a bes 0 n e of the type of BI UTP I ä SLIDE, it has not been differentiated from the ordinary amorphous flakes with the rhythm of food intake are in intimate relationship. On the other hand, the rhythmic change of the spleen in connection with food intake is also known, and there are also the aforementioned relationships between the spleen and blood platelets. One can therefore assume that the spleen and those specific platelet forms, which we call "regulators", are also related to one another, because both undergo changes with the rhythm of ingestion. This regulation of the rhythm of food intake should not be seen as the only function of the spleen. There are further details from Dr. Let him introduce you to the other functions of this organ, from which it clearly emerges that it is a misunderstanding of the whole human being if one considers the spleen to be a subordinate organ. Dr. Any information given about this should also be tested experimentally by us and the result of our tests will also be published at the given time.

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