The Rationale of Blood Regeneration.

THE RATIONALE OF

BLOOD REGENERATION

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The Rationale of Blood Regeneration.

THE blood holds in solution certain albuminous bodies of which the principal are serum albumin, serum globulin and fibrinogen; also a number of mineral substances, the chief of which are common salt (sodium chloride) and sodium carbonate. These may be classed as the invisible constituents of the blood, and their investigation belongs to the domain of the physiological chemist. The blood in addition holds in suspension the red and white corpuscles, which admitting of inspection, may be classed as the visible constituents. It is the alteration of these latter, any abnormal change as regards their form, color, size, number and relative proportion, which produces a series of disorders, which, as in chlorosis, often without assignable cause, are characterized by profound disturbances.

Prof. Frederick P. Henry, of Philadelphia, in a comprehensive monograph on *Anæmia*, says: "The functional power of the blood is dependent upon the number and the quality of its red blood corpuscles. When a deficiency exists in either of these respects, the tissues suffer for the want of oxygen, the most important nutritive element of the body." The resulting condition is called anæmia, and Dr. William Hunter uses this term in its widest sense to include every condition whether local or general in which the blood is either qualitatively or quantitatively impaired. There is, however, a con-

sensus of opinion among medical authors, and advanced clinicians, as to the kind of anæmias, and in the most approved nomenclature of the day are styled symtomatic and idiopathic, in place of primary and secondary. For convenience of classification, the following varieties of anæmia may by appropriately grouped:

Idiopathic Anæmias.

Chlorosis.
Lymphatic Anæmia (Hodgkin's disease).
Leucocythæmia.
Splenic Anæmia.
Pernicious Anæmia.

Symptomatic Anæmias.

Anæmia of fever.
Anæmia of hemorrhage.
Anæmia of phthisis.
Anæmia of heart disease.
Anæmia of cancer.
Anæmia of syphilis, etc.
Anæmia of poisoning and parasitic origin.

The Change of the Blood.

Idiopathic anæmias must comply with the following conditions:

A profound radical change in the blood, as determined by actual examination, must of a necessity constitute a striking feature of the disease. Again the morbid symptoms must be directly attributable to the altered conditions of the blood—in chlorosis where the number of red blood corpuscles may be normal, but

where the hæmoglobin, or coloring matter of these blood discs is deficient—in pernicious anæmia where there is a numerical diminution of red blood corpuscles, alterations in the size and shape of the red corpuscle, without any marked decrease of hæmoglobin. In pernicious anæmia, the blood has been aptly compared to water in which beef has been washed.

In this form, when the cause is known and not removable, the prognosis is hopeless, also when the origin is obscure, the cure is doubtful.

In chlorosis, as is well known, the blood corpuscles vary abnormally in size, extremely small ones called poikilocytes being present, and some larger than the ordinary corpuscle, termed megalocytes. Many of the former are extremely minute.

Anæmias.

A comparison of the anæmia of phthisis with that of chlorosis or leucocythæmia, illustrates the difference between the symptomatic and idiopathic forms of disease. In phthisis, the blood changes, however profound, do not by any means constitute the most marked clinical feature. The other symptoms—cough, night-sweats, fever, expectoration—are not dependent on hæmogenic or hæmolytic disorder. The condition of the blood throws no light upon the nature of the disease or its seat. Hence the anæmia of phthisis is rightly classed as symptomatic. In chlorosis the blood changes, especially the great diminution in hæmoglobin in comparison with the slight lessening in the number of red

blood corpuscles constitute its chief clinical (and in this instance the chief pathological) feature. The pallor, giddiness, debility, breathlessness, palpitation, etc., can be shown to depend on disordered blood formation, which is also the cause of the blood changes themselves. The gastro-intestinal disturbances generally associated with chlorosis have been shown (Bunge) to be due to the excess of decomposition products in the intestine accompanying the characteristic constipation. These break up the iron compounds of the food, and tend to prevent due absorption of iron in its only assimilable form, and so lead to impaired blood production. Chlorosis in girls is, in fact, an idiopathic anæmia, hæmogenic in its origin, and is due to a deficient supply of assimilable iron at a time when the recent onset of menstruation has removed a certain portion of the already small supply of that element present in the body. So, too, in leucocythæmia the blood changes—the abnormal increase in the white blood corpuscles and a diminution in the red—constitute the chief clinical features and serve to account for the other symptoms, and, with the alteration in the blood forming organs, present the chief morbid changes discoverable after death. These facts place leucocythæmia among the idiopathic anæmias.

Johann Duncan, in 1867 demonstrated that in chlorosis the red corpuscles may be normal in number, while their value—the quantity of hæmoglobin they carry—is greatly reduced, other authorities conclude that there must be at least two kinds of chlorosis, one

with a normal number of corpuscles deficient in hæmoglobin; the other with a diminished number of corpuscles which may be either normal or deficient with regard to their hæmoglobin. Virchow attributes some cases of chlorosis to imperfect development of the heart and blood vessels, but this theory has not, however, met with general acceptance.

Much obscurity surrounds the subject of chlorosis, and it is one of those pathways in the science of medicine which has been strewn with the wreck of pet theories. From a careful study of its clinical history, the only valuable therapeutic data that may be obtained is that iron is the specific treatment, and that form of iron, which is most assimilable and best equips the respiratory functions of the blood, increasing its corpuscular activity and hæmoglobin value so that it will as it passes through the lungs take up the extra atom of oxygen, for which this metal has a remarkable affinity and convey it to the tissues which demand nutrition.

How Iron Acts.

The precise mechanism by which iron enters the blood has long been a subject of controversy among physiologists. It being agreed that it is an essential constituent of the red blood corpuscle, there are at the present time three distinct theories as to its *modus operandi*.

1. Since iron cures certain conditions in which the iron of the blood is deficient such as anæmias, chlorosis, etc., it has been very generally assumed that it must be

absorbed, and in confirmation of this view, there is a considerable amount of experimental evidence.

2. The second theory rests on the supposition that iron preparations given by the mouth are not absorbed. It is argued that the iron of the food, which equals about 6 to 9 cc. daily in an ordinary diet, is more then sufficient to make up any deficiency in the blood and that unused iron is always being excreted from the bowel even in chlorosis. The intestinal mucous membrane, however, is supposed to be so bloodless, that it cannot properly perform its absorptive functions, hence the iron of the food is not taken advantage of, but when inorganic iron is given, it stimulates and tones up the gastro-intestinal mucous membrane, so that digestion and absorption of food takes place satisfactorily, and in a short time, the iron in the dietary makes good the deficiency in the blood.

It is extremely doubtful whether this theory has or ever had many supporters. Among them however, may be cited, Buchheim, Kletzinsky, Kobert and Dujardin-Beaumetz. The last named after advancing arguments against the probability of the absorption of iron and stating that in chlorosis it acts simply by stimulating appetite and digestion, claims to get better results from arsenic, quinine, diet and hygienic measures, than from heroic doses of inorganic iron, and further doubt has been thrown on this theory of stimulation by the injection of iron subcutaneously and its subsequent passage from the blood through the wall of the gastro-intestinal

canal, giving to us the *a priori* argument that if, by the process of endosmosis, iron may pass from the blood through the walls of the alimentary canal, it may with equal facility by the opposite process (exosmosis) pass through the walls of the alimentary canal into the blood; on that account, although absorbed into the blood, be absent from the bile and urine. While the physiological presence of increased iron in the blood would seem to refute the theory of stimulation, Kobert and Cahn, experimented with manganese, which is an element foreign to the body and easily detected. They have proved that it is not absorbed and from analogy, conclude that iron also is not.

Bunge explains the usefulness of iron in chlorosis by its forming iron sulphide in the intestines and removing in this way excess of sulphur from the body. In chlorosis there are excessive fermentative processes in the alimentary canal and intestines, large quantities of sulphuretted hydrogen being formed which destroy the organic compounds of iron that form hæmoglobin, (Stockman, *British Medical Journal*).

If sulphide of iron cures anæmia and chlorosis, which it sometimes does when given by the mouth, it disproves Bunge's theory, for if iron sulphide be the form employed, it cannot take up any more sulphur and it is therefore useless as an absorbent of the sulphuretted hydrogen, and being non-astringent it cannot locally stimulate the mucous membrane. If it cure anæmia it must do so by being absorbed.

If bismuth, manganese and other drugs,—which are just as capable as iron is of absorbing sulphuretted hydrogen and acting as intestinal stimulants, should prove inert in chlorosis, it forms an additional reason, says Stockman, "for regarding the absorption of iron as indirectly proved."

People in health, make up the wear and tear of physiological iron from the food they eat and this fact would seem to point to a logical, rational and now well established principle of iron administration. The employment of a neutral organic preparation of iron,—one that does not convert the stomach into a miniature laboratory, or having any pronounced tendency to exaggerate the pathological conditions incident to anæmia or chlorosis.

Modern medical skepticism, however, seems to have attacked even this apparently well established doctrine despite the clinical teachings of Neimeyer, and the exhaustive and patient researches of eminent physiologists, as to the passage and absorption of iron when taken either as a food or medicine.

The Natural Supply of Iron.

At the recent Congress of Internal Medicine in Munich, April, 1895, the therapy of iron was the main topic of discussion; many conceptions as to the use of iron handed down from former times, were cleared away, and exact observations based upon physiological facts, shown to be more consonant with nature.

Our foods from which the body obtains its requisite supply of iron, contain other fixed combinations of this

metal which can be absorbed and assimilated. The small amount of iron contained in milk is surprising. The young animal has its maximum supply of iron at its birth, this supply then rapidly decreases, and afterwards only becomes greater in the same proportion as the weight of the body increases. The absolute quantity remains small. If young animals should be nourished entirely with milk, they would become anæmic. From this arises the important problem whether children should be nourished with milk after the ninth month, and hence the efficacy of a pure milk diet in anæmia, simple or complex, is disputed. The inorganic salts of iron render no material aid for the formation of hæmoglobin; being insoluble and by reason of their irritant properties, they become progressively inefficient, acting at best as gastro-intestinal stimulants, leaving in their wake many unpleasant sequelæ. "If you wish to give iron," says Prof. Bunge of Bale, "it should rather be procured from the markets than the drug stores." Many foods especially meats, eggs, spinach and other vegetables are so rich in iron that as much, says the above authority, can be supplied through them as by medication with ferric remedies, provided that the appetite of the patient is normal and good. It is this last inference, and proviso that renders Bunge's theory untenable. Few chlorotic or anæmic patients enjoy good or normal appetite, *per contra*, every practitioner can call to mind the languid attempts at eating and the abnormal cravings of his chlorotic patients. In fact, Prof. Bunge's paper read at Munich, while it attracted much

attention, elicited general contradiction, Prof. Quincke of Kiel, emphasized the principle of adherence to established and approved facts. Whether there be a theory to explain it or not, ripe observation and clinical experience do not admit of any doubt as to the good effects of iron medication, where it can be promptly absorbed, and used with general and universal satisfaction." If Bunge is correct, says Prof. Zimmerman of Bale," chlorosis would never develop in girls belonging to families in affluent circumstances because they eat plenty of meat, vegetables and other food containing iron." He furthermore maintains, and proves, that the dietetic treatment of poor, badly fed chlorotic girls may bring about better nutrition, but not a cure of chlorosis. Zimmerman claims that the neutral organic preparations of iron are excellent promoters of nutrition and all vital functions, and that chlorosis is not produced by a deficient supply of foods containing iron, but by a want of vitality of the organs that produce blood.

Professors Nothnagel of Vienna, Ziemssen of Munich, Erb of Heidelberg, Bauember of Freiburg, Edlefson of Kiel, Ewald of Berlin and many others of contemporary prestige, gave their unqualified adherence to the remedial value of iron, in fact, the weight of authority is in favor of its use, and the result of the recent discussions may be summed up in the statement; that the value of iron medication remains an indispensable and imperative factor in therapy.

The Utility of Iron.

While its place seems to be assured in the domain of materia medica and therapeutics, iron is frequently

given with disappointing results, and in cases where the indications for its exhibition are well defined; this is particularly true of the inorganic forms of iron. The best measure of the value of iron administration, is its solubility and facility of absorption—the quantity taken up and not the quantity prescribed. Iron is not absorbed in the stomach, it passes through that viscus to find in the duodenum the conditions necessary for its absorption, and the subsequent performance of its functions of oxidation as an element of the red blood corpuscle. From the mouth to the duodenum, the chemical changes which iron undergoes, is complex, varied, and in some respects conjectural. It is to this fact that we owe the multiplicity of ferric remedies, and are burdened not so much by an embarrassment of riches, but rather a throng of mediocrity from which to choose. Again, this complexity of iron transformation has led to the employment of other drugs such as arsenic, bismuth and manganese, either alone, or when compatible, with iron. It would be a work of supererogation at this day, to teach the profession their value, as their therapeutic properties have been thoroughly studied. Owing to its higher oxidizing power, manganese has some reputation as a hæmatinic, but as it is always used as an adjuvant to iron, its efficacy has not been clearly established and it is now only used empirically upon the ground that in combination with iron, it helps the latter. As the human body only contains 2 to 2½ grammes of iron and no appreciable quantity of manganese, that is to

say when manganese is present it is purely accidental and is not an essential component of any tissue or organ, but is derived from vegetable food which in turn gets it from the soil. Whatever reputation manganese enjoys is through the researches and advocacy of Hannon, but as he and others always gave iron along with it in the proportion of about six times as much iron as manganese, the role of the latter would seem to be unimportant. Glenard in examining the blood of forty persons in good health, who were bled, found in one only a trace of manganese and as he found none in the blood of manganese miners, argued that the metal could not be absorbed by any channel. Kobert and Cahn have proved that manganese salts given by the mouth are not absorbed. Stockman states that he never saw the slightest improvement from the use of manganese, and that its failure in chlorosis was marked. This brings us back again to the dictum of Niemeyer, "the intelligent and persistent use of iron," and that form of iron which meets all the requirements of a progressive therapy and rational development. The value of the carbonate of iron (Blaud mass) is due to the fact that this salt possesses a volatile acid which is liberated by the acids of the gastric juice and the consequent formation of a more soluble base. When physiologists recognized hydrochloric and lactic acids, chemists produced chlorides and lactates of iron. Upon the further intimate association of iron with albumen, the albuminates of iron came into vogue, but all of these were stepping stones, merely "curtain raisers"

to the drama of iron digestion and absorption. Just as true that proteid food must be peptonized, or become peptones in order to contribute directly to nutrition, so, said Claud Bernard, "all iron must enter into the circulation in its ultimate form of assimilation, which is a peptonate." As a result of specialized effort in this direction, after patient research and careful investigation, that distinguished pharmacologist, Rud. Pizzala, first gave to the world a true iron peptone in the form of his now highly esteemed elixir, not a mere ferruginous solution, but a true combination, chemically correct and therefore of therapeutic importance.

The Problem Solved.

Rudolph Pizzala seems to have been the first one to solve the problem of rendering an iron preparation capable of being absorbed without undergoing chemical change. Pizzala's Elixir Peptonate of Iron is held in high esteem by such authorities as Erb, Nothnagel, Ewald, Quincke and other German authorites. It was frequently prescribed by the late Sir Andrew Clarke of England. It enjoys a large and increasing favor and stands very high in the newer materia medica. It is free from the objectionable characteristics of other iron preparations producing no plethora or hepatic congestion, even when pushed to the point of physiological tolerance.

Pizzala's Elixir of Peptonate of Iron is an important addition to our therapeutic resources not only as a potent blood reconstructive but as an ideal systemic tonic, because:

The chemical formula of Pizzala's elixir so closely resembles that of the human oxy-hæmoglobin, the formula of the first being

C	H	N	FeS	O
600	960	154		179

and of the oxy-hæmoglobin

C	H	N	FeS	O.
600	960	154	3	179

In view of the above, we are justified in saying that Pizzala's Peptonate of Iron is an oxy-hæmoglobin synthetically prepared. A true peptonate of iron occurs as a powder, which, unless suspended in an alcoholic elixir will deteriorate and decompose. The basis of Pizzala's is 10% of cognac which is a better menstruum, than employed by other chemists, because the majority of them use sweet wines in preparing their so-called "peptonates." A certain amount of tannin being present in all wines, there is a tendency to develop a tannate of iron and inelegant precipitates. Cognac, being a distillation, is divested of its tannin and is absolutely neutral, therefore, Pizzala's elixir is a classic pharmaceutical preparation because:

1. It is a finished medicament, being a true chemical combination of organic iron and peptone.

2. It is permanent and palatable, requiring no special menstruum to facilitate its exhibition. It is a clear, reddish brown fluid which does not deteriorate in value upon exposure to light and is not affected by change of temperature.

3. Unlike many so-called peptonates and albuminates, Pizzala's elixir peptonate of iron, is entirely free from any repulsive animal odor or taste and it is not liable to decomposition upon contact with ordinary food. In reaction it is neutral, producing no discoloration or injury to the teeth, and being without constipating properties.

This peptonate of iron is readily and easily digestible. No preparation of iron is better assimilated. Its action being prompt, stimulating the appetite and the digestion, it enters directly into the circulation with the other food products, and is well borne by the most intractable stomach.

The use or Pizzala's elixir, has been attended with uniformly gratifying results in Europe and this country and is therefore esteemed by the advanced thinkers in the domain of therapeutics, as the only rational form of physiological iron known to the profession.

In the treatment of anæma and chlorosis, Pizzala's elixir not only properly equips the blood for its respiratory functions as it passes through the lungs, but it stops tissue waste, from the fact of its exerting a double tonic influence and inducing a normal healthy flow of the secretions.

The idiopathic anæmias and chlorosis of chylopœtic origin, the pathological feature of which is destruction of the blood, the rapid disintegration of the red blood corpuscles has been arrested more promptly by the use of Pizzala's elixir than any other similar preparation of

iron. Its hæmatinic effect is certain, and the customary dosage being sufficient to insure not only an increase in the number, but also an improvement in the quality of the corpuscles by maintaining the integrity of its hæmoglobin.

The utility of this remedy in all diseases characterized by impoverishment of the blood has been fully established and it has been further demonstrated to have a wider range of application, as its use is indicated in various nervous and debilitating disorders: Amenorrhœa, malnutrition, nervous dyspepsia, hysteria, chronic uterine catarrh and the slow convalescence from acute diseases. In these disorders the employment of this remedy has been of material benefit, and inestimable value. In point of fact it has no rival and has revolutionized modern iron medication.

European Authorities.

What They Say.

PROF. DR. EDLEFSEN, of Kiel:

There is no need, on my part, to write any recommendation for your preparation. There is probably no physician in this part of the country who has used your preparation as extensively as I have, and I can only say that, almost without exception, in every case where I have used it, I have had the greatest satisfaction, and even in cases of the weakest stomach I found the preparation easily digested.

PROF. DR. ERB, of Heidelberg:

You must content yourself with knowing that I am prescribing your preparation to a very large extent, and that I very often mention Pizzala's in my lectures as professor at the University at Heidelberg.

DR. KOBERT, Freiburg i. B.:

Just having recovered from a very severe sickness, I am using Pizzala's peptonate of iron in my own case and find the result extremely satisfactory. I have used the preparation in my practice for years, and I can only corroborate the unanimous verdict that the same belongs to the best of the new tonics. The results are sometimes simply astonishing.

D. CONTZEN, Neukirchen, County of Trier:

Having been recommended by Prof. Erb, of Heidelberg, to use your preparation, you will, therefore, kindly send me some by express.

Privy Medicinal Councilor Dr. Bode, of Bad Nauheim:

I have as you may have noticed from the large consumption of the drug store in this town, used your preparation last summer to a very large extent, and have been very much pleased with the results.

Dr. St. Bramer, Bradford (Yorkshire, England):

I am very much pleased with the results of the applications of your preparation, all my patients digested the same splendidly even those who could not retain any other medicine in their stomach. The taste is pleasant to such an extent that some patients have got to like it. Especially ladies are very grateful that the usual damage to the teeth does not occur with Pizzala; it has no effect at all on the teeth. I shall use every opportunity to recommend your preparation.

Prof. Dr. Henny, of Leipzig:

On the 1st of November last, you sent me some bottles of the Pizzala peptonate of iron, and the reason why I express my thanks so late is, that I wished to observe the results of the same in my clinic. It gives me pleasure to say that I am very well pleased with the results, and that I shall take occasion to order the preparation continually.

Eduard Hess, of St. Petersburg:

Professor Erb, of Heidelberg, has recommended to me the use of your preparation with quinine, and as I cannot obtain the same here, you will kindly send me some bottles by express.

PROF. DR. GEIGEL, of Würzburg:

Thanking you for sending repeatedly the Pizzala peptonate of iron, it gives me pleasure to say that I am using the preparation wherever I have a case of "anæmia," and that I am very well satisfied with the results.

PROF. DR. REKLAM'S Journal "Gesundheit," in Leipzig:

After using your preparation for over a year, we can conscientiously endorse every word of your prospectus. We have used the preparation for children as well as adults and in every case we experienced the same good results. We, therefore, do not hesitate to warmly recommend to the medical fraternity the use of Pizzala's peptonate of iron.

DR. HINKELDEYN, Directing Physician of the Public Hospital in Lübeck:

It gives me pleasure to state to you that I am extremely well pleased with the Pizzala peptonate you are making, and that I had the best results from the same. The value of the preparation is increased by the fact that it does not spoil even if kept for a long time, that it is easily digested, and that it has a pleasant taste.

COUNTY-PHYSICIAN DR. JAUERT, Seehausen i/d Altmard:

I am very well pleased with Pizzala; it does not disturb the digestion, and its effect is felt very soon. I am using it very much with the same good results in every case.

W. JANSSEN, M. D., of Hamburg:

That I value Pizzala very highly, you can judge from the fact that I have been using it for years and that I am using it now in two cases in my own family.

DR. KNICKMEYER, Leichlingen near Düsseldorf:

I am using Pizzala for four members of my own family and with excellent results.

DR. TEUFFEL, President of the Department for Internal and Women's Diseases in the Ludwig's Hospital, Charlottenhilfe, in Stuttgart:

Pizzala peptonate of iron, which I am using for some time and in a great many cases, has very much satisfied me, especially on account of its easy digestion, its pleasant taste, and for the fact that it does not suffer from age.

The originals of above testimonials are in the possession of Rudolph Pizzala, druggist, in Zwingenberg. a/B Hessen.

Canada.

Certificate from SIR JAMES GRANT, M. D., K. C. M. G., Physician to (the late) Governor General, Lord Stanley, and Ex-President of the College of Physicians and Surgeons of Ontario:

GENTLEMEN:—I have had the elixir of peptonate of iron (Rud. Pizzala) under observation for the past year and can testify as to its value as a medicinal agent on the human economy. In my opinion, it enters the sys-

tem readily through the gastric mucous membrane and rapidly takes part in the formative process of red blood globules. It is most pleasant to the taste, not nauseating in its action nor injurious to the teeth. As a grateful restorer of lowered vitality depending on anæmia and chlorosis, this most unique preparation fills a most important place therapeutically, and I shall continue its use with great pleasure.

(Signed,)

J. A. GRANT, M. D.,

150 Elgin St., Ottawa, Ontario.

March, 1893.

TORONTO, Feb, 4, 1892.

DEAR SIRS:—I intend to prescribe Pizzala's elixir of peptonate of iron. I find it extremely beneficial to my patients.

Very sincerely,

ALBERT A. MACDONALD, M. D.

American Authorities.

What They Say.

NEW YORK, Dec. 28, 1891.

I have used to a great extent Pizzala's elixir of peptonate of iron especially where a weak digestion did not admit the administration of other iron preparations. Pizzala's preparation is very well borne and has given me very satisfactory results.

AUG. F. FRECH, M. D.

NEW YORK, Dec. 21, 1891.

I have largely employed Pizzala's elixir of peptonate of iron particularly in cases of anæmia and chlorosis. I find it the only iron preparation which is digested without disturbing the alimentary tract. In diseases of children especially I deem it *the iron par excellence.* EPHRAIM WINTERNITZ, M. D.,
311 E. 72nd St.

NEW YORK, Dec. 21, 1891.

I have used Rud. Pizzala's elixir of peptonate of iron in anæmia and different cases of neurasthenia and found it very efficient, on account of its easy assimilation. Yours truly, DR. A. RIXA,
Prof. of Gynecology, M. C. of New York.

Pizzala's peptonate of iron scarcely needs recommendation this late day. I have used and do use it extensively in my practice and find it the most digestible and one of the most effective iron preparations we possess. S. P. CAHEN, M. D.,
Nov. 29, '91. 227 W. 44th St.

I have used Pizzala's peptonate of iron with quinine in a large number of anæmic and convalescent cases with perfect satisfaction to myself and patients.
EDWARD E. CONRAD, M. D.

Pizzala's peptonate elixir of iron is an excellent preparation and proved very successfully in my hands.
Nov. 18, '91. DR. CHARLES ROTH, M. D.

Extract from Clinical Report:

CASE:—Agnes P., domestic, age 24, for past five years had lost flesh and color. Mucous membrane of the lips had no marked redness, being almost white. Skin of a peculiar waxy appearance. Digestion poor, appetite wanting.

Iron was given in several forms, but without producing results, until Pizzala's elixir peptonate of iron was tried. In a short time a better condition began to assert itself. The lips soon showed more color, the skin became more normal. A treatment of two months' duration has showed a remarkable gain. The case was one of a thorough anæmic condition, and one greatly benefited by the use of this preparation.

(Signed,) F. M. JOHNSON, M. D.,
117 Beacon St., Boston, Mass.

NEW YORK, Dec. 22, 1891.

I have been prescribing Pizzala's elixir of peptonate of iron for the past month and am very much pleased with its pleasant and beneficial effects.

Very truly yours, DR. F. F. POTTER.

I have prescribed elixir peptonate of iron, (Pizzala's) in several cases of chlorosis with most gratifying results, and consider it a very fine preparation.

R. E. TOWNSEND, M. D.

From the observation I have made upon patients taking Pizzala's peptonate of iron, I find that it is well borne by the stomach and does not constipate.

Dec. 15, '91. E. M. CULVER, M. D.

I certify with pleasure that I have seen during the last year several cases where the use of Pizzala's elixir of peptonate of iron has given me great satisfaction, especially in cases of convalescence from acute disease, where several other iron preparations were not well digested.

E. W. HOEBER, M. D.,
Nov. 20, '91. Lexington Ave., cor 52d St.

Pizzala's preparation of peptonate of iron is one of the best I have ever tried. It is easily digested and does not constipate.

JAMES REILLY, M. D.
Ex-Surgeon, St. Vincent Hospital.

NEW YORK, Dec. 21, 1891.

I had occasion to use Pizzala's elixir peptonate of iron in anæmia, chlorosis and general debility and I can heartily recommend it to my professional brethren on account of its palatable taste, its ready absorption and its non-constipating effects.

165 E. 54th St. DR. A. WALTER,

NEW YORK, Dec. 18, 1891.

This certifies that I have found Rud. Pizzala's elixir of peptonate of iron very beneficial in those cases when iron is indicated. Where the stomach is weak it answers better than some other preparations of iron I have tried. I take pleasure in recommending it to the profession.

J. P. OGDEN, M. D.

I have used Pizzala's peptonate of iron and am well satisfied with its action.

Dec. 19, '91. G. W. BOSKOWITZ.

NEW YORK, Dec. 13, 1891.

GENTLEMEN:—I have for several years prescribed the elixir of peptonate of iron (Rud. Pizzala's,) must say that it is the only preparation of iron that thus far has given me any satisfactory results. The stomach is not disturbed, as in taking other preparations of iron. It has many advantages in treating anæmia, as I say over other forms of iron.

This preparation must be welcomed to our profession at large. DR. J. MOUNT BLEYER.

NEW YORK, Dec. 9, 1891.

I have used Pizzala's peptonate of iron and find it tolerated by the stomach better than any other preparation which I have tried.

115 E. 59th St. W. SCOONOVER, M. D.,

I have used Pizzala's elixir peptonate of iron in convalescence from typhoid malaria with the best success and like its action very much.

Respectfully, FLOYD P. SHELDON, M. D.,
237 W. 127th St

This is to say that I have used Pizzala's peptonate of iron successfully in cases of anæmia and recommend it as one of the very best preparations. It does not constipate and does not produce digestive disturbance.

2162 Fifth Avenue. D. M. SMAGG, M. D.

I have made extensive use of Pizzala's peptonate of iron and have had most beneficial results therefrom.

Dec. 15, '91. R. F. BURKE, M. D.

MILWAUKEE, WIS., Sept. 20, 1892.

I have employed Rud. Pizzala's elixir of peptonate of iron in many cases, in fact in all cases marked by anæmia, etc., and have been pleased to note perfect assimilation of the preparation and rapid improvement in the patient's condition from the outset. Among many other cases I was especially pleased with the result of its employment in convalescence from a severe attack of articular rheumatism, in which case the patient had been in a condition of extreme anæmia and general debility. The improvement after the use of Pizzala's peptonate of iron was noticeable almost immediately.

. It is, in short, the only preparation of iron I prescribe now-a-days. LOUIS G. NOLTE, M. D.

Physician to Milwaukee Hosp., Surgeon to Emergency Hosp., Milwaukee, Wis.

NEW YORK, Nov. 27, 1891.

I have used Pizzala's preparation of peptonate of iron for some years past and find it an excellent form for the administration of iron especially where a patient requires some tonic before operations.

235 E. 78th St. H. J. SCHIFF, M. D.,

Pizzala's elixir of peptonate of iron can be used where acid preparations of iron act as irritants, and is therefore a boon. Especially in this the case in scarlet fever and diphtheria in the case of children; as also in convalescence from typhoid fever.

Dec. 1, 1891. ADOLPH RUPP, M. D.

I have prescribed the elix. ferri pept. (Pizzala's) in cases of chlorosis and anæmia with excellent results, noting in particular the absence of any digestive disturbance after prolonged use.

A. C. GRIMM, M. D.,
Dec. 4, '92. 1812 Lexington Ave., N. Y.

From my understanding of Pizzala's peptonate of iron I believe it to be an excellent preparation.

Dec. 16, '91. R. F. CHAPMAN, M. D.

I take the pleasure to certify that of all iron preparations I have used in my practice, the Pizzala's elixir peptonate of iron has proved the most efficient in my experience. It is even superior to the blood pills which are so highly appreciated by the practitioner.

Nov. 18, '91. DR. H. LOEBINGER.

I have used Pizzala's iron elixir and obtained very favorable results.

Dec. '91. B. GARDNER COOKE, M. D.

NEW YORK, Dec. 18, 1891.

You asked me about my experience regarding Pizzala's iron preparations. I have used the peptonate of iron elixir (Pizzala's) since it was imported, with great satisfaction, and although I employed also the later iron solutions (albuminata) I found that patients preferred the Pizzala's, and myself saw the result of this peptone to be at least as good as that of the other.

Yours sincerely, L. SCHONEY, M. D.,
68 E. 104th St.

I am constantly using Rud. Pizzala's elixir of peptonate of iron and prefer it to all other iron preparations, on account of its easy absorption.

J. A. MOORE, M. D.,
240 E. 86th St.

Nov. 7, 1891.

CHICAGO, July 2, 1895.

GENTLEMEN:—Through your esteemed kindness received lately sample Pizzala elixir.

Administered same as indicated in anæmia to an excessively chlorotic girl. The improvement was marked and progressive. This secured at Elkhart, Ind , last week. I make some monthly visits to said city and called the attention of some physicians there to the efficacy of your preparation. Also to Wm. Berky, pharmacist, Main St., Elkhart. Will return thither next week. Would be pleased to receive larger supply of Pizzala elixir, as well as samples of other unique preparations. Remaining with renewed esteem, I am

Yours very respectfully,
DR. PH. SYDNEY ALLIS,
16 Newton St.

The originals of above testimonials, and numerous others, are in possession of Rothschild Bros. & Co., 466 & 468 Broadway, N. Y., Sole Agents.

Beware of imitations! Every bottle must bear our firm name.

ROTHSCHILD BROS. & CO.,
Sole Agents.

RUD. PIZZALA'S

Elixir of Peptonate of Iron.

(Elixir ferri peptonati Pizzala.)

An essential and constituent part of the human blood, which imparts to it the red color and strengthens the body, is peptonized iron, a **chemical combination** of pepton and iron. It owes its value to the digestive process; the iron entering at first in the stomach in combination with albumen it is converted by hydrochloric acid and pepsin into pepton of iron, and as such is directly carried to the blood.

Supported by these facts, established and generally accepted by scientists, I have succeeded, after many experiments, in obtaining by a special process, a **chemical combination** of **iron** and **pepton** perfectly equal in its physiological and chemical qualities to the one formed by the **natural** process of digestion, and possessing the same power of absorption and assimilation.

I have been induced to produce such a rationally **physiological** preparation, so much the more as the experience of many years has shown me of how little service and benefit the forms of iron which are commonly employed as remedial agents have been. The employment of inorganic iron, hitherto in use, has, in many instances, been rendered inadvisable, as the stomach, in spite of the greatest exertions, is not able to digest more than very minute quantities of such iron. Persons who suffer from anæmia, chlorosis, diseases of the stomach and nerves, if, as is most frequently the case, these disorders are accompanied by weakened digestion, want of appetite, agitation of the nervous system and insomnia, such inorganic iron is inapplicable.

In consequence of these well-established facts, the pepton of iron prepared by me is a 1 per cent. solution mixed with 10 per cent. of the purest cognac. The preparation is prepared in two different ways, viz., pepton of iron **aromatic** and pepton of iron **prepared with half per cent. of quinine.** In this preparation as "elixir ferri peptonati Pizzala," it is in all the cases mentioned above the **best hæmatinic at present known,** superior to any other remedy containing iron in any form. It may be used without the **least inconvenience,** and its efficacy is **certain** and **reliable.**

Advantages over all other iron preparations—1. It does not produce digestive disturbances of any kind, but aids digestion and stimulates the appetite. 2. It does not constipate. 3. It neither injures nor stains the teeth. 4. It is quite agreeable to the taste.

Thorough and comprehensive investigations by eminent European and American medical authorities of extensive practice, have confirmed the **excellent** virtues claimed for this remedy, and **have yeilded**

gratifying results, in consequence of which it is largly used in universities, hospitals lunatic asylums, sanitariums and gynæcological retreats at home and abroad. It enjoys among medical men and patients an **ever-increasing** popularity—certainly the most eloquent acknowledgement of its value as well as its best recommendation for its future employment and utility.

The preparation should be prescribed in original bottles as: Essentia, or Liquor, or Elixir ferri peptonati (Pizzala). **Thorough guarantee** is offered that it will **always** be the same in its preparation as well as in its composition.

RUD. PIZZALA, Apothecary,
Zwingenberg, a/B., Germany.

ANALYSIS

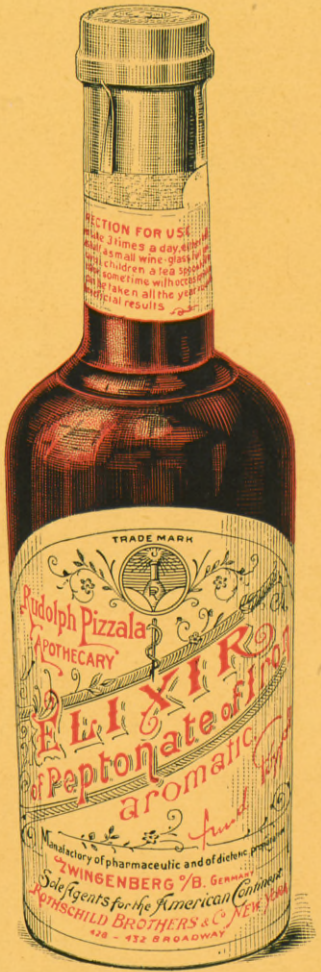
Of the Essentia ferri peptonati, Pizzala, made by **Dr. E. Geissler,** of **Dresden,** in the Public Chemical Laboratory of the Pharmaceutical Central-Halle.

"The two bottles of Essentia ferri peptonati, a reddish-brown fluid, contain pepton of iron, besides traces of hydrochloric acid, sugar, alcohol and water. According to the results of the analysis, it is proved that pepton and iron exist in the preparation in a state of true **chemical** combination. The presence of iron in the fluid cannot be shown by the ordinary reagents, and this iron, together with pepton, is completely precipitated by a solution of common salt. The quantity of the precipitate produced by the solution of kitchen salt amounts to 1.06 per cent., and is almost perfectly soluble again in pure water. This amount (viz., 1.06 per cent.) agrees with the quantity of pepton calculated from the estimation of nitrogen (the absence of albumen was especially proved) and with the quantity of sesquioxide of iron found in the residue after the boiling down of the fluid. Your preparation therefore contains exactly **1 per cent. of true pepton of iron.**"

Directions for Use:—A teaspoonful three times daily for children, a dessert to a tablespoonful for adults three times a day, **either before or after meals.** Taken **before** meals it acts, besides its tonic effects, as a **stimulant to the appetite;** given **after** meals it **aids digestion.**

As many worthless imitations of this universally known and highly recommended medicine have been attempted, Physicians are requested to prescribe it in the **original bottles** containing 250 c. c. (half pint), and bearing the firm name of the sole agents of the whole American Continent.

ROTHSCHILD BROS. & CO.,
466 and 468 Broadway, New York.


DIRECTION FOR USE
TRADE MARK
Rudolph Pizzala
APOTHECARY
ELIXIR
of Peptonate of Iron
aromatic
Manufactory of pharmaceutic and of dietetic preparations
ZWINGENBERG a/B. Germany
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