

The lungs, much congested, were free from tubercle. The kidneys, spleen, liver, and brain were also very congested, and, as seen in the table, heavier than natural. Slices of the brain exhibited black bleeding points. The liver, large and firm, presented the characteristic nutmeg appearance, and showed under the microscope great dilatation of the veins, especially of the intralobular ones, and around the latter the liver cells were much wasted, the intervening spaces being filled up with yellowish-brown pigment granules. There was also a small-celled infiltration of the periportal connective tissue. The kidneys were firmer than natural, and sections showed a commencing intertubular cirrhosis, and all the bloodvessels and large tracts of tubules were filled and distended with red blood-corpuscles.

*Remarks.*—The view taken of the case during life—namely, “that the origin of the pulmonary artery was affected with endocarditis in foetal life; that the effects of its obstruction were compensated for by the persistence of communication between the two sides of the heart, and perhaps also by a patent ductus arteriosus”—is shown by the post-mortem examination to have been in the main correct. But now, further, we see, from the absence of any defect in the septum between the ventricles, that in all probability the pulmonary artery became diseased late in foetal life, after the completion of the septum, and that at birth the contracted orifice rendered the artery incapable of transmitting the increased current of blood to the lungs, and then the ensuing strain on the right ventricle would keep open and be relieved by the foramen ovale. With so much obstruction at the exit of the right ventricle the relatively large size of the pulmonary artery and its branches appears somewhat remarkable, and one would expect to find a patent ductus arteriosus or some other channel by means of which blood could enter the artery. But perhaps the narrowing of the pulmonic aperture from blending of the simular cusps was slow enough to permit the closure of the duct, and attained its maximum some time after this closure; and even with a small communication between the ventricle and artery, the latter would be kept full of blood, and so maintain a fair size or dwindle very slowly. In the previous report it was pointed out that many of the physical signs suggested obstructive disease at the aortic orifice, thus the systolic murmur loudest at the top of the sternum was traceable towards the inner end of the right clavicle, and along the carotids; there was no epigastric pulsation, but a heaving impulse in the left mammary region. The autopsy revealed excessive hypertrophy with some dilatation of the right ventricle, and moderate hypertrophy of the left ventricle associated with a partial fusing of two cusps of the aortic valve; the frænum thus formed projecting into the aortic aperture would be likely to evolve sonorous vibrations in the blood of the ascending arch, and at least may be offered as an explanation of the fact that a systolic bruit was heard as well below the right as below the left clavicle, in the latter position generated with greater certainty by the narrowed pulmonic orifice. In the presence of such extreme right hypertrophy the absence of any perceptible transmitted impulse to the lower end of the sternum or to the epigastrium, is a striking clinical feature, and one to be remembered in making a diagnosis of unusual heart conditions. The chest was repeatedly examined, and yet no pulsation was ever felt near the sternum, and the maximum point of the heaving impulse was always about the left nipple-line. These signs receive some interpretation by a consideration of the rotated transverse position of the heart with its concealed hypertrophied left ventricle. The fenestration of the aortic valve is probably a congenital defect, and would not give rise to much, if any, regurgitation. The small size of the arch is noteworthy, and especially the constriction of the third portion. During the last few weeks of life a systolic murmur was heard at the ensiform cartilage, and the pulmonary second sound became weaker. The fibrinous deposits on the tricuspid valve and the resulting imperfect adaptation of its segments give reasons for a tricuspid murmur; and it has been said that tricuspid regurgitation will lessen the intensity of the second sound at the pulmonary cartilage.<sup>2</sup> Probably at this time, too, endocarditis was lit up in the pulmonary artery. Such gradually increasing obstacles to an already overstrained heart fully account for the increasing distress, the final paroxysms of pain, the quickly ensuing comatose death,

and for the intense venous congestion of the brain and other organs found after death.

Many similar cases to the one related are to be found in medical literature. Thus, Dr. Peacock<sup>3</sup> collected notes of twenty persons who presented this anomaly—namely, obstruction at the orifice of the pulmonary artery with an open foramen ovale, and eleven of these lived to the age of fifteen years and upwards.

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## JEQUIRITY (ABRUS PRECATORIUS, LINNÉ); ITS USE IN DISEASES OF THE SKIN.

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ALTHOUGH a drug of great antiquity, centuries ago in use in Egypt, and well known in Sanscrit by the name of Gunja to the Hindoos and Burmese, jequirity again comes forward as a most formidable weapon in the hands of the physician in his battle with disease. Prosper Albinus in 1592 quotes it as in use in Egypt. The resemblance of the plant to liquorice was remarked in 1700 by Sloane, who called it *Phaseolus glycyrrhites*. It was introduced in the Bengal Pharmacopœia in 1844, and in that of India in 1868. Its names and synonyms are so numerous as to cause me to omit the majority of them, which are claimed to number over fifty. It is frequently called Brazilian peas, Indian liquorice, wild liquorice, with equivalent terms in other languages, but by the rules for our terminology it should be known as “*abrus*.” The seeds are now almost exclusively employed, and will only be considered hereafter in speaking of it. The plant belongs to the natural order of Leguminosæ. It is indigenous to India, but grows wild in all tropical countries, and though found in the primeval forests of Brazil, whence our supply is now mostly obtained, it is claimed to have been brought there by birds, or otherwise. The seeds, also called prayer beads, jumble beads, crabs’ eyes, &c., are globular-ovate, about one-fifth of an inch in length, scarlet-red, glossy, with a black spot surrounding the hilum. The testa is hard, enclosing a fleshy embryo of plano-convex cotyledons, and accumbent radicle. They are inodorous and have a bean-like taste. Their chemical composition has been frequently investigated. Berzelius in 1827 found in the leaves and branches a principle resembling glycyrrhizin, also present in the root, which contains sugar, though he mentioned nothing of other constituents. Prof. Harden, in 1882, by treating the seeds with boiling alcohol, obtained white crystalline abric acid, slightly soluble in cold water, and said to have the formula of  $C_7H_{14}NO$ . They also contain fixed oil. Rigaud and Dusart in 1883 isolated from them an alkaloid, but neither the acid nor the alkaloid appears to be their active or toxic principle.<sup>1</sup> Mello E. Oliveira, on treating the seeds with boiling water, slightly acidulated with hydrochloric acid, separated a bright-rose-coloured substance, which, on the addition of 45 per cent. of alcohol, changes to red, a greyish-white substance of a gummy nature being deposited. The red liquid thus obtained after exposure to light, assumes a greenish colour, persisting for some time. Dr. Neisser believes its active principle to be, so far, not yet isolated amorphous ferment, which Salmonsén and Dorkirk Holmfeld claim as insoluble in alcohol, chloroform, benzine, and ether, but slightly soluble in water and very soluble in glycerine. They claim to have obtained it by treating the powdered seed with ten times its weight of glycerine, from which it was precipitated by five times its volume of alcohol. The microscopic inspection of the fresh infusion by Dr. Silva E. Chanjo developed the presence of polyhedral cells filled with granular protoplasm, which he considers cells of the seeds, separated in the bruising and macerating; also round spherical very brilliant bodies, capable of movement either around their axes or in a forward direction, which with a lower power looked like a fine powder. The older infusion exhibits, besides the powder which

<sup>2</sup> See Balfour: Clinical Lectures on Diseases of the Heart and Aorta, second edition, p. 194.

<sup>3</sup> Malformations of the Human Heart, second edition, p. 180.

<sup>1</sup> Much of the botanical description is taken from advance sheets of the National Dispensatory, kindly furnished by Prof. J. M. Maisch.

he considers as conidia, true cells and tubes of a microscopic plant with spores and mycelium. The spores he states as large, ovoid, sometimes solitary, or in groups of two, three, or more. The tubes either bear spores or are bare, and are branched, and between them the powder mentioned as conidia is seen. These are stated to be the more marked the older the infusion. Sattler of Erlangen states that schizomycetes, or cleft fungus, exists in the infusion in immense numbers. These he classes with bacilli. These microbes are found in the infusion five minutes after it is made, using warm water for that purpose. He claims that they increase by a sort of segmentation, giving off spores when about forty-eight hours old. Their property of vegetating is retained on remoistening after drying for a week, while in an ice-chest their development is arrested, and a temperature of 180° F. for five minutes does not affect the germinating power; but the infusion is entirely freed from germs by boiling, and was sterilised by a solution of mercuric bichloride (1 in 10,000). The seeds have been often described as possessing poisonous properties, Herman even stating that two or three constitute a fatal dose. That this is not so would appear from the fact that though hard and indigestible, they have been used as food in Egypt and elsewhere. By Hindoo medical writers they have been variously recommended as an application in sciatica, stiffness of shoulder-joint, paralysis, and other affections. They are even said, when eaten, to prevent fecundity. The principal use of jequirity, however, is in certain affections of the eyes, for which it seems to have first found application in some parts of Brazil, where eye diseases are both frequent and virulent. The prevalent inflammations there are, if neglected, apt to develop granulations, followed by serious consequences. These granulations especially are one of the forms of ophthalmia which have proved so obstinate to treatment, and it is for this condition that jequirity seems to have been especially employed there empirically. Dr. Castro E. Silva published a paper on jequirity in affections of the eye in 1867, in which he calls attention to the dangers connected with its use. He speaks of cases in which after two or three applications a very intense inflammation of the eyelids and conjunctiva ensued, extending over the whole face, the neck, the upper part of the thorax, and even involving the submaxillary glands. A cold infusion is generally employed, which is applied to the eyes three times daily, so that some of it may pass under the lids. Even after the first application the eyes begin to "water," they feel burning hot, and the eyelids are heavy. The day following the inflammation is still more intense, the patient can no longer open the eyes, the lids swell, and are shining violet, ecchymosis of the conjunctiva is very marked, while an abundant muco-purulent discharge develops and the patient suffers great pain.

Dr. Moura, Brazil, made extended experiments on animals, especially rabbits; and in the strength of 1 in 20 produced a most intense inflammation of their eyes, which did not yield to any remedy, progressing to suppuration of the eyeball, gangrene of the lids, and inflammation of the submaxillary glands. The strength subsequently employed by Dr. Moura was 1 in 200, in the form of cold infusion, with which he produced, when applied to granular ophthalmia once a day, a moderate inflammation, and healing of the granulations in a few days.

Dr. L. de Wecker, of Paris, who, simultaneously with Dr. Moura, made observations on the action of jequirity in certain eye affections, gives his *résumé*, which is as follows: 1. There is no doubt that an infusion of jequirity produces a purulent ophthalmia of a croupous nature, the intensity of which can be regulated by the strength and number of applications. 2. The cornea runs no risk during the development of jequiritic ophthalmia. 3. The jequiritic ophthalmia cures granulations rapidly.

Dr. Knapp, of New York, regards the use of jequirity by no means without danger, and even holds that the secretion of the jequirity ophthalmia may be conveyed to and infect a healthy eye, and in a case where he tried it side by side with other means, he saw no particular advantage; and while he admits that it is a remedy in trachoma, it is not the remedy.

The latest report on the therapeutic value of jequirity in affections of the eye is probably that made by Dr. Arthur Benson before the Ophthalmological Society of the United Kingdom on March 13th, in which he sums up his results as follows:—Jequiritic ophthalmia can be produced (1) by the powdered seed; (2) by the freshly made infusion; (3) by

the infusion after bacilli had grown in it; (4) by the infusion six weeks old, and swarming with micro-organisms of most varied types; and (5) by the infusion after these bacilli had ceased all motion, and had sunk apparently dead. The examination of the discharges from jequiritic ophthalmia revealed no typical bacilli, and were entirely devoid of infective qualities. He had a high opinion of the treatment of granular lids with jequirity, and had seen no serious results therefrom.

After considering all the foregoing observations, it certainly occurred to me that jequirity possesses qualities which make it act as a destructive agent upon the granular tissue of the eyelids, causing an inflammatory process which has all the characteristics of that produced by an escharotic, without the effect that the general class of the latter produces upon the surrounding tissue. If we consider by what means this is accomplished, we must certainly exclude chemical action of any kind, as the proximate components of the seeds have been shown to be innocent in their action on the animal organism. That they are even consumed as food would warrant us further in assuming them as such, else most certainly gastro-intestinal irritation of the most violent kind would be produced by them. That they need a third element to develop their destructive effect upon organic structure seems therefore evident. This can be construed as arising from two sources only. One of these would be explained by the development of a new substance formed by the action of the moisture on a certain ferment and bodies capable of being acted upon by it, as is the case in the emulsion and amygdalin of bitter almonds and the sinigrin and myrosin of mustard; but physical evidence for such a change in jequirity is wanting, as it betrays neither by smell nor taste the presence of a new product. The experiments and results of Neisser, as well as those of Salomonsen and Dorkirk Holmfeld, would warrant the assumption of this, and if their amorphous ferment obtained by glycerine extractions and alcohol precipitation really produced in solution the specific jequirity ophthalmia, the inference would lead us to such a theory. Possibly sterilisation, however, of jequirity infusion by mercuric bichloride and other antiseptics, as well as by boiling, renders this most untenable and improbable. There is evidently another agency concerned in this most remarkable action of jequirity, more so than the development of a new chemical irritant in that body. This we must look for in the atmosphere which we have been taught by Pasteur and others to regard as bearing the germs of more micro-organic development in soil suitable and chemically composed for their sustenance. This seems a more likely and plausible view from the fact that a proteid body and solution of its albuminous parts in a cold infusion is rapidly invaded by new growths of micro-vegetation possessed, as described above, both of conidia and mycelia. That it thus forms a nutrient liquid for the cultivation of germs there seems no further doubt, and that these can be destroyed and further growth arrested by either boiling or mercuric bichloride has been experimentally proved. That during the development of the new growth no carbonic acid gas is developed or acid formed shows, further, that the microbe owes its development not to an oxidation or destruction of any hydrocarbon contained in the bean. My deduction, therefore, leads me to the conclusion that the fungoid growth of the infusion, originating from bacterial influence of the atmosphere, must proliferate at the expense of the albuminous contents of the infusion, which in its rapid proliferation it destroys unto its own ultimate death. My argument is intended to show further its relation to cellular tissue and cell contents, in order to explain the *rationale* of its destruction of granular tissue. The bacterium applied to such cell structure finds in these and their contents all the elements necessary to its own growth and reproduction, casting the effete product on the surface, until by exclusion of atmospheric air and over-production its own existence ceases. That it is a typical disease carrier which could be employed to wage war and exterminate hostile micrococci is certainly ridiculous in the extreme, as well as that, like the ubiquitous bacillus, it acts on the vaccination principle by rendering the organism no longer a fertile soil for the invasion of other micro-organisms. The inference from this deduction led me to experiment with jequirity on a larger sphere and in affections which present similar pathological conditions, as the granular lid. As the action of the fungus developed in the jequirity infusion seems to destruc-

tively attack the proliferating cell, while it does not act in such a manner on the external coverings and mucous surfaces, I employed it to affections of the skin showing great cell proliferation; as such I selected lupoid conditions, epithelioma, sloughing ulcers, &c. When at first disappointed with the ordinary infusion used in eye affections, and also with the dry powder dusted over the surface, I applied to Dr. L. Wolff, the well-known chemist, for a more effective preparation, which would not alone be much stronger, but which would at the same time be more viscid, so as to adhere longer to the surface. This he accomplished in a most successful manner in the following way:—Two hundred grains of the bean are decorticated by being slightly bruised and cracked in a mortar, the red hulls are carefully picked from the cotyledons and, in a bottle, covered with distilled water. They are thus macerated for twenty-four hours, when they are again transferred to a mortar and thoroughly triturated until they are reduced to a smooth paste, when sufficient water is added to make the whole weigh 800 grains. Prepared in this way, it presents all the appearances of an emulsion, and is applied with a large camel-hair pencil or mop to the surface to be treated. The effect of this preparation of jequirity, while almost painless in its application to ulcerated and granular surfaces, soon developed (and often within an hour) a great deal of irritation and inflammation, rendering the edges red and infiltrated, the surroundings œdematous and shining, and caused some febrile exacerbation in the patient, depending in degree on the area involved. The usual concomitant symptoms of such febrile process are apt to show themselves at this stage, such as headache, pain in the extremities, elevated temperature, and high pulse, all of which, however, are not general, but found only occasionally, and particularly in irritable and very susceptible patients. In the course of from six to twelve hours, the products of this specific inflammation are abundant, and soon aggregated on the surface in a desiccated, cuirass-like crust, which now obscures further observation. This crust, in the course of twenty-four hours, further exhibits a tendency to crack and break, giving vent to the flow of the products of the degenerative process. This condition, if left alone, will continue for five to six days, the discharge lessening by degrees; the firmly adhering crusts, if not detached on their own account, are now removed by water dressings, and expose to view a surface studded with healthy granulations and islets of healed-up surface, along with evidence of the progress of the regenerative progress at the periphery. In cases where one application does not suffice, and where there is still evidence of the presence of unhealthy granulations, a second application is now made, and conducted as before, and a third and further application being made, as the case may require.

The results thus obtained with jequirity will best be seen from the citation of a few cases from the case book of the Philadelphia Hospital for Skin Diseases.

CASE 1.—John T—, aged thirty-five years, car conductor, has been under treatment for some time. Specific ulceration on the right leg. He cannot give up his occupation. Under specific treatment the colour of the edges improved, but showed no tendency to heal. By an application of jequirity in one week the ulcer was greatly improved, with edges smooth and healing; another application of jequirity healed up the ulcer completely after the second week.

CASE 2.—Jane W—, aged seventeen, factory hand. Scrofulous, indolent ulcer on neck, easily bleeding with unhealthy ground. She was put under constitutional antiscrofulous treatment. After an application of jequirity the crusts were removed in a week, the patient being greatly improved in health. After two weeks' applications the ulceration was looking healthy, and healed under simple dressings.

CASE 3.—Mrs. G—, aged forty. Ulcerating lupus extending over the bridge of the nose. A case of Dr. Albert Fricke, of this city, to whom I was called in consultation. The patient had been under the care of several physicians. Escharotics and scrapers had both been applied, but to no advantage. I suggested the use of jequirity. The first application of a clear infusion proved of no avail, running off without causing any marked irritation. The concentrated emulsio-infusion was applied with a camel-hair brush every third day, until a firm cuirass-like scab was formed. After this had become spontaneously detached, at the end of three weeks, the surface entirely healed over.

CASE 4.—Mr. W—, aged forty-three. A large epithelial ulceration on the dorsal surface of the left hand. He met

some years ago with an injury to the hand. He had gradually increasing lancinating and excruciating pains and spreading ulceration, until it entirely covered the dorsal surface. He had been under various treatment, with only partial amelioration of the symptoms. Had been cauterised and scraped with no permanent advantage. The concentrated emulsio-infusion of jequirity was applied in the usual way. It soon developed all the signs of the specific inflammation, leaving immense scabs, which were four times detached, and followed by new applications, when ultimately the entire surface was completely cicatrised.

CASE 5.—Lavinia W—, aged forty-five, seamstress. Ulcerating lupus on both sides of the face. A most desperate case. She had been under treatment for years, consisting of periodical scrapings and applications of caustics as well as the canter, which in every instance were followed by exuberant granulations notwithstanding the most careful local and constitutional treatment. The surface was affected in irregular patches, extending to no less than two and a half by four inches on each side. As a *dernier ressort* and a last case for the jequirity treatment, the concentrated emulsio-infusion was applied freely over the patches. It was followed by an enormous amount of inflammation, accompanied by malaise, febrile exacerbation, the temperature rising to 103°, which lasted until the cuirass-like crusts had formed and commenced to dry up. After these were detached and the applications renewed, the same constitutional disturbances took place, lessening, however, in the proportion as cicatrisation decreased the affected surfaces. After the fifth application the crusts were allowed to detach themselves spontaneously, and with it a well-healed surface was apparent all over the patches, granulations, tubercles, and ulcerations having entirely disappeared.

A number of other cases from the hospital case-book could be cited would space permit, and I would only refer to the alarming constitutional symptoms reported by Medical Director Albert L. Gihon, U.S.N., in a case treated by him at my suggestion. In that instance the temperature of the patient, an old man, rose to 103°, but the ultimate result has so far not been reported.

To sum up. The results of the treatment of diseases of the skin with jequirity lead me to pronounce it a most powerful agent, applicable to most all cases of unhealthy, ulcerating and granulating conditions, upon which it certainly exercises a destructive tendency, followed by a constructive change, and forming under the protective covers of the exudation it causes a rapid development of healthy tissue. Though under proper conditions and careful supervision it is a remedy of the greatest service, it should be applied with caution, as it may give rise to alarming symptoms—erysipelatous inflammation and, if used on weak and irritable patients, to great constitutional disturbances. These symptoms, however, will speedily subside with proper attention and on the drying of the crusts. That jequirity has a still larger field than simply that of ophthalmic practice will readily appear as a deduction from my experience. Though the *modus operandi* of its action as stated by me may be modified in the course of time, its curative results in the class of cases to which I have referred will be indisputable, and be more freely developed as it finds more general application and introduction.

## THE RADICAL CURE OF UMBILICAL HERNIA.

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TRUE umbilical hernia is a disease of such frequent occurrence that cases are constantly coming under our notice as surgeons. It is a disease of infancy and childhood, being almost always congenital. When it occurs in adults we more frequently find it in women, especially those who have borne many children, or who are loaded with internal fat, and even in these adults I think that the disease commences in childhood, but is unnoticed or does not develop itself until the abdominal muscles have been weakened and the umbilical aperture relaxed by the pressure of the gravid uterus. When the hernia is small and reducible we can generally effect all that is desired by an accurately fitting