

Observations on the oleumjecoris aselli, or cod-liver oil / [John Savory].

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Savory, John.

Publication/Creation

London : J. Churchill, 1849.

Persistent URL

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OBSERVATIONS
ON
THE COD-LIVER OIL.

BY
JOHN SAVORY,
MEMBER OF THE SOCIETY OF APOTHECARIES, LATE PRESIDENT
OF THE ROYAL PHARMACEUTICAL SOCIETY OF
GREAT BRITAIN, &c. &c.


Second Edition.

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Price Sixpence.



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OLEUM JECORIS ASELLI,
OR
COD-LIVER OIL;

ITS NATURE, PROPERTIES, MODE OF PREPARATION, &c.

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ON
COD-LIVER OIL.

THE introduction of a new therapeutical agent into general practice cannot fail to interest the medical profession and the public, and, profiting by the experience attained in a consideration of the manner in which former remedies have been brought into notice, extolled for their efficacy, persevered in for a time, and then gradually permitted to fall into disuse, and finally sink into oblivion, it will doubtless be useful to review the circumstances attendant upon the proposal now so generally entertained of the administration of the cod-liver oil for a variety of diseases and disorders.

Although it is only of late that the attention of the public has been particularly drawn to this

subject, principally by the zealous endeavours of the Medical Practitioners of Germany, it will be found upon inquiry that the remedy is by no means a novel proposal; nor are we even indebted to our foreign *savans* for its introduction. It is to be traced back to the latter part of the 18th century, at which time it was extensively used in the Manchester infirmary, and its effects, as there exhibited, have been reported by the late Dr. Samuel Argent Bardsley, in his "Medical Reports," 1807, 8vo. This able physician, who was for many years attached to the Manchester infirmary, in which institution chronic rheumatism formed a very large proportion of the medical cases under treatment, states, that for this afflicting malady, the *Oleum Jecoris Aselli*, or cod-liver oil, enjoyed a high reputation in Lancashire, and that thirty years previously to the time at which he published his useful and truly practical work, it was introduced by one of the physicians to the infirmary, and that its success was such as to induce the celebrated Dr. Percival to recommend it to his notice and attention as deserving of a fair and extensive trial.

Dr. Percival remarks, (Works, vol. iv. p. 355,) that it was so largely dispensed at the Manchester infirmary, that "near a hogshead of it was disposed of annually;" yet its employment was almost solely confined to the relief of cases of chronic rheumatism, sciatica, and those contractions and rigidities so frequently the consequences of exposure to damp and cold. In these cases it was considered as superior to all other remedial means that had been used, and its beneficial effects were strikingly apparent. The operation of the oil in the first instance was mostly to increase the pain sustained by the afflicted, but this was soon succeeded by a gradual subsidence of the severity of the symptoms. It occasioned, particularly in irritable habits, an acceleration of the pulse, and diffused a glow of warmth over the whole frame of a very agreeable description. It promoted the secretions of the skin, and occasionally acted on the bowels. It was observed, that when its use had been persisted in for a few weeks the tongue became foul and the appetite impaired, so that an emetic was found to be necessary. It was, however, given in large doses, varying from one to three table-

spoonfuls twice, thrice, or four times daily. It was also employed extensively as a liniment to the stiffened joints or limbs ; but if soreness existed its use was forbidden ; it was also never exhibited internally when fever was present.

The oil employed at the Manchester Infirmary was obtained from Newfoundland, and brought thence in barrels containing from 400 to 520 pounds in weight ; it was obtained by the putrefaction of the livers of the fish, which were heaped together for the purpose. The oil so procured was, however, found to be exceedingly nauseous and offensive, both as regards smell and taste, so that but few stomachs could bear it, although a variety of means were resorted to disguise its unpleasant character.

Notwithstanding this, Dr. Bardsley remarks, that where it could be persisted in, such was the power of habit, that a relish for its flavour succeeded to its use, and what before was taken with such extreme disgust became pleasantly received. Dr. Percival says, the oil left upon the palate a savour like that of putrid fish, and that the perspiration of those taking it was strongly tainted with it. The oil, however, was

not solely obtained from the livers of the cod-fish, but also from the ling (the *Gadus Molva*). So offensive was it found to be, that it was, in many instances, rendered necessary to combine it into the form of a liquid soap, and it is not too much to assert, that the efficiency of it as a remedy must have been, in no inconsiderable degree, impaired by the formulæ to which it was reduced.

Mr. Darbey, the house surgeon of the infirmary, in a letter to Dr. Percival, states the discovery of the effects of cod-liver oil to have been accidental, and to have occurred in a patient who, using it externally, was induced also to take some of it internally. She recovered the use of her limbs, and in a few weeks was dismissed. No particular attention was directed to the circumstance until her return to the infirmary, in the course of 12 months, on account of a renewal of her complaint with considerable violence, which, however, soon subsided by the employment of the same means of relief. Dr. Kay, one of the physicians of the infirmary, remarked upon the case, and wished to test the character of the remedies in similar cases, and

found the practice to succeed beyond his most sanguine expectations. It is worthy of remark, that the instances in which it was found to be most serviceable were those in which the perspiration was gradually promoted. Those who had been cripples for many years were found, after persisting in its use for a few weeks, not only to be able to quit their seats, to which they had been confined, but also to walk even without the aid of crutches or a stick. The effects were so remarkable, that application was made to the infirmary for the oil in all kinds of lameness, and an expenditure of not less than 50 or 60 gallons annually was the result. This practice was commenced about the year 1772, and continued for many years afterwards.

One of the great evils attendant upon the introduction of a new remedy is the universality of its application to cases, often of very dissimilar nature. Its inefficiency to such a variety of purposes thereby speedily becomes apparent, and those disorders to which it may be beneficially applicable cease to be subjected to its operation: the novelty is gone; a prejudice against its use is created, and some new proposition speedily

serves to banish it from a position it might probably, with advantage, have held in the *Materia Medica*.

Dr. Bardsley, writing in 1807, however, gives his testimony to the efficiency of cod-liver oil in cases of chronic rheumatism, and says, "In some instances, where every other means have proved unsuccessful, it has operated in a manner so decidedly beneficial as to excite astonishment." In many cases, however, of a mild description, it has not been of any advantage. In the chronic rheumatism of aged persons, in whom the muscles and their tendons have acquired great rigidity, so that the joints have become almost inflexible, it was found to be most serviceable. In females, also, whose powers had been much depressed by frequent parturition, and in whom debility towards the decline of life prevailed to a great degree, it has served to produce the happiest effects. And, in all the cases, in which it has been attended with benefit, it has uniformly been remarked that the consequences produced by the exhibition of the oil have been to occasion an increase of power, size, and general fatness. Its operation was far from being uniform,

for whilst in some instances it produced increased action of the bowels and promoted the alvine discharges, in others it had a tendency to induce constipation. In some it occasioned increased perspiration, and in others an addition to the secretion of the urine. In some it produced an eruption of the skin, attended with a sense of prickling heat. In some few cases, none of these sensible effects were to be observed. When it proved serviceable, its beneficial effects were found to be apparent in the course of a fortnight, and if at the expiration of that time no good resulted, little was to be expected from a continuance of its use; it was, however, remarked, that when it began to be useful its progress was observed to be gradual, and it became necessary, in order to insure a cure of the patient and to guard against a renewal of the attack, to continue its daily exhibition for a period extending to not less than six or eight months.

The observations of these enlightened physicians have been confirmed by more modern practitioners.* Corroborative evidence has been

* See the writings of Dr. Donovan in the Dublin Journal of Medical Science, Sept., 1845.

adduced *against* its employment in acute cases, or those attended by active inflammatory action, and *for* its employment in chronic cases attended by a low inflammatory condition, or in those cases where want of power and diminished strength are most apparent.

It is not a little remarkable, that after the able and valued testimony just alluded to, an agent of such therapeutical properties should have been allowed to fall into utter neglect in this country. Much praise is due to the physicians of Germany for investigating the subject, and practically testing its efficiency. It would be out of place here, and foreign to my purpose, to call attention to the various trials to which the remedy has been submitted and its efficient powers confirmed ; these are to be found in the medical periodical literature of Germany and France, and have been translated and transferred to the pages of our own journals. (See "Medical Gazette," "Lancet," "Pharmaceutical Journal," "Medico-Chirurgical Review," "British and Foreign Medical Review," "Continental and British Medical Review," "London Journal of Medicine," &c.)

The cod-liver oil has been found principally

efficacious in rheumatic, gouty, and scrofulous cases, with their accompanying manifestations of cutaneous eruptions and neuralgic pains. Whenever a deficiency of tone is apparent in the system, its employment has been found of benefit. Where, as in pulmonary cases, it cannot be looked upon as curative, it nevertheless tends to the general support of the frame, and may probably serve to give time for the employment of other remedies more especially directed to the existing disease. Cases of chronic rheumatism have, according to the testimony of many able writers, yielded to the oil in a most remarkable manner; obstinate cases of rheumatic sciatica have been also subdued by its employment. Lymphatic glands, swollen by scrofulous disorders, have been overcome by the use of the oil more decidedly than by any other means, and its external use in scrofulous ulceration, has been attended with marked success.

That cod-liver oil should produce fatness, will not occur as remarkable to any one who looks at its composition, the principal ingredient of which consists of carbon; this is present in all oils to a great degree, and it therefore offers

a very valuable aid in cachectic cases, and others of diminished power and general weakness ; hence it has been remarkably efficacious in cases of mesenteric disease : its powers also in exciting the lymphatic system to activity, in promoting also the capillary circulation, and in effecting absorption of scrofulous deposits, have been very striking, and demand the attention of every practitioner. Its effect is not merely by promoting the deposition of fatty matter in the system, but, as Dr. J. C. B. Williams has asserted, increasing the muscular strength and action, and improving the colour of the cheeks and lips, thereby affording evidence of improving the nature and condition of the blood. Dr. Copland, in his valuable Dictionary of Medicine, has given his approbation to its employment in cases of rheumatism and sciatica, and also in several cases of neuralgia. It would form a volume to give, even in abstract, the cases which, within the last three years, have been recorded of the efficacy of the cod-liver oil in a variety of affections ; and my object in at all addressing the public on this occasion, is to point out the necessity of obtaining this remedy in its purest and

most effective form, in order to insure its operation, and prevent it from falling into that desuetude which has characterized so many preceding remedies proposed by the profession.

One of the greatest objections to its use was, as already stated, the exceedingly unpleasant savour it possessed, and the consequent disgust to its exhibition produced in persons of delicate stomach. This has in some measure originated from the introduction of a spurious article, or from the manner in which the original has been prepared. What could be expected otherwise than a most loathsome material, from livers heaped together by thousands sent over from Newfoundland, to deposit their oil by a course of putrefaction? The livers of other fish have been also found to have accompanied those of the cod, hence, probably, deteriorating the effect of that of the cod, or introducing an article calculated to produce little or no result. At Berlin it is known that a spurious oil was introduced into the hospital, and the failure in its operation had well nigh superseded its use altogether. A genuine oil was however happily obtained, and the value of the remedy established. Various modes

of adulteration have been detected. It has been found to be mixed with whale oil, the oil of the seal, &c. ; and its offensive character may easily be estimated. The price at which the oil is to be obtained may probably, in some measure, serve as a clue to the discovery of these attempts, than which nothing can be more reprehensible. It is melancholy to reflect that in nothing more, or perhaps equally so, is adulteration practised than in medicinal articles. The public have little means of detecting these fraudulent proceedings, which ought, however, when brought to light, to be subjected to the severest censure and punishment.

It may be questionable how far these adulterations can be detected by the operation of the oil, since the principles of its immediate action in various diseases is far from having been satisfactorily ascertained. Its nutrient properties are known, and must be admitted in common with all adipose substances, and a knowledge of their constituents and action upon the human frame ; but beyond this, namely, the specific qualities as adapted to counteract scrofula, rickets, rheumatic or gouty inflammation, neuralgia, pulmonary

disorders, &c. is unknown. The well-ascertained effects of iodine in the relief of scrofulous diseases point out that substance as the immediate agent affording relief in those cases, but it has been ascertained that the quantity of iodine in the cod-liver oil is exceedingly small, being much beneath that which is ordinarily given in the treatment of scrofulous disorders, and without effect in those cases; still this small quantity may perhaps by nature be so incorporated in the composition of the oil, that although of diminished proportions, it may yet possess an increased power of action, as in the case of natural mineral waters. It may probably be truly averred, that no fictitious mineral waters, however admirably prepared, and however accurately constituted, according to the proportions of the several ingredients as ascertained by chemical analysis, are capable of producing the same effects as those by the water derived from the original spring. This may perhaps be the result of some electric or galvanic agency operating in its constitution, the place of which cannot be supplied by any substitute to be found in the laboratory of the chemist. Nature here mani-

feats her decided superiority to the efforts of art, though ably directed by the hand of science. Dr. Pereira has suggested bromine to be the active principle in the oil, and others have attributed its efficiency to various phosphoric compounds. Dr. Williams refers its agency to some biliary principle ; in short, nothing certain is known upon the subject : the cause may here be said to be occult, but the effect is apparent. Mons. Bretonneau asserts that he has obtained effects just as markedly beneficial to result from the use of the common whale oil, as from the cod-liver oil, although we know the former to be but very partially obtained from the liver of the cetaceous tribe.

As, however, cod-liver oil is admitted to be an important medical agent, and as so many eminent medical practitioners have given their decided approbation to its employment, it is of the greatest consequence to have the article in the most perfect state of purity. Under this impression I have for a considerable time been engaged in various methods to accomplish this end, and without occasioning any change in its constituent properties, or altering the relative

proportion of the several substances which enter into its formation, I have at length been enabled to obtain the oil from the fresh livers in a state of purity and comparative sapidity which I flatter myself will be universally approved. Its clearness and transparency is equal to that of any other oil even of a vegetable nature; its taste is such that it needs no admixture to disguise it, and it is therefore freed from the suspicion of being, by any combination, deprived of its essential and curative properties. It may be taken, not in the large doses previously administered in the Manchester Infirmary, of one, two, or three table-spoonfuls, two, three, or four times daily, but in that of one, two, or three teaspoonfuls twice a day, and may, without fear of counteracting its medicinal quality, be agreeably taken in a small quantity of milk, or coffee, or beer. Infusion of orange-peel is a convenient and agreeable vehicle for its administration. Camphor-mixture and peppermint-water are also convenient and proper means. If it be employed in the form of an emulsion, care must be taken that no syrup be employed into the constitution of which acid enters, as it would

be incompatible with the alkali necessarily used to form the mixture. As a general rule in the administration of the oil, it may be remarked, that it should never be taken fasting.

If the oil be pure and freed from all extraneous matters, and the livers from which it is procured be in a recent and not in a putrid state, there is little apprehension as to any disagreeable effects following its exhibition; in some cases, however, it has been found to disorder the bowels in a slight degree upon commencing its use, but that speedily subsides, and has rarely required the aid of remedies to counteract such effects.

The colour of the oil is found to vary considerably, according to its mode of preparation, principally dependant, however, upon the freshness of the liver of the fish. Dr. Donovan instituted inquiries into the variety of colour, observing it from that of a pale amber up to the depth of that of port wine. He found, and in this respect my observations have agreed completely with this intelligent writer, that when the livers even of the palest colour have been allowed to remain exposed to the air for a few days only, a kind of flesh-coloured emulsion

oozed out, which speedily acquired a red colour, the intensity of which increased according to the continuance of their exposure. This change is an effect of putrefaction, and ought to be guarded against, although there are not wanting authorities to give a preference to this condition of the oil. The arguments produced, however, to support this opinion are valueless, and will not bear the test of inquiry, either chemically or therapeutically. The oil should be obtained from the livers at the lowest possible temperature by which it can be effected, so that rancidity may be prevented. It is true, that the quantity thus obtained is not equal to that which a very high temperature affords; but it will be found to be more free from unpleasant flavour, and more curative in its effects. It is also essential to obtain the oil from the livers at the season in which the fish is known to be in perfection and in health; all doubtful livers should be rejected, and all so light as to float in water should not be employed. The month of January has been found to be the most desirable for extracting the oil. Dr. Donovan found that 1,000 livers in the month of January weighed 900 pounds,

whilst the same number in February weighed but 575 pounds. It is necessary also to be particular as to cleanliness, as regards the liver; all gall and extraneous matter should be carefully washed away before the livers are submitted for operation.

Externally the oil may be used by itself, or in combination with ammonia, or camphor, spermaceti, wax, &c., according to the intention with which it is employed, and which it is hardly necessary to say should be under the direction of a professional adviser.

143, *New Bond Street*,
May 8, 1849.

LONDON :

G. J. PALMER, PRINTER, SAVOY STREET, STRAND.

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