

Treatise on the oleum jecoris aselli, or, cod liver oil, as a therapeutic agent in certain forms of gout, rheumatism, and scrofula : with an appendix for 1847 / by John Hughes Bennett.

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TREATISE
ON THE
OLEUM JECORIS ASELLI,

OR,
COD LIVER OIL,

AS A
THERAPEUTIC AGENT IN CERTAIN FORMS OF GOUT,
RHEUMATISM, AND SCROFULA;

WITH AN APPENDIX FOR 1847.

BY

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PHYSIC, AND DIRECTOR OF THE POLY-CLINIC AT THE ROYAL DISPEN-
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TO THE ROYAL INFIRMARY, EDINBURGH;
&c. &c.



C

EDINBURGH: MACLACHLAN, STEWART, AND CO.
LONDON: SIMPKIN, MARSHALL, AND CO.
DUBLIN: FANNIN AND CO.
1848.

TESTIS

OF THE GEORGE ASHLEY

AND HIS OIL

THESE TWO ARTS IN THE YEAR 1800
WAS FIRST AND ONLY

WITH A NEW METHOD

THE HISTORY OF THE

THE HISTORY OF THE
THE HISTORY OF THE
THE HISTORY OF THE

TO
ROBERT CHRISTISON, M.D., F.R.S.E.,

PROFESSOR OF MATERIA MEDICA IN THE UNIVERSITY
OF EDINBURGH, &C. &C.

MY DEAR SIR,

Let me beg you to accept this little Treatise as a mark of the respect I entertain for your profound acquaintance with the *Materia Medica*, and as a slight acknowledgment for the many personal kindnesses which I have experienced at your hands. If Therapeutics be the most difficult, so is it also the most important branch of our profession, and none can so well appreciate this as the physician who with high scientific attainments, unites practical tact and judgment in the treatment of disease. Nothing therefore would afford me greater satisfaction, than that this attempt to introduce a Continental remedy for the treatment of chronic rheumatism and scrofula, should be considered by you as in some degree useful.

Your most obliged Friend,

and former Pupil,

THE AUTHOR.

EDINBURGH, *October 1*, 1841.

ROBERT CURRIE, M.D., F.R.S.E.

LECTURES ON THE HISTORY OF THE
HUMAN MIND

LECTURE I. THE HISTORY OF THE HUMAN MIND.
THE HUMAN MIND IS A COMPLEX ORGANISM, THE
FUNCTIONS OF WHICH ARE THE RESULT OF THE
INTERACTION OF THE PHYSICAL AND THE
PSYCHICAL FACTORS. THE PHYSICAL FACTORS
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LECTURE II. THE HISTORY OF THE HUMAN MIND.

LECTURE III. THE HISTORY OF THE HUMAN MIND.

LECTURE IV. THE HISTORY OF THE HUMAN MIND.

LECTURE V. THE HISTORY OF THE HUMAN MIND.

PREFACE.

THE extensive use of the oleum jecoris aselli (cod liver oil) throughout Germany in cases of scrofula, and chronic gout and rheumatism, together with the encomiums bestowed upon it by several of the most talented and experienced physicians of that country, with whom I have conversed, induced me to fix my attention on its therapeutic properties. During an eighteen months' residence in various German states, therefore, I lost no opportunity of attending to cases in which the oil was administered, and consider myself entitled to say, that the result of personal observation has confirmed the favourable report I received respecting it. As I am not aware that it is prescribed to any extent in Great Britain, I have been induced to draw up the present Treatise, in the hope that by making known the researches which have been instituted regarding it, and the good effects which have followed its administration, it may prove as successful in the hands of British, as it has already done in those of German practitioners.

Before entering into any details connected with this subject, however, I wish to impress upon the profession my general views regarding its value. It is not to be supposed capable of benefiting invariably any of the diseases for the cure of which it has been so much or even so extravagantly lauded; and I make this statement *in limine*, in order to prevent any exaggerated idea of its virtues that the facts and opinions hereafter to be detailed may induce others to form. There is no remedy which does not demand great practical tact for its successful administration; there is none which does not require great attention to the circumstances which indicate, as well as those which contradict its employment; and none, the action of which may

not be increased or diminished by a judicious or injudicious conjunction of other remedial agents, as well as hygienic rules. To this therapeutic law, the oleum jecoris aselli is no exception, and it is not to be supposed that its indiscriminate exhibition in scrofula and rheumatism is susceptible of curing or even alleviating those affections. If, on the other hand, it can be shown from well established facts, that this substance, though unable to supplant the remedies and modes of treatment now in use, is susceptible, under particular circumstances, of forming a valuable addition to our means of cure; I hope to be exonerated from having lightly or unnecessarily directed the attention of the profession to the therapeutic properties attributed to it.

The literature connected with this subject is for the most part scattered among the forty German medical periodicals which issue from the press, the access to some of which even is by no means easy. Without the aid of several of my medical colleagues in Germany, therefore, it would not have been possible for me to have collected the materials for the composition of this Treatise. Many of these gentlemen also have kindly allowed me to visit their patients, and make observations for myself, and all were ready to communicate such facts and particulars as might serve the object I had in view. I seize this opportunity, therefore, of acknowledging my obligations, and returning my most sincere thanks to Professor NÆGELE, and Drs NEBEL, STEINHEUSER, ABENDHEIMER, KOBELT, and HERRGHT of Heidelberg, Professor RINEKER of Wurzburg, Dr FRECH of Baden Baden, Dr CLESS of Stuttgart, Dr KRUKENBERG of Halle, Professors DIEFFENBACH, BAREZ, and ROMBERG, and Drs HILDEBRAND, ZITFACH, DOMMES and FÜRSTENBERG of Berlin, and Dr GRUBY of Vienna.

I feel much indebted also to Dr EDMONSTON of Shetland, who has kindly communicated to me the mode by which the oil is procured in that island, and the degree of success which has attended his administration of it.

J. HUGHES BENNETT.

EDINBURGH, *October 1, 1841.*

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ERRATA.

- P. 13, line 14, for *aseli*, read *aselli*.
15, line 25, for *pharmacopeias*, read *pharmacopœias*.
39, line 10, for *unpyreuma*, read *empyreuma*.
40, line 4, for *makes* read *make*.
43, line 1, for *bal. copaiba*, read *bal. copaibæ*.
53, line 7, for *science*, read *sciences*.
57, line 26, for *Archerson*, read *Ascherson*.
60, line 1, for *Archerson*, read *Ascherson*.
75, line 26, for *Liberthran*, read *Leberthran*.
110, line 13, for *Caxarthrocacæ*, read *Coxarthrocacæ*.
133, line 20, for *stethescope*, read *stethoscope*.
139, line 19, for *stethescope*, read *stethoscope*.
139, line 21, for *putoriloquy*, read *pectoriloquy*.
143, line 17, for *bath*, read *baths*.
180, line 18, for *iodine*, read *iodide*.

HISTORICAL INTRODUCTION.

THE Cod liver oil¹ appears to have been used immemorially as a popular remedy for the cure of rheumatism in various countries. In Sweden and Norway the reputation of its virtues was widely spread, and from thence it seems to have found its way into Germany. There its employment became very general, especially among the inhabitants of the northern and western coasts of that country, the provinces which border on the Rhine, and throughout Suabia and Westphalia.² In Holland it had obtained a great reputation for the cure of rachitis long before its remedial properties were acknowledged by medical men. It has been used also as a popular medicine in Great

¹ SYNONYMES.—Oleum Jecoris Aselii, Oleum Morrhuæ, *Latin*: Cod liver oil, *English*: Huile de Morue, Huile de Foie de Poisson, *French*: Leberthran, Stockfisch Leberthran, Gichtthran, Leberthran, Bergerthran, *German*. The last name is derived from Bergen, in Norway, where a society of merchants of the three Hanseatic towns, Hamburg, Bremen, and Lubeck, possess a large establishment, which distributes every year, more especially throughout Germany, the bodies and oil of about twelve millions of cod fish.

² With a view of shewing the great reputation which this remedy enjoys among the Rhinelanders, even in the present day, I may mention a circumstance communicated to me by Professor Naegele, of Heidelberg. During a period of seven years that he practised at Dusseldorf, no peasant ever applied to him, whatever was his

Britain; for, according to Dr Barton,¹ the *Oleum Scatinæ* or *Raiæ* was applied to ricketty children in the north of Scotland, and I have heard, from various sources, that Cod liver oil is still employed there by the people for the cure of rheumatism. I have myself ascertained, for instance, that among the fishing population of Newhaven, near Edinburgh, a very general opinion prevails that the Cod liver is very medicinal and strengthening, and that the oil extracted from it is very beneficial in "old pains." Doctors Percival², Darbey,³ and Bardsley,⁴ also state that it has a great reputation throughout Lancashire for the cure of rheumatism, and Dr Hull⁵ mentions that it was taken with advantage by a woman labouring under malacosteon, at Ashton-under-Line.

Mr Darbey informs us, (1789) that Dr Kay, one of the physicians to the Manchester infirmary, was the first medical man who prescribed it for the cure of disease. Its success in removing rheumatism was so great in his practice, as well as in that of the other physicians of the infirmary, that the institution dispensed fifty or sixty gallons of the oil annually.

complaint, without having previously tried the Cod liver oil. It is their universal practice, when ill, first to take the oil, and if it fails, then, and not till then, to ask a medical man for advice.

¹ Diss. Inaug. Edinb. De Rachitide, p. 44.

² Percival's Medical Essays. Warrington, 4th edition, p. 354.

³ Idem. p. 359.

⁴ Medical Reports. London, 1807, p. 20.

⁵ Translation of Baudelocque's Memoirs on the Cæsarian operation. Manchester, 1801, p. 159.

Dr Bardsley, in his medical reports, (1807) remarks, "this medicine has preserved its reputation in our infirmary unimpaired, during the period of thirty years, for I find its annual consumption to have been from fifty to sixty gallons soon after its introduction in 1766; and the quantity dispensed for many years back has seldom fallen below the above amount; the last year it exceeded forty gallons."

The next writer who spoke of the Cod liver oil was Dr Schenk of Siegen. In 1822 he published a memoir on this subject in Hufeland's Journal, and gave a series of very obstinate cases of rheumatism, in which its use was followed by the best effects. This was succeeded, four years later, by another memoir in the same journal, where not only several cases of lingering rheumatism, but of rachitis also, were described as having been completely cured by the oil.

Since then the employment of this remedy in Germany has been very extensive; numerous cases and memoirs, hereafter to be noticed, have been published in the different journals of that country; and its utility is now so well established, that it has obtained a place in the pharmacopeias of Prussia, Hanover, Saxony, Sleswig, and Holsatia.

Of late years it has also been used medicinally in France and Belgium; and the observations and

memoirs of Reister,¹ Carron du Villards,² Taufflied,³ Gouzée,⁴ Delcour,⁵ and others, have confirmed the reputation it had previously acquired in Germany. In England, so far as I am aware, it does not appear to have attracted much attention from medical men. Dr Edmonston of Shetland, however, in a private communication to which I shall afterwards have occasion to allude, informs me that he has extensively used it in his practice with great success, and I have learned from Dr A. T. Thomson, of London, that on reading Dr Bardsley's notice of it in the medical reports, he gave it to several patients, but discontinued it on account of the eruptions which it appeared to produce on the skin. Dr Marshall Hall, also, has published a note on its beneficial action in chronic skin diseases:⁶ Dr Donovan, of Dublin, has pointed out a new way of preparing it,⁷ and it has for several years been noticed by Professor Christison, of Edinburgh, in his lectures on *Materia Medica*.

¹ *Journal des Progres, &c.*, tome 2, 2^e me., Series.

² *Bulletin de Therapeutique*. 1834.

³ *Gaz. Méd. de Paris*. 1827, p. 503.

⁴ *Annal da Med. Belg.* 1838, t. 1. p. 6.

⁵ *Gazette des Hospitaux*. 1841, Mai.

⁶ *Medical Gazette*, vol. 10, p. 796.

⁷ *Dublin Journal*, No. 51.

SECTION I.

OF THE NATURAL AND COMMERCIAL HISTORY OF THE COD LIVER OIL, AND OF THE METHODS BY WHICH IT IS PREPARED.

The Oleum Jecoris Aselli is obtained from several species of *Gadus*, belonging in the classification of fishes to the order *Malacopterygii thoracici*. Thus it has been procured from the Cod fish, (*Gadus Asellus*, also called *Asellus major*, and *Gadus Morhua*); the Dorse, (*Gadus Callarias*); the Coal fish, (*Gadus Carbonarius*); the Burbot, (*Gadus Lota*); the Ling, (*Gadus Molva*); and the Torsk, (*Gadus Brosme*).

All these different species may be known by the following generic characters. Body elongated, smooth, compressed towards the tail; back furnished with three dorsal fins; ventral fins pointed; abdominal line with two fins behind the anal aperture; the lower jaw with one barbule at the chin; branchiotegeous rays, seven, (*Yarrell*).

The particular species from which the oil used in commerce is more especially obtained, is not yet determined, as the different authors who have written on this subject are by no means agreed. Duhl states in his additions to the latest Prussian Pharmacopœia, that it is procured from the liver of the Cod fish.

According to the account of Geiger¹ on the other hand, the oil is obtained from the liver of the Dorse, Spearman, and after him Berzelius,² attribute it to the liver of the Scythe, or Coal fish. Buchner says³ that it is also procured from the liver of the Burbot. Kopp⁴ refers it, in conjunction with that of other kinds of *Gadus*, to the liver of the Ling, and Dr Edmonston informs me it is also obtained from the Torsk. The opinion generally entertained at present is, that in the large fisheries, the oil is obtained from the livers of a greater or less number of the different kinds of fish above-named, which are thrown together indiscriminately for that purpose.

The Cod and most of these fish are found in the temperate seas between the 40th and 60th degree of north latitude. Thus on the coasts of Greenland, Norway, Denmark, north of Germany, Holland, Sweden, north and east of Great Britain, but more especially off the banks of Newfoundland, they are found in great quantities. Nine millions of ova have been found in the roe of one Cod fish, so that it will not excite surprise that their capture employs whole fleets, and is a source of great mercantile wealth. We are ignorant, however, whether the oil used for medical purposes is principally derived from one

¹ Magazin für Pharmazie. 1826, August, p. 101.

² Lehrbuch der Thier Chemie. 1831.

³ Repertorium der Pharmazie. Bd. 29, 2te. Heft.

⁴ Denkwürdigk, in der arztl, Praxis. Bd. 3.

particular kind of fish, or from the combination of several. Numerous facts indicate that in different countries different oils are prepared, and it is reasonable to suppose that this difference may, in some degree, depend upon the greater or less comparative quantity of the various species of fish found on particular coasts.

In commerce, several kinds of Cod liver oil are to be met with, which are not only distinguishable from one another by colour, smell, and taste, but possess also no inconsiderable difference in chemical composition. All the different specimens, however, may be separated into two kinds, one of which is more or less of a yellow colour and transparent, and the other more or less brown and opaque. The first of these kinds is more generally used in medicine, and the latter in the arts, more especially by tanners in the preparation of leather.

I have frequently found a discrepancy between the verbal statements of practitioners, and what has been written on this subject. On asking a medical man (for instance, in the south of Germany) what kind of oil he prescribed, he always answered, the brown. I afterwards discovered, however, in several instances, that he did not mean the brown oil described in books and used in the arts, but the deeper tinged of the two yellow coloured transparent

kinds, met with in the shops. Other practitioners have informed me that they used the white or light kind, but I found that they still used the yellow variety, which they called white or light to distinguish it from the brown.

Many apothecaries in the large towns of Germany have told me that they only keep two kinds, which they call the white and the brown, and that the latter only is used medicinally; but this, in point of fact, is the yellow variety. At Wildbad, however, being present at the half-yearly meeting of the medical association of Wurtemberg, I had an opportunity of examining and comparing the three different kinds of Cod liver oil, then presented to the meeting.¹ The first was of a light straw colour, almost white, much resembling, in appearance, castor oil, perfectly transparent, and of the peculiar taste to be afterwards described. The second was of a golden colour, also transparent, but somewhat less disagreeable to the smell and taste; and the third was of a deep chesnut brown colour, almost opaque, exceedingly nauseous to the taste, and produced an impression on the tongue which gave rise to a burning sensation. Of these the second or deep golden yellow colour is for the most part used medicinally throughout Germany, although, in different places, it is more or less turbid and deep in colour. By some,

¹ September, 1840.

however, the third or brown kind, notwithstanding its disgusting taste, is preferred. When in Mayence last March, I was furnished by Mr G. Von Siebold, an apothecary of that town, with a Cod liver oil, which he said had been prepared for medical purposes with great care. It was clear and transparent, and of a dark reddish colour when held to the light, resembling the colour of diluted tincture of iodine. The taste of this oil is not more disagreeable than the yellow variety, but not having hitherto been much used in medicine, its therapeutic virtues are unknown. These are the only four distinct kinds which I have been enabled to examine personally, and with the view of distinguishing them clearly from one another, shall speak of them as the white yellow, red or brown varieties. *Ol. album—ol. flavum—ol. rubrum—and ol. fuscum.*¹

¹ I have some reason for believing that these different varieties are unknown in France and England. After searching through almost all the wholesale warehouses in Paris, and examining different specimens of fish oil, it was only at the house of Messrs Lebreton and Co., in the Marais, that I could find a genuine Cod liver oil. In colour this was between the yellow and red varieties, and perfectly transparent. They were only acquainted with this one kind which was obtained at the French fishery at St Malo. The oil distributed to the Parisian hospitals, from the Bureau central de Pharmacie, on the other hand, was dirty, opaque, dark brown, and of a peculiarly disgusting taste and odour.

In London, I found the best Cod liver oil at the house of Messrs Jones and Co., Leadenhall Buildings, Gracechurch Street, which was very similar in colour, taste, and smell, to the red oil I obtained in Mayence. Here, also, there was only one kind, which was ob-

The processes by which the oil is procured from the fish are differently described by writers, and the accounts of the different apothecaries and practitioners with whom I have conversed on this point also vary considerably. Duhl says, that the liver is placed in separate casks and allowed to putrefy, by which means the oil is separated. Geiger states, that the light variety percolates by itself from the liver of the fish, but that the brown kind is obtained by boiling the residuum, when no more of the former will flow out. This is the process apparently followed at Bergen, in Norway. Dr Faye of Christiana, however, who has himself visited Bergen, informs me that three kinds are prepared there,—

tained from Newfoundland. I learnt, however, from Mr Jones, that different hogsheads in a ship-load of the oil contained different kinds, as in some it was very light, and in others dark. He mixed them altogether, conceiving that as the oil was only employed for manufacturing purposes, it was a matter of no consequence. This explains the difficulty I have met with in obtaining more than one variety out of Germany, and shews that, at the fishery where the oil is prepared, care has originally been taken to separate the kinds which possess different degrees of purity.

In Edinburgh I have obtained very good Cod liver oil, at the house of Duncan and Flockhart, and at that of Mr Macfarlane, druggist, which appears to have been made in Newhaven. This also was an *oleum rubrum*, and no other variety is known. I have ascertained, however, that it was very rich in iodine, and have given it in several cases with a good result.

Until the medicinal effects of these different kinds of oil are ascertained, I should advise druggists to obtain, from Hamburgh or Bremen, that kind which has been employed with such good effect throughout Germany, and which, in colour, resembles old Malaga wine.

one by spontaneous percolation, a second by pressure, and a third by coction. According to Marder, the light oil flows from the liver during the first few days, merely by the action of the sun's heat, and the brown oil is procured afterwards from a period of eight to fourteen days, when it has become putrid. The merchant Balzer, of Cologne, on the other hand, states that both sorts are obtained by the artificial application of heat, that the lighter is the first portion which is procured and skimmed off, and that the brown is procured by a stronger heat, which induces a certain degree of decomposition. According to him also, the age of the fish, as well as the method and time of keeping the liver, exerts an influence on the product. The merchant Jobst, of Stuttgart, asserts that the lighter oil is obtained by boiling the liver, and the brown by boiling also the intestines which are surrounded with fat.¹

Dr G. H. Richter, of Wiesbaden, has given a very clear account of the different kinds of oil, and the mode of their preparation, which he received from a Swedish physician.² According to him there are four kinds, obtained from the liver of the different species of the genus *Gadus*, but more especially from the *Gadus Morrhua*, *Gadus Callarius*, and *Gadus Carbonarius*. (*a*) The first, which is almost of a

¹ Hufeland's Journal. 1830 and 1837.

² Med. Zeitung herausgeg. vom Verein für Heilk. in Preussen, 1838, No. 33.

gold yellow colour, much resembling old Rhine wine, quite clear and clean, and with a peculiar strong fishy smell, is obtained by the heat of the sun acting on the liver, placed in large cylindrical glasses. The oil then comes away, leaving the other fatty matters as a residuum. This kind is the most active, but as it cannot be obtained, in comparison with the other kinds, in so great a quantity, is seldom found in commerce, and is very dear. (*b*) When from the liver, treated as above described, no more oil can be obtained, the residuum is placed in vessels made expressly for that purpose, (or, in some laboratories, on tinned copper plates), and is exposed to 40° Reaumur, whereby a considerable quantity of oil flows out, which is darker and not so clear as the former, but has still a strong fishy smell, and in colour is between that of Madeira and Malaga wines. This kind is little inferior to the other, and in Sweden, is equally used internally as a remedy. (*c*) When no more oil can be obtained from the liver in this manner, the residuum is placed in a kettle, cut in pieces, and then roasted, whereby the third kind, or the less pure train oil, is procured. It is thicker than the former kinds, not clear, it resembles in colour common syrup, but is somewhat browner, and possesses a strong, penetrating and burning fish taste and smell. This sort, which not only contains the oily and fatty, but also the biliary ingredient of

the fish's liver, is never used as a remedy in Sweden, but is employed in the preparation of leather, and hence is sold in immense quantities under the name of Curry oil. (*d*) Besides these, there is prepared by chemical means a fourth kind, which is quite clear, has a very weak fishy smell, is similar in appearance to olive oil, and is disposed of in commerce as the only pure oil, but is never used internally in Sweden, and is there considered inert.

Another method by which the oil is prepared, has been described by Mr Tiedemann, a wholesale merchant in Bremen, and published by Gmelin.¹ According to him, livers of the Dorse (*Gadus Callarius*) are exposed to the sun in a cask standing upright, with three spigots, one above another. The fat is thus melted, and on the removal of the upper spigot the clearest oil flows out, which is the best for medical purposes. Later the middle, and then the under spigot is removed, which furnishes two kinds of brown oil. The residuum left in the cask, subjected to hot pressure, yields a very dark and thicker oil, which is for the most part used in the preparation of leather.

M. Gouzée² states, that the oil is prepared at Antwerp, by exposing the livers of the *Raya pastinaca* Linn. (*pylstart* of the Flemings) to the sun in vessels.

¹ Annalen der Pharmacie. B. 32, p. 325.

² Annal de Med., Belg. 1838.

The oil, which soon floats, is decanted, and this is made to undergo several times the same process, in order to obtain at length an oil pure and limpid. The residue is collected in order to serve as a liniment.

According to Dr Donovan,¹ it is prepared on the coast of Ireland, by heating the livers of the Cod in an iron pot until their substance is broken down; the oily pulp is then thrown into a canvass bag, and drained with pressure. The *mare* which remains in the bag, holds much of the oil absorbed. A second heating and pressing separates much of it, but the produce is dark coloured and strong-scented.

Dr Edmonston of Shetland informs me that the oil is prepared in that island, by first steeping the liver in cold water for a little time, to wash away the blood and other impurities. It is then cut into small pieces and put into an earthen vessel with cold water and placed on the fire. As the oil separates and rises to the surface it is skimmed off. In this state it is at once fit for use either internally or externally. If it has to be kept, the oil must be shaken in a glass with cold water, several times changed, and thus purified. It is then bottled, and excluded from light, heat, and air.

At Newhaven near Edinburgh, the fishermen sim-

¹ Dublin Journal. No. 51, p. 360.

ply boil the livers in an iron pot, and then filter it through a towel containing a little sand.

From the different accounts now given of the means by which the oil is procured, it appears evident, that it is obtained in various countries by various modes of operating; and it is yet to be determined to which, more especially, the preference is to be given for medical purposes. There is every reason, however, to suppose, that should the oil ever come into the same general use in Great Britain as it has done in Germany, its value, as a means of cure, might be augmented, by determining with precision the species of fish which yields the best kind, and by giving proper directions for its careful preparation.

In the memoir of Dr Donovan, before alluded to, the author points out the deleterious influence of putrefied animal matter on the human economy, and the caution which should be employed in introducing into the stomach any substance tainted with so violent a poison. He refers to facts which indicate that a high degree of heat applied to animal fats changes their original properties, and induces in them an acrimonious principle, capable of producing strong effects on the animal economy; and concludes, that in preparing Cod liver oil for medical purposes, putrefaction and charring should not be induced.

He recommends the following process, as the one which, from his researches, is most likely to procure an oil that will not produce any disagreeable taste, or injure its capability of resting lightly on the stomach:—"Take any quantity of livers of Cod, throw them into a very clean iron pot, and place it on a slow fire, stir them continually until they break down into a kind of pulp: water and oil will have separated. When a thermometer, plunged into the pulp, will have risen to 192° the pot should be taken from the fire, its contents transferred into a canvass bag, and a vessel placed underneath: oil and some water will run through. After twenty-four hours, separate the former by decantation, and filter it through paper." Dr D. further remarks, that the product of pure oil is variable. He has obtained so much as a gallon from twenty-eight pounds of livers, the produce of fifty cods; but some times the livers will afford much less. This estimate is true only when the fish is in the best season, and fully grown. Towards the close of the season the produce will be less. The livers of some cods are flaccid, and lie flat without plumpness on a plane surface. These afford a deficient quantity of oil, a brown, strong smelling quality, and a large portion of brown water: they are totally unfit for use, and their oil is disgusting. The livers are often found diseased and dark coloured; such afford a very bad

oil, and are of course to be rejected. The memoir concludes by stating, that in preparing Cod liver oil for medical purposes, three things are chiefly to be attended to:—the livers must be perfectly healthy; they must be as fresh as possible, the least putrescency being injurious; and the heat at which the extrusion of the oil is effected must not exceed 192° Fahrenheit.

The opinion which Dr Donovan expresses regarding the evil effects of putrescency in the oil, appears to be partly theoretical, inasmuch as abundant evidence will be offered in this treatise, that the employment of the oil, as ordinarily prepared in Germany, even the most common kind, has not been followed by the effects he anticipates. Undoubtedly it is of great advantage to possess an oil of a bland nature, and without any disagreeable taste, but it is yet to be seen whether the oil as prepared by Dr Donovan, or that described by Dr Edmonston, possesses the medical properties of the kinds used medicinally in Germany. It is also to be regretted that Dr Donovan did not attempt to determine whether the oil he recommends to be employed, contains iodine as a constituent.

SECTION II.

PHYSICAL AND CHEMICAL PROPERTIES OF THE COD
LIVER OIL.

Between the light and dark kinds of the oil, there are very wide distinctions, as well to the senses, as to chemical researches. The former are clear and transparent, more or less of a gold yellow, or yellow colour, weak fishy smell and taste, have the consistence of common poppy oil, and are of the specific gravity of $\cdot 920$. The latter, or darker kinds, are opaque, and sometimes contain a sediment, which in some specimens is more and more abundant as the oil is drawn from the bottom of the cask. They are more or less of a brown chestnut colour, strong, disagreeable, half putrid, and empyreumatic smell; burning, bitter, and somewhat acrid taste, retained some time upon the tongue; of the consistence of common domestic syrup, and specific gravity of $\cdot 921$, (according to the Sleswig and Holstein pharmacopæia, $\cdot 923$.) Both kinds dry gradually on exposure to the air.

The oil obtained by Dr Donovan has a specific gravity of $\cdot 934$, is of a pale yellow colour, and the taste resembles that of a cod boiled for the table,

when in excellent condition. It is bland, by no means disagreeable, and totally free from rancidity. It is very liquid. In cold weather, it deposits much stearine, and this ought not to be separated.¹ The oil prepared in Shetland, has a mild, but slightly fishy taste, a faint but peculiarly marine smell, a greenish colour, and a consistence nearly that of castor oil.²

According to Marder,³ when the light kinds are exposed to a cold of 13° Reaumur, a solid fatty matter is separated, consisting of 3.333 Eliaic acid, .625 margaric acid, and .832 glycerine. The brown oil remains unchanged even when exposed to a temperature of 10° R. At a heat of 100° R., the light oil is decomposed, and a thick white cloud separated, whereas no change takes place in the brown kind even at a temperature of 120°. Both kinds are soluble in ether, and an excess of alcohol, only the brown oil requires a greater quantity of alcohol, and a higher temperature. Distilled water shaken with both sorts, becomes cloudy, and acquires the peculiar smell and taste of the oil. If agitated with it for some days, separated, and evaporated to the consistence of extract, the residuum appears yellow, and almost transparent, is of a high consistence, smells

¹ Op. cit. p. 363-4.

² Dr Edmonston's private communication.

³ Hufeland's Journal. Bd. 70. s. 85.

almost like herring, is disagreeably bitter, greasy in the air, and readily dissolved in water or spirits of wine. The watery, as well as the ethereal and alcoholic solutions undergo no change on the addition of ammonia, diluted sulphuric acid, nitrate of barytes, and corrosive sublimate. Acetate of lead (according to Wurzer)¹ produces a white precipitate, and sulphate of silver, a very light brownish cloud. Ferrocyanate of potass occasions no change. Tincture of galls causes a cloudiness, which is precipitated on the sides of the glass in the form of a light brownish greasy mass, which is soluble in spirits of wine, but not in alcohol. The subacetate, as well as the super-acetate of lead in excess, produce with both kinds of oil a linimentitious fluid. Caustic ammonia forms with the light oil a soap, with the brown, a homogeneous mass, little soluble in water. Muriatic acid separates itself from both kinds of oil unchanged. The hydrate of barytes combines with both kinds, with the light, forming a milky, with the dark oil, a brownish fluid, which in no way gives trace of hydrocyanic acid. Nitric acid of the specific gravity of 1.192, mixed with an equal quantity of the light oil, causes no increase of temperature, but produces an ethereal kind of smell. After some days the whole separates into two layers, the upper, (the oil) brownish, the under, reddish. The brown

¹ Buchner's Repertorium der Pharm. Bd. 21. s. 119.

oil treated in a similar manner, becomes darker, assumes a leathery smell, and the coloured nitric acid acquires an odour similar to the oil. Sulphuric acid of the specific gravity of 1·850, mixed with two portions of the oil, produces heat, and the mixture at first becomes blood-red, and after some days black. It is also thickened, and smells like sulphurous acid. Water impregnated with chlorine, and shaken with the oil, causes no change in it, and on separation contains only muriatic acid.

According to the analysis of Spearman,¹ 100 parts contain :—

Elain	76·5
Stearin	19
Orange, yellow, and colouring matter	4·5

Marder has given the following analysis of the two kinds of oil.² There were in 200 grs. of

The Clear Oil.		The Brown Oil.	
Green soft resin	·104	Brown soft resin	·130
Brown hard resin	·026	Black hard resin	·156
Gelatin	·312	Gelatin	·936
Eliac acid	111·833	Eliac acid	95·
Margaric Acid	20·625	Margaric acid	8·
Glycerin	16·832	Glycerin	18·
Colouring matter	11·050	Colouring matter	25·
Muriate of lime	·1046	Muriate of lime	·2092
Sulphate of potass	·1179	Sulphate of potass	·1883
Muriate of soda	·0361	Muriate of soda	·0614
	161·4906		147·6809

Dr Kopp supposed from its therapeutic action on

¹ Dissert. de ol. jecor. aselli. Rostock, 1826.

² Hufeland's Journal. Bd. 84. Heft. 5. s. 115.

the human economy, that the ol. jecor. aselli contained iodine, and this substance, from researches made at his suggestion, was actually discovered in it by Hopfer de l'Orme.¹ The process of De l'Orme, with another by Hansmann, is given in the 22d volume of the *Annalen der Pharmacie*.² This is the first time that iodine has been discovered in any of the vertebrata, and thus certain fishes, as well as sponges, mollusca, and marine plants, have the power of accumulating this substance.

Marder doubted the existence of iodine in the oil, because he could not extract it with alcohol. Potemka, Martins, and Sarphati,³ have also endeavoured in vain to find it. On the other hand, from the repeated researches of Hopper de l'Orme, as well as from those of Hansmann, Bley, Brandes, and Springmühl,⁴ there could remain little doubt of its presence. Lastly, Gmelin, who, in the 29th vol. of *Annalen der Pharmacie*, had stated that he could not detect any iodine in the oil, published a second memoir in the 31st vol. of the same journal, in which he attributed his former want of success to his having operated on an oil that was not genuine. Having, however, been furnished with a pure oil by Mr Tiedemann, an apothecary in Bremen, he was

¹ Hufeland's Journal. Bd. 82. Heft. 4. 115. ² S. 170.

³ Med. Zeit. vom Verein f. Heilk. in Preussen. 1838. No. 33 und Bd. s. 15. ⁴ Pharm. Central Blatt. 1837, 1814.

enabled to prove that it contained iodine in the clearest manner. He gives the following process, which, from his researches, appears to him the best mode of operating, and the one least liable to occasion a loss of iodine.¹ "Soapify in a water bath half an ounce of the oil, with as much or somewhat less of the hydrate of potass and water, as are necessary. After it is cool the watery fluid is to be filtered from the soft soap, which is to be nearly neutralized by sulphuric acid. Allow most part of the sulphurate of potass to chrysalize, evaporate the fluid which remains, then heat the residuum, when powdered boil it in alcohol, lastly, filter and evaporate to dryness. The salt thus obtained and dissolved in a little water is enough for three or more reagents to act on—such as with starch and oil of vitriol; with starch, muriatic acid, and chlorate of potass; and with sulphuret of carbon and oil of vitriol. Nitric acid alone, as well as weak sulphuric acid, produce with this salt no blue colouring of the starch, because it contains iodine in the form of iodate of potass."

I requested my friend, Mr Smith of South Carolina, a gentleman well conversant with chemistry, to repeat the process of Gmelin on a specimen of the oil I brought with me from Germany to Paris. He kindly consented, and we analysed it together, and

¹ *Annalen der Pharmacie*, B. 31, s. 323.

detected evident traces of iodine, which exhibited itself on the addition of chlorine by the formation of a dark rosy tint, somewhat approaching the violet, and was again dissolved in an excess of chlorine. Mr Smith stated the result of this analysis at a meeting of the Parisian Medical Society, April 22, 1841.

Several other specimens of the oil which I procured were subsequently analysed, and after repeating Gmelin's process many times, Mr Smith was led to adopt some slight improvements in the details of the operation, which, to the practical chemist, may not be without value.

The least troublesome mode of soapifying the oil, although it takes a longer time, is to introduce it into a phial containing an equal bulk of water, holding in solution more than one half its weight of caustic potash. The phial should now be well shaken, and left in a warm place for two or three days. At the expiration of this time the contents should be placed in a vessel capable of holding six or seven times its bulk, and an additional quantity of water added. Digestion is now to be carried on for an hour over a slow fire, at the end of which time it will be found that the oil is completely decomposed.

It was found that all the oils are not soapified with equal facility. In some cases the water subse-

quently separates perfectly, in others it remains mingled with the soap. In the latter case sulphuric acid should be added to the soap until it floats about in the water, in the form of white masses. These are to be separated, and the liquid, which will be slightly acid, is to be rendered somewhat alkaline. When this liquid is filtered it is to be treated as Gmelin directs, until after the alcoholic solution is evaporated to dryness, when, instead of treating it by water, it will be found best to add a few drops of sulphuric acid, diluted with twice its bulk of water, so as to saturate the alkali, and render the solution of the salt to be tested, acid. This should be introduced into a tube containing a few drops of starch, and a slight rosy tint will generally make its appearance if iodine be present. Sometimes, however, no indications of iodine will be given, until a very dilute solution of chlorine (one part of a saturated solution, mixed with twenty-five parts of water) be added. This addition also will, in every case, increase the intensity of the colour.

My friend, Dr Wilson, lecturer on chemistry, in Edinburgh, followed the above process in analysing the specimens of the oil I procured in this town; and by paying greater attention to the steps of the process than I suspect we did in Paris, was enabled to produce, on adding the starch, a deep violet colour. This gentleman writes to me, "as the addition of

sulphuric acid, in Gmelin's process, besides complicating the analysis, seems to risk the loss of iodine, I repeated the analysis of Mr Duncan's oil without employing acid. The oil, accordingly, was saponified with excess of caustic potass, the strongly alkaline liquid filtered from the soap, and evaporated to dryness. The residuum was now transposed to a porcelain crucible exposed to a full red heat, till the whole organic matter was burnt away. The contents of the process were then digested in alcohol, and the remainder of the process was the same as Gmelin's. Iodine was detected by this plan easily; but although the process is simpler in its details, and apparently obviates all risk of iodine escaping, in the single case in which it was tried, the evidence of iodine, though sufficient, was by no means so striking as in a similar portion of the same oil analysed in Gmelin's way."

Since writing the above, I have seen a memoir published on this subject by Wackenroder,¹ who has proposed a process much more simple than that of Gmelin's, and one which apparently is less liable to cause a loss of iodine. This chemist has also ascertained in some specimens its relative proportions, and with an analysis of his memoir, I shall close this section.

Wackenroder's Process.—Four drachms or an

¹ Pharmaceut. Central Blatt, 1841. s. 11.

ounce of oil is to be warmed in a porcelain dish, with as much pure potass or soda, until a soap is formed. This is to be heated until it has become dry and brittle, or appears somewhat black. It is now to be placed in a slightly heated platina crucible, for which, however, one of earth may be substituted. After the carbonification of the soap is accomplished, the residue should be moderately calcined for a time in the open crucible, because an unpyreuma readily remains in the carbon which frustrates the experiment. The carbon is now to be extracted with plenty of water, and the clear watery fluid evaporated to dryness, a small quantity of carbonate of ammonia having been previously added. The alkaline residue will now wholly consist, or, in the proportion of one and a half, of carbonate of the alkali, from which the iodate of potass or soda may be easily separated in the cold, by the addition of three or four times its quantity of alcohol of 84 per cent, but most readily, if the salt be shaken with the spirit in a stopped bottle, and the clear liquid poured off. The carbonate of soda facilitates the extraction, if it is not dissolved. On evaporating the spirit of wine, the iodate of potass or soda is left generally mixed with some metallic chlorate, or carbonate of potass, which can be proved to contain iodine in the usual manner.

It is very difficult to determine the relative quan-

tity of the iodine, so long as soapifying the oil and carbonising the soap are the only means by which it can be separated. Large quantities of the oil makes the attempt very difficult, and small quantities contain so little of the iodine, that an unimportant and inappreciable difference of weight exercises a great influence in determining the relative quantity. Wackenroder never operated on more than 30.0 grammes of the oil.

The process was that above given for the qualitative analysis. Every admixture of chlorate of potass or soda was carefully avoided, and hence only pure calcined alkali, prepared from *sal tartari*, was used in the soapification. The spirit of wine poured off from the carbonised soap was evaporated to dryness, mixed again with water, and now saturated with a muriate of the oxide of silver. The addition of a little muriatic acid removes the remaining small quantity of carbonate of the oxide of silver, and an excess of ammonia, the chlorate and bromate of silver, which in like manner may be contained in the chlorine and bromine of the fat. The yellowish or white precipitate of iodate of silver should now be collected on a previously prepared filter, perfectly washed and strongly dried. To prevent an error in the weighing, the filter was placed in another of equal weight. In this way out of 30.0 grammes of clear brown Cod liver oil, was procured 0.018

grammes of iodate of silver, and from an equal quantity of another oil 0·009 grammes, which in the first case gives 0·324 per cent. and for the second 0·162 per cent. of iodine in a hundred parts of the oil.

SECTION III.

ACTION OF THE COD LIVER OIL ON THE HUMAN ECONOMY.

Physiological Action.—Carron du Villards who has observed the effects of the oil on his own person when in health, remarks, that after taking a dose he experienced “a very nauseous taste not easily to be removed, somewhat resembling that of putrid fish; further a biting sensation in the throat, in conjunction with the secretion of an adhesive saliva; which symptoms were more vehement in proportion to the impurity of the oil. The eructation of a nauseous gas continued some time after taking the dose. There followed colic pains, then light stools, together with an increased secretion of urine, both secretions possessing the characteristic smell of the oil.”¹ It is seldom, however, that the effects are so

¹ Schmidt's Jahrb. Bd. 5, s. 147.

violent as above described, and they appear to vary in different persons according to the sensibility of the stomach and nerves of taste. In very rare cases it is again vomited, but the generality of individuals soon overcome the nausea, and after some days' use of it, find no difficulty in keeping it on the stomach. It is astonishing how custom reconciles individuals to taking this certainly highly disagreeable remedy, even those who at first have expressed for it the strongest disgust. The Laplanders, and the inhabitants of some other northern nations, it is well known, take it habitually, and consider it a delicacy. Even in Shetland, I am informed by Dr Edmonston, that it is used extensively, when fresh, as an article of diet, instead of butter, and that it is universally considered palatable and wholesome. Many practitioners have observed that children take it much more readily than adults, and become sooner accustomed to its use. Riecke remarks, that they drink it by no means unwillingly, and even put their parents in mind of the proper time to take it.¹ Indeed the accounts which have been given of its disgusting taste, and of the unpleasant eructations it occasions, have been much exaggerated, more especially if applied to the yellow kind. For my own part, I do not think it more disagreeable to take than castor oil, and by no means so unpleasant

¹ Med. Cor. Blatt des Wurtemb. ärzth. Vereins. Bd. 10. s. 124.

as bal. copaiba, and many other remedies in daily use.

Brefeld, who has written the most perfect memoir on this subject, says, that he has given the ol. jecor. aselli to more than a thousand individuals, and has never seen it produce any injurious effect on the digestive functions of the stomach, even when it has been taken for years.¹ He remarks that, although the reverse might *a priori* be believed, he has never observed any such result, and is convinced of its innocuousness. It is true that sometimes during the use of the oil a disagreeable feeling in the neighbourhood of the stomach, loss of appetite, oppression in the region of the heart, loaded tongue, headache, &c., may arise, but these symptoms he considers accidental, and not attributable to the oil. In general the appetite remains unaffected, and the tongue as clean as it was before. Brefeld further remarks,² that in acute fevers, where the appetite is already lost, and the digestive powers much impaired, the oil is not adapted, and in such cases should not be given. It always requires some activity of the digestive process to assimilate it to the system, and render it useful. Yet this statement is only to be received *cum grano salis*, for in scrofulous or rheumatic diseases, with atrophy, where the power of assimilation appears at a very low ebb, where nothing more can be borne,

¹ Op. cit. s. 19.

² Op. cit. s. 20.

where every thing that is taken passes unchanged, or where even the obstruction in the glandular system appears to increase, the *oleum jecoris aselli* restores the disturbed nutritive powers, removes the obstruction, quiets the unnatural hunger, or awakes the dormant appetite, and gradually adjusts the reproductive organs in an almost wonderful manner."

There can be little doubt, however, that the oil is not quite so innocent as Brefeld supposes. Numerous facts shew that where plethora or a disposition to inflammation is present, the symptoms considered by him as accidental are really induced by the oil. It is now also well known that in many cases where the patient has taken it uninterruptedly for six or seven months, nausea, vomiting, loss of appetite, or other derangement of the digestive functions have arisen, and hence the necessity of occasionally suspending its use, and administering bitter or feruginous tonics, with a view of strengthening the chylopoetic viscera. A farther proof that this substance is by no means innocuous is furnished by the fact, that of late years it has been given as a prophylactic to a great extent in Germany, even by the parents, when a scrofulous taint was suspected to exist in their children, and, in consequence, many of these have taken the oil for a long time, when no indications for its employment were present. In

several children so treated it has been observed that the digestion has become gradually more and more deranged, and that even atrophy was thus occasioned.¹ Such a result may readily be conceived to arise from the unnecessary and long-continued application of a remedy which evidently possesses such a powerful effect on the assimilating functions.

Some practitioners have noticed an increased number of stools to follow its employment, but Brefeld states, that although diarrhœa may occur during the use of the oil in persons with paralysed activity of the digestive powers, the oil is not the cause of it. Professor Romberg, of Berlin, informed me, with respect to this point, that diarrhœa was no contra-indication to its exhibition. On the contrary, he had often found that when the bowels had been much relaxed the oil acted as an astringent. Other medical men, on the other hand, attribute to it laxative properties,² and consider that diarrhœa contra-indicates its use. I have seen several cases where this symptom was increased, and others where it was checked by the oil, an apparent contradiction, which is explained by the diarrhœa being dependent in different persons on different causes. When it is occasioned by an inflammatory or irritated state of

¹ Summarium des Neuesten und merkwürdigsten aus der gesamen Medicin, 1841. No. 1. s. 41.

² Schmidt of Stettin. Rust's. Mag. Bd. 35. s. 33.

the digestive canal, it does injury, but in those cases where want of tone exists in the intestinal walls, or where the chyme is rendered irritating from a change in its chemical properties, it tends to remove it. Hence it increases the diarrhœa in dysentery and acute febrile affections, and checks it in rachitis and atrophica mesenterica.

Brefeld does not consider that its use induces any critical appearances, although he gives a case of caries, where an irruption of the skin, similar to that of psora, was developed, and from that time the improvement caused by the oil made rapid progress. Bardsley, Fehr, and Rösch, however, have observed the use of the remedy to occasion critical eruptions on the surface of the body, and other practitioners have remarked an increased evaporation from the skin. In several cases it has been observed to possess highly emmenagogue properties, having increased the flow of the menses to such a degree as to render a suspension of its use necessary. It seldom produces any change in the quantity or quality of the urine, although this has sometimes been observed by Richter, Asmus, and others.

All these effects may, more or less, depend upon the dose, and idiosyncrasy of the patient. Reister has analysed 71 cases, given by different authors; (viz., 40 by Schenk, 13 by Schütte, 8 by Reder, 8 by Bettenger, 1 by Wesener, and 1 by Volkmann), with

a view of determining its effect on the different functions of the economy. The following are the results.¹

Stomach.—Nausea was observed in three cases; vomiting, also, in three cases; in one case loss of appetite, and sensation of ardor in the stomach; the voracious appetite often observed in rachitic children was diminished; in one case cure of fetid breath.

Intestinal canal.—A greater or less increase in the alvine evacuation in seventeen cases.

Urinary Apparatus.—Cure of incontinence of urine in two cases; acceleration of the urinary secretion, with a bricky sediment, in eight cases.

Generative Apparatus.—Increase of the menstrual evacuation, so strong as to render a suspension of the oil necessary. The same phenomenon was observed to repeat itself several times on the oil being again given; in one case re-establishment of the menses.

Integumentary System.—Increased diaphoresis in twelve cases; in one of these the perspiration was only observed on the inferior extremities; in two others it had the odour of the oil; in three cases it was preceded by a heat over the whole body; in another the body was cold; in one case there was a burning tingling of the skin; in two cases an eruption of small red spots with itching; in the last cases a cure was not obtained.

¹ Journal des Progres, &c. Tom. 2me. 2me. Serie.

In a great number of cases the pains were more or less increased by the first doses of the medicine.

Therapeutic Action.—Numerous observations at the bed side have established that the oleum jecoris aselli is a powerful stimulant to the reproductive processes of the economy, and hence may be classed among the tonic remedies. The name proposed for it by M. Taufflied, however, is perhaps the best, viz. that of *analeptic* (αναλαμβάνω, *to repair*) as signifying a remedy which re-establishes in any way the perverted nutritive functions. It is also highly emmenagogue, as is shown by the analysis of cases by Reister, just given, and occasionally nauseating, laxative, diaphoretic, and diuretic.

This remedy has been found most useful in long-continued gout and rheumatism, and in the various cachectic diseases dependent on or connected with scrofula. Hence it has been employed in rachitis, malacosteon, caries, diseased joints, tubercular affections, enlarged mesenteric glands, obstinate chronic affections of the skin, &c. Most of these disorders, when connected with scrofula, may be regarded as different forms of one disease, the pathological cause of which appears to be some morbid change in the blood, and thus it is that the ol. jecor. aselli has produced the greatest benefit in a variety of affections which at first sight appear very opposite to each

other. Brefeld even has endeavoured to show that there is a strong analogy between the gouty, rheumatic, and scrofulous diatheses. He points out for instance that gouty parents very frequently produce scrofulous children, and individuals who in their youth were scrofulous, and especially rachitic, exhibit at a later period of life, great disposition to rheumatism. The form of the disease depends much apparently upon the age of the individual. Scrofulous affections are more common in the earlier years of life, and rheumatism and gout at an advanced age. It has often been observed in families of the lower orders, which have been badly fed and clothed, and living together in a confined space of air, that while the children are scrofulous, the parents suffer under obstinate rheumatism. A diet principally composed of indigestible, insipid food, with little azote and excess of carbonic acid, such as farinaceous food, cakes, liqueurs, fruit, &c. appear to predispose to both scrofula and rheumatism. Both are benefited by a dry warm air, and increased or caused by a moist, cold, and foul atmosphere. Hence in low and marshy situations they are endemic. Both are common in northern countries. In England and Holland they are widely spread. In southern countries they are less frequent and are comparatively rare in the tropics. In both diseases similar chemical changes take place in the animal economy. There is a great

disposition to the formation of acidity in the urine. There appears to be the same influence on the osseous system. Long continuation of the disease in advanced age is accompanied by osteo-malacia, while in early life rachitis is common. Lastly, there is a resemblance between the operation of remedies on both kinds of diseases, as baths, aconite, sulphur, guiacum, tonic remedies, quinine, &c. and the results obtained from the use of the ol. jecor. aselli (in chronic rheumatism, and scrofulous arthritis) strengthen the supposition of the analogy between the sediseases.

The therapeutic action of the Cod liver oil is slow. The diseases in which it is found beneficial are not susceptible of being cut short, like intermittent fever by quinine. In general its use must be continued long, at least a month, often six months, and sometimes for years. Quick results, though sometimes met with, may be considered rare. Thus in private practice giving it a proper trial is often brought about with difficulty. People are apt to think that a remedy which produces no quick sensible result must be inert, and hence many cures are interrupted, which to the physician hold out the greatest hopes of success.

The *Modus Operandi* of the oil may be said to consist in stimulating the lymphatic glands and vessels, and by these means increasing the activity of

the capillary system. By its action on the former the process of assimilation is facilitated, and the appetite increased. The quality of the blood is thus improved, and so lastly the different organs and structures of the body become better nourished, and receive more *turgor vitalis*.

Some are of opinion that in producing these effects, the oil acts as a specific, and consider that in scrofula and rheumatism it is as much to be praised as quinine in intermittent fever. The discovery of iodine being contained in it, however, has induced most practitioners to attribute the active properties of the oil to this substance. But long before this discovery had taken place, it was well established that its use was attended with great success in many of those cases in which many practitioners had given small doses of iodine with benefit. It was this fact, indeed, that first led Kopp to suppose it existed in the oil. In this respect therefore the *ol. jecor. aselli* somewhat resembles the old remedy of burnt sponge, the value of which was fully established in cases of bronchocele, before ever iodine was known to chemists. It has also been proved by practical observation that the *ol. album* is comparatively inert, and that the yellow and brown kinds possess the greatest medical virtues; and chemical research has since proved that the proportion of iodine is much greater in the two last than in the

first. These circumstances, therefore, strengthen the supposition that iodine is the active ingredient in the oil. On the other hand it has been stated by Falker,¹ that the iodine only forms $\frac{1}{40000}$ part, and that no influence can be ascribed to so small a dose as would necessarily be taken. In reply to this objection it may be urged that the exact relative proportion of the iodine to the mass of oil is unknown; that we are unacquainted with the state of combination in which it exists; and that, lastly, iodine thus occurring in a natural production, may be supposed to possess a stronger therapeutic action, than when obtained by chemical means, and then administered in the same way that we observe a particular salt to exert a stronger influence on the economy when taken in the form of a natural mineral water, than when given in substance.

Falker, in the paper above alluded to, has advanced the theory, that it is to the gum resin contained in the oil, that the therapeutic action must be attributed. He points out that no other ingredient of which it is composed can be considered to exert any influence over disease, and that this substance has long been established as a remedy in numerous cachectic disorders of the same nature, as those in which the *ol. jecor. aselli* has been found useful. Thus, for instance, it forms the principal ingredient in *bal.*

¹ Heidelberg Med. Annal. Bd. 6. Heft. 3, 1840.

peruvianus, bal. copaiba, turpentine, assafœtida, guaiacum, myrrh, and a class of remedies which have been extensively used in similar cases.

The researches of Dr Ascherson of Berlin have rendered it probable that the action of the oil is to be explained in another manner. In a memoir presented to the Academy of Science, in Paris, November 12th, 1838, and subsequently published in Müller's Archives,¹ this gentleman pointed out the importance which should be attached to oil in organic formations, on account of its presence in the embryo of every organism. He shows by microscopical researches, that in the small transparent animals, and in seeds of plants, fat always exists in the form of an emulsion, that is in small drops from $\frac{1}{40}$ to $\frac{1}{360}$ of a millimetre in diameter, and even smaller, which are suspended in a watery fluid, and possess molecular movement. In the small microscopic crustacea, the fat, from the round form of its drops, and from its lively colour, presents a very elegant appearance. Thus, in the *Daphniæ*, *Cyclops*, &c., it is often scarlet red, and Swammerdam, who looked upon these drops of fat as the eggs, rightly ascribed to them the red colour of these animals. In the sacculated animals, on the contrary, the fat is colourless. In cer-

¹ Ueber die physiologische Bedeutung der Fettstoffe, und ueber eine neue auf deren mitwirkung begründete und durch mehrere neue Thatsachen unterstützte theorie der Zellenbildung. *Müller's Archives*, 1840.

tain examples of cyclops quadricornis, on the other hand, it is of three colours, viz., some drops are clear as water, others deep orange or almost red, and a third kind are of a dark Berlin blue. He points out that in the fungi, which, from their chemical constitution and mode of development, most resemble animals, the sporioles are drops of oil, and he is convinced that they form an essential part in the development of these vegetables.

Whilst the most celebrated physiologists seem agreed that the primitive tissue is formed of small granules or solid globules, an opinion defended by Valentin in his prize essay, Schwann, one of the most accurate observers in science, has stated that the different layers of the germinating membrane were formed of cells, and that the fibres of the cellular tissue, the muscles, the nerves, the vessels, and in a word every tissue of the animal structure, were nothing but metamorphosed cells. In this state of uncertainty, Dr Ascherson sought after new facts, and commenced a series of researches to determine the difference between the globules observed by Baer, Carus, and Valentin, and those described by Schwann.

Valentin mentions several kinds of globules, but without describing them distinctly, which, without figures, it is very difficult to do. The author sought to render the subject more clear by examining them

in the unimpregnated egg, and found three kinds of globules: 1st, those composed of coloured drops of oil: 2d, bodies much resembling the globules of pus, which were evidently the primitive cells of Henle, and those described by Schwann: 3d, the smallest, which perfectly resembled the drops of oil previously alluded to as having been seen in the embryo of plants. These globules appear before the others, and constitute the greatest portion of the yolk of the egg. That they were composed of oil was proved, 1st, by the action of alcohol which coagulated the albumen, but left the globules fluid; and, 2d, by the action of ether, which caused the globules to disappear, or nearly so. From these facts, then, the author concludes that these oil globules in man perform the same functions, as the similar globules in vegetables, and that oil is equally essential to the formation of cells in the vegetable and animal kingdoms.

The author now endeavoured to determine what part the oil took in the formation of the solid textures, and on reflecting that albumen is, next to oil, the most common substance in the organism of the embryo, he sought to investigate the reciprocal action of these two substances on each other. In so doing he was led to the discovery, that when albumen was brought in contact with a fluid fat, a coagulation immediately took place in the former, in

consequence of which a sacculated membrane or cell was formed, which contained a molecule of the latter. He concluded that during life the same process must take place, and that in the animal organism cells were formed from fat and albumen, which are to be regarded as elementary cells from which all other cells, although changed in form, proceed.

The method in which the elementary cells are distributed throughout the frame will be readily understood by attending to the process of digestion. Thus the chyle is nothing more than an emulsion, a mixture of oil and albumen, which even in the lymphatics of the small intestines pass into the formation of sacs or cells; and the deeper the chyle is forced into the lymphatic system, the richer it becomes in vesicles, until these have reached their highest development in the blood by the formation of blood globules. Again, the chyme in the stomach is highly albuminous and acid, but on arriving in the small intestines it loses these properties in a great degree, and assumes the form of an emulsion. This can only be occasioned by the addition of the bile and pancreatic juice. Physiologists have long pointed out that the bile is very rich in oil, and that it also possesses the power of liquefying the fat contained in the food. Hence it is highly probable that the function of the bile consists in preparing the chyme in order that it may produce a properly

constituted chyle; that the albumen of the chyme separates the fluid fat furnished and prepared by the bile, and by this conjunction of fat and albumen, the formative material for the organism is prepared.¹

In order to understand the application of the above views to the pathology of scrofula, it is necessary to remember that the symptoms and course of this disease indicate that it is caused and kept up by some fault in the process of digestion.² The healthy performance of this function consists in the maintenance of the equilibrium between the digestive process in the stomach and that in the small intestines, or, in other words, so long as the stomach pours out only so much acidulous and albuminous fluid as is necessary to neutralize the bile and pancreatic juice, the digestion remains undisturbed. In scrofula this equilibrium is destroyed, there is a diminished activity in the small intestines, and the whole digestion is almost exclusively performed by the stomach. The predominance of the last, in the digestive process, at length becomes so great, that the contents of the whole intestinal canal are found to be acid, and the albuminous fluid runs into hard masses, which lose their property of becoming or-

¹ Although I consider the observations and theory of Dr Archerson worthy of consideration, numerous circumstances prevent my placing entire confidence in them.

² See sect. vi.

ganized. This, then, is the material which is received into the lymphatics, instead of the normal emulsion formerly alluded to, and, on joining, the blood necessarily tends to deteriorate that fluid. At length the blood itself contains albumen in excess, on account of its non-mixture with the other element, oil, which enables it to become adapted to the organism, and, after a time, it is effused into the cellular tissue of the external or internal membranes, or into the parenchyma of the organs, constituting the different kinds of tuberculous disease. Very often, also, a mechanical stagnation of the abnormal lymph takes place in the lymphatic vessels, causing obstruction and swelling in the lymphatic glands. From the faulty preparation of lymph so occasioned, the healthy formation of blood ceases, and lastly, by the repeated effusion of useless matter, or from the irritation and disorganization thus produced in important organs, exhaustion appears, and the vital powers sink.

We can now understand that, from the views previously explained regarding the operation of fluid fat on albumen, and that of the bile on the chyme, the mode of action of oil in scrofula may be deduced. The particles of this fluid, by combining with the albumen, would first correct the excess of the latter substance, and induce a better formation of lymph. The general strength of the system

would thus be increased, and the functions of the small intestines gradually restored to their former activity. By a continued administration of the oil, also, this fluid may at length be more than proportionate to correct the albumen found in the stomach, and its molecules will then combine with those of the morbid products which have become deposited. Thus, not only is the original derangement in the digestive organs corrected, but the useless and injurious results it may have occasioned also removed. This theory has been supported by Dr Baur, who has given several instances where the scrofulous disposition has been removed by rubbing in externally different kinds of oil.¹

Our knowledge of the influence which fatty matter may exercise upon the animal frame, and of its utility as a therapeutic agent, is very limited. In our old pharmacopeias, the fat of different animals, as of the dog, reptiles, &c., played a very conspicuous part, and from the results of modern researches it would appear that our forefathers were not wrong in attributing important therapeutic properties to these substances. Dr Popken has lately asserted² that he has produced almost the same effects as have resulted from the administration of the *ol. jecor. aselli*, by giving, continuously, roasted bacon, in ʒij

¹ Archiv. für. die gesamte Medicin, von Hauer. Bd. 1. s. 256.

² Casper's Wochenschrift. 1840. No. 38.

doses; and Dr Archerson, of Berlin, informed me that he had cured several scrofulous complaints among the higher classes by causing the individual to eat, daily, a quarter of a pound of caviar, a Russian delicacy, consisting of the prepared roe of some fish, and much abounding in fat. Another observation, also, is connected with this subject, viz., that butchers, oil men, tallow chandlers, tanners, and other individuals who are continually coming in contact with fatty matter, are particularly robust, and well-nourished, and are known to be remarkably free from scrofula.

Although this explanation of the action of the oil has certainly, therefore, many facts in its support, I cannot divest myself of the opinion that the *ol. jecor. aselli* owes its superiority over other substances of a like nature to the iodine it contains. It is a principle established in therapeutics, that by the combination of two drugs having similar medical properties, the relative action of the mixture is much increased, and much more certain, than if the same quantity of one alone was given. It is possible, therefore, that it is to this combination of iodine on the one hand, and that of the antiscrofulous properties belonging to fatty matter in general on the other, that the therapeutic action of the Cod liver oil may be ascribed.

It must be remembered, however, that the different theories now mentioned were all formed after the utility of the oil in disease had been fully established, and that consequently whatever speculations may be indulged with regard to its *modus operandi*, their reception or rejection can in no way influence the value of the oil in a practical point of view.

SECTION IV.

DOSE, AND METHODS OF EMPLOYING THE COD LIVER OIL IN THE CURE OF DISEASES.

Originally the *ol. jecor. aselli* was taken indiscriminately by the lower orders in large doses. Brefeld states that he has seen the peasants swallow from half a pint to a pint at a time, mixed with a little red wine or brandy, a dose which, if the disease did not yield, was repeated in from four to eight days. Medical men have given it in smaller doses more frequently repeated. One or two table spoonfuls is the quantity usually administered to an adult from two to four times a-day. A child of twelve months and under may take a tea-spoonful two or three times daily.

In general Brefeld gives the oil only twice a-day, but when the digestive powers are strong, he gives it three times. He usually begins with half a table-spoonful, so that the patient may gradually accustom himself to the taste. He was induced to do this from having been told by several individuals that it was only at first that the remedy was disagreeable, and that a persistence in its use removed all the dislike and nausea they previously experienced. Rust gave one large dose, ʒiv. daily, which some people may prefer, as they thus only experience the disagreeable taste once in the day. It is thus, however, not so readily retained on the stomach. Rust gives the following directions for taking it: "When the patient swallows the oil, he should shut the eyes, and compress both nostrils with the fingers. He should immediately wash out the mouth with cold water, and drink a half or a whole cup of black coffee. Directly after the dose has been taken, the bottle which has contained it should be removed from the room. In this way a patient may take the remedy for weeks together, without his knowing, tasting, or smelling what he swallows."¹

In order to remove the disagreeable taste it leaves in the mouth, various correctives have been recommended, such as peppermint water and lozenges,

¹ Rust's Aufsätze und Abhandlungen aus dem Gebiete der Medicin, Chirurgie, &c.

different confections, &c. Rust ordered black coffee, and Carron du Villards recommended lemon juice. According to Brefeld, the best means of this kind is powdered sugar, which combines readily with the particles of the oil hanging about the mouth, most quickly removes the train-oil taste, and is easily swallowed. Dry biscuit answers the same purpose. He also allowed the individual to drink a half or a whole glass of red wine afterwards, which in most cases removed the feeling of nausea. Schütte with the same view gave bitter brandy, or a liquor containing aniseed. Riecke remarks on this subject, that when he first gave the oil, he mixed it with syrup of orange, aqua anisi, gum arabic, &c. but he found that these additions in no way removed the taste, but on the contrary rendered it worse, by increasing the quantity to be taken. He therefore now always gives the pure oil, and orders the individual to take after it, either some sugar, warm milk, or weak coffee. I have found a little powdered sugar and cinnamon to be the most efficient corrective.

Brefeld says he has given the oil in more than a thousand cases, and has met with very few individuals who positively refused to take it. "When it is necessary," he remarks, "the patient will little trouble himself about the taste of what will do him good, but it is certainly not calculated for luxuriou

or imaginative females." I have been told that the taste of this substance will preclude its employment in England. One medical gentleman of eminence in the profession informed me, that he would rather die than take the first dose. Such may be the opinion of persons enjoying health, but it is probable that my countrymen, as well as individuals on the continent, will swallow any substance which holds out the hopes of cure, after having suffered a few years from protracted rheumatism or gout, or from the wasting, painful, and dangerous diseases occasioned by scrofula. Indeed, I can confidently state, that this objection is purely imaginary. I have now given it to numerous individuals, and to some persons in the higher ranks, who on being assured that the nauseous taste would disappear, as the stomach became habituated to the oil, have taken it for two months without difficulty. One gentleman informed me, that although it was exceedingly nauseous the first few days, he subsequently took it with as much facility as he should have done a like quantity of milk. Children soon become accustomed to it, and take it readily.

The oil should not be taken in the morning fasting, as it is then much more liable to occasion nausea, and a disagreeable feeling of heaviness. It is best taken about an hour after a light breakfast, and again in the evening when dinner has been di-

gested. If a third dose is given, it should be taken one or two hours before dinner. It has been shown that the employment of the oil augments a state of inflammation when present, and causes cerebral congestion, headach, heat of skin, &c. It is, therefore, always necessary before its administration, to remove this state, should it exist, by means of antiphlogistics.

The quantity of oil necessary to be taken in order to obtain a cure, does not appear to follow any certain rule. Schenk cured a rheumatism of two years' standing with six ounces, while, in similar cases, the same result has only been obtained after twenty or more pounds have been consumed. Bettinger states that he has given from twenty to thirty pounds, in four doses, daily, without its having produced any bad effect on the digestive functions. I have myself seen cases which have taken two ounces daily for a period of three years, with short occasional intermissions, with the best results. Case 8th is one of these.

To obtain any benefit, a genuine brown or yellow Cod liver oil must be employed. This is a matter of great importance, as the observations made in the hospital of Berlin,¹ and elsewhere, sufficiently prove. Professor Gmelin of Heidelberg even published a memoir on the chemical analysis of this substance,

¹ Rust's Mag. B. 18. s. 360.

and afterwards acknowledged that the oil he had operated on was not genuine.¹ Some hospital physicians of Paris informed me that they had given this remedy very extensively, without any good effect whatever. On examination I found, in several instances, that the oil employed contained no iodine, and in other respects was very dissimilar to the specimens I brought with me from Germany. On asking several merchants in Paris for a Cod liver oil, I was presented with common whale or seal oil, which are also denominated Huile de Poisson. In Germany, where immense quantities of the *oleum jecor. aselli* are sold for medical purposes, the peculiar taste and smell have been well imitated by steeping in the more common fish oils a little putrid herring, or mixing with them an oil extracted from the latter fish. Thus there is great difficulty, at present, in determining the genuine drug, which is only to be done by detecting iodine in it by chemical analysis. The process for this purpose is tedious, but that employed by Wackenroder is the least so.² Even this is no certain test, as chemical research has shewn that some specimens are much richer in iodine than others, while the addition of a small quantity of hydriodate of potass, or tinc-

¹ *Annalen der Pharmacie*, B. 29.

² See p. 38. Apothecaries and druggists should procure the oil from the wholesale merchants of Hamburgh or Bremen, from whence most of the oil comes at present employed in Germany.

ture of iodine, would be detected with great difficulty.

Several physicians have made attempts to correct the train oil taste and smell, and proposed various mixtures for this purpose, chiefly in the form of emulsion. The following are the best of these :

R.—Ol. Jecoris Aselli ℥j.
 Liq. Kali Carbon ℥ij.
 Ol. Ether. Cal. Arom. gut. iij.
 Syr. Cort. Aurant. ℥j. ℥ Ft. Emulsio,
 cujus capt. cochleare minimum unum vel dua mane et vespere.
 For children with Rachitis. *Fehr.*

R.—Ol. Jecoris Aselli
 Syr. Cort. Aurant.
 Aq. Anisi a. a. ℥j.
 Ol. Calam. Arom gut. iij.
 Gummi Arab. ℥j. ℥ Ft. Emulsio,
 cujus capt. coch. magnum mane et vespere. In gouty swellings,
 Rachitis, &c. *Rösch.*

R.—Ol. Jecoris Aselli
 Vin. Hungar. (vel Malag.) a. a. ℥iv.
 Gum. Arab. ℥j. ℥ Ft. Emulsio,
 Adde
 Syr. Cort. Aurant ℥j.
 Elaeosacch. Menth. Pip. ℥ij. ℥ Ft. Emulsio,
 Capt. coch. mag. dua, bis vel ter in die. *Brefeld.*

R.—Olei Jecoris Aselli ℥viiij.
 Gum. Arab. Pulv. ℥iv.
 Aqua. comm. ℥xij.
 Syrupi comm. ℥iv. ℥ Ft. Emulsio,
 cui, leni calore, adde
 Sacch. albiss. ℥xxvj.

colat. refriger. adde

Aq. Flor. Naphæ ℥ij. ℥ Ft. *Syrupus Olei Jecinoris Aselli*. This syrup may be kept for some time, and is not unpleasant to take. *Duclou*.

R.—Ol. Jecoris Aselli ℥ij.—℥iij.
Aq. Fœniculi ℥j.
Gum. Arab. q. s. Ft. Emulsio. Adde
Syr. Cort. Aurantii ℥ss. ℥ coch. unum.
pro dose sumendum. Given to children with Rachitis. *Tourtual*.

R.—Ol. Jecoris Aselli ℥ij.
Vitell. ovi unius
Syrup. Menth
——— Fl. Aurantii a. a. ℥ij. ℥ Ft. Emulsio,
cujus capiat cochleare magnum unum ter die. *Tourtual*.

I have never seen any good effect attend the exhibition of these mixtures, while the object for which they were ordered, viz., getting rid of the unpleasant taste, is rarely attained. Mr Macfarlan, apothecary of this town, however, was good enough, at my request, to combine some drops of the different essential oils with the oleum jecoris aselli, and I found that the essence of lemon, and oils of peppermint, cinnamon, and aniseed, completely neutralized the unpleasant train oil taste and smell. Should these, therefore, be again strongly objected to by a patient, I should order three or four drops of one of these oils, to be mixed with an ounce of the Cod liver oil. This aromatic addition might also remove the feeling of nausea experienced by some individuals.

Katzenberger, with a view of getting rid of the

taste, proposed to give the oil in the form of clyster, and administered it this way in double and treble the doses taken by the mouth.¹ Most persons however, especially in England, would prefer an unpleasant taste to the daily use of clysters. Guerard and Brefeld have also used it externally with the best effects. In chronic keratitis it should be dropped into the eye. In atrophica mesenterica the integuments of the distended abdomen may be rubbed with it, and in diseases of the skin, ulcerations, &c., lint saturated with the oil may be laid over the affected part two or three times a-day. This mode of application, however, is not to be depended upon alone, and should only be conjoined with its internal use. It may be mixed with the oleum lavendulæ, or some other fragrant substance, to correct the train oil smell. The following form of liniment is recommended by Brefeld.

R.—Ol. Jecoris Aselli ℥j.
 Acet. Saturni ℥j.
 Vitell. ovar. (sive Adipis Suill. insuls.) ℥iij. ℥ Ft. Lini-
 mentum. To be used externally in ulcers, fistula, &c.

It has been recommended that those individuals who prefer taking a number of pills, rather than a nauseous fluid, might have it prescribed for them in this form, by converting the oil into soap with soda. We have previously stated, however,

¹ Hufeland's Journal, B. 59.

that the oily matter itself may probably exercise great influence in its therapeutic action, and consequently it is not advisable to decompose it. The same objection applies to emulsions.

SECTION V.

ON THE EMPLOYMENT OF COD LIVER OIL IN RHEUMATISM AND GOUT.

Dr Kay, physician to the Manchester infirmary, was the first medical man who gave Cod liver oil for the cure of rheumatism; and we have the following account from Mr Darbey, house surgeon and apothecary to that institution, of the circumstances which led to its being prescribed.¹ “A woman who laboured under the most excruciating rheumatism, and was an outpatient of this infirmary, being advised to rub her joints with the oil, was induced to take it at the same time internally. A few weeks restored her to the use of her limbs, and she was cured. However, little attention was paid to this case, as it was supposed that the alteration of the weather, and

¹ Percival's Essays, 4th edit. vol. ii. p. 360.

the medicines she had before taken, had caused the cure. About a twelvemonth afterwards, her complaints returned with double violence, and the same remedy restored her to health again. Encouraged by this second recovery, Dr Kay, one of the physicians to the infirmary, prescribed it for other patients, in similar cases; and it answered his most sanguine expectations. Since then it has been used by the other physicians with the greatest success."

As regards its beneficial operation in rheumatism, Mr Darbey remarks:¹ "Men and women advanced in years, whose fibres may be supposed to have acquired a degree of rigidity, find surprising effects from it. Some, who have been cripples for many years, and not able to move from their seats, have, after a few weeks' use of it, been able to go, with the assistance of a stick; and, by a longer continuance, have enjoyed the pleasing satisfaction of being restored to the natural use of their limbs, which, for a long time before, had been a burden to them." He also refers to two cases in which the oil had an extraordinary effect even on young persons whose ages did not exceed ten years, and concludes by saying, that "except bark, opium, and mercury, I believe no one medicine in the *materia medica* is likely to be of greater service," "and I could wish for a more general use

¹ P. 361.

of it, in order to prove that the above account of its good effects is no exaggeration."

Dr Percival, speaking of this substance, remarks, "while I was one of the physicians to this charity, (Manchester infirmary), I had the fullest evidence of the successful exhibition of Cod liver oil, in various maladies, of the class above described, which had resisted other powerful modes of treatment. And I frequently compared its operation with that of gum guiacum, by prescribing each, at the same time, to different patients in similar circumstances. These trials almost always terminated in favour of the oil; and the patients, who took guiacum, by conferring with their fellow-sufferers, were sometimes so sensible of making a slower progress towards recovery, as to request a change of one remedy for the other."¹

Dr Bardsley also, much later, 1807, when treating of chronic rheumatism, observes, "From long and repeated experience, I am enabled to speak of it as a medicine of efficacious, but limited powers. In some instances, where every other means has proved unsuccessful, it has operated in a manner so decidedly beneficial, as to excite astonishment. But, on the other hand, it has frequently failed in some of the mild, and more common rheumatic affections.

¹ Op. cit. p. 355.

The circumstances under which I have found it most advantageous, when used both externally and internally, are the following: 1st, In the chronic rheumatism of elderly persons, where the muscles and tendons have become rigid, and the joints nearly inflexible, in consequence of the disease having been brought on by excessive labour, hard fare, dampness, and cold. 2d, In women whose constitutions have been worn out by repeated rheumatic attacks after parturition, and more especially in the decline of life. I have seen a few patients recover entirely by the exhibition of the oil; who, on their admission into the house, were unable either to preserve the body in an erect posture, or support its weight on the lower extremities.”¹

I have been thus particular in quoting the early authorities on this subject, because all the German writers who treat of the Cod liver oil, merely refer indefinitely to its having been given in the Manchester hospital, and coincide in attributing the merit of having first prescribed it to Schenk. It would appear, however, that the Manchester physicians were not only well acquainted with its great value in cases of chronic rheumatism, but that their experience had led them to discriminate the particular

¹ Medical Reports, p. 19.

cases in which, even at the present day, it acts with the best results.

It is certain, however, on the other hand, that notwithstanding the praises bestowed upon this remedy, by the writers above mentioned, no further notice appears to have been taken of it by the profession in England. Hence, it is generally considered throughout Germany, that to Dr Schenk of Siegen, is to be ascribed the merit of having directed the attention of medical men to its therapeutic properties in gout and rheumatism. In two memoirs published on this subject,¹ he has detailed a number of very severe and obstinate cases, which, through its use, were either entirely cured or greatly relieved. He states, as the result of his observations, that "the Cod liver oil ought to be considered as a specific in rheumatic and gouty diseases. It heals all chronic painful affections of the human body, wherever they are seated, whether internal or external, if they have originated in rheumatism or gout, as surely and as certainly as bark cures intermittent fever, or mercury the venereal disease." Numerous other memoirs and cases have been published by Wesener,² Mönning,³ Amelung,⁴ Wüste,⁵ Gunther,⁶ Volkmann,⁷

¹ Hufeland's Journal, Bd. 55 and 62.

² Ibid. Bd. 58, mai. s. 74.

³ Ibid. Bd. 59.

⁴ Ibid. Bd. 67, s. 106.

⁵ Ibid. Bd. 84, s. 115.

⁶ Ibid. 1824, August, s. 111.

⁷ Ibid. s. 120.

Osberghaus,¹ Schütte,² Reder,³ Spiritus,⁴ Rust,⁵ Suttinger,⁶ Moll,⁷ Rösch,⁸ Brefeld,⁹ Kopp,¹⁰ Carron du Villards,¹¹ Gouzée,¹² Taufflied,¹³ Delcour, &c. &c.,¹⁴ and at present its use in these diseases is universal throughout Germany.

In the great Hospital La Charité, however, in Berlin, it was given in the year 1823, for the cure of rheumatism, without any good result;¹⁵ but there can be no doubt that at that time the genuine oil was unknown in that city, for at the present moment it is given there with the best effects.

The oleum jecoris aselli is not beneficial in every kind of gout and rheumatism. In podagra and acute rheumatism with accompanying fever, occurring in young, good, or robust constitutions, the oil is of no service. Indeed, the gastric symptoms it occasions, scarcely ever allow it to be tried in such cases. Even in the chronic forms it has been observed by Schenk, Amelung, and others, that the rheumatic

¹ Hufeland's Journal, 1825, September, s. 130.

² Horn's Archive. für med. Erfahr. 1824, Juli. Aug. Heft.

³ Diss. Inaug. de. oleo jecor. aselli. Rostock. 1826.

⁴ Rust's Mag. Bd. 16. s. 566.

⁵ Ibid. Bd. 20. s. 563.

⁶ Ibid. Bd. 26. s. 388.

⁷ Schmidt's Jahr. Bd. 8. s. 143.

⁸ Med. corr. Blatt des Würt. arztl. Vereins, Bd. 2, s. 185.

⁹ Der Stockfish Liberthran. Hamm. 1835.

¹⁰ Denkwürdigk. in der arztl. Praxis. Bd. 3. s. 386.

¹¹ Bulletin de Therapeutique, 1834.

¹² Annal de Med. Belge, 1833.

¹³ Gaz. Méd. de Paris, 1837, p. 503.

¹⁴ Gazette des Hôpitaux, Mai. 1841

¹⁵ Rust's Mag. Bd. 18. s. 360.

pains are at first often increased by the oil, which should be regarded as a favourable symptom. Brefeld asserts that it is only in rheumatism that the oil is of any use, and that it is perfectly inert in gout. He carries this opinion so far as to declare that in doubtful cases, the success of the oil will determine whether the medical man is treating gout or rheumatism. Other medical men, on the contrary, (Osberghaus), have found its beneficial effects better marked in gout than in rheumatism. This difference is readily explained by the difficulty of diagnosing certain forms of these diseases from each other, and the uncertainty which prevails regarding the limits belonging to each. An analysis of the cases given by Brefeld himself will show that he has denominated some rheumatism which might easily be maintained to be gout. As it is not my object, however, to enter upon this much-disputed question, I shall, for the sake of convenience, consider the chronic forms of these affections together.

Judging from the mass of observations which have now been published in the different German periodicals, and from what I have heard and seen connected with this subject, I am inclined to consider that the Cod liver oil is more especially indicated in three distinct forms of chronic gout and rheumatism, which may be denominated the general, erratic, and local forms.

1. *General form.*—In these cases where the gout or rheumatism appears to have seized upon the whole system, and where, as the result of long suffering, the body is wasted, the process of nutrition very low, there is want of sleep, loss of the vital powers, peculiar cachectic expression of countenance, and contraction of the muscles, the oil is of the greatest benefit. Among other cases Brefeld describes that of a woman, Mrs Meermann of Hamm, 30 years old, who had been confined to her bed or room, and only in the warm summer months experienced a slight alleviation of her sufferings. Nearly the whole body was attacked, but principally the inferior extremities, sacrum, back, and shoulders. Walking was entirely prevented by the insupportable pains, stiffness, and swelling of the joints. A kind of hectic fever, and constant nightly exacerbations destroyed all repose. The patient was wasted, of a blechy whiteness, of a cachectic appearance and habit, and had lost all hope of relief, although originally she was of a strong and robust constitution. The use of two table-spoonfuls of the oil daily, was soon followed by a beneficial result. After taking forty ounces she was restored to a tolerable state of health, although the malady, by the conjoint influence of numerous unfavourable circumstances, such as a moist and confined lodging, bad nourishment, uncleanliness, &c., did not entirely disappear. The

woman, after this, voluntarily took the oil for the space of a year, and was, three years from the time he first saw her, perfectly healthy, well nourished, blooming, and of robust appearance, although, during changes of the weather, she felt a slight stiffness in the limbs.¹

For the following case I am indebted to Dr Frech of Baden Baden.

CASE I.

General articular rheumatism—Stiffness of the joints—Contraction of the extremities—Failure of the usual remedies—Ol. jecoris aselli—Cure in ten days.

Catharine B——, 19 years of age, of a scrofulous family and external appearance, had, in the beginning of May 1837, a violent attack of acute rheumatism, induced apparently by washing a room. All the joints of the upper and lower extremities were affected, but more especially those of the elbows and knees. This attack was removed after some weeks by venesection and the internal administration of aconite. In August she was again exposed to cold, and was again attacked with violent pains in the extremities, which, as formerly, were

¹ Brefeld, p. 42.

more acute in the knee and elbow joints. The usual remedies were applied by the medical men who attended her without success. The pains remained the same, the power of moving the joints became less and less, and the patient wasted rapidly. In order to support the strength the decoc. cinchonæ was ordered, and taken for two weeks. Dr Frech saw the patient for the first time in the middle of September. She lay in bed, was of cachectic appearance, much wasted, and found it impossible to rise. The pulse was accelerated, soft and small; her urine clear; there were violent piercing pains in the upper and lower extremities, which were strongly contracted and flexed. The movements of the joints were limited, especially in the elbows and knees, and all attempts at flexion or extension caused the most excruciating suffering. In this case she remained two weeks longer, when she was ordered to take three table-spoonfuls daily of the ol. jecoris aselli in aq. menth. pip. The dose was increased to four table-spoonfuls in three days, and to six table spoonfuls in six days. On the third day there was a perceptible alleviation in the pains, which from that time gradually disappeared, while the natural movements of the joints returned. On the tenth day she was entirely free from suffering, and moved the upper and lower extremities without the slightest uneasiness. Dr Frech has not seen the

patient since, and presumes from that circumstance, that she has had no return of the complaint.

Remarks.—This case is a good instance of the rapid and beneficial effects occasionally produced by the oil, and is the only one I have met with where such decided results were obtained in so short a time.

2. *Erratic form.*—In this form the pains are less violent, and the movements of the affected parts, although restrained, are not abolished. Usually it is only some portions of the limbs which are affected, most commonly the hand, foot, and knee, which are sometimes swollen and oedematous. The pain and swelling are often changeable, leaving one part of the body in a few days, and appearing in another. The pain is increased in the night and in moist weather. This affection, popularly called flying gout or rheumatism, often remains for months, is accompanied by a pale appearance of the surface, diminution of the digestive process, loss of appetite, occasional feverish symptoms, depression of mind, and general suffering. In such cases the ol. jecoris aselli is of the most decided benefit, and, according to some physicians, is infallible. Rubbing the oil warmed into the affected parts, and covering them with wadding has been found useful in conjunction with its internal administration. Brefeld says that he has met with a crowd of such cases, all of which are cured to a cer-

tainty by the oil, in a period varying from fourteen days to four weeks. Among others he gives that of Olivie von R——, a girl 14 years of age, well grown and nourished, of a scrofulous and rheumatic family, inhabiting a moist and badly-situated lodging. She suffered for some time from a painful swelling which changed about between the hand, foot, and knee-joints, sometimes was longer continued than at others, occasionally disappeared altogether, and then returned. Some bottles of the oil cured the girl so completely that not a trace of the affection remained, and it has never returned.¹

3. *Local form*.—Here the affection is local, confined to a single part, such as a limb or joint. Many of these cases are very obstinate, and individuals who otherwise enjoy tolerable health are rendered miserable on the approach of damp weather, which invariably increases their torments. This form of the disease is of a more acute nature than the preceding, and is generally induced by an improper or inert mode of treatment during the acute attack, or a continued exposure to the causes which originally produced it. It is most common in individuals who have previously enjoyed good health, and who do not take sufficient precautions against damp and cold. The *ol. jecoris aselli* has been found capable

¹ Brefeld, p. 45.

of curing this local form of the disease, when every other means have failed.

For the two following cases I am indebted to Dr Herrght of Heidelberg, assistant physician to the asylum in that town.

CASE II.

Chronic lumbago, succeeding an acute attack—Scrofulous constitution—State of cachexia—Moxas and blisters without effect—Ol. jecoris aselli—Cure in three months.

Margarite C——, aged 37, of a weak and scrofulous constitution, has been in the asylum of Heidelberg since 1825 on account of periodical attacks of mania. She has menstruated regularly, but had fluor albus for some time. In December 1837, the appetite diminished, the catamenia assumed a dirty coloured appearance, and there was evident difficulty in walking. She often placed her hand on the sacrum as if to support it, and complained of pain in the neighbourhood of the sacro-iliac synchondrosis. Her walk became gradually more and more difficult. Every movement of the foot was painful. She could not go in or out of bed without assistance. At the same time both hips felt abnormally moveable, and

during progression her body fell from one side to the other over each foot. The application of six moxas to the sacral region, and the use of pills containing assafoetida and phosphoric acid somewhat improved her condition, so much so that the walk became more easy and free from pain. In the spring of 1839 however, the disorder returned more violently than before. Blood extracted from the sacral region by means of cupping, and the application of another six moxas which were kept open some time by irritating dressings, in no way relieved the patient. In the beginning of June the *ol. jecoris aselli* was given, at the commencement in doses of one tablespoonful, afterwards two tablespoonfuls three times a day. At first it was vomited several times, but she soon became accustomed to its use, and took it willingly. At the end of July, that is nearly two months after taking the oil, her walk was much improved, the appetite had returned, and her external appearance was less flaccid, and looked much more healthy. By the end of August her bodily health may be said to have been quite restored. Her natural strength had returned, her cheek was blooming, her walk was straight and fixed, and she could take promenades of an hour's duration without fatigue, or any ill effects. She continued to take the oil until the end of October 1839, and up to this time (Feb. 1841) there has been no return of the complaint.

CASE III.

Chronic lumbago of several years' standing—Difficulty in walking—Cachexia with œdema—Ol. jecoris aselli—Cure in seven months.

Mrs S——, aged 48, of leucophlegmatic temperament, menstruating regularly, has had monomania and hallucinations for several years. Formerly she was much subject to gastric disorder, and for some time has been labouring under fluor albus, which has been accompanied with great flaccidity of the vagina, and small erosions round the os uteri. For several years she had complained of lancinating pains in the region of the sacrum, and experienced more or less difficulty in walking. For a long time there has been a great disposition to diaphoresis, which has latterly become habitual and very copious, possessing at the same time a peculiarly unpleasant and penetrating smell. Within the last few weeks the walk has become exceedingly difficult, and her body, during progression, is swayed from one side to the other. The neighbourhood of the sacro-iliac synchondrosis on both sides was exceedingly painful on pressure, and the hip joints were evidently more moveable than usual. As the local affection increased

the general health suffered more and more, the countenance at length assumed a dirty yellow hue, the appetite was greatly diminished, and the whole surface of the body was more or less œdematous.

In September 1839, she commenced taking the *ol. jecoris aselli*, combined with the *decoc. centaurium minoris*, the use of which was continued until March 1840. The dose at first taken was a table-spoonful three times daily, and afterwards four times. The patient took it very well after the disgust which it at first occasioned had disappeared. In two months a considerable amendment was perceivable. The pain in the sacral region was diminished, although sometimes augmented by changes in the weather. The walk became more steady, and did not occasion so much suffering. The profuse sweating diminished, its disagreeable odour disappeared, the œdema was no longer to be seen, and the whole aspect of the patient was changed for the better. Towards the end of the treatment the pains in the limbs and sacrum entirely disappeared. The sacro-iliac synchondroses became more firm and free from pain, while the walk lost its abnormal character, and was performed without difficulty. The general appearance also was quite healthy, and the diaphoresis no longer perceivable. The *fluor albus* also had considerably decreased. This good state has continued until now (Jan. 1841) with the exception of some slight pains,

which she once experienced in the back and arms, and which rapidly disappeared under the use of the vin. sem. colchici.

Remarks.—Both these cases are very similar to each other, the affection apparently being situated in the ligaments and fibrous tissues of the coxo-sacral articulations, which were abnormally loose and flaccid. In both cases, also, the general constitution had suffered, and a highly cachectic state induced, that state, indeed, in which the oil, from experience, has been found to be so beneficial. Its action, in restoring the appetite and nutritive powers, was well marked, and as these improved the local affection proportionally diminished. It should also be observed, that in one case the disease was not so chronic, or deeply rooted in the system as the other, and did not require so long an employment of the oil to eradicate it from the constitution.

Brefeld has taken great pains to point out that there exist a variety of affections which very much resemble rheumatism, and yet which, not being of a rheumatic nature, are in no way benefited by the oil. Thus, according to him, all arthritic and neuralgic cases are incapable of receiving any benefit from this remedy. There can be no doubt that it often requires extraordinary tact on the part of the physician to decide whether he has to treat an affec-

tion originating in gout, rheumatism, or neuralgia. This is sometimes perhaps impossible, as these affections run so gradually into each other, more especially in the chronic forms, that the symptoms are absolutely identical, while the same exciting cause and habit of body may be common to them all. It is not my object here to enter into a description of the diagnostic characteristic of these diseases. They are all given very clearly in books, and appear, on perusal, to be very easy. The practitioner, however, to whom this memoir is addressed, knows very well that while, on the one hand, cases occur which are readily recognised, there are, on the other, instances in which it is almost impossible to determine whether it be the fibrous or nervous tissue which is originally affected. The following case, which was communicated to me by Dr Krukenberg of Halle, will illustrate this point.

CASE IV.

Sciatica—Atrophy of the affected limb—Cupping, mercurial ointment, and blisters without effect—Ole. jecoris aselli—Cure.

Dr B——s, 25 years of age, assistant in the Clinical Hospital of Halle, who had previously suf-

ferred from several attacks of rheumatism, experienced, in December 1837, violent pains in the right thigh, which exactly followed the course of the ischiatic nerve. The pain shortly extended to the toes, but was not more violent at the hip or knee than in other portions of the limb. There was a remission of the pain during the day, but it recurred every evening, and was most violent at midnight. Although by no means sensitive, the patient was unable, from the violence of the pain, to sleep, or obtain any rest until morning. At this period the limb did not present any apparent change. At first the case was considered one of inflammation of the ischiatic nerve, and blood was drawn by means of cupping from various places in its neighbourhood three or four times. Every other day he took an emetic. This treatment only caused temporary relief, and a short time after every blood-letting it returned with the same violence. Mercurial ointment was then rubbed into the thigh in the course of the nerve, without producing any amelioration of the pain. On the contrary, it augmented the bad state of the patient, by inducing a mercurial eczema. No better success followed the application of blisters.

This treatment occupied three weeks, without having occasioned any diminution in the patient's sufferings, and latterly the thigh had rapidly diminished in size, and was now one-third less in diameter than the

opposite one. At this time Dr Krukenberg read accidentally the treatise of Rust, in which he describes the success he met with from the use of ol. jecoris aselli, in a case of ischias of similar violence.¹ The

¹ The following is the case alluded to, which deserves notice on account of so celebrated a practitioner as Rust having recorded it, as well as from the intrinsic value of the case itself.

“One of our most celebrated civil officers, Herr Oberberggrath Schaffrinski, had already suffered several weeks from what appeared to be a perfect *ischias nervosa*, which he considered was attributable to exposure to cold. He had also employed an anti-rheumatic treatment, but without success, when I was consulted. I ordered venesection, the repeated application of leeches and scarifications, frictions with mercurial ointment, and internally small doses of tartar emetic, and later, repeated emetic and purgative remedies. All this occasioned no relief, nor was the employment of volatile liniments, the application of blisters after Cotuni's method, or a trial of antispastic and emollient remedies of every kind, attended with better success. After some months' useless treatment, I was under the necessity of accompanying the escort of the deceased Prince of Hardenberg into Italy, and left the patient under other professional care. On my return I found him in a truly deplorable state, although he had not neglected to demand the advice of the most respectable and experienced Berlin physicians, and tried every thing that rational or empiric means could devise, which held out a hope of relief. I have seen few patients with such uninterrupted suffering. For nearly sixteen weeks he had been unable, from pain, either to walk, to sit, or lie down, but was obliged to continue day and night leaning against the back of a chair, in a half-standing, half-bent position, with the legs fully stretched out, while every change from this position induced the most excruciating agony. In spite of every contrivance that could be thought of to make this inconvenient position bearable to the patient, the pressure had produced several sores on the breast and arms, which greatly increased his sufferings. Under these circumstances the idea, for the first time, occurred to me of trying the Cod liver oil, and in this most obstinate affection, when there had been tried, during seven months, general and local bloodletting, alkaline, mercurial, and russian baths, the cold douche, frictions of every description, blisters and moxas, emetics and purgatives, as well as the internal

patient was quite willing to take it after the method prescribed by Rust. He drank, accordingly, every morning, during the remission of the pain, 4 oz. of the oil, and after the first few days experienced some degree of alleviation. He continued its use for three months without using any other remedy. In six weeks after commencing to take the oil he was enabled to pursue his duties in the hospital, and while he gradually lost the slight pain which remained, the strength and normal size of the limb returned. He took the large dose of the oil described, with black coffee, and the functions of the stomach were in no way deranged.

Remarks.—In this case there existed an intermittent violent pain, following the course of the ischiatic nerve, and it is not astonishing that these symptoms should be referred to some change in the nervous tissue. The patient, however, had previously suffered from attacks of rheumatism, and the ordinary treatment for neuralgia was productive of no benefit. Wasting of the limb at length appeared, and the disease was evidently augmenting when the ol. jecoris aselli was given. From that time, however,

employment of opium, ipecacuanha, sublimate, turpentine, camphor, aconite, belladonna, &c.; I was enabled to bring about, by eight doses of the oil, so much benefit, that the patient could walk backwards and forwards in the room without pain, and take at night the necessary rest in bed. He was perfectly and permanently restored to health." *Aufsätze und Abhandlungen aus dem Gebiete der Medicin, &c., von Dr T. Rust, Berlin, 1836, 2te. Band. s. 180.*

an amendment appeared, so that there can be little doubt it is to the oil that the cure must be attributed.

Whether the ol. jecoris aselli is as beneficial in cases of chronic gout as in rheumatism may still be considered a question *in dubio*. This, however, cannot be said of neuralgia, for not only does our knowledge of the pathology of this affection render it very unlikely that the oil would be beneficial, but actual observation may be said to have demonstrated it. Brefeld and other writers, for instance, have recorded several cases where the oil was taken for a long time without effect, and which subsequently recovered under the use of tonics, sedatives, derivatives, &c. Professor Romberg, of Berlin, whose extensive practice, and particular attention to nervous diseases render him a great authority on this subject, also informed me that, after numerous trials, he had never seen it beneficial in a case of undoubted neuralgia. Is the success of the oil, therefore, capable of assisting our diagnosis in these cases? This question, in the present state of our knowledge, I shall not attempt to answer. It appears to me, however, that one conclusion may be drawn from the foregoing remarks, viz. that the non-success of the oil in chronic rheumatism may, in several in-

stances, be attributable to the faulty diagnosis of the practitioner, and its consequent inapplicability to the case under treatment, rather than to the absence of therapeutic power in the remedy itself. Many medical men are very willing to give any new remedy a trial, but are also very ready to pronounce it inert should their expectations after the first few experiments not be fully answered. Let me hope that the diagnostic difficulties connected with the disorders under discussion may induce them to pause before forming a rash opinion, either confirmatory or condemnatory of its alleged therapeutic properties.

SECTION VI.

ON THE EMPLOYMENT OF THE COD LIVER OIL IN SCROFULA.

The use of the Cod liver oil in scrofula, particularly when complicated with rachitis, appears to have been first known to the profession in Holland. In the year 1822, the Society of Science and Art in Utrecht had made the chemical and therapeutic pro-

perties of this substance, the subject of a prize essay.¹ Since then the observations of Schenk,* Schütte,* Busch,² Gumpert,³ Fehr,⁴ Rösch,* Beckhaus,⁵ Schmidt,⁶ Knod von Helmenstreit,⁷ Munzenthaller,⁸ Gunther,* Wüste,* Ruef,⁹ Behn,¹⁰ Roy,¹¹ Gouzée,* &c., &c., have fully established its great value in the various forms of this disease.

Most of the early symptoms of scrofula, which are best observed in children, may be traced to some fault in the process of digestion. Thus, the first symptom is an irregularity in the appetite, then follows cardialgia, more or less intense, vomiting of sour coagulated alimentaceous matter, while similar coagulated masses and sour fluids pass by stool, which are variously coloured by the bile. If these symptoms continue, the abdomen often commences to enlarge, and to become more thick and firm, and, in proportion as it increases in size, the extremities, especially the inferior, diminish in volume and firm-

* See p. 74, 75.

¹ Hufeland's Journal. Bd. 56, Heft. 5. s. 33. s. 128.

² Med. Chir. Zeit. Bd. 4, s. 205.

³ Med. Zeit. herausgeg. vom Verein f. Heilk. in Preussen. 1833, No. 33.

⁴ Verhand. der arztl. Geselsch. der Schweiz, 1823.

⁵ Rust's Mag. Bd. 20, s. 189.

⁶ Ibid. 35, s. 38.

⁷ Hufeland's Journ. Bd. 74.

Heft. 5. s. 33.

⁸ Ibid.

⁹ Schmidt's Jahr. Bd. 13. s. 305.

¹⁰ Diss. 'de oleo jecoris aselli, præsertim in coxarthroxaciæ efficacia. Berolini, 1833.

¹¹ Julius u. Gersons Mag. f. d. ausl. Litt. d. gesamt. Heilk. Bd. 16. s. 298.

ness. The skin loses its turgor, becomes flaccid and wrinkled, a change readily perceived in the countenance, which receives a peculiarly old expression. Through the walls of the abdomen firm pressure may often detect swollen glands deeply seated, and those in other parts of the body also become enlarged. At last there appears an eruption on the skin, occasioned by the effusion of albuminous matter into the cellular tissue of the integuments. This matter, conjoined with a small portion of fibrine and earthy salts, constituting scrofulous or tubercular deposition, may also be effused in different forms into other organs, whereby their functions suffer more or less derangement. If effused into the lungs, it occasions phthisis pulmonalis; if into the bronchial glands, it is a frequent cause of catarrh; if into the membranes of the brain, it is not an unfrequent cause of acute hydrocephalus; if into the brain itself, different forms of paralysis follow; if into the serous membranes, acute dropsy, ulceration, producing phthisis laryngea, diarrhœa, blennorrhœa, &c., according to the seat of the lesion; if into the external glands, different kinds of so-called scrofulous swellings; if into the mesenteric glands, atrophica, mesenterica; if into the bones, caries, Pott's disease, tabes dorsalis, white swelling of the joints, and dependent on the caries, ulcerations in the skin; if into the cellular tissue of the integuments, lupus, tœnia, eczema,

impetigo, and various scrofulous eruptions, &c., &c.; thus, in the advanced stage, scrofula appears in different individuals in various forms, and hence it is that the *ol. jecoris aselli* has been found useful in what may at first appear widely different maladies.

Although the oil is beneficial in most scrofulous affections, its good operation is much more apparent in some than in others. Thus it is exceedingly useful when the osseous texture is attacked, as in the different degrees of rachitis, affections of the joints, *spina ventosa*, and caries. It is equally serviceable when the *vasa lactea* and mesenteric glands are more particularly affected, especially if atrophy be present. In this case, indeed, it appears to be the only means of cure at present known. Its operation is less remarkable and swift in scrofulous eruptions of the skin, ophthalmia, otorrhœa, &c., while it is least beneficial in affections of the external glands, more particularly if ulceration have not commenced. Brefeld gives the case of a girl, who, at the same time, laboured under caries in the bones of both hands, and a moist scaly eruption on the fore part of the neck and one arm. In a few months after taking the oil, the disease in both hands was perfectly cured, while that in the neck remained stationary. This, however, also at length disap-

peared on conjoining with the internal exhibition of the oil its external application to the affected parts.¹

Many scrofulous affections may occur in different individuals, under two states of the constitution which it is very necessary to attend to in a practical point of view. The first is a florid and healthy constitution, the individuals are fat or well-nourished, and the digestive organs perform their functions with tolerable regularity. The second is a cachectic constitution, the skin is more or less of a pale dirty colour; the individuals are thin, have either excessive or diminished appetite, considerable derangement in the digestive organs, and are evidently not well nourished. It is when the last-named symptoms are present, that the oil is more especially indicated, and has been found to produce such beneficial results. In the former state of the constitution, on the other hand, and in many cases which appear little capable of being benefited by the oil, the administration of iodine has been found most useful. Thus the scrofulous engorgements of the lymphatic glands in the neck, though not readily cured by the oil, often quickly disappear after frictions with an ointment containing ioduret of potash. For the following case, which well illustrates the

¹ Op. cit., p. 20.

advantage of attending to this point, I am indebted to Dr Hildebrand of Berlin.

CASE V.

Fatuity following epileptic attacks—Hemiplegia—Symptoms of scrofula, but strength of patient good—Probable tubercle in the brain—Ol. jecoris aselli given without effect—Iodine administered with great benefit—Epilepsy removed—Appearance of cough and atrophy.—Ol. jecor. aselli again given, and disappearance of the latter symptoms.

Matilda Ludeke, a well-nourished fat child, four years old, was brought to the clinical wards of Professor Barez in la Charité Hospital, Berlin, 13th of April 1839, labouring under an imperfect paralysis of the tongue, the left arm and foot, the latter contracted. It appeared that the child, when in her first and third year, had had one attack of convulsions, which, according to the description of the mother, appeared to have been eclampsia. In its fourth year there had been six attacks of true epilepsy, which returned every two months, and always during the night. The epileptic attacks at first commenced with an icy coldness of the body, and fixity of the eyes, but latterly they have been preceded by cries,

and since the affection has taken this form, a marked change has appeared in the child's intellectual powers. The patient laughed and cried without any apparent motive, took no notice of surrounding objects, and gradually became idiotic. She passed urine in the chamber, eat ravenously like an animal, and struck people and things about her.

These symptoms were still present, and besides the paralysis previously mentioned on the left side, a farther examination determined that the child had never spoken, and laboured under habitual constipation. Since the epilepsy has returned regularly, she has lost the power of standing, and is now unable to walk. All attempts at progression, even while supported, are accompanied by a trailing of the affected leg; while, from the state of contraction of the limb, and flexion of the knee, the toes only reach the ground. The left arm is also contracted, and she is unable to hold anything in the hand. Some of the lymphatic glands of the neck are considerably swollen, and on the head are several crusts of tinea. The appetite is very great, but she does not appear capable of masticating well, as she retains the food a long time in the mouth. She takes very little liquid. From the symptoms above-mentioned, epilepsy was diagnosed, depending on the deposition of scrofulous matter, (tubercle) in the right hemisphere of the brain. There was apparently no

change in the mesenteric glands, as the child appeared to be well nourished.

Under these circumstances the *ol. jecor. aselli* was given and continued several months in large doses, viz. two table-spoonfuls night and morning. The remedy removed the voracious appetite, but otherwise occasioned no beneficial results. Iodine was now given after the form of Lugol, and from this time the state of the patient improved. The child became less uneasy, took more notice of surrounding objects, appeared to possess more consciousness, recognised persons, moved the tongue with more facility, and even attempted to utter some words. After some months' employment of the iodine, during which period its use was occasionally abstained from for a short period, and other remedies given to combat particular symptoms, the paralysis disappeared, she could walk perfectly, speak with facility, and even commenced to learn the alphabet. The epileptic attacks ceased to return, but a certain degree of fatuity, or limitation of the intellectual faculties, continued. At this time the iodine appeared to affect the constitution, the appetite diminished, she became much thinner, and a teasing cough made its appearance. The *ol. jecor. aselli* was now again given, when the cough soon ceased, and in a few weeks the strength of the system had entirely returned. She is now (March 1841) free from all

bodily complaint, and the mental faculties are daily gaining strength.

Remarks.—This case is very important as indicating the relative value of iodine and the oil. Although a scrofulous disposition was evident, which had apparently proceeded to tubercular deposition in the brain, the general strength was not diminished, and the functions of the digestive organs were not deranged to any great degree. In this state the exhibition of the oil was of little service, because it was not necessary to augment the nutritive action, which for the most part appears to be a necessary prelude to its successful operation. Indeed, almost all the cases I have seen, in which the oil was of marked benefit, laboured under a general or local atrophy. Iodine, on the other hand, caused a great improvement in this case, and evidently induced absorption of the foreign body on which the symptoms depended. At length, however, the patient became thinner, and the nutritive functions were evidently affected. Here then the oil was directly indicated, and, when given, produced its usual beneficial results.

The long-continued use of iodine tends to produce atrophy, and loss of the general strength. The Cod liver oil, on the other hand, leads to the removal of atrophy, and induces augmented power in the system generally. The great value of these remedies therefore, as antagonists to each other, in the two

distinct forms of scrofula which present themselves, and the occasional change from one to the other, as circumstances indicate, will be readily conceived by the practitioner. Dr Bardsley, so long ago as 1807, when speaking of the oil, remarks, "the fact certainly is, that patients who have for some time taken this remedy, are disposed to increase in bulk and fatness, and it scarcely ever was attended with decisive advantage without producing these effects in a greater or less degree."¹

RACHITIS.

Many physicians and writers on this subject consider rachitis as essentially a scrofulous disease. This opinion is, however, erroneous. I have seen several cases of rachitis in which no symptom of scrofula was present, and that such is the case is fully acknowledged by many practitioners in Germany, and by the later researches of M. Guerin of Paris.² It cannot be denied, however, that in by far the majority of cases this disease is complicated with scrofula, and it would appear that under such circumstances it is most readily cured by remedies which are directed to a removal of the scrofulous complication.

Rachitis is essentially a disease of childhood, sel-

¹ Medical Reports, p. 20.

² Dublin Journal, No. 54.

dom appearing after the third year. According to the observations of M. Guerin, it passes through three distinct stages, which may be distinguished by their symptoms, and the alterations occurring in the osseous tissue. He denominates these stages those, *first*, of incubation or effusion, *second*, of deformation, and, *third*, of resolution or eburnation. The first stage is distinguished, according to him, by the phenomena of general fever, derangement of the gastro-intestinal tube, diarrhœa, flatulent distention of the abdomen, and a marked sensitiveness of the whole osseous tissue. The second, by the swelling of the ankles, knees, and wrists, and subsequent deformity of the bones; the constitutional symptoms are also increased. In the third stage the general symptoms diminish, the epiphyses of the bones return to their normal size, and the bones become consolidated. He also seeks to establish a law, that the deformity invariably proceeds from below upwards, and that isolated deformity of the superior portions of the skeleton, when none exists in the parts below, is not owing to rachitis.

From what I have seen of this disease, on the contrary, I consider that rachitis is not always distinguished by swelling of the joints and bending of the bones, but may be indicated by a want of development of the teeth, and a retardation in the closing of the fontanelles. In these cases acute

hydrocephalus often arises from the irritation of teething, the symptoms of which I think have been transformed by M. Guerin into the first stage of rachitis. It is singular, also, that M. Guerin, throughout his memoir, makes no allusion to the influence of rachitis on the development of the teeth, and on the closing of the fontanelles, a proof that he has not paid any attention to these points. In opposition, also, to the law M. Guerin wishes to establish, I may remark, that I have seen rachitic deformity of the chest without any curvature in the inferior extremities. In this form of the disease the ribs are pressed together, causing a diminution in the cavity of the chest, constituting the *pectus carinatum*. Thus, whenever there appears to be an arrest in the development of the teeth, or even closure of the interior fontanelle, it is important to examine the children naked, a neglect of which rule, it appears to me, has often caused the true nature of the disease to be overlooked.

With a view to treatment, rachitis may be divided into two forms, viz., rachitis simplex and rachitis scrofulosa. In the first form the children are strong, fat, and have a healthy external appearance, only the anterior fontanelle remains open, they have few teeth, and sometimes the epiphyses of the long bones are thickened. In the second form, in conjunction with the latter symptoms, and more or less

deformity of the osseous system generally, there is always a cachectic constitution, the external appearance of the child is very miserable, it seems to be improperly nourished, has engorgement of the cervical or other external glands, and, in short, presents all the appearance of scrofula. In the first form the *ol. jecor. aselli* is inert,¹ but in the second its beneficial operation is most striking. So many cases of the complete cure of this disease by the oil have now been published, and so many others are daily occurring, that in Germany they no longer excite attention, and are considered as the usual result of every-day practice.

¹ I have seen the following treatment for simple rachitis employed with great success by Professor Barez of Berlin, in his clinical wards. It commences with bitters, followed by absorbents combined with aromatics. The form is

R.—Ext. Taraxaci	.	.	.	℥ss.
Aq. Fœniculi	.	.	.	℥iv.
Liq. Kali Carb.				
Tr. Rhæi Vinosæ	.	.	a. a.	℥j. ℥.

Of this mixture a tea or desert-spoonful may be taken three or four times daily according to the age. If, by these means, the appetite is improved, and the bowels become regular, iron is given in the following form.

R.—Tr. Ferri Pomadæ	.	.	.	℥ss.
Tr. Rhæi Vinosæ	.	.	.	℥j. ℥. Ft. Mist.

of which ten drops may be taken morning and evening, gradually increased to thirty, or even forty drops, until the child can run. Baths of malt and hops may then be taken, in order to strengthen the integumentary system, and act as a tonic, and lastly, chalybeate baths. The diet, from the beginning, should be very nutritious, consisting of meat, white meat soup, eggs, and beer soup (caudle). Every morning acorn coffee. See note, p. 127.

In Heidelberg, where rachitis is very common, every medical man I asked respecting it was ready to give me numerous instances of its success. Professor Naegele informed me that he had given the oil in more than a hundred cases with the best results. Dr Steinhæuser of that town has also employed it in many cases, and has been good enough to give me the following account, as the result of his observations of this remedy in the cure of rachitis. The opportunities enjoyed by this gentleman of treating the disease have been very great, and I translate the communication he made to me literally, as it contains a condensed and clear account of the operation of the oil in this affection.

“I will give you,” says Dr S., “the result of my observations, with reference to the beneficial action of the *ol. jecor. aselli*, in rachitis complicated with scrofula, having given it to many children when labouring under that disease, with the best effects. At first there appears to be a greater degree of activity in the nutritive functions. The appetite becomes more natural; the excretions per alvum more regular; the swollen and distended abdomen flatter and more soft; the dirty white colour of the integuments and general scrofulous appearance disappear; the soft parts generally receive more *turgor vitalis*, the muscles more tone, and the swollen glands, should any exist, gradually return to their normal size.

Concerning its favourable action on the bones, I have remarked, that after taking the oil for some weeks, (but sooner or later according to the degree of the disease), that the swollen, protuberant epiphyses of the bones, especially those of the radius and ulna, become thinner, and, together with the osseous substance generally, more compact. The curvature occasioned, in the softened bones, by the weight of the body and muscular action, as, for instance, in the under extremities and vertebral column, gradually disappears of itself, if it has not already reached a very high degree. The one-sided flattening of the thorax, recovers its rounded form, and the angular prominent sternum becomes again flat. The prominence of the forehead disappears, the fontanelles close, and the head loses its large, mis-shaped, and angular appearance. The development of the teeth proceeds with ease and in a more perfect manner, and every part of the child's frame exhibits a greater degree of activity. The children no longer sit silent, apathetic, and immoveable, but their attention is attracted to what passes around them, and they seek to get up and move, or regain the power of locomotion, should they have previously possessed it."

"I have seen the oil produce a similar good effect in other osseous scrofulous affections of the bones, especially caries. It renders better and increases chylification and assimilation, and operates

in every case by stimulating, enlivening, and strengthening the digestive canal, its lymph vessels and glands, and this more especially on the latter through the agency of the iodine it contains. Whether it has a specific operation on the osseous system cannot be said, but its remarkable effects in rachitis, sufficiently show that it has a powerful and deep influence on the human economy in general, and above-named tissue in particular."

"Regarding the method in which it should be taken, I give daily from one to two ounces, and, to make it less nauseous for the little patient, and more digestible, I add an aromatic water, for instance, ag. minth. pip., white sugar, and gum arabic, so that the whole assumes the form of an emulsion. When the glands are more especially affected, the addition of other antiscrofulous remedies is necessary, and I give, if the season allows, herb baths, and cause a light animal diet to be observed."

DR STEINHAEUSER, in Heidelberg,
September 9th, 1840.

As an instance of the good effects of the oil in individual cases of this disease, I may mention shortly one, the particulars of which were communicated to me by Dr Kobelt, of Heidelberg.

CASE VI.

Rachitis in its advanced stage—Considerable curvature of the long bones and spine—Ol. jecor. aselli.—Cure.

The son of Mr O——, an advocate in Heidelberg, when two years of age, showed all the symptoms of rachitis, in its worst form. On account of the considerable and apparently increasing curvature of the long bones in general, but more especially that of the vertebral column, Dr Goetzenberger was consulted, who advised the mother to take the child for some time to her native place, Varel, in Oldenburgh, by the North Sea, where the benefits of sea-bathing might be obtained. On arriving at this place, however, the continued bad weather rendered the employment of sea-bathing impossible, and during her residence in this sequestered locality, principally among sailors and fishermen, she was induced to give the child internally the Cod liver oil, which was there a popular remedy, and which she was not aware had ever been administered by medical men. This medicine, however, soon produced so remarkable a change for the better in the child's health, that she willingly continued it, and after nine months'

employment of the oil, he appeared to be perfectly cured. I have myself often seen the boy since, and he enjoys the most vigorous and robust health.¹

MALACOSTEON.

This disease differs from rachitis in its never appearing before puberty, in occurring more often in women than in girls, and most frequently in those who have had children. Men have also been known to labour under it, but this is rare. It is most commonly met with affecting the pelvis, when it commences with deep-seated pains in the loins and thighs, often of a very acute nature. The pain is always increased on motion, and hence the disease is generally mistaken for gout or rheumatism. Fever is seldom present, and the urine contains a sediment,

¹ The manner in which M. Bretonneau, of Tours, was induced to give the oil in this disease deserves notice. He had treated the rachitic child of a rich Dutch merchant with preparations of iodine and other means, for some time, without success. He was then told by the father that the elder children had previously suffered under the same malady, and had been cured by the Cod liver oil, which, in Holland, was a popular remedy. Bretonneau gave the same substance to his young patient, and was much struck with the very rapid and successful result which followed. He commenced making researches with it on other patients, and it was only then that he learnt for the first time what had been written by the German authors on this subject. He has since given it extensively in rachitis, with the happiest results. This fact was communicated to the Société de Médecine, de Paris, in 1837, by M. Roche. See *Journ. de Méd. et de Chir. Pratique*, Mars 1837, and *Traité Therapeutique* par Trousseau et Pedoux, vol. 2, p. 261.

consisting of phosphate of lime. The patient sooner or later is under the necessity of remaining in bed, and the trunk ultimately becomes shorter, when there can remain no doubt regarding the nature of the disease.

Dr Hull, among the notes added to his translation of Baudelocque's *Memoirs on the Cæsarian operation*,¹ relates the following case. "Ellen Gyte, of Ashton-under-Line, was married at the age of 23, and was delivered of her first child in her 24th year. She bore her second child before she was 25. In this pregnancy she began to be afflicted with pains, especially about her hips and loins, which were supposed to be rheumatic. After the birth of her child, she grew very lame, insomuch that she was obliged to walk upon crutches for about two years, and to be carried to and from bed. Two years and a quarter afterwards, when she was in her 28th year, she was delivered of her third child. She now began to take a table spoonful of Ling liver oil every night in a tea cupful of warm ale, and her body was rubbed all over with it once a-week. During the first sixth months she derived no sensible benefit from this plan; but, by persisting in it for nearly half a year longer, her pains went off, and never returned, except from taking cold. She became able to walk without assistance, and never afterwards had occasion to use either crutches or stick."

¹ Manchester, 1801, p. 159.

I am inclined to suppose that this disease is by no means so rare as is generally thought, more especially that form of it which occurs in women after lying-in, and which consists of more or less softening of the pelvic bones. Such individuals are generally considered to be labouring under chronic gout, rheumatism, or neuralgia. Professor Naegele, of Heidelberg, related to me the following case:—A woman who had had several children suffered for several years great pain in the region of the sacrum, lower part of the back, and thighs. Every medical man in Manheim had been consulted, and during that time she had almost exhausted the *materia medica* in a fruitless search after a cure. Professor Naegele was consulted, and asked her if she had become shorter lately. She answered yes, and was apparently astonished at the question. Malacosteon was diagnosed, and the *ol. jecor. aselli* given. In six months all pain had left her, and she has since remained well.

Hoebeke, of Sottegem, states that he has observed malacosteon follow the employment of the *ol. jecoris aselli* in ten women, who had previously had natural labours.¹ Delavacherie and Simon have observed similar cases following the use of *Huile de Poisson*.² It appears evident to me, however, that these gentle-

¹ Bulletin Méd. Belge, Fevr. 1838, p. 46, and Archiv. de la Méd. Belge, Jan. 1840, tom. 1. p. 28.

² Annales de la Société de Méd. de Gand, and Journ. des Conn. Méd. Juin. 1839.

men have been entirely deceived in attributing the production of malacosteon to the oil. There can be little doubt that the rheumatismal pains for which the oil was originally given were, in point of fact, the symptoms of the malacosteon, which had already commenced.

SCROFULOUS CARIES OF THE BONES.

Scrofulous caries is at the same time a general and local disease, and it is in vain attempting to cure the latter without improving the former. It is in this point of view that the Cod liver oil is so valuable, and has been given by Brefeld, Kopp, Knod von Helmenstreit, Knolz,¹ Dieffenbach, Jüngken, Taufflied, and a variety of practitioners with the best results, first improving in such cases the general cachectic diathesis, and then causing the caries in the bones and ulcerations in the integuments to cicatrize. The judicious practitioner, however, will not neglect, during the internal administration of the oil, to make such local applications as the nature of the case may in his opinion render necessary. Thus leeches, if the parts are swollen, inflamed, and painful; the occasional application of compression; stimulating the surface by a lotion composed of $\bar{3}$ ij of ioduret of potass, to $\bar{3}$ ij of water; frictions with

¹ Hufeland's Journ., Bd. 38. Heft. 4, s. 10.

an ointment composed of ʒvj of ioduret of potassium to ʒss of lard., as recommended by Taufflied; or the local application of the oil itself, as advised by others, may in different cases be useful, and facilitate the cure.

Among several instances of its success, Brefeld mentions the case of a woman whose arm was swollen three times the natural size, was of a fiery red colour, and highly painful. Eight large openings, with swollen, raised, and spongy edges, led into a large carious cavity, from which was continually discharged, on all sides, a profuse, fetid, and irritating matter. A probe sank half its length into the substance of the swollen bone. Hectic fever had prostrated the general strength, and induced great emaciation. Amputation of the limb was recommended by the medical man in attendance as the last and only means of saving her life, which she refused to submit to. At this time Brefeld was called in, who found that in her early youth she had suffered from several scrofulous affections, had had swelling of the glands, and eruptions on the head. He did not think, from the general scrofulous constitution, and extreme state of the patient, that amputation was admissible. He considered the disease incurable, but, with a view of satisfying the patient, he gave the oil internally, and applied cooling dressings to the arm, and from that time it began to

improve. The fever, swelling, redness, and pain, together with the fetid sanious discharge, gradually disappeared, and her appetite and general strength proportionably increased. The ulcers healed one after the other; four of them, however, being only encrusted over, and constantly bedewed with a slight fluid secretion. After some months the arm was diminished to its natural size, and an ankylosis of the elbow joint established. Four years subsequently she was in good bodily health, but some crusts still remained on four of the ulcers, which were kept moist by an unimportant fluid secretion.¹

Knod von Helmenstreit gives the case of a boy, six years of age, in whom a hip-joint disease (Coxarthrocacæ) was produced by a fall on the knee. Numerous external and internal remedies were employed without checking the progress of the disease. The affected limb at length became shortened, and an abscess opened on the fore part of the thigh, the matter from which was very profuse, and so acrid as to inflame the parts over which it passed. The boy's constitution now suffered greatly, he fell into a state cachexia, with hectic fever, and death appeared inevitable. The *ol. jecor. aselli* was given at this time, at first in the form of clyster, as the extreme weakness of the patient rendered it probable that it would not be retained on the stomach, but subsequently it was ad-

¹ *Op. cit.* p. 108.

ministered in the usual way. After five or six days a slight improvement was perceptible, and from this period the hectic state and other symptoms gradually disappeared; the discharge of matter diminished, and ultimately ceased, and in six months and a half a perfect cure was established, and the fistulous ulcer healed. The limb however remained shorter than the opposite one.¹

The following case is recorded by Taufflied² :—A young man aged 18 years, affected with caries of the lumbar vertebræ had been treated in vain by the ordinary external and internal remedies. A vast abscess was formed in the sacro-lumbar region: the paralysis of the inferior extremities was almost complete, and marasmus and hectic fever apparently announced a fatal termination. The oil was prescribed without expectation of any benefit in a case so desperate. It operated, however, beyond all anticipation, and produced a total change in the patient. The paralysis of the inferior extremities gradually disappeared; the patient, who could scarcely move himself in bed, raised himself on his legs, and walked with considerable facility; he regained his robust appearance, and the hectic fever entirely disappeared. Pressure on the lumbar vertebræ ceased to be painful, the tumor of the sacral region, in which fluc-

¹ Hufeland's Journal, Bd. 74. Heft. 5. s. 39.

² Gaz. Méd. de Paris, 1837, p. 503, and same Journal, 1839.

tuation had been decidedly evident, diminished in volume, but remained stationary about the size of a foetal head for two months. It then gradually lessened in size, and in the month of January 1838 had entirely disappeared. In June, however, pains again returned in the lumbar region, and a new collection of matter formed about the size of an egg. On again administering the oil, these symptoms also left him, and a complete cure was established. At present the spinous processes of the two first lumbar vertebræ are some what prominent, but progression is normal, and the health perfect.

I have seen two cases of scrofulous caries which appear to me to have been cured by the oil.

CASE VII.

Paedarthrocacæ—Scrofulous constitution—Glandular swellings in the neck—Swelling of wrist-joint, with caries of the bones and discharge of tuberculous matter—Ol. jecoris aselli.—Cure.

An infant named Robert Linde was weaned when about three months old, on account of the secretion of milk in the mother ceasing. Shortly after, he was brought to Prof. Barez's clinique in La Charité Hospital, Berlin, suffering from catarrh. He was

also much emaciated, and laboured under general febrile excitement. Leeches were twice applied to the chest, and light antiphlogistic and refrigerating remedies employed, but without alleviating the cough. Diarrhœa also now appeared, followed by great prostration of strength, so that the child could not remain upright in the nurse's arms. The skin assumed the yellow cachectic appearance so common in scrofulous children, and the glands in the neck became somewhat swollen. One or two of these enlarged considerably, and from the time the affection assumed more of a local form, the general health commenced greatly to improve. The swellings, however, gradually disappeared under the use of warm applications. The child was not brought to the clinique for a space of two months, during which time, according to the report of the mother, it enjoyed good health. At the expiration of this period, however, when the child was six months of age, a red and hard swelling formed on the back of the right hand, situated on the upper part of the metatarsal bones, and partially covering the wrist joint. When again brought to the clinique there was in addition a considerable degree of fever, with diarrhœa, the abdomen was swollen, the limbs and body otherwise much emaciated, and the general appearance highly cachectic. To combat the fever and irritation light cooling regimen was ordered with neutral salts. In a week these

symptoms with the diarrhoea disappeared, but in the mean time the swelling on the hand had opened, and discharged a quantity of thin watery fluid, containing tuberculous matter, which when squeezed or rubbed was found to be of a cheesy consistence. The opening was about the size of a small pea, and on introducing into it a probe, the bones below were found rough and evidently carious. The *ol. jecoris aselli* was now ordered in teaspoonful doses twice or three times daily. In a few weeks a great amendment had taken place, the surface assumed a better colour, he appeared stronger, and enjoyed a good appetite. From this time the matter discharged gradually diminished in quantity, and after three months the aperture had completely healed up, and the child might be said to be well. The bones of the wrist, however, still appear (Feb. 1841, three months subsequently) somewhat thicker than those of the left, but this no doubt will diminish as the child grows up.

Remarks.—In this case the scrofulous diathesis, arising from insufficient nourishment, terminated in the local deposition of tubercular matter in the bones, and formation of caries. It will be observed that diarrhoea, with symptoms of general irritation, existed, which were first removed by proper regimen and treatment. *Then* the *ol. jecoris aselli* was given with the best effects. In all such cases it is

necessary to attend to the contra-indications, among which the presence of diarrhœa is, in children, a very important one, and it is only after first removing these symptoms, and placing the digestive organs, and system generally, in a sufficiently powerful state, that the oil is admissible.

The second case, as it extended over a long period of time, is necessarily greatly condensed. The patient's and parents' accounts were so confused that I had recourse to Dr Hildebrand, under whose care the patient for some time was placed, and to whom I am in a great measure indebted for the few antecedent details now mentioned.

CASE VIII.

Scrofula — Tinea capitis — Cararthrocacæ — Great emaciation, and danger of sinking from exhaustion—Ol. jecoris aselli — Improvement in the general health—Termination of the osseous disease after going through all its stages, in the formation of a false hip joint—Spondyloarthrocacæ, which equally went through all its stages, and terminated in ankylosis of the vertebral bones, and acute curvature of the vertebral column, in its cervical portion.

A girl named Möring, who, when I first saw her,

was 17 years of age, dated her first illness five years back, when she suffered from tinea capitis. Shortly afterwards she entered the Clinical Hospital of Berlin, under Prof. Barez, labouring under incipient disease of the hip-joint, as indicated by the inability of resting on the left limb, difficulty of moving the joint, pain in the knee and on pressure under Poupert's ligament. At this time she presented all the symptoms of a scrofulous constitution, but the general health was not greatly affected. The usual treatment in such cases was employed, consisting of local bloodletting, followed by moxas and other derivatives. The disease of the joint, however, continued to make slow but certain progress, and the affected limb became longer than the other. As the local disease advanced, the general health became affected; she lost her appetite; the countenance and surface of the body assumed a highly cachectic appearance; there was hectic fever, great wasting, and in short every thing indicated approaching dissolution. At this time, about eighteen months after entering the hospital, she was ordered to take the *ol. jecor. aselli* in table-spoonful doses, morning and evening, which was subsequently to be increased. The friends, however, imagining that she would die in the hospital, took her home, avowedly in order to prevent a post mortem examination. In the mean time, the limb which at first was longer than

the unaffected one, commenced to shorten, and shortly after being at home, and still continuing the use of the oil, the general health greatly improved. In two years and a half from the commencement of her complaints, and about six months after taking the oil, a false hip joint was fully established, and the left leg was six inches shorter than the other. There was, however, no longer pain, the health was good, the appetite had returned, and the general functions of the system were performed with regularity. It was ascertained that for some months after leaving the hospital, the *ol. jecor. aselli* was almost the only substance of a nutritive nature that she took at all. The oil was now discontinued, and she enjoyed good health for three or four weeks. At the expiration of this time, however, she complained of pain in the neck, which gradually increased, and assumed all the characteristics of that, accompanying caries of the cervical vertebræ. Deglutition was painful; the slightest movement of the head caused great agony, and it remained fixed and immoveable in consequence. At length, during every slight movement she was obliged to make in bed, or even when any one was walking across the room, the hands were applied to the head in order to support it, and prevent it pressing on the vertebræ below. These symptoms continued about four months, notwithstanding the application of leeches,

cupping, followed by moxas and other derivatives, and she was rapidly falling into the state of marasmus, from which she formerly recovered, when the *ol. jecor. aselli* was again given. In four weeks there was an evident amendment, and the acute pain gradually diminished. Three months subsequently there was no longer pain, but the neck was bent forwards, and the fourth, fifth, and sixth cervical vertebræ became prominent. In ten months more the head was thrown forwards and downwards on the chest and between the shoulders, and the length of the trunk greatly diminished. Complete ankylosis had taken place between the bodies of the fourth, fifth, and sixth cervical vertebræ, the spinous processes of which bones formed a very acute curvature posteriorly. There was, however, no pain, the head possessed its power of rotation, and the general health was good. During the whole of this time she continued taking the oil, with the exceptions of occasional intermissions, when other tonics were given in order that the digestive organs and appetite might not be affected. It was in this condition I saw her during the winter of 1840, and 1841. She could then walk with crutches, suffered no pain either in the left hip-joint or neck, and her general health was good. She had not yet menstruated, and although seventeen years of age, had the height and appearance of a girl eight years old.

Remarks.—This must certainly be considered as a remarkable case of osseous tubercular deposition, but one which may possibly leave some doubts regarding the influence of the oil. We find, however, that in this case, the patient had fallen into such a state of weakness and prostration, as to indicate approaching dissolution. This was so evident even to the parents, that she was removed from the hospital in order that their prejudices might not be shocked by a post mortem examination of the body. This then is a certain evidence of the improper manner in which the nutritive functions were performed. At this period the ol. jecor. aselli was given, and the improvement coincides with the time of its administration. Thus we find in this as in other cases, that it acted by improving the digestive powers, and the strength so communicated to the constitution, enabled nature to carry on the changes which remove the disease in the osseous structure, and substitute a healthy although abnormal state in its stead. The tendency to tubercular deposition, however, was not extinguished, and some of the most important bones in the frame were attacked, viz. the fourth, fifth, and sixth cervical vertebræ. The state of cachexia was returning, when the oil was again administered, which occasioned an improvement in the general health as before, and

enabled the disease here also to go through all its stages, and terminate in anchylosis. Numerous cases undoubtedly exist where a hip-joint or a vertebral disease has occurred, and terminated in the same way, although no oil was given. There are few, however, where such important structural lesions as those above detailed, and continuing so long a time, have terminated so favourably, after the general strength had been so much reduced as to render death almost certain. Reasoning, therefore, without prejudice, and viewing it in conjunction with other instances of its action, I do not consider myself erroneous in attributing much of the beneficial results to the administration of the oil.

It is not always, however, that the *ol. jecor. aselli* produces such striking results. I saw a case in Heidelberg of caries of the ribs, in which the oil had been taken for a long time without any beneficial result. But in another of *spina ventosa* in the same town, in which it had been taken for several years, although the local affection had not been healed, the profuse and fetid discharge, hectic fever, and colliquative sweats had been diminished, and the patient's strength and external appearance much improved.

In chronic white swellings of the joints the oil has produced similar results to those just mentioned.

In acute cases the inflammatory symptoms should always be combated by bleeding and antiphlogistics previous to administering the oil.

ATROPHIA MESENTERICA.

In no disease, with the exception of rachitis, are the good effects of the ol. jecor. aselli so well established as in this. In these cases, indeed, it is often very striking in its operation, curing the disease when every other remedy has failed, and even when all hopes of the patient's life have been abandoned. The following case, treated by Dr Nebel of Heidelberg, is a good illustration of the advantages of the oil in this dangerous malady.

CASE IX.

Atrophia mesenterica in its most advanced stage—Great swelling of the abdomen—Hectic fever—Failure of tonics and other [remedies—Ol. jecor. aselli.—Cure.

Carl Happold, a native of Manheim, whose father died of phthisis, enjoyed during infancy sound health. As he approached his fifth year, however, it was observed he had no appetite, that the stools became

irregular, and that diarrhoea and constipation often alternated with each other. A short time after the commencement of these symptoms he became very thin, and the abdomen rapidly enlarged. The medical men who were at this time consulted, treated the case as one of phthisis, and considered the swelling of the abdomen attributable to dropsy. During the space of a year several kinds of treatment were had recourse to, principally of a tonic nature, and various bitters and quinine were persisted in for some time, without making any impression on the disease, which continued to make rapid progress. At length the mother was informed that nothing could save the child, and the medical men of the town refused seeing him more. Under such circumstances the mother brought the child to Heidelberg, who, on the 4th of May 1840, presented the following symptoms:—He was six years of age, and presented in a most marked degree the appearance of a confirmed scrofulous and cachectic constitution. There was a peculiar expression of suffering in the face, and extreme emaciation of the whole body. The abdomen was enormously swollen, and in circumference was double the normal size. The abdominal integuments were not hard but exceedingly distended, with large purple prominent veins running in their substance. The surface was covered with numerous fissures similar to those often seen on

the abdomen of pregnant women. Here and there hard, deep-seated, irregular swellings varying in size, could be felt on pressure. He suffered under great weakness, was unable to walk or even to support himself in an upright position, and complained of pain in the limbs and abdomen. He had no appetite; the tongue was clean; the stools irregular; the pulse quick and weak, and in short he had all the symptoms of hectic fever. Atrophia mesenterica was diagnosed, and the mother informed that although the child was dangerously ill, there was still some hope. Rejoiced to find that there was some probability of saving her only child, the mother took lodgings in Heidelberg to place him more especially under Dr Nebel's care. $\mathfrak{z}$ ss. of the ol. jecor. aselli was ordered to be taken morning and evening; acorn coffee as a beverage,¹ and ext. cinchonæ $\mathfrak{z}$ ss. daily, in four doses, with an aromatic water. The secretions and excretions also were to

¹ *Glandes quercus tostæ.—Acorn coffee.* When the continental system of Napoleon continued, the high price of genuine coffee led to the substitution of this substance, and it was observed that the health of adults, as well as of children, especially among the lower classes, was rendered much better by its use. If cachexia were present, the colour of the cheeks became more healthy, the body stronger and better nourished, and the general sufferings attendant on scrofula, which are so common among the lower orders, were greatly alleviated. It agrees remarkably well with the constitution of children, and as a slight astringent, somewhat nourishing, and powerfully tonic remedy, is especially indicated where torpor and laxity are predominant. It acts exceedingly well as a slight stimulant to the intestinal canal, and hence is adopted to remove the

be carefully attended to, and medicines were occasionally given directed to their promotion or diminution as circumstances required. In a fortnight he no longer complained of pain in the limbs or abdomen. At the termination of three weeks the excretions were pretty regular, and he was ordered to be daily carried into the open air, and to use an ointment containing ten grains of the hydriodate of potass to ℥ss. of lard, of which a piece the size of a bean was to be rubbed into the abdomen twice daily. Shortly after he could support himself, and at the end of five weeks could walk tolerably well. The abdomen was now sensibly diminished in size, more soft, and the integuments were not so stretch-

cachectic state in children, with a swollen and pale countenance, enlarged lips and nose, thickened abdomen, and flaccid integuments.

The good operation of this substance depends much on its mode of preparation. The acorns must be ripe and healthy, and none should be taken which have been attacked by worms. They should be cut in cubes about the size of a coffee berry, then dried, roasted, and ground. If during the roasting they become burnt and black, (as may easily occur) their therapeutic action is destroyed. A well-prepared acorn coffee should be of a brown colour, and from the presence of an empyreumatic oil should possess a pleasant and refreshing smell. By the addition of a fourth part of true coffee, it receives also an agreeable taste. It is best to prepare a large quantity of the acorn, thus mixed with the true coffee, and keep it in a well-stopped earthen or glass vessel, so that by occasionally shaking them together, the former may be completely saturated with the aroma of the latter. Of such a mixture half an oz. may be boiled for ten or fifteen minutes in three ordinary sized tea-cupsful of water, one of which a child might take morning and evening, or three times daily.—Tourtual, *Therapie der Kinderkrankheiten*. Bd. 2. s. 29.

ed. From this time he rapidly became better, the countenance assumed a fresh and healthy aspect, the appetite returned, and the secretions and excretions were carried on with regularity. Towards the termination of the sixth week he was ordered a warm bath daily of 25° Reaumur, each bath having dissolved in it a pound of the crude salt left after cristallization in mother water. After using the baths a week their temperature was gradually lowered, and he was ordered to remain continually in the open air, and exercise himself in jumping, skipping, &c. At the end of the second month the ointment was omitted. He was now strong, ran without difficulty, grew rapidly, and laughed and played with pleasure. All enlargement of the abdomen had disappeared by the end of July, (third month) and he returned to Manheim quite recovered. Shortly after he was so strong that besides running about in the day, he could walk from Swetzingen to Heidelberg, a distance of five miles.

Remarks.—The desperate state to which this patient was reduced, and the subsequent swift recovery, renders it a matter of importance to determine whether this is to be attributed to the oil. Those who are inclined to doubt its therapeutic properties may ascribe all the benefits occasioned to the iodine contained in the ointment. Dr Nebel, as a

practical physician, acted judiciously in combining all the remedies which appeared to him most likely to cure his patient. Indeed, it is only by acting in this manner, and combining with the exhibition of the oil a proper treatment, that it can ever be expected to cure such desperate cases as the one just detailed. The circumstance, however, which proves that the cure is principally to be attributed to the oil, is the evident amendment which had taken place before iodine was in any way administered. He took it three weeks with ext. cinch. alone, and at the termination of that time all pains in the limbs and abdomen were removed, and the excretions were more regular. Here, then, the process of amendment had already commenced, and it was only with a view of assisting the action of the oil that the ointment containing hydriodate of potash was administered. The subsequent management of the case shows that nothing was omitted that could tend to the patient's recovery, and its treatment throughout exhibits great practical tact and skill on the part of the physician.

Dr Mencke of Pyrmont communicated to me a case so similar to the above that I have not thought it worth while to detail it at length. Indeed, since the properties of the *ol. jecor. aselli* have become known, such cases are by no means uncommon in Germany. The son of this gentleman fell a victim

to atrophica mesenterica, and I shall not readily forget the regrets he expressed at not having been previously acquainted with a medicine which he considered to be almost a certain remedy for the disease.

PHTHISIS PULMONALIS.

It must be acknowledged by every one, that if there be one form of scrofulous disease more uniformly fatal than another, that form is undoubtedly phthisis pulmonalis. Perhaps, also, there is no opinion connected with medicine more deeply rooted among the profession and the public than that consumption is incurable, an opinion that extended observation has hitherto only tended to confirm. And yet it has been demonstrated by Laennec,¹ Andral,² Cruvelhier,³ Louis,⁴ Rogée,⁵ Kingston,⁶ and several others, that even tuberculous cavities in the lungs are not invariably fatal, and are susceptible of being cicatrized like other lesions of structure. This fact is now universally acknowledged. It is only considered, then, by most individuals, that therapeutics

¹ *Traité de l'Auscultation*. Observations, 19, 20, 21, and 23.

² *Clinique Medicale*. Tom. 4, p. 369, et seq.

³ *Thes. ad aggregat*, 1823. *An omnis pulmonum exulceratio vel etiam excavatio insanabilis*.

⁴ *Recherches Anatomico-pathologiques sur la Phthisie*, pp. 32 et 35.

⁵ *Archiv. Gen. de Med.* Tom. 5. 1839.

⁶ *Medico Chir. Trans.* 1837. Vol. ii. 2d Series, p. 327.

can lay little claim to this most wished-for result, an opinion expressed by Andral in the following words.¹ "No fact," he says, "demonstrates that phthisis has been ever cured, for it is not art which operates in the cicatrization of caverns, it can only favour this, at most, by not opposing the operation of nature. For ages remedies have been sought either to combat the disposition to tubercles, or to destroy them when formed, and thus innumerable specifics have been employed and abandoned in turn, and chosen from every class of medicaments." Such authority, supported by the universal experience of the profession, might well induce the physician to despair of curing his patient. Why, however, may not the remedy which has been found capable of curing tubercle in the bones and mesenteric glands operate also favourably when tubercular deposition has taken place in the lungs? Supposing that we are enabled to strengthen the nutritive functions so as to permit the system to support or overcome the depression and exhaustion which precede death. Nature, under such circumstances, will, at all events, have a longer time to operate, and may be even stimulated to produce resolution of the lesion by the improved state of the general system. It is not, however, by supposition that such a question is to be decided, and I shall endeavour to show

¹ Diet. de Med. 1st Edit. Phthisie.

that certain parts render it probable that this beneficial result may be occasionally induced by the administration of the *ol. jecor. aselli*.

Henkel¹ was the first who tried the oil in cases of tubercular lungs with success. Häser² has published an account of several cases in which it was given with the best results. He remarks, as the result of his observations on thirty-two individuals in whom he had detected the presence of tubercles in the lungs by auscultation as well as by the general symptoms, that the *ol. jecor. aselli* is by far the most useful remedy in those cases where tubercles have not yet softened, or even where they are in the first stage of softening. Alexander treated a case of phthisis in which a vomica with perfect pectoriloquy was detected under the right clavicle, by means of the oil, with a successful result.³ Asmus also records the case of a man who presented all the symptoms of consumption, with an excavation in the apex of the right lung as was proved by the stethoscope. He completely recovered, and died subsequently of apoplexy.⁴ Kopp, Kolkmann, Brefeld, Richter, Schenk,⁵ and other practitioners, in their writings on this subject, also bear testimony to its great value in this disease.

¹ Med. Zeit. vom verein für Heilk. in Preussen, 1833, s. 222.

² Hufeland's Journal, 1833, Jan. s. 103, und August, s. 107.

³ Ibid. 1838, Juni s. 3.

⁴ Mediz. Zeit, No. 22, 1841, and Kleinert's Repertorium, Mai 1841, s. 86.

⁵ Hufeland's Jour. Bd. 38. Heft. 2. s. 57.

Delcour observes, "it is certain, that by its employment we have been able to prolong the existence of many phthisical individuals, already arrived at the last degree of marasmus, and that many physicians of Verviers have informed us that they had observed the same effects under its influence. We have seen the colliquative diarrhœa and sweats arrested, the digestive functions re-established, and the cough and expectoration diminished, until new softenings have arrived to carry off the patient. We believe then, that this medicine deserves to occupy a distinguished place in the treatment of pulmonary phthisis, and that it at least deserves a farther trial."¹

Professor Osann of Berlin assured me that he had given the oil in several cases of phthisis pulmonalis with the best results, and in one case, that of a woman who was in the last stage of the disease, and whose state appeared to be perfectly hopeless, a complete recovery was brought about by its means. I was informed also by Dr Wolf, Clinical Professor in the University of Berlin, in a conversation I had with him on this subject, that there could be no doubt regarding the utility of the *oleum jecoris aselli* in phthisis pulmonalis. He has found it of great service in the second stage, where tuberculous matter was spit up, but where the hectic had not reduced the system to a great degree. It is true that many

¹ Archives de La Méd. Belge. Tom. i. p. 272.

individuals labouring under the disease die. The remedy is no certain specific, but a sufficient number have recovered to assure him that the oil is of great value in such cases. Neither he nor Professor Schönlein have found it beneficial in the third stage of the disease, where caverns exist in the lungs, and there is extreme emaciation, hectic, and prostration.

Such is the recorded and oral information I have been enabled to procure in connexion with this subject. I now request attention to the following cases.

CASE X.

*Hemoptysis—Irritating cough of four years' standing
—Hectic fever—Ol. jecor. aselli.—Cure.*

Dr A——, now (Nov. 1840) 26 years of age, blond, high-shouldered, light-coloured countenance, suffered in the autumn of 1836 from spitting of blood, followed by a troublesome cough, which continued without remission winter and summer. Towards morning there was often profuse sweatings, so that his strength was much diminished, and he became evidently more thin. During the four following years these symptoms gradually increased, and he

had occasional return of the hemoptysis notwithstanding every possible kind of treatment that could be thought of had been followed. At the termination of this period the colliquative sweats and cough were much augmented, and he was greatly emaciated. In the course of the summer of 1840, he commenced taking the ol. jecor. aselli in doses of a tablespoonful four times a-day, and continued it until the autumn. At the beginning of October his appearance was healthy, his strength had returned, he had no cough or hemoptysis, and in short was so well that he was on the point of marriage.

Remarks.—This case or rather notice of a case is exceedingly imperfect, and did it exist as an isolated fact would be evidently of little value. In the present state of our knowledge, however, I did not think it right to reject it. The symptoms which here more particularly indicate tubercular deposition are the hemoptysis, the long-continued cough not affected by season of the year, the colliquative sweats and emaciation occurring in an individual of a scrofulous diathesis.

CASE XI.

Epilepsy — Hemoptysis — Pneumonia — Cough with discharge of muco-purulent sputa—Hectic fever—Failure of the usual remedies—Ol. jecoris aselli.—Cure.

— Rauchfusz, a carpenter aged 28, blond, belonging to a scrofulous family. In his youth he was generally healthy, but about the age of puberty attacks of epilepsy appeared, which still continue, but at long intervals. Three years ago he had itch, which was cured in a few weeks by the application of sulphur ointment. In Hamburg, where he worked, during the winter of 1840 he was attacked with violent spitting of blood, had pains in the breast, strong fever, and was several times bled and cupped. He had then all the symptoms of pneumonia, and entered the great hospital in Hamburg. From the treatment there pursued the inflammatory symptoms and hemoptysis disappeared, but the recontinued cough, a feverish state, sweatings, and in consequence great weakness. He remained six weeks in the Hamburg hospital, where the local bleedings were repeated, followed by blisters, but without any good result. He left Hamburg in the spring, and returned to his relations in Halle. At this time there was great wasting; every evening, shivering and heat followed by

sweats; considerable cough, and some degree of œdema in the feet. The sputa was very profuse, and of a mucopurulent nature, but free from tubercular masses. Percussion discovered nothing,—auscultation detected mucous and submucous rales in the superior third of both lungs, and in the right fossa supraspinata, the vocal resonance was much louder than in the left. There was strong hectic fever; profuse sweatings, and frequent teasing cough, with roughness in the larynx. His health did not improve during the course of the summer, in which local bloodletting, blisters, anodynes, expectorants, and the usual remedies given to phthisical patients in general were administered. About the middle of summer he had a return of the hæmoptysis, and two epileptic attacks. The prognosis now was that death could not be far distant, as he did not sleep, the œdema was much increased, and the digestive process was much deranged, while from the long continuance of the disease also there appeared little to hope. At this time the ol. jecor. aselli was ordered in doses of 2 oz. daily which were afterwards increased to 4 oz. Shortly afterwards there was an amendment perceptible, and from that time all the symptoms above detailed gradually disappeared, so that three months after commencing to take the remedy he was perfectly restored to health.

Remarks.—The particulars of this case are much more perfect than those of the last, and the cough,

expectoration, colliquative sweats, emaciation, and physical signs can leave little doubt that tubercular deposition had taken place in the lungs, and had proceeded either to the termination of the first or commencement of the second stage of their development. Both these cases were communicated to me by Dr Krukenberg, nephew of the celebrated professor of that name, in Halle, a gentleman who possesses great practical information, and who has for a long time acted as assistant physician in the Clinical Hospital attached to the University.

CASE XII.

Tubercular lungs—Vomica under the right clavicle—Hectic fever, and great prostration—Ol. jecoris aselli—Temporary improvement.—Relapse.

A young man, 17 years of age, who had for several years suffered under hereditary tubercular phthisis, came into the hospital of Stuttgard, labouring under the third stage of the disease. On examining him with the stethoscope, a large vomica was readily detected under the right clavicle, with loud cavernous respiration, and perfect pectoriloquy which forcibly struck the ear. There was extreme emaciation, profuse night sweatings, hectic fever, and

cough, want of appetite, and great loss of strength, so that the patient could scarcely leave his bed. He was ordered to take the *ol. jecor. aselli* three times daily, in table spoonful doses, which he did readily, and even seemed to have a predilection for the remedy. In thirteen days there was a remarkable improvement in his condition, and the dose was increased gradually to 4 oz. daily, without its producing any disagreeable effects. The first amendment to be remarked in him was an improvement in the appetite, which was gradually so increased that one could scarcely give him enough to eat, and he readily digested the strongest kind of nourishment. He also rapidly increased in strength, so that he could remain the whole day out of bed; the night sweatings disappeared; his appearance was more lively and fresh, and although the muscular system did not increase in volume, it became more firm. The cough diminished without entirely disappearing, and in eight weeks the patient seemed to be quite another individual from the one who entered the hospital. He now appeared to have received from the oil all the benefits it was capable of bestowing. At this time every dose occasioned disgust and nausea, and took from him all appetite, so that it became necessary to discontinue its use. After two weeks it was again given in smaller doses, but without producing its former good effects, and the patient again

gradually fell into the state in which he first entered the hospital. When in Stuttgard, last September, I myself examined this patient, and readily detected the cavity in the lungs above described, the physical signs connected with which, Dr Cless, the attending physician, assured me underwent no change during the course of the above treatment.

Remarks.—No one will doubt the existence of tubercular deposition, and destruction of the lung in this case, and yet the good effects resulting from the administration of the oil were well marked. It is probable that, had the physician been acquainted with the necessity of not overloading the system, attending to the state of the digestion, and when this appeared to be deranged, of giving other tonics, he might have ultimately recovered. This case strikingly exhibits the power possessed by the oil, of stimulating the nutritive functions, even in individuals labouring under the third stage of the disease.

CASE XIII.

Periodic Mania—Periostitis over the olecranon, with caries—Cough, with purulent bloody sputa—Cavern in the superior third of right lung—Hectic fever—Ol. jecoris aselli—Gradual return of the strength, and disappearance of the local and general disorder.—Cure.

Marguerite E—, aged 35, a servant, of scrofulous constitution, had been in the Heidelberg lunatic asylum since October 31, 1834, on account of periodic mania. In January 1838 she complained of a short teasing cough, which, during the subsequent six months, underwent no perceptible amelioration, and latterly had been attended with slight expectoration. On the 6th of June, she, for the first time, called the attention of the physician to a hard, red, immoveable tumour, situated over the right olecranon, which was painful on pressure, and prevented her fully flexing or extending the limb. Notwithstanding the repeated application of leeches and frictions of mercurial ointment, the swelling increased, involved the whole elbow joint, became at last fluctuating over the olecranon, opened of itself, and discharged a quantity of thin purulent matter, mixed with bloody streaks. Examination with a

probe shewed that the olecranon was divested of periosteum, and uneven on its surface. The general swelling of the joint continually increased. The condyles of the humerus were augmented in size, and a thin yellow fluid was discharged from the opening, sometimes mingled with blood. The pain was very considerable, and excruciatingly increased on any attempt to straighten, flex, or elevate the joint. During the progress of these local symptoms the cough had much increased, the expectoration was bloody and purulent, and very profuse. The sweatings became more abundant, and all the symptoms of hectic fever appeared one after the other. Auscultation detected cavernous respiration under the right clavicle, with dulness on percussion. During the external use of fomentations and chamomile bath applied to the elbow, and internally Rust's pills of assafoetida and phosphoric acid, which, with slight variation, were continued for five months, the situation of the patient became worse and worse. Under these circumstances the *ol. jecor. aselli* was given in November, 1838, with the *decoc. centaurium minoris*. Four table-spoonfuls were at first taken daily, which were gradually increased to eight. At the commencement it was necessary to suspend its use for a half or even a whole day, on account of the vomiting it occasioned. This, however, soon ceased, and the remedy was regularly taken afterwards, until the

6th of October, 1839, together with acorn coffee, and the external application, to the elbow joint, of chamomile fomentations and poultices. During this period, which was of nearly a year's duration, it was observed at first that the swelling of the elbow was sometimes diminished, and at others increased, the latter more especially during the period of menstruation. It was at such times also more red and painful, and secreted a more abundant discharge. The constitutional illness, however, was much improved. The sweatings disappeared, the cough and expectoration were diminished, and the latter became free from blood and pus. The cachectic appearance of the patient also was much improved, and she was evidently better nourished, and daily increased in strength. After a three months' use of this remedy, the swelling, redness, and pain of the elbow commenced to diminish, the discharge gradually became less and less, and after a time entirely ceased. The arm by degrees regained some degree of mobility, and in September 1839, the wound was completely healed. At this time the patient appeared quite healthy; there was no longer any cough, or other symptoms of pectoral affection. Under the right clavicle, however, there was still heard a distant cavernous respiration, but there was no mucous rale, and percussion on this side gave as sonorous a tone as that on the other. Since then the cicatrix over

the olecranon has become strong, and densely united to the bone, and the elbow joint, in which an incomplete ankylosis has taken place, is not thicker than that of the left arm. There are no night sweats, and before the termination of the autumn the patient presented all the external appearance of perfect health.

I learnt the above particulars of the case from Dr Herrght, the assistant-physician of the asylum. I myself examined this patient several times during the summer of 1840. The elbow joint was permanently bent at an obtuse angle, but she could perform rotation and supination of the fore-arm. In every other respect she appeared to enjoy perfect health, and I was unable to detect either by percussion or auscultation any thing abnormal in the chest.

Remarks.—In this case also all the constitutional as well as physical signs of phthisis were present, and the operation of the oil is well marked, as in the last, by improving the general state of the system. In this instance, however, a permanent cure followed; and that this good result is attributable to the remedy, cannot, I think, be doubted, if we reflect on the state of the constitution before it was given, the subsequent gradual amendment, and, moreover, compare it with the effects produced in the last case. Here the results were more gradual but permanent, in the other more rapid but temporary. It must

also be sufficiently apparent that the oil does not operate on the lungs in particular, but on the general pathological state of the system, on which the local lesion depends. In short, it cures phthisis in the same manner as it cures other scrofulous affections. The proof of this is, that the patient suffered at the same time under a scrofulous caries of the bones forming the elbow joint, which was equally removed by the same remedy.

For the history of the following case, I am indebted to Dr Dommes, of Berlin.

CASE XIV.

Phthisis—Ol. jecor. aselli—Recovery—After twelve months, return of cough—Pleurisy on left side,—then on the right side—Exhaustion—Decubitus—Death—Old cavity in the left lung apparently healing—Fresh tubercles in the right lung, with effusion of lymph in the pleural cavity.

Edward Spock, inhabiting a dark and confined lodging, according to the account of the medical man who had previously attended to him, had suffered from his seventh to his ninth year from cough, with the usual symptoms of phthisis, and towards the end of that period great emaciation had taken place.

At this time he was ordered the *ol. jecor. aselli*, at first in two tea-spoonful, afterwards in two table-spoonful doses, twice daily. He continued its employment for about twelve months, and gradually lost all cough, became stronger, appeared more robust, and towards the end of his eleventh year enjoyed good health.

Dr Dommes was first called in when the boy was twelve years and six months old, and found a lad of a scrofulous and rachitic constitution, with a well marked phthisical habitus, as demonstrated by the long curved nails, long eye-lashes, &c.; the cough had returned within the last six months, but without much expectoration, and the appetite had remained good, and the bowels regular. He was now labouring under fever, the pulse was frequent and weak, and he could obtain no sleep. He complained of a sharp pain in the left side of chest inferiorly, increased on taking a deep inspiration. Auscultation detected at the summit of the left lung, cavernous respiration with perfect pectoriloquy, no cavernous rattle. Posteriorly under the inferior angle of the left scapula, a loud friction sound was heard both during inspiration and expiration. A normal respiratory murmur was at the same time heard in both lungs, and percussion gave the same tone on both sides. Six leeches were applied under the left scapula, and antiphlogistic remedies given, by means of which

the fever abated and he became somewhat better. In fourteen days there was another attack of pleurisy, accompanied with fever, quick and weak pulse, furred tongue, constipation, pain in the right side, cough and expectoration. A space the size of the hand in the inferior portion of the right side of the chest was slightly dull on percussion, and a friction sound was clearly heard immediately above it. In the left lung a vomica was still evident as before. The respiratory murmur, except in the places above mentioned, was normal on both sides. Leeches were ordered to be applied to the painful part in right side of chest, and internally the bowels were to be operated on by means of sulphate of magnesia. He again improved, but a week subsequently he was seized suddenly at night with dyspnæa, and increased pain in the right side. The heart also beat violently, the cheeks were flushed, and the pulse was frequent but not strong. He was bled 4 oz., and the liq. kali. acet. given. This produced a temporary relief, but in twenty-four hours the dyspnæa returned, and soon increased to orthopnœa. The extreme difficulty of breathing, however, left him the next day, and he became gradually better, so much so, indeed, that at the termination of a week he could sit up. He had now slight fever every afternoon, but neither now or during the progress of the case did colliquative sweats make their appearance. He now took small doses of

quinine. which removed the afternoon fever, and he continued free from any acute illness, and comparatively well for four weeks. At the termination of that period he was again seized with dyspnæa, which, in two or three hours, became extreme. The heart beat violently with a strong impulse, but without any abnormal sound. From percussion the dullness in the cardiac region was considered to extend over a somewhat larger space than usual. It appeared that he had not slept for several nights past, the scrotum was somewhat œdematous, and the secretion of the urine diminished. He was again bled to 6 oz., and was ordered to take digitalis internally. For four days he was better, and then had a return of the symptoms just described. He thus continued better and worse alternately for two weeks, during which he had very little sleep. The saliva, also, ran from his mouth involuntarily, from want of power to expectorate it. Great exhaustion was now present, and decubitus. Latterly the scrotum became much distended, and the fluid was evacuated by means of a puncture. He took, during this time, the tr. digitalis, and the tr. opii benzoica. In this state he continued still eight days, when death took place.

Autopsy twenty-four hours after death.—The body was much emaciated. In the left lung, near the summit, was a cavity about the size of a walnut,

quite empty. Its inner surface was dry, and of a dirty brownish colour, somewhat resembling that of a smoked ham. Its walls were not lined by any adventitious membrane, but were composed of the substance of the lungs in a condensed and considerably indurated state. Neither in the neighbourhood of this cavern, nor in any other part of the left lung, were any traces of tubercle to be found. Posteriorly and inferiorly there were some old adhesions uniting the pleura together. The whole of the right lung was studded with tubercles from the size of a pea to that of a bean. They were of a yellowish colour, of hard consistence, and appeared to have been freshly deposited. Posteriorly and latterly there was a considerable effusion of coagulable lymph in flakes adherent to the lung. The bronchia were natural, containing only a little mucus. There was slight hypertrophy in the left ventricle of the heart. The liver was much enlarged, yellow, and had undergone the fatty degeneration in a great portion of its extent. The kidneys inferiorly were strongly injected. The other organs presented nothing abnormal.

Remarks.—In this case, according to the report of a medical man, the patient laboured under phthisis, took the ol. jecor. aselli for the space of a year, and was restored to health for the period of twelve months. It becomes a question whether, if the boy

at this period had been removed from the unhealthy lodging in which he lived, and had enjoyed good nourishment, he would not have entirely overcome the tendency to tubercular deposition. Continued exposure, however, to the exciting causes occasioned the return of the disease in an acute form, which terminated fatally in three months. On examination a cavity was found in the left lung, of such an appearance as to render it certain that it could not have been formed during the latter short and acute illness. It must have arisen from a period then antecedent; and we hear a medical man declare that eighteen months previously he had only recovered from phthisis. It is also to be remarked, that no trace of tubercle was to be detected, not only near the cavity, but throughout the whole of the left lung,—a circumstance which, with the appearance of the cavity itself, is conclusive regarding its not being a recent formation. On the other hand, we find the opposite lung studded with fresh tubercles. I therefore conclude that the cavity discovered in a healing state in the left lung belonged to the pthisical condition which existed eighteen months before his death; that the disposition which this morbid change usually possesses of advancing to a fatal termination, was most probably checked by the administration of *ol. jecor. aselli*, but that a continued exposure to the exciting causes induced a return of

the disease, which attacked the opposite lung, and which terminated in death.

The five cases now detailed may, I think, on the whole, be considered as supporting the opinions of the writers and practitioners formerly alluded to regarding the benefit of this remedy in phthisis pulmonalis. No doubt great caution is necessary, not only in admitting the curability of this disease by any therapeutic means, but also by this remedy in particular. All that is here contended for, however, is simply that enough has been stated to warrant its further trial by the profession. Nothing is further from my intention than exciting exaggerated ideas of the benefits of this substance, either in phthisis pulmonalis or in other forms of scrofulous disease. Nothing is so fatal to the introduction of a new remedy as this; and truth compels me to state that I have seen other cases where the administration of the oil has only produced slight benefit, or none at all. But there does not exist any one remedy which is infallible, and much less is it to be expected that in the disease under discussion, which has universally been allowed to be one of the *opprobria medicinae*, invariable success can follow the employment of any remedy whatever. From such a rash conclusion a knowledge of the present state of medicine must guard every enlightened practitioner. If, however,

it can be shewn, as I have endeavoured to do, that even a few cases may be snatched from the almost certain fatal termination to which they are at present allowed to proceed, the discussion of this subject will not have been altogether useless.

CHRONIC SKIN DISEASES.

Several cases of chronic affections of the skin in scrofulous constitutions have been completely cured by the oil, when all other remedies have failed. Kopp remarks, that according to his observations its internal use is of very great assistance in these cases, through the power it possesses of improving the fluids. The external use is also very serviceable when hard dry scabs exist. Brefeld indeed says that he has never seen the internal exhibition of the oil beneficial in such cases, and that he relies altogether on its application externally. In this way both he and Guerard have cured very obstinate cases of *tinea favosa*. The latter gives the following case :¹

A boy ten years old, had for some years laboured under *tinea favosa* which covered the whole cranium, a portion of the face, the shoulders and upper arms. The scabs were of a horny hardness, two lines ele-

¹ Horn's Archives, Bd. l. s. 522., 1831.

vated above the skin, and exhaled a strong putrid smell. No remedies had been left untried, and at last he employed even all kinds of empiric means of cure, but without success. The powers of the patient at length became exhausted, and all remedies and painful applications were refrained from. Conceiving that the *ol. jecor. aselli* might possibly be useful, the affected parts were now ordered to be dressed with it, in conjunction with its internal employment. In two months the patient was quite well.

Dr Marshall Hall found its external application beneficial in troublesome affections conjoining the character of impetigo, with erysipelatous redness and swelling, when all other remedies had been tried fruitlessly. He states it also to be a preventive and speedy cure for rhagades or chaps, and of great benefit in cases of eczema, and other diseases inducing excoriation and fissures of the skin. He alludes to the case of a lady "whose hands had been literally crippled for several years, from painful, pustular, fissured, encrusted swelling of the fingers, palms, and back part (*impetigo scabida*). The case may be conceived from the mere fact of her having applied upwards of two hundred leeches. She experienced great advantage from the first application of the Cod liver oil, and she was speedily cured."¹

¹ Medical Gazette, 1832. vol. x. p. 796.

Dr G. H. Richter of Wiesbaden, in a paper he has published on this subject,¹ praises the *ol. jecor. aselli* not only for its beneficial results in scrofulous affections of the skin, but in inveterate cases of itch, and those arising from the abuse of mercury and other causes. In exanthemata, on the other hand occasioned by abdominal affections, especially abdominal plethora, hemorrhoids, liver disease, &c. little or no benefit is to be expected from its use. His treatment is so far peculiar that he gives the brown and impure oil, (he considers the lighter kinds inert) in very large doses, at least from six to ten table-spoonfuls daily. The favourable result, according to him, first appears in the fourth week, and its employment must be continued for three months. At the same time the diet must be strictly regulated, and all flatulent, salted, acid and other substances difficult of digestion, must be avoided. He remarks, that not unfrequently the favourable operation of the oil is first shown by an increase of the eruption, especially of those which in their nature approach psora. From his method of giving the oil he has often observed the secretion of urine increased, which however was only changed in quality in two cases. In these the urine was abundant, and deposited a sediment with specks of fat on its upper surface, such as is often found in the urine of pthisical patients. An in-

¹ *Medecin. Zeit. der vereins für Heilk. in Preussen*, 1835.

crease in the functions of the skin he has never observed.

The different varieties of chronic eczema, herpes and intertrigo, are especially benefited by the oil. It must not be supposed however that it never fails, or indeed that at any time its results are so striking as in rheumatism, rachitis, or atrophica mesenterica. In two cases where the herpetic eruption had existed for some time, and which have come under my observation, no good result followed, although the remedy had been regularly persevered in for six months. The beneficial operation however was well marked in the following instance for which I am indebted to Dr Nebel of Heidelberg.

CASE XV.

Herpetic eruption on the left thigh—Failure of various remedies—Ol. jecor. aselli.—Cure.

John Welsh from Heid, fifteen years of age, and of scrofulous constitution, has for several years laboured under an herpetic eruption on the left thigh, which spread even somewhat over the knee. The whole thigh and a portion of the leg was considerably swollen, so that this, in conjunction with the irregular surface of the skin, gave to the whole some-

what the appearance of elephantiasis. The surface was continually bedewed with moisture, so that his linen, or the dressings applied, stuck to the affected parts, and their removal caused great pain, with a copious discharge of blood from the adhering surface. After employing for eight or nine months a variety of remedies, the *ol. jecor. aselli* was given internally in table-spoonful doses, twice daily. In four weeks the general swelling and herpetic eruption were somewhat diminished, and the surface was more dry, and in a great measure free from the unpleasantness which formerly attended it. In three months the swelling and eruption had entirely disappeared, and only a furfuracious disquamation on the skin was observable. In another month this also was not to be seen.

In the case of August Rentier, a boy about the same age, who had an herpetic eruption on the face, considerably swollen nose, and deafness, combined with a scrofulous constitution, Dr Nebel also employed the oil internally in conjunction with the baths of Creuznach, and the skin affection has entirely disappeared, while the hearing is much improved.

SCROFULOUS ULCERS.

Many ulcers of a scrofulous character, which have resisted all kinds of treatment, have been easily

cured by means of the oil; and not only those which arise from a suppurative process taking place in the external glands, but those occurring over the surface of the body generally. These scrofulous ulcers are generally distinguished by their loose and raised edges, by the soft, spongy, and unhealthy looking base, which readily bleeds from slight irritation, and the yellow cheesy appearance of the matter secreted. The following instance of its success in such cases, was communicated to me by Dr Fürstenberg of Berlin.

CASE XVI.

*Scrofulous ulcer of the arm, of two years' standing—
Failure of the usual remedies—Ol. jecor. aselli.—
Cure.*

A—C—, the wife of a sailor, 26 years of age, of scrofulous family, and cachectic appearance, applied for assistance, labouring under an ulcer in the upper arm. It was of an oval form, and extended from the acromion, over the anterior surface of the limb, to the insertion of the deltoid muscle. Its base was deep and free from granulation, the edges flaccid, raised, and of a violet colour, which extended into the skin surrounding the ulcer, forming a border an inch and a half in thickness. The general aspect of

the sore had a very indolent character. The secretion from its surface was yellowish, cheesy, and had the peculiar appearance seen in scrofulous ulcers. An examination of the wound showed that the base of the sore was in close approximation with the periosteum covering the bone below. According to the patient's account the ulcer commenced two years ago, and immediately followed an attack of general rheumatic fever, attended with lengthened and violent pains in the whole arm. It was, at first, not larger than half a crown, and accompanied by violent acute pains, particularly at night, which destroyed all sleep, but latterly these have in some degree subsided. She has taken numerous remedies internally, and a variety of applications have been made to the ulcer, but so far from doing good, it has slowly continued to enlarge. On account of the scrofulous habit and cachectic state of the patient, who also in her youth had frequently suffered from chronic scrofulous eruptions on the skin, the *ol. jejcoris aselli* was directly indicated, and ordered to be taken morning and evening in table-spoonful doses. At the same time, the sore was dressed with stimulating washes, which had frequently been done previously without effect. At first the oil appeared to lessen the appetite, an effect which was removed by ordering her to take, in addition, two table-spoonfuls of the *elixir aurantiorum*, in a little wine, daily,

before dinner. In three weeks the ulcer had undergone a striking improvement. It lost its torpid character; granulations appeared on its base, which, however, were far at first from presenting a healthy appearance; the edges contracted and lost their flaccidity; the secretion became more copious, and the pain so much diminished, that in five weeks the patient could employ her arm with tolerable freedom in her household affairs. In three months, the ulcer, which, at the commencement of the treatment, was between four and five inches long, and three inches broad, had so contracted, that its greatest diameter was only half an inch. This, also, was rapidly diminishing when she left Berlin.

Remarks.—The ulcer here was evidently dependent on the general scrofulous and cachectic state of the patient, and was removed when the oil corrected this disposition. I have seen two other cases somewhat similar, in which, although not so extensive, the ulcer soon healed up after the oil had been prescribed. In one of these the sore was situated over the tibia, and was connected with necrosis of old standing.

SCROFULOUS DISEASES OF THE EYE.

In several eye affections connected with, or dependent on, a scrofulous constitution, the oil has

been found of great benefit, curing the chronic inflammation and its results. Brefeld found it of great value in the blepharitis glandulosa, where there was great insensibility to light. Carron du Villards, also, has found it produce the best effects in chronic conjunctivitis, and when there existed slight specks on the cornea. Dr Von Ammon, of Dresden, has employed the oil with the best results. He says, "I have given the *ol jecor. aselli* in two to five table-spoonful doses daily, in obstinate inflammation of the conjunctiva corneæ, very near pannus degeneration; whether it originated in scrofulous, rheumatism, psora, or other dyscracia. If there was a tendency to rachitis, the general constitution, as well as the state of the eyes, improved under the use of the oil." It has also been given by Piffard, of Brignoles, with success, in this affection.¹

¹ Bulletin de Therapeutique, Mai, 1840.

The following is the treatment for strumous ophthalmia, employed in the children's wards of la Charité Hospital, Berlin, by Professor Barez. At an early period, when there is dry inflammation, and photophobia (xerophthalmia of old writers), the cure is commenced by a purgative of rhubarb and calomel. The patient is then ordered one grain of *pulv. herb. conii. mac.* morning and evening, which dose, if no improvement takes place in eight days, is increased to two grains,—in sixteen days to three grains,—and in very obstinate cases to four grains. This treatment, it is stated, seldom fails. If the patient be brought with the disease in a more advanced stage, and if blennorrhæa be present, the *ol. jecoris aselli* is ordered to be taken internally, and the following lotion to be applied externally

R.—Hydrar. Submur.	.	gr. j.	
Tr. Opii.	.	℥xx.	
Aquæ.	.	℥viij.	℥

Dr Abendheimer, of Heidelberg, informed me that he had given it in numerous cases of scrofulous ophthalmia with the best results, and gave me the following case as illustrative of its effects in this form of scrofulous disease.

CASE XVII.

Scrofulous ophthalmia of four years' standing—Specks and ulcers of the cornea—Employment of numerous remedies, among others iodine—Cure by means of the ol. jecor. aselli.

Alexander F——, son of a clergyman, now 15 years of age, has suffered from infancy under various kinds of scrofulous disease. When in his sixth year, he was attacked with ophthalmia, which was accompanied by extraordinary sensibility to light, a copious effusion of tears, and frequent formation of hordeoles in the eye-lids. From the frequent exacerbations of conjunctivitis of the bulb, the cornea became

If there be no blennorrhæa, and the child, during the day, can open the eyes, although the lids are swollen with crusts, and adhere to one another in the morning,—instead of the lotion, the following ointment is employed.

R.—Ung. Hydrar. Nit. Oxyd. ʒij.
Pulv. Opii. gr. j.

M. Ft. Unguent. A piece the size of a pea to be rubbed on the lid every morning and evening.

cloudy, and several ulcers formed, which degenerated into opaque specks, with facettes. The diet was carefully regulated, and the usual general and local remedies employed, such as saline baths, acorn coffee, guiacum, with rhubarb, conium, mercury, &c., &c., locally bloodletting, and continued derivatives. The room also was kept dark.

These remedies appeared to be of no further use than lessening the occasional exacerbations of the disease. At length iodine was given internally, and also externally, by means of the bath, for a considerable time without effect.

After four years' useless employment of these various remedies, the *ol. jecor. aselli* was given. At first, two table-spoonfuls were taken daily, which was afterwards increased to four. Nothing was done locally, except guarding the eyes from light by means of a shade. After three months' use of this remedy, there was a striking improvement, and in eight months he was perfectly cured. There was then no appearance of ophthalmia, and no trace of the cloudiness and specks in the cornea remained. He has continued well ever since.

Remarks.—The circumstance of iodine having been tried in this case, and failed, renders it interesting, showing that if the action of the oil is to be attributed to that substance, it must at least exist in some form of combination which augments its

virtues. Professor Jüngken of Berlin, gives the oil most extensively in similar cases. He assured me as the result of his most extensive experience, that it was a remedy of the greatest value, and one which he was in the daily habit of prescribing.

Brefeld and Carron du Villards, both used the oil externally, a method which appears well adapted to chronic diseases of the eye, if the general constitution be not deeply affected. In this case, its external application conjoined with its internal administration, appears to facilitate the cure.

The oil when applied to the eyes, occasions considerable smarting, so that in children, its application is often a matter of difficulty. There generally follows, more or less redness of the conjunctiva, and an increased secretion of tears, which, however, soon disappear, and leave an evident improvement in the state of the organ. The brown kind is more irritating than the yellow, but either can be diluted with olive oil if it be found necessary.

I have had the opportunity of seeing the two following cases treated by the external application alone, for which I am indebted to the kindness of my friend, Dr Gruby of Vienna.

CASE XVIII.

Chronic keratitis, with tendency to the formation of pannus—Loss of sight in one eye—Ol. jecor. aselli applied externally.—Cure.

A woman, aged 38 years, of lax fibre, but without any well marked signs of scrofula, mother of several children, and who gained her livelihood by needlework; had perceived during a period of two months that the sight in her left eye had become much weaker. As she did not experience much pain, however, she continued to work, principally by the aid of the right eye. In the third month she saw in her glass that the cornea had become grey, and applied to a medical man, who gave her some medicines and a wash, which produced no benefit. In the fourth month, she consulted Dr Gruby. The cornea of the left eye at this time presented a cloudy greyish colour, but several vessels could be seen ramifying in its substance, which were derived from the external angle of the conjunctiva, and disappeared in a very fine net work. Where these vessels entered, the tissues of the conjunctiva, sclerotica and cornea were a little swollen. The transparency of the cornea was almost entirely lost, and it was only

at its inner edge that some slight traces of the iris could be seen. Its convexity was normal. Sight was completely gone, the possibility of distinguishing light from darkness only remained. She had sometimes slight irritation, not amounting to pain, in the eye itself, but in the supra orbital region there was often dull headache. The meibomian and lachrymal glands did not secrete more than natural. Otherwise her health was good, and the secretions and excretions regular. Two drops of the *ol. jecor. aselli* were allowed to fall into the eye morning and evening, which caused a strong pricking pain, with an effusion of tears, that continued a few seconds. During the first six days the irritation lasted longer and longer after every application. At the end of this time the cornea was evidently clearer. With the local treatment, was combined an antiphlogistic diet, and the occasional exhibition of purgatives. On the eighth day the oil was suspended for three days, then again applied as before, and after five days again suspended. Only one drop was now poured into the eye morning and evening, which was found sufficient to keep up the reaction for five days, and after this, one drop every two days was sufficient. The treatment was continued in this way two months, and at the end of that time the vessels had entirely disappeared, and the transparency of the cornea had completely returned.

Remarks.—In this disease, vessels are to be seen ramifying in the substance of the cornea, and the opacity is to be attributed to the effusions of coagulable lymph. Local stimulation induces an action in the part favourable to absorption—an indication which is well fulfilled by the ol. jecor. aselli.

CASE XIX.

Xerosis, or atrophy of the conjunctiva and cornea—Total loss of sight in one eye, and partial loss of sight in the other—Ol. jecor. aselli.—Amelioration.

A married woman, 25 years of age, of phlegmatic constitution, catamenia regular, had in her youth suffered from tinea capitis, and lymphatic swellings of the glands. Since then she has scarcely ever been free from chronic eczema, and has suffered from acute urticaria and occasional diarrhœa. For the last three years she has been occupied from morning to night in sowing gloves, by means of which the eyes were much fatigued. Last winter she took a lodging, which, from some fault in the chimney, was always more or less full of smoke, and it appears that since then she gradually lost sight of the right eye, without her perceiving it. Three

months subsequently the sight in the left eye became dim, and she then applied for relief.

At this time the conjunctiva corneæ of the right eye was whitish and opaque, somewhat similar in colour and appearance to dirty white paper. On examining the cornea with the lens, its surface was seen covered with slight hexagonal convexities, somewhat resembling in appearance the eye of an insect. These cells were pressed together, and of a bluish grey tint, and hence their hexagonal form, and the peculiar colour of the cornea. Its transparency was entirely lost: the convexity normal. A few delicate vessels could be seen with the lens, running in a parallel manner round the margin of the cornea. The posterior chamber and the iris scarcely to be seen. The rest of the bulb was normal. The conjunctiva palpebrarum pale. The lachrymal apparatus intact. The patient often complained of weak pricking pains in the bulb, which induced her to rub them often. The perception of light was almost entirely lost.

On examining the left eye, the middle and upper half of the cornea was found to have undergone exactly the same change as the right. The inferior half, however, was healthy. A few parallel vessels were running on the upper edge of the cornea, as distinguished by the lens. Its convexity was normal, iris moveable. The conjunctiva was slightly

reddened. The secretion of the lachrymal and meibomean glands somewhat increased. She could see large objects, but not small ones, and felt an itching or pricking pain in the organ. There was also dull headach in the left temple.

She had been using some lotion for three or four weeks, which had produced no good result. A drop of the *ol. jecor. aselli* was ordered to be applied to the right eye every evening. The oil employed was of a brownish red colour, but clear, and had a very sharp taste. Small doses of the tartrate of antimony were administered internally to produce an action on the skin. This, with an antiphlogistic diet, absolute repose, and guarding the eyes from light, constituted the treatment. The application of the oil first caused itching, which continued half an hour, but after the third day only lasted fifteen minutes. On the fourth day the conjunctiva was strongly injected, and there was much epiphora. Several points in the cornea which were formerly opaque became more transparent. She could distinguish large objects. The oil was now suspended, and cold lotions employed. After four days it was again ordered, but did not occasion any reaction. A drop was even applied twice daily, and slight pain with reaction again made its appearance. In a week the cornea looked more grey, having lost much of its dirty white aspect. It was again suspended, and then reapplied. After a

month's treatment she could distinguish the number of fingers held up, and in two months could name the capital letters in a printed page of ordinary sized type. The case was continuing to progress favourably when I left Paris.

Remarks.—The nature of this affection is involved in much obscurity. It is supposed, however, to be an atrophy of the conjunctiva corneæ by the German ophthalmologists, accompanied by a species of softening of the tissue. Atrophy is manifested by the small concavities observable with a lens, the edges of which are pressed together in such a manner as to give them a regular form. The softening appears to occasion the dirty whitish tint, which causes the opacity and peculiar colour observed in this disease. It has hitherto been considered incurable, and in the present case the oil was employed without much hope of benefit, and because experience has sufficiently proved other applications to be useless. The good results, however, which attended its employment in this case warrant a repetition of its application under similar circumstances.

A remedy which has been given with such good results in some diseases, has, like all new medicines, been tried in numerous others, and occasionally with success. Thus, it is said to be useful in the small, hard, chronic swellings of the female breast,

after topical bloodletting, and Katzenberger found it beneficial in dislodging ascarides when given in the form of clyster. Münzenthaler cured with it a case of periodic cardialgia,¹ and another of hemicrania.² It has also been employed in some nervous diseases. Osberghaus states that he has administered it with a good result in spasmodic affections of the chest, and of the stomach, and the same writer informs us that he has seen two cases of epilepsy cured by it. Kopp cured a youth of 17 years of age, affected with chorea on one side of his body, and another suffering under nervous tremor, by its means. Spitta states that its good effects were well marked in a patient labouring under enuresis and paralysis of the inferior extremities. Schupmann has recorded two cases of paralysis in the inferior extremities cured by the oil,³ and Puchelt has published an account of two cases of paralysis, arising from onanism, which recovered under its use in the clinical hospital of Heidelberg.⁴

That the *ol. jecor. aselli* possesses any real beneficial operation in pure nervous disorders is more than doubtful. But that individuals affected with such complaints, and in a cachectic state from the

¹ Hufeland's Journal. Bd. 78. s. 52.

² Ibid. s. 75.

³ Ibid. Bd. 70. Heft. 4. s. 115.

⁴ Heidelberg Med. Annal. Bd. 6. Heft. 3.

development of scrofula are capable of being benefited by the oil is certain. Such cures, therefore, of epilepsy, paralysis, &c., are to be attributed to the removal of the scrofulous complaint and general cachexia with which they are often connected.

According to M. Rayé of Vilvorde,¹ the Cod liver oil is of great advantage in the treatment of chronic affections of the lungs. He states that he has given it to more than 120 persons affected with chronic pneumonia and chronic gastritis, and obtained the best result in at least two-fifths of the cases, although in most of these, medicine had previously been rationally employed in vain. Dr Rutten of Verviers described to Delcour the case of an individual who, as the result of a chronic pleuro-pneumonia, was reduced to the last degree of marasmus.² The case appeared desperate when the Cod liver oil was given. The individual had continued fever, an intense cough, with purulent expectoration, nocturnal sweats, œdema of the extremities, evident atrophy, &c. &c. From the moment the oil was employed a notable change took place, and the individual was completely cured. It is probable that in these, as well as in many other cases where wasting of the general strength and loss of muscular substance has taken place, that

¹ Journal de Conn. Med. Chir. Tom. 3me p. 429.

² Archives de la Médecine Belge. Tom. 1, p. 270.

the analeptic properties of the oil would prove of great benefit.¹

Lastly, Professor Dieffenbach of Berlin has given it to numerous individuals labouring under carcinoma in all its forms with extraordinary good results. This fact has even found its way into several journals. It is not to be supposed, however, that this celebrated surgeon has ever by its means cured cancer when already formed, or even ever eradicated it from the constitution. On the contrary, as he himself explained to me, what he means by good results is having, in numerous cases, when the individuals had been much exhausted, and presented a highly cachectic and unhealthy aspect, seen these latter symptoms removed, the appetite and digestion return, so as to approach a normal state, and life again rendered tolerable for a few years.

¹ When at Frankfort on the Maine, last spring, Dr Spiess of that town communicated to me the case of Miss Harriet R—, an English girl, aged 13, of scrofulous disposition, who was seized during January 1840, at Coblenz, with a violent cough, attended with great expectoration, and febrile symptoms, which induced a suspicion of phthisis. After many remedies had been tried unsuccessfully, the *ol. jecor. aselli* was given, and the cough, and expectoration from that time gradually diminished. She remained well all the summer, but the winter following, when at Frankfort, the same cough returned, and became very violent, but disappeared again in a few weeks on taking the oil. The mother of the patient expressed much surprise at never having heard of this remedy in England.

CIRCUMSTANCES NECESSARY TO BE ATTENDED TO IN
THE ADMINISTRATION OF THE COD LIVER OIL.

From all which has preceded it appears necessary that certain circumstances should be attended to before any uniform benefit can be expected to result from the employment of the *ol. jecoris aselli*. The following points are those which demand most attention.

1. *The Diagnosis*, which must be correct, not only as regards the disease, but as regards its form.

2. *The Constitution*.—The flaccid and phlegmatic bear it best, and the plethoric worst. In scrofula with torpidity it is directly indicated. If irritation be present, however, its employment requires management and great care.

3. *The Contra-indications*.—These are plethora, a disposition to inflammation, profuse menstrual or hemorrhoidal discharges, total loss of appetite, nausea and vomiting, pain in the abdomen, and diarrhœa dependent on disease in the intestinal walls.

4. *The time of Administration*.—It should not be given in the morning fasting, and its employment is not advisable during epidemics of dysentery or diarrhœa.

5. *The Quality of the Oil.*—The best is the clear brown or reddish variety, next in power is the yellow, and the least beneficial is the white. A sample of the oil employed should always be analysed, in order to determine whether it contain iodine as a constituent.

6. *The Dose.*—In adults it should be gradually increased to a strong dose, such as six table-spoonfuls; in children a smaller dose proportionate to the age.

7. *The Diet.*—A fat animal diet supports the action of the oil. All substances abounding in starch are to be avoided.

8. *The Conjoined Treatment.*—Sometimes it is necessary to give aromatics and bitter tonics, and in numerous instances, especial medicines are required, according to the nature of the case. Not unfrequently a course of chalybeate waters has been found useful.

9. *The Duration of the Treatment.*—In every case it is necessary to give it a sufficient length of time. The chronic diseases in which it is beneficial can only yield slowly. In this respect the practitioner must be guided by its effects on the constitution.

10. *The judicious Suspension of its Use.*—1st, Should it occasion derangement of the digestive organs, diarrhoea, increased flow of the menses, &c.; and, 2dly, After its employment has been continued five or six months. In this last case it should be suspended

two or three weeks, and bitter or ferruginous tonics given, according to circumstances, to support the tone of the stomach.

APPENDIX.

For the following two cases, I am indebted to Professor Rineker of Wurzburg, by whom they were communicated to me during a recent visit he made to this country.

CASE XX.

Chronic gout of ten years' standing—Great contraction of the extremities—Calcareous concretions in the finger joints—Various remedies employed without effect—Ol. jecoris aselli.—Cure.

Adam Frederich, shoemaker, 60 years old, had suffered from gout more than ten years, both in the upper and lower extremities, and when he came under the care of Professor Rineker all the limbs were considerably contracted. This contraction was much greater on the left side than on the right, so much so indeed, that during progression the trunk was much thrown towards that side, and appeared latterly to be permanently distorted. The finger joints in both hands were loaded and much swollen from the deposition of calcareous concretions. He also suffered from attacks of very acute pain in the left extremities, which returned at intervals of three or four weeks, and were of several days' duration.

The patient during his long illness had employed numerous remedies without experiencing any permanent relief. He had taken colchicum repeatedly, for a long time, guaiacum both in substance and decoction, turpentine, baths simple and medicated, &c. He was now ordered

to take a table-spoonful of the ol. jecor. aselli twice a-day, which dose was soon increased to three table-spoonfuls twice daily. At first, he expressed strong disgust for the remedy, and felt considerable nausea, but never vomited. In a week these unpleasant symptoms disappeared, and he took it readily for six months without intermission. It was two months before any improvement could be observed; at the expiration of that time, however, the acute attacks became less violent, and these in four months entirely disappeared. At the same time, the muscular rigidity and contractions in the extremities gradually diminished, so that this individual, who for years, had been unable to stand upright, or walk without difficulty, at the expiration of six months could remain perfectly erect, and use all his limbs with the greatest freedom. The concretions in, and swelling of the fingers, however, remained unaltered.

CASE XXI.

Spondyloarthrocacæ—Paralysis of the inferior extremities—Acute curvature of the dorsal vertebræ—General symptoms of cachexia—Atrophy of the inferior extremities—Failure of moxa and other remedies—Ol. jecoris aselli.—Cure.

N. Scharfenberg, a boy at present six years old, of scrofulous family and habit, enjoyed good health, until he entered upon his third year, and at that time could walk perfectly. Then, however, the mother observed that the boy was readily fatigued, and at last could only support himself with great difficulty. A medical man who was consulted, detected a hard swelling in the dorsal region, dependent apparently on distortion of the vertebræ. Notwithstanding the application of local blood-letting, moxa, and other derivatives, followed by the use of baths and the internal administration of ferruginous tonics, pulv. antimonialis, and other alteratives, the disease continued to progress, so that at the expiration of a year from the time he became unwell, he laboured under perfect paralysis of motion in the inferior extremities, while the sensibility was greatly diminished. At the same time the

swelling in the back gradually increased, and the upper part of the trunk was thrown forward. In this state the child remained completely helpless for the space of another twelvemonth, his parents considering the case incurable, and although treating him with care, and employing such popular remedies as suggested themselves to them, otherwise abandoning him to his fate. At this time Professor Rineker, when visiting another patient in the same house, was induced to examine him, and discovered an angular prominence of the fifth, sixth, and seventh dorsal vertebræ. The angle was so acute, that it was evident that the bodies of the vertebræ were greatly softened, and that the disease was in its third stage. At the same time all the constitutional symptoms of scrofula were strongly marked. His whole appearance was highly cachectic, the skin of a dirty white colour, the abdomen considerably swollen and tense, the inferior extremities much atrophied, diarrhœa alternating with constipation, &c. There was, however, no hectic fever, or colliquative sweating. The respiration was in some degree difficult, but a careful examination of the chest proved that the lungs were healthy. A table-spoonful of the *ol. jecor. aselli* was ordered to be taken morning and evening, which dose was increased, as in the last case, to six table-spoonfuls daily. In fourteen days an improvement was already manifested in the general health. Digestion appeared to be performed with greater facility, the excretions from the bowels became more regular, and a considerable transpiration took place from the skin. In six weeks the boy could move his lower extremities, and even stand when somewhat supported. The symptoms previously described gradually disappeared, so that in six months he could walk alone without difficulty, while the trunk had nearly regained its natural upright position. After taking the oil for eight months a perfect cure might be said to be established. The boy could run with facility, stand perfectly erect, his appearance was blooming and healthy, and the prominence in the back had greatly diminished. Indeed, without having the attention especially directed towards it, the deformity might entirely escape observation.

In this case not only was there no disgust for the remedy, but the boy appeared to like it from the commence-

ment, invariably asked for it when not administered at the usual time, and evidently regarded it as a delicacy. Notwithstanding also the large doses, which were continued so long, no disorder whatever took place in the digestive functions.

In Pereira's *Materia Medica*, I find the following quotation from Pennant, who describes a method by which the oil is prepared in Newfoundland:—"They take a half tub, and, boring a hole through the bottom, press hard down into a layer of spruce boughs, upon which they place the livers, and expose the whole apparatus to as sunny a place as possible. As the livers corrupt, the oil runs from them, and, straining itself clear through the spruce boughs, is caught in a vessel set under the hole in the tub's bottom."¹

A reference also is made to an analysis of the oil by Herberger,² who, it is stated, has found in 1000 parts of the brown oil, 2.586 parts of iodine of copper, and 0.441 parts of bromide of potassium. I have, however, not been able to procure the original memoir of this chemist.

¹ *Artic Zoology*, Vol. I. p. 198.

² *Pharm. Gent. Blatt.* 1839, s. 855.

APPENDIX.

1847.

SINCE the publication of the present work, Cod liver oil has come into very extensive use in Great Britain,* and less differences of opinion have prevailed respecting its advantages, than have occurred with regard to most remedies. I myself have not met with one practitioner, who ever gave it a fair trial, that was not satisfied of the great benefits to be derived from it. For the last six years I have continually used it in Hospital, Dispensary, and private practice, and have accumulated a body of facts respecting it, that cannot but convince the most sceptical of its value in appropriate cases. The general results of my experience will be shortly communicated in this Appendix, and I shall notice the leading facts regarding it, in the same order as they are considered in the body of the work. Should a second edition of the work ever be called for, it will give me the greatest pleasure to avail myself of the facts and opinions which have been published, and communicated to me privately. Like many young authors I commanded a very large impression; and although I now believe that the work has sold even better than I had the slightest reason to expect, a considerable number of copies remain on hand. Hence, at the suggestion of my publisher, the present Appendix.

* The house of Duncan and Flockhart, druggists in Edinburgh, alone, which, in 1841, scarcely got rid of one gallon, dispensed during the last year 600 gallons.

PHYSICAL AND CHEMICAL PROPERTIES.

Several specimens of Cod liver have been sent to me from different parts of the country, most of which, however, were the brown or red empyreumatic species. The best oil perhaps manufactured in Scotland is by Mr Parker, Leith Walk. It is the same clear golden red colour, as is used in Germany, has been universally employed here, and has been productive of the best effects. It may be procured from every respectable druggist in this city for about a shilling a pint.

Several analyses of the oil have been published in the foreign journals. They do not add, however, any new facts of importance to its chemical history, as stated in the text.

ACTION OF COD LIVER OIL ON THE HUMAN ECONOMY.

I have now given the oil to many hundred individuals, and have not met with half-a-dozen cases, in which I judged it applicable, that have refused to take it. I have known it prescribed, however, in cases where it was in no way indicated, and where the individuals have had an insurmountable repugnance to it. Most of these persons could in no way bear fatty substances of any kind, and laboured under a form of dyspepsia, unconnected with rheumatism or tubercle.

Children have been found to take it most readily, and some remarkable instances have occurred to me, where they exhibited an extravagant fondness for it.

Dr Andrew Wood informed me some years ago, in a note, that in a few cases he has observed, about the fourth day of its use, a bright red eruption, resembling that of scarlet fever, which, however, disappeared on intermitting the medicine for a little. This has occurred in children. For my own part I have not observed this, or any other unpleasant symptom, follow its employment.

Considerable reflection and observation have led me to the belief, that the therapeutic action of Cod liver oil is

dependent essentially on its being a fatty matter, perhaps more easily assimilated to the economy, than any other kind of fat. The views of Ascherson given in the text, are, I think, fundamentally correct, with this difference, that instead of oil and albumen uniting to form elementary cells, they only produce elementary molecules and granules, from which nuclei and cells are formed. To me it seems certain, that in chronic rheumatism and tubercular diseases, the albuminous compounds are in excess, and the oily compounds are diminished in the economy. The direct addition of the latter, therefore, seems the most rational method of supplying the wants of the system.

Since the publication of this work, the chemical views of Liebig and others have come into notice. To me it appears a remarkable fact, that these doctrines perfectly harmonize with the histological and morphological theories previously advanced. For, whether we regard the oil as a carbonized principle of the food, as furnishing an element for respiration, or as necessary to the formation of elementary granules in a nutritive blastema, it seems equally fitted to subserve the end in view.

That a purely chemical theory, however, is defective, is proved by the fact, that *every* carbonized material is not fit for the purpose. We cannot produce an increased nutrition in rheumatic or phthisical constitutions, by alcohol, sugar, or starch, notwithstanding their chemical composition is so similar. The chemists may argue that these are converted into fats; and in the physiological state so they are. In a pathological condition, however, when the digestive powers are enfeebled, this does not take place; and in giving an animal oil ready made, we save the alimentary organs the trouble as it were of doing this. Hence in constitutions which cannot digest food, or convert it into the oily element, the introduction of the *Ol. Jecoris Aselli* in large doses, causes the necessary principle easily to be imbibed into the lacteals, where, uniting with the albumen, it constitutes the elementary granules so necessary to nutrition.*

* See a paper by the writer on the Structural relation of Oil and Albumen in the Animal Economy, &c.—*Monthly Journal of Medical Science*, September 1847.

DOSE AND METHODS OF ADMINISTRATION.

I have nothing to add on this subject to what is stated in the text, farther than in the dose of one tea-spoonful, I have found it very useful to young infants, who, for want of proper lactation, were falling into or suffering under, general atrophy.

When first introduced into the Infirmary, neither the physicians, the apothecary, or the druggists of the town were enabled to distinguish Cod liver oil from other kinds of oil. On one occasion I found all the patients taking linseed oil instead of it; and it is a fact worthy of observation, that several practitioners who employed it at that time, gave it up as inert. Since a genuine oil has come into general use, the good effects, and the opinions regarding it, have been more uniform.

It may reasonably be argued, that if the theory of its action as fatty matter be correct, any other kind of oil would prove just as serviceable, and certainly there are many much more agreeable to the palate. Practical experience, however, has decided this matter in the negative. I believe the reason of this to be, that continued doses of the purest vegetable oils, as that of the olive and almond, are more or less purgative, and thereby diminish, instead of improving the strength. It may also happen that the pungent properties of the Cod liver oil may have a favourable influence in retaining it on the stomach, and rendering it digestible. Lastly, it seems reasonable that an animal oil should be much more easily assimilated to the system than a vegetable one.

RHEUMATISM AND GOUT.

I now confine the use of Cod liver oil to cases of very chronic rheumatism, attended with emaciation. In such cases, especially if the joints be stiff and contracted, the oil will frequently produce all the good effects described in the text. In the excellent work of Dr Todd on Gout and Rheumatism, published in 1843, the treatment of chronic

rheumatism is discussed in a page and a half. Every means that can support the strength of the patient, and promote assimilation, is recommended as the general principle of treatment, and the tonics found most useful by the author are quinine and iron. He has also found it expedient to employ guaiacum and iodide of potassium. I have never met with a case in which very chronic rheumatism was ever cured, or even alleviated, by these means. There can be no doubt that, under any system of treatment, perfect recovery will be a rare occurrence. I have, however, seen the Cod liver oil, when perseveringly insisted on, produce the most marked benefit, after the disease has continued for years, and bid defiance to every drug in the *Materia Medica*. At p. 180 of Dr Todd's work, is recorded the case of a girl in the Wandsworth Union, whose joints, after five years, gradually passed into a state of frightful deformity and rigidity. I believe that many individuals, both rich and poor, and especially the latter in workhouses, will be found to labour under the disease in the same form. In all such cases I cannot too strongly recommend the oil, both internally and externally. It is unnecessary for me to cite cases. I need only refer to the one recorded by Rush, (see p. 89), to prove that, under the most favourable circumstance, improvement is still to be hoped for. And surely when every thing has failed, and the patient's torments remain unalleviated, it is something at least to have a remedy in reserve, to the value of which such powerful testimony has been given.

SCROFULA.

Mr Philips has lately endeavoured to limit the term scrofula to the tubercular affections of the external lymphatic glands and diseases of the bones. This distinction I do not think to be founded on a sound pathology; for tubercle, whether in an external or an internal lymphatic gland, whether in the bones or in the lungs, is identically the same, and dependent on similar causes. Practically con-

¹ Scrofula; its nature, its causes, its prevalence, &c. By Benjamin Philips, F.R.S., &c.

sidered, however, we find this difference, that tubercular disease of the external scrofulous glands is not accompanied with the same emaciation and prostration of strength, as in that of the external glands. The reason of this is evidently owing to the latter being more directly connected with the process of nutrition. It follows, therefore, as stated in the text, that scrofula may appear under two forms,—one in which nutrition is still active, another where it is deficient. In the former, Cod liver oil is not so useful as in the latter, although, as the case progresses, as the disease extends, and emaciation appears, it will often be found necessary. When limited to the external glands, however, and the patient is still robust, I give the oil in much smaller doses, and alternate its use with the iodide of potassium. The latter may be given internally, or employed externally in the form of ointment with friction. This, with occasional blistering, and supporting the general strength by good diet and exercise, I have found very useful in discussing very obstinate scrofulous enlargements of the external glands. My continued experience has only confirmed the general opinion of the relative value of Iodine and Cod liver oil, expressed p. 100, viz. that the former acts as an irritant, producing atrophy, while the latter is a true analeptic.

RACHITIS AND MALACOSTEON.

I believe rachitis to be a very rare disease in Edinburgh; for during five years of dispensary practice, in which the diseases of children treated among the poor population at the Royal Dispensary were very numerous, I have only met with two cases. In both these cases the children were brought up by hand, were badly fed, and laboured at the same time under atrophica mesenterica and chronic eczema of the scalp. In both the oil produced a complete cure, was taken with the utmost greediness, and seemed to constitute the true diet of the children, as the friends were so poor as to be unable to procure for them proper nourishment. I conjoined the internal with the external use of the oil, rubbed morning and evening into the abdomen—as nutritious a diet as could be procured, and lat-

terly, continued exercise in the open air. The note of Dr Steinhaeuser of Heidleberg (p. 105) admirably expresses the changes which marked the improvement in these cases.

SCROFULOUS CARIES OF THE BONES.

A general opinion prevails among surgeons that caries of a spongy bone never heals spontaneously. The result of this view is, that whenever caries is ascertained to exist in a bone, it is cut off or cut out if possible, and if not possible, the patient is left to the operation of nature. It has frequently happened, in this latter case, that change of air and an improved diet have led to the most happy results, and that in spite of theory, the patient has got well. Every surgical practitioner of any experience for instance, must have met with cases where caries and distortion of the vertebræ have terminated in ankylosis, and the patient regained his health. Many dwarfs are living examples of scrofulous caries having occurred in the spongy portion of bones when young, which has disappeared, leaving them, although deformed, in perfect health. The theory, therefore, to which I have alluded is incorrect, and there is little doubt in my mind that many cases which have been made the subject of surgical operation, might have recovered without it, by adopting a system of treatment directed against the constitutional affection.

I have seen some remarkable instances of caries and distortion of the vertebræ, which have produced perfect paralysis, and reduced the patient to the last stage of weakness. Under such circumstances the oil has frequently kept up the strength, and the patient has ultimately recovered, as in the instances recorded in the text. During a visit I made to the continent last year, I saw three such cases in the wards of Professor Heusinger of Marburgh at once. They had all three had paraplegia. The one most recently treated still had paralysis, the other two, who had been under treatment some months, had recovered from the paralysis, could walk without difficulty, and were in every respect nearly well. Two other cases of a

similar kind were in the wards of Professor Jacks of Prague when I visited them shortly afterwards.

The cases recorded in the text, however, are sufficient to prove the powers of the oil, in a class of diseases too frequently considered as hopeless. In none have I seen more beneficial effects produced by it, and many surgical practitioners in Edinburgh and its neighbourhood, have informed me that the same good results have attended their administration of it.

ATROPHIA MESENTERICA.

Of this affection I have treated numerous cases, the disease being very common among the poor population applying for relief at the Royal Dispensary. Many of these have laboured under the affection in a very advanced degree, presenting an enormously enlarged and indurated abdomen, with extreme emaciation of the rest of the body. The treatment employed consisted in giving the oil internally in tea-spoonful or desert-spoonful doses three times a-day, according to the age, rubbing the abdomen with the ointment of the iodide of potassium, enjoining milk and a nutritious diet, with exercise in the open air gradually increased. Under this system the amendment produced, even when very little was apparently to be hoped for, was most remarkable, and was distinctly visible to the pupils attending my poly-clinic from week to week. In no disease is the advantage of this substance better marked.

PHTHISIS PULMONALIS.

My attention has been strongly directed to the treatment of phthisis pulmonalis by Cod liver oil, not only on account of the well-known fatality of the disease, practically considered, but from a persuasion that fatty matter is theoretically the material best calculated to overcome the tubercular tendency, to support the system when affected, and to furnish the lungs with the carbonaceous material most appropriate for respiration. I have recommended its trial to several practitioners personally,

others have given it in consequence of the publication of the present work. The universal testimony afforded to me by all I have seen or corresponded with, is the same. They agree that no remedy has so rapidly restored the exhausted powers of the patient, improved the nutritive functions generally, stopped or diminished the emaciation, checked the perspiration, quieted the cough and expectoration, and produced a most favourable influence on the local disease. In a few cases, the number of which is now rapidly augmenting, as extended observation is brought to bear upon the inquiry, a complete cure has been produced in all stages of the disease.

The effect of the oil in many cases is very striking, and is well seen in hospital and dispensary practice. Individuals presenting the emaciation, profuse sweats, constant cough and expectoration, as most prominent symptoms, with a degree of weakness that prevents their standing alone, after a few weeks' use of it are enabled to get up with ease, and walk about, with a visible improvement in their general health, and an increased amount of flesh. The physical signs of the disease may continue unaffected for some time, but if the treatment be continued, the moist gurgling rales are exchanged for dry blowing sounds, which become more and more persistent, pectoriloquy is merged into bronchophony, the respiration is easier, and a check is evidently given to the ulcerative process, and the formation of purulent matter in the air passages. In this state patients often feel themselves so well that they insist on leaving the hospital, or give up their attendance on the dispensary. I have frequently found it impossible to prevail on such persons to continue the treatment, and the consequence is, that again returning to their often unhealthy employment, and bad diet, and exposed to the other causes favourable to the production of the disease, the distressing symptoms again recur. Several cases, with one or more caverns in the lungs, have in this manner returned to the Infirmary from four to seven or eight times during the last six years, and on each occasion have gone out in their own opinion perfectly cured.

Notwithstanding the difficulties which have presented themselves in bringing about a complete cure of the disease, I have succeeded in several cases in ascertaining that the caverns have completely healed up, every symptom and

physical sign indicating their presence has disappeared, and there has remained only slight dulness on percussion, and increased vocal resonance as a proof of the puckering and induration of the pulmonary parenchyma attendant on the cicatrix. I do not say that this has been entirely owing to Cod liver oil; but it has seemed to me probable, that if this substance had not been given at the commencement of the treatment, the constitution would never have rallied from the state of exhaustion and depression under which it laboured.

Several of the students who attended the clinical wards during the session 1843-4, will remember a man named Carr, who remained in the Infirmary three months, and who, although at first he could not stand from weakness, under the use of the oil recovered his former strength, and went out with a dry cavern in the left lung, over which the most perfect pectoriloquy was heard. That man I examined eighteen months afterwards, and could detect no traces of a cavern, only slight dulness with increased vocal resonance. He was then working as a labourer on the North British Railway. Another case somewhat similar occurred in a girl, who was examined by my poly-clinical class at the Royal Dispensary in the summer of 1844. At the apex of the left lung all the physical signs of a cavern were very characteristically heard. A year afterwards she again presented herself at the Dispensary, and informed me that she had continued to take the oil for nine months. No trace of a cavern could be detected, only increased vocal resonance, and my colleague, Dr Spittal, who also examined the case, acknowledged that the cure seemed to be complete.

These, and some other cases I have collected in confirmation of the benefits of the oil in phthisis, it is my intention to publish at no distant period. Though not so numerous as could be wished, they would occupy far more space than has been allotted me on the present occasion.

Most cases of phthisis pulmonalis, especially in the advanced stage, are affected with more or less dyspepsia, which renders the stomach irritable, causes total loss of appetite, and is often the cause that prevents nourishment from being taken. In many instances there is no difficulty in employing the oil under these circumstances, but in others it cannot be retained on the stomach. It will then

be necessary to calm the irritability of the organ, and the best remedy for this purpose, according to my experience, is naphtha. It is to the power this substance possesses of preventing vomiting, and thereby allowing nourishment to be retained, that I attribute the advantages which have attended its use in the practice of Dr J. Hastings, and others. The diet should always be nutritive without being stimulating; and counter-irritation to the chest, is an excellent auxiliary. This treatment should be perseveringly persisted in, whilst to prevent fresh exudations of tubercular matter, an equable temperature is of the highest importance. The observations of Sir George Lefevre, entitled *Thermal Comfort*, are, in this point of view, of great interest. To equal temperature must be ascribed the advantages of favoured localities for phthisis, and with proper precautions I have satisfied myself it can be very well maintained in this climate.

Notwithstanding that I can assert with confidence that no remedy has appeared to me of so much service in phthisis pulmonalis as Cod liver oil, I must guard my readers from supposing that it will cure very many cases. On this subject I can only repeat what is stated in the text, p. 152.

CHRONIC SKIN DISEASES.

I have found the oil very useful in many of the chronic diseases which affect the scrofulous children of the indigent poor. The chronic eczema and eczema impetiginodes in such individuals is scarcely ever to be cured without paying attention to the general health, and here, as in similar cases, the most effective means of nourishment is the oil. The local treatment I employ is an alkaline wash, composed of two drachms of the subcarbonate of soda, to a pint and a-half of water. When the eruption is in any way circumscribed, an essential condition of the treatment is to keep the surface moist with the alkaline lotion, by means of lint saturated in it, and carefully covered with oil silk.

Since the publication of this work, *tinea favosa* has been shown to consist of parasitic vegetations, growing in an

albuminous or tubercular exudation on the surface. In the great majority of such cases, the disease will be found associated with a scrofulous constitution, and dependent on a bad diet, and the other depressing causes so common among the lower orders. I have found the following treatment very successful—internally the Cod liver oil in the usual doses—externally poulticing the elevated crusts on the surface for several days until they soften and come off. Then carefully shaving the head, which usually presents a shining clear surface. Next applying with a soft brush or dossil of lint, Cod liver oil to the whole scalp, morning and night, and covering the head with an oil skin cap to prevent evaporation and the access of air. Every now and then, as the oil accumulates and becomes inspissated, it should be removed by gently washing it with soft soap and sponge. I have found the average duration of this treatment to be six weeks, which contrasts very favourably with the results of M. M. Mahon's treatment at the Hopital St Louis.

SCROFULOUS ULCERS AND EYE DISEASES.

As these disorders fall more especially under the care of the surgeon, I have had little experience in their treatment. In the practice of my friends, however, I know that the judicious administration of Cod liver oil has proved eminently successful, and been the means of producing a perfect cure when every other remedy had failed.

Finally, I may observe, that in every disease of a rheumatic or tubercular nature, attended with impairment of nutrition, emaciation, weakness, &c. Cod liver oil is directly indicated, care being taken to attend to the precautions enumerated p. 174. It is not to be considered as a specific. It operates by imparting to the system one of the great elements necessary for the nutrition of the animal economy, in cases where that element is essentially defective. In the hands of the rational practitioner, I feel satisfied it is destined to be an important means of curing a class of diseases hitherto considered of the most dangerous and fatal nature. As our knowledge of morbid processes improves; as the microscope and organic chem-

istry opens up to us the primary alterations producing lesions of the body, the great importance of attending to the part played by the oily principle, as one of the essential elements of nutrition, will become apparent. Then, when pathology is made the companion of physiology, and both constitute the foundation for a rational system of therapeutics, the use of Cod liver oil will be found as beautiful in theory, as I believe it has already been found beneficial in practice.

In writing this short Appendix, I have endeavoured as succinctly as possible to communicate the results of my personal experience of the oil during the six years which have elapsed since my re-introduction of it to the profession in this country in 1841. The limits allowed me, render it impossible to allude to the numerous works and papers in which the oil has been mentioned or treated of. It affords me, however, the highest gratification to know, that it has been extensively employed by some of the most eminent physicians and surgeons in Great Britain and Ireland, who at first were very sceptical as to its advantages, but have, after repeated trials, openly acknowledged the great benefit they have derived from it in their practice. I have purposely not alluded to any one in particular, from a conviction, that were I once to dip into the literature of the subject, I should be carried too far. I have every reason to feel gratified with the commendation which my little work has met with, as expressed in the public press, and in numerous private communications which I have received. One of the latter I shall venture to insert from my friend Dr Andrew Wood, the present inspector of Anatomy for Scotland. I know his experience of the oil has been very extensive, more especially in several Hospitals for boys and girls in this city, of which he is the medical officer; and it contains some practical observations of no small value. It is as follows:

" 9 DARNAWAY STREET, Oct. 11, 1847.

" MY DEAR BENNETT,

" I willingly comply with your request, that I should state to you the result of my experience in regard to the effect of Cod Oil as a remedial agent. I think I may venture to speak on the subject with some degree of confidence, having now used the oil in my practice for a number of years—in fact, almost from the date of your invaluable treatise—and in a very large number of cases. Very many of these cases have occurred in children's hospitals, where I had every facility for observing accurately the effects of remedies, and of being sure that my directions were implicitly fulfilled. I consider Cod oil to be, in all kinds of scrofulous affections, whether of gland, skin, joint, bone, or even internal viscus, by far the most effective remedy that can be used. I do not mean to say that it invariably succeeds, any more than all the other medicines that I am acquainted with; but I do maintain, that in a large proportion of such cases it is infinitely more useful than any of the other remedies, such as sea-bathing, iodine, lime, tonics, &c. which used to be chiefly relied on; and not a few cases have come under my own observation where, after all these had failed after a fair and long-continued trial, the Cod oil, after being used only for a few weeks, proved eminently successful. In many cases I have seen enlarged glands gradually subside and disappear under the use of Cod oil,—no other remedy, either general or local, having been used. Or if, as not unfrequently happens, the oil fails in arresting the progress of enlarged glands towards suppuration, still the effects of it are very visible in the character of the pus discharged, which, instead of the watery fluid, with shreds of uncoagulated lymph floating in it (so commonly seen in scrofulous abscesses), assumes the appearance of what the older surgeons used to call "laudable pus."

Scrofulous sores, those opprobria of medicine, under the use of the oil, though still somewhat tedious, yet in but few cases fail eventually of being healed. One very remarkable case occurred to me, where a little girl, of very

marked scrofulous constitution, who was covered with indolent sores, almost literally from head to foot, and for several years had been under varied and persevering treatment, was completely skin-whole in six weeks, under the use of the Cod oil. And when a year or two afterwards the sores began to break out again,—again under the oil she recovered rapidly. I have used the oil also with good effect in cases of scrofulous joints, where it seems to give good aid to local treatment. In some cases of phthisis I have found the oil useful, though I must confess that in the great majority of cases I have found it utterly ineffective as a remedy, either palliative or curative. One marked case I may notice, was that of a young lady with a strong hereditary tendency to phthisis, who had had repeated slight attacks of hæmoptysis—cough, breathlessness, hectic fever, great debility, so that she was quite unequal to the exertion of walking from her bed to the sofa, and could only speak in a whisper. The signs afforded by percussion and auscultation, viz. dulness under both clavicles, harsh grating prolonged expiration and occasional bronchial rales, with increased resonance of voice, left no reason to doubt that there was extensive deposition of tubercles. In this case counter irritation had been freely used, emetics, various tonics, &c., but without effect—wine and animal food only tended to aggravate the symptoms. I resolved to use the oil, no other remedy of any kind being used at the time. The young lady was only able to use a single table-spoonful in the day, the stomach being irritable and not admitting of more. She began to use it in the end of last winter, and took it steadily for several weeks without experiencing much benefit, at the same time no ground was lost, but by degrees almost imperceptible, the cough abated, the appetite improved, she gained flesh, colour, and strength, and after having used the oil for three or four months, was able to walk about her room; in a week or two after that, to go up and down stairs, and during last summer was out every fine day for a walk. Since the weather broke, the symptoms have not been quite so favourable; but still she is in an infinitely better condition than she was at this time last year. She has most unbounded faith in the oil, and has steadily persevered in it,—at one time she tried to do without it for a few days, but felt so weak and depressed, that she was glad to resume it.

"I think I have observed that the oil is more effective in females than males—and in the pale and sallow, than in those of ruddy complexion. The general effects produced by the oil, after being taken for a week or two, are fuller and firmer pulse; clearer complexion; increased fat, flesh, and colour, and very frequently high spirits.

"I have met with very few cases, indeed, where the oil has disagreed. Since the date of my note to you, I have occasionally met with the scarlet rash, but in a very modified form, and I think almost always in males. The rash itself is very striking, resembling most completely that of scarlatina, though more uniformly diffused.

"In two cases (both females) it has produced so much sickness, that I have been obliged most reluctantly to abandon its use. I do not recollect of having observed any other untoward effects produced by the oil.

"I believe the best mode of administering it is either in milk or peppermint water—in most cases the former answers best.

"I may add, that I have often found Cod oil of great utility in cases of debility, where there was no reason to suspect scrofulous taint.

Yours truly,

A. WOOD.

"Dr J. H. BENNETT."

Such is the general tenor of the communications which I have received, and to which I feel it unnecessary to add any comments.

EDINBURGH, NOVEMBER 1847.
5 SCOTLAND STREET.