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THE EXPERIENCE AND OPINIONS

OF

MEDICAL MEN

ON THE VALUE OF

PANCREATIC EMULSION

AND

PANCREATINE

AS REMEDIES IN

WASTING DISEASES.

BY

SAVORY AND MOORE,

*Chemists to the Queen, H.R.H. the Prince of Wales,
H.I.M. Napoleon the Third, H.M. the King of the Belgians, &c.,*

143, NEW BOND STREET, LONDON.

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ON PANCREATIC EMULSION AND PANCREATINE.

MESSRS. SAVORY AND MOORE have collected the following Extracts from various medical and scientific books and periodicals published during the last five years, as the most satisfactory mode of demonstrating the important remedial properties of Pancreatic Emulsion and Pancreatine; and at the same time of giving a reliable sketch of the origin and progress of these new remedies.

The evidences referred to in this pamphlet will be found to justify the statement that "since the introduction of Cod Liver Oil no remedy has been introduced to medical practice at all comparable in importance with Pancreatic Emulsion." They shew that in all cases where loss of flesh and loss of power to digest and assimilate food are prominent symptoms, Pancreatic Emulsion and Pancreatine constitute the most potent remedial agents. In such cases Cod Liver Oil should, no doubt, be given as well as the Emulsion, if possible,—the one to supply the blood with oil or liquid fat, the other with the more stable solid fats. But where Cod Liver Oil cannot be tolerated by the stomach, or fails to fatten the patient, Pancreatic Emulsion and Pancreatine are the only remedies which can supply its place, and it has

been found that in many cases they restore the power of digesting the oil.

Until the introduction of Pancreatic Emulsion there was no fattening remedy known for those with whom Cod Liver Oil disagreed; this fact alone sufficiently indicates the importance of the subject of these pages, but they will show that Pancreatic Emulsion is destined *to rank before Cod Liver Oil*, in consequence of its powers of *restoring* digestion and of introducing the stable *solid* fats into the system instead of the more evanescent fluid fats or oils. (See *Chemical News*, Sept. 4th, 1868, on Solid and Liquid Fats; also pages 6 and 10).

Pancreatic Emulsion was originated by Dr. Dobell after a long series of experiments, and first administered by him to patients suffering from consumption and wasting diseases, at the Royal Hospital for Diseases of the Chest. Having satisfied himself of its important remedial properties, he made the remedy public for the benefit of the profession and of the sick, refusing to accept or to reserve to himself the slightest benefit from the discovery beyond the scientific credit which might attach to it.

In 1864, he commenced the publication, in the pages of the *Lancet*, of the cases treated with Pancreatic Emulsion at the Royal Hospital, and continued to publish them from time to time during the years 1865-6. (See Reports, pp. 13-23). During these three years great improvements were made in the mode of manufacturing the Emulsion; the greatest difficulties being to make

it keep good for any length of time, and to give it an agreeable taste. The experiments with this view were conducted in the laboratory of MESSRS. SAVORY AND MOORE, in New Bond Street. After a time these difficulties were entirely overcome, all disagreeable taste being removed, and the Emulsion being made to keep good for an indefinite length of time, and to bear transport to all climates without change.

MESSRS. SAVORY AND MOORE have great satisfaction in being able to make this statement, for it is evident that the value of the remedy for public use was materially diminished so long as it deteriorated by keeping. These practical difficulties having been mastered, Pancreatic Emulsion steadily rose in the estimation of the profession and of their patients; and the *Medical Times* was soon able to state, "It is in high favour with the patients. To have introduced it is a good deed."

The interest which had by this time been excited on the subject may be gleaned from the following extract from the *Chemist and Druggist* Journal of January, 1866.

From the CHEMIST AND DRUGGIST, *Jan., 1866.*

"OF all the new remedial agents which are now being employed by the medical profession, the Pancreatic Emulsions, introduced by Dr. Dobell, are perhaps the most noteworthy. Some time must elapse before their real value can be established; but the satisfactory results which have already been obtained with them in the treatment of consumption, will induce all physicians who keep pace with the age to give them a fair trial. Should they prove as useful as Dr. Dobell believes them to be, their introduction will be referred to

with delight by those who maintain that medicine can make but little progress until therapeutics and physiology are more firmly united. The pancreatic emulsions are rational remedies, and were devised to counteract the wasting effects of a morbid condition which Dr. Dobell detected in consumptive patients. Some years ago, Dr. Dobell's attention was directed to the fact, that many consumptive patients disliked fat, and the results of a careful examination of a series of cases which came under his notice at the Royal Hospital for Diseases of the Chest, proved that this dislike for fat was common to the great majority. These results closely corresponded with those published by Mr. Jonathan Hutchinson, in a valuable suggestive paper, 'On the form of Dyspepsia which often precedes and attends Phthisis.' With a view of testing by direct experiment, whether this dislike for fat was due to some abnormal condition of the pancreatic secretion, Dr. Dobell determined to treat a series of cases of consumption with the pancreatic juice of the pig. After many tedious experiments, an emulsion of beef-fat, with the pancreatic juice, was adopted as the most eligible preparation. This was supplied to the patients, who were ordered to take it stirred in milk. The emulsion could be mixed readily with the milk, and, in the proportion of half an ounce to a breakfast-cupful of milk, formed a drink that was not unpleasant. Twenty-four patients of the thirty-three treated with the emulsion were discharged after eight weeks, in an improved condition with respect to their general symptoms. The emulsion disagreed with three patients only, whereas cod-liver oil disagreed with eleven out of the twenty-four to whom it was administered. A second series of cases were afterwards treated with the pancreatic emulsion of fat, or with pancreatic emulsion of lard oil, and similar satisfactory results were obtained. To meet the increased demand produced by many medical men prescribing them, Dr. Dobell sought and obtained the valuable assistance of Messrs. Savory and Moore, of New Bond Street, and these preparations are now made by this celebrated firm. The principal preparation is pancreatic emulsion of solid fat, which appears to be the favourite remedy with the medical profession. It is a white paste of the consistence of thick Devonshire cream.

It remains good for a long time, though the pancreatic juice, unmixed with fat, rapidly undergoes decomposition. The dose is from one to three teaspoonfuls, once, twice, or thrice a day, in a cup of milk, to which a little rum or brandy may be added. It is to be taken from one to two hours after a full meal. Another preparation, recommended by Dr. Dobell, is PANCREATINE.

“According to Claud Bernard, the great French physiologist, the pancreatic juice is the most important secretion of the digestive organs, and possesses the property of emulsifying fats, of transforming starch into sugar, and of acting on albuminous substances. Some physiologists do not adopt Bernard’s view, but all agree that the pancreatic juice helps to render fats easy of absorption.

“The following extracts from one of Dr. Dobell’s reports will show the value of any means for promoting the assimilation of fat in consumptive patients, and also explain the frequent failure of cod-liver oil to sustain the improved condition which so often occurs when it is first administered:— ‘According to the careful estimate of Dr. Lyon Playfair, the quantity of fat required by an adult in twenty-four hours, to keep up healthy nutrition, is from 1 oz. to 2.5 oz.; and according to the estimates made from numerous and carefully selected data by Mr. Farrants and myself, the quantity is from 2 oz. to 3.5 oz. We may fairly assume, then, that not less than two ounces of fat per day, on an average, is required to keep up healthy nutrition in an adult. We have next to bear in mind that, before a case of consumption ordinarily attracts attention, and begins to be treated as such, many pounds’ weight, principally consisting of fat, have been gradually removed from the body. In this condition—1, a deficiency of fat throughout the organism; 2, a loss of the power to assimilate ordinary fats; 3, a constant demand for two ounces per day, to maintain healthy nutrition,—we administer cod-liver oil, in the belief that this form of fat will assimilate when other forms will not. Supposing that it agrees, and that some or all of it is utilised, a rapid improvement takes place in the patient, from the supply of some of that for want of which life was steadily fading—very much as a cut flower, that has drooped for want of its supply of sap,

rallies and recovers freshness for a time when put into water. But there are very few persons who can take more than from half an ounce to one ounce of oil per day—few who can even take this steadily from week to week without intermission. But supposing an ounce or an ounce and a half per day to be taken regularly, how is this to supply not only the two ounces per day required for healthy nutrition, but all the extra ounces of arrears that were lost before the treatment was begun? But assuming the possibility of two ounces per day of oil for nutrition, and another two ounces for arrears, being taken and utilized, even then the whole thing may be unstable and break down, from the fact that we are supplying oil and not solid fat—a body rich in olein and poor in stearin and margarin, in the place of bodies rich in stearin and margarin and poor in olein, such as the fats taken in normal food.

“The practical conclusion from these considerations appears to be, that if we are to give a fair chance of recovery to a patient deprived of the natural powers of digesting and assimilating fats, we must, by one means or another, secure that two ounces of fat of average solidity are utilized every day for the purposes of nutrition, and an additional ounce or two to make up for arrears.”

“If the pancreatic juice of the pig artificially introduced into the digestive apparatus does really cause a fair proportion of this amount of fat to be assimilated, the pig’s ‘sweetbread’ must be regarded as one of the most important articles of the *Materia Medica*. B.”

The importance of the cases published in the *Lancet* induced many medical men to try the Pancreatic Emulsion in Hospitals and private practice; and, on Nov. 17, 1866, the Editor of the *Lancet* made the following announcement in his Journal:—

“THE DIETETIC VALUE OF PANCREATISED FATS.

“It would be interesting to know to what extent the experience of those medical men who have used the ‘pancreatic emulsion’ of fat accords with that which Dr. Dobell has now recorded in our columns in about *two hundred cases of con-*

sumption. Several thousand pounds weight of this new medical agent have, we believe, been supplied by the makers to the order of medical men in this and other countries ; and we think, therefore, that the time has arrived when some perfectly impartial evidence should be added to that of the ingenious author of this treatment. The remedy has been placed fairly before the profession, the author reserving to himself no pecuniary interest or advantage whatever ; and if the utility of the remedy bears any proportion to the large demand which has arisen for it, we ought to know this clearly, and to understand and appreciate our obligations."

A number of medical men in different parts of the kingdom responded to this invitation by reporting their experience in the use of Pancreatic Emulsion of fat (see their reports, pp. 34-42).

In the meantime, Dr. Dobell had published a work on Consumption, explaining to the profession the *modus operandi* of pancreatic juice and pancreatic preparations, and collecting and arranging cases illustrative of its use. The subject had also been taken up by other authors of distinction, and attention called to it in the Reviews, as shown by the following extracts :—

From "THE INDIGESTIONS, OR DISEASES OF THE DIGESTIVE
ORGANS FUNCTIONALLY TREATED."

By DR. THOMAS KING CHAMBERS, *Hon. Physician to*
H.R.H. the Prince of Wales, etc., etc.

"By the artificial emulsion of fat with pancreatic juice, we certainly seem to be put in possession of an easily assimilated oleaginous material, and a most valuable contribution to the restorative pharmacopœa.

"Dr. Dobell has used it more extensively than anybody else, and he is convinced of its superiority to cod-liver oil in consumption. Medical men should warn patients to be careful whom they get it from.

"The experiments of Drs. Bidder and Schmidt, and of their pupil Lenz, have indeed deposed the pancreas from the position in which it was placed by Bernard, as almost the sole actor in the digestion of fatty substances; but yet it still remains as an important link in the chain of physiological agencies conducing to that digestion. And it is fortunately one which we are able to supply by artificial means. As to the form of preparation, it is much more practically convenient to give (as in the emulsion) the digester and the article to be digested at the same time, than to divide them.

"That the pancreas is an important agent in the digestion of fat, receives powerful support from a class of fatal cases in which the whole of the pancreas is organically altered in structure, and in which, during life, a peculiar inaptitude to digest adipose tissue has been observed. I shall revert to this subject in illustrating, in a future chapter, organic changes in the digestive viscera."

From "DISEASES OF THE LUNGS AND AIR PASSAGES."

By DR. FULLER, Sen. Physician to St. George's Hospital.

"THESE are cases in which the utility of pancreatine does not admit of doubt.

"The repugnance to fatty and oleaginous matters exhibited by some consumptive patients is so great that they cannot be induced to take them; and, even if they do swallow them, they either eject them by vomiting, or find their digestive organs completely upset; and in these cases the pancreatic emulsion is useful in supplying an important element of food, in a form in which the digestive organs can deal with it."

*From the BRITISH AND FOREIGN MEDICO-CHIRURGICAL
REVIEW, January, 1867.*

"THESE cases support the proposition, that pancreatic emulsion of solid fat may be most advantageously given in phthisis. It, moreover, appears to possess the advantage of agreeing with the patient, when cod-liver oil does not. Dr. Dobell's favourable experience of the remedy is such as to make it worthy of trial by others, and we trust that it may be fairly tested by the profession."

From the DUBLIN QUARTERLY JOURNAL OF MEDICAL SCIENCE, Nov., 1867.

"PANCREATIC emulsion, as every one now knows, was originated by Dr. Dobell. . . . We have not had much experience of its use, but within the past few days we happened to see a young lady who has been taking it for months, and while doing so, she has been changed from a thin, nervous, desponding creature, into a plump, tolerably robust, and cheerful woman."

From the ATHENÆUM, May 26th, 1866.

"THE views on the nature and treatment of tubercle of the lungs, contained in this little volume, have long been before the public, and the result has been that the conclusions of Dr. Dobell are generally regarded as sound. He shows that, in those states of the system known as scrofula and consumption, there exists a defective action of the pancreas, and that, consequently, the fat taken in food is not properly digested and carried to the nutrition of the body. The consequence is, those deposits in the body known by the name of tubercles. The result of Dr. Dobell's researches is, that he recommends the administration of fatty foods which have been submitted to the action of the pancreatic juice of other animals. From time to time, Dr. Dobell has published cases treated successfully on this plan, and in this volume he has given a full account of his views, and the cures which support them. . . . We think that he has made out a case which claims the serious consideration of all medical men."

From the SCIENTIFIC REVIEW on "TUBERCULOSIS, BY DR. DOBELL."

"If ever tubercular disease shall be mastered by the physician it must be from his having arrived at a knowledge of the cause to which it is due; and it is far from improbable that the writer of the present treatise has detected it."

From RANKING'S ABSTRACT on "TUBERCULOSIS, BY DR. DOBELL."

"The crucial test of the goodness of his theory—viz.: the effects of the Pancreatic Emulsion in tubercular disease, has been applied by the author, and the results which he has obtained are such as to warrant others in following in his footsteps."

From the SCIENTIFIC REVIEW.

"Pancreatic Emulsion has got into vogue through the researches of Dr. Dobell. Some tons of the Pancreas (of the Pig) are said to be in demand for its preparation."

In 1867, Dr. Dobell delivered, at the Royal Hospital for Diseases of the Chest, a course of lectures on "The True First Stage of Consumption," from which the following explanation of the remedial properties of Pancreatic Emulsion is quoted:—

"My experience of the action of pancreatic emulsion is now so large, and my observations have been so cautiously and doubtingly made, that I dare to speak with a confidence which I trust may be distinguished from dogmatism. Pancreatic emulsion of solid fat is a natural substitute for the inactive or perverted pancreatic function. It supplies the lacteal system with solid fat in a condition fit for absorption, fit for transmission through the lymphatic glands, fit for combustion in the pulmonary blood, for the protection of tissues, for histogenesis, and for general utilisation throughout the organism. By an artificial expedient we supply the missing elements of normal nutrition in a natural form. Thus time is gained, the imminence of tuberculisation is removed, and the means for the restoration of the normal function of the pancreas, by which alone a true cure is to be effected, can be adopted at leisure and in safety, under conditions favourable to success.

"Cod-liver oil, even when it agrees and passes into the blood, does not completely represent the solid fats of the natural food, and therefore cannot permanently take their place. As a temporary substitute for natural fats introduced by the natural route, it answers admirably; but sooner or later, in some cases very soon indeed, the portal system becomes choked, and refuses to absorb more oil; the oil disagrees with the stomach, it rises, it spoils the appetite, and

thus not only ceases to do good, but does positive harm by preventing the patient from taking as much food as the stomach might otherwise call for and digest. None of these disadvantages occur with well-made pancreatic emulsion of solid fat.* The consequence is, that an artificial supply of natural fat by the natural route can be kept up for an indefinite time, if required, while the appetite is usually improved and the digestion also; and, at the same time, a very large quantity of amylaceous food is rapidly converted into dextrine and sugar by the pancreatic action of the emulsion, and thus a most important assistance in the economy of fat is given by the increased supply of carbon from the carbo-hydrates, at the same time that fat is being thrown into the blood by the emulsion."

In January, 1868, the following account of pancreatic juice was given by Dr. Letheby in his Cantor lectures on Food, at the Society of Arts:—

"*Pancreatic fluid* is a secretion from the pancreas or sweetbread. Until recently its true digestive functions were not well determined. It is a colourless fluid of a gravity of 1008 or 1009. Like the saliva, it is generally a little alkaline, and it contains about 1.3 per cent. of solid matter, one eighth of which is a nitrogenous organic substance of the nature of ptyalin or diastase, and is called *pancreatin*.

"More than twenty years ago, Bernard proved what Valentin had long before suspected, that the pancreatic fluid was concerned in the digestion of fatty matters; but he fell into error in supposing that its action was to saponify the fat, and to set free glycerin. Here is a specimen of glycerin and of lead-soap, obtained from fat upon which the pancreatic fluid had previously acted, showing that saponification had not been effected. The true action of the pancreatic secretion is evidently to break up the large granules and crystals and globules of oil and fat into myriads of minute particles of from 1-3000th to 1-15000th of an inch in diameter. In

* Up to the present time I have not seen any pancreatic preparations that can be relied upon, except those prepared by Messrs. Savory & Moore.

this way the fat is emulsified, and converted into a milky fluid which mixes freely with water, and passes from the intestines into the lacteals. We are indebted for this knowledge to Dr. Dobell, who, with the assistance of Messrs. Savory & Moore, of New Bond Street, made a large series of investigations into the properties of the pancreatic fluid. Dr. Dobell had long been of opinion that its functions were important in certain diseases, and required elucidation. When the fresh pancreas (and best of the pig) is rubbed down in a mortar with twice its weight of hog's lard, it rapidly emulsifies it; and on adding about four or five times the bulk of water, and straining through muslin, there is obtained a thick, milky liquid of the consistence of cream, which gradually consolidates. If this is treated with ether, there remains the purified pancreatised fat, which, when mixed with water, forms the creamy emulsion which is used dietetically and medicinally.

“The properties of the pancreatic fluid have been well described by Dr. Dobell in a paper recently read before the Royal Society of London; and it would seem that the fluid has not only the remarkable property of emulsifying oil and fat, and so rendering them capable of absorption, but it has also the power of dissolving starch by converting it into glucose. In this respect its action is like that of saliva, but it is much more energetic; for, in its fresh state, one part of the pancreas will dissolve eight parts of starch, and even after it has emulsified fat it will dissolve two parts of starch. It is, therefore, a powerful agent of digestion.

In February, 1868, Dr. Kinkead drew attention to the importance of pancreatic preparations in the *Medical Press and Circular* (see page 23); and in October of the same year, Dr. Freke, of Dublin, detailed cases treated with pancreatic emulsion at Steevens' Hospital (see page 33). In March, 1869, Dr. Kinkead confirmed and amplified his experience in a further paper to the *Medical Press and Circular* (see page 26).

REPORTS OF CASES TREATED WITH PANCREATIC EMULSION;

AT THE ROYAL HOSPITAL FOR DISEASES OF THE CHEST.

(Referred to at p. 2.)

*Published in the LANCET, Sept. 10, 1864; June 10, 1865;
Nov. 11, 18, 1865; and Nov. 17, 1866.*

Extract from the "LANCET," First Report, Sept. 10, 1864.

"We regret to be unable to find space for the long and elaborate tables and notes of cases appended to this paper, and containing the observations on which the following summary is founded."

*Summary of THIRTY-THREE CASES of Consumption treated
with Pancreatic Emulsion of Beef Fat:—*

7 cases in the 1st stage—Condition on discharge measured by the general symptoms: Improved, 7; stationary, 0; worse, 0; no final report, 0.

Condition on discharge measured by physical signs: Improved, 0; stationary, 7; worse, 0; no final report, 0.

Emulsion agreed, 6; emulsion disagreed, 1.

Cod-liver oil agreed, 3; disagreed, 1; not tried, 3.

14 cases in the 2nd stage—Condition on discharge measured by the general symptoms: Improved, 9; stationary, 2; worse, 1; no final report, 2.

Condition on discharge measured by physical signs: Improved, 8; stationary, 2; worse, 2; no final report, 2.

Emulsion agreed, 14; emulsion disagreed, 0.

Cod-liver oil agreed, 5; disagreed, 5; not tried, 4.

12 cases in the third stage—Condition on discharge measured by the general symptoms: Improved, 8; stationary, 0; worse, 3; no final report, 1.

Condition on discharge measured by physical signs: Improved, 5; stationary, 1; worse, 3; no final report, 3.

Emulsion agreed, 10; emulsion disagreed, 2.

Cod-liver oil agreed, 5; disagreed, 5; not tried, 2.

The whole 33 cases measured by general symptoms: Improved, 24; stationary, 2; worse, 4; not noted, 3.

The whole 33 cases measured by physical signs: Improved, 13; stationary, 10; worse, 5; not noted, 5.

Emulsion agreed, 30; disagreed, 3.

Cod-liver oil agreed, 13; disagreed, 11; not tried, 9.

Average quantity of emulsion taken by each patient about 1 oz. avoirdupois in 1 pint of milk each day for eight weeks.

Extracts from the LANCET, 2nd, 3rd, and 4th Reports.

CASE 34. Has tried oil and it "won't keep down." Emulsion agrees well; and at the fourth week he says, "I never had anything to do me so much good in my life." Appetite good while taking it.

36. Cod oil has often been tried, but it always produces bilious sickness after about a week; loses flesh fast. Emulsion agrees well; appetite improves; no nausea or bilious feeling. After ten weeks, says she is getting "tired of emulsion," but it still agrees.

38. Oil produces constant nausea, but does not rise. Emulsion agrees well; does not leave nausea, like the oil. At fourth week, oil tried again, but it still produces nausea; obliged to return to emulsion.

39. Four years ago took cod-liver oil with advantage, but of late it rises, and brings up the food with it. The first two doses of emulsion rose, but it afterwards agreed, and is now liked. At fourth week, cod oil tried again, but "won't keep down." Emulsion resumed, and agrees; appetite good; enjoys meat while taking emulsion.

40. Cod oil agreed last winter, but now it "won't keep down." Emulsion agrees well. At fourth week oil tried again, but still "won't keep down." Emulsion resumed, and taken six weeks with pleasure.

42. Has taken oil one month with some improvement; it does not destroy appetite, but it rises, and is very offensive. Emulsion agrees; she likes it much better than oil. After taking it a month she could not be persuaded to try oil again. Does not rise, or destroy appetite.

43. Oil produces nausea, and, after a week or two, cannot be kept down—has often been tried; can't take any sort of fat. Emulsion agrees well; appetite improves while taking it, and the frequent bilious feelings to which he was subject have disappeared. At fourth week, enjoys fat; and can now take cod-liver oil, as well as emulsion, without nausea.

44. Cannot be induced to take oil, dislikes it so much. Emulsion agrees; never rises, and is taken with ease. At third week, says flesh gets firmer.

45. Has taken oil three months, with slight increase in flesh, and it agrees; but chest symptoms are getting worse.

Emulsion agrees well ; he says "it's very nice." After fourteen days, very much improved in all respects.

46. Cannot take oil ; has often tried it ; it produces nausea and biliousness. Emulsion agrees ; appetite improves while taking it.

47. Cod oil can be taken, but it produces nausea, and appetite is very bad while taking it. Emulsion agrees, does not produce nausea, and appetite steadily improves while taking it.

48. Oil agreed formerly, and did good, but for the last twelve months it has disagreed more and more, and for some time past will not keep down at all. Emulsion agrees, no nausea produced. At fourth week, appetite is improved, especially for meat ; says he "feels quite a different man."

49. Has been taking oil and tonics, but loses flesh and strength, and gets rapidly worse ; appetite is destroyed while taking oil, but she is so convinced of the importance of taking it that it is difficult to persuade her to take emulsion instead. Emulsion agrees. On third week, she says she "gets on wonderfully:" and on fourth, that she "eats till she is ashamed of herself." On fourth week, excessive craving gone ; appetite regular and good ; gaining strength rapidly.

50. Has tried cod oil, but "can't take it." Emulsion agrees well ; appetite for meat improved.

53. Has taken oil six months, but it spoils appetite, and he loses flesh and strength. Emulsion agrees : he likes it. At fourth week, appetite is very good ; is able to take suet with pleasure, and says he could take more emulsion if allowed.

54. Oil tried two months ago and also this week, but he brings up his food while taking oil, and loses ground fast. Emulsion agrees ; gains flesh and strength. After taking emulsion five weeks, can take two ounces of oil and emulsion as well.

55. When he began emulsion, appetite was very bad, and it was difficult to take the milk with emulsion ; but appetite improved as he went on, and he took emulsion twenty weeks with great advantage, buying it for himself after his discharge, because he missed it when it was discontinued.

56. After taking oil for a long while and losing flesh and strength, he gained 8 lb. in seven weeks under emulsion, and got quite strong.

57. Had taken oil off and on for twelve months, but steadily lost flesh and strength. Of late oil has disagreed, and motions are pale. Emulsion agrees; appetite improves, and she gains flesh and strength rapidly; motions no longer pale.

59. Advanced third stage. Had taken cod-liver oil for three months, but it disagreed latterly, and she had steadily lost ground in all respects. Emulsion agrees well, and after a fortnight she is surprised at her improvement. At the fourth week she writes: "I gain strength daily. Appetite much improved. I have not such a dislike for fat, and I now can take cod liver oil as well as emulsion."

62. Has been ill seven years; is now in the third stage. Has taken cod-liver oil, and he says it agrees and does more good than anything else; but still he gets worse and worse, losing flesh and strength fast. He likes emulsion, and at eighth week he does not lose flesh, and says he feels firmer; appetite better. At twelfth week he still gains ground. Ordered to take cod oil as well as emulsion.

64. Oil makes him sick. Emulsion keeps down when nothing else will: appetite improves, and he gains flesh, and says he is much stouter and stronger.

70. Cod-liver oil agreed last winter, but now won't keep down. Emulsion agrees well.

71. Has been taking cod-liver oil freely, but it does no good; loses flesh, appetite, and strength. Emulsion agrees well. At sixth week has gained flesh and strength; appetite good.

72. Neither cod-liver oil, suet and milk, milk, nor eggs will keep down. Emulsion agrees, keeps down, creates appetite for meat; can take milk with the emulsion.

75. Oil agreed until lately; now it causes sickness and destroys appetite. Emulsion agrees; she likes it; appetite improves; feels less sinking. At sixth week she feels herself quite well.

76. Oil has been taken five weeks with no good effect, and now it won't keep down. Emulsion agrees; he says he

"feels support from it;" appetite improves, and he gains flesh and good looks.

79. Oil won't keep down. Emulsion agrees, and makes her "feel stronger inside."

81. Oil keeps down, but passes off by the bowels. Emulsion agrees, and does not pass off by the bowels.

85. Oil comes up as fast as it goes down. Emulsion agrees well. At sixth week discharged much improved.

86. Third stage. Oil won't keep down, though tried many times; it produces violent sickness. Suet and milk without emulsion kept down, but caused "dreadful feeling of sickness." Emulsion of suet in milk keeps down, and produces no feeling of sickness; appetite improves. Discharged at twelfth week very much improved in all respects. After four weeks comes back to beg for more emulsion, saying he can't live without it. A fortnight after this, says emulsion agrees, "keeps down the food and keeps off sickness."

90. Oil will not keep down; has tried it three months and gets worse. Emulsion at first kept down with some difficulty; afterwards well. While laid up with influenza sent for emulsion, missed it so when without it.

92. Physical signs of consumption not very marked, but general condition very bad; great prostration and sweating; very troublesome cough. Has had much tonic treatment and cod-liver oil, but has not found anything do good. Emulsion agrees. After fourth week is remarkably improved; says he feels a great vacancy when he does not take the emulsion.

93. Has taken cod oil three years; agrees, and he likes fat. Appetite good, but food leaves sense of sinking, and he loses flesh steadily. Emulsion agrees; loss of flesh stopped, and he gains in weight.

94. Oil agreed four months ago; now will not keep down. Emulsion agrees, likes it much better than oil. Appetite improves; gets much stronger.

96. Emulsion increases appetite wonderfully; on leaving it off, appetite fails. At sixteenth week very much improved. Menstruated first time for many months.

97. After taking emulsion eight weeks, appears to be quite well, and declares that he is.

98. Oil agreed two years ago; now produces sickness. Emulsion agrees well; improves appetite.

101. Says emulsion agrees first-rate. While under treatment, all moist sounds cleared up.

102. Has taken cod oil without benefit; it disagrees. Emulsion agrees; sleeps, eats, and feels better; loss of flesh stopped.

103. Sick with everything but emulsion; it keeps down, and she feels better while taking it regularly.

105. Eight brothers and sisters died of consumption, also father and several of his family. Cod oil has never seemed to do good. Emulsion agreed, and patient improved much.

108. After five weeks' emulsion, discharged much improved; soon came back asking for emulsion, she missed it very much. Oil disagrees.

109. Oil agreed; at first threw some up. Emulsion agreed; gained flesh and strength; at eighth week nothing to complain of; appetite good.

110. Has taken oil in all forms at different hospitals; makes him sick. Lost four stone in four months, and has œdema of the legs. Emulsion agrees. At sixth week œdema disappeared.

113. Has taken oil eight months, but lost ground steadily. Likes emulsion very much; misses it much if without it; gains strength and flesh, and improves altogether while he takes it regularly.

114. Did not improve under cod-liver oil. Says emulsion soon did good. Much improved.

115. Oil comes up. Emulsion keeps down; says it does him much good; gained seven pounds in four weeks; appetite improved. At seventh week all moist sounds cleared up.

116. Liked fat till ill; cannot take it now. Emulsion agrees; appetite improved; enjoys meals now.

117. Took oil without improvement. Took emulsion and improved much.

119. Wonderfully improved under emulsion. Walks now four miles a day; before could hardly walk from exhaustion.

122. Says emulsion does great good; he gained 8 lbs. more weight than he ever weighed before. No morbid chest-sounds left.

123. Has taken oil thirteen months, losing flesh and strength all the time. Now sick; oil and food both come up. Emulsion agrees; sickness stopped; gains strength.

124. No appetite; all food passes through bowels directly. After four weeks' emulsion, appetite good; food does not pass as before; complained much of missing it when the quantity of emulsion ran short.

125. Took oil five weeks; got much worse; it now produces sickness immediately. Emulsion agrees; says he could take a good deal of it. Appetite improves; general condition better.

126. Oil agreed once; now comes up. Appetite bad; loses flesh. Emulsion agrees. Appetite improves; gains flesh. At twelfth week considers herself quite well.

127. Had lost much flesh while taking oil. Emulsion gained four pounds first eight weeks, three the next two.

129. While taking oil alone has no appetite. When he takes emulsion as well, appetite returns.

130. Takes oil, but gets worse and worse. Emulsion agrees; at eighth week not losing flesh, and is much improved.

131. Larynx much affected; much diarrhoea. Emulsion agrees; gains flesh, appetite, and strength. After taking emulsion fourteen weeks, is able to go to work the first time for twelve months.

132. Has lost 20 lbs. in eighteen months, though taking cod-liver oil. Oil and emulsion both agree; likes emulsion best. Discharged himself in five weeks—he "felt himself so much improved."

133. Oil rises. Emulsion agrees; asks to have more; gains flesh and strength.

134. Constant craving for food; no satisfaction from eating. Terrible flatulence. After taking emulsion seven weeks, lost craving for food; appetite natural; gained flesh; altogether better than for twelve months.

135. Oil spoils appetite. Emulsion improves it.

136. A case of very rapid and extensive deposit, quickly softening. Tried oil and emulsion; both agreed. Liked oil best at first, but in a fortnight lost appetite. The oil produced sickness. Asked for emulsion twice instead of oil; it

agreed; sickness stopped. Appetite returned; gained strength.

137. Oil disagrees. Likes emulsion much. At seventh week appears well.

139. Oil agreed for a time, then produced sickness. Emulsion agreed; all general and physical signs improved. Went to Bournemouth; left off emulsion, not being able to afford it. Seven months afterwards returned to town in advanced third stage; came to hospital, begging to have emulsion again.

141. Oil agreed for short time, then produced bile and sickness; no general improvement. Oil tried again, with same effect. Emulsion agrees, seems to stay the system.

143. Appetite good. Says he has a fearful job to keep down oil. Emulsion twice a day; is all right: fancies it does much good.

144. Mother and brothers and sisters all died of consumption; all took oil. She takes oil twice a day, and likes it; but thinks emulsion does most good, because while taking oil five months she lost flesh and strength, but under emulsion does not lose flesh.

145. Says emulsion does much good; eats with appetite; and whereas he was rapidly losing flesh and strength, is now gaining both. At eighth week nothing to complain of.

146. Emulsion agrees well. After fourth week, instead of losing flesh as before, has gained much, and feels quite well.

148. Had been losing flesh, spitting and coughing, twelve months. After emulsion eight weeks, apparently well.

149. Oil disagreed. Emulsion agreed, improved in all respects while taking it, and menstruated first time for three months.

150. Much troubled with sickness. Likes emulsion; it removes sickness. At tenth week, no sickness; appears well.

151. Has taken oil, and it agrees, but she loses flesh and strength. At first does not like emulsion so well as oil. After taking it three weeks much improved; thinks it does much good. At sixth week says cough is better while she takes emulsion; worse when without it. At eighth week cough much better; has gained strength and flesh; says emulsion does much more good than oil.

152. Appetite capricious; never could take anything fat. At fourth week, appetite good; gains ground. Emulsion agrees.

153. Has taken oil seven months; agrees; but does no good. Likes emulsion much better than oil. At eighth week has gained weight and improved in all respects.

154. Says emulsion agrees exceedingly well; makes him feel quite different. At fourth week, extraordinary improvement in appearance; says he has lost cough, eats well, and is jolly.

155. A very advanced case. Has taken oil off and on for four years; it always produced sickness after a short time, and now won't keep down. Emulsion agrees; and although food and drink come up he continues emulsion, and thinks it keeps him alive.

156. Has tried oil in every way. A few minutes after taking it it sets up sickness, and he has no rest till everything comes up. Has tried three pints of milk per day; it keeps down, but he loses flesh and strength. Emulsion agrees. Says it does a deal of good.

157. Oil rises; always ill after it. Likes emulsion; asks for double quantity. At sixteenth week has gained flesh and strength; feels well.

159. Has taken lots of oil, but gets worse and worse. Likes emulsion; it stays sense of sinking. At eleventh week considers herself well, and wishes to be discharged.

160. Oil agreed six months ago, now produces sickness: feels constant craving and sinking, not relieved by taking food; food comes up. Emulsion agrees; food does not come up; stomach feels stayed; picks up flesh.

161. A very advanced case. The only thing that would stay on the stomach for many weeks before death was emulsion, which she took to the last; and her friends and medical man thought she must have died many weeks sooner but for emulsion.

163. Oil agreed twelve months ago; comes up now. Emulsion agrees; stays on stomach. While taking, diarrhœa ceases; comes on when without emulsion.

164. A large-made man; weighed 12 st. 6 lbs. two years ago; has been taking cod-liver oil; it agrees, and he eats

fat, but present weight is only 9 st. 6 lbs. Emulsion agrees ; says that stuff does a deal of good ; if he leaves it off a day or two he falls back ; at eighth week has gained strength and weight.

165. Says emulsion relieves wonderfully ; it revives, soothes, and strengthens. At eleventh week no cough ; feels well.

168. Says nothing does good like the emulsion.

170. A very advanced case. On admission, oil would not keep down. Emulsion agrees ; likes it. After taking it eight weeks, much improved, and is now able to digest oil.

171. Emulsion seems to heal chest, and improves appetite.

172. Child of seven years. No appetite ; sick with food. Emulsion agrees. At third week mother says she is wonderfully improved in so short a time ; not sick ; appetite good ; nothing the matter.

173. Emulsion stays stomach, and gives more feeling of support than oil.

174. Oil won't keep down. Emulsion keeps down nicely. After five weeks, much improved ; complains that she does not get enough emulsion, as when short of it she gets worse.

175. Improved so much under emulsion that she asks to have double quantity.

176. Has taken lots of oil : it agrees, but gets worse while taking it. Likes emulsion ; gains flesh and strength while taking it : Discharged at twenty-fourth week, improved in all respects ; looks well, and appetite good.

177. Throws up oil almost directly. Emulsion agrees well ; feels much better for it.

179. Has taken oil ; it does more good than other things, but she gets fearfully thin in spite of it ; used to be fat. First dose of emulsion disagreed ; stomach was acid. Tried again after alkaline powder ; agreed well. At ninth week discharged, much better ; gaining flesh.

182. Age ten. Ravenous appetite ; faint after eating ; sick when hungry. Emulsion agrees. Her mother says it does a deal of good ; soon stopped the ravenous appetite, faintness, and sickness. At tenth week, quite well.

183. Complains much of missing the emulsion when short of it. At ninth week, appears well.

184. At eighth week, cough gone; has gained flesh; appetite good.

185. A very severe and chronic case. Long used to take oil. Objected much to try emulsion or anything but oil. After trying emulsion for a few weeks, found so much more good than from oil, that as often as her letter ran out, she came back to hospital again and again for emulsion.

189. Says he can take any quantity of oil, but has no appetite, and brings up his food. Emulsion agrees; gives appetite and keeps down food.

These four reports contain the results of nearly 200 carefully watched cases; and the sum of the whole series, which extended over about three years, is as follows:—

In the first stage (advanced), 45 cases; second stage, 69; third stage, 73. Condition on discharge measured by general symptoms: Improved, 158; stationary, 8; worse, 18; not noted, 3. Measured by physical signs: Improved, 118; stationary, 46; worse, 18; not noted, 5.

*From a Paper "ON PHTHISIS PULMONALIS, AND ITS
TREATMENT BY PANCREATIC EMULSION OF FAT."*

By R. J. KINKEAD, A.B., L.M., T.C.D., L.R.C.S.I., &c.

Medical Press and Circular, Feb. 26, 1868.

"THE chief obstacles to the administration of cod-liver oil are the disagreeable taste and its occasioning sickness. In such cases, and where the repugnance to the taste cannot be overcome, I have found pancreatic emulsion of fat a most valuable agent.

"In one case, we have pancreatic juice neutralised by acid, and pancreatic juice and fat free to act, and therefore the fat freely absorbed; and where the acid is in excess by the addition of an alkali, we have pancreatic juice and alkali neutralising acid, and pancreatic juice and fat free to

act. But what is, perhaps, its most important action, is the educating the stomach to receive and digest oils; for after the emulsion has been administered for some time, it will be found that cod-liver oil will agree in those cases in which before it did not.

“The following case is not to be considered as a complete observation, owing to my unavoidable absence from home during a portion of the patient’s illness; nor do I think I am entitled to state that her recovery was entirely owing to the use of pancreatic emulsion; neither do I say that her recovery will be permanent. But I do say that, from the circumstances of the case, I am entitled to argue that the emulsion aided, in a great measure, her restoration to health; and that although the disease may recur, yet a rescue from immediate death and alleviation of suffering, if occasioned by a remedy, are sufficient, even if its powers are limited to a few cases, to place that remedy high in the list of our most valued ones. But I believe that more extensive experience will prove what theory and the little experience we now have indicate,—that pancreatic emulsion, supplying to the system as it does (what it most wants in scrofulous cachexia) a large amount of nutriment with the least amount of digestive labour, and in a form most easily assimilated, will, when combined with proper treatment, and judiciously followed up by dietetic and hygienic rules, enable us to assist nature to cure a much larger proportion of phthisical cases.

“Towards the end of August, 1867, I was ‘called in’ to attend C. G., æt. 19, unmarried, by occupation a laundress, suffering from a severe cough of about three weeks’ duration.

“She had, for a girl of her rank of life, a peculiarly fair, delicate complexion. The veins could be clearly seen ramifying under the skin; upper lip slightly strumous; eyelashes very long; and hair of a reddish brown colour.

“Her father and three brothers had died of acute phthisis.

“Up to the period of her present illness her health had been good. At the time I first saw her, she presented most prominently the symptoms of inflammation of the lungs, but the breathing was more hurried and difficult than the amount and violence of the inflammation (confined to a portion of base of left lung) would account for. On a more extensive examination, I

found the right side perfectly healthy, but there was slight dullness under left clavicle, and in the supra-scapular region.

"Expiration and inspiration were equal, the latter, too, was interrupted.

"The pulse was rapid and weak.

"Blisters, small doses of tartar emetic, and the free administration of wine and nourishment, reduced the inflammation; the respiratory murmur returned (save in the sub-clavicular and supra-spinous regions), and she was enabled to return to her usual occupations. From this time (Sept. 5) till sent for on Sept. 29, I did not see her.

"I found her complaining of pain in the left side (pleuritic stitches); short hacking cough; night perspiration; respiration rapid; pulse 90, weak; expectoration glairy and frothy, and containing bodies like grains of rice; dulness increased in extent, reaching from left clavicle to upper margin of fifth rib; bruit in left subclavian; face pale; complains of weakness. Ordered potass iodidi, gr.xxxii.; liq.ferri iodidi, ʒ iii.; ol. morrhuae, ʒ viiss.; a dessert spoonful three times a day; wine, jellies, and nourishment were freely administered.

"On the 5th of October she got an acid and iron mixture, which restrained for a short period the perspiration, but she rapidly got worse; great wasting set in; lips became exsanguin; dulness increased; expectoration became nummular and purulent; respiration difficult, and I detected pectoriloquy, and one day metallic tinkling. The stomach became so irritable that it was with difficulty that it could be made to retain even a small portion of milk. The perspiration now became excessive; the pain in the side was constant and agonising, and she sank so low that I expected her death daily. She complained so of want of rest from the pain and cough, that I gave her, as she presented no symptoms of aeration of her blood, R liq. morphiae hcl., ℥ 30, acid hydrocyan. dil. gtt. i., liq. bismuthi (Schacht) f. ʒ i., emuls. amygd., f. ʒ i., omni nocte, s.; this gave some relief.

"On the 14th October I commenced the pancreatic emulsion, in two teaspoonful doses, two hours after dinner and supper, but on the second day I had to diminish the dose to one and a-half spoonful, owing to its occasioning sickness. After this, I can only describe its effects by saying that it

seemed 'to work like a charm.' The cough grew less, the drenching night perspiration diminished: the respiration grew so much easier that the patient was able to lie down at night, which for some time previous had been impossible, owing to the difficulty of breathing it occasioned; the pains grew so much easier that she was able to dispense with the anodyne draught at night; the pulse sank gradually from 130 to 70, and, at the same time, grew full and strong. She increased in weight and grew stout, and her strength returned by degrees.

"Now, the mere fact that after taking the emulsion she so rapidly recovered, would, by itself, be very insufficient evidence as to the efficacy of that remedy; it would be merely a '*post hoc ergo propter hoc*' assertion, and, consequently of very little weight. But this fact, purposely omitted from the report of the case, changes the nature of the assertion, and proves that the emulsion was, at least, the most important agent in effecting her recovery. Two bottles of the emulsion were first sent down from Dublin. While taking these, the improvement in the patient's health was most marked; before the second bottle was finished a fresh supply was written for, but owing to some unaccountable delay it did not arrive till nine or ten days after the first supply was exhausted. During this interval, although the other treatment was continued, she sensibly fell back. The cough, pain in sides, and perspiration became worse, and she felt weak and desponding. On recommencing the emulsion, she began again to amend, and continued steadily to recover.

"In a chronic case, the cough and breathing grew easier, and the perspiration ceased during the use of the *emulsion*. In both these cases, cod-liver oil, which had hitherto been persistently rejected, was retained by the stomach after the emulsion had been administered for some time."

By RICHARD J. KINKEAD, A.B., Lic. Univ. Dublin,
L.R.C.S.I. & L.M.D.

*Extracted from the Medical Press and Circular, February 17,
and March 3, 1869.*

"However divided on other points, physicians are unanimous in recommending fat, or rather oils, in tuberculosis.

This shows the very general belief, that the quantity of fat contained in food is either not assimilated, or that a sufficiency is not ingested to supply the necessary amount of respiratory food. The conviction that it is the fatty assimilation that is out of order is steadily gaining ground.

“The intense dislike to fats generally manifested by tuberculous patients, frequently existing before any physical signs of disease can be detected, and the inability to retain them on the stomach when taken, indicate a deficiency of digestive power.

“Two questions now naturally arise—

1st. What causes this deficiency of digestive power?

2nd.—How does the non-assimilation of fat cause the production of tubercle?

“I do not attempt the answer of the latter—it is still a debated subject; indeed many doubt whether tuberculosis is caused by oleaginous food not being assimilated. To any one interested in this question I would recommend the study of Dr. Dobell’s work on tuberculosis, which contains the most rational hypothesis I have yet seen on the subject.

“Since, then, the digestion of oleaginous food is incomplete, since it in some way causes the deposition of tubercle, and since physicians for the most part are agreed that the introduction of fatty matters into the system affords the best prospect of curing the disease, the great question for the practical physician is how this may best be effected.

“The efforts of the practitioner should be directed to the digestive rather than to the pulmonary system. The kind of morbid nutrition in the body generally, and altered morphological changes in the tissues of the organ where the deposit takes place, appear to be chiefly due to the excess of albuminous, and deficiency of fatty elements in the chyle. It has been now fully shown, especially by the observations of Dr. Hughes Bennett, in the first instance, confirmed by the extensive experience of the physicians of the Brompton Hospital for Consumption in London, that such treatment as is directed to remove the malassimilation of food frequently checks the tendency to the repeated occurrence of tubercles, while those that previously existed remain harmless, that

general symptoms and physical signs may disappear completely, and that even extensive excavations in the pulmonary tissue may heal up and cicatrize." To improve the faulty nutrition, 'it is of all things important that fatty matters should be assimilated in large quantities.'*

"Until a short time ago, cod-liver oil was without doubt the best medicine we possessed, and that it is a most valuable one, is, I think, an undoubted fact; far superior to other animal fats and oils which have been tried, such as cream, butter, neatsfoot oil, etc.; fat meats, as pork, mutton chops, bacon, etc. But when we try to administer cod-liver oil we are met by a difficulty which it is often impossible to overcome, that is, to enable the patient to take it; for if we can overcome the distaste to fats of all kinds which usually exists, and induce our patient to try it, in many cases we find that the stomach will reject even very small quantities of the oil, and although in some cases it may at first be retained, yet, after a short time, it will be rejected. In many instances we can by no means overcome this intolerance of the stomach. That this is not due to the excessive acidity of the strumous dyspepsia, present in nearly all tuberculous patients, is, I think, proved by alkalies so signally failing to procure the retention of the oil.

"If we examine, then, the effects of cod-liver oil, we find that in some it is retained, and acts most beneficially, even performing a cure. In some it is retained, and acts beneficially for a time, but then its good effects cease, and the patient gradually gets worse. In others it is retained for a short time, and then rejected before it does much good; and in others it is not retained at all. There are a few cases in which the disgust to oil is so great that even an attempt to take it cannot be made.

"What is wanted, therefore, is a remedy which will aid the good effects of cod-liver oil in those cases in which it is retained, and which will supply its place in those in which the oil is rejected, and (as in phthisis it is necessary to succeed in getting a large quantity of oleaginous food assimilated) will educate the stomach to retain cod-liver oil

* Atkin's "Practice of Medicine," vol. ii., p. 230.

and other fats. The agent that will, I believe, do this, is pancreatic emulsion, the credit of introducing which belongs to Dr. Dobell.

"The emulsion has many advantages over cod-liver oil. It will be retained where the oil has been rejected. This has been proved by experience. In patients of my own I have found it to be the case.

"In 1867, Dr. Dobell published a 'Report on the Experience of Medical Men who have used Pancreatic Emulsion of Fat.' In collecting materials for this report, amongst others, the following question was asked:—'Have you found that patients can take the emulsion when they cannot take cod-liver oil?' Thirty-two medical men sent answers to his queries; twenty-nine of these answered this question in the affirmative.

"In a report of cases treated by Dr. Freke, in Steeven's Hospital, the same testimony is borne:—'The emulsion and cod-liver oil were tried in six other cases of pulmonary consumption under Dr. Freke's care, in all of which it produced a speedy and well-marked improvement in the digestive organs, and proved far superior to the oil alone. In no single instance did it disagree, and in several instances patients who were at first *quite unable to take cod-liver oil, even in small doses*, found that a few drachms of pancreatic emulsion enabled them readily to do so.'*

"This report also bears very strong testimony to the truth of a statement that I made in a former paper on the subject, that 'after the emulsion has been administered for some time it will be found that cod-liver oil will agree in those cases in which before it did not.'

"There is good reason for believing that fluid oils may be taken up by the blood of the portal system; and this furnishes a probable explanation in those cases in which cod-liver oil is for a time retained by the stomach. But this mode of ingress for fatty food may be, after a time stopped up, perhaps from repletion, and the stomach, acting as porter to the system, will not retain food that there is no demand for.

* Cases under the care of Dr. Freke. Reported by S. Flood, M.B. *Med. Press & Circ.*, Oct., 1868. (See p 33)

“ But there is yet another class of cases—in which cod-liver oil agrees, in which the oil is digested, and yet the progress stops at a certain point, and the patient sooner or later declines again.

“ A rational explanation of this is ‘that not less than two ounces of fat per day on an average is required to keep up healthy nutrition in an adult. We have next to bear in mind that, before a case of consumption ordinarily attracts attention and begins to be treated as such, many pounds’ weight, principally consisting of fat, have been gradually removed from the body. In this condition—1. A deficiency of fat through the organism. 2. A loss of power to assimilate ordinary fats. 3. A constant demand for two ounces per day to maintain healthy nutrition—we administer cod-liver oil in the belief that this form of fat will assimilate, when other forms will not. Supposing that it agrees, and that some or all of it is utilized, a rapid improvement takes place in the patient, from the supply of some of that for want of which life was steadily fading.’ . . . ‘But there are very few persons who can take more than from half an ounce to one ounce of oil per day—few who can take this steadily from week to week without intermission. But supposing an ounce or an ounce and a half per day to be taken regularly, how is this to supply, not only the two ounces per day required for healthy nutrition, but all the extra ounces of arrears that were lost before the treatment was begun? But assuming the possibility of two ounces of oil for nutrition and another two ounces for arrears being taken and utilized, even then the *whole thing may be unstable and may break down*, from the fact that we are supplying oil and not *solid fat*: a body rich in olein and poor in stearin and margarin in the place of bodies rich in stearin and margarin and poor in olein—such as the fats taken in normal food.’*

“ ‘The importance of pancreatic emulsion of solid fat over cod-liver oil in the treatment of tuberculosis must be as great as that of supplying a plant with good soil, instead of putting it into water. In the one case a provision is made for the maintenance of normal life; in the other, death is only postponed by a temporary expedient.’†

* Dobell, *op. cit.*, p. 56.

† Dobell, *op. cit.*, p. 52.

"But after all, the true test of the value of a remedy is experience of its effects. If we see it prove of undoubted benefit in a succession of cases, and especially where other remedies have been of little or no use, and if the improvement that follows its use is not a mere temporary one, a sudden flickering up of the expiring flame of life, but a steady, progressive, permanent one, then it is probable that the theory on which it is put forward is correct.

"It is necessary, however, to avoid considering a medicament which is of great value as a new form of, or rather in any form, as an *elixir vitæ*."

"The following cases, treated by pancreatic emulsion, demonstrate its value, not only in phthisis, but in other affections caused or attended by a low state of nutrition and a poor condition of the blood :—

"C. G. (whose case I reported in the *Medical Press and Circular* of Feb. 26, 1868), having exposed herself to wet and cold, got a relapse. I was sent for to see her on the 29th of March. She had a slight spitting of blood, night sweats, pulse about 80, breathing slightly interrupted under right clavicle, expiration slightly prolonged, bruit in subclavian. Ordered pancreatic emulsion, in ʒii. doses, twice a day, to be taken one hour and a half after dinner and supper. Also ʒss. of a mixture of ol. morhuæ. ʒvii. syr. ferri iodidi, ʒi. in the morning and an hour before supper. She gradually improved till the 21st of April, when she was seized with a slight attack of rheumatic fever; the chest signs, too, were worse. On the 27th slight hæmoptysis, but otherwise better. On 29th, dose of emulsion increased to ʒiiij. On May 4th, physical signs better; general symptoms improved. On May 25th, I saw her for the last time; she was greatly improved. She steadily progressed, and has, up to the present date, continued in perfect health.

"J. M., railway porter, suffering from aneurism. Sharp hæmoptysis, purulent expectoration, night sweats. Confined to bed. Has taken cod-liver oil, which did 'some good.' Began the emulsion in ʒii. doses. In a week he was able to be up and about; in a fortnight more he returned to his work,

the station-master setting him to light duty. At this time I got him weighed. His increase for three consecutive weeks was—1st week, 4 lb.; 2nd week, $1\frac{1}{4}$ lb.; 3rd week, 1 lb. He regained his colour and strength; his appetite improved and he picked up flesh. He died suddenly in October from the aneurism bursting. He began to take the emulsion at the end of March or the beginning of April, at which time he was in a very low—almost dying—condition. He was enabled by the use of the emulsion to attend to his business, and was a comparatively healthy man till his death, nearly seven months afterwards.

“B. R., ætat. 20, male. Very tall and thin; dark complexion. Eldest brother died of acute phthisis. Had a bad cough last winter, which got better towards summer, but never entirely left him. Cough worse within last few days. *Can't eat fat-meat or fat of any kind.*

“August 31st.—Cough very bad; headache; face flushed; pain in side; expectoration scanty; sweats at night; dulness under right clavicle, the rest of chest clear, on percussion; respiration interrupted under right clavicle; sibilant râles over both sides of chest; pulse hard and rapid. Ordered, tr. verat. virid. ʒiiss. in emuls. amygd. ʒviii., ʒi. tertiis horis, emplast. sinapis to chest, to inhale steam of boiling water.

“September 1st.—Cough easier. Sputa purulent and nummular, floating in a rusty-looking watery expectoration, slight pectoriloquy under right clavicle; minute crepitation in lungs on both sides, posteriorly; râles not so loud; respiration tubular in parts; inspiration and expiration equal. Ordered continued mixture, beef tea, and wine.

“September 2nd.—Posterior and lower portion of right lung solidified; slight friction sound. Painted side with lin. iodi; purgative of calomel and jalap.

“September 3rd.—Side better; friction sound on left side. Applied lin. iodi to both sides. Crepitus less; râles continued; expectoration purulent, tinged with blood. R̄ iod. kali, gr. 80; liq. cinch. ext. tarax., liquid aa. ʒi., tea-spoonful three times a day.

"September 5th.—Dry friction sound on left side. Emplast. littæ.

"He improved till the 10th, when he was not so well. Pectoriloquy very distinct under right clavicle; breathing tubular on right side; dulness under right clavicle. Ordered 5 ii. doses of pancreatic emulsion.

"September 12th.—Emulsion agrees with him. Better. Respiration natural, save in the right subclavicular region, where there is still some pectoriloquy; expectoration less, but still purulent; night sweats less; pain in side (pleuritic stitches) nearly gone.

"From this date he progressed favourably, and is now apparently well — stouter than ever he was. He could not take cod-liver oil or fat of any kind, but experienced no difficulty in taking the emulsion. The habits and position of life of this patient were much against his recovery. The ceiling of the room he slept in was so low that I could touch it with my hand, and it was not more than 8 feet by 10 in size, and besides his own, there was a large bedstead with a top to it in the room, in which some other member of the family slept.

"The emulsion I have always used was that prepared by Messrs. Savory and Moore."

"Since sending this paper to press, the patient B. R. called on me to prescribe for a return of his cough. I examined his chest, and found the physical signs nearly gone; he was only suffering from a slight attack of catarrh. He told me that since he has taken the emulsion he has been able to eat fat and to take cod-liver oil, and that he finds himself much stouter and stronger."

EXTRACT FROM REPORTS OF CASES AT DR. STEEVENS' HOSPITAL, DUBLIN.

Under the care of DR. FREKE. (Referred to p 29.)

Reported by S. Flood, M.B.

"Cod-liver oil was now omitted for six days, during which time the patient took two drachms of pancreatic emulsion in

milk three times daily. His appetite improved considerably, and he was enabled to return to the oil, which, with the aid of the emulsion, he can now easily take. Under this plan he has rapidly and decidedly improved. His appetite is good. Cough very much diminished. Can lie in any position. Expectoration scant. Skin cool. Pulse 92 (from 112). Sleeps well. Has steadily gained flesh (19 lbs. in 49 days).

"This was an unpromising case. The disease had made rapid progress. Cod-liver oil could not be taken, and the patient was fast losing ground. The employment of pancreatic emulsion at once produced a marked improvement in the digestive organs, the result being a great alleviation of all the more distressing symptoms, and a decided improvement in the patient's general health.

"The emulsion and cod-liver oil was tried in six other cases of consumption under Dr. FREKE's care, in all of which it produced a speedy and well-marked improvement in the digestive organs, and proved far superior to the oil alone."

The Medical Press and Circular, Oct. 7th, 1868.

EXTRACTS FROM

"A REPORT OF THE EXPERIENCE OF MEDICAL MEN
WHO HAVE USED PANCREATIC EMULSION."

Published by Churchill & Son, 1867.

DR. SMITH ROWE, *Margate, Surgeon, Royal Infirmary, and
St. Margaret's Home.*

"Found the digestion improved. A marked improvement in nutrition, with increase of weight. The effects of the emulsion were decided retardation of symptoms, and in four cases prolonging life to a very marked extent. Patients take the emulsion when they cannot take the cod-liver oil."

DR. G. B. CORNISH, *Taunton.*

"In four cases the patients gained in weight and in the power of taking a larger quantity of food. There was also considerable improvement in the stage of tuberculisation, and in that of softening.

"In all cases the patients can take emulsion when they cannot take cod-liver oil."

DR. CLIFFORD ALLBUT, M.A., M.B., CANTAB., *Physician to the Leeds Infirmary and Hospital.*

"I HAVE prescribed the pancreatic emulsion in at least one hundred cases. Its effects on nutrition and weight were good.

"Mrs. J. H., æt. 32, phthisis essentialis (non-scrofulous).

"Cod-liver oil tried in all ways for five months, but could not be continued; caused nausea, and it did no good.

"Pancreatic emulsion could be taken regularly and digested.

"In this case there was loss of flesh two years. Night sweats, debility, and dyspepsia, eighteen months. Cough, one year. Hæmoptysis frequent; first attack eight months ago.

"Under pancreatic emulsion has steadily improved, and gained 18 lbs. in weight. No night sweats. Appetite described as excellent. Slight cough. No spitting. Emulsion regularly taken and digested.

"I have one or two families in my eye, of gentry living near here, for whom and for whose children I have prescribed pancreatic emulsion with great success. I have one under my care now. Last year I ordered for a delicate-looking thin-skinned boy, with lustrous eyes, long eyelashes, fine wrists and ankles, silky hair, tendency to flush towards evening and perspire at night, uncertain appetite, unequal physical energy, etc., the pancreatic emulsion. He strengthened wonderfully under it, and now remains better, or indeed well. But if he leaves the pancreatic emulsion off, he tends to fall back. To his younger brother I am now called, who is such another boy, and with same symptoms. He is put on pancreatic emulsion, and is doing the remedy the same credit. In many such cases I have found it valuable, and for such cases it seems to me to surpass any other, and especially for them."

P. E. MIALL, Esq., M.R.C.S., *Bradford, Yorkshire, Surgeon to the Bradford Infirmary.*

"I have found emulsion has improved digestion, increased nutrition and weight. It can be taken when cod-liver oil cannot."

H. GIBBONS, M.R.C.S., *Wolverhampton*,

"Patients can take the emulsion much better than cod-liver oil, its effects were 'very good' in the first three stages of consumption. I consider the emulsion very far superior to cod-liver oil."

JOHN FOX, M.D., *Greenock, Physician to the Greenock Hospital*.

"All the patients (about 24) stated that they were benefited by its use, and that it improved digestion."

J. SWIFT WALKER, M.D., *Hanley, Staffordshire, Medical Officer of Health*.

"The emulsion (tried on thirty cases) increases appetite and promotes digestion, and increases nutrition and weight. Patients can take it when they cannot take cod-liver oil."

"In the first and second stages of consumption the effect of emulsion is very good, much superior to cod-liver oil. In cases of old standing bronchitis, and also in debility after a severe attack, it is superior to any other remedy."

HENRY S. PURDON, M.D., *Belfast, Physician to Belfast Infirmary and Templepatrick Hospital, &c.*

"The emulsion promotes digestion, and patients appear to grow in weight and flesh."

"Patients can take emulsion when they cannot take cod-liver oil."

"In one case, a boy, aged 12, attacked by first stage of phthisis, the effects of the remedy were amazing; and at the present time no symptoms of consumption remain."

"One case, a man, aged 40, stage of softening, derived much benefit from the emulsion, and has gained in strength and flesh. One case only a few months under treatment."

J. P. CASSELLS, M.D., *Glasgow*.

"I have prescribed the emulsion in a large number of cases. It has improved the digestion and nutrition, and increased the weight of the patient."

"I have found it equally beneficial in cases of wasting in poor children. And in one case of malignant disease of the pancreas—female, aged 45—where large masses of fatty-looking

matter passed in the stools, and there was great wasting of the body, the patient improved much in general condition under the use of the emulsion, and the fatty matter ceased to pass in the stools in a rapid manner. Since my last report I have had a run of cases suitable for the use of the emulsion, and in which I have prescribed it very largely, with much benefit, so increasing the favourable opinion I have already expressed.

"Patients can take the emulsion when they cannot take the cod oil."

A. MERCER ADAMS, M.D., *Boston, Lincolnshire, late Surgeon to the Royal Infirmary, Dundee and Galloway.*

"I found the emulsion most serviceable, the patient could not take oil—was in last stage of consumption. Rallied for a time by using it. Digestion improved and weight increased. I consider the emulsion a valuable addition to the nutritive agents required in the treatment of phthisis, and it is especially useful in cases where cod-liver oil cannot be taken."

G. T. W. MUGLISTON, M.D., *Maryland Point, E., Surgeon to K Division of Police, &c.*

"The emulsion assists digestion, improves nutrition, and in one case the patient gained three and a half pounds in six weeks. It improves the strength, and renders the expectoration more healthy and less copious.

"The pancreatic emulsion seems to give general satisfaction and benefit, which is a great consideration, because there are many persons who cannot take cod-liver oil. I have recommended its use in three cases in second stage (softening)."

1. Mrs. —, 35, had two children ill two years. After taking emulsion six weeks, gained $3\frac{1}{2}$ lbs.; cough and other symptoms much improved.

2. Miss —, 28, ill one year and half. Has taken emulsion two months, with diminution of cough and expectoration.

3. Miss —, strumous abscesses, and softening of both lungs; loss of strength, appetite, and weight. Has taken emulsion eight weeks, with decided advantage over cod-liver oil. All symptoms better. Intends to continue emulsion.

4. Mrs. —, 27, five children, could not take cod-liver oil, it deranged digestion. Has taken emulsion one month,

with great benefit ; increase of weight and bulk. Cough much better, and feels stronger.

5. Mr. W. —, the most marked of all (stage of excavation). After a long course of emulsion, he now attends regularly to his duties as foreman in the fitting-shop of the Great Eastern Railway.

C. F. LEWIS, M.D., *Henfield, Sussex, late Medical Officer at Charing Cross Hospital.*

"The emulsion very much improves the appetite. I have no hesitation in saying, that in two cases in which I have given the emulsion it has quite exceeded my expectations. In one patient, when she commenced the emulsion, the left lung was in the stage of excavation, and the right in the stage of softening, which has been arrested, and the moist sounds in the left lung cleared away. I am now giving it in a third case."

C. PAGET BLAKE, M.D., M.R.C.P., LOND., *Torquay, Physician to the Torquay Consumption Hospital and Torbay Infirmary.*

"The emulsion is an excellent adjunct to digestion. Decidedly beneficial in nutrition, and generally tends to increase weight. In many cases which quite revolted at the idea of oil, the emulsion was readily taken, especially when exhibited with equal parts of ginger wine and water.

"I have found it highly beneficial in the first stage of consumption ; of decided and permanent service in the second, and an immense help to other remedies for re-establishing the health.

"I have found that a great many patients could not take the emulsion in milk ; but I never knew any who could not take it in ginger wine and water. Probably this is owing to my patients at Torquay usually consuming so much milk and cream at other times ; as I always order both in large quantities for consumption cases."

H. DOBELL, M.D., *London, Senior Physician to the Royal Hospital for Diseases of the Chest.*

In 1867, Dr. Dobell said, "I have prescribed the Emulsion in about 2500 hospital cases, with results which, I think,

may be fairly represented by those obtained in the cases of which careful notes were taken, and which have been published in the *Lancet*. (See p.p. 13 to 23.)

“It assists greatly in the digestion of fat and starch, and improves digestion generally. But it is necessary to use common sense in correcting any special derangements of digestion, which may be present, by other remedies.

“Maintains or increases weight according to the amount of weight previously lost, the power of taking food, and the quantities of emulsion administered.

“In 187 published cases, emulsion agreed in 180; disagreed in seven. Cod-liver oil agreed in 75; disagreed in 98; was not tried in 14. In the 187 cases of which I have published results, no cod-liver oil was given during treatment with emulsion, so as not to confuse the effects of the two remedies. But in daily practice, I recommend both oil and emulsion to be taken, if the stomach will bear them. The proportion of cases in which emulsion agrees will not be as large as here stated, unless care is taken to correct obvious defects in digestion by other remedies.

“In the true first stage, my experience is derived principally from private practice, such cases not often appearing at hospitals.

“Of the 2500 hospital cases who have taken the emulsion, many have been in an extremely advanced stage of disease; and in some of these the emulsion has appeared to prolong life in a remarkable manner, being retained on the stomach long after all other kinds of food had ceased to be tolerated.

“Whereas oleinous fats, and especially cod-liver oil, are absorbed into the blood through the portal system, and serve an important purpose by rapidly presenting themselves for combustion and histogenesis, they do not and cannot take the place of solid fats—rich in margarin and stearin, fusible at higher temperatures than olein, and less easily oxidisable—which can only be absorbed by the lacteal system after pancreatization. This accounts for the remarkable stability of the improvement which accompanies and follows the administration of pancreatic emulsion, after cod-liver oil has been given without success, or with very evanescent success.”

TREVOR NORRIS, JUN., M.D., *Carlisle.*

"I believe emulsion improves digestion.

"The most notable feature I have observed in the exhibition of the emulsion, is relief from the craving and sinking so often found in phthisical patients."

JULIUS ALTHAUS, M.D., *London, Physician to the London Infirmary for Epilepsy.*

"Digestion and nutrition were much improved.

"When physician to the Royal Infirmary, I prescribed it in about twenty cases of tubercular phthisis, where cod-liver oil did not agree.

"I have prescribed emulsion in a number of cases of nervous disorders, especially hysteria associated with anæmia, and paralytic affections connected with mal-nutrition. In all of these cases emulsion was well borne, and appeared to be of considerable benefit in improving assimilation and general condition of the patient."

G. LINDSAY BONNAR, M.D., *Cupar, Surgeon to the Fife County Prison, &c.*

"Patient was very fond of it at first, and it evidently was nutritious; but as it was a case of advanced phthisis, the waste was not nearly compensated for by the administration of nutriment.

"In this case recourse was had to the emulsion, owing to the inability of the patient to retain oil on the stomach, even in minute doses.

"It is highly nutritious and agreeable, as well as an easily-digested article of food. Very valuable as a substitute for cod-liver oil.

"It is calculated to be beneficial in all cases where the tone and vigour of the system require repair."

R. GUTTERIDGE, ESQ., M.D., *Leicester.*

"The patient rapidly gained both flesh and strength."

C. GLENN BOTT, M.D., *Sheffield.*

"In the cases (about nine) in which I have tried the emulsion, the result would be to encourage my continuance of its use."

H. S. LEVERTON, ESQ., M.R.C.S., *Truro.*

"The emulsion decidedly assists digestion and nourishes the body. In two or three well-marked cases I have found that patients can take the emulsion when they cannot take cod-liver oil.

"I intend to try it thoroughly in cases of phthisis. In cases of debility, wasting, etc., from any cause, this is most valuable."

JOHN SKAIFE, ESQ., M.R.C.S. *London.*

"Digestion and nutrition are improved. Weight is increased. The general plight of the body is improved in every stage. Patients can take emulsion when they cannot take cod-liver oil. The emulsion invariably agrees, unless there is some special stomach derangement."

C. B. GARRETT, M.D., *Hastings.*

"The emulsion agrees well, and adds to weight and strength. In the second and third stages the effect was good. I think it a splendid invention. In every case patients can take the emulsion when they cannot take cod-liver oil."

From ARTHUR G. BUCKLEY, M.R.C.S., *Salton-on-Trent.*

"The Emulsion has succeeded almost miraculously. Three bottles I have used in a case of ulcer of the stomach; the patient is now convalescent, but continuing the remedy.

"Another two bottles I used in a case of most aggravated dyspepsia. A perfect cure was effected, though the patient had been a martyr to pain of the most excruciating character. A consumptive patient is also taking the Emulsion with the greatest advantage."

From WM. FARREN, Esq., *East India Army Agency,*
Parliament Street.

"For rather more than a week I have been in France, and consequently did not take the Pancreatic Emulsion regularly, sometimes missing a day or two together; still I find steady and gradual improvement in health and weight.

"Previous to 24th March, the day I commenced with the medicine, I was slowly though surely losing weight and strength. Now, in 23 days, I have gained 5 lbs. 5 oz. in weight, and am, therefore, encouraged to proceed and give it a fair trial. The Emulsion increases the appetite wonderfully, and I scarcely let two hours after meals elapse before I am

ready for another. I always mix the Emulsion with brandy and milk, and am getting a strong liking for it."

From EDWARD MARTIN, ESQ., M.R.C.S., *Loughborough.*

"About a month ago I was recommended by Dr. Quain to try your pancreatic emulsion. I took two bottles, and increased in weight five pounds in a fortnight. . . . My progress under the emulsion and pancreatine is very satisfactory, and I will send you further particulars for the benefit of others."

From DR. NORCOM, *Edenton, N. Carolina, United States of America, January 24, 1870.*

"I have fully tried your emulsion, and think it a great food in consumption, particularly of the lungs. I have now under my charge a young man who has been *wonderfully benefited* by the remedy. He cannot take cod-liver oil, but takes and digests the emulsion well. He has had phthisis pulmonalis for more than a year. His improvement is *truly astonishing*. This case was examined also by Professor Donaldson, of Baltimore, a skilled auscultator."

From MR. G. WILLIAMSON, *Chemist, North Shields.*

"A young man called Mitchell, who resides here, and whose father has been manager of the Gas Works for many years, was reduced to a very low state of weakness, and quite unable to sit up, vomited his food, and was looked upon as near his end, was recommended the emulsion. After taking it the sickness left him, and he is now able to go out, and from his father's account is very much improved. I hope it may continue, as I think it an instance of very great good. He still continues on with it, and has not been sick since beginning to take the Emulsion."

PANCREATINE.

The dried extract of the Pig's sweetbread possesses all the properties of Pancreatic juice, and is steadily taking its place as an important aid to the digestion of fat, starch, and albuminoid matters. It is a nearly tasteless powder, easily taken in water or wine, either with or immediately after meals. The following are some of the evidences already published on this subject:—

*From a Letter by DR. DOBELL in 'The British Medical Journal,'
on Pancreatine, February 8, 1868.*

"So little is at present known of the medicinal effects of pancreatine, that I think the following note may be of interest to medical men.

"In July, 1866, I was consulted by a gentleman, aged twenty-one, whose rapid decline in health was causing the greatest concern among his friends. He had the general symptoms of advancing tuberculosis, softening of the upper part of the left lung, partial consolidation of the right; weight 119 pounds. With the assistance of cod-liver oil, pancreatic emulsion, good diet, and a winter at Bournemouth, where I placed him under the care of Mr. Allis Smith, he got on very well, and returned to the country in March, 1867. September, 1867, he wrote me: 'Cough and expectoration increase. I feel weak in body, occasionally having heavy perspirations; unable to get pancreatic emulsion for some time, but expect some to-day.' November 19, 1867.—He had considerably improved since his note in September, and I again sent him to Bournemouth, under Mr. Allis Smith's care. Weight 121 pounds 4 ounces. January 3, 1868.—He wrote as follows: 'For the past six weeks I have been regularly trying pancreatine (Savory & Moore's). The effect it has had on my digestion is most extraordinary; and during that time I have taken about two table-spoonfuls per day of cod-liver oil (following them immediately with ten grains of pancreatine) without the smallest feeling of indigestion; this I could never do before. I have, in the same time, gained ten pounds in weight. My friend Dr. Coates has, in the last month, given it to two patients (the second one only lately); the first, who is suffering from tubercular disease of the lungs, and was unable to take cod-liver oil, and was a martyr to indigestion, says that since she has taken the pancreatine she has been able (like myself) to take the oil, and still not feel indigestion. Dr. Coates desires me to tell you that when he has more data he will write you fully.'

"Writing again, January 12, he says: 'My bodily health seems better in every way; I have no indigestion whatever since I began the present treatment; weight to-day 134

pounds, making a total increase of 12 pounds 12 ounces since November 19.' It will be observed that, although in July, 1866, he was in the softening stage of tuberculosis, he weighs at the present time 15 pounds more than he did then. But the particular interest of the case lies in the circumstance that after having been kept up in weight by good diet, cod-liver oil, and pancreatic emulsion, he made a leap of 12 pounds 12 ounces when pancreatine was added to his treatment, and that the difficulty which he had always felt in digesting cod-liver oil disappeared. I have seen similar effects in other cases, though not quite so sudden."

DR. CLAY, *Physician to the S. Devon and E. Cornwall Hospital, Plymouth.*

"The short experience I have had of Pancreatine is very favourable, it allows cod-liver oil to be taken with impunity by patients who are quite unable to do so without the drug."

DR. LANGDON DOWN, *Physician to the London Hospital, &c.*, "ON THE USE OF PANCREATINE IN AFFECTIONS OF THE PANCREAS."

CLINICAL SOCIETY, FRIDAY, MARCH 12.

MR. PAGET, F.R.S., President, in the Chair.

"Dr. Langdon Down mentioned a case of a man, æt. fifty-two, who had been passing a large quantity of fat by the bowels. The man came under his care on the 22nd of September in last year. He learned he was a native of Boston, and had been suffering in this way for two and a half years. He attributed the affection to having caught cold while residing in the fen districts. Ever since then he had been passing fat-like matter of the consistency of bees'-wax. Many years ago he fell from a ship's mast, but got quite well again. He was now carrying on the business of a greengrocer; but latterly he had been so ill that he intended to give up his business. He had lost two stones in weight. The fatty-looking material passing from him had a strong fæcal odour. It was soluble in ether, and was saponified by caustic potash. Careful examination, both chemical and microscopical, proved the existence of fatty acids. The urine had a high specific gravity and contained numerous crystals of oxalate of lime and uric

acid. It moreover contained a small quantity of sugar, and he passed four or five pints daily. A year since he had been a patient for five weeks in St. Bartholomew's Hospital under the care of Dr. Farre. His parents had both lived to an old age. Careful examination was made of the abdomen, but no evidence of tumour or enlargement of the pancreas could be found. The man complained of present weakness, of pain in the back, flatulence, and altogether was so demoralised, that he quite despaired of getting well again. At first quinine was given, but without any diminution of the fatty-stools. On the 1st of October, Dr. Down prescribed for him seven and a half grains of pancreatic extract with the same quantity of malt dust three times a day. The improvement was immediate. The number of stools fell to two per diem, and gradually lost their fatty character, while the sugar disappeared from the urine. At the end of November he had only one stool a day, of normal consistence and character. The man so gained in strength and spirits that he was with difficulty induced to remain in the hospital. He at length returned to Lincolnshire, taking with him a month's supply of pancreatic extract. At the end of the month he reported himself in perfect health, and that he had reached his maximum weight. He then left off the treatment, and Dr. Down had just heard from him that his health continued good. During the period of treatment he had been placed on plain diet, and all stimulants had been disallowed. The weight gained by the patient had averaged two pounds per week; one week he gained as much as five and a half pounds. There were several points of interest to which Dr. Down wished to call attention. The case seemed to be just one to test the value of pancreatic extract in emulsifying fatty matter in the intestinal canal, and the truth of Corvisart's statement, that the pancreatic juice would be rendered inoperative by the gastric juice in the stomach. The case was also of interest in reference to diabetes. The co-existence of fatty stools with diabetes had been noticed by several observers. What the real nature of his disease was, it was difficult to determine. In all probability the pancreas was the organ at fault. The man was for a long time seriously ill and had been under varied skilled treatment, and Dr. Down therefore felt that the immediate and continuous improvement

under the exhibition of the pancreatic juice must be regarded as other than mere coincidence.

"In answer to various questions, Dr. Down said he felt a difficulty in accounting for the persistent good health after the discontinuance of the remedy. It was continued to the end of December. He had heard from the man about ten days since, when he stated that he was in good health and of normal weight. He certainly was surprised to find him still going on assimilating fatty matters after the pancreatine had been discontinued. He took care that the patient should not have a diet excluding fat. The pancreatic extract was always given half an hour after the meal, three times a day. The complexion of the patient was of a tawny hue, and therefore he had examined him with the expectation of finding a tumour. He had a woman under his observation who had a distinct tumour; she was being treated in the same way, with similar results, but he thought it probable that she would relapse if the pancreatine were suspended. In the case which he had brought before the Society, there had been a complete discontinuance of the treatment for at least two months, while the man had continued in perfect health."

From FRANCIS DAY, ESQ., Chudleigh, Devon.

"YOUR PANCREATINE (in powder) has done me the greatest amount of good I have received from any medicine I have ever yet taken. So grateful do I feel for the relief it affords me, that I should not object to pay any price for it."

From Mr. M. H. AINLEY, Chemist, Peckham, London.

Letter dated March 20, 1870.

"MY wife having derived such very great benefit from your most valuable preparation, pancreatine, I send you particulars for the satisfaction of other sufferers. For 18 months, her symptoms have been pains in the chest, difficult breathing, bad cough, and extreme weakness.

"Was ordered cod-liver oil, but the nausea it produced was so great she could not take it. A visit to Scarboro' did her good, but shortly after her return she broke a blood vessel, and it became more than ever imperative for her to take the oil. After trying to do so in every way and every thing we could think of, it was found impossible. Seeing your advertisement, I got her a bottle of pancreatine, and she very cautiously tried it, and was delighted with the result. It entirely removed every feeling of indigestion and sickness,

and she now takes the oil thrice daily with marked benefit. The pancreatine also very much improves her relish for food, and by its action on the digestive powers very much increases the value of the food taken, by the fact of its being *properly digested*."

EXPERIMENTS ON PANCREATIC JUICE.

From the LANCET, October, 1869.

"IN the Academy of Sciences of Paris M. Chauvin and M. Morat have recently read a paper 'On the Pancreatic Juice,' and the conclusions at which they have arrived are—First, that the general results of their experiments on artificial digestion with this fluid agree with those made by older experimenters, from Eberle to Claude Bernard. Secondly, that in such experiments with artificial digestion the action of the pancreatic juice is not checked by the presence of gastric juice, nor by hydrochloric acid considerably diluted with water. Thirdly, that at ordinary temperatures, and in inert vessels, the juice does not act so energetically as when maintained at the temperature of the body, and under the influence of the movements of the digestive fluid. Fourthly, in the digestion that ordinarily takes place in the stomach—and this is a capital point—the pancreatic juice preserves its energies intact, notwithstanding the presence of the gastric juice, and may initiate in the interior of the stomach a complete digestion of the three species of alimentary substances. And, lastly, they state that in a clinical point of view they have obtained remarkable results with the aid of pancreatic juice and extract."

To the Editor of the LANCET.

"SIR,—It is always so desirable in science to keep note of whether new investigations confirm or refute those of older date, that I hope you will permit me just to point out to your readers how completely the 'Experiments on Pancreatic Juice' by M. Chauvin and M. Morat, to which you called attention in your impression of Oct. 16th, p. 549, confirm the results of my own experiments, as well as some of those of Bernard and Corvisart, and also the opinion expressed by Dr. G. Harley in 1858.

"In the introduction to my work on Tuberculosis, second edition, 1866, occurs the following passage:—

'The operation of the pancreas in the digestion of nitrogenous matters has been principally made known by the persevering experiments of M. Lucien Corvisart, published at various times from 1857 to 1863. But our knowledge of the important functions of this organ in preparing fats for assimilation is almost entirely due to the experiments and researches of Dr. Claude Bernard, first published in the *Archives Generales de Medecine*, 1849, and followed up by him ever since.

'In 1858, Dr. G. Harley read a paper to the British Medical Association ('Notes of Experiments on Digestion') in which he gave an interesting *resumé* of the knowledge possessed at the time of the physiology of the pancreas, and he expressed an opinion that 'as a remedy in indigestion, pancreatine should be greatly superior to pepsine,' because, as shown by Bernard, Corvisart, and others, it unites in itself the properties of all the other digestive fluids.'

"In the LANCET of September 10th, 1864, I referred to the experiments made by myself, with a view of learning whether the presence of the gastric juice in the stomach would interfere with the special properties of the pancreatic juice; the result of those experiments being that 'the beef-fat emulsion made with pancreatic juice remained complete after standing two days *mixed with pepsine, hydrochloric acid, and water.*' Hence I arrived at the conclusion, contrary to that of Corvisart and others, that pancreatine and pancreatic preparations could be advantageously administered through the stomach without any protecting envelope. (See Squire's Companion to the British Pharmacopœia, fifth edition, 1867, pp. 180—277.) Mr. Squire, however, in the notice referred to, has made a mistake as to my views when he states that 'Dr. Lucien Corvisart concludes that pancreatic juice must be *alkaline* to digest food. He also shows that the two substances—pepsine and pancreatic juice,—digested together, destroy the properties of both. Dr. Dobell, on the other hand, contends that the natural state of the pancreatic juice is acid.'

"What I have demonstrated is that the juice may be either acid or alkaline in its fresh state, although always acid soon after removal from the body, but that its acidity or alkalinity has nothing to do with its property of emulsifying fat. (See Proceedings of the Royal Society, No. 97, 1868.) It is not stated in your notice whether MM. Chauvin and Morat arrived at any special conclusions as to the *modus operandi* of the emulsifying property of the pancreatic fluid, and, so far as I am aware, my own conclusions on this point still stand alone, as stated to the Royal Society, as follows:—

'The pancreatic emulsion of fat differs entirely from all other kinds of emulsion of fatty matter, whether chemical or mechanical. All other emulsions of fat are destroyed by ether, the fat being restored at once to its original condition. The influence exerted by the pancreas upon fats, therefore, appears

to operate by breaking up the aggregation of the crystals of fat. It alters the molecular condition of the fat, mingling it with water in such a way that even ether cannot separate the fat from the water. A permanent emulsion is thus formed, ready to mix with a larger quantity of water whenever it may be added. The pancreas, therefore, in acting upon fat, does *not decompose it into fatty acid and glycerine*; the absence of the glycerine from the watery stratum and the presence of the glycerine in the pancreatised fat of the ethereal solution having been demonstrated.'

"It is gratifying to find that, in a clinical point of view, MM. Chauvin and Morat 'have obtained remarkable results with the aid of pancreatic juice and extract,' and thus add new and independent confirmation to the importance of the clinical facts which I have so often brought forward on this point.

"I am, Sir, yours, &c.,

"HORACE DOBELL, M.D.

"October 18th, 1869."

*From the "GAZETTE HEBDOMADAIRE DE MÉDECINE
ET DE CHIRURGIE."*

DEUXIÈME SÉRIE, TOME V., 1868, PARIS.

"Dr. Dobell himself has continued with great energy his researches on the utility of fatty emulsions, obtained by the aid of the pancreatic juice, in all cases when nutrition is seriously impeded, and more particularly in pulmonary consumption. After a series of papers on the subject published in the "Lancet," it occurred to him to collect the experiences of those English medical men who had made use of this formula, and the replies received form the instructive document which has just been published, and is now before us. A schedule of questions was submitted by him, so that the answers, whether favourable or unfavourable, may be seen at once. The questions put were these:—

'1.—In how many cases of consumption have you prescribed the Pancreatic Emulsion, prepared by SAVORY and MOORE?

'2.—In what doses, at what interval after food, and for how long a time, did you administer it in each case?

'3.—What is your opinion of its effects upon—1. Digestion?
2. Nutrition? 3. Weight of the patient?

‘4.—Have you found that patients can take the Emulsion when they cannot take cod-liver oil?

‘5.—What is your opinion of the effects of the Emulsion in:—1. The true first stage of consumption (pre-tubercular)? 2. The stage of tuberculisation? 3. The stage of softening? 4. The stage of excavation?’

“Thirty-two medical men replied to these questions, and in a manner generally favourable: one of them, indeed, styles this treatment as “a splendid invention,” but the testimony of others, though less enthusiastic, shows not less clearly that they have found in the “*Pancreatic Emulsion*” an efficacious means of restoring impaired digestion and nutrition. The author himself has made use of it in the hospitals, and in many thousand cases. He gives the emulsion in doses of from one to four teaspoonfuls one or two hours after the principal meal, and for a continuance of at least two months. It is taken in either milk or water, and he sometimes adds a small quantity of brandy or rum. He attributes to this emulsion the property of digesting fatty matters and starch, and stimulating the stomach. It supplies at the same time fatty matters for combustion and for histogenesis. Lastly, it maintains the normal weight of the patient, or increases it if diminished. He has proved that the emulsion is well taken in those cases where it has been impossible to administer cod-liver oil, but as far as possible he combines these two remedies. He thinks that during the stage of threatened disease these means will have a lasting efficacy. In 45 individuals who had arrived at the stage of tubercular deposits, he had proved in 44 an amendment of general symptoms; in 33 the physical signs were improved, 13 had remained stationary, and in one case they were aggravated. Out of 69 patients at the stage of softening, in 59 there had been a visible progress in the general health, and in 52 equally visible improvement in the physical signs. Lastly, out of 78 cases where there was a cavity in the lung, in 55 nutrition was restored, and in 35 the improvement was proved by percussion and by the ear.

“Notwithstanding these results Dr. Dobell wisely repels the idea that Pancreatic Emulsion is a *specific* for phthisis. He is entirely justified in saying that to repair the ravages of want of nutrition is to give every favourable opportunity to

nature, and to prolong the life of the patients. To sum up, I hold that this remedy should be tried by us. To prevent consumptive patients from growing thin is the object the therapist should always have in view, and there are not too many means of effecting his object. I will conclude by noticing a case of tumour of the epigastric region, attributable to a disease of the pancreas, with stools charged with undigested fatty matters, and which has been cured under treatment by this emulsion. The tumour remained enlarged, but the functions of the stomach were regulated, and the patient regained his flesh.

“FOUSSAGRIVES.”

From the “JOURNAL OF CUTANEOUS MEDICINE AND
DISEASES OF THE SKIN.”

“WE have for some time been trying PANCREATINE in several cutaneous affections, accompanied by impaired digestion, with the best results. Our readers are aware that this remedy was introduced by Dr. Dobell, of London. We believe it to be superior to pepsine.”

Messrs. SAVORY & MOORE feel assured that no one who has carefully read the foregoing pages can fail to admit that the evidence they contain fully supports the opinion expressed in the commencement of this Brochure, as to the vast importance of Pancreatic Emulsion and Pancreatine as REMEDIES IN THE WASTING DISEASES.

END.

ON THE MODE OF ADMINISTERING PANCREATIC EMULSION AND PANCREATINE.

"I have found it best to give the emulsion from one to two hours after a full meal, such as breakfast or dinner, particularly avoiding a longer interval, and also avoiding warm drinks for two or three hours afterwards. When cod-liver oil agrees, I give a table-spoonful of oil directly after breakfast, to supply olein to the blood through the portal system, and a table-spoonful of emulsion in a cup of milk or water from one to two hours after dinner, to supply the blood with pancreatised solid fats through the lacteal system. If cod-liver oil cannot be taken, I give the emulsion from one to two hours after breakfast, and from one to two hours after dinner.

"In the very few cases in which the stomach does not easily tolerate the emulsion, I have found it due, almost as a rule, to excessive acidity of the digestive fluids; and an alkaline powder of soda and calumba, or an effervescing draught of citrate of soda and potash, given before the meal which precedes the dose of emulsion, has generally overcome the difficulty. It must be borne in mind that some adults cannot digest milk, and in these cases the emulsion should be mixed with water instead. Brandy or rum may be added in any case, if preferred, and a small plain biscuit should be taken after the dose."—*Extract from an Article by DR. DOBELL in the "Lancet," of November 17, 1866.*

Pancreatine is given in doses of 3 to 5 grains in ginger wine or water, or on bread and butter, directly after food, or immediately after each dose of cod-liver oil.

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“The best sort of Cod Liver Oil is the most agreeable—the clearest—the sweetest, and the most scentless. *I strongly advise you never to order the Brown Oils.*”—*Clinical Lecture by T. K. CHAMBERS, M.D., Physician to H.R.H. the Prince of Wales.*

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