would have been formed in the present case; if, therefore, the collection of dumb-bell crystals had been washed out of the kidney soon after their formation by diluents, the further precipitation of calculous matter would have been entirely prevented.

It is important that we should make numerous observations on the nuclei of various calculi, and endeavour to determine their exact nature by microscopical investigation and by the application of chemical tests. In this inquiry you will find it advantageous to take the smallest calculi and examine them as soon as possible after they have been passed. After they have become dry, it is, in many cases, quite useless to attempt investigations on the nature of the nucleus.

[To be continued.]

Original Communications.

SCROFULOUS DISEASES OF THE EXTERNAL LYMPHATIC GLANDS:

THEIR NATURE, VARIETY, AND TREATMENT.

By P. C. PRICE, Esq., Surgeon to the Great Northern Hospital; the Metropolitan Infirmary for Scrofulous Children at Margate; etc.

III.—TUBERCULOUS DISEASE OF THE EXTERNAL LYMPHATIC GLANDS.

[Continued from p. 915 of volume for 1860.]

Cod-Liver Oil. Perhaps there is no single medicine which, during the past half century, has met with more extensive trial, and so charmed both the profession and public, as the oil derived from the cod's liver; and although its employment has not always been followed with direct and immediate benefit in all cases in which it has been prescribed, still there is no doubt that it often proves a most valuable agent. In scrofula, in various forms, the use of this oil has long been cherished. Dr. Bennett, from the pages of whose interesting work (*A Treatise on Cod-Liver Oil*: J. H. Bennett, M.D., 1841) I have gathered much information, states, that this oil was used in Holland as a curative agent many years before it became familiar to the profession of this country; and it was only in 1822, a prize being offered by a learned society of Utrecht for the best essay on the chemical and therapeutical properties of the substance, that its truly wonderful efficacy in the treatment of tuberculous diseases was developed.

As I am mainly writing from my own individual experience, I feel bound to advance in an especial manner my own impressions regarding the value of the medicine. In all stages of tuberculous manifestations of the lymphatic glands, I have generally found the administration of the oil of decided benefit, provided a sufficient quantity has been taken; but in no stage of the disease is it of such advantage as when suppuration and ulceration have weakened and impoverished the irritated system. In the earliest forms of glandular implication from tuberculous exudation, a free and persistent use of the oil is very often attended with all the beneficial results which could be desired. When there is danger of ulceration and suppuration, by reason of the degeneration of the tuberculous material, the exhibition of the oil constantly acts favourably in preventing the occurrence of such untoward events. I could quote many cases illustrative of this point, and prove that, in all probability, the worst results would have followed the progressive advance of the disease had not the use of the oil been maintained for a considerable period; and, doubtless, similar instances could be collected from the practice of all surgeons.

Under a diligently pursued course, the effect on the suppurating tracts of the ulcerated cavities, which are found in connexion with the destroyed gland and the skin, is often marvellous; while disappointment occasionally occurs in its administration for the cure of less formidable mischief. Many are the theories that have been advanced regarding the way in which this valuable medicine acts upon the constitution. Dr. Bennett, who has so ably considered the subject, believes that "the *modus operandi* consists in stimulating the lymphatic glands and vessels, and by these means increasing the activity of the capillary system. By its action on the former, the process of assimilation is facilitated, and the appetite increased; the quality of the blood is thus improved; and so, lastly, the different organs and structures of the body become better nourished, and receive more *turgor vitalis*." In whatever manner the oil acts, it is somewhat doubtful to which of its properties the good effects are traceable. There are some practitioners who believe that it is solely valuable on account of the iodine it naturally contains. This is evidently an erroneous impression, for much of the oil in everyday use contains scarcely a single trace of this valuable and efficient drug; and, moreover, it has been found that other oils, besides that obtained from the liver of the cod, are of advantage in the treatment of scrofula, although they have little or no iodine in combination. Some highly interesting observations have been made on the use of various oils in the treatment of tuberculous diseases by the late Dr. Theophilus Thompson. In his published *Lettsomian Lectures*, delivered before the Fellows of the Medical Society of London in 1855, Dr. Thompson recorded some extensive inquiries which he instituted regarding the relative value of many oils, such as sperm and seal oils, and those derived from the cod's liver, cocoa-nut, sunflower, neat's-foot, etc. This gentleman believed that these various oils act by modifying the condition of the blood, and especially the condition of the granules which enrich the fluid, and dispose them to the calm progression of change, by which they are made to contribute to the production of healthy structure (p. 36). I have myself had but slight experience in the use of these various oils, having found that derived from the cod's liver so highly serviceable, and even for hospital purposes sufficiently cheap.

From Dr. Thompson's brochure I extract the analysis of four oils which are most frequently given in tuberculous disease, as furnished by Mr. Dugald Campbell:—

Ultimate Analysis of Oils.

	Carbon.	Hydrogen.	Nitrogen.	Oxygen.
Cod-liver oil . . .	80.18	13.72	0.246	5.854
Neats'-foot oil ..	64.33	12.50	0.064	23.106
Cocoa-nut oil ..	69.62	12.49	0.060	17.890
Olive oil	69.38	13.47	0.058	17.092

While partially agreeing in the opinion of so able a writer and observer, I cannot overlook the fact that the fatty properties of these oils have greatly to do with their value, as has been well advocated by Dr. Ascherson of Berlin. There can be no doubt that the digestive functions are rapidly amended by their use as an article of diet, independently of their therapeutical action; and that marked improvement oftentimes, I own, obtains in diseased glands and other organs when the assimilating processes are more harmoniously regulated. Dr. James Turnbull (in his *Inquiry into the Curability of Consumption*, 1859) states, that he believes cod-liver oil acts by promoting the solution of albuminous aliments in the stomach. Mr. Balnan, without advancing any special theory as to the action of this oil, came to the con-

clusion that it exercised little or no influence on the great majority of external glandular tumours; but that it is a most valuable and potent remedy in some forms and complications of disease (*op. cit.*, p. 158).

To avoid disappointment in the effects which are anticipated by a course of cod-liver oil, it is necessary to pay attention to various points. Firstly. What kind of oil is the most advantageous? Dr. Bennett says that "the best is the clear brown or reddish variety; next in power is the yellow; and the least beneficial is the white." It appears that the natives of Norway, and other northern countries, drink the very darkest that can be procured. Such, however, is most unpalatable, and its use in this country is seldom advocated. I have constantly used the yellow variety in the majority of hospital and poor cases of scrofulous disease which have come under my notice; but in private practice some difficulty is experienced in substituting this more efficient form for the less nauseating one, viz., the white, or lighter coloured.

All patients, young or old, in commencing a course of the oil, should begin by taking very small quantities, for otherwise the very first dose may upset the stomach, causing nausea and vomiting, thereby oftentimes creating a very natural though unfortunate dislike for it. I usually advise not more than a teaspoonful, or even half this quantity to be administered at first, once a-day, directly after a full meal. It may be disguised in any tincture, such as that of orange, or in wine, brandy, or milk, or with a sprinkle of salt. I believe, however, that the oil floated in a small quantity of water and quickly gulped is conveniently and tastelessly conveyed into the stomach; and in hospital practice I generally suggest this method in preference to others. When, however, the oil cannot be taken without producing nausea and a feeling of sickness, it may be administered in the form of an emulsion. I have frequently prescribed it in the following way:—

Rx. Ol. jecoris ʒiv; pulv. tragac. co. ʒiv; creasoti m. ij; aq. anisi ad ʒxxj. M.

I write a tablespoonful for a dose, and find that by degrees a very considerable quantity can be taken without the production of any disagreeable sensation. Gradually the quantity may be increased, and taken twice or thrice during the twenty-four hours. It is not by any means uncommon after a time to find, instead of dislike, an actual craving for the oil; and I am aware of several instances in which very large quantities were taken with no unpalatable inconvenience over periods of six and ten years. There is a lady now at Margate, a patient under the care of my father, whom I have occasionally seen in consultation with him, and who for nearly eight years has daily taken the oil in considerable quantities with the most marked benefit; and I believe if it were discontinued she would at once rapidly decline, as she is the subject of vertebral disease accompanied with continual suppuration, the products of which find exit through the mouth, by reason, it is supposed, of a fistulous communication with the œsophagus. Care should always be observed in recommending the use of the oil; for, while sometimes its employment is fraught with direct advantage, at other times the distress it produces counteracts the good effects of other medicines; and in no instance should its continuance be pressed, if nausea, biliousness, and headache are produced. "The placid and phlegmatic bear it best"; while those suffering from fulness of habit are generally very susceptible of its irritating properties. Conjoined with other medicines it is often rendered doubly valuable, as a means of sustaining and improving an impoverished condition of system, although it may not always, as will be presently seen, exert a direct effect upon scrofulous or tuberculous manifestations of certain organs by virtue of any special property it contains. With iodine and iron, especially in the form of *syrupus ferri iodidi*, it is of

great value, and thus conjoined is by many supposed to act very frequently as a specific in various kinds of disease. When the oil cannot be administered by the mouth, it is advisable to obtain its admission into the system by inunction. I have frequently pursued this plan, and with excellent results. The disagreeable smell arising from its outward use, may be much mitigated by the use of lavender and other scents. But it may occur that patients are unable either to swallow the oil or submit to its inunction. Under these circumstances, I am the habit of prescribing glycerine in drachm doses, which may be increased or decreased according to the fancy of the patient or his surgeon, and I have good reason to believe that it is no inefficient substitute.

Mineral Acids. In the treatment of tuberculous affections of the glands, the mineral acids are only so far of use as they are beneficial in keeping up the tone of the system, creating appetite, and arresting sweating, which is such a frequent and weakening accompaniment of the advanced stages of phthisis.

Vegetable Tonics and Bitters. In the year 1755, Dr. John Fordyce introduced the use of cinchona as a *specific* for scrofula, and was soon followed in his high opinions of the medicine by Dr. John Fothergill, and Dr. Bond of Philadelphia. Subsequent experience shows, however, that it is only of advantage in giving tone to the stomach, and thus improving the appetite, and allowing improved nutrition and assimilation. Dr. Henning, who had much experience in the administration of the medicine, says, that "the proper time for the exhibition of the bark is when suppuration has taken place in a scrofulous gland, and previously to the discharge of its contents." Quinine, and various bitter infusions, are of utility in the same way; for, as scrofulous and tuberculous diseases are mainly due to departure from health, etc., so any substance that tends to promote the more harmonious action of an organ is of direct advantage.

Conium or Hemlock was recommended by Dr. Störck of Vienna, as a remedy in scrofula, and particularly in tuberculous disease of the lymphatic system; but it is very doubtful if it exercises any special effect on the amelioration or cure of the disease. It is, however, of advantage when combined with certain medicines, which, given alone, cause irritation of the stomach and bowels; and it is in this way that I have alone found it of value, although so high an authority as Sir C. Scudamore has recommended its use in phthisis.

Purgative Medicines. With the ancient writers on scrofula, purging freely by means of medicines was thought highly advantageous, as it procured the elimination of the irritating material which originated the development of the disease. Such a doctrine is now no longer upheld; and, instead of distressing the already debilitated constitution by the exhibition of purgatives, we are careful to husband the powers already weakened, although, as before mentioned, it is especially necessary to attend to the due regulation of the bowels. I have already detailed the plan I am in the habit of adopting to procure this end, and have fully adverted to the importance of so doing.

Baths. Baths of various kinds have, from an early period, received the sanction of many excellent practitioners. Tepid and cold baths are of use in glandular disease, by giving tone to the system and ensuring cleanliness and healthy action of the cutaneous surface. Salt-water immersion, as previously observed, is serviceable in inducing the same ends; but it is not, as far as my observations extend, always of specific advantage. It is astonishing oftentimes, however, to see what rapid benefit is obtained by a course of saltwater (sea) bathing. Suppurating tracts soon contract and heal, and chronic purulent discharges quickly diminish. The appetite and general tone of the system improves, and in this way the scrofulous lesions sooner vanish, or altogether heal. So convinced of this fact are we at Margate, that

all scrofulous patients, provided no contraindications exist, enjoy the frequent advantage of the saltwater bath. I have oftentimes contrasted the results of cases of glandular tuberculous mischief treated with and without the use of saltwater bathing, and I am convinced that whatever the exact virtue of the bath may be, it is, generally speaking, of great advantage in the treatment of tuberculous manifestations of the lymphatic system. In the use of baths of iodine, bromine, etc., I have had but little or no personal experience, and must therefore be brief in my notice of their effects in glandular tuberculosis.

Both MM. Lugol and Baudelocque speak very highly of their effects in the treatment of abscesses and disease of the osseous system; and it is well known that many waters, such as those of Kreuznach, which contain bromine, are of especial advantage in causing diminution of hypertrophied glands, and promoting the cessation of suppuration and cicatrization of tuberculous cavities. When I was lately at Aix-la-Chapelle, Dr. Diemer informed me, that the amendment which followed the use of the baths and waters which contained iodine or bromine was generally very marked; but that it was always of the highest importance to regulate their administration, as many constitutions, instead of being improved, were sensibly disordered by them.

The various medicines which are of most advantage in the general treatment of tuberculous disease of the glands having been briefly reviewed, it may be well to consider how the individual phases of diseased action may be combated by them.

In the incipient stage of advancing tuberculosis, or when simple enlargement, inflammatory or irritative hypertrophy, has obtained, the administration of cod-liver oil and iodine will, as a rule, be accompanied with most benefit, especially when due attention is paid to the proper regulation of the digestive organs. In addition, good and nutritious regimen, and, if possible, a seaside residence, will be of the greatest benefit. I am urgent on this point, because I have so often seen the rapid amendment that takes place in many of the poor scrofulous children who, year after year, are admitted into the Children's Hospital at Margate. As soon as the exciting cause of the mischief is lessened or entirely removed, there is great probability of the glandular mischief subsiding; and although it would be very difficult to point out what has been the exact nature of the hypertrophy in every instance, still there generally co-exists sufficient evidence to show that, in great probability, it was dependent on advancing tuberculosis. In nearly one hundred and fifty cases which I have collected of tuberculous glands in various stages, or cases which appeared to be of such a nature, more than one-third never arrived at that stage in which there was clearly evinced a positive deposition of tubercle, but under suitable treatment subsided, or nearly so, the constitutional powers having been improved and supported. No fixed rule can be laid down whereby to direct the management in all cases; but when the use of iodine and cod-liver oil is indicated, it will be expedient to pursue a gentle and tolerant use of the medicines. When a gland or series of glands are really invaded by tuberculous exudation, considerable skill is required in selecting a correct therapeutical treatment. How far iodine is useful at this stage, *i. e.* before softening and suppuration have commenced, is a question open to grave discussion; but if the evidence of practical and inquiring surgeons is to be believed, it is probable that the good effects of this valuable drug are oftentimes overrated.

M. Baudelocque has quoted cases of tuberculous glands which have been cured at this stage by means of iodine; but I have reason to suspect that the actual deposition of tubercle was by no means clearly ascertained in every instance. M. Lebert says, his experience is not

favourable to the utility of iodine in this affection of the glands; for during a period of ten years wherein he steadfastly used the medicine, he failed to obtain satisfactory evidence of the absorption of the tuberculous exudation. Long before I was conversant with this opinion of so distinguished a surgeon, I tried in many instances the effect of iodine, internally administered, on tuberculous disease of the glands, and arrived at a somewhat similar conclusion, which future experience corroborated, although it appeared, after all I had heard regarding the wonderful properties of the drug, to be somewhat immature. The diminution which certainly obtains after a persistent use of iodine, in many cases of apparently tuberculous glands, is dependent on the absorption of the plastic material which has followed any inflammatory disturbance. But I am loth to speak too precisely on this point, as it is one that is open to much discussion. If iodine, however, do work such positive cure of tuberculous glands by promoting or obtaining absorption of the tuberculous exudation, how is it that so many instances of undoubted tuberculous glandular implications do not subside, or even remain in *statu quo*, instead of advancing to suppuration? How is it that in 132 cases of carefully tabulated tuberculous disease of the cervical glands, 82 passed into suppuration, and that only the remaining 50 completely or even partially escaped, although they had received the advantages of treatment? I believe further attention to this point, in the consideration of the real value of iodine, will prove of great practical importance. Past experience has already placed me on my guard against promising too much from a persistent course of the medicine, even in favourable cases, as its action has oftentimes shown itself in a very uncertain way. Much benefit has been said to arise from use of cod-liver oil in this stage of the disease; but I am somewhat doubtful as to the virtue of the medicine in directly influencing the disappearance of tuberculous exudation. Its administration is certainly advantageous; but I cannot see that it exerts any specific action on an affected gland, save that which may be produced by maintaining the remaining portion of the absorbent system in as healthy a state as possible, and thus guarding against future similar implications. The same observations are applicable to all kinds of tonic medicines, such as iron, quinine, the mineral acids, vegetable infusions, etc.; for they are devoid, as far as is known at present, of any special influence in tuberculous deposits.

It is questionable to what extent mercurial preparations affect a gland involved in the way we are considering. I believe that the exhibition of mercury, with the view of directly affecting the glandular system, is not to be encouraged; for even admitting that the local disturbance may thereby be benefited, it is more than probable that a serious amount of damage may be inflicted on the constitution. As already stated, I seldom or never give mercurial preparations in scrofulous disease of the glands, with the view of placing the absorbent system under their influence, unless certain complications point to their advantageous use. The salts of lime, especially the hypophosphite combined with iron, as the syrup of the phosphate of iron and lime, may be administered with much advantage. It is impossible to say to what exact extent the exhibition of lime influences the condition of tuberculous exudation in the glandular system. I believe, from the good results I have seen, that it often enables resolution to proceed with greater rapidity; but whether it is directly instrumental in affecting a cretaceous metamorphosis, I am not prepared to say; and till further experience shall show in what special way it is of value, I think we must be content to prescribe it in partial ignorance of its exact action. When softening and liquefaction have commenced, they are due to the destructive degeneration of the tuberculous exudation. To support the tone of the entire system is the

aim of the surgeon. It is more than doubtful that any medicine, exhibited with a special view of procuring resolution without suppuration, will be of any avail without due attention be paid to the general health. It is usual to stock the system with iodine, and to apply it locally, as will be presently mentioned, under the impression that disintegration and softening with liquefaction having taken place, absorption will rapidly remove the altered tuberculous matter. My own opinion is, that a destructive, or what may often be viewed as a curative, process having advanced to a certain point, ulceration of the covering integuments will, generally speaking speedily obtain, so as to give exit to the pent-up material. It may be that absorption will remove the liquid and least effete portion of the altered tubercle, and leave the solid part to undergo such changes as were described when considering the pathological metamorphosis of tuberculous exudations. Some authors are inclined to believe that such a process frequently occurs; and that a residue of comparatively inert, changed, tuberculous matter remains, keeping the affected gland still increased in size, though in a harmless condition. If such changes can be assisted by art, it is certainly advisable to make use of those means which would most materially aid nature in her curative endeavours. With this view, iodine or bromine may be administered, and from M. Baudelocque's experience it would appear that such treatment is often of avail. I am somewhat reserved on this point, because I have failed as yet to obtain any very definite results as to the influence of iodine in producing effects which we know do sometimes take place. Lime-salts, with cod-liver oil and iron, I believe, are important adjuncts in the treatment, although it is doubtful to what extent they are directly useful, and in what manner they exercise any influence over the conditions of the tuberculous alterations.

When suppuration of the gland and ulceration of the integument have fairly set in, notwithstanding the most skilful treatment may have been adopted from the earliest manifestation of diseased action, it becomes advisable to use such medicinal and dietetic means as belong to the art of physic. To support the constitutional powers, which are further distressed by the destructive process which is taking place, is the first call to which the surgeon has to respond. Cod-liver oil, glycerine, iron, quinine, and the salts of lime, with the mineral acids, will ordinarily be found of most avail. If the patient be young, and many glands, as is very commonly the case, be implicated, it will be necessary to support the system by nutritious diet. Milk, eggs, and meat, combined with jelly, and a certain amount of alcoholic stimulus, and ale or porter, will form the best diet scale. I have found a certain flour, made by Messrs. Brown and Polson, of great advantage as an article of food for young children, who will frequently take it when the fancy refuses ordinary viands. The *Semola*, made by Mr. Bullock of Hanover Street, and the *Tous les Mois*, imported by Mr. Fincham of Baker Street, will likewise be found most valuable as a variety in the diet-scale of youthful patients. Should sweating and general languor be present, the mineral acids will be of great use, especially if combined with iron. When the discharge becomes more chronic, and the lips of the ulcerations thicken, and present their peculiar bluish-purple colour, the administration of iodine is often accompanied with great benefit. I have known many such ulcerations heal kindly under a judiciously prescribed course of iodine when they have resisted other treatment. The great aim, however, of the practitioner is to support the general health, and then the local means of treatment, presently to be adverted to, will meet with a fair amount of success.

[To be continued.]

TEN YEARS OF OPERATIVE SURGERY IN THE PROVINCES.

By AUGUSTIN PRICHARD, Esq., Surgeon, Clifton, Bristol.

V.—OPERATIONS ON THE EYE.

[Continued from p. 31.]

CASE CCXXXIX. F., aged 78. I extracted the cataract from the right eye, although she still had useful sight in the left. She recovered well, and has at the present time (four years after the operation) very good sight. The cataract in the left eye appeared, at the time of the operation, to be progressing rapidly, but at the present time it is very little more advanced than it was then.

CASE CCXL. M., aged 68. I operated on both eyes, and he recovered speedily, union taking place in both corneæ by the first intention. He had circular clear pupils and good sight in each.

CASE CCXLI. F., aged 74. I operated on the right eye. It was not a favourable case, the eye being much sunk. She recovered with good sight.

CASE CCXLII. F., aged 65. I operated on the left eye, and she recovered speedily, with excellent sight.

CASE CCXLIII. M., aged 58. I operated on the left eye; went home shortly with good sight.

CASE CCXLIV. F., aged 81, a very feeble and low spirited old woman, suffering from religious melancholy, with fully formed cataracts, but very sunken eyes. I operated on the right eye, and extracted a hard lens. She complained of obscure pain in the brow during her recovery, and when I could examine the eye I found the pupil closed. Six months afterwards I made a cut with the iris knife, and a small pupil was formed. She always declared that her sight was no better; but she walked about her house without stumbling against a chair or table, and when driving out could see the buildings, for she knew whereabout she was. She was provided with glasses, which she used constantly, always persisting that she was blind. I believe she had fair sight.

CASE CCXLV. F., aged 68. I operated on the left eye, and she recovered speedily and has seen well ever since.

CASE CCXLVI. M., aged 71. I operated on the right eye and extracted the cataract, and he went home in a short time with a weak eye, some prolapsus of the iris, and but little sight.

Nine months afterwards I saw him, and he had a closed pupil, and I therefore incised the iris with the iris knife with the effect of enabling him to see much better for a few days, but as his sight became more dim I removed a portion of iris, and at the fourth and last operation I dislodged a piece of opaque capsule, so that ultimately he went home with good sight.

CASE CCXLVII. M., aged 61. The cataract in his left eye followed a blow sixteen years before his admission, and the right eye had become more recently blind. I made a lower section in the left eye, but owing to the toughness of the capsule could not break it with the curette. The lens was extracted with much difficulty, and he went home with but little sight, returning in the course of a year with the vision improved but the pupil excessively minute. I touched it across with the iris knife, and a central, black, and tolerably circular pupil suddenly appeared and he saw well.

CASE CCXLVIII. M., aged 72, had undergone extraction and the formation of artificial pupil in London without any success. I operated on the left eye, and he recovered with excellent sight. He had dull pains round his brow during his recovery, and I blistered him freely, and when he was quite well his pupil was small and irregular, and I believe that iritis had been going on, and that seems to have been the disease which had