Patent foods and patent medicines : two lectures / by Robert Hutchinson.

PATENT FOODS AND PATENT MEDICINES:

TWO LECTURES

BY

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PREFACE TO THE FIRST EDITION.

THE first of these Lectures was delivered before the South-West London Medical Society, the second was addressed to the Students of the London Hospital. I have received so many requests for reprints of both that I thought it might be convenient if they were issued in their present form. For permission to do so I am indebted to the kindness of the Editors of the *Lancet*, in the columns of which both originally appeared. A few additions and corrections have been made in revising the Lectures.

R. H.

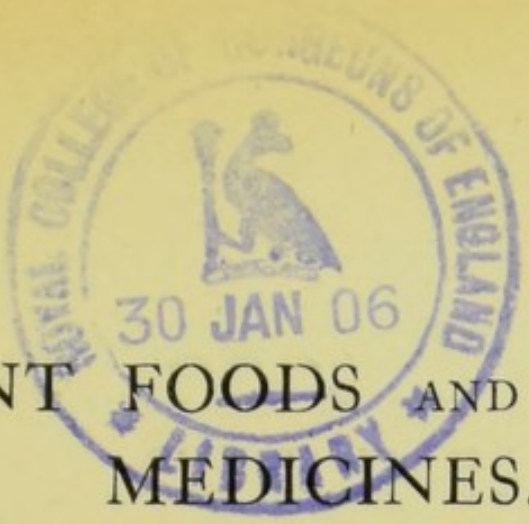
March, 1904.

PREFACE TO THE SECOND EDITION.

I HAVE taken the opportunity of the demand for a second edition of this little book to include an account of some of the more recent proprietary foods and of one additional patent medicine.

R. H.

December, 1905.



PATENT FOODS AND PATENT MEDICINES.

LECTURE I.

PATENT FOODS.

GENTLEMEN,—The first question we have to ask in approaching this subject is—What do you mean by a patent food? That is a question which it is more easy to ask than to answer. But I think everyone knows quite well what a patent food is, though perhaps he cannot state it exactly in words. Practically one may define a patent food as a substance which is manufactured by artificial means from natural food products, and which is intended to be used as a substitute for ordinary natural foods, and you know that such foods are usually sold by pharmacists instead of being procurable from the ordinary dealers in common foods. Having defined what is meant by a patent food the next thing one has to ask is what is the necessity for the existence of such foods at all? There are, of course, certain scientific conditions which might justify their existence, although you know perfectly well that most patent foods exist because certain persons have found that it pays to produce them and because they have persuaded the public by assiduous advertisement that these foods are requisite in the sick room.

Let us consider, first of all, putting aside the commercial reasons for the existence of this large class of foods, the scientific considerations which might justify their manufacture. In the first place one might require to use a patent food in cases in which there was marked loss of appetite. If a patient has no relish for ordinary food there may be justification for recourse to artificial preparations. Secondly, one might order such foods if a patient experienced difficulty in chewing or in swallowing. Diseases entailing difficulty in deglutition are those in which some easily-swallowed preparation might be helpful. Thirdly, supposing that there is any marked interference with digestion or absorption in the alimentary canal, there again you might have recourse to foods which are more easily digested than ordinary food is—that is to say, you might use pre-digested foods. Fourthly, one might conceivably want to increase the amount of any particular ingredient in the diet; for instance, one might wish to increase the amount of fat or the amount of carbohydrate or to augment the quantity of proteid matter, and it might be easier to do this by means of artificial preparations rather than by employing foods with which everyone is acquainted. Fifthly, it might be advisable to have recourse to patent foods where the natural food is for some reason or other unobtainable—in the case, for example, of an infant which cannot get its mother's milk. In such a case it might be advisable to have some artificial substitute. The last of the reasons that I shall give which might justify the existence of artificial foods is that they should be cheap. As a matter of fact, you will see presently, almost no artificial food on the market meets this requirement. So the ideal of an artificial or patent food would be a substance which was small in bulk, which con-

tained in that small bulk the maximum of nutritious qualities, which was pleasant and stimulating to the appetite, which was easily digested, and which was cheap. That would be an ideal artificial food, and if ever that came to be invented it would be a substance which would rightly demand our support and recommendation. But unfortunately the majority of artificial foods do not correspond to any one of those qualifications which I have set out. I propose to tell you very briefly how it is that they fail.

Defects of Artificial Foods.

(1) The first qualification is the power of stimulating appetite. Is there any artificial food of which you can say that it is a powerful stimulant of the appetite ? I think that there is only one group of which that is true—namely, those foods which contain extractives of meat : these certainly stimulate the appetite and have been proved to do so by physiological experiment. By the introduction of meat extract into the mouth a powerful secretion of gastric juice is brought about and the desire for food is increased, but with that exception I think that there is no patent food of which one can say that in the promotion of appetite it can successfully compete with skilful sick-room cooking.

(2) If one takes the question of difficulty in swallowing, are there any artificial foods more easily swallowed or chewed than any natural foods ? Here, again, there are very few which will answer to the demand, because the first necessity about a food which shall be easily swallowed is that it should be in a liquid form. We have no better liquid food than milk or suitably prepared gruels. If the patient cannot swallow such foods as these there is certainly no artificial food which is likely

to be of service. Next there is the question of compactness. I mean by this that if the bulk is small the patient would get the maximum of nourishment from what he could swallow. But there is no food which presents a very great amount of nutriment in a very small bulk and it is physically impossible that it should do so. You will see this if you consider the constituents of food : proteids, carbohydrates, and fats. Meat, for instance, contains 20 per cent. of proteid, the remainder consisting of water, mineral matter, and other ingredients which we do not need to consider. If you drive away from the meat all its water you will get a powder which will consist practically of pure proteid or proteid with a little mineral matter and fat. Seeing that the original meat contained 20 per cent. of proteid and that you have driven off 80 per cent., then obviously what there is left will be only one-fifth of the weight, and it is impossible to get proteid in a more concentrated form than that. If you want carbohydrates you can get no more concentrated carbohydrate food than sugar, because it is practically free from water and it contains no added ingredients. If you want fats you can get no more concentrated form of fat than pure oil, which is a natural food. Again, there are very few preparations which are richer in fat than ordinary butter, which contains fully 80 per cent. of pure fat. So from the point of view of compactness there are very few artificial foods which are superior to the natural foods. And even a preparation from which all the water has been driven off cannot be swallowed unless it is mixed with water again or unless milk or broth is added. You will thus see that in compactness artificial foods do not compare favourably with many natural foods with which we are familiar.

(3) Again, there is the question of digestibility. It is often contended for artificial foods that they are more easily digested than natural foods, and many of them, the whole group of peptonised foods, exist because they are pre-digested. I think there is a great deal of misconception about the need for pre-digested foods. The necessity for peptonising foods is greatly exaggerated. There are very few conditions indeed of the stomach and intestines in which the digestion of the food constitutents is not carried on quite well. Many experiments have been made upon that subject, and it is surprising how, even in cases in which the stomach and intestines seem to be much disordered from gastro-intestinal catarrh, or even enteric fever, it is found that absorption is still carried on, and how complete it is. The probable explanation of this is that all the digestive glands act really at a very low pressure, that there is an enormous reserve of power in the alimentary canal, and that if a food escapes from the stomach without being digested it will almost certainly be satisfactorily dealt with in the duodenum, and if not there then in the small intestine. So that the mere fact that the stomach has struck work does not constitute a necessity for recourse to artificial pre-digested foods unless the *motor* power of the stomach is also deficient. I mean by this that so long as the stomach can drive its contents into the bowel there will be no restriction of digestion worthy of the name. As a fact in pathological chemistry pepsin is almost never absent from the gastric juice unless hydrochloric acid is also absent. If you can find hydrochloric acid in the stomach pepsin is sure to be there too, and you know that the cases in which hydrochloric acid is absent from the stomach are very few ; it is often in excess, in the condition known as hyperchlorhydria, but it is

rarely absent or so reduced as to make any necessity for pre-digested foods.

(4) If one considers next the question of increasing any particular constituent of the diet one may ask, is it not beneficial to have recourse to artificial foods for this purpose? Here, again, one must admit that we do not know enough about nutrition to say what is the value of enriching the diet in these respects. If you are asked in what direction you want to enrich the diet in a particular case and why, I feel sure that you will say if you are honest that you do not know. There are some diseases, such as diabetes, in which you want to enrich the diet in fat. The diabetic who makes little use of carbohydrates must find some substitute for them, and that substitute is forthcoming in the shape of fat. With regard to carbohydrates there are very few conditions in which you wish to enrich the diet in that respect. What we want to do quite often is to enrich the diet all round; we want to feed the patient up, especially in the case of convalescents. In that case the best thing is to increase all the constituents—the proteids, the carbohydrates, and the fats. To accomplish that there is no easier way than to get the patient to drink such a food as milk, with or between meals. Milk, as you know, is a food which contains all the constituents of food in an easily digestible form. So that the claim which is often put forward for artificial foods that they enable you to enrich the diet in certain constituents is largely fallacious. We do not know enough to enable us so to make use of them.

(5) I pass over the use of patent foods as a substitute for human milk, as I shall deal with that point later, and pass to the question of cost.

(6) Is it ever justifiable to use an artificial food

on the ground of cheapness? Well, if there is one generalisation which you can make about all the patent foods presented to you, it is this—and I make the statement without any reservation whatever—that not one of them is worth the money asked for it, and that some of them contain a ridiculously small amount of nourishment at the price. Compare the units of energy obtained by spending one shilling on some of the patent foods which are presented to you. In Valentine's Meat Juice you get six units of energy for a shilling. In Denaeyer's Peptone you get nine units of energy for a shilling. In Somatose, which is so largely advertised, there are 16½ units of energy for the same money. Now let us look at the amount of energy which we get from certain natural foods. In meat we get 511 units of energy for a shilling, in egg 1,065 units, in milk 3,440 units, and in sugar nearly 5,000 units. So you are able to see from that how very badly patent foods compare with common ordinary foods in point of cost. To us as practical men that is one of the greatest disadvantages of patent foods. Except in the case of rich patients their use to any extensive degree is hardly justifiable at all. They cost so much in proportion to the amount of nutriment and benefit which they give that they are most extravagant methods of feeding.

You may reply that all this may be true, but that your patients are not physiological machines—that their needs and demands are not to be judged by physiological experiment or analysis in a chemical laboratory. You may also reply that although it is true that some of these foods do supply very little energy and that at a great cost, and that though they are not really more digestible or more nourishing than ordinary foods are, yet your patients demand them and therefore you must give them.

There is, of course, some truth in such a contention : patients have a mental side which has to be considered, and it is the mental influence of some of these foods which may justify their use in the sick-room. It is the old story of the leper who was told to bathe in the river Jordan : the treatment was too simple for him. If you tell a man to drink milk or to take any ordinary food he will probably pay no heed to your advice ; but if you tell him to take So-and-so's patent food which he has some trouble to get and for which he has to pay a good deal, then he will diligently take large quantities of it and boast that he is doing so. It is that aspect which justifies the introduction of patent foods into practice. But all the more on that account it behoves us to know at least something of the chemical composition of those foods and not to delude ourselves into the belief that we are feeding a patient up and giving him a large amount of nourishment when we are only deferring to his prejudices.

We come now to consider the composition of the existing foods, and to enable you to follow better what I have to say on that point I have put into your hands a rough classification of most of the patent foods at present in the market. I do not pretend to say that this classification is scientific or logical ; it is impossible with illogical products like patent foods to get a really logical classification. I have divided them into five great groups :—

Classification of Patent Foods.

I. *Foods intended to supply special nutritive constituents* :

(1) Proteid foods. (i.) derived from meat—meat powders : Leube-Rosenthal's solution ; (ii.) derived from milk—*e.g.*, Nutrose, Eucasin, Protene, Plas-

mon; (iii.) derived from vegetable sources—*e.g.*, Aleurone; (iv.) derived from mixed sources—*e.g.*, Tropon.

(2) Carbohydrate foods—*e.g.*, malt extracts.

(3) Fatty foods. (i.) Cod-liver oil emulsion; (ii.) petroleum emulsion; (iii.) pancreatic emulsion.

(4) Mixed fatty and carbohydrate foods—*e.g.*, Virol, Virvis.

II. *Beef extracts* (see Table I.)

III. *Beef juices* (see Table II.)

IV. *Peptonised food* (see Table III.). (*a*) Solid—*e.g.*, Somatose, peptonoids, &c.; (*b*) liquid—*e.g.*, Panopepton, wine of peptone, &c.

V. *Infant foods* (see Table IV.).

I.

(1) Let us begin with the first sub-group, those which are intended to supply an extra quantity of proteid. Some are derived directly from meat; they are obtained by driving off the water at a low temperature, leaving behind the dry fibre. By employing a low temperature for this purpose the proteid matter in the meat undergoes no special alteration. Brand's nutrient powder is such a preparation. I believe that it may be very useful. It is moderately cheap, because it is simply meat with the water driven off, and it can be easily stirred up into broths or milk. For artificial feeding by the nose or œsophageal tube such preparations have been made much use of, especially in France, and in many cases in the asylums of this country, and they do add very largely to the nutritive value of the fluid which you pour down the œsophagus. Leube-Rosenthal's solution is a partially digested meat in the form of a sludge. It is extremely easily digested, and is, I believe, quite a good preparation. It is

unfortunate that it has not come more into use in this country, because in Germany it is largely used for cases of gastric ulcer, and it is of high nutritive value.

The next class in this sub-group are foods derived from milk. This is a large group in which the proteid of milk—casein—has been separated out in a pure form and is intended to be added to other foods to increase their richness in proteid. Casein presents many advantages : it is colourless, odourless, and tasteless, so that it can be stirred into the food without the patient being aware that it is there. It is free from nuclein compounds, so that it can be taken by gouty people without risk of producing extra uric acid in the body. A large number of preparations of casein have been introduced under special names—*e.g.*, Nutrose (sodium casein), Eucasin (ammonia-casein), &c. There is also the English preparations Protene, which is a white flour-like preparation of casein. Another one which you will probably be more familiar with, which is very largely used, and which the laity are constantly talking about, is Plasmon. Plasmon is a special preparation of casein, in which the casein is rendered soluble by the addition, under special conditions, of bicarbonate of sodium. Lastly, there is a more recent preparation, which you may know, Casumen, an English preparation of very pure soluble casein. What is one to say of them ? I think that one may say that they are amongst the most useful of all the artificial foods which have been introduced. There is no doubt that these preparations can be added in very large amount to ordinary foods, such as soups and milk, and even to some solid foods, with great benefit and without the patient being aware of the addition. And seeing that they contain 80 or 90 per cent. of pure proteid you can

understand that the amount of nutritive material which they are the means of supplying is considerable. I know of no *special* indications necessitating their use, but there are many conditions of disease where one wants to enrich a fluid diet. If a patient is on pure milk, and you want to increase the nutritive value of the milk, then it is that such preparations can be made very useful, and you can add them knowing that they will be easily digested and be almost completely absorbed, and that they can do the patient no harm. Looking at the subject all round these are amongst the most useful of all the artificial foods and have the further advantage that, as most artificial foods go, they are cheap, because the casein is extracted from skim-milk, which would otherwise be thrown away, and the preparation can therefore be produced at a low cost.

The third class in this group are those derived from vegetable sources. These were introduced because people wanted to get a cheaper source of proteid, animal sources being necessarily expensive. The one which has been chiefly recommended is Aleurone, which is the proteid of wheat; it is colourless, odourless, tasteless, and fairly soluble. But for some reason or other it has never properly "caught on."

The last class in the group are those containing substances derived from both animal and vegetable sources. The best example of these is Tropon, which is relatively extremely cheap, because it is derived from waste animal and vegetable substances. It was found that by washing away the fat from these substances a powder could be obtained which was practically free from odour and taste, which could be kept indefinitely, and which was also rich in proteid. It was advertised considerably in this

country, but has not come into large use. It has the disadvantages of not being readily soluble and of having a rather sandy taste.

(2) The next sub-group includes those foods which are intended to supply especially carbohydrates. The best examples are the malt extracts. These contain roughly the following proportions : sugar, from 50 to 55 per cent. ; soluble starch, from 10 to 15 per cent. ; proteids, from 5 to 6 per cent. ; and ash, from 1 to 2 per cent. I want to consider for a moment what the value of malt extracts is, because they are, perhaps, more largely prescribed than any other patent food. They were originally made because they contained diastase, being prepared by evaporating down an infusion of malted barley at a low temperature so that the ferment is not destroyed by heat, and it was hoped that they would help the digestion of other starchy foods by converting them into sugar. The consequence of this view is that malt extracts are necessarily expensive, as they have to be produced very carefully in case the diastase should be destroyed. When you prescribe malt extract do you ever ask yourselves what it is you particularly want to do ? I put that question because I want to ascertain for my own information whether the majority of people who order malt extract have any thought of diastase at all. When you order it are you thinking of giving your patient diastase to help him to digest the rest of his starchy food ? Or do you order it for the sugar and proteid which if contains ? I hope in the discussion which is to follow that I shall get some information on this point. If medical men were to say that they only wanted malt extract for the sake of its sugar, then the cost of its manufacture might be reduced 50 per cent. I think that the majority who prescribe it do so because they

want sugar. But what is the value of malt extract regarded as a source of sugar? These preparations contain only half the weight of sugar that ordinary loaf-sugar contains. You may say that malt extracts contain *malt* sugar, but there is no proof that malt sugar is much superior to other natural sugars. It is true that it is *partly* digested, and it certainly seems to agree better with the stomach than cane sugar. But such a substance as honey contains *wholly* digested sugar, ready to be absorbed straight into the blood, and honey contains a larger proportion of dextrose than does anything else I know of. A pound of honey costs 9d.; a pound of malt extract costs 3s.; and the honey is the better source of sugar of the two. If, then, one does not want to get diastase one is acting more wisely by ordering honey. But, of course, the patient might laugh at you if you ordered honey, whilst he would swallow any quantity of malt extract costing double the price. I would put in a word here for milk sugar or lactose, which is one of the best means for enriching a diet in carbohydrates. Lactose does not taste sweet and it is a food. It can be added largely to liquid foods without making them unpleasantly sweet. You can stir lactose into milk and thus increase its food value without adding to its bulk. Certainly I think it deserves a better place among sick-room requisites than it holds.

(3) We now pass to the third sub-group—those which are intended to supply us with fat. The most important of these is *cod-liver oil emulsion*. Here, again, one is met by the same question as in considering the malt extracts, Why does one order cod-liver oil emulsion? Wherein does the virtue consist? Is it for any particular virtue in the emulsion, or is it merely for the fat? I do not know that cod-liver oil fat possesses any special

virtues. You believe it to be specially easy of digestion? But in cream you get a more valuable food, because ordinary cream contains more than 50 per cent. of fat, and butter fat is as easily digested and absorbed as the fat of cod-liver oil, besides having the advantage of being much more palatable and considerably cheaper. So I do not see any reason for ordering cod-liver oil emulsion if you only want an easily digested fat, when there are such substances as ordinary cream and butter procurable. I have also put down in this category *petroleum emulsion*, because it is so largely advertised, and because it is, in a sense, one of the most delusive of all these artificial preparations. It is certainly believed by many people to be a substitute for cod-liver oil. A mineral oil like petroleum can never, by any chance, be absorbed into the blood, and any action of petroleum emulsion is purely local, and it cannot feed any more than vaseline which you rub into the skin. I took the trouble some time ago to demonstrate that by analysing the fæces of a person who was taking petroleum emulsion. I was able to recover every gramme from the stools; not one single particle of it got near the blood. Even if it did the body could not utilise it because it is a hydrocarbon and not a fat.

Pancreatic emulsion is a fairly well-known preparation and is rather pleasant to taste. It is really emulsified lard flavoured with clove oil. It keeps very well and it is quite easy to take, but it does not contain more fat than butter, which contains 80 per cent., and lard is certainly not more digestible than butter fat. As long as we have butter, therefore, I cannot see any excuse for manufacturing pancreatic emulsion.

(4) Next we come to the fourth subdivision of the first great group, the mixed fatty and carbohydrate

foods. One of these is Virol, and another, which has been recently introduced, is Virvis. These are preparations containing essentially malt extract and marrow fat flavoured with lemon juice. Of course, such a preparation has a considerable amount of nutritive value. Virol contains 20 per cent. of fat and 60 per cent. of carbohydrate, and 2 ounces of it cost 9d. Virvis is rather cheaper, but I have not analysed its constituents. But here, again, you will see that there is no great virtue in those preparations; they contain a certain amount of fat and carbohydrate; so does chocolate; chocolate contains more fat and more carbohydrate, while ordinary toffee, Everton toffee, consists of equal quantities of fat and carbohydrate without any water. So I cannot see any use for the existence of these things so long as you can prescribe chocolate and toffee.

II. Beef Extracts.

I pass next to the beef extracts. I shall deal briefly with these because you have all the essential facts in the analyses which I have put before you in Table I. Beef extracts, in the ordinary sense of the term, are of very little, if any, food value. They contain hardly any proteid; what they chiefly contain are the extractives and mineral matters. Experiment has shown that the extractives are only of use in so far as they stimulate appetite; they have no other action whatever, they are not foods, they are not true stimulants, and they have no particular influence in the body except that of increasing the desire for other food. So the place for them is in the kitchen and not in the sick-room. That was fully recognised by Liebig, and was only lost sight of by his successors. But then there came people who tried to make meat extracts of food

value. They added to the extract meat fibre—as, for example, in the case of Bovril—and said that by adding this fibre one gives the preparation the value of a food, and so, in the strict scientific sense of the term, one does. But *how much* food value does Bovril contain? If you take a teaspoonful of it you will find that it is equivalent to an ordinary piece of lean meat about half a cubic

TABLE I.—SHOWING THE COMPOSITION OF BEEF EXTRACTS.

Food	Liebig's Extract[1]	Bovril[2]	Bovril for Invalids[3]	Armour's Extract[4]	Brand's Essence[5]	Marmite
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Water	18·3	44·4	21·82	15·55	87·17	30·1
Proteids	9·4	16·94	21·42	8·73	5·40	4·1
Gelatin		—	—	2·16	5·03	—
Extractives ...	30·0	20·32	39·60	43·23	1·01	46·9
Mineral matter ...	23·6	18·32	17·16	25·91	1·39	18·9
Ether extract, &c.	18·6	—	—	4·12	—	—

[1] Analysis by Tankard.

[2] Analysis by Stützer (quoted by Voit, *Münchener Medicinische Wochenschrift*, No. 9, 1897).

[3] Analysis supplied by the Company.

[4] *Food and Sanitation*, December 16, 1893.

[5] Analysis by Dr. Candy (unpublished).

N.B.—"Marmite" is a purely vegetable product, but is included in this table for convenience.

inch in size (eight grammes). And you cannot take a great quantity of Bovril without producing diarrhœa and thirst on account of the disproportionate quantity of saline matters and extractives which it contains. So the reply to people who assert that Bovril is a food is that their statement is true *in theory*, but that if you gave enough of it to serve as a food *in practice* you would certainly produce unpleasant results. What is true of Bovril is true of other similar preparations in equal measure.

III.—Beef Juices.

Next let us take the beef juices. Beef juices come under a different heading from the extracts. As a matter of fact, they contain the fluid proteid of meat in an uncoagulated form. If you examine them with the spectroscope you will find that most

Table II.—Showing the Composition of Beef Juices.

	Valentine's[1]	Puro[2]	Bovinine[3]	Brand[4]	Wyeth[5]	Armour[6]	Burgoyne[7]
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Water ...	51·21	36·6	81·09	59·15	44·87	74·10	49·51
Proteids ...	9·65	30·33	13·98	15·45	38·01	8·3	13·0
Extractives ...	11·16	19·16	3·40	16·55		9·54	8·10
Mineral matter	10·84	9·79	1·02	8·85	17·12	7·51	14·20

[1] Analysis by Dr. Candy.
[2] Fresensius (*Leyden's Handbuch der Ernährungstherapie*).
[3] *Food and Sanitation*, December 23, 1893 (Analysis by Chittenden).
[4] Analysis by Dr. Candy (unpublished).
[5] *The Lancet* Analysis (quoted by the makers).
[6] Analysis by Dr. Attfield (supplied by the makers).
[7] Analysis by Dr. Candy.

of them yield the spectrum of hæmoglobin. You will see in Table II. analysis of most of the common ones. You will observe that the richest of them in proteid is the preparation called Puro. It is a German preparation, which is of some interest, because originally, I believe, Puro was the concentrated juice of meat preserved in a special way. But on examining recently another preparation of Puro I found that it contained a large proportion of egg albumen. In fact, it amounts to this: that it is a preparation artificially en-

riched by the addition of white of egg, and I object to paying for white of egg when I am supposed to be paying for the juice of meat. When you ask for meat juice people have no right to give you white of egg. Valentine's is the most expensive of all the juices; it is inferior in nutritive value to most of the others, and I know of no respect in which it is superior to any except in the matter of price. If you must use a meat juice, one of the best is Brand's. Bovinine is another extremely interesting product. It hails from Chicago. It yields the spectrum not of hæmoglobin, but of altered blood (methæmoglobin). One point about it is that it contains so little extractive, while all the others are rich in extractives. In fact, Bovinine is suspiciously low in extractives, and one comes to the conclusion from the spectrum examination that it is not properly a meat juice at all, but blood preserved with glycerine, a conclusion which has also been arrived at by Professor Chittenden, of Yale University. That accounts for its extremely low price and the absence of extractives.

That disposes of most of the meat juices. You may say of them, as you may say of the extracts, that they contain relatively so little proteid and so much extractive and mineral matter that they are practically not foods at all because you cannot take enough of them.

You can manufacture "meat juice" yourself at a very low cost. Here is a bottle of it which I made this morning. Take the white of egg, add an equal quantity of water, and strain through muslin, then flavour the mixture with any quantity of Liebig's extract dissolved in a little warm water which you think suitable. By that means you get a preparation extremely rich in coagulable

albumen, which you can produce at one penny per ounce; and it is one of which the patient can swallow a pailful, if he can get it down, without it doing him any harm. So I see no necessity to buy any of the juices in the market so long as hens exist. That which you make in this way is as good as what you buy, for egg albumen is as nutritious as meat albumen, and it is vastly inferior to it in price.

TABLE III.—SHOWING THE COMPOSITION OF PEPTONE PREPARATIONS.

Preparation	Water	Soluble Proteids, chiefly Albumoses	Extractives and other Non-proteid Organic Matter	Mineral Matter
	Per cent.	Per cent.	Per cent.	Per cent.
Somatose	9·2	80·0	—	6·7
Carnrick's Peptonoids...	5·4	24·0	65·4 (mainly sugar)	5·2
Koch's Peptone ...	40·16	34·78	15·93	6·89
Liebig's Peptone[1] ...	31·9	33·40	24·6	9·9
Brand's Beef Peptone ...	84·6	7·0	—	1·4
Denaeyer's Peptone[2] ...	78·45	12·15	4·32	2·54
Darby's Fluid Meat[3] ...	25·71	30·60	30·18	13·50
Armour's Wine of Peptone	83·0	3·0	12·9	1·1
Fairchild's Panopepton	81·0	3·0	15·0 (largely sugar)	1·0
Peptonised Milk[4] ...	87·5	1·76	10·04 (= sugar, fat, and unaltered proteid)	0·7

[1] *Leyden's Handbuch der Ernährungstherapie.*

[2] *Ibid.* See also von Noorden, *Therapeutische Monatshefte*, June, 1892.

[3] *Horton Smith's Journal of Physiology*, vol. xii., p. 42, 1891, and *Leyden's Handbuch.*

[4] Horton Smith (*loc. cit.*).

TABLE IV.—SHOWING THE COM-

Food	Water	Proteid[1]	Fat	Carbohydrate	Mineral matter	
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	
Dried human milk	—	12·2	26·4	52·4	2·1	[1.
Group I.						
Allenbury No. 1 (for children below three months)	5·7	9·7	20·0	60·85	3·75	[2.
Allenbury No. 2 (for children of from three to six months)	3·9	9·2	15·0	69·1	3·50	[3.
Horlick's Malted Milk ...	3·7	13·8	9·0	70·8	2·70	[4.
Carnrick's Soluble Food ...	5·3	13·6	2·5	76·2	2·20	[5.
Milo Food	1·56	11·03	3·92	81·38	2·11	[6.
Manhu Infant Food ...	8·8	8·7	5·6	75·9	1·0	[7.
"Maltico"[2]	2·36	16·07	11·80	65·89	3·88	[8.
Group II.—Class A.						
Mellin's Food...	6·3	7·9	trace	82·0	3·8	[9.
Cheltine Maltose Food ...	4·6	5·3	0·27	87·6	2·25	[10.
Hovis Babies' Food, No. 1	3·7	7·7	0·20	86·6	1·82	[11.

[1] Calculated from total N by factor 5·7.
[2] *Lancet* analysis, May 23, 1902.

General Description and Remarks

1.] The standard of composition to which artificial substitutes should conform.

2.] Desiccated cows' milk from which the excess of casein has been removed, and a certain proportion of soluble vegetable albumen, milk, sugar and cream added. No starch present. Half an ounce in three ounces of water for a child aged three months.

3.] Resembles the above, but contains some malted flour in addition. No starch present. One ounce in six ounces of water for a child aged six months.

4.] A mixture of desiccated milk (50 per cent.), wheat flour (26¼ per cent.), barley malt (23 per cent.), and bicarbonate of soda (¾ per cent.). Contains no unaltered starch when mixed. Three teaspoonfuls (equals 22 grammes) in four ounces of water for a child aged three months.

5.] A mixture of desiccated milk (37½ per cent.), malted wheat flour (37½ per cent.), and milk-sugar (25 per cent.). When prepared according to directions, the casein is partially digested, but a considerable amount of unchanged starch is left. One part to be mixed with nine parts of water and boiled for a few minutes.

6.] A mixture of desiccated Swiss milk, baked wheat flour, and cane sugar (30 per cent.). There is 62 per cent. of soluble and 19 per cent. of insoluble carbohydrates (largely starch) present. To be made with water only.

7.] A mixture of desiccated milk and malted cereals. When prepared according to directions, contains a good deal of unaltered starch. A dessertspoonful (equals 13 grammes) to be mixed with two and a half ounces of water.

8.] Prepared from milk and malted cereals. Free from starch. To be made with water only.

9.] A completely malted food. All the carbohydrate in a soluble form. May be regarded as a desiccated malt extract. Half a tablespoonful (about 5 grammes), a quarter of a pint of milk, and a quarter of a pint of water for a child under three months.

10.] A fully malted food containing no starch. To be made with milk.

11.] A fully malted food. To be made with milk.

TABLE IV.—SHOWING THE COM-

Food	Water	Proteid	Fat	Carbohydrate	Mineral matter	
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	
Class B.						
Savory & Moore's Food ...	4·5	10·3	1·4	83·2	0·6	[12.
Benger's Food	8·3	10·2	1·2	79·5	0·8	[13.
Allenbury Malted Food ...	6·5	9·2	1·0	82·8	0·5	[14.
Diastased Farina	8·3	8·3	1·3	81·0	1·1	[15.
Coombs' Malted Food ...	7·9	12·1	2·8	76·8	0·4	[16.
Moseley's Food	10·8	11·0	0·92	76·4	0·94	[17.
Nutroa Food	6·8	15·9	10·3	66·0	1·0	[18.
Albany	8·6	9·5	2·1	79·4	0·4	[19.
Worth's Perfect Food ...	2·4	11·1	2·0	83·5	0·5	[20.

POSITION OF INFANT FOODS.—*Continued.*

General Description and Remarks

12.] Composed of wheat flour with the addition of malt. When prepared according to the directions, most, but not all, of the starch is converted into soluble forms (chiefly dextrins). One or two tablespoonfuls (equals one to two ounces) to be mixed with two or three tablespoonfuls of cold milk or milk and water, and one-third of a pint of boiling milk, or milk and water, added.

13]. A mixture of wheat flour and pancreatic extract. When prepared according to the directions, most, but not all, of the starch is converted into soluble forms. The proteid is also partially digested, as well as that of the milk used in mixing it. Take one tablespoonful (about an ounce), and four of cold milk, then add half a pint of boiling milk and water ; set aside in a warm place for fifteen minutes, then bring to the boil.

14]. A mixture of wheat flour and malt. When prepared according to the directions, still contains some unaltered starch. Designed for children above six months. One tablespoonful (about an ounce), one teaspoonful of sugar, and three tablespoonfuls of cold water ; mix, and add half a pint of boiling milk and water (equal parts).

15]. A malted farinaceous food. When prepared according to the directions, practically all the starch is converted into soluble forms. One ounce of food, half a pint of cold milk, and two ounces of water. Heat slowly till it boils ; boil three minutes and sweeten if desired.

16]. A malted, farinaceous food. When prepared according to the directions, still contains much unaltered starch.

17.] Complete conversion of all starch occurs during preparation. To be given with milk.

18.] A mixture of cereals with the addition of a certain proportion of peanut flour, from which the somewhat bitter taste of the food and its high proportion of fat are derived. It is a self-digesting food, but when prepared according to the directions, only part of the starch is converted. One ounce of the food to be mixed with one ounce of cold water, and half a pint of boiling milk and water (equal parts) to be added.

19]. A self-digesting, farinaceous food for infants and invalids. To be used with equal parts of milk and water according to directions. Starch not all changed.

20]. A tablespoonful to be mixed with half a pint of cold milk, or milk and water, and boiled five or ten minutes. When prepared according to directions, still contains unaltered starch.

TABLE IV.—SHOWING THE COM-

Food	Water	Proteid	Fat	Carbohydrate	Mineral matter	
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	
Group III.						
Ridge's Food	7·9	9·2	1·0	81·2	0·7	[21.
Neave's Food	6·5	10·5	1·0	80·4	1·6	[22.
Frame Food Diet	5·0	13·4	1·2	79·4	1·0	[23.
Bananina	9·5	4·1	0·40	84·0	2·07	[24.
Cheltine Infants' Food ...	7·2	16·2	3 92	71·0	1·83	[25.
Hovis Food No. 2	2·4	5·7	0·10	90·1	1·70	[26.
Opmus Food	10·9	9·1	1·0	78·6	0·4	[27.
Falona	7·0	8·4	3·5	79·9	1·2	[28.
Robinson's Groats	10·4	11·3	1·6	75·0	1·7	[29.
Robinson's Patent Barley ...	10·1	5·1	0·9	82·0	1·9	[30.
Chapman's Entire Wheat Food	8·4	9·4	2·0	79·3	0·9	[31.
Scott's Oat Flour	5·8	9·7	5·0	78·2	1·3	[32.
Nichol's Food of Health ..	11·9	7·7	1·7	76·9	1·75	[33.
Triticumina Food	8·6	12·5	2·2	75·7	1·0	[34.
"I. and I." Food	5·5	10·3	2·3	80·5	1·4	[35.
Muffler's Food	4·7	13·8	5·0	74·1	2·4	[36.
Lahmann's Vegetable Milk	24·4	7·5	24·6	41·8	1·15	[37.

POSITION OF INFANT FOODS.—*Continued.*

General Description and Remarks

21.] A baked flour, containing only three per cent. of soluble carbohydrates, the remainder being starch. Recommended to be made with milk *or* water. Made with water alone, is not a sufficient food.

22.] Resembles the above, but recommended to be made with milk and water.

23.] A thoroughly baked flour, to which has been added cane sugar and some extract of bran. It is *not* specially rich in mineral ingredients, but nitrogenous matters are abundant, and it contains much unaltered starch. One-third of an ounce to be mixed with a breakfastcup of milk and water (one of milk and two of water.)

24.] A highly starchy food prepared from banana flour.

25.] Contains starch when prepared for use.

26.] Contains about 7½ per cent. of starch. To be made with milk.

27.] A granulated wheat food. One teaspoonful to half a pint of milk. Starch unaltered.

28.] A mixture of cereals (oats, barley and wheat), with a ground, fat-containing bean. The food is thoroughly baked, but contains a considerable proportion of unaltered starch. A teaspoonful to half a pint of boiling milk *or* water, or half milk and half water.

29.] Ground oats from which husk has been removed. Rich in proteid and mineral matter.

30.] Ground pearl barley, and of the same nutritive value as the latter.

31.] A finely ground whole-wheat flour. Not much superior in nutritive value to ordinary "households" flour. Starch mostly unaltered. To be used with milk.

32.] A fine oat flour. Starch unaltered.

33.] To be used with equal quantities of boiling milk and water for making infant gruel.

34.] To be made with equal parts of milk and water, with the addition of sugar.

35.] An infants' and invalids' food. To be made with water only, or half and half water and milk, and sweetened to taste.

36.] Prepared from milk, wheat flour, and eggs; sterilised *in vacuo*. To be used with water or milk.

37.] A preparation derived from nuts, and intended to be added to diluted cows' milk, in which it raises the percentage of fat and lessens the density of the curd.

IV.—Peptonised Foods.

I have already dealt with the question of peptonised foods when I said that the necessity for their existence is enormously exaggerated. But if you use them at all it is well to know the best foods, and you will find on the sheets which I have handed round an analysis of most of them (see Table III.). A good albumose food is Somatose. It is a very rich one, containing 80 per cent. of digested proteid; it is tasteless, odourless, and can be added to other foods. It has the disadvantage, however, that if it be given in large quantities it is apt to produce diarrhœa, but the same is inevitably true of all peptone preparations. They share all the disadvantages of medicated wines. They are indifferent with regard to the wine, and the other preparations which are added to the wine neither redeem its original failings nor confer upon it any real nutritive value. Moreover, patients who use them are apt to slip into the alcoholic habit unknowingly whilst under the impression that they are merely taking a food.

V.—Infant Foods.

Lastly, we will glance at the group of infant foods. There are many of them, and they are those which, perhaps, in the ordinary run of practice one has more occasion to prescribe than any others that I have mentioned. The number of those infant foods is so vast that it is not to be wondered at that people get confused about their merits. In order to introduce some kind of order into them I divide them into three groups, as shown in Table IV. First of all, those which are intended to be complete substitutes for human milk, on which a child may be

healthily reared without further addition. In this group there are the Allenbury Foods, Horlick's Malted Milk, Carnrick's Soluble Food, Milo Food, &c. Of these you may say that they are, practically speaking, desiccated milks—milk, that is to say, from which all the water has been driven off, whilst other constituents have been added. I admit that it is possible to feed children healthily on these foods, though they are apt to be deficient in fat; I have reared children on them at Great Ormond Street Hospital for Children. Healthy babies have been reared, for example, on Allenbury Foods. But there is one precaution to take, and that is, when a child gets a little past its first few months one should add to the diet some fresh fruit juice, otherwise scurvy may result. They have also the disadvantage of containing too little fat. But the great drawback in regard to these foods is their cost. It is vastly more expensive to rear a child upon one of them than upon fresh or even condensed milk.

Next we have the malted foods and starchy foods in which the starch is supposed to have been altered by the action of a ferment. Infants below six months old are not able to digest starch, and these foods have been introduced to meet that difficulty. They are supposed either to contain no starch, or the starch which they do contain undergoes conversion into dextrine and sugar in course of preparation for the use of the child. The first of these classes is exemplified by Mellin's Food, which contains no starch at all. It may be regarded for practical purposes as simply a desiccated malt extract, and it bears to malt extract very much the same relation that some of the foods of the first group do to condensed milk. If you are going to use one of that class of foods that is as good a one

as you can use, but it is only intended to be an addition to milk. Now, what of the other class, those, namely, in which the starch is converted during mixing? If you mix them carefully for yourselves you will find that in the majority of them the starch has undergone anything but complete transformation. Now you know the rough haphazard way in which a food is apt to be prepared in the nursery, and I think that those who trust to conversion taking place under these circumstances are very rash indeed. It is better to order a food in which you know conversion has been properly carried out by the manufacturer. Mellin's may be used, but it is extremely poor in fat, and the child's diet is apt to be deficient in that ingredient if such a food enters very largely into it.

The last group is composed of those foods which make no pretence to being malted at all; they are starchy foods pure and simple. Perhaps they have been baked so that the starch grains have been ruptured, but otherwise they are floury preparations, and although many of them are harmless to children who are able to digest starch, and although there may be some use in them in the way of a change, yet they have no real advantages over ordinary simple preparations, such as baked flour or oat flour, or any other ordinary cereal preparations. For children below the age of six months they are to be avoided altogether. I think that it must have fallen to the experience of everyone here to have seen a great deal of harm done by a misuse of these foods. In the case of adults who are confined to a semi-fluid diet such preparations may occasionally be of service, but an intelligent manipulation of flour, oatmeal, and infusion of malt will make recourse to them very rarely necessary.

That exhausts the main groups of foods which I have brought to your notice. I can only say, in conclusion, that I hope that you may now feel in a better position to decide which patent food to order if you must order one at all. I hope, also, that to-night you will tell me what your experience of them has been and which of the various kinds you find most useful to you in your ordinary work and most agreeable to your patients.

———

LECTURE II.

PATENT MEDICINES.

GENTLEMEN,—On a previous occasion I have considered with you the merits—and also the demerits—of the various patent foods and I have asked you to meet me to-day in order that we may study together the kindred subject of patent medicines. I have done so because I feel strongly that this is a subject upon which you ought to be informed. You will be expected by your patients to give opinions on these preparations, and your opinion cannot be an intelligent one unless you know something of their composition. And if it should be your duty, and in my judgment it often will be your duty, to condemn patent medicines, you must be prepared to give a reason for the want of faith that is in you. That must be my excuse for burdening you with yet another lecture.

WHAT IS A PATENT MEDICINE?

The first question we have to ask ourselves in approaching this subject is, What is meant by a patent medicine? How should one define the term? Now in the legal acceptation of the word a patent medicine should comply with two requirements. It is laid down in the law of the subject first, that it must be a genuine original invention; and, secondly, that a complete description of it must be filed at the

Patent Office so as to be easily obtainable by the public. I need hardly say that neither of those requirements is fulfilled by the majority of the preparations to which the term "patent medicine" is applied. If you consider the former—namely, that the preparation must be a genuine original invention—I have merely to read you an account of some patent medicines that I have collected from the records of the Patent Office to show you to what extent such a description is applicable. I find, for instance, that in July, 1892, a patent was taken out for a specific for the alleviation of asthma or bronchial affections, of which the following is the recipe : "Steep crushed eggs in lemon juice so as to dissolve the shells, add some rum and strain." That may be an original invention, gentlemen, but whether it is likely to be curative of asthma is extremely doubtful. In October, 1890, a medicine was patented for the cure of pulmonary affections which is directed to be made by mixing one gallon of extract of cloves, a pound and a half of honey, and one pound of brown sugar-candy. In February, 1895, a certain Mr. Richardson showed great originality by taking out a patent for a medicine for the cure of rheumatism, which consisted of a mixture of sodium salicylate and water. I need not trouble you with further examples other than to mention the original notion of the gentleman who took out a patent for some pills which were to counteract the effect of taking too much alcohol, the pills consisting of powdered coffee ! So much for the first of these requirements, that it shall be a genuine original invention. And I need hardly point out to you that the second requirement—namely, that a full description shall be published so as to be readily obtainable by the public—is one which is not likely to be observed in practice. For

obvious reasons it is one which would hardly commend itself to the average patent medicine vendor. Hence it is that the majority of so-called patent medicines are not so in the legal sense at all; they are much better defined as secret remedies or nostrums (from the Latin word which means "belonging to us alone"), and I would remark in passing that this word "nostrum" breathes a spirit which is entirely opposed to what is one of the finest traditions of our profession—namely, that if anyone discovers a method of treating a disease which he believes to be new and successful, he publishes it at once for the benefit of the profession at large. That is entirely opposed to the meaning of the word "nostrum," and that is where we, the legitimate healers of the public, come into direct conflict with the spirit which animates the charlatan or quack. I think, indeed, that it would not be unfair to describe most of the preparations of which I shall have to speak as "quack" remedies. On referring to a standard dictionary I find that a quack is defined as "one who cries like the common domestic duck," "one who makes pretensions to knowledge, particularly medical knowledge, which he does not possess." It is not unjust to apply such a description to most of the people who sell so-called patent medicines.

Stamp Duty.

I turn next to consider the question of the stamp duty which is levied on patent medicines. In the year 1783, when the Exchequer was depleted after the war with the American colonies, the then Chancellor of the Exchequer looked around for sources from which to raise revenue, and he decided that patent medicines would be legitimate objects of

taxation. Carrying out that idea a tax was levied by means of a stamp placed upon the bottle or box, and many of the preparations which I have upon the table show such a stamp. The ignorant part of the public naturally supposed that anything which bore a Government stamp must be something of peculiar value and presumably genuine, but it was not until the year 1885 that an effort was made to dispel that idea by printing upon the stamp the words, "No Government guarantee." Whether this addition has succeeded in its intended object is, however, more than doubtful. Such is the history of the introduction of the stamp duty on patent medicines and nostrums. Recently the Board of Inland Revenue has recognised that a number of preparations are escaping the payment of the stamp duty, and it has tried to spread wider its net and to make such preparations pay duty also, for there has always been a degree of uncertainty as to which were taxable. In a recent decision by Mr. Justice Wills[1] it was laid down that remedies which are taxable are those which are recommended for the cure of any particular ailment. If, for instance, a man sells a box of pills labelled "antibilious pills," that thereby renders the box liable to stamp duty, because the word "antibilious" means that the pills are intended to cure the particular condition known as biliousness. On the other hand, with that extraordinary want of logic which often characterises things legal, such a mixture as "soothing syrup" is exempt from duty because it does not specify exactly what it is intended to soothe. The same is true of "tonic mixture," because no indication is given of what it is designed to tone up. That is at present the law on the subject, so far as I under-

[1] *Times* Law Reports, No. 22, vol. xix.

stand it. I do not anticipate that this extension of the duty to preparations which are intended to cure particular diseases will do much to discourage the use of patent medicines, but it will certainly add to the revenue obtained by their sale; and one is surprised in these days of tariff reform that the makers of patent medicines do not form a "Free Medicine League" and advocate the entire removal of duties from patent medicines, pointing out to the public the advantages of the large medicine bottle as opposed to the small!

Such being the history of the tax on patent medicines we may next look at their composition. I have placed in your hands a sheet which represents the approximate composition of a considerable number—but not by any means all—of the better known patent and proprietary preparations or nostrums. I wish it to be clearly understood that my analyses make no pretence to perfect accuracy. The analyses of many of these preparations, particularly such as are of vegetable origin, is often a very difficult matter, and it has been found impossible to give quantitative results. I believe, however, that I have succeeded in representing the active constituents in most, if not in all, cases.

Approximate Ingredients of Various Patent and Proprietary Preparations.

Aperient and Liver Pills.

Beecham's Pills.—Aloes, ginger and soap.

Baillie's Pills.—Aloes, colocynth, oil of cloves and soap.

Bile Beans.—Cascara, rhubarb, liquorice and oil of peppermint, coated with gelatin.

Cockle's Pills and Barclay's Pills.—Aloes, colocynth, and rhubarb.

Carter's Little Liver Pills.—Podophyllin (one-eighth grain) and aloes soc. (one-third grain) in each pill.

Dixon's Pills.—Taraxacum, podophyllin, jalap and soap.

Holloway's Pills.—Aloes, rhubarb, saffron, Glauber salts and pepper.

Page Woodcock's Wind Pills.—Aloes, oleum carui, and soap.

Scott's Pills.—Aloin and cascara, with a soap basis.

Whelpton's Pills.—Rhubarb, aloes, ginger, pulv. ipecac. and soap.

Saline Aperients.

Eno's Fruit Salt.—Bicarb. soda, tartaric acid and citric acid.

Lamplough's Pyretic Saline.—Citric acid with bicarbonate of potassium and sodium.

Abbey's Salt.—Tartaric acid with bicarbonate of sodium, sulphate of magnesium and sugar.

Cough Mixtures and Lozenges.

Congreve's Elixir.—Balsams of peru and tolu, styrax, Virginian prune, squills, aromatic sulphuric acid, rectified spirit, sugar, cochineal.

Keating's Cough Lozenges.—Ipecac. lactucaria, squill, liquorice, tragacanth and sugar.

Owbridge's Lung Tonic.—Balsam of tolu, oil of aniseed and oil of cloves.

Balsam of Aniseed.—Contains aniseed and other ingredients.

Preparations for Gout and Rheumatism.

Eade's Pills.—Salicylate of sodium, guaiacum and aloes.

Gloria Tonic.—Colchicum, guaiacum resin and iodide of sodium.

Blair's Gout Pills.—The active ingredient is colchicum.

Preparations for Headache and Neuralgia.

Antikamnia.—Bicarb. of sodium, antifebrin and (?) caffeine.

Bromidia.—Bromide of potassium, chloral, hyoscyamus, cannabis indica, oil of aniseed, syrup and water.

Bunter's Nervine.—Creasote, chloroform, camphor, balsam of tolu and alcohol.

Kaputine.—Antifebrin and sugar (coloured).

Kay's Tic Pills.—Sulphate of iron, quinine and soap.

Zox Powders.—Pure antifebrin.

Preparations for Asthma.

Crevoisier's.—Belladonna, foxglove, stramonium, sage and nitrate of potassium in equal parts.

Hair's Cure.—Iodide of potassium and tar water.

Plant's Cigarettes.—Leaves of stramonium, lobelia and green tea.

Tucker's Cure.—Atropine, cocaine, hyponitrous acid and various balsamic extracts, administered by means of an aeriser.

Cosmetic Applications.

Mrs. Allen's Hair Restorer.—Acetate of lead, milk of sulphur, scented with oil of cinnamon.

Tatcho.—Purified oil of paraffin and essential oil of lemon.

Koko.—Borax, glycerine and rose water.

Harlene.—Glycerine, alcohol, ammonia, and oil of cassia.

Mexican Hair Restorer.—Acetate of lead, precipitated sulphur, glycerine and water.

Remedies for Obesity.

Trilene Tablets.—Sugar and a vegetable constituent of unknown nature.

Grey's Specific.—Contains 47·2 per cent. of free sulphur and a bitter (? gentian).

Mrs. Frost's Anti-Obesity Remedy.—The active ingredient is extract of *Fucus vesiculosus.*

Russell's Anti-Corpulent Cure.—Citric acid (20 grains to half an ounce), glycerine and water. The Pink Tablet=saccharine.

Miscellaneous Preparations.

Buer's Piles Cure.—Ointment: Gall and hamamelis with lanoline basis. Powder: Precipitated sulphur and carbonate of magnesium.

Californian Syrup of Figs.—Senna (active constituent), syrup of figs and cinnamon.

Doan's (Back-ache) Pills.—1. White-coated aperient (dinner pills): Podophyllin, aloin, rhubarb and peppermint. 2. Brown-coated (back-ache pills): Oil of juniper and a resinous constituent (? copaiba).

Glykaline.—Glycerine, rectified spirit and a trace of iodide of potash.

Essence de Riggles.—Ol. month. pip. dissolved in rectified spirit.

Guy's Tonic.—Phosphoric acid, tinct. cochineal, inf. of gentian and chloroform water.

Dalby's Carminative.—Pulv. rhei, magnes. carb., glycerine, sugar, ol. menth. pip. and ol. anethi, and a small quantity of laudanum.

Chlorodyne.—Chloroform, ether, hydrocyanic acid, morphine, cannabis indica, capsicum, peppermint and treacle.

Clarke's Blood Mixture.—The active constituent is iodide of potassium (about six grains to the ounce).

Oxien.—Powdered sugar and starch and ol. gaultheriæ.

Ozerine.—Bromide of potassium and iodide of ammonia with chloroform water.

Pink Pills.—Sulphate of iron, an alkaline carbonate and liquorice, thickly coated with sugar and coloured with carmine.

Phospherine.—Quinine, phosphates, and hypophosphites.

Seigel's Syrup.—Aloes, capsicum, liquorice and treacle.

Steedman's Teething Powders.—Calomel and starch.

Warner's Safe Cure.—Nitrate of potassium (about ten grains to the ounce) and various diuretic herbs.

Woodward's Gripe Water.—Liquor magnes. carb., ol. anethi, sugar, and a trace of alcohol.

Yanatas.—Pot. bromide (4 per cent.), butyl chlorol, acid citric, glycerine, sugar (23 per cent.), tinct. cocci (q. s. to colour). Twenty grains of bromide for a dose, nearly.

Drink Cures.

Mrs. Terry's.—Sugar (98 per cent.) and salt (2 per cent.).

Antidipso.—Chlorate of potash and sugar.

For convenience I have divided the various preparations which I have examined into different groups. The first comprises the aperient and liver pills, which are amongst the most largely used of all patent medicines. The popularity of this group is a sign of the immense prevalence of chronic constipation and all its attendant ills. You will observe that most of these pills contain aloes as one at least of their active ingredients. Now aloes has, as you know, been long recognised as a useful habitual laxative, and to most of the members of this group no objection can be raised on the ground of composition. Many of them are skilfully compounded and undoubtedly possess the aperient action to which they lay claim, but I need hardly point out that prevalent though constipation is, it is by no means the only possible cause of all the symptoms

which most of these preparations are supposed to be able to cure. The saline aperients are all effervescent preparations, consisting of bicarbonate of soda on the one hand, and tartaric acid or citric acid on the other. They are "elegant" and pleasant saline laxatives, only that and nothing more. The most striking point about the cough mixtures is that their makers have recognised what we, I am afraid, are sometimes slow to recognise, that most coughs are due to irritation of the pharynx and not to affections of the bronchial tubes. In most of them, therefore, the "demulcent" constituents predominate. That they are well adapted to relieve a pharyngeal cough need not be doubted, but that they can exert any curative influence in such a disease as phthisis is, of course, a mere delusion. The preparations for gout and rheumatism present one point of special interest. Colchicum and salicylate of sodium one is not surprised to find in them, but I confess that I *was* rather surprised to find that two of them contained guaiacum. And yet I believe the makers are right. Guaiacum is a drug which has probably fallen too much into disuse amongst ourselves. At all events, speaking from my experience in the out-patient room, I can confidently say that I have often found it afford great relief in chronic gout and in the so-called chronic rheumatism of old people. The preparations for headache and neuralgia are mostly of recent introduction and depend, to a large extent, upon a judicious exploitation of the virtues of the coal-tar derivatives. The indiscriminate use of some of these is certainly not devoid of danger. Remedies for asthma have long been popular with the patent medicine vendor, and some of them, it must be admitted, have attained a wide and not undeserved reputation. I have indicated the composition of a

few typical specimens, the composition of which, however, is already pretty well known.

The obesity preparations have given me more trouble than any of the others. In the case of some, at least, I was entirely unable to discover the exact composition. I fully expected to find that some of them would contain thyroid extract, but in that I was disappointed. One of them consisted mainly of extract of *Fucus vesiculosus* (bladder-wrack), which has long been believed to have a tendency to diminish stoutness, though its claims rest on no very strict scientific basis. Another consisted chiefly of citric acid, which is interesting when one remembers the popular belief that sucking lemons makes one thin. As regards several of the others I confess to being puzzled. This, however, I must say in fairness, that I had the curiosity to write to some of the people who had supplied testimonials to the makers of these remedies and found that, so far as I could discover, the testimonials were genuine, and that those who supplied them believed at least that their weight had been reduced by the medicine. I can only say that I wish I knew of any remedy which could be counted upon safely to reduce weight in the absence of any change of diet.

Under "Miscellaneous preparations" I include a number of interesting and widely-known nostrums, of which, however, I have not time to speak in detail. This only I would point out, that a preparation which depends for its activity on iodide of potassium cannot be described as harmless; nor is one which contains considerable quantities of nitrate of potassium in any true sense "safe." Of "drink cures," perhaps the most objectionable product of the quack, I have examined only two. Their composition, unless I have entirely overlooked some other ingredient, is more eloquent than any words

of mine could be. I would only say that in each case the preparation is intended to be given as a powder smuggled into tea or coffee without the patient's knowledge, and is alleged to remove the craving for alcoholic drink, and that for twenty-four little packets of the former I had to pay 5s. Oh, the eternal gullibility of the British public !

Reasons for the Success of Patent Medicines.

If, then, gentlemen, as the analyses have shown, these preparations contain nothing new and nothing mysterious, why is it that they are so popular, and that the revenue from their sale amounts to no less a sum than £300,000 per annum ? I think, in the first place, that this popularity points to the existence of a great deal of minor illness for which people do not think it worth while to consult a medical man. To this I do not see that we have any reason to object, because we cannot hope to possess a monopoly of attempting to cure people. It is open to anyone who thinks he can do it to try to cure somebody else, if that person is foolish enough to allow him to try his hand; and so long as diseases exist people will try to find remedies for them without the intervention of the doctor. That one must admit. But apart from that I think there is a subtle psychological reason for the success of patent medicines. None of us likes to confess that he has failed in the treatment of a case, and that is specially true of the man who tries to cure himself. A patient buys a bottle of patent medicine and becomes his own physician. If he gets well he is immensely pleased with himself and at his discrimination in selecting (as he thinks) the proper remedy, and he goes and tells his friends what a clever fellow he is. But if he fails and feels no

better as a result of the purchase he says nothing about it. Hence the successes of patent medicines get talked about and their failures are buried in obscurity. By far the chief reason, however, of the success of patent medicines is, as I need hardly point out, persistent and audacious advertisement. The extent to which such advertisement is carried is almost incredible. Even in the middle of last century, which was before the great days of advertising, the patent medicine people were early in the field. It is said that when Dickens was at the height of his fame a firm of patent medicine makers offered him £1,000 if he would mention their pills in one of his novels. He declined. When this was told to Thackeray he said it was foolish to refuse, for he could have pocketed the cheque and killed off the villain with an overdose of the pills!

How to Fight Quackery.

The subject certainly has its humorous side, but of many of these advertisements it is difficult enough for us who know the facts of disease to speak in temperate terms. It seems to me monstrous that people should be allowed for their own ends to produce in the public mind a true pathophobia or exaggerated dread of disease, to raise false hopes in the unfortunate sufferers from incurable maladies, and to obtain money from those who can often ill afford it by holding out illusory promises of cure. If people assert, for instance, that pills containing sulphate of iron and bicarbonate of potash will cure tabes, or that pain in the back is frequently a symptom of renal disease, they are saying a thing which is not true, and if they sell a remedy on that basis, then if that is not getting money under false pretences that phrase has lost its meaning. Against

such a state of things we ought as a profession to protest. The time is ripe, indeed it is over-ripe, when we ought to make some organised effort against it, and I look forward to the day when there will be appointed a committee or official body of some sort, representing, say, the British Medical Association or the General Medical Council, whose business it will be to enquire into the composition of these so-called remedies and to expose them. I do not think it is right that this should be left to the initiative of private individuals; it is a matter which concerns the profession as a whole. I am afraid, however, that the time is still far off when that will come about, and in the meantime we must all do what we can in our private capacity to fight this evil. I believe, gentlemen, that there are two ways in which we can do so. First of all, we must educate the public. After all, people still look to us, and rightly, to inform them about these as about other matters relating to their health. If necessary, we may have to educate the public in the elements of physiology, so that they will realise what at present they seem incapable of realising, that the same set of symptoms may be produced by many totally different diseases, and will distrust the man who claims to have some panacea which will immediately effect a cure no matter what may be the cause. But if we are going to begin such a process of education we must begin at the top. Believe me, quackery is not confined to any particular section of the community; it would be entirely wrong to suppose that it is found simply among the more ignorant classes. It is as rife, nay, I venture to say it is more rife, in Belgravia than it is in Bethnal Green. The upper classes, the so-called cultured classes, have a belief in patent medicines and quackery generally which is almost

incredible. And if we are ever to get legislation on the subject we must begin by educating our legislators.

The other weapon for fighting this evil we already have in our hands. It ought never to be possible for a patent medicine vendor to say with truth that he has succeeded in curing a case where a medical man has failed, and if he is to be unable to say that it means that we must give more attention to the treatment of disease, and particularly the treatment of minor ailments, than I think we do at the present time. You who are here have the opportunity in this great hospital of studying scientifically the diagnosis and treatment of disease, and I ask you to use it well. I take blame to myself that one does not always explain the treatment of cases in the wards as carefully as one might, perhaps because there is so much else to do. But in the out-patient room here you have an immense material for study, embracing examples of every form of disease. See to it that you use your opportunities there diligently and wisely, and if you do that, then I can promise you that when you go out into practice you will have no need to fear the competition of the charlatan and the quack.

NOTE.—The only publications relating to Patent Medicines with which I am acquainted are two volumes, entitled "Exposures of Quackery," which were issued some years ago by the Editor of *Health News* (Savoy Press, Ltd.), and a lecture by the late Dr. Joseph Tillie on "Patent and Quack Medicines" (Edinburgh Health Society Lectures, Twelfth Series, No. vii., 1893). An account of some will also be found in Dr. Murrell's well-known book "What to do in Cases of Poisoning." Analyses of some Secret Remedies for Epilepsy will be found in the *British Medical Journal*, December 10, 1904.

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