and the clinical results in the hands of others do not bear out the enthusiastic claims of von Ruck.

The serum treatment of tuberculosis, as distinguished from that by tuberculin and its derivatives, includes first the use of the blood serum from animals naturally relatively insusceptible to phthisis, as the goat. This was advocated by Richet and others, but is hardly deserving of much consideration.

Various experimenters have used the serum of artificially immunized animals. Among them, Paquin, of St. Louis,⁶ reports that among pauper patients living under unfavorable surroundings, a number of cases selected by lot and treated with serum, showed a considerably less proportion of deaths than the remainder of the patients not so treated.

Chief attention in this direction has been attracted by Maragliano,⁶ of Genoa, who prepared an antitoxic serum by inoculating dogs, asses and horses for a period of six months with progressively increasing doses of a preparation representing a culture of tubercle bacillus and then after a pause of three or four weeks (so that the serum of these animals might not contain any traces of the toxins which had been injected) drawing the blood in the usual way and employing the serum for therapeutic purposes in human beings affected with phthisis.

It is scarcely more than a year (August, 1895) since Maragliano made his first announcement of the efficacy of this serum against phthisis, but already 450 cases have been published where the treatment was used. These reports are open to the objections applicable to all recent reports of the sort, namely, that sufficient time has not yet elapsed to reveal what the real, permanent effect of the treatment will prove to be. Increase of weight, disappearance of fever and amelioration of physical signs are reported in a certain number of cases, the results being most favorable in circumscribed broncho-pneumonias, and least favorable, of course, in diffuse and destructive broncho-pneumonias.

Perhaps the best summing up of the status of serotherapy in tuberculosis, is that of Semmola, who states it thus: "To stimulate with serum-therapy the metabolism of a phthisical patient and immunize him until the bacillus is temporarily destroyed is a small matter if serum-therapy cannot cause the destruction of the congenital germ and transpose the organism into a culture medium unfavorable to the bacillus. In consequence, without waiting for control cases, it is permissible to believe that the phthisis supposedly cured by serum-therapy, simply because the body-weight has increased and fever and bacilli have disappeared, is in reality not cured and that relapse is inevitable sooner or later; and every good clinician who wishes to prove the contrary should wait at least several years before publishing his triumphs to the world in order not to abuse the credulity of patients. At the time of the illusions regarding Koch's tuberculin I knew hundreds of these poor patients who had received their certificate of cure from a complaisant director of some clinic and who within several months were all dead."

An anti-streptococcus serum, perfected chiefly by Marmorek of the Pasteur Institute in Paris and amended with anti-gallic fervor by Aronson, of Berlin, has been used in the hospitals of Paris and Berlin.⁷ This serum is

not, strictly speaking, an antitoxin but is anti-infectious to the streptococcus in whatever diseases it occurs. It was therefore designed to be used in erysipelas, phlegma, angina and puerperal fever. It has been found, however, that in other diseases, as for instance, scarlet fever, where there is no evidence that the streptococcus is the specific cause of the malady, yet that some of its most fatal complications, as for instance those involving heart and kidneys, are probably due to the streptococcic contamination. In measles, in diphtheria and in phthisis, where mixed infections play an important and often fatal part, this anti-streptococcus serum has already found some favor. For it is well known that in diphtheria, for instance, the power of the antitoxin is only against the Klebs-Löffler bacillus and not any other organism which may constitute a mixed infection. It is likely that the same limitation will be true of an antitubercle serum, even if this latter should prove to be a specific cure for the tubercle bacillus, so that, as Dr. McClintock suggested in the conference on this subject before the American Medical Association last summer, perhaps the greatest field for an anti-streptococcus serum will yet prove to be in tuberculosis, where it may be said that it is often the complications that kill.

But at present the chief interest in this serum lies in its possibilities in scarlet fever. Roux reports favorably upon it. Baginsky had a mortality of 14 per cent. among 48 cases of scarlet fever treated by the serum, compared with 24 to 30 per cent., the mortality in other years.

A report submitted to the municipal council of Paris by Chantemesse⁸ in February last, referring to the use of this serum in an erysipelas ward, was to the effect that the gravity and duration of the disease were less in the cases so treated than in those treated expectantly.

A great deal of literature on the anti-streptococcus serum has accumulated during the last year, but it is so recent as to give no warrant for a definite opinion as to the permanent value of the measure.

In conclusion, we may, I think, say that some tangible and valuable results from sero-therapy have been gained, notably those in diphtheria; that for the rest, we have something to expect, and very much to learn; and that perhaps the Scriptural saying may herein be verified, that "patience worketh experience, and experience hope."

HYGIENIC, THERAPEUTIC, DIETETIC, AND ECONOMIC FACTS CONCERNING EXTRACTS OF MALT.

BY CHARLES HARRINGTON, M.D.,

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It is but a few years since the term "malt extract" was considered to apply to a thick, honey-like substance extracted from malted barley at a temperature not exceeding 131° F., and brought to the proper consistency by concentration in vacuum pans. It was supposed to yield about 70 per cent. of dried residue, chiefly sugar and dextrine, and to contain about two per cent. of the ferment diastase, one part of which will convert 2,000 of starch to glucose and dextrine. A properly prepared extract should convert its own weight of starch at 100° F. in ten minutes, and at 62° F. in forty minutes.

⁸ Gazette des Hôpitaux, February 1, 1896.

⁶ Journal American Medical Association, 1895, vol. xxiv, p. 842.

⁶ Deutsche medizinische Zeitung, July 27, 1896; New York Medical Journal, August 15, 1896.

⁷ Berliner klin. Woch., 1896. Nos. 16 and 32.

At that time, malt extract was prescribed by the physician, obtained of the apothecaries, and dispensed in doses of about four drachms.

The chief reason for its medicinal use lies in the fact that diastase will convert starch to dextrine and glucose, and it has been supposed on that account to assist the digestion of starchy food.

Within a few years so great has become the popularity of malt extracts that numerous liquid preparations flood the market, and not only does the physician prescribe them, but the public incited by glowing testimonials, buys them in prodigious amounts without professional advice; and while formerly it was to the apothecary that the sufferer from impaired digestive function turned, now it is chiefly to the grocer.

Travel where we will, look where we may, everywhere are we confronted with the testimony of what malt extract has done and is doing for those, who, in various capacities, have made their names household words. Singers, actors, painters, professional beauties, lifters of heavy weights, skippers of winning yachts, after-dinner speakers, and visiting Oriental statesmen attribute all their success in their respective callings to its free and constant use. Added to this evidence we may learn from the labels of several of the popular brands, that the materials from which they have been prepared have been carefully examined, and that the product is most unhesitatingly pronounced of great medicinal value by no less eminent a medical authority than a "State assayer of ores and minerals."

The old idea that malt extract should be a substance of the consistence of thick honey, containing the ferment diastase, free from all trace of alcohol, and to be prescribed in doses of about a tablespoonful, has given way very largely to one that it is a liquid preparation more or less effervescent, to be drunk by the glass or *ad libitum* with meals and on retiring.

I have found twenty-one different brands of liquid malt extracts, and have examined them as to their composition, and also as to their diastasic power, upon which, of course, their value as true malt extracts is dependent. The conditions in which their use is asserted on the various labels to be of great benefit, include all digestive, respiratory, nervous and mental troubles, but the one point upon which they nearest approach unanimity is with regard to their unusual value to nursing mothers, to which no less than fourteen testify.

Nearly all are recommended in doses of a wineglass, with or before meals and on retiring, some in larger doses, and one, which claims with more or less right to be a "substitute for all alcoholic drinks," itself containing over five per cent. of alcohol (more than in ordinary beer), "at table, by persons in fair health, may be taken *ad libitum*." For many of them great richness in diastase is claimed; one claims to have its diastase Pasteurized.

The results of analysis are shown in Table I.

Struck by the resemblance of many of the extracts to beer, porter and ale, I obtained and analyzed as fair samples of these latter, one specimen each of light-colored and dark-colored beer, one of ale and one of porter. The results are given in Table II.

It will be observed, on comparing the two tables, that nine of the extracts contain more alcohol than the weaker of the two beers, six contain more than the stronger beer, four contain more than the ale, and two are more alcoholic than the porter. Comparing the

residues, which consist chiefly of sugar, it will be noticed that but six of the extracts contain more than does the domestic Culmbacher beer.

TABLE I.

BRAND.	Specific Gravity.	Alcohol.	Total Residue.	Ash.
Beefmalt	1.0523	1.56	13.066	0.428
Gahm's Malt Extract	1.0156	6.07	6.328	0.232
Hercules Malt Wine	1.0378	6.07	11.634	0.528
Herculeine Extract of Malt	1.0149	3.29	5.130	0.202
Hoff's (Eisner & Mendelssohn)	1.0313	2.56	8.187	0.197
Hoff's (Tarrant's)	1.0288	4.37	6.862	0.262
Leicester's English Malt Extract	1.0263	2.83	8.040	0.238
Liquid Bread	1.0168	5.37	6.180	0.214
Malt-Nutrine	1.0555	0.74	13.630	0.250
Malt Wine (Haffeneffer & Co.)	1.0279	4.25	8.666	0.200
Menzel's Extract of Malt	1.0193	3.59	6.310	0.280
Mulford's Digestive Malt Extract	1.0196	1.31	6.632	0.250
Noris Extract of Malt	1.0387	3.88	11.455	0.256
Old Grist Mill Malt Extract	1.0383	3.82	11.060	0.260
Pabst Malt Extract	1.0280	4.10	8.666	0.312
Pasteurized Extract of Malted Barley	1.0156	3.88	5.280	0.230
Puremalt	1.0271	5.56	8.436	0.466
Teutonic	1.0286	6.28	9.458	0.398
Vitamalt	1.0222	4.69	7.205	0.264
Wampole's Extract of Malt	1.0257	7.13	9.534	0.386
Wyeth's Extract of Malt	1.0540	1.37	12.656	0.390

Diastase absent in all of the above brands.

TABLE II.

BRAND.	Specific Gravity.	Alcohol.	Total Residue.	Ash.
Milwaukee Beer	1.0173	4.12	6.220	0.182
Culmbacher Beer (Domestic)	1.0305	5.06	9.742	0.362
Pale Ale (English)	1.0064	5.62	4.080	0.314
Porter (Irish)	1.0151	6.14	6.194	0.474

In addition to the examination above recorded, all of the malt extracts were tested for salicylic acid, which was found to be present in considerable amount in a number of them.

From an hygienic and moral standpoint, it cannot be said that the indiscriminate use of these preparations is to be recommended. It is a fact pretty generally recognized, that the presence of salicylic acid in food and drink is a menace to health, and in most European countries its addition to articles of food and drink, except those intended for export,¹ is punishable by heavy penalties.

For many reasons the presence of alcohol is equally objectionable. As everybody knows, many persons cannot take alcohol in any form without injury. Many, well aware that a single drink containing a small percentage of alcohol will lead them to repeated drinking of the same or stronger beverages until profound intoxication ensues, and that this condition once established will be maintained days at a time, rigidly refrain from all temptation to indulge their alcoholic taste. To this class the unrestricted sale of these innocent-appearing aids to digestion and increased vigor cannot be other than a great evil, and the possibility that many such, through belief in the advertised marvellous medicinal efficacy of these drinks, may have been made to fall, is so great as to require no argument.

It is most probable also that many conscientious teetotalers whom nothing could tempt to eat a Roman punch or frozen pudding, buy, drink and enjoy these cures for indigestion, insomnia and debility.

From a therapeutic point of view, there is little to

¹ In this connection it is interesting to note that one of the preparations containing salicylic acid is said to have been "made in Germany."

be said of their value as malt extracts pure and simple. It is not necessary to enter into a discussion of the question whether diastase does or does not act in the alimentary canal in contact with the digestive juices. If it does not, then all malt extracts are in that respect useless; if it does, then these which contain no diastase are in that respect useless; thus, either way there can be but one conclusion as to their value. Their therapeutic value as alcoholic stimulants it is unnecessary to discuss. Their dietetic value is easily seen from the figures of their analysis. The residues consist chiefly of sugar, and their food value is almost wholly to be based on the value of that substance. Switchel is valuable as a nutritive beverage in proportion to its content of molasses.

From an economic standpoint they possess no advantage over their less pretentious brothers, the beers, ales and porters. The following table shows the capacity of the respective bottles, the price paid per single bottle, and the number of cubic centimetres obtained for ten cents:

TABLE III.

BRAND.	Capacity of bottle in cubic centimetres.	Price per bottle.	Number of cubic centimetres for 10 cts.
Hoff's (Tarrant's)	260	\$.30	87
Hoff's (Eisner & Mendelsohn)	300	.30	100
Hercules	370	.30	123
Liquid Bread	375	.30	125
Beefmalt	440	.35	126
Wyeth's	420	.30	140
Malt-Nutrine	360	.25	144
Gahm's	370	.25	148
Mulford's	375	.25	150
Teutonic	375	.25	150
Pasteurized	390	.25	156
Wampole's	390	.25	156
Pabst	400	.25	160
Vitamalt	400	.25	160
Old Grist Mill	350	.20	175
Herculine	350	.20	175
Noris	360	.20	180
Leicester's	375	.20	188
Puremalt	425	.20	213
Menzel's	365	.15	243
Malt Wine	440	.15	293
Porter (Irish)	390	.15	260
Ale (English)	390	.18	217
Milwaukee Beer	420	.05	840
Culmbacher Beer (Domestic)	400	.05	800

Clinical Department.

TREATMENT OF CANCER OF THE UTERUS.¹

BY F. W. JOHNSON, M.D.

At the outset, in carcinoma of the uterus, we are met with two obstacles:

(1) The onset of the disease is so insidious, and in its early stage it gives rise to so few serious subjective symptoms, that, finally, when the patient is forced by repeated hemorrhages, or pain, or by both, to consult the family physician, the disease has passed beyond the possibility of a cure.

This obstacle must be removed when women learn, as they have not learned, that after confinement they should be examined and a ruptured perineum sewed up; when they learn that an increase in the amount of blood lost at menstrual periods, that any decrease in the interval between menstrual periods, that an increase

in leucorrhea, or a profuse, or brown, or bloody, or offensive discharge from the vagina, demands attention. They should be taught that a show of blood, the beginning of a leucorrhea, or an offensive vaginal discharge after the establishment of the menopause indicates danger, and its source should be investigated.

The second obstacle is the anatomical situation of the uterus. The space on either side of the uterus between it and the pelvic walls is narrow, and the bladder almost grows from the uterus at the junction of the cervix and the body. Fortunately the upward route of extension is almost invariably by the broad ligaments at the junction of the cervix and body through the intra-ligamentary lymphatics.

It is only within the past two years or so that malignant disease of the uterus has been operated on in a way to secure the removal of as wide an area of tissue as possible outside the uterus within the pelvic cavity, and to secure the removal of half or two-thirds of the vagina as might be necessary.

To accomplish this, the operation must be a suprapubic hysterectomy, the uterus with the broad ligaments and vagina should be removed in one piece, and all the glands at the bifurcation of the iliac vessels enucleated. The same rule holds good here as in operation for cancer of the breast where, Dr. Halsted says: "The suspected tissue should be removed in one piece: (1) lest the wound become infected by the division of tissue invaded by the disease, or of lymphatic vessels containing cancer cells, and (2) because shreds or pieces of cancerous tissue might readily be overlooked in piecemeal extirpation."

Since the fall of 1894 I have done a suprapubic hysterectomy in every operable case of carcinoma of the uterus, making an attempt to remove the broad ligaments to the pelvic walls, and to remove as much of the vagina as was necessary to get well beyond the disease.

The method of performing hysterectomy for cancer of the uterus, described by Dr. J. G. Clark, resident gynecologist, Johns Hopkins Hospital, and practised by Drs. Howard A. Kelly and J. G. Clark, is by far the most surgical and most satisfactory of any.

SUMMARY OF STEPS.

(1) Insert bougies into the ureters under the local effect of cocaine, to save time and conserve the patient's vital powers for the operation.

(2) Place patient in the Trendelenburg posture, and make abdominal incision of sufficient length to insure free manual movements.

(3) Ligate upper portion of broad ligament with ovarian artery; divide vesico-uterine peritoneum around to opposite side; push bladder off, and spread layers of ligament apart, exposing uterine artery.

(4) Dissect uterine artery out for two and one-half centimetres from uterus beyond its vaginal branch, and tie.

(5) Dissect ureter free in the base of the broad ligament.

(6) In order to expose most perfectly the lymphatic glands at the bifurcation of the external and internal iliac arteries, it is necessary to ligate and cut the broad ligament as close to the pelvic brim as possible. After cutting the broad ligament away from the brim of the pelvis close to the iliac vessels, the excision should be carried down towards the pelvic floor, great care bein

¹ Read before the Suffolk District Medical Society, November 14, 1896.