

Cabot (R. C.)

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THYROID GLAND, PITUITARY BODY, SUPRARENAL  
CAPSULES, AND BONE-MARROW.

BY  
RICHARD C. CABOT, M.D.,  
OF BOSTON.



FROM  
THE MEDICAL NEWS.

Sept. 12, 1896.









THE CLINICAL USES OF THE PREPARATIONS FROM THE THYROID GLAND,  
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To cover the ground with reasonable thoroughness I have had to limit myself in two directions. First, I have kept strictly to the title of my paper and studied only the *clinical uses* of these preparations and not the theory of their nature, the modes of their preparation or action, nor the history of their introduction into medicine. Secondly, I have thought it best to say nothing at all of the uses of the preparations of the thyroid gland in myxedema, sporadic and endemic cretinism, and cachexia strumipriva. The usefulness of thyroid extract in these conditions is now so well established that any discussion of it would be tedious. Therefore, in speaking of the thyroid extract I shall confine myself to its uses in conditions other than those just mentioned.

THYROID EXTRACT.

Besides myxedema, cretinism, and the cachexia following thyroid extirpation, there is a long list of diseased conditions in which thyroid extract has been used, the most important of which are: (1) Simple goiter. (2) Exophthalmic goiter, or Graves' disease. (3) Obesity. (4) Psoriasis and other cutaneous diseases, including alopecia. (5) Tetany. (6) Insanity and various psychoses. (7) Retarded development in children. (8) Chlorosis. The thread that binds all these apparently heterogeneous conditions together is the fact that they all are, or may be, associated with myxedema, and when so associated have been cured or ameliorated by the thyroid treatment. Thus, some myxedematous patients are goitrous, many are fat and suffer from various cutaneous disorders; mental troubles are a very frequent symptom, and retarded development not uncommon. Many myxedematous patients get very anemic, and some, especially those whose myxedema is due to removal of the thyroid, show the spasms of tetany. Hence, it has occurred to physicians to use the thyroid treatment in each of these conditions when occurring without myxedema.

Further, the thyroid preparations have been used in rickets probably from a general sense of

its value in diseases of nutrition, and perhaps the same idea may have led to its use in diabetes and gout. It has been used in fibroid tumors of the uterus, and for hypertrophied scars—its marked powers of tissue metamorphosis probably recommending it. Favorable reports of its use in lupus led to its use in phthisis, and, finally, syphilis, cancer, and leprosy, have been experimented on. It is said to be good for piles.

I will take up these various uses of the thyroid extract in what seems to be the order of their importance.

THYROID EXTRACT FOR SIMPLE GOITER.

Relief is sought in these cases either on account of the disfigurement and inconvenience of the tumor, or because of the pressure symptoms which it causes. Without treatment, tracheotomy is sometimes necessary to relieve the distress of breathing.<sup>19</sup>

Out of a total of 322 published cases, 279, or eighty-seven per cent., are set down as improved, and only 43 as not improved. (See table.) These statistics are large enough to be convincing, I think, of the great value of thyroid extract in simple parenchymatous goiter. There have been, so far as I can ascertain, no wholly unfavorable reports—none where marked improvement has not appeared in a majority of all cases in which any one observer has tried it. Those who have tried the remedy, in large numbers of cases, agree that it is most effective in goiters that are of recent appearance and of moderate size, and especially in those occurring in young people.<sup>b</sup>

Failures are mostly in cystic or colloid goiter, and in middle-aged people who have had the tumor a long time. It seems safe to say that every parenchymatous goiter of recent appearance in a young person can be considerably diminished by thyroid feeding. It is uncommon to see the tumor wholly disappear, only about ten per cent. of the cases having so resulted, but often there remain only a few hard nodules not previously felt, which can be easily dissected out.

<sup>a</sup> Read before the Massachusetts State Medical Society, June 9, 1896.

<sup>b</sup> The younger the better. Thomas<sup>14</sup> reports splendid results in sucklings with congenital goiter.



## THYROID FEEDING IN GOITER.

TABLE NO. I.

Author	No. of Cases.	Cured	Improved	Not Improved	Remarks.
Bruns <sup>1</sup> .....	60	14	29	17	Used the raw gland itself. "Thyroidism" in 1 case only. 3 relapsed after treatment omitted. Failures—(a) cystic or colloid goiters; (b) adult patients with tumors of long standing.
Kocher <sup>2</sup> .....	7	0	5	2	The failures were a goiter and a colloid tumor.
Séné <sup>3</sup> .....	1	0	1	0	
Alexjew <sup>4</sup> .....	2	1	1	0	
Epelbaum <sup>5</sup> .....	1	0	1	0	
Ingals & Ohls <sup>6</sup> .....	50	2	36	11	1 case not heard from. 2 of those not improved were under treatment less than a week. Cystic tumors were not excluded.
Knopfmacher <sup>7</sup> ....	22	(12)	5	5	The 5 obstinate cases were also unaffected by the iodine treatment, by ointment, and internally.
Marie <sup>8</sup> .....	1	0	1	0	Showed diminution in size within 5 days.
Reinhold <sup>9</sup> .....	12	0	12	0	Insane patients—7 lost an average of 4 lbs. weight in 6 weeks. 2 gained weight (3-9 lbs.). No change in mental symptoms.
Angerer <sup>10</sup> .....	78	0	72	6	Those not improved gave up treatment on account of "thyroidism;" most lost weight (6 lbs. in 5 weeks'-average), but gained it back later. 2 relapses in 5 and 7 months after omission of treatment. Prefers the raw gland.
Stabel <sup>11</sup> .....	60	4	56	0	26 cases on raw gland did much better than 34 on tablets; no "thyroidism."
Ewald <sup>12</sup> .....	19	0	19	0	Used English tablets and finds them much better than German.
Putnam <sup>13</sup> .....	3	0	?	1	2 not heard from.
Thomas <sup>14</sup> .....	?	?	all	0	"Splendid results." All in young infants.
Hennig <sup>15</sup> .....	2	0	1	1	Using "thyrojojin" (Baumann <sup>18</sup> ).
Eschler <sup>16</sup> .....	"many"	"many"	?	?	Does best in young people.
Sanger <sup>17</sup> .....	1	0	1	0	

Some of the cases show distinct diminution in the size of the goiter after four or five days' treatment, and in several the tumor was entirely gone within a month. After from six to ten weeks' treatment the diminution has usually reached its limit, but some continue to improve for a longer period, and occasionally it is six weeks before any improvement begins.

As most of the statistics are very recent, our knowledge as to the permanency of the cures is obviously very limited. Nine months after the cessation of treatment many of the cases have shown no relapse. On the other hand, Bruns<sup>1</sup> finds three-fourths of his sixty cases begin to relapse three months after cessation of treatment. The statements of observers are not sufficiently full on this point in most cases, and we cannot say at present how frequently the marked improvements above recorded are destined to be permanent, and whether, as in myxedema, we must maintain the thyroid treatment through life to prevent relapse. Those cases which disappear most rapidly under thyroid treatment have shown, according to Stabel,<sup>11</sup> the greatest tendency to relapse. Slight loss of weight during the treatment is the rule, averaging five or six pounds in Angerer's<sup>10</sup> 78 cases. Severe toxic symptoms are rare and can be prevented by care (*Vide infra*).

<sup>a</sup> Including cases reported in letters to the author.

<sup>b</sup> Nearly.

## THYROID TREATMENT IN OBESITY.

The vast majority of observers are agreed that most obese persons, and many who are not so, lose weight rapidly during the first week of treatment with thyroid extract, the diet being unrestricted. We can tell to a certain extent what type of obesity is most likely to be benefited. Leichtenstern,<sup>48</sup> Buquin,<sup>47</sup> Kraus,<sup>49</sup> and others have noticed that in young, robust, and vigorous, but obese persons, the treatment is not effective. It is especially successful where obesity is associated with pallor, and flabby, doughy tissues, and as such a condition is commoner in women, the remedy more often works well in women than in men. The loss of weight is most rapid during the first week of treatment, but continues more slowly for months in some cases. Among the most striking cases are those of J. J. Putnam,<sup>50</sup> who was the first, so far as I can ascertain, to use thyroid extract in simple obesity. One of his cases lost forty-seven pounds under thyroid treatment. Ratjen<sup>56</sup> reports a loss of fifty-seven pounds in three months' treatment. Rendu's<sup>21</sup> case lost sixty-six pounds in two months with no relapse up to date (one year). A loss of a pound a day for the first week is not at all uncommon.

In most cases this loss of weight represents not simply a loss of fat (and water) from the tissues, but a drain on the lean as well. The excreta show that an increased amount of albuminoid matter is



being burnt up in the body, so that muscle as well as fat is lost. V. Noorden<sup>25</sup> says that thyroid extract is the only known drug that increases the process of oxidation in the body without muscular or glandular exercise. He compares it to the blast from "a pair of bellows rousing the smoldering fire of metabolism to fiercer flames." But as regards the albuminoids of the body, this is just what we want to avoid in our treatment of obesity, and, in fact, it can be avoided if a diet is so arranged that the loss of albuminoids is compensated by an increase in the proteid elements of the diet (Ewald<sup>44</sup>).

The majority of observers agree that the weight is soon regained after the remedy is left off, unless exercise or careful dieting prevents it. This relapse does not always occur, and is often delayed some weeks, or even months, after the remedy is omitted, but in a larger number of cases the weight

begins to increase again very quickly, and not infrequently reaches its former figure within a month. Cases are recorded where patients have actually gained weight during the use of the remedy, but this is very rare.

At the Congress for Internal Medicine, held at Wiesbaden just two months ago to-day, Ewald sums up a discussion on this topic with the conclusion that we have in thyroid feeding a precious remedy in cases of obesity, and one whose ill effects can all be avoided. He recommends that we should never give this treatment to any patient whom we cannot watch closely, for its dangers, if not carefully watched, are considerable.<sup>b 51</sup> In some cases he says the remedy entirely fails, the tendency of the organism to conserve its fat being very strong. Ewald compares such cases to those of pernicious anemia where the preservation of the fat layer up to death is so striking.

## THYROID TREATMENT OF OBESITY.

TABLE NO. II.

Author	No. of Cases	Loss of Weight.	Duration Treatment	Not Improved	Relapsed	Remarks.
Leichtenstern and Wendelstadt <sup>20</sup> .....	27	3-19 lbs.	4-6 weeks.	2	?	Anemic, flabby cases do best.
Rendu <sup>21</sup> .....	2	66 lbs. in 1, "marvelous" in the other.	2 months.	0	none so far 1 year.	Used tablets of dried extract.
Dennig <sup>22</sup> .....	5	6 lbs. av.	10-27 days.	1	1	Some show increase of albumin excretion, others do not.
Buquin <sup>23</sup> .....	3					
a <sup>24</sup> .....	3	9 lbs ; 16 lbs ; ? lbs.	3 weeks.			
V. Noorden <sup>25</sup> .....	17	"Considerable."	?	?	"Most"	Finds it useless unless supplemented by diet, but helps some where diet alone fails.
Ingals <sup>26</sup> .....	2	5 lbs. in 1.	?	1	?	1 case gained 5 lbs under treatment.
MacKenzie <sup>27</sup> .....	1	8½ lbs.	1 month.	0	Yes.	Gained back 5 lbs while still taking thyroid
Smith <sup>28</sup> .....	1	"Considerable."	?	0	?	
Schlesinger <sup>29</sup> .....	1	"Very successful."				Tablets of beef thyroid had no effect.
Jerzykowski <sup>30</sup> .....	10	"Considerable."	?	?	?	Effective only when combined with diet. Used Merck's tablets.
Putnam <sup>31</sup> .....	6	40 lb. in 1 ; 47 lb. in 1.			Yes.	Relapsed when thyroid was omitted. Other cases lost no weight.
Bleibtreu <sup>32</sup> .....	1	6½ lbs.	?	0	?	Lost albuminoids in spite of increased protein diet.
Seltzer <sup>33</sup> .....	1	?	?	0	?	Began to improve in 24 hours.
Buschan <sup>34</sup> .....	1	"much"	?	0	?	
Ratjen <sup>35</sup> .....	1	57 lbs.	3 months.	0	?	
Barron <sup>36</sup> .....	5	1 lost 28 lbs., others less.	6 weeks.	0	?	
Becker <sup>37</sup> .....	2	7 and 10 lbs.	1 week		Yes.	
Bournville <sup>38</sup> .....	6	4, 5, 6, 8 and 12 lbs.	8-10 weeks	1	Yes.	Idiotic children all relapsed, some during treatment.
Davies <sup>39</sup> .....	1	"Considerable."	?	0	?	In this case diet alone was useless, but with thyroids too, was very efficacious.
Williams <sup>40</sup> .....	7	"Considerable," 36 in 1	?	1	0	Acne rosacea in 2 : markedly improved.
Baldwin <sup>41</sup> .....	3	1 lost 40 ; 1 lost 10 ; 1 lost several lbs.	?	0	3	Weight regained because active exercise not kept up after stopping thyroid extract
Grawitz <sup>42</sup> .....	2	6 lbs.	1-3 weeks	0	?	Using "thyrojojin."
Hennig <sup>43</sup> .....	24	2 ten lbs. per week.	?	0	?	Using "thyrojojin" 1 lost 20 lbs. in 23 days.
Ewald <sup>44</sup> .....	11	8 ten lbs.	6 weeks.	1	"most"	Using "thyrojojin."
Eulenburg <sup>45</sup> .....	1	17	?	?	?	
Magnus-Lewy <sup>46</sup> .....	1	8 lbs.				
Total.....	145					

a Letter to *Munich. med. Woch.*, April 23, 1895.

b The danger signals will be briefly considered later on.



Drs. H. C. Baldwin and Harold Williams of Boston, have been good enough to let me mention the results of their experience in the thyroid treatment of obesity. Dr. Baldwin's three cases showed marked loss of weight, but relapsed because exercise was not kept up after the remedy was omitted. Some of Dr. Williams' seven cases have not relapsed and have been in all respects successful. In two an associated acne rosacea improved much during the treatment.

Out of a total of 145 cases which I have been able to collect, all but 6 got thinner under the treatment, so that, except for the question of relapse, the treatment was successful in over ninety-six per cent. of the recorded cases. How often and for how long relapse can be prevented, either by continuing the thyroid treatment, by exercise, by diet, or by a combination of these measures, we are not yet in a position to know.

#### THYROID FEEDING IN SKIN DISEASES.

Here the results have been markedly poorer than in goiter and obesity. The remedy has been tried to a limited extent in a variety of diseases affecting the skin but especially in psoriasis. Here, out

of 153 cases, only 62 improved during treatment, and of these only 43 had thyroid treatment without local remedies as well, so that only about one-fourth of the cases can be said to be really improved by the thyroid. Further, as the records of these cases are all very recent, and as very little is said as to the presence or absence of relapses, we may well hesitate to believe that the results are really due to the treatment and not to one of the spontaneous ameliorations so common in the course of the disease. Those most sanguine as to the merits of thyroid extract for psoriasis admit that there are many cases in which it has no effect, and some (about one-sixth) who are made worse by it. Byrom Bramwell<sup>56</sup> thinks it a specific for certain types of the disease, but he has never attempted to point out any means of knowing beforehand whether a given case will be made better or worse by it. Radcliffe Crocker<sup>76</sup> of London, considers it very valuable in the "right cases." Crocker says that it "should never be given during the increasing stage of the disease," as sometimes scores of new spots rapidly develop under it. He finds it "very capricious in its ac-

#### THYROID TREATMENT OF PSORIASIS.

TABLE III.

Author.	No. of Cases.	Improved.	Not Improved	Worse.	Relapse.	Remarks.
Abraham <sup>52</sup> .....	65	18 (11 had local treatment, too).	16	15	?	In 11 treatment had not continued long enough to judge of its results.
Thibierge <sup>53</sup> .....	11	8	3	0	?	Average loss of weight 12 lbs in 6 weeks. Those who improved had local treatment too.
Crary <sup>54</sup> .....	9	2	7	0	?	Noticed peculiar "meaty" odor to skin.
Busch <sup>55</sup> .....	24	18	6	0	?	11 "cured."
Bramwell <sup>56</sup> .....	6	3	3		0	1 very stubborn case cured in few weeks without local treatment; 2 are well (6 months, no relapse).
Squire <sup>57</sup> .....	2	0	2			
Dill <sup>58</sup> .....	4	3	0	1		1 "cured."
Davies <sup>59</sup> .....	2	2	0	0	?	
Hyde <sup>60</sup> .....	10	0	10			
Eschle <sup>61</sup> .....	2	2	0			Fresh cases in young people.
Brooks <sup>62</sup> .....	5	0	1	4		
Phillips <sup>63</sup> .....	2	0	2			
Putnam <sup>64</sup> .....	1	0	1			
Preese <sup>65</sup> .....	1	1	0	0	?	20 years' standing, resisted all kinds of treatment hitherto. "Cured."
Wilson <sup>66</sup> .....	1	1				Cured—hair reappeared on scalp.
Unna <sup>67</sup> .....	1	0	1			
Auld <sup>68</sup> .....	1	1	0	0	?	Stubborn hitherto. "Cured" in 1 week. 1 tablet daily.
Mossé <sup>69</sup> .....	1	1	0		?	Stubborn case 1 year's standing. Prompt "cure."
Jones <sup>70</sup> .....	1	0	0	1		Glycosuria during treatment.
Tschernogurov <sup>71</sup> ...	1	1	0	0	?	"Cured."
Anderson <sup>72</sup> .....	1	0	1	0	?	
Gordon <sup>73</sup> .....	1	1	0	0	?	
Combe <sup>74</sup> .....	?	Yes.				
Epelbaum <sup>75</sup> .....	1	1	0	0		
Total.....	154	63		22		



tion, failing in one attack after it has succeeded in a previous one. In children and sound young people it is often effectual." Thibierge believes in its utility but thinks it should be reserved for refractory cases where other remedies fail. It is in such cases that the treatment by thyroid feeding has scored its most striking successes. Age and sex seem to make little difference (Abraham<sup>82</sup>), although Eschle<sup>61</sup> thought fresh cases in young persons were more amenable to this treatment.

In eczema, of 22 reported cases, <sup>77 78 79 80 81</sup> 9 are set down as "cured," 3 as improved, 2 as unimproved, 1 as worse, and in 7 the result is not clearly stated. Out of 7 cases of ichthyosis, <sup>82 83 84 85 86 87</sup> 1 is called "cured," another "cured but relapsed when treatment stopped," 4 improved, and 1 unimproved. Of 4 cases of xeroderma, <sup>88 89</sup> 1 showed improvement; the others none. Two cases of scleroderma <sup>90 91</sup> are reported; 1 improved and 1 was "cured." Three cases of acne rosacea <sup>92 93</sup> gave 2 improved—Dr. Harold Williams' cases, one not improved. Success is mentioned in single cases of adenoma sebaceum, <sup>94</sup> pituitaria rubra, <sup>95</sup> and exfoliative dermatitis, <sup>96</sup> and failure in a case of vitiligo. <sup>97</sup> Four chronic leg ulcers <sup>98 99</sup> showed no improvement. Two cases of alopecia <sup>100 101</sup> are reported improved, but MacKenzie <sup>102</sup> claims to have tried it thoroughly and found it useless in this disease. The use of thyroid feeding in lupus seems to have been successful in the hands of Byrom Bramwell, <sup>103</sup> Busch <sup>104</sup> and Abraham <sup>105</sup> reported 12 cases, all more or less improved. In 5 of these, however, local treatment was given at the same time. No complete cures are reported.

#### THYROID TREATMENT IN PHTHISIS.

This apparent success with cutaneous tuberculosis led Morin <sup>111</sup> of Neuchatel, to try the remedy in pulmonary tuberculosis, and he has been followed by Kraus <sup>112</sup> in Germany, and T. Smith <sup>113</sup> in England. All of these observers report generally favorable results but nothing very definite or permanent. Morin believes the goiter and tuberculosis are antagonistic. He noted the frequency of atrophied thyroid in phthisis, and out of 71 cases of myxedema found 20 tubercular. Girard of Berne, noted that in the districts where goiters prevail, phthisis is more than twice as common in the non-goitrous as in those with goiters. It is a popular belief in these regions, he says, that goiter and tuberculosis are antagonistic. Morin also reports a phthisical patient who improved markedly after acquiring goiter. In one very tubercular family he found

every member phthisical except those whose thyroid was enlarged.

Kraus did not find that phthisical patients lost any weight under thyroid treatment, in fact, notes a gain in weight in one case, but he found no change in the signs in the lung.

During the past ten days I have been giving thyroid extract to six phthisical patients. No particular change has been noted.

#### THYROID TREATMENT IN SYPHILIS.

This remedy has also been tried in syphilis. <sup>107 108 109 110</sup> Six favorable cases are reported, 5 of them said to be very severe, while in 11 cases no improvement has been seen.

#### MISCELLANEOUS USES OF THYROID FEEDING.

(1) Perhaps this is as good a place as any to speak of an interesting case of hypertrophied scar, reported by Dr. J. W. White, <sup>114</sup> in which, during thyroid feeding, a large unsightly mass, resembling keloid, shriveled away so as to leave only a linear scar. Dr. White had previously tried various local treatments with no success. (2) The unsuccessful use of thyroid feeding in cancer <sup>115</sup> needs no further comment. (3) At the Wiesbaden Congress of last April, above-mentioned, where the whole subject of thyroid feeding was discussed, favorable results were reported in a variety of conditions; for example, in chlorosis, <sup>116</sup> rickets, <sup>117</sup> gout, <sup>118</sup> and diabetes. <sup>119</sup> The cases are too few and the reports too meager for us to come to any conclusion about them. (4) A French observer (Jouin <sup>120</sup>) tried thyroid treatment in 5 cases of fibromyoma of the uterus, and noted marked diminution in the size of the tumors in 2 cases, and diminished hemorrhage in 3.

The fact that in myxedematous children and cretinism the thyroid treatment is associated with notable growth in height has led some observers to try its effects in dwarfed children not myxedematous, <sup>121 122</sup> to see if their development could not be helped. I have collected 10 such cases, 3 in idiotic children, and 6 in whom the lack of development was mainly physical. A considerable increase in height was observed in all the cases, but the mental symptoms were not improved.

This brings me to speak of insanity as treated with thyroid. About 60 cases are on record—25 improved. Out of all who have tried the treatment, Bruce, <sup>124</sup> an English writer, is apparently the only one who feels sanguine as to its use. Twenty-one out of the 25 improved cases are his. He considers it "a valuable addition to the alienist's armamentarium in certain cases," and advises its use in cases of melancholia whose spontaneous



improvement had come to a standstill; in maniacal cases without signs of dementia and in stuporous cases in early stages. He finds that women do better under it than men, an observation parallel to the results in obesity. It is contraindi-

TETANY.

The last use of thyroid feeding of which I shall speak is in tetany. Of twelve recorded cases,<sup>159 160 161 162 163 164 165 166 167</sup> only four showed improvement, but two of these were very ob-

THYROID IN INSANITY.

TABLE IV.

Author.	No. of Cases.	Improved	Not Improved	Remarks.
Reinhold <sup>123</sup> .....	12	0	12	Goitrous cases.
Bruce <sup>124</sup> .....	30	21	9	14 quite well.
McClaghry <sup>125</sup> .....	2	1	1	Goitrous cases.
Easterbrook <sup>126</sup> .....	1	1	0	Several others benefited.
E. P. Elliot <sup>127</sup> .....	3	0	3	
Clarke <sup>128</sup> .....	"several" <sup>a</sup>	"several" <sup>a</sup>	?	Stuporous cases.
Scribner <sup>129</sup> .....	10	0	10	Lost 5-17 lbs. weight.
Total.....	60	25	35	

cated in emaciated patients, and those who eat poorly, and in cardiac disease. Bruce's experience related to 30 cases, 21 of which showed improvement, amounting to recovery in 14. Clarke,<sup>128</sup> a Canadian writer, finds like Bruce, good results in cases of stupor—several benefited, one or two recovered, one relapsed.

At the Danvers Asylum and the McLean Hospital for the Insane, the thyroid treatment has been tried to a limited extent without any beneficial effect on the mental symptoms. At the Worcester Insane Asylum, Dr. Scribner used it in 10 chronic cases without any effect except a decided loss of weight, amounting in 4 cases to over fifteen pounds.

In epilepsy<sup>150</sup> one author finds good effects and one bad effects from the treatment.

Although starting without any strong bias against the possible utility of thyroid in exophthalmic goiter, I have not been convinced by the literature that a further trial should be given it. Out of 85 cases published, 22 improved, 40 did not, and 23 were worse. The size of the goiter has diminished in many of these cases, but without corresponding general improvement. The number of those made worse is about equal to those benefited, and three-fourths show no improvement. Nevertheless, some actual cures are recorded in obstinate cases, and there seems a possibility that in a certain type of the disease it may do good. In no other disease, however, does it so often do positive harm. On the whole, there is very little reason for hoping that it will do good in this condition.

stinate and long standing cases, and have shown no relapse in a period of five months. Possibly, here, as in many other conditions, thyroid feeding may help to distinguish different types within each disease, according as they are or are not affected by the thyroid treatment. It

THYROID IN EXOPHTHALMIC GOITER.

TABLE V.

Author	No. of Cases	Improved	Not Improved	Worse
Bogrof <sup>131</sup> .....	14	14	0	
Bergmann <sup>132</sup> .....	7	0	0	7
Mendel <sup>133</sup> .....	10	0	10	0
Stabel <sup>134</sup> .....	10	0	7	3
Leichtenstern <sup>135</sup> .....	4	0	0	4
V. Jaksch <sup>136</sup> .....	6	0	6	0
Putnam <sup>137</sup> .....	6	0	6	0
Brissac <sup>138</sup> .....	1	0	0	1
Kraus <sup>139</sup> .....	3	1	1	1
Voisin <sup>140</sup> .....	2	2	0	0
Schuster <sup>141</sup> .....	"several" <sup>a</sup>	all	0	0
Senator <sup>142</sup> .....	"several" <sup>a</sup>	0	all	0
Bécléré <sup>143</sup> .....	1	0	0	1
Silex <sup>144</sup> .....	1	1	0	0
Lemcke <sup>145</sup> .....	1	0	0	1
V. Noorden <sup>146</sup> .....	1	1	0	0
Lanz <sup>147</sup> .....	1	1	0	0
Revilliod <sup>147</sup> .....	1	0	0	1
Ferguson <sup>148</sup> .....	1	1	0	0
Casselbury <sup>148</sup> .....	1	1	0	0
Shurly <sup>150</sup> .....	"few" <sup>a</sup>	0	all	0
Joffroy <sup>151</sup> .....	1	0	0	1
Ewald <sup>152</sup> .....	3	0	3	0
MacKenzie <sup>153</sup> .....	1	0	1	0
Sänger <sup>154</sup> .....	?	0	all	0
Auld <sup>155</sup> .....	1	0	0	1
Cantu <sup>156</sup> .....	1	0	0	1
Nasse <sup>157</sup> .....	1	0	0	1
Total.....	85	22	40	23

<sup>a</sup> Counted as 2 in totals.

<sup>a</sup> Counted as two cases in total.



may be that there are the thyroidal and non-thyroidal types of obesity, psoriasis, tetany, insanity, etc. In the case of obesity, we seem to be already in possession of some criteria by which we can tell beforehand whether or not a given case is likely to be benefited. In the other conditions, such criteria are very scanty, but there seems to be some ground for hope that thyroid treatment may enable us to split up several supposed entities of disease, as we have split up jaundice and asthma, and show them to be simply symptomatic of a number of different underlying conditions.

To sum up the impression gained from the study of the literature of thyroid feeding, it seems to be: (1) Of great value in simple parenchymatous goiter, especially in young people. (2) Of considerable value to reduce weight in obesity, especially in the anemic, flabby types, and provided the relapse is prevented by diet and exercise. (3) It seems to deserve a further trial in obstinate cases of psoriasis, sclerodema, and lupus; also in tetany, certain phases of insanity, and retarded development in children. (4) In exophthalmic goiter it rarely does good and often harm. (5) In chlorosis, rickets, diabetes, and tuberculosis, the evidence is not sufficient to warrant inference.

A few words as to the form in which the thyroid is to be given. Many of the most successful recent results in Germany have been with the fresh gland, raw or fried.<sup>1 10 11 168</sup> There is little doubt that this is superior to the German dried extracts. Whether or not it is superior to English and American extracts, we have no sufficient evidence to show. The fresh gland is very unpalatable, but may be given by the rectum.

Attempts have been made in Germany to extract the active principle of the gland, and Fraenkel's "Thyreantitoxin,"<sup>169</sup> and Baurmann's "Thyrojodin,"<sup>170</sup> are now being experimented with in Germany. The latter preparation is an iodine compound, and considerable success in the use of it was reported by Ewald and others at the Wiesbaden Congress, two months ago today. The dosage is exact, and it is free from some of the unpleasant toxic qualities of the dried preparations of the gland.

I have alluded to some dangers attending the use of thyroid preparations. Bad symptoms caused by it are probably of two kinds,<sup>171</sup> (1) the physiological action of an overdose of the gland itself, and (2) ptomain poisoning due to products of decomposition included in the dried preparations of the gland. Their two chains of symp-

toms are often lumped together under the name of "Thyroidism."

"Thyroidism" is first shown by rapid pulse and palpitation; cardiac oppression and angina, even fatal in a few cases, may occur. Anorexia, nausea and vomiting, diarrhea, lassitude, malaise, faintness, vertigo, headache, and pain in back and extremities, are not uncommon; hysterical manifestations and, rarely, aphasia, monoplegia, convulsions, and even coma occur. With some preparations urticaria, erythema, and eczema are produced.<sup>172 173 174</sup> An odor to the skin and perspiration is sometimes noted. I have had two patients speak of this.

In those predisposed to diabetes by inheritance a temporary glycosuria<sup>174</sup> may occur, and Noorden<sup>175</sup> hopes that we may in the future be enabled to make an early diagnosis of diabetes.

In giving thyroid preparations, the best guide is the pulse. *Any considerable quickening or palpitation should lead us to discontinue the drug until the cardiac action is again normal.* There are no dangers in the use of the drug, provided we begin with small doses, one to two grains of American extracts, and gradually increase, watching the pulse. It should never be given to a patient who cannot be closely watched.

#### SUPRARENAL EXTRACT IN ADDISON'S DISEASE.

Since Rollesboue's remarkable Goulstonian lectures on the suprarenal bodies, in which he recommends a trial of the extract of these glands for Addison's disease, a certain number of cases have been reported. I have been able to collect only twenty cases, out of which nine have been considerably improved. The use of the preparation is still in its infancy, and these cases represent trials of watery, alcoholic, and glycerin extracts, as well as of the gland itself, raw or dried, so that it is misleading to lump them all together and judge of the results. The various fluid extracts are evidently very inferior to the gland itself, dry or raw. One case, under the care of Dr. F. C. Shattuck, at the Massachusetts General Hospital, I had an opportunity to observe. Dr. Shattuck felt no doubt of the diagnosis, and no improvement occurred until after the use of the dried extract of suprarenal body. The patient is now, to all appearances, well, and has been so for four months. An absolute diagnosis of Addison's disease is, I believe, impossible without an autopsy, so that a certain amount of doubt is thrown on the apparent benefit derived from this mode of treatment in genuine

<sup>a</sup> V. Jaksch (Fourteenth Congress, Wiesbaden) doubts whether the reduction of copper in these cases is always due to sugar.



## SUPRARENAL EXTRACT IN ADDISON'S DISEASE.

TABLE VI.

Author.	No. of Cases.	Result.	Remarks.
Parkinson <sup>177</sup> .....	1	Worse.	Died soon after.
Turney <sup>178</sup> .....	1	Worse.	Died soon after.
Ringer and Phear <sup>179</sup> .....	1	Temporarily better.	Died soon after.
Pitres <sup>180</sup> .....	2	Worse.	Subcutaneous use.
Spellman <sup>181</sup> .....	3	2 no effect. 1 greatly better but relapsed.	Using alcoholic extract.
Stockton <sup>182</sup> .....	1	Nearly well.	Bronzing gone.
Osler <sup>183</sup> .....	1	Much better.	No relapse (3 months).
Sansom <sup>184</sup> .....	2	Temporarily much better.	Relapsed and died.
Jones <sup>185</sup> .....	1	"Cured."	
Oliver <sup>186</sup> .....	2	1 "practically well," 1 greatly better.	1 diagnosed by Pye-Smith.
Maragliano <sup>187</sup> .....	7	Good results.	Glycerin extracts.
Shoemaker <sup>188</sup> .....	1	Improved.	
Stewart <sup>189</sup> .....	1	Not better.	
Epelbaum <sup>190</sup> .....	2	Much better.	Fresh raw gland.
Zuco and Foa <sup>191</sup> .....	?	No improvement.	Used watery extract.
Shattuck <sup>192</sup> .....	1	Apparently well.	
Total.....	21		

Addison's disease; but when we have such benefit recorded in cases diagnosed by such clinicians as Pye-Smith, Osler, and F. C. Shattuck, we cannot help feeling hopeful about the treatment, especially as on physiological grounds, there seems to be reason to expect that it would work well.

Experiments with suprarenal extract have shown it to have the property of increasing blood-pressure by stimulation of the vagus and cardiac muscle, and also of contracting the caliber of the periphery arteries.<sup>186</sup> Acting on this suggestion, Bates<sup>195</sup> has used it as a local astringent and hemostatic in operations on the eye, and also in glaucoma and conjunctivitis. Oliver<sup>186</sup> and Clark<sup>194</sup> have used it with benefit in a case of diabetes insipidus, and its use has also been praised in three cases of diabetes mellitus, and in hysteria, and neurasthenia, with loss of vasomotor tone, and in certain forms of anemia.<sup>186</sup>

It is evidently a powerful medicinal agent, and severe toxic symptoms have been recorded in connection with its use,<sup>195-190</sup> but on the whole, there seems to be reason to feel hopeful about its result. Certainly, it deserves a farther trial in a disease for which no other treatment has hitherto availed anything.

## EXTRACT OF PITUITARY BODY IN ACROMEGALIA.

The records of this subject are very scanty. I have been able to collect only nine cases of its use.<sup>199-200</sup> Five of these appear to be more or less improved. Three of these are reported by Marinesco,<sup>199</sup> an Italian. The headache and other pains improved, the general condition was better, and the extremities smaller. One case was able

to move the hands better and walk with less fatigue than before. One favorable case comes from England, under Bramwell's<sup>197</sup> care, and another from Germany. In these two, thyroid extract has previously been tried without success. In the German case reported by Mendel,<sup>198</sup> the knee-jerk, which had been absent, returned, and the condition of the teeth and gums improved.

Thyroid treatment has also been tried for acromegalia in ten cases, six of which have improved, and four not improved.<sup>201-200</sup> As both the thyroid glands and pituitary body are sometimes found diseased at autopsy in acromegalia, it may be that the simultaneous use of both extracts will be found useful.

## BONE-MARROW.

Since ordinary forms of anemia yield readily to treatment by other drugs, it is chiefly in pernicious anemia and leucemia that we have hoped for help from bone-marrow. But I have been unable to find accounts of a single case of undoubted pernicious anemia which has shown any permanent improvement. The case of Danforth's,<sup>210</sup> which attracted so much attention at the time it was reported in October, 1894, has since<sup>211</sup> relapsed and died, and there is no reason to suppose that the temporary improvement had any connection with the treatment. The cases of Frazer<sup>212</sup> and Bigger<sup>213</sup> both lack a satisfactory blood examination, and their subsequent progress after the first few months is not recorded. The other cases reported as improved (nine in number) are defective, either as to diagnosis or as to the subsequent progress of the case. Temporary improve-



ments are so common in pernicious anemia with any treatment, as well as without any, that no case can be called cured unless the improvement has persisted at least two years (Cabot). There are no records of improvement in leucemia and four not improved.

In secondary anemia and chlorosis we have a considerable number of favorable reports. Fifteen cases of chlorosis and chlor-anemia, are all said to have improved, and in two of these, Blaud's pills are said to have had no effect.

Seventeen cases of secondary anemia, including four of rickets, are also recorded as improved. But these anemias are easy to cure, as a rule, and as marrow contains iron, it is not remarkable that improvement was noticed.

Two cases of anemia infantum, pseudo-leucemia, are reported by Combe, a French observer, as cured by bone-marrow, but there is reason to doubt the diagnosis.

On the whole, there seems to me to be less reason to expect good results from the use of bone-marrow than from any of the other animal extracts I have mentioned.

## CONCLUSIONS.

1. Thyroid extract is certainly valuable.
2. Suprarenal extract we have reason to hope will be proved so.
3. Pituitary extract we cannot judge of as yet.
4. Bone-marrow is in all probability useless.

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