

the autopsies their study was incomplete, and yet the cases are in themselves so interesting, and appear to be so unusual, that their publication in a group, with such data as are at hand, seemed to him to be more than warranted. Case I. had originally been published in the *University Medical Magazine* for December, 1888, under the title, "A Subcutaneous Connective-Tissue Dystrophy of the Arms and Back, Associated with Symptoms Resembling Myxœdema." Case II. had been discovered in the medical wards of the Philadelphia Hospital by Dr. Frederick P. Henry, in 1890, and was published by him in the *Journal of Nervous and Mental Diseases* for March, 1891, as a "Case of Myxœdematoid Dystrophy." Dr. Henry fully recognized the relation existing between this case and that previously described by the writer, and he adopted the term dystrophy in order to bring the cases "into the same category." In November, 1891, this case (Case II.) having been transferred to the nervous wards of the Philadelphia Hospital, came under the care of the writer and was studied again. The account here given is abstracted partly from the notes of Dr. Henry, and partly from those of the writer.

Case III. was discovered in the nervous wards in October, 1891.

Certainly these cases differ radically from ordinary cases of lipomatosis, and certainly the nervous symptoms present must have a special significance. To begin, the enlarged tissue makes its appearance in a very irregular way. Nodules of soft tissue are at first deposited in some one situation, or perhaps in corresponding places in both arms or in both legs. For a time the deposit is limited to these original areas, but subsequently it makes its appearance elsewhere, and may become very extensive. Regions, however, may exist which remain permanently uninvaded. In Case I. the enlargement was first noticed in both upper arms, and later in the back. Subsequently a swelling made its appearance on the inner aspect of the right knee, to be followed months after by a similar swelling in a corresponding position over the left knee. Later still, swellings made their appearance in various other situations. However, the legs, with the exception of the knees, have remained free from involvement, while the thighs and buttocks have only recently shown a doubtful change. In Case II. the enlargement began on the inner aspect of either knee, and then gradually spread unequally over the thighs and buttocks. Later, the left arm became involved; next, the sides and back, and, finally, the entire trunk. In Case III. the enlargement began in the back of the neck, and then at various times appeared in other situations. It remained absent from the face, the forearms, the legs, the thighs, and the buttocks. It is a peculiarity of this case, also, that the enlargement tended to produce distinct segregated masses.

Not only is the development of the enlargement irregular and even capricious in these cases, but there is, in addition, another important fact to be remembered, and that is: that at some time or other the enlargement is accompanied by pain or other nervous symptom. Thus in Case II. pain, shooting in character, and a sensation of coldness preceded the appearance of the nodules on the insides of the knees. In Case I. shooting and burning pains made their appearance about a year after the swelling had appeared in the arms, while similar pains, very great in intensity, preceded the appearance of the swelling on the inner aspect of the right knee and in other situations. Case I. it should be remembered, was observed by the writer for a number of years, and was therefore studied in great detail, and pain was noted as a marked feature of the case, especially in the early course of the disease. Occasionally it was observed in old areas of enlargement, and again in regions free from the swelling, but in which the latter subsequently appeared. In Case III. stabbing pains were complained of and were referred to the deposits, and the latter were very painful to examination.

We may say, therefore, that pains, shooting, burning,

or stabbing in character, were present in all cases at various times in their history.

Some of the paroxysms observed in Case I. were particularly suggestive. Sometimes a welt-like swelling suddenly made its appearance, evidently following the course of a cutaneous nerve trunk and at the same time being exquisitely painful. After a time the swelling would become slightly less, but would never wholly disappear. Several such "welts" are still demonstrable in Case I. If the paroxysm of pain made its appearance in an area of old enlargement, that is, reappeared or recurred, a decided and sudden increase would take part in the swelling, and it would become for the time being firmer and more resistant and occasionally more nodulated than before, and generally a permanent increase in the swelling could be demonstrated. Further, it should be remembered that at one time some of the nerve trunks of the right arm were very sensitive to pressure, that some of the muscles, those of the thenar and hypothenar groups of either hand, revealed reaction of degeneration, and finally that the patient suffered on two occasions from herpes zoster.

In Cases II. and III. tenderness over the nerve trunks was not present at the time of the examination. In Case I., however, this symptom is also no longer present, its absence having been noted for some time past. This and other circumstances justify the assumption that Cases II. and III. were further advanced than Case I., and that the latter was really observed during a developmental period and while more active changes were going on.

Among the nervous symptoms must also be placed the diminished cutaneous sensibility and the patches of anesthesia as well as perhaps the excessive weakness. It is probable also that the absence and the diminution of sweating belong to this category. It will be remembered that this symptom was undoubtedly present in Cases I. and II. and doubtfully in Case III. Lastly, headache was noted in all the cases.

Among other symptoms present in these cases should be noted hæmatemesis in Case I., hæmatemesis and epistaxis in Case III., and a recurrence of uterine flow many years after the cessation of menstruation in Case II. In Cases I. and II. the menopause occurred unusually early, namely, at thirty-five, and in Case II. menstruation was unusually free. In Case III. the menopause occurred at forty-six, and menstruation was likewise said to have been excessive. Finally, Case III. presented a well-marked purpura. What significance these symptoms may have, it is impossible to say. It may not, however, be out of place to recall the not infrequent occurrence of uterine hemorrhages in women who subsequently suffer from myxœdema.

Bronchitis was a most frequent and persistent symptom in Case I., while both Case I. and Case II. suffered markedly from cardiac dyspnoea. But these symptoms were absent in Case III.

The fact that in both cases the thyroid gland was found indurated and much infiltrated by calcareous deposit is not only very interesting but exceedingly suggestive. Without microscopic studies, however, and without a more extended series of cases it is impossible to draw a conclusion. The part, if any, played by the thyroid in this curious affection can be determined only by future autopsies. It goes without saying, also, that the thyroid should be studied in every case of obesity, whether typical or otherwise, that reaches the post-mortem table.

With the above data before us, it is impossible to classify these cases under any well-established disease. Evidently the affection is not simple obesity. If so, how are we to dispose of the nervous elements present? It is equally certain that we have not myxœdema to deal with. All of these cases lack the peculiar physiognomy, the spade-like hands, the infiltrated skin, the peculiar slowing of speech, and the host of other symptoms found in myxœdema. It would seem, then, that we have here to deal with a connective-tissue dystrophy, a fatty metamorphosis of various stages of completeness, occurring in separate regions, or at best unevenly distributed and

associated with symptoms suggestive of an irregular and fugitive irritation of the nerve trunks—possibly a neuritis. This, however, does not embrace the whole truth, and it remains for future research to determine to what this neuritis is due, whether it is a cause of the fatty metamorphosis or only concomitant, and whether the thyroid gland does not play some mysterious part in its causation.

Inasmuch as fatty swelling and pain are the two most prominent features of the disease, the writer has proposed for it the name *adipositis* dolorosa*.

Since the above was written, three cases of *adipositis dolorosa* agreeing in all essential details with the cases described by the writer have been reported by Spiller.† Two cases have been placed on record by Eshner.‡ Another has been reported by Guidiceandrea;§ and the case described by Ewald, in discussing the treatment of myxœdema, cretinism, obesity, etc., by thyroid extract, of a man who presented thick masses of fat about the nipples, the umbilicus, and the neck, with pains resembling those of neuritis, was doubtless an instance of this affection. Collins,|| Peterson, and Loveland have also studied cases. Francis X. Dercum.

ADIPOSITAS.—(Synonyms: *Corpulence, Obesity, Polysarcia.* Cœlius Aurelianus and other of the older writers reserved the term *polysarcia* for extreme cases of the disease, but the terms are now used indifferently.)

DEFINITION.—*Adipositas* is a disorder of nutrition characterized by the deposition of an excessive amount of fat in many parts of the body.

The close relation which certain forms of *adipositas* bear to constitutional diseases, such as gout, arterio-sclerosis, and lipogenous diabetes, leads Krehl to place them in the same group.

It is frequently difficult to decide when the limits of normal stoutness are passed and the condition becomes pathological.

The amount of fat in a healthy adult is about one-twentieth of the body weight in the male and about one-sixteenth in the female (d'Heilly).

When the amount of fat is productive of symptoms, such as palpitation or breathlessness on slight exertion, difficulty in walking, or disinclination to take exercise, the diagnosis of obesity is justified, even if an equal amount of fat is borne without discomfort by another person. The possession of a considerable amount of adipose tissue is of value in health. As it is a poor conductor it diminishes the amount of heat lost; and it represents a reserve capital to be drawn on in time of need, thus diminishing the drain on the tissue proteids.

The increase of bulk in obesity renders all bodily movements more and more difficult, and the increase in weight calls for the expenditure of more muscular energy. The muscles tire sooner, and there is a tendency to refrain from all avoidable movements. Disuse of the muscles is followed by atrophy; the disproportion between body weight and muscular power increases, and thus a vicious circle is established.

It is not rare to find corpulent subjects weighing three hundred pounds. Cases weighing four hundred and fifty pounds are frequent in the literature. These examples of monstrous obesity are more common among the English, Dutch, and Germans than among the French. The famous Daniel Lambert weighed seven hundred and thirty-nine pounds at the age of thirty-nine. There was a colored woman living near Baltimore who weighed eight hundred and fifty pounds. According to the *Med-*

ical Record, there was a man in North Carolina of gigantic frame who weighed over one thousand pounds.

At the Boston City Hospital there have been seven cases of marked obesity among the last thousand autopsies, one subject weighing over four hundred pounds.

ETIOLOGY.—*Hereditary.*—There is a hereditary tendency to obesity in about fifty per cent. of the cases. It is more frequently present in women than in men, but the disease may attack every member of a family. It usually does not appear till after the age of twenty or even later.

Similarly among domestic animals, particularly swine, there are certain breeds which are especially adapted for fattening. In all these cases there must be a special predisposition which leads to the deposition of fat under circumstances in which in a normal organism no fat would be formed.

Cohnheim believes that the oxidation of fat is abnormally low in these individuals, due to a reduction in the functional power of the tissue cells.

Age.—Corpulence is not uncommon in childhood, especially in America. It may occur even in infancy. Barkhausen reports the case of a male child, aged sixteen months, who weighed fifty-three pounds. Williams cited, many years ago, the case of a child who weighed one hundred pounds when one year old. Regnelle observed a child of eleven years who weighed four hundred and fifty pounds. Sometimes the abnormal stoutness is lost during adolescence. The least production of fat occurs between fifteen and twenty years of age. Obesity most commonly develops in the fourth and fifth decade. The fat is lost in old age. It is very rare among octogenarians and never is present in nonogenarians (Thompson).

The distribution of fat varies with the age. In the newborn the omentum and mesentery contain no fat even when there is a large formation elsewhere. So long as the growth in height continues these structures remain nearly free from fat. During middle life a large amount is deposited in the internal organs, and in old age it persists there after it has largely disappeared from the subcutaneous tissues (Oertel).

Sex.—*Adipositas* is more common in women than in men. Of one hundred and eleven cases collected by Bouchard seventy-five were in females. The hereditary form frequently manifests itself after the first pregnancy.

Over-feeding and over-drinking are the most potent factors in the production of obesity. As Osler well says, "the majority of people over forty years of age habitually eat too much," and, we might add, exercise too little.

Alcohol plays an important etiological rôle. In those countries in which the consumption of beer is greatest obesity is most common. Apart from the alcohol in the beer, the great quantity of fluid consumed, and the large amount of carbohydrates, more than five per cent., tend to fat production. Alcohol is readily oxidized, and thus saves the body fat from combustion; and it probably exerts a direct injury upon the cells, thereby diminishing their metabolic power.

Castration or sexual inactivity favors the deposit of fat. After the menopause there is a tendency for women to grow stout. Tilt found that of two hundred and eighty-two women examined, over forty per cent. became obese within five years after cessation of menstruation.

Anæmia.—After hemorrhage, and in chlorosis and other anæmias, there is often a rapid increase of fat. This is explained by the diminished oxidizing power of the blood, brought about by the loss of hemoglobin, which is the oxygen carrier.

There are certain racial peculiarities worthy of note. Among the Hottentots there is a great accumulation of fat in the gluteal region. This is esteemed a mark of beauty. The Hebrews are especially prone to obesity. Climate and season exert little, if any, influence except as may be explained by habits and diet.

PATHOLOGY.—Fat can be formed from proteids and carbohydrates, or it can be directly stored up from the fat contained in the ingested food. The proteids are split into a nitrogenous and a non-nitrogenous portion. The

* *Adipositis*, as is well known, would be etymologically more correct if it were written *adipositas*, but *adipositis* has been so long in use that it must be regarded as established. *Adipositis dolorosa* has also perhaps a less formidable sound than has its Greek equivalent *lipomatosis algera*.
† Spiller: *Med. News*, February 26, 1898, p. 268.
‡ Eshner: *Journ. Amer. Med. Assn.*, November 12, 1898, p. 1156.
§ Guidiceandrea: *Soc. Lancisiana degli Ospedali di Roma* 1^e Juillet, 1899; also *Revue Neurologique*, December 15, 1899, p. 877.
|| *Nervous Diseases by American Authors*, Dercum, Philadelphia, 1896, p. 838.

latter is rich in carbon and can be deposited as fat or undergo oxidation and disappear. Increase of proteid food augments not only proteid metabolism, but also that of carbohydrates and fat. Hence an excess of proteid in the diet can actually lessen the fat of the body.

Pettenkofer and Voit fattened dogs by feeding only lean meat. The greatest amount of milk rich in fat was obtained by keeping a lactating bitch on a pure flesh diet (Subbotin, Kemmerich). Proteids can be changed into fat by the action of bacteria. This occurs in the ripening of cheese and in the formation of adipocere in dead bodies. Lindemann has demonstrated recently a formation of fat from proteid in skin preserved antiseptically. Under certain pathological conditions the appearance of fat in the cell has been explained, following Virchow's teaching, as a fatty degeneration of the cell proteids.

Pflueger and his pupils have always maintained that the formation of fat from proteids has not been proved. Athanasio and Taylor, working independently, concluded that phosphorus poisoning has no effect upon the total quantity of fat. This leads them to believe that the fatty degenerations are really fatty infiltrations. Rosenfeld starved dogs and then fed them on mutton suet. It was deposited as such in the tissues. These animals were again starved and poisoned with phosphorus. The livers were fatty, but the fat was mutton fat that had been carried from other tissues and deposited there. The liver had lost but little of its nitrogen.

Toldt maintains that the deposition of fat occurs in a specific preformed tissue—adipose tissue. But according to the view of Virchow and Flemming there is no primary distinction between adipose tissue and ordinary loose connective tissue, and the fat cells are simply regular connective-tissue cells in which fat has been stored up. It is only where there is a rich blood supply that a deposition of fat occurs. Unna asserts there are three situations in which fat is formed—skin, muscles, and intestines.

PATHOLOGICAL ANATOMY.—The excessive accumulation of fat occurs first in situations in which fat is normally present, namely, the subcutaneous tissues, the tissue underlying the serous membranes, the liver, and the bone marrow. Later it appears in situations where it is not normally found, as in the interstitial connective tissue of muscle, in the intermuscular tissue of the heart, and beneath the endocardium.

The arcus senilis usually develops prematurely. The layer of subcutaneous fat over the abdomen is frequently 4 to 6 cm. thick. In one of our cases it measured 9 cm. Virchow records one with a layer 15 cm. thick. The fat is firmer in the plethoric than in the anæmic type of the disease. In young brandy drinkers it is said to have a peculiar tallow-like hardness (Rokitansky). The omentum and mesentery are loaded with fat.

The heart is sometimes entirely covered with a sheath of fat, and there is a fatty in-growth into the myocardium. Usually the fat is present in greatest quantity over the right ventricle. Fatty degeneration of the heart muscle is common; this, however, is often due to a terminal infectious process.

The masses of fat upon the chest wall, in the mediastinum, and about the diaphragm hamper respiration. Emphysema of the lungs and chronic bronchitis are found in nearly every case. The liver is greatly enlarged and infiltrated with fat. In one of our cases it weighed 4,553 gm. The surface is smooth and yellow. On section it has a greasy feel; the consistence is often soft.

The fatty capsules of the kidneys appear as great masses of fat, and there is a large deposit of fat about the renal pelvis, and occasionally there is fatty infiltration of the renal tissue (Wagner).

Fatty metamorphosis of the pancreas has been recorded. Arterio-sclerosis and fatty degeneration of the aorta and coronary arteries are common.

Blood.—In the plethoric type the hemoglobin is frequently above one hundred per cent. Kisch found that seventy-nine out of one hundred obese patients had over one hundred per cent.; in one case one hundred and

twenty per cent. In the anæmic form the blood has the characteristics of a secondary anæmia.

Free fat is sometimes demonstrable. According to Ritter the blood contains from four to five times the normal amount of fat. Achard and Clerc found the fat-splitting ferment sometimes increased in obesity.

Sexual Organs.—The sexual desire in man diminishes. The seminal fluid contains few spermatozoa, and sterility is common. The large size of the abdomen may render coitus impossible.

Skin.—There is increased secretion of the coil and sebaceous glands. Maceration of the epidermis and excoriation of contiguous surfaces are common, as are intertrigo and eczema.

Dilatation of the stomach is common. The intestine becomes distended; peristalsis is impeded and constipation supervenes. Weakening of the abdominal wall may give rise to fat hernias, most frequently in the linea alba between the umbilicus and the xyphoid cartilage.

SYMPTOMS.—Most authorities follow Traube and Immermann in distinguishing two forms of obesity, the plethoric and the anæmic. Oertel adds a final class, the hydræmic, into which all cases may pass if the disease is not checked.

In the plethoric form the skin is ruddy, the muscles well developed, the blood rich in hæmoglobin. The appetite is keen, the digestion good. There is frequently great thirst. The blood tension is high, the pulse slow, the heart hypertrophied. Palpitation and dyspnoea develop on exertion. The patient is frequently troubled by vertigo and tinnitus aurium. Cardiac asthma is not uncommon and anginal attacks may occur. Later, dilatation of the heart takes place and the symptoms of broken compensation supervene.

Anæmic corpulence is more frequently hereditary than the plethoric form, and it is more common in women, while the latter chiefly affects men. Faulty assimilation and deficient oxidation rather than over-nutrition is the cause. The muscular system is poorly developed. The heart does not hypertrophy; the pulse is feeble. The masses of fat are flabby. The appetite is small and capricious; frequently there is an inordinate desire for food rich in carbohydrates. The symptoms due to anæmia are also present. Dropsy is common.

DIAGNOSIS.—The plethoric and anæmic forms are easily distinguished. A blood examination is of value in diagnosing the final stage of hydræmia. The urine should be carefully examined for sugar, so that lipogenous diabetes may not pass unrecognized.

Adiposis dolorosa is the term applied by Dercum, in 1892, to a symptom complex which should probably be classed as a separate disease. Since then cases have been reported by Collins, Spiller, White, and others. In two fatal ones the thyroid was diseased. All the cases have been in women. The onset usually occurs between forty and sixty years of age. Some have been drunkards, others syphilitic. Fatty masses appear on the trunk and limbs. The patient becomes generally obese, but fresh lumps continue to appear. Pain is a marked symptom; it may be present elsewhere than in the fatty deposits.

COMPLICATIONS.—Cardiac disorders are common. In six of our seven cases heart lesions were found at autopsy. The fatty overgrowth and infiltration also diminish the working power of the heart and the resistance of its walls. Sclerosis of the coronary arteries frequently leads to chronic myocarditis.

The relationship between obesity and sterility in the female was recognized by Hippocrates. Kisch has collected over two hundred cases associated with amenorrhœa and sterility. Philbert has described five cases in which pregnancy occurred after the corpulence was reduced. Abortion is common. Goubert records the case of a very obese woman who had eight consecutive abortions which he could attribute to no other cause.

The frequency with which corpulent persons are attacked with diabetes was pointed out by Trousseau and Seegen. Kisch asserts that more than half of the cases of extensive hereditary obesity become affected with dia-

betes mellitus. Generally the diabetes does not develop for years after the obesity has become marked. In these cases the progress of the disease is slow, glycosuria is almost the only symptom, and the prognosis is favorable. In another group of cases obesity appears in young individuals, develops rapidly, and diabetes in its severe form supervenes.

Gout is a frequent complication of obesity. **PROGNOSIS.**—The outlook is more favorable in the plethoric than in the anæmic forms, and in the acquired than in the hereditary cases.

Acute infectious diseases are badly borne by the obese. This was known to the ancients. The internal temperature rises more quickly and is less readily reduced by cold baths (Liebermeister). Antipyretic drugs should be avoided.

Surgical operations are attended with grave danger. The resistance of the tissues to bacterial invasion is diminished. One of our cases, a very stout woman, was admitted with the diagnosis of strangulated umbilical hernia. At operation the sac was found to contain omentum only. Some omental and subcutaneous fat was removed and the wound closed. The temperature remained normal for seven days; then fever developed. Two days before death signs of thrombosis of the right femoral artery appeared. At autopsy, below the operation wound which had healed by first intention, a cavity was found in the subcutaneous fat of the abdomen the size of an orange, lined with necrotic material and containing dark-colored fluid. From this, and from the thrombi in the right iliac and femoral arteries and veins, pure cultures of the Staphylococcus pyogenes aureus were obtained.

This illustrates the truth of Sir James Paget's words: "The over-fat are certainly a bad class. . . . I know no operations in which I more nearly despair of doing good than in those for umbilical hernia or for compound fracture in people that are over-fat."

TREATMENT.—All curative methods aim to check the formation of fat and to rid the body of the accumulated fat. This is attained usually by restricting the diet and by increasing the oxidation processes. Systematic exercise is all-important.

In treating a case of obesity the general dietetic principles are: (1) to increase the animal food; (2) to diminish the fats and carbohydrates; (3) to diminish the supply of fluids.

The *Harvey-Banting method* was the first of the dietetic systems for the cure of obesity. It was devised by Mr. Harvey, of London, and used with great success in the case of William Banting in 1862. Animal food is freely allowed, the carbohydrates greatly reduced, and the amount of fat cut down to the lowest limit. The supply of water is not restricted.

In the *Ebstein method* the fats are increased, the carbohydrates greatly reduced, the proteids practically unchanged. A person whose diet is rich in fat requires less to eat and suffers less from hunger than one who, following Banting's treatment, has almost no fat in his food. Hence Ebstein includes butter and cream in his dietary.

The *Oertel method*, consisting of a combined dietetic and mechanical treatment, was first used in treating circulatory disturbances dependent upon heart disease. The loss of weight was so steady, and so pronounced, that he employed it in obesity. The fluids as well as the fats and carbohydrates are restricted. He believes that diminishing the water in the body aids in the reduction of fat, and that it also lessens the weakening of the heart muscle, which is the starting-point of most of the dangers of obesity.

The second part of the treatment consists of systematized exercise in the shape of walks and hill climbing. This produces combustion of the body fat, preserves the tissue albumin, and strengthens the heart.

The following is the diet recommended by Oertel: "Morning meal: Coffee 4½ ounces, milk 1 ounce, sugar 77 grains, wheaten bread 1½ ounces.

"Midday meal: Soup 3 ounces; roast or boiled beef, or veal, or game, or lean poultry, 7 to 8 ounces; fresh salad 1 ounce, bread 1 ounce, never to exceed 3 ounces; fruit 3 to 6 ounces; a little fish if desired. Light wine, 6 to 8 ounces, if no fruit, or if very hot weather; otherwise no fluid with this meal.

"Afternoon meal: Coffee 3¼ ounces, milk 1 ounce, sugar 77 grains, water 2 ounces, never more than 6 ounces; bread 1 ounce (exceptionally).

"Evening meal: Wine 7 ounces, water 2 ounces, one or two eggs, roast meat 5 ounces, salad 1 ounce" (Whitla).

The *Schweninger method* is somewhat similar to Oertel's. No water is allowed at meals, and the amount for the whole day is restricted to less than a pint. Hot baths and massage are important factors in the treatment. The passive exercises as described by Romme are severe, almost brutal.

In the Banting diet there is not sufficient fat to insure normal metabolism, and while this method is efficient in reducing fat, it is apt to produce exhaustion except in the very robust, and has been followed by sleeplessness, various nervous disorders, and even premature death. It is claimed that Oertel's method sometimes exerts similar injurious effects and, according to Rosenfeld, the reduction of fluid is frequently followed by kidney disease which leads to a fatal issue. Robin states that in cases in which the excretion of urea is diminished water should be freely allowed. In these cases restriction of the water supply would be injurious.

An adult male of average size doing a moderate amount of work requires about 118 gm. of albumin, 56 gm. of fat, and 500 gm. of carbohydrates. This equals 3,054 calories. It is interesting to compare this with the dietary of the chief obesity cures in the table given by Pfeiffer:

	Albumin, Gm.	Fat, Gm.	Carbohydrates, Gm.	Calories.
Banting	172	8	81	1,112
Ebstein	102	85	47	1,401
Oertel	183	38	143	1,690

Bouchard has obtained excellent results on a diet of milk and eggs. No other food is allowed for a period of twenty days. The patients are usually greatly constipated.

Sir Dyce Duckworth recommends a dietary more liberal and less irksome than that of Ebstein or Oertel—12 to 14 ounces of meat, 6 to 8 ounces of bread, 4 to 5 ounces of green vegetable, 1 to 1½ ounces of butter and fat, and 30 to 35 ounces of fluid.

Thyroid Treatment.—The use of thyroid extract in adipositas was advocated first by Yorke Davies and soon after employed by Leichtenstern in Germany. This agent has been successful in some cases, especially those of the anæmic type. The dosage is one to five grains given thrice daily. If the dose is increased to ten grains symptoms of thyroidism usually supervene—marked headache, tachycardia, syncope, etc. Love states that strychnine is a valuable adjuvant to the thyroid treatment.

The loss of weight is not constant. In some cases it does not occur. Achard and Clerc record a gain of weight in one case. Ebstein in a recent article brings some weighty objections against this method. He says that the gland loses its effect after a time; the storing up of fat begins again when the treatment is stopped; finally the loss of weight depends more on increased proteid metabolism than on the disappearance of fat. Dietetic measures are less dangerous, as von Noorden has shown that a reduction of fat can be effected by a dietetic mechanical treatment without the loss of albumin.

Von Hoesslin conducts his treatment along four lines: First, proteid-fat diet resembling Ebstein's; second, hydrotherapy; third, thyroid extract; fourth, regular exercise.