ditions affecting the initiation of the infection, the resistance of the host, and the pathogenic properties of the organisms themselves."

Doctor Scholtz (closing)—I wish to express my appreciation of the generous and interesting discussion accorded my paper. I wish to acknowledge also the fair and unbiased attitude of the part of Dr. Kilduff. It seems that the profession at large went much farther in their belief in the infallibility and pathognomonicity of the Wassermann test than serologists themselves are willing to go. It is gratifying to a clinician to hear serologists calling halt on the overzealous believers in the Wassermann test and reminding them that laboratory findings should not be considered alone, but only in correlation with clinical findings. This is precisely the keynote of my paper, which is merely a plea to return to the clinical basis of diagnosis of cutaneous syphilis, using the laboratory only as an additional source of information.

Mental Defectiveness Among Rural School Children in England—Doctor G. K. Bowes (Lancet), after two and one-half years of study of rural school children in England, arrives at the conclusion ,'that, in the rural area examined, there exists among the school population a very high proportion of mentally defective children. The number so ascertained amounted to 3 per cent of the school population under review, and of this percentage 5 per cent were classified as imbeciles, and 2.5 per cent as feebleminded. There is reason for thinking that the actual percentage found fell short of the real number present, and that this number was probably somewhere in the neighborhood of 4 per cent, or even higher. The mentally defective children were in most cases the offspring of generally degenerate stocks, the members of which were incapable of performing in any adequate way the duties and responsibilities of citizenship, but who were not incapable of earning a living of some sort in a rural environment. We thus obtained a picture of the kind of adult into which the mentally defective child was likely to develop."

More Misbranded Nostrums (reported by Council on Pharmacy and Chemistry of the A. M. A.)—The following products have been the subject of prosecution by the federal authorities charged with the enforcement of the Food and Drugs Act: Doane's Kidney Pills (Foster-Milburn Co.), consisting essentially of potassium nitrate, ground leaves of ura ursi, a trace of volatile oil, such as turpentine or juniper oil, a resin, starch, sugar, and talc. (For years the advertising of "Doane's Kidney Pills" has long been an offense against the public health. Its advertising methods have been such as to frighten the public into the belief that pain or soreness in the lumbar region is indicative of kidney disease.) Lafayette Headache Powders (Lafayette Co.), consisting essentially of acetanilid, daffein, sodium bicarbonate and aromatics, including cinnamon and ginger. Grogan Mineral Water (Grogan Wells and Boone Institute of Massage), containing large numbers of bacteria and gas-forming organisms, indicating that the water was polluted.—Journal A. M. A.

Inhalation of "Carbona" (Propaganda for Reform, reported by Council on Pharmacy and Chemistry of the A. M. A.)—A periodic drinker used the cleaning fluid "Carbona" to produce unconsciousness when inhaled. Carbona contains carbon tetrachlorid as its essential constituent; carbon disulphid being generally present also. Carbon tetrachlorid has been tried as a general anesthetic and found unsatisfactory. The carbon disulphid greatly increases its toxicity when inhaled.—Journal A. M. A.

THE FREQUENCY OF ENDOGENOUS ENDOCRINE OBESITY AND ITS TREATMENT BY GLANDULAR THERAPY *

By H. LISSER, M. D., San Francisco

Obesity may have serious consequences quite apart from the aesthetic or cosmetic point of view.

Radical diet restriction often reduces weight, but cannot be termed a "cure" because it fails to correct the fundamental cause of such incretory obesity.

The chemistry of obesity is still quite obscure.

Several glands exert a powerful influence on the shape and bulk of the human body.

Neither 99 per cent nor even 50 per cent of obesity is entirely exogenous.

A mere restriction of food intake only scratches the surface, but neglects the underlying cause.

Failure to exercise and lethargic habits are not always due to laziness.

It is embarrassing to note how often goiters are overlooked.

Gland extracts are no panacea for fat people.

When pituitary, ovarian, and testicular extracts are as potent and reliable as thyroid and insulin, there will be far fewer fat people.

There is no royal road to reduction, whether it be by diet cure, victrola cure, roller cure, or gland cure.

I venture to predict that the supreme triumph will come in the end from the isolation of hormones specific for certain types of adiposity, just as the pinnacle of diabetic research was reached in insulin.

Obesity is a common affliction. In many instances it is a condition traceable through several generations. It is a question whether in such patients an inherited glandular predisposition causes the accumulation of weight, or whether family habits of diet and activity are primarily responsible. Undoubtedly, many people consume too much highly nutritious food and exercise insufficiently, especially after thirty, and consequently acquire superfluous flesh. Such obesity is exogenous, and proper dietary restriction and judicious advice regarding exercise will effect the desired reduction.

Obesity may have serious consequences quite apart from the aesthetic or cosmetic point of view. Such persons are prone to fall victims to diabetes mellitus, as repeatedly stressed by Joslin, also more apt to develop cardiovascular and renal disturbances as a result of extra strain on these organs, and often complain of aches and pains in the back and limbs from the heavy drag on the spine and muscles.

The view that an overwhelming majority of obese individuals owe their adiposity to excessive food intake and lack of exercise is probably exaggerated. Most of us are acquainted with people who eat lightly and are very active, but who nevertheless accumulate fatty tissue. Likewise, we are aware that many persons eat heartily, are not especially athletic and yet remain thin. In fact, it becomes as difficult to *reduce* the weight of the *former* by diet restriction, as it is to *increase* the weight of the *latter* by forced feeding. Normal food intake and normal exercise will not avail with such individuals because an underlying factor is responsible which is not sufficiently recognized in diagnosis and not given proper consideration in planning treatment.

---

* Read before the Fifty-third Annual Session of the California Medical Association, Los Angeles, May, 1924. Lantern slides were used to illustrate the address, which are not reproduced in this publication.

This factor is an abnormal faulty metabolism, the control of which is to a large extent dominated by the glands of internal secretion.

Radical diet restriction often reduces weight, but cannot be termed a "cure" because it fails to correct the fundamental cause of such incretory obesity, and after terminating the so-called "cure," fat again accumulates when a full diet is resumed. Most reduction "cures" effect only temporary and not permanent reduction. It may be remarked in passing that, for practical purposes, weighed diets, in which caloric values are carefully estimated, prove too irksome for the average patient. The argument that such quantitative diets are constantly taught diabetics, where such instruction is imperative, does not prove their necessity or applicability to the majority of obese individuals. Furthermore, it is to be remembered that the chemistry of obesity is still quite obscure and not to be compared with our knowledge of the metabolic disturbances in diabetes mellitus. That sort of menu which requires reasonable restriction of fats and carbohydrates, but is sufficiently varied and attractive as to permit its habitual use indefinitely, is simpler, preferable, and more satisfactory over a long period of time. Indeed, this type of diet is all that is necessary or desirable in patients whose obesity is largely dependent on endocrine deficiencies.

Several glands exert a powerful influence on the shape and bulk of the human body. These, principally, are the thyroid, pituitary, and ovaries in women and the corresponding organs in the male sex. Insufficient function of any one, or of two or three of these glands at the same time, will almost invariably produce adiposity and often of extreme grade. One need but mention the rapid gain in weight that often follows the artificial or natural menopause; or castration in the male; or the obesity of myxedema; or dystrophia adiposo-genitalis (Froehlich's syndrome). The obesity of children is almost always of incretory origin, unless some chronic disease has kept the child confined to bed or in a chair for a year or more. It is notorious that children can eat enormous quantities of food without becoming abnormally heavy. As Mendel, the great authority on nutrition, phrased it, "No normal boy or girl can overeat." The "fat boy" or "fat girl" demands careful study of their ductless glands, and proper glandular therapy prior and during adolescence is very important for their future. Obstetricians should cease congratulating proud mothers on fat babies that weigh nine pounds or more at birth. There are various types of obesity, the deposition of fat varying in its location according to the gland primarily at fault. The administration of the proper gland extract by mouth and by injection helps materially in reducing such patients and improving their health generally. Such extracts are not dangerous if given in proper dosage and if the patient is kept under observation until his tolerance is properly estimated and established.

Determination of the basal metabolic rate is helpful, but the institution of glandular therapy (even thyroid extract) should not depend solely on this test. Many obese patients have a normal metabolic rate, and despite this fact can sometimes tolerate large doses of thyroid extract without toxic symptoms and without raising the rate above normal limits. This latter statement may occasion some surprise, but it is based on experience that will bear scrutiny. The metabolic rate should not be neglected, but should be interpreted in conjunction with and in relation to the clinical findings. The dictum that thyroid extract is invariably contra-indicated in patients with a normal metabolic rate is not tenable. But it would be most unwise to deduce from this that thyroid extract can be given recklessly. Every physician should be perfectly familiar with the many signs and symptoms of thyrotoxicosis, so that he may be able to control its administration.

It is obviously beyond the confines of this paper to describe in detail the various types of ductless gland disease in which obesity is a common and prominent symptom. This would necessitate a veritable treatise on endocrinology. Many excellent text-books are available, such as Falta, Cushing, Barker in Monographic Medicine, etc. There is nothing original in the observation that obesity is a striking symptom of incretory deficiencies. The object of this paper is merely an attempt to stress its frequency, and to oppose the attitude too commonly held that 99 per cent, or even 50 per cent, of obesity is entirely exogenous. It is difficult to present scientific evidence in support of such a contention that would be "bullet-proof." This would necessitate a research experiment not readily accomplished. A series of patients would have to submit to incarceration in a metabolism ward of a hospital for at least six months, under such strictly controlled conditions that one could be positive of their exact food intake. If such patients on a 1200 to 1500 calorie diet did not lose, but when appropriate gland extracts were added (the diet being kept the same) loss of weight occurred, one could feel justified in the assumption that their obesity was endogenous and of endocrine origin.

A large appetite and a craving for sweets and starches may characterize a glutton, but it is to be remembered that this craving may itself be pathological, and depend on hypopituitarism. The hunger, thirst, and high sugar tolerance of these patients is well known. A mere restriction of food intake only scratches the surface, but neglects the underlying cause. Results would be temporary, because the patient rarely persists against an abnormal appetite difficult to control. Gland administration to supplement the patient's gland deficiency is a sound logical procedure. Perhaps a striking parallel will reinforce the above argument. Subjects of diabetes mellitus, suffering from deficiency of pancreatic island hormone, are hungry for sweets and starches, have ravenous appetites ofttimes, and frequently complain of extreme thirst. These symptoms are recognized as due to insulin deficiency and are promptly relieved by insulin injection.

On the other hand, subjects of hypothyroidism or myxedema are obese, despite a very low caloric intake. Their appetites are poor, they consume relatively meager quantities of food, but they gain weight nevertheless. To attempt mere diet restriction in such cases is almost ludicrous, for it is akin to subtracting something from nothing. On the

A STUDY OF ENDOGENOUS ENDOCRINE OBESITY.

No.	AGE	SEX M- Male F- Female	? MARRIED	OBESITY IN FAMILY?	ONSET & DURATION OF OBESITY	TYPE OF MENSTRUAL DISTURBANCE	BASAL METABOLIC RATE %	HEIGHT	IDEAL WEIGHT	ACTUAL WEIGHT	LOSS UNDER TREATMENT	LENGTH OF TREATMENT	TYPE OF ENDOCRINOPATHY	RESULT
1.	38	M	Single	(No)	Following typhoid four Since age of 23	—	45.2—	5ft. 6½in.	145½ lbs.	176 lbs.	33 lbs.	6 months	Adult Myxedema	Excellent
2.	33	F	Married	Yes	following 1st pregnancy aged 18	regular but scanty.	27.5—	5ft 7 in	148 "	265 "	43 "	9 "	Pluriglandular Obesity	Fair - stopped treatment.
3.	60	F	"	(No)	following menopause at 48	—	22.2—	5ft 2 in	121 "	222 "	34½ "	2½ "	Adult Myxedema X	Good - still under treatment.
4.	21	F	Single	Yes - mild	Since 10 years of age	scanty flow intervals of 2 to 5 mos	20.5—	5ft. 2 in	121 "	196 "	35 "	8½ "	Adolescent Hypopituitarism + Hypothyroidism	Good - still under treatment
5.	43	F	Married	(No)	Since 28 " " "	irregular, scanty	19.1—	5ft. 5 in	137½ "	174 "	19 "	4 "	Adult Hypothyroidism B.P. 9%%	Good
6.	27	F	"	(No)	Since Cystorectomy aged 26; married 2 yrs = 5 mos	Intervals of 2-4 mos.	20.7—	5ft. 2 in	121 "	218 "	27 "	6 "	Primary Hypogonadism with hypothyroidism	Fair - stopped treatment.
7.	24	F	Single	Yes	Always fat	onset at 15½; intervals of 6 mos. to a year	18. —	5ft 7½in	151 "	197 "	35 "	6 years.	Adolescent Eunuchoidism XX	Good - still under treatment
8.	10½	F	"	Yes - mild	" "	—	12.2—	4ft 8½	95 "	128 "	32 "	6 months	Preadolescent Hypothyroidism X	Excellent
9.	22	F	"	(No)	" "	Normal	7.6—	5ft-5½	140 "	287½ "	53½ "	6 "	Thyro-Pituitary Obesity	Excellent
10.	30	F	"	(No)	" "	utterly irregular Amenorrhea for 2 yrs	11. —	5ft 2½	123½ "	232½ "	22½ "	5 "	Pluriglandular Deficiency	Fair - still under treatment
11.	15	F	"	Yes - mother		severe dysmenorrhea	5.1—	5ft 6½	145½ "	182½ "	14 "	3 "	Adolescent Thyro-Pituitary Dysfunction X	Fair still under treatment
12.	45	F	Married		Since 29 years of age	Normal	5. —	5ft 3	126½ "	256 "	64½ "	1½ years	Acromegaly followed by Hypopituitarism	Excellent
13.	19½	F	"	(No)	gained 60 lbs since Preg	scanty + prolonged intervals	4.9—	5ft 5	137½ "	182 "	39 "	7 months	Adolescent Goiter; Post Adolescent Hypopituitarism	Excellent
14.	25	M	"	Yes	Since typhoid fever aged 7 years	—	4.2—	5ft 11	170½ "	297 "	31 "	2½ "	Thyro-Pituitary Obesity X	Good - still under treatment
15.	20	M	Single	(No)	Always fat	—	1.5—	5ft 8	154 "	291 "	50 "	8 "	Thyro-Pituitary Obesity X	Good - stopped treatment.
16.	24	F	Married	Yes	Since 3 years (aged 24)	5-8 weeks interval	0.1+	5ft 1	115½ "	215 "	38 "	1 year	Post Adolescent Thyro-Pituitary Obesity	Good - still under treatment
17.	29	F	"	(No)	Following pregnancy 1yr ago	scanty	1.3+	5ft 4	132 "	156 "	27 "	4 months	Hypopituitarism following pregnancy	Excellent.
18.	36	F	"	(No)	Since age of 20 years	scanty	4.1+	5ft 1	115½ "	271 "	31 "	8½ "	Post-Adolescent Thyro-Pituitary Obesity	Good - still under treatment
19.	18	M	Single	(No)	Since age of 16 years	—	5.2+	6ft 1	181½ "	197 "	25 "	6 "	Eunuchoidism + Epilepsy (X)	Excellent
20.	23	F	"	(No)	" " " 20 "	interval of 5-6 weeks scanty	5.9+	5ft 5	137½ "	160 "	21 "	6 "	Adolescent Hypopituitarism XX	Excellent
21.	59	F	Married		Since menopause aged 52	—	6.8+	5ft 9	160 "	250½ "	58½ "	1½ years	Acromegaly followed by Hypopituitarism	Excellent
22.	31	F	"	Yes	Since amenorrhea aged 28	Amenorrhea several years	7.9+	5ft 6½	145½ "	184½ "	40 "	1 year	Adolescent Hypopituitarism	Excellent
23.	16	F	Single	Yes - mild	Since puberty aged 12	interval 6-7 wks always scanty	8.3+	5ft 1	115½ "	168 "	45 "	2½ years	Adolescent Hypopituitarism + Epilepsy XX	Excellent
24.	18	F	"	(No)	Since amenorrhea	Amenorrhea since 1½ yrs	9.7+	5ft 1	115½ "	145 "	25 "	11 months	Adolescent Goiter + Hypopituitarism	Good
25.	38	F	"	(No)	always fat	intervals 5 week - 8 months	12.2+	5ft 5½	140 "	197½ "	35½ "	7 "	Colloid Goiter & Hypothyroidism + Hypopituitarism	Excellent
26.	36	F	Married	(No)	" "	5-6 week intervals	13.3+	6ft	176 "	256 "	24 "	10 "	Gigantism & Dyspituitary Obesity XX	Fair - still under treatment
27.	32	F	Single		past year since typhoid	Normal	22. +	5ft 6	143 "	158 "	30 "	4 "	Toxic Adenoma + Post Adolescent Hypopituitarism	Excellent
28.	14	F	"	(No)	past 3 years	Normal	—	5ft 3½	129 "	164 "	15 "	3 "	Adolescent Thyro-Pituitary Obesity X	Fair - still under treatment
29.	27	F	Married	(No)	Many years	scanty	—	5ft 1	115½ "	176	16 "	4 "	Pituitary Cerebral Obesity	Fair - still under treatment
30.	23	F	Single		past 3 years following influenza	Dysmenorrhea + scanty	—	5ft 3½	129	196	54½ "	1 year	Post Adolescent Hypopituitarism XX	Excellent

X - only Thyroid extract used. XX - only pituitary extracts used (X) - only testicular implantations used

other hand, administration of thyroid extract or thyroxin actually stimulates their appetite, but they lose weight. A sluggish metabolism has been stirred into activity and efficiency.

Failure to exercise and lethargic habits are not always due to laziness; they are themselves characteristic symptoms of hypothyroidism, hypopituitarism, and hypogonadism. It is hardly fair to demand much agility from a cretinoid child, a Froehlich's type, or a eunuchoid. It may be objected that these conditions are rare and that the overwhelming number of obese individuals are not examples of these diseases. As a matter of fact, even the outspoken instances of these maladies are by no means rare, though frequently not recognized; whereas, the milder forms of these deficiencies are far more common than is generally appreciated. Moreover, it is just the milder "formes frustes" types that offer more difficulty in diagnosis, but that rewards one's recognition of them by readier response to proper substitution therapy. The "little signs" are often there if one but looks for them and is familiar with them.

It is embarrassing to note how often goiters are overlooked and their correct differentiation (adolescent, colloid, hyperplastic, adenomatous, etc.) neglected. It is surprising how little attention is paid to the character of the skin, whether it be smooth or rough, warm or cold, dry or moist; the quality, texture, amount and distribution of the hair; the appearance, condition, and position of the teeth; the character of the nails; the shape of the hands and fingers, the location of the fat (whether nuchal, cervical, pectoral, girdle, trochanteric, or extending to the wrists and ankles). It is unfortunate that questions directed to the menstrual history are often casual and indefinite, when precise information about age of onset, length of interval, regularity, and amount might disclose significant data. X-ray investigation to note appearance of the bone nuclei and closure of the epiphyses in relation to chronological age are not sufficiently utilized, when their assistance might clinch the diagnosis. Refuge is often taken in the "wise observation," that there are wide variations within the normal, as if that condoned an inattention to detail. A lack of interest or understanding is disguised in the sage and comforting reassurance to the mother of the fat boy or girl—that "nature often adjusts these disturbances," secure in the knowledge that Nature sometimes does, but not concerned apparently when nature sometimes doesn't, until valuable years have slipped by when treatment would have been most effectual.

Gland extracts are no panacea for fat people. Many times they are not necessary, sometimes they are positively contra-indicated. No one method of weight reduction is applicable to all cases, whether it be any one of a score of weird diet cures, victrola cures, roller cures, or gland cures. Each case requires individual study, thorough investigation, careful, persistent, long continued treatment and observation. Nor will prompt and brilliant cure invariably follow in those cases where gland extracts are indicated, for the extracts available leave much to be desired. When pituitary, ovarian, and testicular extracts are as potent and reliable as thyroid and insulin, there will be far fewer fat people. But even in their present state they are not without merit, and the cases herewith tabulated demonstrate their usefulness.

Thirty cases have been selected that gave treatment a fair trial. Several are still under treatment. Detailed consideration of each case is beyond the scope of this paper. It will be noted that the great majority are females, which is to be expected. Thyroid disease is about ten times as frequent in women as in men; an ovarian dysfunction is more frequent than functional insufficiency of the testicles. Probably the menstrual function, pregnancy, and the menopause are largely responsible for this. Out of twenty-six females, one had not reached the age of adolescence; of the remaining twenty-five, eighteen gave evidence of very marked disturbance of menstrual function. About half the cases gave no history of familial obesity. Basal metabolic rates were obtained in twenty-seven of the thirty cases. Nine of these had rates below the theoretical normal; fifteen had normal readings; and three were actually above normal (one of these had a mildly toxic adenoma). The response to glandular therapy as expressed in loss of weight seemed to bear no relation to the metabolic rate. Contrary to expectation, some with low rates were difficult to reduce, some with normal rates responded promptly to therapy. Thyroxin was used in Case 1. Thyroid extract alone was responsible for weight loss in six cases marked "X." Pituitary extract (the whole gland or sometimes the anterior lobe only) was successful, without thyroid, in reducing five cases marked "XX." Implantations of fresh unextracted, untreated ram's testicular substance produced the loss of twenty-five pounds in Case 19, marked "X." In the remaining seventeen cases more than one gland extract was used, usually thyroid and pituitary in combination, in salol-coated capsules. Sometimes injections of pituitary or ovarian extracts were given. Details of dosage, preparations used, would require analysis of each case, and must be reserved for a future communication.

It would seem reasonable, then, to consider the adiposity of children and adolescents as an endocrine dysfunction in the majority of instances, demanding incretory therapy. It would seem judicious to investigate the endocrine status of obese adults between the ages of 18 and 50, and to utilize organo-therapy in conjunction with a reasonable diet and exercise where endocrinopathies are discovered. When we approach late adult life, our attitude, even in the presence of ductless gland disease, should be more conservative. We are aware that a fair percentage of women become corpulent rather rapidly after the menopause. This phenomenon might be regarded as a law of nature, with which it would be unwise to interfere. Indeed, it is feared by some that such interference is not only meddlesome, but may be dangerous and actually shorten life. Many women, however, pass the climacteric without gain in weight, and in those that do gain, an ovarian and secondary thyroid deficiency is frequently demonstrable. Mere vanity or false notions of rejuvenation are certainly no excuse for aggressive ther-

apy at this time of life, but a mild replacement regime is often indicated and distinctly beneficial, and will actually tend to prolong life by relieving the extra burden from heart, arteries, lungs, liver, kidneys, tendons, joints, and muscles.

CONCLUSIONS

1. Overeating and insufficient exercise often cause exogenous obesity.
2. The great majority of obese individuals are not fat for these reasons only.
3. Hypothyroidism, hypopituitarism, and hypogonadism are not uncommon, especially in mild degree, and are almost invariably characterized by adiposity.
4. The importance of endocrine dysfunction in producing obesity directly, and in indirectly causing the symptoms that lead to obesity (abnormal appetite and physical inertia) should be recognized in diagnosis and in planning treatment.
5. Basal metabolic rates are valuable, but not the sole index for institution of glandular therapy. A normal rate is not necessarily a contra-indication to the administration of thyroid extract, but its use should be checked by frequent rate determinations.
6. Pituitary extract alone will sometimes reduce weight.
7. Weighed diets are rarely necessary. Reasonable restriction of fats and carbohydrates is more practicable, less irksome, and usually suffices in conjunction with the proper endocrine therapy.
8. The obesity of childhood and adolescence is usually of endocrine origin.
9. One should be cautious in any and all methods of reduction in patients over 50.
10. There is no royal road to reduction, whether it be by diet cure, victrola cure, roller cure, or gland cure. Each case requires individual study.

Fitzhugh Building.

DISCUSSION

Dr. Nelson W. Janney (Pacific Mutual Building, Los Angeles)—One or two decades ago it seemed sufficient to recognize **exogenous** obesity, due to overeating and underexercise, and **endogenous** obesity, usually vaguely relegated to a "constitutional" or "familial" tendency. Due to lack of recognition of all but the most characteristic endocrinopathies accompanied by increase of fat, it was then believed that obesity was most commonly exogenous. With accumulation of knowledge of the ductless glands, it has, however, become a certainty that an endocrine etiologic factor underlies the development of overweight in most cases, as Dr. Lisser's timely paper emphasizes.

The purpose of adipose deposits is to protect other tissues to aid in retention of heat and to act as a normal reserve food and fuel supply. An excessive amount of fat in the absence of gross food overindulgence, indicates faulty metabolism. An adequate understanding of the metabolism of obesity is necessary for its proper treatment.

Intermediary metabolites of carbohydrates, protein, and fat are the materials utilized in the replacement and repair of protoplasm. Both older and recent metabolic studies have emphasized the intimate relationship of these classes of foods, and particularly the ease with which intermediary products of carbohydrates and fats may be transformed by synthesis or otherwise into components of protoplasm, fat, or carbohydrates or vice versa. As the ductless glands serve to control the growth and nutrition of protoplasm, they likewise exert, as is well known, a marked influence on the metabolism of fats, sugars, and similar hydrocarbons. One can surmise, therefore, that pathological obesity ensues as a result of failure of proper synthetic utilization of carbohydrate and fat, as well as of lack of their combustion for the production of heat. We can, therefore, more clearly understand prediabetic obesity.

The endocrine obesities in general are likewise ascribable to inability to utilize carbohydrates (therefore their increased change into adipose tissue) as well as insufficient combustion of fat. The peculiar love of sweets, not fats, so characteristic of cases of Froehlich's pituitary syndrome is probably an expression of "sugar hunger" of the cells. The fact that reduction of obesity in endocrine cases is difficult without the proper exhibition of ductless gland extract would be accounted for on a similar basis. No explanation can, however, be offered as to why the endocrine deposits are so characteristically localized to certain body areas: viz., the pituitary fat girdle, the gonadal trochanteric masses, the nuchal, supraclavicular, and the external malleolar thyroid pads.

The marked muscular fatigability attending developed cases of endocrine obesity can probably be explained by lack of hormones essential for the replacement and the repair from intermediary metabolites of the rapidly depleted myoplasm. There is a marked frequency of myocardial enlargement in endocrine cases of long standing which is probably due to the same cause in the absence of other etiology.

Systematic graduated therapy and careful instruction of the patient is essential for success in the treatment of endocrine obesity. In pluriglandular cases it is well to establish the optimal effect by regular variations in the doses of each endocrine extract in turn, and later in combination. Although weighed diets are rarely required, a dietitian's assistance is of value in meeting the individual requirements and tastes of different individuals. Exercise must be cautiously prescribed in asthenic endocrine cases, in which loss of weight had usually best be limited to 5 to 10 pounds monthly regularly obtained. Violent reduction may be followed by collapse. Self-hypodermic administration of ductless gland preparations is often advisable, just as in the case of diabetics treated with insulin. Subjects of endocrine obesity, particularly pituitary, are temperamental, apprehensive, sensitive and weak-willed, requiring frequently considerable exercise of patience and tact in their management.

Victor G. Vecki (516 Sutter Street, San Francisco)—I want to compliment Doctor Lisser on his paper, and to emphasize the great importance of the standardization and mainly the obtaining of reliable organic preparations, and to reiterate once more how inexplicable is the fact that so many evident endocrine dystrophies are being overlooked and disregarded by some of our best medical men.

F. M. Pottenger, M. D., (Monrovia, Calif.)—I wish to compliment Doctor Lisser on his excellent work in this important field of medicine. Endocrine disturbances are facing us in our practice daily, and yet until comparatively recent times only a very few of them were recognized.

A very large group of people suffer from obesity. It was formerly thought that this was due to overeating and lessened exercise. We now know, however, that there are certain glands of internal secretion whose function influences greatly the shape and size of the body. In cases of obesity a hypo-function of three glands particularly should be thought of, namely, the thyroid, the pituitary, and the gonads; and then if one learns the particular type of obesity which follows these, he has a clue not only for diagnosis, but for therapy. Doctor Lisser points this out very well in his paper.

Any fat individual who retains weight on small quantities of food should be looked upon as showing endocrine disturbance. Failure to exercise and lethargic habits, instead of being a cause of obesity as is thought in certain types of individuals, particularly those of a hypothyroid nature, are not the cause

of the obesity, but are concomitant symptoms of the hypothyroidism present.

I was particularly interested in the plea for the recognition of the underlying endocrine factors in the fat boy and girl. There are certain times when endocrine, dysfunction can be influenced more easily than others, and one of these times is about the age of puberty. I have seen numerous cases of hypothyroidism show up at this time, and if it is recognized the detrimental influence upon the sexual characteristics of the child may be prevented.

In these glandular obesities it should be remembered that the metabolic rate in many of them will tell us nothing. It cannot be relied upon as a basis for diagnosis or therapy. The general medical man is most interested in the therapeutics of these various conditions, but he cannot carry out a successful therapy unless he makes accurate diagnoses.

There are many things which interfere with satisfactory therapeutic results. First, wrong diagnosis; second, making the diagnosis too late; third, unsatisfactory therapeutic products. It is up to the medical profession to remedy the first and the second; the third must be remedied by biologic laboratories. There are great quantities of worthless endocrine products being prescribed today, but by a close co-operation of the clinician and the biologic laboratory, this should in time be remedied.

Very important progress has been made in this work in recent years, and we now have adrenalin, thyroxin, insulin, pituitrin, a preparation from the corpus luteum, and the promise of active preparations from the anterior pituitary and the ovary. Nor can we deny that results are now being obtained from other preparations which cannot be looked upon as being very constant in their action.

What is needed most in the development of endocrinology is the bringing together of careful clinical and laboratory observations in the study of the clinical picture, and an earnest attempt on the part of the biologic laboratories to give us the best possible glandular preparations for therapy.

W. D. Sansum, M. D., (Santa Barbara, Calif.)—Dr. Lisser's paper brings added proof to a growing belief that a very large percentage of the pathologically obese individuals have some form of endocrine disturbance. His work has materially added to our knowledge of the relation existing between obesity and pituitary and ovarian dysfunctions. We are still handicapped by a lack of clinically proven endocrine products that are active when given orally. But Dr. Lisser's work indicates that some of these substances are effective when coated with salol and given in fairly large doses.

There is one phase of the food requirements of the obese which, I believe, is not fully appreciated by all. Aside from any endocrine disturbance, the obese individual actually needs much less food for maintenance purposes than do individuals in the normal states of nutrition. The abnormal layer of fat, like an asbestos covering over a stationary engine, prevents the loss of heat and increases the efficiency of the food used. I have under my care in the hospital, at the present time, an obese woman who failed to lose any weight on an accurately weighed, nearly fat-free, 1200 calorie diet, although she was walking six miles per day. We found it necessary to reduce her diet to 950 calories per day before she began to lose weight at the rate of two pounds per week. The addition of 30 grains per day of anterior pituitary extract, given in uncoated tablets, failed to cause her to lose weight at a greater rate. I shall next add some form of hypodermic, pituitary medication.

Doctor Lisser (closing)—It is gratifying to receive such cordial agreement from those that discussed this paper. Opposition was expected, for this is the customary attitude toward those that espouse endocrine therapeutics nowadays, be they ever so conservative. The abuse of organotherapy has been so flagrant that the profession has come to demand a specificity and potency from endocrine products, far beyond what they are accustomed to expect from the myriad medicaments they prescribe in daily practice. What drugs in the entire pharmacopeia can compare with thyroid extract, insulin, adrenalin, and pituitrin? Very few—digitalis in auricular fibrillation, opium and its derivatives for pain; mercury, salvarsan, quinine, and ipecac (emetin) as bacteriacidal agents; an antitoxin or two, a serum or two, and a few other drugs, perhaps! Shall we discard the remainder because they are not brilliant specifics? Most of us lack patience in our therapeutic efforts. We expect striking results in a week or two. Such an attitude will invariably fail in chronic ailments, and the great majority of endocrine diseases are chronic, and obesity is chronic.

Meanwhile, I join heartily in the plea of Doctors Janney, Vecki, Pottenger, and Sansum, for more potent standardized preparations from ovary, testicle anterior pituitary, adrenal cortex, parathyroids, thymus, and pineal. The work of Allen and Doisy on an ovarian hormone is most encouraging, and we await daily news from H. M. Evans that his anterior lobe pituitary extract is available for clinical trial.

It would be a boon to humanity, if a galaxy of metabolic experts such as Joslin, Allen, Woodyatt, Banting, Wilder, Sansum, Janney, and others concentrated their energies and capacities on the chemical, metabolic, endocrine investigation of obesity, and achieved for this huge group of uncomfortable people, a relief such as they extended to sufferers from diabetes. And I venture to predict that the supreme triumph will come in the end from the isolation of hormones specific for certain types of adiposity, just as the pinnacle of diabetic research was reached in insulin.

THE GODINO TWINS *

By R. H. VAN DENBURG, M. D., Los Angeles

The Godino twins, natives of the Philippine Islands, are the adopted sons of Mr. Yangco, who represents the Philippines as commissioner to the United States.

At the time these studies were made in Johns Hopkins, they were 11 years of age. They are joined together by a band of fibrous tissue, which measures eighteen inches in circumference, and is in the region of their lower sacrums. The tissue is quite dense and firm, but somewhat flexible.

Lucio is a trifle taller and heavier than his brother, Simplicio. His manner is somewhat more reserved and he is a better conversationalist, as well as a better student.

Simplicio is quick in manner, restless, and asks a multiplicity of questions, rather fearful that someone may do harm to him, and often asked, "Which one of us are you going to kill?"

They both are well educated, speak English fluently, and are quite proficient in vocal and instrumental music. They are extremely proud of their ability to attract attention, which they do wherever they go. They play baseball, tennis, and enjoy all sports common to boys of their age, which they do better than some others not handicapped by a bonded partner.

When they were posing for their pictures they were hard to restrain, yet they enjoyed the "camera snap" and were curious to see everything that took place, but wanted everything to "hurry up." They

* Read to Section on Urology at the Fifty-third Annual Session of the California Medical Association, Los Angeles, May, 1924.