An Address ON FASHIONS AND FADS IN MEDICINE.*

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I REMEMBER being present many years ago in a provincial town, at the annual gathering of the British Medical Association, and at the general meeting of representatives happened to occupy a front seat in the gallery next to an old friend, a distinguished gynaecologist, since dead. After gazing down in silence for some time at the assemblage below he turned round to me and exclaimed in a tragical whisper, "*The medical profession in bulk is indeed a saddening spectacle!*"

Well, gentlemen, I do not know that in our exterior habit we present a more "saddening spectacle" than any other collection of human beings, but undoubtedly there are some of our intellectual habits which are calculated to make the judicious grieve, and chief amongst these is our subservience to fashions. For let there be no mistake about it, there is a fashion in the cut of the robe of Aesculapius just as much as in that of more mundane garments, and few of us altogether escape its influence.

This, of course, is no new observation. A certain Dr. Harris,† for example, writing as long ago as the middle of the eighteenth century, delivered himself upon the subject as follows: "For some different modes and customs, sometimes perhaps better, sometimes worse, come into Fashion and go out again in Physick as well as Dress; and the common Herd of Physicians too easily give credit to the Promises of new Leaders, till that faithful Mistress Experience at last shows them safer ways to Truth."

So apparently we are no worse than our predecessors after all. I thought, however, that it might be worth our while to consider together the origin of fashions and fads in medicine, and their influence for good and evil on our work, and that will be the subject of this address.

The Nature of Fashions.

At the outset of our inquiry we are met by the difficulty, What is meant by a "fashion"? It is not always easy to say, but I think one may regard transience as being fashion's essential characteristic. Take, for instance, the matter of hats and hearts. It would not be correct to say that it is the fashion for women to wear hats in England, for I suppose women have worn hats here ever since the Stone Age. On the other hand, it would be quite exact to speak of its being now the fashion to wear what I believe are called *cloche* hats. So in the case of hearts. It would not be accurate to say that it is the fashion to treat heart disease with digitalis, for that remedy has now been in use for close upon a century and a half; but it would be true, or perhaps it would have been true before the war, to say that it is the fashion to send cases of heart disease to Nauheim. Time, therefore, is the essence of the matter, and it may take time to determine whether a theory or a treatment is merely a fashion or whether it has come to stay. None the less I think there is an intuitive faculty—a sort of flair for truth—stronger in some of us, it is true, than in others, but capable to some degree of cultivation in all, which may serve as a touchstone in the matter, and which will often save us from following a will-o'-the-wisp.

Fashion may affect either our beliefs as to the nature and origin of diseases or our practice in their treatment. Fashions in belief may lead to fashions in treatment, but we also find fashionable treatments which are based on no intelligible belief. In the eighteenth century, it will be remembered, Dr. John Brown propounded his doctrine of "excitability," and divided all diseases into the "sthenic," in which excitability is in excess, and the "asthenic," in

which it is in defect. This theory became fashionable, and seeing that according to the Brunonian teaching 97 per cent. of disease is asthenic and needs stimulation, it also led to an abandonment of the then prevailing fashion of excessive bleeding. On the other hand, in the same century Bishop Berkeley introduced his panacea of "tar water" which also quickly became the fashion, though no pretence was made that its supposed virtues were based on any reasonable theory at all. To turn to a modern example, neurasthenia has in recent times been attributed to such different causes, amongst others, as mobility of the kidney, eye-strain, displacements of the uterus, intestinal auto-intoxication, disturbance of the "endocrine balance," and focal infection. Each of these beliefs has in its time been fashionable, and there have been corresponding fashions in treatment which have ranged from such trivial procedures as the ordering of spectacles or of fantastico diets, to more formidable measures, such as removal of all the teeth, or of the whole lower bowel. On the other hand, the use of the high-frequency current in the treatment of all manner of diseases, which was so much the fashion at the end of last century though now rather *démodé*, arose independently of any pathogenic theory.

Such, then, being the nature of fashions in medicine, we have next to ask, How do they arise? It is really very difficult to say. How do fashions arise in dress, or in art, or in games? We do not know. We can, however, recognize some modes of origin of medical fashions, and these have now to be considered.

Origin of Fashions from Fads.

First, fashions may arise out of fads. But this at once raises the question, What is a fad, and how does it differ from a fashion? Well, I suppose a fad is essentially an individual thing, a crochet or favourite idea held, often independently of evidence, by a single person or by a small group of persons. But sometimes the bees in the individual bonnet swarm, and then we get a fashion. A fashion, then, may be regarded as an epidemic fad. But in order that a faddist may infect others and make his fad epidemic he must be a person of some importance. You or I might wear any bizarre kind of waistcoat we pleased and no one would take any notice, but if the Prince of Wales, for instance, appears in America in an unusual garment the fashion spreads like wildfire throughout the States. It is very probable, I think, that Bishop Berkeley's tar water caught on as it did largely because he was a bishop; had he been a mere curate he would have been left to drink it alone.

It would be easy, though indiscreet, to mention contemporary examples of eminent fad-carriers who have infected large sections of the profession and so produced fashions, but everyone will be able to think of such instances for himself. Again, the faddist who is to succeed in making his fad a fashion must not only be a person of prominence; he must also be instant, both in season and especially out of season, in preaching his doctrine—as, indeed, most faddists by nature are. Reiteration is essential; he must proceed on the principle that "What I say three times is true," and he will infallibly obtain many disciples.

The Origin of Fads.

But all this only shifts the difficulty, for how does an individual become a faddist? As to this it may be remarked that the disease of faddery may be either congenital or acquired. To parody a familiar quotation, some are born faddy, some achieve faddery, whilst some have it thrust upon them. The congenital faddist, to take his case first, is met with in every walk of life. He is born with a kink in the brain, a natural worshipper of the idols of the cave, an optimist rather than a pessimist, credulous rather than sceptical, lacking in humour, judgement, and common sense. To quote the late Dr. Mercier, "the faddist is constitutionally incapable of weighing evidence, of suspending his judgement, or of entertaining doubts," and, as Macaulay said, he is "utterly lacking in the faculty by which a demonstrated truth is distinguished from a plausible supposition."

Others achieve faddery, and there are several ways in

* First delivered before the Newcastle-on-Tyne and Northern Counties Medical Society, and subsequently before the Cardiff Medical Society.
† Treatise of the Acute Diseases of Infancy. Translated by John Martyn, F.R.S. London, 1742.

which this may be done: through specialism is one. The man whose attention is confined to one disease is very apt to become faddy about it and to see it everywhere. His mind becomes subdued to what it works in. Tuberculosis officers, for example, are prone to find every lung "suspicious," whilst workers in V.D. clinics soon come to see everything through what Dr. Gee called "a syphilitic fog." As Oliver Wendell Holmes said of the great French syphilographer Ricord, they would submit Diana to treatment with the mineral specifics and order a course of blue pills (or N.A.B.) for the Vestal Virgins. Faddists of this type may be regarded as the victims of a complex.

Faddery may also be achieved through lapse of years, as a form of senility. The morbid character of this phenomenon is evidenced by the general experience that though a little faddery in youth is, like a belief in Socialism, an amiable weakness, in age scepticism is the natural and healthy attitude of mind. "He who begins in certainties," said Bacon, "will end in doubts, and he who begins in doubts will end in certainties." A thickening of the cerebral arteries may perhaps be the explanation of the onset of faddery in late life, just as it is said to be of garrulity; indeed, the two symptoms often go together.

Another mode in which fads are acquired is through a restless desire for novelty and boredom with things as they are—much the same attitude of mind, in fact, which makes a man a Radical in politics. Finally, a doctor may become faddy through trying to be too clever, just as many lay cranks—the teetotalers, vegetarians, antivivisectionists, and so on—are trying to be too good. This is really the most insidious of all forms of faddery, for it attacks a man on his best side. None the less, the pseudo-scientific crank is the most dangerous of all. An ordinary "unscientific" practitioner, for instance, would never have entertained such ideas as these (I quote from a letter in a medical journal):

"Why not attribute neurasthenia to variation in the constitution of the blood, perhaps of its mineral constituents (for example, calcium) or its endocrine factors (for example, hyperthyroidism), or its vitamins, or some of its other components; or very frequently, to the presence of some toxin? Such a conception would give us the explanation of the wide distribution of the complaints in neurasthenia, and would offer a hopeful prospect of research. . . . In practice, when dealing with neurasthenia, I first suspect hidden dental sepsis, then insufficient diet (vitamins, etc.), often prescribe lime and cod-liver oil, as well as milk, eggs, butter, green vegetables, fruits, and even try a polyglandular endocrine capsule in accordance with its indications."

Beware, therefore, when you think yourselves very "scientific."

Finally, some have faddery thrust upon them by their teachers. Those of us who have the duty of training the rising generation of doctors have a great responsibility in this respect. We must not inseminate the virgin minds of the young with the tares of our own fads. It is for this reason that it is easily possible for teaching to be too "up to date." It is always well, before handing the cup of knowledge to the young, to wait until the froth has settled.

The Advertising Chemist and Fashions.

But to return to the origin of fashions in medicine. Another potent generator of them is the advertising activity of the modern manufacturing chemist. Now, I have no quarrel with the chemist as such. We owe a great deal to him. He has done much to make drug-taking pleasant, and has relieved the present-day practitioner from the trouble of learning how to prescribe artistically. We all know those pieces of blotting-paper which week by week drop from the skies on our desks and try to persuade us—and often succeed in doing so by a process of summation of stimuli—to prescribe for our patients a particular drug or food. Can it be denied that fashions in treatment often arise through no more recondite a cause than this? Of course, that may be regarded as legitimate business, but the chemist certainly goes outside his proper sphere when he tries to form fashions in pathological belief by issuing booklets or even magazines devoted to such subjects as uric acid, auto-intoxication, and endocrines and the part they play in the production of disease.

How Fashions are Maintained.

However started, once it has got going certain factors combine to maintain the momentum of a fashion for a time. Chief amongst these must be reckoned the herd instinct. "All we like sheep have gone astray." The desire to be in the swim, not to be "out of the movement," or to be "up to date," makes many a worthy man fall in with the fashion of the moment. Further, once a treatment has become fashionable the public demand for it helps to keep it alive. There is no doubt, for example, that the public, or at least the more educated part of it, often demands from the doctor such methods of treatment as vaccines or psycho-analysis, or whatever may be the *dernier cri*, whether his better judgement approves them or no. As an anonymous writer has said:

"... Temperance, cleanliness, activity, are the three cardinal virtues of the body as Faith, Hope, and Charity, are of the soul. . . . It is easier to repeat incessant formulae of prayer than persistently to keep one's self unspotted from the world, and it is easier for fat old sinners to paddle about bare-foot in the dew at a Kneipp cure than to abandon at once and for ever their little darling sins of greed or indolence. One hears a constant cry of Lo here! or Lo there! and all the world rushes to sit hopefully under blue glass or swathe itself in pure wool in the ever-renewed belief that some substitute may be found for the fatiguing necessity of obedience to the three rules."

Fashions are also maintained by the cures which they effect at the outset of their career—for there can be no doubt that every fashion does effect some cures. It does so, we know, through the power of faith and suggestion, which is the meaning of Trousseau's well known advice to a patient, "Take this *while it is still curing*." But by and by, when the novelty has worn off, the cures cease.

The perfectly natural desire on the part of the doctor "to prove all things" is also responsible for keeping fashions going for a time. He is not sure that "there may not be something in it." This attitude of mind is entirely laudable; but other motives, by no means laudable, are sometimes at work also, for truth compels one to admit that there are a few members of our profession who exploit fashions and play up to the public demand for them *because it pays so to do*. This unsavoury aspect of our subject I do not propose to dwell on, but I think few will deny that it exists.

These, then, being the ways in which fashions in medicine arise and are maintained, let us now consider briefly their effects.

Effects of Fashions and Fads for Good and Evil.

At the outset it may perhaps be said that it is a mistake to take these ephemeral things too seriously, and that one must not become an "anti-fad-and-fashion-faddist." After all (it may be contended), the history of Medicine is the story of outlived fashions, and as individuals we rise on stepping-stones of our dead fads to higher things; that fashions and fads do not do much harm to the health of patients, whatever they may do to their pockets, for few of them are really dangerous; and that anyhow they add to the gaiety of professional life, for there is usually some harmless amusement to be got out of them. It may be maintained also, and with more force, that the existence of faddists is the price we pay for individual initiative and enterprise, and that, as a matter of fact, many pioneers in medicine—Jenner, Semmelweis, and Lister, for example, to mention no others—have been denounced by their contemporaries as cranks. Of fashions, too, it may be asserted that they are a rough mode of ascertaining the truth by the method of trial and error and of fishing for it with many lines—that, in short, they give us automatically the advantages of co-operation. Finally, it may be said that there is, after all, "something in" most fashions, and that by summarily repudiating them we run the risk of throwing the baby away with the bath.

There is truth in all this, but on the other side of the account is to be reckoned the harm fashions do in lowering us in public esteem and in helping to make us that "saddening spectacle" of which I spoke at the outset of this address. It is bad enough, in all conscience, that the saying "Doctors differ" should have become a proverb. But it is worse still that we should exhibit such a collective

variability in our views and practice from year to year; that we should at one time attribute most human ills to uric acid, at another to auto-intoxication, to oral sepsis, to "disturbance of the endocrine balance," or to avitaminosis; that our pathological beliefs should be dominated now by "toxins," now by "reflex action," or by "vicious circles"; that to-day we should seek to cure all manner of disease by excising the ovaries, to-morrow by removing the appendix or the teeth; one year by the injection of sea-water, another by the administration of sour milk, or by the application of violet rays; that we should pin our faith for collective salvation sometimes to "team work," and at others to "early diagnosis" or "preventive medicine"; in short, that we should be as much at the mercy of "stunts" as the yellow press, as much the slaves of catch-words as politicians, and as intellectually unstable as a popular electorate.

How to Restrain the Influence of Fashion.

Let us, then, consider how we can moderate and restrain the excessive sway of fashion in our practice and beliefs. And first it is to be noted that fortunately many of us have a natural immunity to fashions and fads. These are men with a mental make-up the very opposite of that of the congenital faddist of whom I have already spoken. They are individualists, lacking in the herd instinct; sceptical rather than dogmatic; pessimists rather than optimists, with a sense of humour and a natural instinct for truth. And the same is true of nationalities. The Scots, for instance, are, on the whole, being a humorous nation, singularly free from fads—except in the sphere of religion, though a Scottish faddist, when you meet him, is, like Barrie's Scotsman "on the make," "a fearsome spectacle." America, on the other hand, is, I suppose, the most fad-and-fashion-ridden country on the civilized globe. This is probably the combined result of defective general culture, a love of novelty as such, and too much money. It is interesting in this connexion to speculate upon the possible effect on our liability to suffer from fashions of the admission of women in large numbers to our profession. Will the woman who has not the courage to wear last year's hat have the courage to prescribe last year's drug? I do not know. We can only wait and see; perhaps I should say we can only watch—and pray.

Of course, the antifad temperament has its own drawbacks. It is possible, as was said of a very distinguished physician of the last generation, "to carry common sense to the point of a vice." The acquired scepticism of age also is not without danger. As Mark Rutherford warns us in *Deliverance*:

"A man must for ever keep himself open to the reception of new light. As he gets older, he will find that the tendency grows to admit nothing into his mind which does not corroborate something he has already believed, and that the new truth acquired is very limited. If he wishes to keep himself young he must use his utmost efforts to maintain his susceptibility. He must not converse solely with himself and turn over and over again the thoughts of the past. He must not in reading a book dwell upon those passages only which are a reflection of his own mind."

On the other hand, it is possible to have too open a mind. There are some propositions ("E.R.A." for example) of which one should be able to say, "This is certainly not true, or, if it is, it has no right to be." We are here confronted with the old difficulty of finding the *via media* and of practising that "animated moderation" which Bagehot used to praise. On the whole, perhaps, we cannot do better than follow the advice of Pope:

"Be not the first by whom the new is tried,
Nor yet the last to lay the old aside."

Effects of Education.

It is commonly said that education is a great safeguard against quackery and faddery. I profoundly disbelieve it. So far as I can see, the higher one goes in the social scale the more does fashion in health matters prevail, and the so-called *intelligentsia* are the most gullible of all. It would almost seem, indeed, as if everyone has a certain stock of credulity, and the more sceptical he is in everything else the more credulous is he in matters medical.

It may be replied that this is the result of the wrong kind of education and that what is needed is more teaching of science. Again I disbelieve. If this were so the saying of Matthews Duncan would not be true—as I, for one, believe it to be—that "There are more quacks inside the profession than outside it." No; if education is to help us it must be a more humanistic education, by which I do not necessarily mean a classical training—though there is much to be said for that—but an instruction in the philosophy of a subject as opposed to its practical applications. In medicine it means especially the teaching of medical history and pathology. Sanity, humour, breadth of view, and a power of criticism are, it has been said, the marks of humanism, and the result of a humanistic education is a critical, humorous spirit with a sense of proportion, not given to extremes and with some sense of historical perspective and some logical faculty. It is that type of mind that we have to aim at shaping in our students, and that is why I profoundly regret the premature scientific specialism to which the intending doctor of to-day is perforce driven. We want, in short, more of the Hellenistic spirit, the spirit of common sense, sanity, and moderation. To quote Professor Gilbert Murray:

"If you look at a Greek statue or bas-relief, or if you read an average piece of Aristotle, you will very likely at first feel bored. Why? Because it is all so normal and truthful; so singularly free from exaggeration, paradox, violent emphasis; so destitute of those fascinating by-forms of insanity which appeal to some similar faint element of insanity in ourselves. . . . What is at the back of this sort of feeling? It is the same psychological cause that brings about the changes of fashion in art and dress; which loves 'stunts' and makes the fortunes of yellow newspapers. It is boredom or ennui. . . ."

It was this spirit of sanity which informed Greek medicine, so that, as Dr. Singer says of the physicians of the Hippocratic school—

"they remain for the most part, patient observers of fact, sceptical of the marvellous and the unverifiable, hesitating to theorize beyond the data, yet eager always to generalize from actual experience; calm, faithful, effective servants of the sick."

Effects of Ridicule.

Apart from such an education as this, a sense of humour is the best defence against fads and fashions, and ridicule is the weapon most adapted to their destruction. It has been remarked that there is no use in arguing with a prophet; you can only refuse to believe him. And so there is no use in arguing about a fad or a fashion; you can only laugh at it. If someone tells you, for example, that he is able to cure most diseases, from a common cold to cancer, by putting his patients on the diet of King Nebuchadnezzar, you can only smile. It is idle to point out to him that others—the late Dr. Salisbury, for example—cured, or claimed to cure, the like diseases by adopting the diet of Giant Fee-faw-fum. The one is fanatical about raw herbs and the other about raw meat, and reason has nothing to do with the matter. Further, I think that we tend to deal too tenderly with the crank, and that he is allowed too much rope in our medical societies, journals, and newspapers. I know that life is short, and that the sane are busy men while the cranks are only busybodies, and that there are better and more amusing things to do than to waste time in confuting them; but all the same, judgement is too often allowed to go by default, with the result that faddists have to-day far more influence with the public and far more say in shaping health legislation than their importance merits. The general practitioner also should make a better stand against these things. He should be less the slave of the advertising chemist, less afraid to use his own judgement and common sense, and should not allow himself to be bluffed by faddists, however eminent. For, after all, the test of truth is in its practical results, and it is by the experience of the general practitioner that in the last resort all fads and fashions must be judged. Perhaps in the final analysis, however, the conclusion of the whole matter may be that both faddists and antifaddists are required for progress; that we must always zigzag towards our goal like a ship tacking against the wind—now going too far to the right, now to the left; that, in a word, both the "crank" and the brake are necessary for the machine.

Fashions in Doctors.

Finally, just as there are fashions in pathological theories and in treatments, so there are fashions in doctors. I confess, gentlemen, that I have always been puzzled to explain what makes for success in our profession. It certainly does not seem to be a question of knowledge, nor yet of manners, nor even of character or morals. But if it is difficult to account for ordinary success, it is still more difficult to explain what makes a doctor the "fashion" in his town or district—what makes him, to use an expressive Americanism—"it." We meet the same problem, of course, in other spheres. Why, for instance, of a thousand novels all alike jejune, does one become a "best seller"? Or why does such a song as (let us say) "Yes, we have no bananas" sweep a continent, when a hundred others with equally foolish words and no less catchy an air drop still-born from the lips of the music-hall comedian? "Sir," said Dr. Johnson, "it is in vain to try to explain the inscrutable."

In some cases, of course, a doctor becomes the fashion by skilful self-advertisement, "by toying," as Sir William Osler said, "with the Delilah of the press," but many a man has become the fashion *malgré lui*, and it would be a profound mistake to suppose that all fashionable practitioners are charlatans. On the contrary, many of them have been and are men of whom any profession might be proud; it will suffice, perhaps, to mention Asclepiades in Roman times and Tronchin in eighteenth century France, without referring to more modern examples. Still, one should not envy the fashionable doctor; rather should one wonder at him. He leads a life of slavery, even although, as a wag said, it is slavery on the guinea coast; and, circumstanced as he is, good and thorough work becomes impossible. His position, too, on a pinnacle is always precarious. He has, it is true, his little day, but he is apt to wake up one morning to find that his worshippers have stampeded *en masse* overnight to some newer shrine of the fickle goddess Fashion.

THE EFFECT OF PITUITRIN AND INSULIN ON BLOOD SUGAR:

THEIR ANTAGONISM AND THE MODE OF ITS ACTION.*

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RECENT work by Burn¹ on rabbits has clearly shown the antagonism of infundibular extracts to insulin. If given in sufficiently large doses the administration of posterior lobe extracts prevented the fall of blood sugar caused by insulin. He states that this effect is not produced by extracts of the anterior lobe or of any other tissue (except adrenaline). Nor did he find that pituitrin given alone produced such a rise in blood sugar as to account for its almost complete inhibition of insulin action. Some of the doses he used on rabbits were so large, corresponding to about 150 c.cm. for an average human adult, that it was felt that their effect might be partly toxic and at any rate did not permit of the same conclusions being drawn regarding the effect of therapeutic doses in man. Again, these results were obtained in normal rabbits and would not necessarily apply to diabetics. Accordingly the scope of this investigation has been to examine the effect of therapeutic doses of infundibular extract on the blood sugar content of normal and diabetic man, particularly as regards an insulin antagonism. Other points of interest have arisen, especially regarding the site of this antagonism, and are also included in this paper. Parke Davis 10 per cent. infundibular extract (pituitrin) has been used, and care has been taken to use the same batch of insulin. The blood sugar was estimated in duplicate by Maclean's method on blood drawn from the ear, and the

normal persons were all students and residents at King's College Hospital, to whom our thanks are due for some rather trying experiments. Unfortunately we were not able to follow the blood sugar for as long as we wished, but this has not vitiated the results.

Effect of Pituitrin on Blood Sugars in Normal and Diabetic Persons.

The literature is full of contradictions regarding the effect of pituitrin on blood sugar: Borchardt, Cushing, and others state that it causes a rise in blood sugar, and Franchini, Stenstrom, and others deny this. Burn found in rabbits with large doses that sometimes there was a slight rise and sometimes a slight fall. We have investigated this by giving 1 c.cm. subcutaneously to normal and diabetic persons (Tables I and II). The normal persons received their pituitrin three to four hours after breakfast when their blood sugars had returned to a fasting level, and the blood sugars were followed every half-hour for two hours. Of the six cases investigated, three showed no appreciable change—

TABLE I.—Effect of Pituitrin on Blood Sugar of Normal Fasting Individuals.

	Fasting Level.	Pituitrin Injected.	Time (Hours) after Pituitrin.			
			1/2.	1.	1½.	2.
Case A ...	94	2 c.cm.	87	86	77	—
Case B ...	125	1 c.cm.	150	141	—	13
Case C ...	98	1 c.cm.	98	95	93	—
Case D ...	90	1 c.cm.	99	100	93	—
Case E ...	96	1 c.cm.	121	—	120	—

less than 10 mg. per cent.; one showed a drop of 17 mg., and two others a rise of about 20 mg. (Details of five of the six cases are given in Table I.) Consequently we can conclude that pituitrin has no appreciable effect on blood sugar, small changes probably being due to variations in the water content of the blood, as Partos and Katz-Klein² have shown. The three diabetics similarly showed no variation in blood sugar (Table II).

TABLE II.—Effect of Pituitrin on Blood Sugar of Fasting Diabetics.

	Fasting Level.	Pituitrin Injected.	Time (Hours) after Pituitrin.			
			1/2.	1.	2.	2½.
Case A ...	96	1 c.cm.	92	96	97	—
Case B ...	143	1.5 c.cm.	148	156	151	155

Antagonism of Pituitrin to Insulin in Normal and Diabetic Persons.

Having determined the separate effect of a given dose of pituitrin and of insulin in various individuals, we next gave them simultaneously in different parts of the arm. The results (Table III) show the almost completely antagonizing

TABLE III.—Antagonism of Pituitrin to Insulin in Normal Persons.

	Before Insulin or Pituitrin.	Insulin or Pituitrin Injected.	Time (Hours) after Injection.			
			1/2.	1.	1½.	2.
Case I ...	100	Ins. 15 units	81	66*	75*	Glucose given 87
"	92	Ins. 15 units, Pit. 0.8 c.cm.	90	93	91	—
Case II ...	101	Ins. 15 units	85	—	72*	—
"	104	Ins. 15 units, Pit. 1 c.cm.	90	—	91	—

* Symptoms of hypoglycaemia.

effect of pituitrin on insulin. The antagonism is most marked in the first hour, for in some of the cases the insulin seemed to gain the upper hand in the second hour and lowered the blood sugar considerably, though never so low as when insulin was given alone.

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