for the invading specific element of the disease. The obvious indication then is to aid the natural processes of repair by reducing the thoracic cavity, thereby relieving them of the work of strenuous, prolonged, and often inefficient cicatricial traction. In so far, then, as the inflammatory element in phthisis is concerned, rest and relaxation of the inflamed tissues seem indicated and essential to the healing process.

Comparative rest of the lung may be secured by keeping the patient at absolute rest day and night, but this system has obvious disadvantages, while it fails to fulfil the local indications of rest with relaxation. The English school aims at developing the latent resources of the lung so as to compensate for the loss of respiratory surface, while placing the patient under conditions inimical to the extension of the specific element of the disease and promoting general nutrition. In extreme cases where this object has been attained, one finds an immense development of the base of the lung with extensive cavitation towards the apex. The cavitation is a constant source of danger, while the hypertrophy does not necessarily secure proportionately increased aëration of blood, because the latter depends on range of movement as well as on effective respiratory area. With permanently increased circumference of the lower thorax there must necessarily be decreased range of movement. Such cases suggest how much better it would have been if the compensatory hypertrophy had extended inwards instead of outwards so as to have invaded and occupied the excavated region.

Two clinical considerations lend weight to the argument in favour of strapping the chest in phthisis, namely, (1) The fact that pleuritic effusion frequently leads to amelioration of the lung affection in phthisis; (2) The fact that during pregnancy the course of phthisis is often temporarily arrested. Both these phenomena produce similar effects on the lung as that produced by strapping.

The above considerations led me to the practice of strapping the chest wall as part of the treatment in phthisis, especially applicable in cases of unilateral disease of the apex. The method I adopt is to apply the anterior end of the strapping over the lower sternum and direct the patient to breathe out while I draw the strapping round the lower thorax and fix it over the vertebral column. I use either strips of strapping or a suitably sized (14 inches by 5 inches) piece of chamois leather spread with plaster, an appliance which adapts itself well to the chest wall without giving rise to discomfort. The appliance should be kept on till all signs of disease have disappeared and healing is complete. I direct the patient to take a moderate amount of regular exercise and to practise deep breathing. The exercise and deep breathing tend to bring into play all portions of lung not habitually active, while the strapping directs healthy lung to encroach on the diseased region.

The immediate effects of strapping, so far as my experience goes, are decrease of cough and expectoration, followed by cessation of night sweats, gradual fall of temperature, and improvement of general symptoms. The effect on the physical signs is to show a dislocation upwards of the seat of lesion, with gradually decreasing evidences of disease, an encroachment of abdominal organs towards the thoracic cavity, and an absence of falling in of the upper chest wall.

The advantages of strapping may be briefly summarised as follows:

1. In early phthisis (catarrhal stage) to give comparative rest and relaxation to affected lung tissue.
2. In the stage of consolidation, to secure the same results, thereby limiting the risk of extension and to promote elimination of the disease products by improving the circulation in and about the diseased area and to facilitate expectoration.
3. In the stage of cavitation, to promote closing of cavities by directing healthy lung to encroach on the diseased area instead of relying on natural processes of cicatrization.
4. Diminished tendency to hæmorrhage by reduced tension on vessels and cicatricial traction on vessel walls.
5. The ultimate object is to obtain a smaller thoracic cavity filled with healthy lung instead of an enlarged thoracic cavity partly filled with diseased lung.

CASE I.—Female, aged 21. History of tuberculous peritonitis. When she came under observation there was marked hectic, extensive breaking down in right infrascapular region, troublesome cough and copious expectoration. When strapped the cough was diminished at once and the

temperature gradually fell to subnormal and remained there. The physical signs moved upwards and decreased in area till they finally disappeared. The thorax was strapped for two winter seasons and patient sent home with strapping on. This spring—five years after original strapping—patient is reported to me as well.

CASE II.—Officer in artillery. Patient had repeated hæmoptysis, extensive breaking down in infrascapular region, cough and free expectoration. Was seen in consultation with leading London authority and bad prognosis expressed. Had been refused readmission to the service on one or two occasions by board of medical examiners. The last I heard of this patient was that he had rejoined his regiment.

CASE III.—Student, aged 19. Had been seen by family practitioner and by consulting physician. There was catarrh of left apex, and bacilli were found in abundance. Strapped for one season, after which his family doctor saw him in consultation with me, and could detect no disease. I advised colonial life instead of Cambridge; however, he was considered well enough to return to Cambridge, and broke down again.

CASE IV.—Female, aged 22. Infrascapular consolidation; cough, expectoration, and night sweats. Strapping was followed by relief of these symptoms. Two months later: Symptoms have all disappeared, and the signs indicate a greatly decreased area of disease.

I wish it to be understood that I do not propose this method as a cure for phthisis, but as an essential element in the treatment of that disease directed against the inflammatory lesion, an element which will greatly enhance the value of specific and climatic treatment, and without which those methods will be powerless to restore an extensively damaged lung to a condition of mechanical integrity. The latter essential is now habitually left to natural conservative processes which are inadequate to fulfil it when the lesion is extensive, and only does so with difficulty when it is limited.

PRELIMINARY NOTE ON THE ACTIVE SUBSTANCE IN THE THYROID.

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PAPERS have recently appeared by Baumann,¹ by Fraenkel,² and by Drechsel,³ each of whom claims to have discovered the active ingredient of the thyroid gland. Baumann's substance was obtained by boiling entire thyroids with sulphuric acid. He obtained as a residue an amorphous substance containing iodine, from which he was further able to extract a compound, to which he has given the name thyroiodin, and which he says he has found to be clinically active. The bodies isolated by Fraenkel and by Drechsel are very different in their nature. They are contained in the proteid-free watery extract of thyroids, and are stated to be crystalline substances. Their discoverers assert that they are active in animals, but have advanced no definite proof of clinical activity.

The time, therefore, seems ripe for the publication, in at least a preliminary form, of the results of certain observations which I have been carrying out during the last few months as to the effects of the clinical administration of the different ingredients of the thyroid. As idiosyncrasy plays a large part in these effects, I began always by estimating the reaction of the patient to a preparation of known activity—ordinary thyroid tabloids being the preparation employed. This having been ascertained, I compared with it the results of the administration of an isolated ingredient of the gland. The product of a mass of sheep's thyroids was first divided into proteids and proteid-free watery extract. The proteids were found to be active. These proteids are practically only two in number—a nucleo-albumin and the colloid matter. The former was inactive, the latter active.

The proteid-free watery extract was then concentrated. It would contain the bodies of Fraenkel and of Drechsel. It was found, even in very large doses, to produce no effect on a patient who had reacted distinctly to thyroid tabloids and to the isolated colloid matter.

The colloid matter is therefore the active ingredient of the thyroid. I have isolated it in a state of purity, but I do not propose to deal here with its chemistry. At present I shall only mention that, amongst other peculiarities, it contains a considerable quantity of iodine in organic combination, and I have succeeded in splitting off from it a body apparently identical with that obtained by Baumann from the entire

¹ Baumann, *Ztsch. f. phys. Chem.*, Bd. xxi, p. 319.

² Fraenkel, *Wiener med. Blätter*, No. 48, 1895.

³ Drechsel, *Centralbl. f. Physiologie*, February 22nd, 1896.

gland. If his substance be really active it would indicate that the colloid matter owes its activity to the presence in it of an organic compound of iodine.

The above statements are founded on observations conducted on normal subjects, and on two cases of myxœdema, the latter, however, being by no means marked examples of that disease. Full clinical details of these cases, along with charts showing the effect upon pulse, temperature, and body weight of the administration of pure colloid matter I hope to publish in conjunction with a detailed consideration of the chemistry of the thyroid at a later date.

The object of the present communication is to encourage those who may happen to have under observation cases of well-marked myxœdema or of hitherto untreated cretinism to try in such the effects of the administration of the colloid matter. It is only by the results in such cases that the activity of the substance can be permanently established.

ANALYSIS OF 100 CASES OF RHEUMATOID ARTHRITIS TREATED IN THE ROYAL MINERAL WATER HOSPITAL, BATH.

By ANTHONY BEAUFORT BRABAZON, M.D.,
Senior Physician to the Hospital.

I MUST preface the observations I am about to make by objecting *in limine* to the term "rheumatoid arthritis," and equally to the term "rheumatic gout," as misrepresenting the real characters of the disease under consideration, and as being calculated to convey false impressions likely to lead to errors in prognosis, diagnosis, and treatment.

In any observations I may make I have no intention or desire to criticise the opinions or views of those high authorities who have written earnestly and spoken eloquently on this subject. I only wish to take this opportunity to give expression briefly to opinions founded on personal observation extending over a space of twenty years, during which I have been physician to the Royal Mineral Water Hospital, and extending in round numbers to the observation of 1,000 cases of this disease who have been under my treatment in hospital.

As I am anxious to make my observations as brief as possible, it has occurred to me that I shall effect this object best by giving in a kind of statistical chart those facts connected with the 100 cases under my care in hospital during the two years ending May 1st, 1895, which I consider of most practical importance as a basis on which to found the conclusions at which I have arrived. I can promise that the basis is sound, these 100 cases being all truly and faithfully reported in my hospital casebooks by the intelligent and attentive resident physician, Dr. A. Wohlmann.

The chart includes statistics of 100 cases as to the numerical proportion of males to females, ages at admission, and as to the earliest evidence of disease, order of frequency, of incidence of disease as regards articulation, lapse of time between earliest symptoms and admission to hospital, and complications.

Observations, Statistical and Practical, of 100 Cases of so-called "Rheumatoid Arthritis" treated in the Royal Bath Mineral Water Hospital during two years ending May 1st, 1895.

ADMISSIONS.			
Males.		Females.	
Ages.		Ages.	
5 to 15	1	5 to 15	2
15 to 25	4	15 to 25	10
25 to 60	20	25 to 60	63
Total...	25	Total...	75
FURTHER SUBDIVISION OF AGES.			
Males.		Females.	
Ages.		Ages.	
30 to 40	11	30 to 40	18
40 to 50	6	40 to 50	27
Total...	17	Total...	45
ARTICULATIONS AFFECTED IN ORDER OF FREQUENCY.			
Cases.		Cases.	
Hands and fingers	78	Cervical vertebræ	36
Elbows	55	Ankles	58
Wrists	43	Temporo-maxillary	48
Knees	71	Hips	21
Shoulders...	53		

It will be understood that the above table refers only to the frequency with which the several articulations were affected. In some instances all those mentioned were found affected, in others only two or three singly or symmetrically.

INTERVAL BETWEEN FIRST SYMPTOMS AND DATE OF ADMISSION.

Males.		Females.	
Shortest period...	6 months	Shortest period...	6 months
Longest period...	25 years	Longest period...	20 years
Average interval	7.1 years	Average interval	3.7 years

The following were the occupations:

Females.—General servants, seamstresses, governesses, shop assistants, and school teachers.

Males.—Clerks, shopmen, teachers in schools, painters, colliers, and servants. Occasionally found in soldiers and sailors who have had foreign service in malarious climates.

Of the 75 females 34 were married; some were widows. Rheumatic fever had occurred in 29 cases at various periods before admission, in some as far back as 15 or 20 years, and had apparently no kind of connection with the symptoms on admission.

COMPLICATIONS.

Pseudo-paralysis, 1 case; osteo-arthritis, 4 or 5 cases; cirrhosis of liver, 1 case; Raynaud's disease, 1 case; phthisis, 1 case; cardiac derangements, 17 cases; bronchitis, several; albuminuria, very rare; angina pectoris, 1 case; chorea, rare; hysteria, not uncommon.

CONSTITUTIONAL SYMPTOMS.

These as presented to me during my hospital experience, as well as in private practice, are both remarkable and significant. I think it is strange that the older writers, and some among the more modern ones, have touched very slightly on the very extraordinary, though universally present, constitutional symptoms in more or less developed form. It seems as if they were so fascinated by the external appearance and pathological condition of the articulations that they ignored in a great measure the predisposing circumstances and accompanying general symptoms.

I shall now venture to give them in a succinct form as follows:—Evidences of previously failing health for a variable time before admission; history of predisposing causes, entailing wear and tear mentally and bodily, as shown in the nature of the occupation of the patient; gradual wasting of the muscles of extremities and of thorax, advancing to emaciation of the whole body; pulse generally abnormally quick, irregular, and weak; temperature inclined to be variable, particularly in the morning; occasional febrile exacerbations; sweating palms of hands, cold and sticky in character; anorexia, but appetite is variable and capricious; constipation as a rule; occasional thirst; frequently insomnia; occasional pains, something like those of "peripheral neuritis" over the body and limbs. Among the female patients amenorrhœa and painful menstruation are very common symptoms, anæmia generally present more or less marked; albuminuria uncommon; deposit of phosphates sometimes to be found.

The sweating of the palms of the hands is, particularly in females, one of the most frequently present diagnostic symptoms, and once felt will not be easily forgotten, from its peculiarity, being cold and clammy. The pigmentation spots described by my ex-colleague, Dr. Spender, which are, of course, more or less local symptoms, were reported in 19 of the 100 cases. My experience is that although the presence of these spots is a valuable aid to diagnosis, I cannot believe that their absence in cases otherwise well marked should create a reasonable doubt of the nature of the case.

I observe that Dr. Wohlmann, the resident physician of the hospital, to whose carefully compiled clinical records I am much indebted, has observed in several well-marked cases the sudden appearance of these spots. I am inclined to look upon them more as the outcome of the atrophic conditions conducing to the disease, than, practically speaking, diagnostic symptoms. The absence of cardiac symptoms is, I think, a very remarkable feature in this disease. It will be observed that in 100 cases only 17 had any cardiac derangement presenting a marked contrast to what is found in cases of purely rheumatic or gouty origin.

LOCAL SYMPTOMS.

The local conditions and symptoms have been described so often and so graphically, that I need not repeat, and I am certain I could not improve, those descriptions. I will therefore only point out the more general appearances of the unhappy victims of this "pernicious disease" as seen in well-marked cases, to wit, general emaciation of body and limbs,