materials and valuable advice and assistance, and to Dr. R. J. Maule Horne for helpful facilities and co-operation in this work.

REFERENCES

- Chesney, G. (1936). *British Medical Journal*, 1, 208.
 — (1935). *Med. Off.*, 54, 186.
 Glenney, A. T., and Waddington, H. (1929). *J. Path. Bact.*, 32, 275.
 Parish, H. J. (1936). *British Medical Journal*, 1, 209.

TREATMENT OF HAY FEVER BY INTRANASAL ZINC IONIZATION

PRELIMINARY REPORT OF 243 CASES

BY

LIONEL D. BAILEY, C.B., M.C., M.R.C.S.

Superintendent, Physiotherapy Department, St. George's Hospital

AND

CLIVE SHIELDS, B.M., B.Ch.

Assistant Superintendent, Physiotherapy Department, St. George's Hospital

In 1936 the opportunity occurred at St. George's Hospital of treating a number of cases of vasomotor rhinorrhoea by intranasal zinc ionization. Owing to the number of applications for treatment received (over 2,000) it was realized that the normal staff of the physiotherapy department would be unable to deal with more than a small fraction of these cases. Four special hay fever clinics were therefore set up and the services of five extra assistants accepted in order that a rapid statistical study of the method might be made. We desire to record our thanks to these voluntary workers for their invaluable assistance and to the Medical Committee for permission to establish the clinics.

During the period under survey 243 cases were treated; these were of both sexes, and the ages ranged from 5 to 77 years. A special analysis of 100 cases showed that 88 per cent. were of the seasonal type; 12 per cent. were of the non-seasonal variety and presented symptoms of varying severity throughout the twelve months. In only one case of seasonal vasomotor rhinorrhoea was there failure to give a considerable measure of relief; the only complete failures met with were in non-seasonal cases of long standing.

It should be emphasized that the figures in this paper and the conclusions drawn apply to the 1936 season after treatment earlier in the year. By "complete relief of all symptoms" is not meant "cure" of the disease, and in fact arrangements have been made for the cases already treated to have at least two applications in 1937.

In the present series the patient was first examined for infection of the paranasal sinuses, septic tonsils, dental sepsis, or gross structural abnormality of the upper respiratory passages. Intranasal ionization was not given until these, if present, had been dealt with. The routine practice was to give three treatments at intervals of one week; a few cases required as many as five applications; some were completely free after one. As a general rule the treatment was not given unless there was a chance of shortening the subject's season by at least four weeks.

In no case in the series was any anxiety caused by the primary or secondary reaction. There were no complications such as acute sinusitis, anosmia, otitis media, or extensive sloughing of the nasal mucosa. One case of mild cocaine idiosyncrasy was encountered.

No other treatment for the condition was given except that in a few cases where the secondary reaction was more

marked than usual ephedrine, 1/2 grain, and "sedobrol," 2 tablets, were ordered that night. No sprays, douches, or local applications were prescribed, and the patient was asked to omit these if already in use.

It should be stated that the great majority of cases had had other treatment in previous years without relief, and from the fact that the average duration of symptoms was eleven years it will be realized that the condition was in most instances well established. Previous treatment took the form of desensitizing injections, injections of peptone, local applications, dietetic restrictions, and operations such as submucous resection, ethmoidectomy, antrostomy, etc. In many instances the patient had had more than one of the above methods applied without improvement.

Details of the technique employed are not included here as they have already been published.¹

The following table shows the results obtained:

Complete relief of all symptoms	...	57.6%	} 93.6%
Considerable relief	...	36.0%	
Some improvement	...	5.0%	
No improvement	...	1.4%	

Conclusions

1. The technique employed is safe, and complications are not met with.

2. The method gives a satisfactory result in the great majority of cases of seasonal vasomotor rhinorrhoea, and in many cases of the non-seasonal type.

3. The treatment frequently gives relief when other methods have failed.

It is hoped in due course to publish a "follow-up" of these cases, and to record any remote after-effects.

REFERENCE

¹ *Practitioner*, May, 1936.

Clinical Memoranda

Thrombosis of Subclavian Vein Complicating Hyperthyroidism

The following case is of interest since venous thrombosis is a rare complication of thyrotoxicosis.

A single woman, aged 47, who was employed as a sewing machine operative, first consulted her doctor on May 30, 1936. She had been at work until a few days before this, but stated that for twelve months she had suffered from attacks of palpitation and dyspnoea on exertion. She had lost weight and more recently had sweated excessively. She admitted that she was unduly nervous, and that her limbs trembled. When seen by her doctor the pulse rate was irregular—200 per minute—and the thyroid was slightly enlarged. There was no definite exophthalmos. She was kept in bed on bromide and digitalis therapy for three weeks. The rate fell to 180 but was still irregular. On June 23 she was admitted to St. James's Hospital, Leeds.

She was grossly thyrotoxic. The pulse was 144 and irregular (fibrillating), the temperature was 97° F., and the respiration ranged between 24 and 36. The veins of the neck were over-filled. The apex beat was just inside the mid-clavicular line, though the heart was overacting grossly. The liver was palpable. There were moist sounds over the right lower lobe. The thyroid was soft and slightly enlarged. There was a fine tremor of the hands, and a trace of albumin was found in the urine.

On the morning of June 30, seven days after her admission to hospital, she awoke to find the whole of her right arm swollen and blue. She complained of aching pains along the inner side of the arm and forearm. Although the patient was