

assumed a normal condition. She was instructed to return to the office at intervals of a week, or less time if necessary, for treatment, and was given a supply of lutein tablets to be taken in doses of 10 grains three times daily as long as required.

Subsequent injections of pollen extract (prepared in bulk) were given at the office: October 31, 0.01 mg.; November 4, 0.02 mg., at which time she exhibited a mild recrudescence of the rash on her face and neck, which she attributed to overexertion at her household duties and to indiscretion in diet; November 15, 0.02 mg.; November 20, 0.02 mg.; November 25, 0.04 mg.; December 3, 0.04 mg.; December 16, 0.04 mg.; January 6, 0.08 mg.; January 21, 0.12 mg.; February 28, 0.12 mg.

With the exception of a recurrence on November 4, the patient has been free from the skin eruption since leaving the hospital, although on two occasions she reported having experienced a slight stinging of the skin following unusual exertion. It has now been more than thirty days since the last injection was given, at which time she stated that in the future she would come for treatment only when she felt a recurrence of her symptoms. As she has not returned up to the present date, we may assume that the injections have afforded complete relief for a period of at least a month. Even more remarkable is the fact that she has been able to do all of her work, such as cooking, washing and house-cleaning, and to eat some meat and other solid foods, which her condition had prohibited during the past year. She continues to take the ovarian extract and states that her periods are now regular and normal.

COMMENT

As to the permanence of results in this case, I am not prepared to say, as it might require quite an extended period of time, through the various seasons of the year, to determine all of the specific pollens to which the patient is sensitized. However, two conclusions may be advanced, namely: (1) that the basis of treatment of certain skin diseases with pollen extracts is scientific, being founded, as is bacterin therapy, on the theory of the production of antigens and antibodies, and should offer prospects of immunity or cure comparable to those of vaccines in general, and (2) that the immediate and complete relief afforded in the instance reported indicated a definite response to the injections of a foreign protein in the form of a pollen extract. If this method, by hypodermic injections at intervals varying from one to two weeks, proves applicable to other cases—which I see no reason to doubt, when a proper diagnosis is made—it is far preferable to the continuous ingestion and topical application of various medicinal remedies. I myself believe that when all of the specific pollens to which the individual is susceptible can be ascertained, this method of treatment offers the probability of relief and the possibility of a cure. If one can determine from the history of a patient, or from a botanical survey of his home surroundings the offending plants, an extract for both diagnostic and therapeutic use could be prepared.

I am now administering the spring pollen extract to a patient troubled with a rash apparently identical with that in the case reported, though milder, and after the first injection, she states that she has experienced decided relief. In all, she has received four injections, and since the last—now four days ago—the eruption has entirely disappeared, not returning even after perspiring, when the eruption would formerly always reappear. The size of the last dose was 10 c.c., representing 0.2 mg. of pollen protein-nitrogen, as she did not respond so readily to doses of 0.1, 0.05 and 0.02 mg. No results had been achieved by the

previous administration of the fall extract in this case. This patient informs me that she has noticed that her skin is very sensitive to contact with tomato leaves, but as yet I have not applied the extract of this plant for diagnosis. She was, however, by the intradermic test susceptible to orchard grass, but was not susceptible to other spring and fall pollens.

The only negative phase I have observed after pollen extract injections was a slight headache.

ACQUIRED IMMUNITY TO INFLUENZA

AS INDICATED BY A RECURRENT EPIDEMIC
IN AN INSTITUTION

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During the early part of November, 1918, there occurred an epidemic of influenza in the State Training School for Girls at Mitchellville, Iowa. At this time seventy-six of the girls had the disease. The second epidemic occurred in January.

The State Training School for Girls has approximately 180 students. They are housed in six cottages, about thirty girls residing in each cottage. By strict isolation, the epidemic was limited entirely to Cottages 2, 3 and 4. This epidemic subsided about November 15. From this time until January 6, the institution was entirely free from influenza. During this time there was in force rigid quarantine against the outside world.

It has for years been the practice of the institution to isolate in a detention hospital for two weeks all new arrivals. This practice has given the institution an enviable record so far as acute, infectious diseases are concerned.

One of the teachers in the institution was permitted to spend the week end of January 5-6 away from the institution. On the 6th and 7th she complained of feeling ill; she did not, however, go to bed, but continued her routine duties as teacher in the training school. This teacher lived in Cottage 6.

January 8, four students who were housed in Cottage 6 were sent from school sick. They had opportunity before being sent from school to disseminate the infectious agent to all students who attended school on that date. All the cottages of the institution were represented in the school in which these cases developed. Therefore all the families were theoretically equally exposed to the infectious agent.

Additional cases developed very quickly. January 10, twenty-nine cases were reported; the 11th, sixteen cases; the 12th, twelve cases; the 13th, six cases; the 14th, seven cases; the 15th, three cases; the 16th, three cases; the 19th, one case; the 23d, one case; total, eighty-two cases.

The distribution according to families was: Family 1, 16 cases; Family 2, 3; Family 3, none; Family 4, 2; Family 5, 33; Family 6, 28.

We see, therefore, that the epidemic is practically limited to the cottages that had escaped the ravages.

of the November epidemic. Of those girls who developed the disease in January, seven were recent arrivals, and two failed to develop the disease in November, although presumably exposed to the infectious agent at that time.

In the January epidemic there were few complications. Convalescence was much more rapid than in the first epidemic. Two patients developed otitis media. One of these had severe laryngitis. There were no fatalities following the January epidemic, whereas there were two deaths among the seventy-six cases that occurred in November.

The outstanding feature of the epidemic was the fact that those who had recovered from influenza were immune from a second attack of the disease. This evidence tends to prove that immunity to influenza can be acquired by having an attack of the disease, and that the duration of this acquired immunity is at least two months.

The students in this institution were all between 12 and 18 years of age. The fact that 158 out of 180 of these young people developed the disease also suggests that there is a small percentage, approximately 12 per cent., who are naturally immune to influenza.

THE ULTRAVIOLET RAYS IN THE TREATMENT OF CHILBLAIN

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Chilblain, or erythema pernio, is a form of erythema that appears in the late fall and winter months in individuals with a poor peripheral circulation and a disturbed vasomotor mechanism. In the mild cases there is merely a slight dusky or dark red discoloration of the regions with feeble peripheral circulation, as the tip of the nose, the lobes of the ears, the fingers, the toes, the heels and the cheeks. Usually, with the erythema, there is an exudation into the tissues resulting in the formation of papules, tubercles and plaques. In the severe cases, vesicles and bullae develop on top of the solid lesions. The vesicles, when ruptured or torn, give rise to erosions, ulcers and rarely to sloughing areas.

In the mildest cases there is no subjective symptom except discoloration of the skin. In the moderate and the severe cases the patients complain of mild, moderate or intense itching, burning or pain, and tenderness on pressure. The condition tends to run a prolonged course and is often rebellious to treatment. It persists at times for months until the beginning of warm weather. Then it disappears spontaneously, but with the coming of another winter it tends to return.

REPORT OF CASES

The winter of 1917-1918 was unusually severe. The number of patients with chilblain applying for treatment was consequently more numerous than in former years. The types of cases were often severe, persistent and obstinate in nature.

In one case which was particularly obstinate, after failing to obtain relief by the routine methods of treatment, I was led to try the ultraviolet rays as a therapeutic measure. The result was so gratifying that the rays were administered in two other cases

with corresponding good results. It is therefore deemed justifiable to report these cases and to suggest this method of treatment for chilblain.

CASE 1.—A. B., a man, aged 25 years, a native of the United States, contracted syphilis in June, 1915, and had received since then regular antisyphilitic treatment. Because of his occupation he was constantly exposed to cold drafts and to frequent changes of atmospheric temperature. In November, 1917, he was attacked by severe chilblain. There developed rapidly on all the toes, the heels of both feet and the external surfaces of the feet, numerous purplish-red papules, tubercles and plaques, from the size of a small pea up to the size of a silver half dollar, surmounted by vesicles and erosions. Treatment failed to relieve or prevent the development of lesions, and the patient was compelled to stop work. One afternoon, each affected area was exposed for ten minutes to the ultraviolet rays emanating from a quartz, mercury vapor lamp, the quartz filter being placed at a distance of 10 inches from the skin. The next morning the pain and itching had ceased, and erosions showed a tendency to heal. At the end of a week all that remained of the condition was a slight, dusky discoloration. There has been no recurrence this winter.

CASE 2.—During the first week of December, 1917, N. R., a woman, aged 24, a clerk by occupation and a native of the United States, was referred by Dr. S. B. for treatment of dandruff and loss of hair from the scalp. Examination revealed besides the pityriasis steatodes of the scalp, evidence of anemia, hyperthyroidism, and a moderate form of erythema pernio of the dorsum of the fingers. The patient stated that chilblain had been present for two months and that she had had mild attacks during the two preceding winters. Her hands were exposed to the ultraviolet rays while the scalp was receiving treatment from the Heraeus sun lamp. After two ten-minute exposures, at a distance of 20 inches, administered at a weekly interval, there was a complete disappearance of the lesions.

CASE 3.—B. S., born in Russia, an unmarried woman, aged 22, referred for treatment by Dr. M. S., complained of a painful bluish-red eruption of the fingers of both hands, which she considered an infection subsequent to manicuring of the nails. The patient was well nourished but suffered from a poor vasomotor mechanism, as revealed by a marked dermatographia, excessive flushing, hyperhidrosis and a second degree erythema pernio of the dorsum of the fingers. The treatment advised in this case included a nonirritating diet, catharsis, iron and arsenic internally, massage of the fingers, and exposures to ultraviolet rays. Three exposures, each of ten minutes' duration and at weekly intervals, were administered. The pain was alleviated after the first séance, and the lesions disappeared after the third treatment.

COMMENT

The invisible ultraviolet and infra-red rays are to the right and left of the spectrum. The red and infra-red rays are heat producing and penetrating. The violet and ultraviolet rays produce a minimum of heat but possess marked chemical properties, are readily absorbed and are of value for therapeutic purposes. It has been shown that the therapeutic value of the sun is derived from the presence of the ultraviolet rays. Chilblain is essentially an erythema occurring in those with poor peripheral circulation and disturbed vasomotor tone. The good results obtained with the ultraviolet rays in this disease are probably due to the direct effect of the rays on the peripheral vessels and blood stream. It is therefore suggested that the rays be employed in the treatment of the condition, but not to the exclusion of other local and general measures. They are not only of value in removing the lesions, but if used sufficiently early in those who have had previous attacks they may prevent a recurrence.

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