readily drawn up as in normal circumstances, and the nasopharynx may not be so completely shut off from the mouth as is necessary for the production of a clear singing voice. In some cases compensation is afforded by a sphincter-like action of the constrictor fibres, or even by a pad of adenoid tissue or a prominence of the atlas vertebra. The condition is fairly uncommon, but it should be kept in mind when we contemplate clearing operations in those parts.

The removal of tonsils, even in singers, is sometimes obligatory, and always accompanied by some anxiety. I feel, however, that the anxiety is considerably diminished if we realize to what extent the possible disadvantages may be removed by the intelligent use of the exercises here described.

TREATMENT OF LUPUS ERYTHEMATOSUS WITH GOLD COMPOUNDS.

BY

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NOBODY who has attempted to treat a case of subacute lupus erythematosus with the methods available until quite recently can have failed to be impressed with the difficulty of such an undertaking. Prolonged rest in bed still holds the field as the most nearly infallible procedure, but it is obviously often impossible to persuade patients to take this drastic step.

In krysolgan I consider we have a drug which is almost specific and at the same time appears to be, with ordinary care, not dangerous. I record briefly my results in nine cases which have been treated since November, 1927, in the hope that they will encourage some of those who are still waiting to see which way this new therapeutic cat will jump. I have treated only moderately severe cases, for the reason that I did not care to pump foreign material into the general circulation of patients who were not overwhelmingly anxious to be cured, or in whom the disease was quiescent and of insignificant extent. Most of these had had previous treatment with quinine, rest, and various local applications, and some had already been treated for a short time with sanocrysin.

I may say at once that I have had no success with sanocrysin, possibly because I did not use the correct dosage. I started with 50 mg. and increased up to 250 mg. Whitehouse and Bechet,¹ who recorded four complete cures and eleven greatly improved out of thirty cases, regarded 100 mg. as a "rather large dose." I also understand that 1 gram is not considered unreasonable for the first dose in a case of active pulmonary tuberculosis. One patient received two injections of sanocrysin for a recent relapse of an old-standing lupus erythematosus, an extensive erythema centrifugum type; on her third visit, coinciding with a failure of the supply of the drug, I gave her 0.3 gram of novarsenobillon, to avoid disappointment, as she had come a long way from the country. Severe general and local reaction took place and was followed by the complete disappearance of the eruption, which has not recurred. I do not claim this case as a triumph for sanocrysin, and I mention it with the suggestion implied that intravenous injections of anything at all may cure certain cases of anything at all of an allergic nature, as is probably lupus erythematosus. However, I feel convinced in my own mind that I could not have done one-quarter as well in the following cases with any other form of treatment known to me.

I have used krysolgan in the following doses:

First Course: 0.075, 0.15, 0.375, 0.75, 0.75, 1, 1, and 1.25 grains.

Second Course: 0.75, 0.75, 1, 1, 1.5, 1.5, 1.5, and 2 grains.

Third Course: Four injections only of 1.5 grains each.

No unpleasant accidents occurred in a total of about 120 injections. The urine of each patient was examined three or four times, but albumin was never found, which is contrary to the experience of Nicolas and Schmitzer,² who found that albuminuria was constant after a total dose per course of 7 grains. The doses were given at weekly intervals with a four weeks' rest between courses.

For purposes of description I classify my cases into three groups according to the depth of involvement; one can guess roughly from the appearance of a patch what kind of a scar it will leave. Group I, erythema centrifugum type, leaving little or no scar. Group II, intermediate variety, leaving thin white supple scar. Group III, lupus erythemateux fixe, leaving disfiguring or warty scars.

Case 1.—A stableman, aged 43, with multiple patches of Type II; treated since June, 1926, with quinine; septic foci treated and various local remedies. He steadily became worse. Three injections of novarsenobillon produced no improvement; the same result followed twelve injections of sanocrysin. Krysolgan was started on February 24th, 1928; there was slight improvement only after one course, but no new lesions occurred. He was made much worse again by the untimely application of carbon dioxide snow. After a second course of krysolgan there was considerable improvement, but there were still about half the original number of lesions, and still active. There was no further progress after a third course; the final result being that the patient's condition was only slightly improved.

Case 2.—A restaurateur, aged 59; tip of nose affected—Type II; she also had chilblains. The local application of carbon dioxide snow, after excluding oral sepsis, and four weeks' quinine treatment produced only temporary cure; she relapsed after exposure to the sun three weeks later. The lesion completely disappeared after the last injection of the first course of krysolgan. The chilblains were successfully treated with ext. thyroideum siccum, 1 grain twice daily. Still healed a month later, after half a second course had been given. Condition on June 8th, 1928—cured.

Case 3.—An unmarried woman, aged 28; relapse in thick white scar of previous lesion on the left cheek, also patches of Type I on neck and fingers. She showed slight improvement after one course of sanocrysin, but relapsed in a fortnight. She was nearly well after four injections of krysolgan, but two full courses were given before the patch on the cheek was completely healed. She was given a third course. Condition on June 8th, 1928—cured.

Case 4.—A single woman, aged 38, with active lupus erythematosus of Type III occupying the whole of the left side of the nose and part of the right batwing area. After the first course of krysolgan the whole lesion was white and showed no sign of activity. She returned after a fortnight with complete relapse, having been exposed to the sun. After waiting another fortnight she began a second course. The lesion was completely healed again after the third injection. She was still under treatment on August 30th, but appeared to be cured.

Case 5.—A nurse, aged 39, with extensive lesions of face and neck—Type I. After the first injection of krysolgan (0.25 grain) the eruption was only faintly visible. At the end of the first course only faint white patches of atrophy were to be seen. Four weeks later she was given a third course. Condition on July 30th, 1928—cured.

Case 6.—A married woman, aged 28, first seen on December 14th, 1926, with Type III lesions of tip of nose and both alae. These completely disappeared for eighteen months after rest in bed with quinine for ten weeks. After four injections of krysolgan she was much worse; it was therefore discontinued. There was no improvement after a course of sanocrysin. The lesion disappeared for two months after treatment with carbon dioxide snow, but relapsed again, and the disease is now extending. Result of treatment: no improvement; ? worse.

Case 7.—This patient, aged 71, edentulous, had extensive asymmetrical scarring and patches of alopecia with active lupus erythematosus of Type III at the edges of some of them. Patient complained of itching and a burning sensation. There had been no previous treatment. After one course of krysolgan no improvement was apparent, but relief of symptoms. A second course was given at the patient's request, and great improvement followed. A third course was given; there are now no signs of activity, and the scars seem to be thinner and more supple. Condition on July 20th, 1928—cured.

Case 8.—Patient, aged 58, was first seen on June 30th, 1926, with ulcerated, readily bleeding Type III lesions covering the whole of the nose and the left batwing area; there was also a patch on the back of the left hand. Cure for eleven months followed treatment with carbon dioxide snow and quinine. Patient returned on March 6th, 1928, with relapse on a small part of the original area. Removal of septic teeth, the administration of quinine, and further applications of carbon dioxide snow failed to bring relief. Slight improvement followed a first course of krysolgan, which was not, however, maintained through a six weeks' holiday. The condition was better after the second injection of the second course, but there was no further improvement at the end of the course. Condition on August 30th, 1928—very slight improvement. October 12th, after third course—cured.

Case 9.—A single woman, aged 38, with extensive lesions on the neck (Type I) and on the hands and feet (Type II). She had had relapses and spontaneous recoveries for five years. A severe attack in December, 1927, completely cleared up after treatment with krysolgan and rest in bed. She relapsed again in April, 1928. Krysolgan was recommenced in May. There was no improvement after doses of 0.375, 0.75, and 1 grain. She went away for a holiday, and returned complaining of severe pains in the back and thighs, which had followed shortly after the third injection. No organic basis could be found for these symptoms, but krysolgan was discontinued and the patient left the district. There was no improvement of the lupus erythematosus.

It may well be urged that mine is a very small series of cases, and that they have not been given nearly enough time in which to relapse, nevertheless any small success in the treatment of this disfiguring condition is acceptable to most of us, and if others are encouraged by this note to use the drug and to record their results its object will not have been missed.

REFERENCES.

- ¹ Whitehouse and Bechet: *Arch. Derm. and Syph.*, November, 1927.
² Nicolas and Schmitzer: *Rev. Franç. de Derm. et de Vén.*, January, 1928.

THE DICK TEST IN SCARLET FEVER.

BY

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It has long been recognized that streptococci have some relationship to scarlet fever, but until the work of the Dicks no convincing evidence that the streptococcus was the primary etiological factor had been adduced. Their discovery, too, of a soluble exotoxin, by which clinical scarlet fever can be produced, and which can be used as a test of susceptibility to that disease, marks an epoch in the history of our knowledge of the disease.

The present investigation is concerned with the use of the Dick test in scarlet fever patients (a) on admission to hospital (273 cases), (b) at weekly intervals during residence in hospital (239 cases), (c) in a series of cases dismissed from hospital some time previously (159 cases). The material used was the "Wellcome" brand diluted scarlet fever toxin (test) and heated scarlet fever toxin (control). The test consists of an intradermal injection of 0.2 c.cm. of a 1 in 1,000 dilution of filtrate obtained from a broth culture of the *Streptococcus scarlatinae*. In the interpretation of the tests pseudo and positive reactions were counted as positive, and pseudo and negative reactions as negative. This is in accordance with the custom observed by other investigators.

In group (b) 152 cases were treated with anti-scarlatinal serum, and in group (c) 76 cases had been so treated. The serum used was Burroughs Wellcome and Company's anti-scarlatinal serum unconcentrated. In over 85 per cent. of these cases this did not exceed 10 c.cm. in amount.

DICK TESTS ON ADMISSION.

TABLE I.—The Dick Test in 273 Cases of Scarlet Fever on Admission to Hospital.

Day of Disease.	Total Cases.	Percentage Positive.
First	15	60.0
Second	69	73.5
Third	64	72.3
Fourth	53	68.0
Fifth	36	58.4
Sixth	11	72.7
Seventh to fourteenth	16	58.0
Fourteenth onwards	9	45.5

This table shows that, with the exception of the first day, there is a large percentage positive early in the disease, and that this percentage declines steadily until the sixth day, after which the numbers are too small to allow of trustworthy conclusions.

These figures compare favourably with those of Ker and his co-workers, who found 73.9 per cent. of positives during the first three days, and 68.6 per cent. in the period three to six days. Zingher obtained 98 per cent. positive during the first five days. In his paper on the subject Ker noted the disparity between his results and those of Zingher; he attributed this disparity to various causes, but especially to the greater dilution of toxin which he himself used. Lees, in an outbreak of scarlet fever in a school in Minnesota, found that fifteen out of forty-eight boys who developed scarlet fever gave a negative Dick test at the onset of symptoms. He used ten times the strength of toxin to re-test contacts, and did not obtain more positive reactions; he came to the conclusion that in this particular outbreak he was dealing with more than one strain of toxin. Various authors have reported cases of a patient being Dick-negative before developing scarlet fever. Robertson reports a case occurring in an epidemic. Nobel and Orel report one case seen by themselves and publish records of

another case. I have observed the case of a nurse in hospital who was twice found to be Dick-negative and yet developed a typical attack of scarlet fever. Lees suggests that in any epidemic it would be advisable to isolate the particular strain of organism causing the disease before testing the contacts.

From the foregoing it will be seen that more accurate standardization of the toxin is necessary before complete reliability can be placed on results obtained from its use.

WEEKLY DICK TESTS.

This series of 239 cases is divided into two groups—namely, (a) 87 cases not treated with anti-scarlatinal serum; (b) 152 cases treated with anti-scarlatinal serum immediately after their first Dick test.

TABLE II.—Weekly Dick Tests in Patients Not Treated by Serum.

Week of Illness.	Total Number.	Percentage Positive.
First	79	69.6
Second	82	39.02
Third	84	28.57
Fourth	87	24.13
Fifth	85	27.06
Sixth	66	21.21
Seventh	42	19.05

This table shows that there is a decline in the number of positive reactions from the first week onwards, and that this decline is most marked between the first and second weeks. There is a slight and temporary increase in the number of positives during the fifth week.

These figures indicate a steady increase in immunity. A detailed analysis does not prove this for the individual. There are wide variations. Some patients rapidly become negative and remain so. Others are positive or negative on admission and remain so during their residence in hospital. Lastly, there is a group of patients, 13 in number, who are positive on admission, become negative, and subsequently become positive again. Zingher has stated that immunity to scarlet fever is mainly antitoxic in character. Little is known of the nature of antitoxin formation, but these facts would seem to indicate that individuals vary greatly in this capacity. This has been demonstrated by Lindsay and his co-workers, while Henry and Lewis have shown that the amount of antitoxin present in the blood of convalescent scarlet fever patients is considerably greater than in normal "resistant" controls.

TABLE III.—Weekly Dick Tests in Patients Treated by Serum.

Week of Disease.	Total Number.	Percentage Positive.
First	144	69.4
Second	151	11.92
Third	152	15.78
Fourth	152	16.44
Fifth	140	28.57
Sixth	106	32.02
Seventh	62	40.32

The two striking features of this table are the large decrease in the number of positive reactions from the first to the second week, and the gradual increase in the number of positives from the second week onwards. Both of these are attributable to the administration of anti-scarlatinal serum. The serum confers, in the majority of cases, an immediate passive immunity, which passes off to be replaced by the acquired immunity. Trask has shown that the amount of circulating toxin early in scarlet fever varies greatly in similar cases. It is probable that in some cases the amount of antitoxin given in the serum was completely neutralized by the circulating toxin. Since the percentage of positive reactions in the later weeks is greater in the cases treated by serum than in those not treated by serum, it may safely be assumed that the administration of serum at least delays the process of natural antitoxin formation.

OLD CASES.

It is well known that in the majority of cases one attack of scarlet fever protects the individual against a subsequent attack. It was determined to investigate the Dick reaction in patients who had been in hospital at some previous date.

1. Eighty-three patients who had had scarlet fever five years previously were Dick-tested. These cases had not been treated with anti-scarlatinal serum.