of Victor Bonney (sometimes associated with the name of Sturmdorf), the only precaution necessary being firm ligation of the lateral vessels, as this operation can cause really dangerous post-operative bleeding. An excellent modification is described by Te Linde¹⁰ for amputation at a lower level, and is very useful in patients who might possibly become pregnant again. In most of my cases the perineum also has required repair, which is done at the same time.

In elderly patients, especially if there is reason to suspect any uterine complications, such as the so-called "fibrosis uteri," the operation of election is a panhysterectomy. It is most disappointing to perform an amputation of the cervix and have the patient returned in six or eight months with intractable uterine haemorrhage. In many patients of this class the perineum is torn and the pelvic floor has yielded, so that there is a very considerable degree of prolapse. For these there is no operation so good as that of vaginal hysterectomy, with repair of the pelvic floor and perineum. At the Bristol Royal Infirmary we use the technique of G. V. Ward,¹¹ which is a modification of the Mayo operation. We have had no trouble with shock or bleeding, and the results have been surprisingly good, the perineum and vagina becoming anatomically reconstructed. I think that the operation of vaginal hysterectomy has been much neglected of recent years, and my own experience is in complete accord with that of Professor Green-Armytage described in his recent paper.³ I would, however, urge the complete repair of the pelvic outlet at the same time. The combined operation

causes little or no shock, and is easily performed, while in fat patients it is enormously superior in every way to an abdominal hysterectomy with a separate repair operation.

If true ulceration is found upon the cervix it is essential to remove a portion of its growing edge for sectioning. Whilst carcinoma is much the most likely complication, the possibility of tubercle or gumma must not be overlooked, and in all gonorrhoeal cases it should be part of the routine treatment to take a Wassermann test. It is very surprising how many patients with chronic gonorrhoea are also syphilitic. In these cases I defer operation till the patient has had twelve months' routine antisyphilitic treatment.

Finally, as prevention is better than cure, I would again urge the importance of inspecting the cervix after delivery and suturing all considerable tears. It is surprisingly easy to press down the fundus till the cervix appears at the outlet, and then it can be quite easily inspected with the labia separated by two fingers. I feel sure that if this procedure were taught and practised more there would be a great decrease in the incidence of chronic endocervicitis, and therefore of carcinoma of the cervix.

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THE TREATMENT OF INFLUENZA WITH S.U.P. 36.

BY

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THE drug S.U.P. 36 is a symmetrical urea, and its full chemical name is para-benzoyl-para-amino-benzoyl-aminonaphthol 3:6 sodium sulphonate.

During the influenza epidemic in the spring of the present year I endeavoured to make a systematic test of the advantages of treating influenza by intramuscular injections of this drug. Every case of influenza seen, in which the disease had not existed for more than forty-eight hours, was used for my records, alternate cases being treated by injection of S.U.P. 36 and the remaining cases orally by drugs such as salicylates, aspirin, and influenza mixtures. Cases not first seen until more than forty-eight hours after the onset of the disease were not taken into account, as it was not expected that the injection of S.U.P. 36 could be of much use after the acute phase had passed.

The method employed in the injected cases was to inject as early as possible an initial dose of 0.5 c.cm. (representing 0.005 gram). This was followed by an injection of 0.75 c.cm. on the fourth day following the initial dose if the case had not cleared up in the meantime. In some cases the initial dose given was 0.75 c.cm. The injections were usually made into the gluteus medius muscle, and only very trivial complaints of pain were ever received. Occasionally the injections were made into the deltoid muscles, where in one or two cases rather more pain was suffered. The only drugs given orally to any of the patients treated with S.U.P. 36 were calomel, 2 to 5 grains, where indicated—that is, in roughly half the injected patients—and the use of a simple expectorant mixture where necessary (in only about 10 per cent. of the injected patients). In no other injected patients, excepting the two noted with cardiac trouble, were any other drugs given.

At the end of a fortnight it became quite evident to me that the injected patients had the advantage over the non-injected ones, and thereafter I treated by injection all patients who would submit to the treatment.

The epidemic of influenza prevailing was of the somewhat mild type. The onset was very acute, with a sudden rise of temperature to 101° to 103°, with pain in the limbs and back, fairly severe headache, and in many cases a particularly troublesome cough with little expectoration.

Pulmonary complications were rare and the mortality was low, no death being recorded among the series of cases investigated.

It was found to be difficult in practice to collect data which would be of value for tabulation in a comparative manner between injected and non-injected cases, but, taking five headings as the main symptoms in the disease, comparison may be drawn in the following manner:

	Control Cases.	Injected Cases.
Average duration of pyrexia in days ...	2.8	1.4
Average duration of headache in days ...	2.1	1.0
Average duration of muscular pain in days ...	3.4	1.3
Average number of days in bed ...	5.7	2.8
Average number of days off work ...	16.0	6.9

At first sight it may appear that these comparisons are subject to many fallacies and therefore not of much value, but, taking into consideration the following points, I think, though the numbers are small, that the five comparisons drawn give a fairly accurate idea of the progress of the attack.

The average age in each group was: Controls 33.9 years; injected cases 34.8 years.

The sexes of the two groups were: Controls 40 per cent. males; injected 57 per cent. males.

The class of patient treated in each group was similar.

No attempt was made to hurry the injected patients out of bed or back to work, and in many cases they were purposely kept in bed some time after their temperature was normal.

From a comparison of these figures it will be seen that in the injected group the duration of pyrexia and headache is halved, while the duration of muscular pain is even more than halved. The time in bed is also halved, but this is perhaps the least reliable of the figures for comparison. The figure for the average time off work may, I think, be taken as reliable, and is again seen to be slightly more than halved in the injected cases.

A careful study of the injected cases reveals the fact that the earlier the injection is given the greater is the benefit derived, and this was even more obvious from the clinical study of the cases themselves. As a matter of interest, several patients seen too late to be included in the comparative records were given their initial dose on the third, fourth, and in one instance on the fifth day of the disease, and in none of these cases was any benefit noticed.

from the injection. This fact is noteworthy, as it may be of importance in determining how the beneficial effect of the injection of such drugs as S.U.P. 36 is brought about, and is a point which warrants further investigation. One very interesting clinical phenomenon observed after injection was the almost entire absence of perspiration during the period of the abatement of pyrexia. So noticeable was this that in many cases my attention was drawn to the dryness of the patient's skin by other members of the family, and in several cases of pneumonia which I have treated with S.U.P. 36 the same absence of perspiration has been noticed by nurses in attendance.

The following clinical notes were taken on the individual cases.

Case 1a.—Mr. W., aged 26. Typical influenza. Temperature 102°. 0.5 c.cm. S.U.P. 36 injected into the gluteus medius muscle. Next day the temperature was normal, but patient still felt poorly. On the third day patient got up, feeling better, and made an uninterrupted recovery, returning to work on the seventh day. In this case no second injection was necessary.

Case 2a.—Mr. J. A. S., aged 19. Typical influenza. Temperature 101°. On February 22nd 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius. Twenty-four hours later the temperature was normal, but some bronchial catarrh was present and patient was kept in bed for three days. He returned to work completely recovered in fourteen days.

Case 3a.—Mr. L., aged 40. Typical influenza. Temperature 101.6°. Headache very severe, muscular pains slight. 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius. Twenty-four hours later the temperature was normal, the headache and muscular pains having passed away within twelve hours from the injection. Patient was in bed for two days. Complete recovery and return to work on the sixth day.

Case 4a.—Mr. J., aged 35. Typical influenza. This patient says that he "always has 'flu' whenever it is about," and I have previously treated him for two rather severe attacks of influenza during the past three years. Patient on this occasion was first seen with a temperature of 103°, sweating profusely, headache and muscular pains very severe. As he had been dosed with quinine by his wife no injection was made on this day. The next day 0.75 c.cm. S.U.P. 36 was injected into the gluteus medius, the temperature at this time being still 102° and the pains and general condition the same as on the previous day. During the next twenty-four hours improvement was most marked and the temperature became normal, the patient getting up of his own accord twenty-four hours after the injection. He resumed his work, completely recovered, on the sixth day. Three points are of interest: (1) The condition was completely stationary for twenty-four hours before the injection. (2) The profuse sweating ceased almost immediately after the injection was made. (3) The patient is particularly subject to influenza, and is convinced that he has never before recovered in anything like so short a time.

Case 5a.—Mr. R., aged 24. Typical influenza. Temperature 102.6°; muscular pains very severe, and severe headache. 0.5 c.cm. S.U.P. 36 injected into gluteus medius. Twenty-four hours later the temperature was normal, the headache had been relieved within twelve hours, and the muscular pains within twenty-four hours. Patient was kept in bed for three days, and recovery was complete in seven days.

Case 6a.—Mrs. S., aged 29. Typical influenza. Temperature 101°. 0.5 c.cm. S.U.P. 36 injected into gluteus medius. Twenty-four hours later temperature still 101°. The next day the temperature was normal, but patient still felt ill and was given a second injection of 0.75 c.cm. of S.U.P. 36. The following day the patient got up, and she returned to work recovered on the ninth day.

Case 7a.—Mrs. F., aged 27. Typical influenza. Temperature 102°, with exceptionally severe muscular pain and severe headache. 0.5 c.cm. S.U.P. 36 injected into deltoid muscle. Twenty-four hours later the temperature was normal; the muscle pain and headache had both disappeared within twelve hours of injection. Patient was in bed only two days and returned to work on the fourth day. She had complained of pain in the injected arm lasting twenty-four hours.

Case 8a.—Mrs. M., aged 32. Typical influenza. Temperature 102°. On February 25th 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius; twenty-four hours later the temperature was 100.6°. On February 27th the temperature was normal and the patient feeling quite well, but the next day slight tonsillitis developed, and on March 1st an injection of 0.75 c.cm. was given. The patient was again seen on the following day, when all the symptoms had cleared up, the attack of tonsillitis being apparently aborted. Return to work was made ten days from onset.

Case 9a.—Mrs. P., aged 38. Typical onset of influenza. Seen in the very early stages with a temperature of 101.6°, headache, and severe muscular pain, all of only a few hours' standing. At 11 a.m. 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius. Almost complete relief of both headache and muscular pain was obtained by 11 p.m. the same day, at which time the temperature was still only 101°. Four days later a second injection of 0.75 c.cm. was given; the next day the patient was quite well and doing her work. An interesting point in this case is that prior to the attack of influenza the patient had suffered from chronic nasal catarrh for some weeks. This completely cleared up following the injections, and there has been no recurrence up to the present date—July 9th.

Case 10a.—Mr. S. C., aged 46. Typical influenza. 0.5 c.cm. S.U.P. 36 injected into gluteus muscle. Two days later the temperature still remained high, and on the fourth day a second injection of 0.75 c.cm. was given. The patient was in bed five days and off work twelve days.

Case 11a.—Mr. B. C., aged 57. Typical influenza. Temperature 102.6°. On February 26th 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius. This patient was not seen the following day, but on February 28th the temperature was normal. The patient was kept in bed for four days, a second injection of 0.75 being given on the fourth day. He resumed work, recovered, on the fourteenth day.

Case 12a.—Mrs. L. S., aged 35. Typical influenza. Temperature 102°; muscular pains and headache both severe. 0.5 c.cm. S.U.P. 36 injected into gluteus medius. Twenty-four hours later the temperature was normal and pain and headache had both disappeared. Patient was in bed three days, and had completely recovered in six days.

Case 13a.—Baby R., aged 3 (boy). Typical influenza (infection from other members of the household). The child was seen at 7.30 p.m., and was decidedly ill with a temperature of 104.6° and violent delirium. (There was no constipation or gastric disturbance to account for this.) 0.75 c.cm. S.U.P. 36 was injected into the gluteus at 7.30 p.m. The child had settled down by midnight and had a good night. At 10 o'clock next morning the temperature was 100°. No other treatment whatever was given in this case, and no further injection was given. The child was kept in its cot for four days, and was completely recovered by the fifth day.

Case 14a.—Mrs. J., aged 36. Typical influenza. Temperature 102°; muscular pains very severe. 0.5 c.cm. S.U.P. 36 injected into gluteus muscle. Twelve hours later the temperature was normal and all muscular pain had disappeared. The patient was kept in bed for two days, and returned to work recovered in six days.

Case 15a.—Mrs. O., aged 24. Severe case of typical influenza. Temperature 103°. 0.5 c.cm. S.U.P. 36 injected into gluteus medius. Twenty-four hours later the temperature was normal and all other symptoms had disappeared, but the patient complained of feeling very weak and was kept in bed for five days, 0.75 c.cm. being injected on the fourth day. Complete recovery and return to work on the tenth day.

Case 16a.—Mrs. H., aged 35. Very early case of typical influenza. Infection from other members of the household, and on the first signs patient went to bed. Temperature was then 100° and pain was complained of, especially at the back of the neck. 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius. Next day the temperature was normal and all pain gone. The patient was up and resumed her work the following day. No further injection was given.

Case 17a.—Mr. H., aged 40. Influenza with tonsillitis. Temperature 102.6°. On February 27th 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius. On March 1st the patient was very much better, and two days later the temperature was normal and patient got up. On March 5th he had quite recovered. In this case pain was complained of after the injection and a second injection was refused. Experience had now shown me that this type of case does better if the initial dose injected is 0.75 c.cm.

Case 18a.—Miss I. B., aged 27. Typical influenza. This patient is a weakly and a neurotic type of girl. On February 27th the temperature was 102°, when 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius. Twenty-four hours later the temperature was 100.6°, with marked improvement generally. On March 3rd patient got up feeling quite well. Rather long convalescence until March 23rd, when she returned to her work.

Case 19a.—Mrs. W., aged 30. Early case of typical influenza. Patient sent to bed with temperature of 101°, and 0.5 c.cm. S.U.P. 36 injected into gluteus medius. All the symptoms quickly subsided; the patient was up forty-eight hours after the injection, and resumed her housework on the third day.

Case 20a.—Mrs. M., aged 25. Severe case of typical influenza. Temperature 103°, with very severe headache, troublesome cough, and the patient felt very ill. On March 1st, when first seen, 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius. On the following day the temperature was 101° and the patient felt much better. The next day the temperature had fallen to normal. On March 5th the temperature was still normal, but patient complained of muscular pain, so a second injection of 0.75 c.cm. was given. Two days later the patient got up. On March 10th she was quite well.

Case 21a.—Mr. P., aged 34. Early case of typical influenza. Temperature 101.6° on March 3rd, when 0.75 c.cm. S.U.P. 36 was injected into the gluteus medius. In twenty-four hours the temperature was normal and all pain had disappeared. On March 6th the patient had quite recovered. He returned to work on the seventh day.

Case 22a.—Miss P., aged 29. Early case of typical influenza. On March 5th, when the temperature was 101°, 0.5 c.cm. S.U.P. 36 was injected into the deltoid muscle. On March 7th the temperature was normal and the patient got up. On March 9th a second injection of 0.75 c.cm. was given into the deltoid of the other arm. Patient resumed her work nine days from the onset. No complaint of pain in either arm was made.

Case 23a.—Mr. P., aged about 40. Typical influenza with tonsillitis. On March 5th 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius. Two days later there was marked improvement and the tonsillitis was clearing up. On March 9th a second injection of 0.75 c.cm. was given. The patient was fit for work on March 15th.

Case 24a.—Mr. W., aged about 26. Typical severe case of influenza. Temperature 104°, severe muscle pains, headache, and bronchial catarrh. On March 6th 0.75 c.cm. S.U.P. 36 was injected into the gluteus medius. Twenty-four hours later the temperature had fallen to normal, the headache had disappeared, but the muscular pains persisted. On March 8th the muscular pains had gone, and the patient got up of his own accord. The next day the patient felt so well that he went to his work for a short time, but in the evening another injection of 0.75 c.cm. was given. On the morning of the following day the patient again went to his work, and continued without interruption.

Case 25a.—Mr. H., aged 31. Typical influenza. Temperature 103°, muscular pains and headache both severe. 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius. Twenty-four hours after injection the temperature was normal, the headache relieved, and muscular pain less severe. The patient was kept in bed for four days, and a second injection of 0.75 c.cm. was given on the fourth day. Complete recovery followed, and he was able to return to work on the seventh day.

Case 26a.—Mr. M. H., aged about 45. Seen in the early stages of onset of influenza. 0.75 c.cm. S.U.P. 36 was injected into the muscle of the forearm at 11 a.m. The patient went to bed at noon the same day, and was up and at work feeling fit the next morning. No further injection was given, the attack having apparently been completely aborted.

Case 27a.—Mr. F., aged 35. Typical influenza of a severe type. Temperature 104°, with very severe pain in head and muscles. Cough and signs of bronchitis were present. 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius on March 5th—that is, the second day after onset of the symptoms. The next day little improvement was noticed, but the temperature was down to 101.4°. On March 7th pneumonia of the influenzal type developed and the patient was decidedly ill. The next day 0.75 c.cm. was injected. On March 9th the patient was much improved in every way, and the improvement continued without a further injection being necessary, the temperature falling by lysis and becoming normal on the seventh day from the onset of the pneumonia. Convalescence was uneventful.

Case 28a.—Mr. J., aged 40. Influenza and tonsillitis. On March 6th the temperature was 102°, and 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius. The next day the temperature had fallen to normal and there was marked improvement generally. On March 10th a second injection of 0.75 c.cm. was given, the patient getting up the following day. On March 14th the patient was quite well and attended the surgery, asking to return to work.

Case 29a.—Miss M. R., aged 19. Typical influenza. On March 6th 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius. The next day there was marked improvement with normal temperature. On March 9th the patient was not so well and the temperature had risen to 100.2°, so a second injection of 0.75 c.cm. was made into the gluteus medius. On March 11th the patient was up and feeling quite well. She returned to her work on the eighth day from onset, remarking that she had had influenza three times previously and had always been obliged to stay away from work for two to three weeks.

Case 30a.—Mrs. M. R., aged 49. Typical influenza. The second case in the same household as Case 29a. Immediately the first symptoms showed themselves, and when the temperature was 99.4° at 10 a.m. and pains in the back were complained of, 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius. All symptoms subsided in twelve hours, the attack apparently being completely aborted. No second injection was given.

Case 31a.—Mr. R., aged 50. Early case of typical influenza. Third case in the same household as Cases 29a and 30a. 0.5 c.cm. S.U.P. 36 was injected into the deltoid muscle on the first onset of symptoms. The attack appeared to be completely aborted, the patient only missing one day's work.

Case 32a.—Miss E. S., aged 53. This patient suffered from chronic bronchitis and chronic mitral endocarditis. Auricular fibrillation was present at the time of the onset of an attack of typical influenza, and the patient was obviously dangerously ill. 0.75 c.cm. S.U.P. 36 was injected into the gluteus medius, and this dose was repeated two days later. Massive doses of digitalis were given by the mouth for the treatment of the fibrillation, on the lines of Cole's treatment. The influenzal symptoms subsided rapidly, marked improvement being made in the first sixteen hours, and recovery was uneventful, the heart responding well to digitalis.

Case 33a.—Mr. M., aged 33. Typical influenza. Temperature 102°, muscle pains and headache both severe. 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius. Twelve hours later the headache and pain had disappeared, the temperature being normal twenty-four hours after injection. The patient was in bed three days, and had completely recovered in five days.

Case 34a.—Mr. B., aged 56. Influenza of the gastric type, with vomiting and diarrhoea. 0.75 c.cm. S.U.P. 36 was injected into the gluteus medius as the initial dose. Twenty-four hours later the temperature was normal, and vomiting and diarrhoea had ceased. The patient returned to his work eight days from the onset, having been in bed three days. This case is of interest as being the only case of the gastric type in the series, and no other medicine whatever was given, this not being one of the cases to receive calomel.

Case 35a.—Mr. J. H., aged 48. Influenza and tonsillitis. 0.5 c.cm. S.U.P. 36 injected into the gluteus medius. Temperature became normal by the third day, and on the fourth day a second injection

of 0.75 c.cm. was given. Patient got up on the fifth day and was off work for ten days from the onset. This is another instance of a patient who should have received 0.75 c.cm. as the initial dose.

Case 36a.—Miss E. M., aged 35. This patient has a bad chronic mitral lesion and was treated for auricular fibrillation two years ago, remaining on a small dose of digitalis ever since. She was seen on March 7th with typical symptoms of influenza, temperature 101°, and severe pains in back and limbs. 0.75 c.cm. S.U.P. 36 was injected into the gluteus medius as the initial dose, and all symptoms subsided and the temperature became normal within forty-eight hours. The patient was kept in bed for five days, and returned to work completely recovered in eight days from the onset.

Case 37a.—Mr. T., aged 43. Typical influenza; second attack this year. On March 9th the temperature was 102.6°. 0.75 c.cm. S.U.P. 36 was injected into the gluteus medius as the initial dose. The next day the temperature was still 102°. On March 11th the temperature was normal and all other symptoms had subsided. The patient was then feeling quite well and asking to get up. He returned to work on March 13th.

Case 38a.—Mrs. B., aged 49. Typical influenza, but pain in the back especially marked. On March 11th 0.5 c.cm. S.U.P. 36 was injected into the gluteus medius. On the following day very great improvement was noted. On March 14th 0.75 c.cm. was injected into the gluteus. Two days later the patient was quite well and returned to work. The severity of the pain in the back was of interest in this case, as the patient was told to report if there was any return of this pain. She did not do so, but I have since seen her, and she remarked voluntarily that, whereas in previous attacks of influenza she had always been troubled by pain in the back continuing after the attack, she had this time been quite free from pain.

Case 39a.—Miss N. D., aged 24, came to the surgery with early symptoms of influenza on March 15th, when the temperature was taken and found to be 100.2°. 0.5 c.cm. S.U.P. 36 was injected into the deltoid muscle, and she was sent home to bed, where she stayed all the next day. On March 17th she was feeling better, and attended at the surgery the next day quite well. She only complained of the arm being "a little stiff for twenty-four hours." No second injection was given.

Case 40a.—Miss E. S., aged 25. Typical influenza. Temperature 100°, headache severe, cough troublesome, and muscular pains. 0.5 c.cm. S.U.P. 36 injected into the deltoid muscle. The next day the temperature was normal and all symptoms with the exception of the cough had disappeared. Complete recovery in five days with no second injection.

Case 41a.—Mr. E. S., aged 35. Typical influenza. Temperature 101°. 0.5 c.cm. S.U.P. 36 injected into the gluteus medius. Next day the temperature was normal, but the patient was kept in bed. The day following the patient got up and went out, resuming his work on the fourth day after onset. No second injection was given.

Case 42a.—Myself. Early influenza. Felt symptoms of influenza coming on all day, and at 6 p.m. temperature was found to be 100.6°. At 7 p.m. I injected 0.75 c.cm. S.U.P. 36 into one of my thigh muscles as the initial dose and went to bed an hour later. Next morning my temperature was normal and I felt much better. Stayed in the house that day and resumed my work the following morning, forty hours after the injection, feeling perfectly well.

It is important to emphasize here that all the cases injected were definitely influenza, showing the clinical symptoms already described, and that no cases of "severe colds" were included. The injected cases, as a matter of fact, were mostly of a rather more severe nature than those not injected.

Case 9a is of special interest on account of the catarrh present having existed for some time prior to the onset of the influenza. My observations in this case led me to suspect that the injection of S.U.P. 36 might have influenced the catarrh apart from the acute condition, and that S.U.P. 36 might therefore hold out possibilities for the treatment of cases of purely chronic nasal catarrh. I have tried the treatment in several other cases, and the results so far are very encouraging.

Summary of Conclusions Arrived At.

1. That the injection of S.U.P. 36 should be made at the earliest possible moment when once symptoms point definitely to influenza.
2. That in the early uncomplicated case the initial dose should be 0.5 c.cm.
3. That in severe early cases, cases of more than twelve hours' standing, and cases presenting such complications as tonsillitis or bronchitis, the initial dose should be 0.75 c.cm.
4. That these doses need only be repeated on the fourth day after the initial dose if symptoms have persisted until that time, and that there is no advantage whatever in repeating the injection when symptoms have subsided.
5. That although the gluteus medius muscle is the site of choice, the injections can quite well be made in other muscles. This is a very much more important matter in

general practice than might be supposed, especially in view of the importance of making the injection "then and there" at the earliest possible moment.

6. That the early initial dose completely aborts the attack in nearly every case, and that therefore if the treatment be used in influenza epidemics on a wholesale scale and early enough it is the most valuable agent that we at present have discovered for combating these epidemics.

7. That treatment administered at later stages, providing that the attack has not existed for more than forty-eight hours, considerably shortens the duration of the disease.

8. That although my present series of cases is too small to show whether the liability to complications is reduced, I certainly think that this will be proved to be the case.

THE HINTON TEST FOR SYPHILIS.

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THE Hinton test for syphilis¹ has attracted so much attention, more especially in America, that a trial of its value appeared to be a subject of considerable interest. The test is essentially an agglutination reaction depending on the reaction between syphilitic serum and an antigen consisting of a mixture of glycerol, cholesterol, and extract of beef muscle; it is simple to perform, and, what is even more important, easy to read. A satisfactory antigen having been obtained, all that is necessary is to mix varying amounts of inactivated serum with a fixed amount of antigen and incubate for sixteen hours at 37° C. Reading is done with the naked eye, and results are recorded according to the agglutination of particles.

For the above purpose 500 serums were submitted to the Wassermann² and Hinton tests. They were mostly obtained from treated cases of syphilis, but a number from untreated cases of syphilis, and cases without syphilis were included. The following figures show how far the two tests agreed.

Absolute agreement	...	...	...	409	458 = 91.6%
Relative agreement	...	...	...	49	
Disagreement	...	...	...	42	
Total cases	...	...	...	500	

Of the 42 cases in which there was disagreement the Wassermann test appeared to be correct in 25 and the Hinton in 17. Of the 25 cases, in 18 of treated syphilis the Wassermann reaction was positive and the Hinton negative; in 3 cases of untreated syphilis the Wassermann reaction was positive and the Hinton negative; in 2 cases without syphilis the Wassermann reaction was negative and the Hinton strongly positive; in 2 cases without syphilis the Wassermann reaction was negative and the Hinton weakly positive. Of the 17 cases, in 15 of treated syphilis the Wassermann reaction was negative and the Hinton positive; in 2 cases of untreated syphilis the Wassermann reaction was negative and the Hinton positive.

From the above it will be seen that the Hinton test gave four apparently false positive results. Two of these were only weak positives and might have been read as "doubtful." The explanation of the other two is not clear; they may have been due to errors in technique. Apart from these the agreement between the two tests was remarkably close, especially when consideration is given to the fact that a large proportion of the serums were "borderline" ones from treated cases of syphilis.

In addition to the above the opportunity was taken, when a sufficient amount of serum was available, to compare the Hinton with the Kahn³ test, and also with the Sigma⁴ test.

The Hinton and Kahn Tests Compared.

Absolute agreement	...	...	...	170	187 = 93%
Relative agreement	...	...	...	17	
Disagreement	...	...	...	14	
Total tests	...	...	...	201	

Of the 14 cases in which the two tests showed disagreement 7 were in favour of the Kahn and 7 in favour of the Hinton, as judged by the clinical history of the cases.

The Hinton and Sigma Tests Compared.

Absolute agreement	...	...	...	113	127 = 92.7%
Relative agreement	...	...	...	14	
Disagreement	...	...	...	10	
Total tests	...	...	...	137	

Of the 10 cases in which there was disagreement 6 were in favour of the Hinton and 4 in favour of the Sigma.

It would appear from the above that the Hinton test can claim to be the equal, at least, of the Wassermann, Kahn, and Sigma tests. It is the easiest to perform, and far easier to read than either the Kahn or Sigma test. The only difficulty is the standardization of the antigen; once this is overcome the setting up and reading of the test are simplicity itself.

I have to thank Dr. W. A. Hinton for the description of his technique and for supplying me so kindly with the antigen used in the above investigation, and also Colonel L. W. Harrison for permission to publish the results.

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THE WASSERMANN REACTION AND KAHN TEST.*

BY

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On May 24th, 1928, the Kahn test was adopted as routine, to be performed in parallel with the Wassermann test on all blood specimens received in sufficient quantity. Up to December 31st, 1928, some 169 specimens had been dealt with in this fashion. Of these, 108 were negative by both tests, one specimen was positive by both tests, and 26 were strongly positive by both tests, using the nomenclature of the League of Nations Health Committee. The two reactions can be said to have been in complete agreement in 135 specimens out of 169, or 80 per cent. So far there has not been an instance of a strongly positive Wassermann reaction occurring with a negative Kahn test in the same specimen, although a strongly positive Wassermann reaction has coincided with a "weakly positive" Kahn test on two occasions. On one occasion the Wassermann reaction was negative and the coincident Kahn test strongly positive; this occurred in a blood specimen from a man with a remarkable fibrous hypertrophy of his upper and lower gums, a portion of which swelling, on section, showed typical syphilitic granulation tissue.

In the 34 cases not showing complete agreement in this series, the Wassermann reaction and the Kahn test were roughly in agreement.

Of 11 cases, the Wassermann test was negative and the Kahn weakly positive in 3; the Wassermann test being weakly positive and the Kahn negative in 8.

Discrepancies, when they occurred, were of degree rather than direct opposition.

Slight discrepancies occurred in 9 cases, the Wassermann reaction being weakly positive and the Kahn positive in 2; the Wassermann positive and the Kahn strongly positive in 3; while the Wassermann test was strongly positive and the Kahn test weakly positive in the remaining 4.

Marked discrepancies occurred in 14 cases. Of these, the Wassermann reaction was negative and the Kahn positive in 3; the Wassermann was positive and the Kahn negative in 10; the remaining case showing a negative Wassermann and a strongly positive Kahn reaction.

The two reactions can be said to have been in nearly complete agreement in 146 out of 169 specimens, or roughly 86.4 per cent.

Of the 13.6 per cent. of discrepancies, only one (0.6 per cent.) was of supreme importance (Wassermann negative, Kahn strongly positive). The remaining 13 per cent. contains 13 instances of contradiction (Wassermann positive,

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