The distinctive variola appearances had faded so much, in twelve hours' time, that it really seemed very remarkable.

The initial exposure to the light was of about three hours' duration applied to the whole body. Then patient went to sleep immediately after the treatment.

Treatments lasted for six days and patient applied them as often as he liked, without any rule as to time and duration.

The clinical observation warrants me in stating that—due to the violet ray action—the pustule stage was aborted.

With the exception of some small area, where the influence of the ray did not penetrate, the *restitutio ad integrum* has been satisfactory. Only very small invisible marks remain, at points where vesicles were in an advanced stage.

I saw this patient two days ago and it was hard for me to detect in him any trace of the disease.

The other two cases treated by me were more or less clinically identical. One case was at the seventh day of the disease; the other, at the fourth.

The treatment consisted of exposure to the action of the ray as often as the comfort of the patient required.

The lamp was kept distant from the surface of the body from five to nine inches, according to the tolerance of the patient.

Equally satisfactory results were obtained in the treatment of these other cases.

I devised a way of giving patients the benefit of the ray, simultaneously, all over the body. Three lamps of 110 voltage each were placed on a stand so that the exposed surface extended from the head to the feet.

In this way one lamp radiated the face and the upper part of the chest and extremities; one lamp the abdomen and hands, and the other the feet and thighs. As soon as the patient felt too much heat, and could not bear that sensation any longer, I advised him to turn and expose the other side and so on until relief was obtained.

The lamps were kept from five to nine inches from the surface to be treated, but during sleep I advised keeping the lamp at least one and one-half feet away from the surface of the body.

A large sheet covered the apparatus in order to avoid dispersion of the rays. Good effects were also obtained by using an ordinary single lamp. The only objection I have to make is that one must constantly change the position of the single lamp so that all regions can be treated.

The benefit of the triple combination is greater, because the patient does not need to make any effort in moving the lamp, thus preventing fatigue.

Conclusion: From the experience obtained in treating these three cases I believe that we

have in the violet ray a new and efficient weapon to combat the very distressing sensations caused by smallpox. Furthermore, a powerful agent has been found which, if applied before pustulation has occurred, will almost completely prevent the pox marks.

It seems that the earlier the ray is used the shorter the course of the disease will be, and the constitutional symptoms will be milder.

Considering the great relief which appeared to follow this very simple agent and the inexpensiveness of its application, I believe that this treatment will soon become general.

So far as literature on this subject is concerned, I failed to find any article dealing with the treatment of variola by means of violet ray ever before published.

Medical Progress.

PROGRESS IN SYPHILOLOGY.

BY AUSTIN W. CHEEVER, M.D., BOSTON.

THREE CASES OF SYPHILITIC INFECTION DURING LABOR.

LEMHOLT¹ reports three cases of this condition, so far very rarely reported in the literature. In all three cases the fathers of the infants had acquired syphilis sometime during the last three months of the wives' pregnancies, the mothers developing symptoms of syphilis immediately preceding, during, or immediately after labor. Typical chancres developed on the infants' heads, followed by typical acquired infections.

REINFECTION IN SYPHILIS.

Recently there have been increasingly numerous reports of reinfection; Jeanselme and Althabegoity² report a case treated with 300 injections of benzoate of mercury and occasional injections of arsphenamin. Up to the time of the appearance of the second chancre, which was not at the site of the first, he had had five negative Wassermann tests. Treponemata were found in the new chancre. This seems to be a genuine case of reinfection.

EXPERIMENTAL SYPHILIS IN MAN.

Pinard and Leguignand³ relate the case of a man who inoculated himself with syphilis in order to prove that he had not had it: a chancre appeared in which treponemata were found. He had 8.5 gm. of arsphenamin followed by a negative Wassermann reaction. After two failures he succeeded in inoculating himself again and producing a typical chancre in which treponemata were found, and followed by a papular rash and sore throat. He then had 0.6 gm. of arsphenamin weekly for ten out of twelve

months. Now having a negative Wassermann test, he tried four more times to inoculate himself, at last producing after thirty days a new chancre, followed by a papular syphilide.

THE RESISTANCE (OR IMMUNITY) DEVELOPED BY THE REACTION TO SYPHILITIC INFECTION AND SOME OF THE EFFECTS OF THE SUPPRESSION OF THIS REACTION.

Under this heading Brown and Pearce⁴ describe their results in rabbits of removing the primary lesions; there was a considerable intensification of the disease. Carrying that reasoning over to the human, it would seem not only useless but probably even harmful to remove primary lesions.

EFFECT OF SUNLIGHT ON A SYPHILITIC EXANTHEM.

Much has been written about sunlight in tuberculosis, very little about sunlight in syphilis. Rasch⁵ reports an interesting case of a girl with a lenticular syphilide which failed to appear on the face, neck, and parts of the chest which had been exposed to strong sunlight above a very décolleté gown. He thinks it is the actinic rather than the heat rays that are responsible for this, as it is well known that men exposed to heat, as stokers, have a marked exaggeration of these lesions on the exposed parts.

NEUROSYPHILIS WITH NEGATIVE SPINAL FLUID.

Solomon and Klauder⁶ describe and discuss a group of cases of definite neurosyphilis with negative spinal fluids, fitting mostly into the group of vascular neurosyphilis, but also of syphilitic cerebral nerve palsies, cerebral gumma, syphilitic epilepsy, syphilitic spastic paraplegia, syphilitic psychoses. They state that it is often difficult to decide in these cases, which have negative spinal fluids yet with definite clinical evidence of central nervous system involvement, whether they are cases which at no time have positive fluids, and need and often react well to treatment, or whether they are "burned out" cases, cases of former activity, and really only cases of scarring, and consequently to be but little helped by any treatment.

SPINAL DRAINAGE WITHOUT LUMBAR PUNCTURE.

Corbus, O'Connor, Lincoln, and Gardner⁷ have worked out a new application of the previously known fact that intravenous injections of hypertonic saline solutions cause an initial rise in the cerebro-spinal fluid, followed by a fall in this pressure often to below zero, followed by a gradual rise to normal. Apparently the increased osmotic properties of the blood plasma after the addition of the hypertonic solution causes fluid to be drawn rapidly into the bloodstream from all possible sources, including the cerebrospinal fluid.

The technic of the clinical application of this principle is as follows: patients were admitted about 8 A. M., prepared as usual for arsphenamin. At 10 A. M., 100 c.c. of 15% saline solution was given intravenously by the gravity method. Immediately following the injection, the patient is conscious of a feeling of warmth which gradually increases, but never to an uncomfortable degree, and lasts about ten minutes. No food was permitted at midday. After six hours, 0.9 gm. neoarsphenamin was given intravenously. At first all patients were kept in bed for thirty-six hours, but later some were permitted to go home by nine o'clock the same day. In none were there untoward complications. Lumbar puncture may be done without harm if one desires to study the spinal fluid.

VIABILITY OF SPIROCHAETE PALLIDA IN EXCISED TISSUE AND AUTOPSY MATERIAL.

Lacy and Haythorn⁸ report the finding of motile spirochaetae in the blebs on a congenital syphilitic baby kept in a refrigerator twenty-six hours before autopsy: in excised chancre, seven days after removal; in serum from a chancre sealed and kept at room temperature, for 121 days; in saline suspension of rabbit's testicle, both at room temperature and in the refrigerator, for 58 days; inoculation of rabbits' testicles with some of these was positive after 24 hours; attempts at inoculation with completely dried syphilitic material were uniformly unsuccessful.

A STUDY OF THE SPINAL FLUID IN A LARGE SERIES OF CASES OF SYPHILIS IN ALL STAGES.

Wile and Marshall⁹ present an analysis of 1869 cases of syphilis on whom lumbar puncture had been done, and bring out several interesting points, especially the strikingly high percentage of neurosyphilis in cases of syphilitic alopecia, iritis, and pigmentaries of the neck, about 70% to 73% in the first and second groups, about 55% in the third. In spite of the general belief that there is an inverse ratio between cerebrospinal involvement and other forms of syphilis, about 30% of the cases of late syphilides of the skin, bones, and viscera had definite central nervous system involvement. Another interesting point is the large percentage, about 28, of asymptomatic neurosyphilis in the indefinite latent stage.

A NEW LUMBAR PUNCTURE NEEDLE.

Hoyt¹⁰ describes a new needle which is claimed on good theoretical grounds to prevent post lumbar puncture headaches. A needle with obturator similar to the usual type, fitting the Luer syringe, is used as usual up to the point of penetrating the meninges; then the obturator is withdrawn and a much finer needle fitting the Record syringe and enough longer to pene-

trate the meninges is introduced within the larger one. This should tear so small an opening in the meninges that the leakage would be slight or none. It may be used for intraspinal therapy as well.

EXPERIMENTAL STUDY OF THE LATENT SYPHILITIC AS A CARRIER.

Eherson and Engman¹¹ have made some valuable contributions to the study of latency. From five cases which appeared to have been latent for from one to thirteen years and had either had no treatment at all or none for two years, the authors isolated by rabbit inoculation living treponemata from inguinal glands and semen. Blood and other body fluids failed to give positive results.

WASSERMANN TESTS WITH SECRETIONS, TRANSUDATES, AND EXUDATES IN SYPHILIS.

Klauder and Kolmer¹² found 3 positive Wassermann tests in 19 specimens of milk from known syphilitics; 1 weakly positive in 20 specimens of saliva; 1 moderately positive in 30 specimens of seminal fluid; 5 doubtful tests in aqueous fluid from the anterior chamber of the eye; all of 11 specimens of exudates and transudates were positive; all surface fluids from a number of chancre were positive; all of a number of specimens of saline extract of syphilitic nodules from testicles of rabbits were positive.

THE WASSERMANN TEST PERFORMED WITH CHANCRE FLUID AS AN AID TO THE EARLY DIAGNOSIS OF SYPHILIS.

Klauder and Kolmer¹³ give their technique as follows: when possible they aspirated the surface fluid directly with a fine-tipped pipette similar to a medicine dropper; when not enough fluid could be obtained that way, they placed a few drops of physiological saline solution on the chancre and aspirated the whole fluid after a short time, getting thus a fluid of unknown concentration; yet the results were positive in twelve out of fourteen chancre fluids. Positive results were obtained in a chancre on which a mercurial had been used, making the dark field examination negative, and in which the blood Wassermann had not yet become positive. It is, therefore, a definite aid in the diagnosis of early syphilis.

SILVER ARSPHENAMIN.

The reports during the last year by American syphilologists have not been especially favorable to silver arsphenamin. Guy and Jacob¹⁴ report on their use of the drug in 100 cases and consider that silver arsphenamin, weight for weight, is more toxic than arsphenamin, and in the dosage ordinarily employed is a less effective spirochaeticide. Michelson and Siperstein¹⁵ believe that it clears up clinical manifestations in smaller doses than others of the arsphenamin

group, but are doubtful as to other advantages. Fordyce,¹⁶ reasoning from the use of 1800 doses, considers silver arsphenamin as a valuable drug because of its greater freedom from reactions, but is not ready to consider it any more curative than other arsenicals, though possibly more active in clearing up early lesions.

THE INFLUENCE UPON TOXICITY AND TRYPANOCIDAL ACTIVITY OF SHAKING ACID AND ALKALINE SOLUTIONS OF ARSPHENAMIN AND SOLUTIONS OF NEOARSPHENAMIN IN AIR.

Schamberg, Kolmer, and Raiziss¹⁷ carefully tested out the effect of shaking these drugs for one minute and for ten minutes longer than necessary to complete solution, and found that shaking both the acid and alkalized solutions of arsphenamin increased the toxicity and the trypanocidal activity; that one minute's extra shaking of neoarsphenamin increased the toxicity greatly without increasing the trypanocidal activity, while a ten minutes' extra shaking increased the toxicity enormously. Different lots and brands differed considerably as to their liability to oxidation.

KEEPING QUALITIES OF MARKET SAMPLES OF NEOARSPHENAMIN WHILE IN THE AMPOULE.

Roth, U. S. Public Health Service,¹⁸ finds commercial neoarsphenamin relatively unstable in the ampoule and suggests that the date of manufacture should be placed on all ampoules and that neoarsphenamin be kept at icebox temperature.

HELIO THERAPY IN SYPHILIS.

Hesse,¹⁹ reasoning from the long known beneficial effect of sunlight in tuberculosis, feels that it should be of real use in syphilis: in correcting the anaemia which may be present, in avoiding the possible depressing effect of drug medication, in stimulating metabolism, possibly in helping to prevent involvement of the internal organs, as seems to be the case in tuberculosis. He suggests filling the gaps in drug treatment with heliotherapy.

A NEW TREATMENT OF SYPHILIS WITH TARTROBISMUTHATE OF SODIUM AND POTASSIUM.

Rabello²⁰ reports in the name of Levaditi, bismuth salts as efficacious in the treatment of syphilis. After experimenting on rabbits, he used on 110 human cases of syphilis in all stages subcutaneous and intramuscular injections of tartrobismuthate of sodium and potassium suspended in oil. The only untoward result (and this is frequent) is stomatitis, with an effect on the gums like that of lead poisoning, and closely resembling that of mercury, but much milder, preventable by proper precautions, and easily cured. The urine remains practically normal. He states that it has the

advantage over arsenical preparations of having less toxic effects and also of being prepared with less difficulty and, therefore, more economically. Insufficient time has as yet elapsed for the demonstration of a permanent cure, but the results up to date have been very striking as regards the disappearance of lesions and of spirochaetae. The medicament has been put on the market under the name of trepol, in boxes containing 12 ampoules; each of these contains a dose of 10 cg. per cubic centimetre, in an oily base. The doses are made in amounts of 3 and 2 cc. in a series of 6 injections, the first three containing 30 cg. and the last three containing 20 cg. of the salts of bismuth.

THE TREATMENT OF SYPHILIS BY MERCURY INHALATIONS.

Cole, Gericke, and Sollman²¹ report on an investigation of mercury inhalation in syphilis, very carefully and thoroughly carried out and find that there is no advantage in this method of giving mercuric; that it has, on the contrary, a serious disadvantage of indefinite dosage, and the special danger of respiratory irritation.

TREATMENT OF LATE SYPHILIS.

Stokes²² in an excellently written paper on the treatment of late syphilis concludes as follows: The treatment of syphilis should not be parcelled out in segments, each self-sufficient and governed by its own laws. Just as we are finding that early syphilis is no longer localized, even at the earliest appearance of the primary lesion, so we shall find as the intensity of our study increases that late syphilis does not begin in the first decade, but in the first hour. Preventing the transmission of the disease in its earlier stages, and forestalling the individual tendency to complications based on the peculiarities of the strain of parasite, the host, and the method of treatment, is the whole problem of syphilis. Forestalling implies detection, so that an increasing diagnostic alertness, a development of methods for detecting the earliest and not the late signs of pathologic change in vital organs and tissues, is not mere diagnosis, but a part of effective treatment. For all our so-called prophylactic efforts, nothing will prevent the development of late complications in a certain group of patients who present the fatal combination of predisposed soil and tropic organism. It is equally true that an even smaller group of patients will master the infection for themselves, irrespective of our interference. Between these two extremes will come those whom we have radically cured, those whom we have managed to place in commensal relation to their infecting organism, those whose immunity we have broken by treatment measures whose potentialities for future harm as well as present good we do not yet understand, and those whom we have destroyed outright by treatment itself. The study of the interrelation of these groups

is one of the most complex problems of the medicine of today. Its solution will not be accomplished by a mental or physical separation of the various phases of syphilis and syphilo-therapy into air-tight compartments, each with its own technic, ideals and aims. Only that mode of approach will leave a significant impress on our future knowledge which envisages the entire disease, employs one or two methods in a large series of cases over a period of many years, records the results, and which, by lifelong observation and periodic complete re-examination, detects impending serious pathologic change, and evaluates in detail and with accuracy the response of parasite and host.

REFERENCES.

- ¹Ann. de Dermat. et Syph., Jan., 1921.
- ²Bull. Soc. Franc. de Derm. et de Syph., No. 1, 1921.
- ³Bull. et Mém. Soc. Med. de Hôp. de Par., 33:1415, Nov., 1921.
- ⁴Archiv. of Derm. and Syph., 2:6, Dec., 1920.
- ⁵Brit. J. of Derm. and Syph., Feb., 1921.
- ⁶J. A. M. A., 77:22, Nov. 26, 1921.
- ⁷J. A. M. A., 78:4, Jan. 28, 1922.
- ⁸A. J. of Syph., 5:401, July, 1921.
- ⁹Archiv. of Derm. and Syph., March, 1921.
- ¹⁰J. A. M. A., 78:6, Feb. 11, 1922.
- ¹¹J. A. M. A., Jan. 15, 1921.
- ¹²J. A. M. A., June 11, 1921.
- ¹³Archiv. of Derm. and Syph., 5:5, May, 1922.
- ¹⁴A. J. of Syph., Oct., 1921.
- ¹⁵Archiv. of Derm. and Syph., Aug., 1921.
- ¹⁶Ibid., Dec., 1921.
- ¹⁷A. J. of Syph., 6:1, Jan., 1922.
- ¹⁸Public Health Reports, 36:2523, 1921.
- ¹⁹Strahlentherapie, 12:460, Apr., 1922.
- ²⁰Rev. Med.-Chir. de Brazil, 29:476, Nov., 1921.
- ²¹Archiv. of Derm. and Syph., 5:18, Jan., 1922.
- ²²Archiv. of Derm. and Syph., 4:6, Dec., 1921.

Book Reviews.

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