

therefore not possible in the present state of our knowledge to assess the value of snake venom in the treatment of this disease. One theory of the action of snake venom in epilepsy is that a certain proportion of cases have an allergic basis, and in these benefit is derived from venom treatment by a process of non-specific protein desensitization, and following on this reasoning, it has also been tried in other allergic states such as asthma, hay fever and migraine.

Even in the small doses used a certain number of persons appear to be sensitive and in some of them local reaction in the form of redness, itching and swelling has been noted at the site of injection, while others exhibit general symptoms such as malaise, a slight rise of temperature and perhaps gastro-intestinal irritation. A few persons have complained that, instead of relieving pain, cobra venom has caused its exacerbation. It is thus clear that the therapeutic effects of snake venom are at present by no means uniform and so it has to be used with caution, as the results cannot be foretold. There is some ground for the belief that some samples of snake venom that have been used in this way

have been badly prepared and that the objectionable effects noted are caused by impurities that are not found in correctly isolated samples, so there is hope that when the method of preparation is properly standardized, venoms will be found more regular in their action.

From this brief outline it is clear that snake venoms are beginning to become established in therapeutics. It is possible that, like nearly all new remedies, they are being tried too severely and that the large number of uncritical enthusiasts in our profession, who use every new drug that comes along, are using snake venoms on conditions it is not suited for and thus are bringing it into disrepute to a certain extent. It will be only after a great deal more carefully controlled work than has yet been done is carried out that we will be able to decide whether the most despised and feared of all creatures on the earth have in their bodies substances that are of real value to man in his everlasting attempt to combat the many diseases to which he is heir.

'Nought so vile that on earth doth live
But to the earth some special good doth give'.

Special Article

SOME COMMON CONDITIONS TREATED BY ULTRA-VIOLET RADIATIONS

By AUSTIN FURNISS, L.R.C.P., L.R.C.S., L.D.S., D.P.H.

IN this paper I have chosen some diseases and conditions which can be greatly benefited by the use of ultra-violet light. In writing these notes I have dealt with each subject from three points of view, viz: (1) the rationale of the use of the ultra-violet rays; (2) the available authoritative literature on the subject; and (3) the technique in detail. The following ten conditions will now be dealt with: abscesses, adenitis, pruritus ani and vulvæ, common colds, sycosis, lupus erythematosus, pregnancy and lactation, herpes, alopecia and acne vulgaris.

Abscesses

A good deal of success is obtained in aborting the pathological process. If the case be treated early, before pus has formed, one strong local erythema reaction will usually be sufficient. When pus is forming, luminous heat therapy—using the Sollux lamp—may cause resolution and save incision. Technique: this varies according to whether the abscess is in the incipient stage, or whether it is established or chronic.

Incipient abscess.—The Kromayer lamp and suitable applicator—small, round—is used in contact with the centre of the lesion, giving a third degree erythema reaction. This is followed at once by distance irradiation through the Kromayer window, two or three inches away, on

an area about two inches in diameter, in order to sterilize follicles. This is repeated only on subsidence, if necessary.

Established abscess.—In this case a brisk hyperæmia is produced with the Sollux lamp, using a localizer to the point of tolerance, e.g., half an hour at six inches distance. This is repeated daily, or more often until resolution occurs.

Chronic abscess.—In the first case it is necessary to establish efficient drainage. When this is effected a second degree erythema dose is given through the Kromayer lamp window. This is repeated on subsidence until healing takes place. In all the above-mentioned cases concomitant therapy is necessary. Various tonic measures should be employed, including suberythema light baths with the mercury-vapour lamp. This is especially necessary in tuberculous cases. F. Kraft, O. Bernhard, H. Heusner and W. F. Castle have all reported on the above forms of treatment.

Adenitis

In a large proportion of cases of primary adenitis the glands decrease in size under ultra-violet radiation without other treatment. Irradiation is the method of choice in these conditions, and the glands are usually reduced to a size that does not cause any noticeable deformity. Ulcerated surfaces and deep-seated glands with sinuses may call for intense and protracted treatment; possibly surgical or x-ray treatment

in addition. Tuberculous adenitis is perhaps one of the most frequent manifestations of surgical tuberculosis, especially in the cervical region. General light baths are an absolute essential in the treatment of these cases, and in most of them local treatment directed to the diseased foci is also necessary. In watching these cases one is struck by the fact that some of the best results are achieved in the case of patients with multiple foci, and with a very bad general condition, where one would have thought that resistance could not easily be raised; some of these cases do better than the milder ones. The carbon arc, with its constant spectrum and richness in the violet and ultra-violet portions of the spectrum, fulfils best the conditions of solar radiation, most favourable for general light treatment in tuberculous conditions. Besides the various carbon arc lamps which are used the mercury-vapour lamps are also of great value. In a large light room there should be two, or preferably four, mercury-vapour lamps of the Jesionek type placed in the corners with the Sollux luminous heat lamp overhead, so that the room is filled with actinic rays. Adequate ventilation is necessary. In the space between the lamps, six to eight patients move about, and children can play. The baths start at three minutes, and so on up to thirty to forty minutes. Besides the general mercury-vapour baths, each patient receives special irradiation of the diseased glands with a lamp which has longer and more penetrating rays. For this purpose smaller arc lamps, tungsten, iron, etc., are very good.

There are three stages in these patients suffering from primary cervical tuberculosis. The first stage, with enlarged hard nodes and much thickening and fibrosis. The second stage comprises patients whose glands are approaching caseation. The third class are those where caseation has occurred and where sinuses may have formed.

Technique.—The first and second stages respond well to the general and local treatment mentioned. Locally they sometimes react with swelling and tenderness, and in a large percentage of cases the enlarged nodes either disappear or remain as tiny nodules. When using the mercury-vapour lamp for these cases, sub- to first degree erythema doses should be given, repeated every two or three days. This should be combined with general luminous heat. A number of cases need weekly or bi-weekly treatments by compression with the quartz applicator of the Kromayer lamp, giving a third degree erythema. Patients approaching the caseation stage may also recover without surgical interference, but often aspiration is needed, and local light therapy is given immediately after this to prevent sinus formation. Patients in the third stage with broken-down glands need three forms of treatment: (1) general light baths; (2) local irradiation of the diseased foci; (3) treatment of the sinus by the quartz applicator of the

Kromayer lamp. In some cases preparatory irradiation with infra-red light is an advantage and accelerates the drying-up process. It may be mentioned that a very extensive literature is available dealing with this subject. Dr. C. Lee Pattison, along with others, reports favourably on the treatment of tuberculosis of the cervical glands by ultra-violet light. He exposed large areas of the body to slight 'erythema-producing' doses of ultra-violet radiation twice weekly. Westminster 'long-flame' carbon arc lamps were used with Watson's 'C' cored carbon electrodes (30 milliamperes current). The majority of patients showed improved general health. The following is abstracted from one of his papers. 'Of 162 patients, 52 were very markedly improved, in fact in 30 cases no glands could be felt at the end of the period of treatment. In 19 instances some of the glands formed abscesses which resolved with aspiration. Eighty-seven patients were improved in general health and their glandular enlargement diminished. In 14 patients the glands were apparently enlarged, while in nine they became worse'. In non-tuberculous adenitis I reported 84.6 per cent cured. The number of cases treated was, however, small. The following table is an extract from a report by Dr. G. Lissant Cox:

At the Finsen Institute it was found that only 40 per cent of patients with tuberculous glands were cured by x-rays, whereas 98 per cent of the patients treated by ultra-violet radiation were cured, the average time taken to effect a cure being 4.8 months.

Puritus ani and vulvæ

Before planning treatment for this condition the cause must be investigated and, if possible, removed. Common causes are: discharges from cervix or vagina, cystitis, urethritis and urinary infections from various sources; constipation, piles, and fissures; oxyuris or their ova; the exudation of mucus, leaking paraffin, or an attack of diarrhoea may start pruritus in an area which when scratched or rubbed develops quickly into an angry eczema. Of recent years a mycotic infection has become common. If this cause is not recognized and treated in the early stage, the entire region becomes secondarily infected; this is partly due to the scratching. There soon develops an angry dermatitis and weeping.

Ultra-violet radiation offers to the dermatologist one of the most valuable adjuvants in treating these conditions. L. F. R. Knuthsen and F. Howard Humphris state: 'It is an agent which eases the hyperæsthesia and allays the irritation, and has a definite curative influence; used with intelligence, it is incapable of producing any harmful effects. . . . As in many skin diseases, benefit is obtained if general irradiation be added to local treatment'. Ultra-violet radiation, as is well known, exerts a biological action in the region of the inter-epithelial

nerve-fibrils. Also, if the pruritus be caused by the *Staphylococcus albus*, *Streptococcus faecalis*, *Bacillus coli*, or such mycetes as the epidermophyton or trichophyton, then the lethal effect of radiation will quickly kill them.

Technique.—The patient should be carefully prepared for local treatment. The hairy parts should be shaved, and then thoroughly cleansed with soap and water and carefully dried. Crusts should be removed. The parts should be smoothed out, and held apart so that folds or deeper parts of the recesses may become exposed to the treatment. Drs. Knuthsen and Howard Humphris recommend the Kromayer lamp. The lamp may be used at a distance of a few inches with a four minutes' exposure, or it may be placed in contact with the skin, the duration of exposure varying inversely with the square of the distance. The patient should be warned that erythema may be severe, and that it may be advisable for her to remain in bed a day or two. The second application should take place as soon as the erythema has subsided, and the distance remaining the same, the time should be increased by one or two minutes, according to the measure of erythema produced. Using this method it is found that the intervals are as follows: four, three, three, four, seven, seven days; six to twelve treatments being usually sufficient to produce permanent relief. General body baths are given with the mercury vapour lamp two or three times a week.

Dr. Agnes Savill recommends for early cases of eczema of the anus and vulva a few doses of light two to five times a week. It aids progress remarkably. Using the mercury-vapour lamp, begin with a local dose of one minute, desisting if any erythema has been set up. It is of the utmost importance that all healthy skin around the area to be treated, including buttocks and thighs, is carefully shielded with tissue paper. In the case of thickened and swollen perianal ridges, the tungsten arc lamp focused on the part—5 amps., at nine to twelve inches, for three minutes—has a good effect. It may be employed throughout the course of treatment.

Common colds

Drs. G. H. Maughan and D. F. Smiley have published several reports on the control of common colds by ultra-violet rays. Records show that the peak of respiratory infections comes in the dark months of the year, when we have the least sunshine and when people are least exposed to ultra-violet rays. Contact with sunshine and open-air improves the vitality of the skin and makes it more capable of performing its many functions. Other factors which Maughan and Smiley mention that make infections in winter more frequent than in summer are: closer contact of individuals, poor ventilation, over-heated air, too dry an atmosphere and faulty diet due to lack of green vegetables and fresh fruit. In September 1930 they reported

on the prophylactic radiation of about 300 men who were exposed in a special form of 'solarium'. 'The results of the year's work indicate a reduction of 58.8 per cent in the number of colds among the irradiated cold-susceptible men as compared with the non-irradiated groups. In addition to the ultra-violet irradiations, the irradiated students were given alkaline powders containing equal parts of sodium bicarbonate and magnesium carbonate whenever any cold was reported. We believe that results for the year 1929-30 are comparable with those of our two other reports'. Dr. W. Annandale Troup reports: 'A general bodily ultra-violet radiation, just sufficient to produce a faint erythema, combined with local irradiation of the nostrils by means of quartz applicators, will almost always abort a cold in its early stages. The general irradiation enhances the bactericidal power of the blood, and the local infection is dealt with by the local bactericidal action of the ultra-violet rays. Only one or two treatments are necessary, usually only one'.

Technique (acute colds).—Using the Kromayer lamp, commence with a flat quartz applicator about two inches long and rounded at the end. This is inserted full length into the nostril (blue filter). Switch over to white light and slowly withdraw so that three to four minutes' irradiation has been given to the passage. Repeat in the other nostril.

This applicator is then replaced by one about four inches long, with flat sides and slightly curved at the end, so that it can be readily passed along the lower nasal passages. By gentle handling and accommodating to the curves of the lower nasal passages, this applicator can be easily passed almost into the nasopharynx. The naso-pharynx is irradiated for two to three minutes. Finally, with a short thick applicator a minute's irradiation is given to the back of the throat. These approximate times are stated for the Standard Kromayer lamp. Treatment as a general rule should not be repeated for at least four days.

Dealing with the treatment of 'colds' by the Super-Kromayer lamp, Dr. E. J. Deck states: 'should the acute condition persist after the first treatment, the irradiation may with advantage be repeated at the end of twenty-four hours, giving a short exposure of forty seconds. Should the catarrh still persist, the patient is probably a victim of a chronic nasal catarrh. In this condition it is best to let the acute symptoms subside, and then carry on with four or even seven-day intervals between treatments'.

Technique for prophylaxis.—Mercury-vapour lamp—preferably combined with Sollux lamp, to guard against chill. General body baths, sub-to first degree erythema doses, repeated once a week. The reader is referred to the work on 'Common Colds', by Sir Leonard Hill and M. Clement, published in 1929.

Sycosis

In the early stages of this disease, ultra-violet radiation produces rapid clearance. Besides local treatment, general irradiation should always be given, because it is possible by this means to raise the resistance of the patient, especially when he is debilitated. Also treatment should continue for some weeks after the last lesion disappears, to obviate relapse.

Technique.—The Kromayer or mercury-vapour lamp should be applied locally to the lesion and to a small margin of normal skin. The hair should be cut very short before the irradiation. A vigorous third degree erythema reaction should be produced. This is repeated on subsidence, increasing the dose to repeat the reaction at each treatment. As before mentioned, continue the treatment after the condition has apparently cleared up. In the more resistant chronic types, heavier dosage and more patience are necessary; epilation may have to be effected by means of x-rays, and afterwards compression treatment with the water-cooled lamp is often beneficial. Schindler advocates painting the affected parts with a solution of 5 per cent silver nitrate in 70 per cent ethyl alcohol, and then applying local irradiation. C. Marchesini has reported very favourably on the treatment of this disease by ultra-violet radiation. Other authorities who have reported favourably are G. B. Dowling, F. H. Humphris, F. D. Howitt, R. Bernstein, F. Pakheiser and W. F. Casle.

Lupus erythematosus

Good results are obtained in most cases from ultra-violet radiation provided that general light baths are given chief place in treatment. The baths may be given either by the mercury-vapour lamp or the tungsten arc, and should not be prolonged beyond a dozen treatments without the usual month's interval. A sub- to first degree erythema reaction is aimed at, to be repeated every second day. Local treatment with the Kromayer lamp is also important, and strong doses with compression should be given. F. Thederling recommends compression, using the blue filter, five to ten minutes. E. H. H. and W. K. Russell have often noticed after the reaction produced by the Kromayer lamp has subsided that the irradiated area is easily distinguishable from the adjacent untreated parts, because it is so much paler. Recovery is gradual, and the treatment must be continued for many weeks or months. Diathermic cauterization is sometimes useful in refractory cases. Authorities who have reported on the ultra-violet treatment of this disease are L. J. Carter, N. F. Rowstron, W. E. Montgomery, C. A. Simpson and the late Professor Kromayer.

Pregnancy and lactation

Ultra-violet radiation is of great value in pregnancy and lactation. This aspect is worthy

of consideration of all interested in maternity and child welfare. Extensive observations have been made at several municipal clinics and many other places. A leading American authority reports: 'It has already been shown by Hart, Steenbock and Elvehjem in extensive work with mature lactating goats that excessive impoverishment of the mother's reserve of calcium salts during lactation can be prevented by radiant energy; suggesting the use of ultra-violet therapy in this type of deficiency in lactation and pregnancy. Attempts have been made to learn how radiant treatment will affect the quality of cow's milk. . . . The results point to an environmental factor transmitted by the cow to her offspring through the medium of her milk. It suggests that the high incidence of rickets in children during the late winter months is due to the mother not receiving enough ultra-violet rays either during pregnancy or while in lactation.'

Expectant women usually show four subnormal conditions, viz, first, hypocalcemia or a deficiency of calcium, due to the mother giving her own lime to build the baby's bony structures, and often shown in the mother by the development of dental caries; second, anæmia or low iron content of the blood, probably due to the giving to the child of her own iron; third, nervousness and neurasthenia due to a low phosphorus condition consequent on the drain and worry of pregnancy; fourth, a marked increased acidity, or hyperacidity. As A. J. M. Treacy briefly puts it—'a neuro-circulatory asthenia, with hyperacidity'.

It is known that ultra-violet radiation not only supplies the three elements—calcium, phosphorus and iron—but it also increases the quantity of these elements already present in the system; moreover, it stimulates to greater activity such amounts as are present. Ultra-violet radiation does not influence phosphorus and iron as greatly or as definitely as calcium, but we know that, whenever there exists a calcium deficiency, it is generally accompanied with a low phosphorus and iron content. All cases treated with ultra-violet radiation show a marked general improvement and lessened symptoms of malaise, fatigue and nervousness. Alfred J. M. Treacy of Mount Siani Hospital, Philadelphia, studied 100 cases of pregnancy over a period of years and reported as follows: 'Of them, 80 were multiparæ and 20 were primiparæ. Of these, 25 cases, group A, were studied, with no treatment given but ultra-violet ray treatment; the second 25 cases, group B, were given ultra-violet ray treatment, with marked alkalinization with citro-carbonate; the third 25 cases, group C, were given ultra-violet ray treatment and moderately calcinized with calcinates; the fourth 25 cases, group D, were given ultra-violet ray treatment with alkalinization and calcinization, i.e., a combination of groups C and D . . .

In all these cases studied I found that the hæmoglobin was increased 10 to 15 per cent, as

was also the coagulation time favourably influenced, decreasing the clotting time from four to two minutes.

I also found that women that were not heretofore able to nurse their babies, or those who only had slight lactation, had a much fuller breast milk supply when given ultra-violet ray treatment, and all who received this sun-ray treatment went through their prenatal period with much more vigour, strength and well-being than in any of their former pregnancies; and those who received all three measures of alkalinization, calcinization and ultra-violet ray treatment were in better condition than any of the other groups. Every prenatal clinic caring for prenatal cases should be equipped with one or more ultra-violet ray lamps, in order to get its patients in the best possible condition generally, and to help supply the expectant mother with the chemical elements she is lacking or deficient in, thus supplying her deficiency of calcium, iron and phosphorus.

An experiment with a considerable number of nursing mothers was made at the Manchester Municipal Sun Clinic with very good results. The women were sent up from the welfare centres because their breast milk was failing and occasionally because they were debilitated. Drs. Chisholm and McKillon reported: 'In treating these women we looked for improvement in the general health. This alone, in so far as it made the women more fit to undertake maternal and housewifery duties, would justify treatment. But we were hoping also for improvement in the breast supply, or its preservation for some time when it seemed to be failing. Of the cases who persisted in treatment (fifty-three in number), all experienced general benefit. In eleven cases, however, no benefit, so far as breast milk was concerned, was obvious, although in two cases the mothers said they felt better for a time. Of the remaining thirty-six cases, all were successful in improving or retaining milk supply for prolonged periods.'

A controlled experiment was carried out by Dr. D. E. Bunbury at the Royal Free Hospital. According to the weighing scales, no very spectacular case for light treatment of nursing mothers was made out. But among the lessons the author learns from this experiment is that figures are not the only aim in medicine, since 'she has vividly in memory many despondent, dejected and debilitated mothers who, as a result of a carefully-planned individual course of treatment, have been able to return to their household duties with something of that intangible "tone" that no measurements and no statistics can set out graphically, but which can only be measured by the trained clinician in constant touch with the sick, or by a good mother'. Extracts can also be taken from the reports of medical officers of health. The M. O. H. of Manchester reported: 'Adults referred for treatment included nursing mothers whose breast milk was beginning to fail, and the results here were

found to be satisfactory in almost 50 per cent of the cases. Expectant mothers were also treated for various disorders arising from their condition. The results in practically all these cases were very satisfactory, a definite alteration in the condition of the patient being produced after a very short course of treatment.'

The M. O. H. of Bethnal Green also reported: 'Our mothers say that ultra-violet has helped to cure their nervous depression, and has made them feel stronger and healthier. Cases of failing breast milk through general ill health have so improved that they have maintained breast feeding throughout the whole nine months without recourse to any artificial substitute.'

Dr. Nancy Gibbs of the Cardiff health department reported on the treatment of expectant mothers by ray therapy. The main disability treated was excessive vomiting. She reported: 'Beneficial effects were soon apparent. Almost without exception, after three or four doses the patients were either not sick or only very slightly so, and they stated that they felt better. . . . It would be difficult to give an exact comparison between cases of excessive vomiting treated by irradiation and those not treated, but there appear to be three significant facts. In spite of the day and hour and position of the clinic being inconvenient, the majority of patients attend with regularity, and are loth to discontinue when told they have had a full course of treatment

Up to the present more work (treatment of nursing mothers) has been done in this connection elsewhere with nursing mothers than with expectant mothers, and it appears to be generally accepted that the quantity and quality of the milk are improved.'

It may be mentioned that other medical officers, those of Smethwick and Southport, have also reported favourably on the use of ultra-violet rays in maternity. To recapitulate: Ultra-violet treatment ensures that the newborn baby will be properly developed, and that the mother will go through pregnancy without loss of teeth, and that the kidneys, thyroid gland and other glands producing internal secretions will function properly. It will prevent the development of high blood-pressure and eclampsia. It ensures good development of the muscles, including heart and uterus; therefore she will have the necessary physical power to give birth satisfactorily to her baby. The tone of the abdominal muscles will be such that she will not develop a large abdomen following the birth. Resistance to infection will be raised, so that there is little danger of infection. The coagulation time of the blood approaches normal, so that there is little danger of hæmorrhage. The mother who has had plenty of ultra-violet light will have an abundance of health-nourishing milk, and will have no trouble in nursing her child. The child will start life with a stored-up amount of the products of light and is able to better resist disease.

Technique for pregnancy.—General irradiation with the mercury-vapour lamp, following the lines of a tonic course.

Technique for lactation.—General light baths with the mercury-vapour lamp, following the lines of a tonic course, or, alternatively, local irradiation with the same type of lamp on the breasts, protecting the nipples, second to third degree erythema, five minutes at thirty-two inches distance, repeated daily or every other day.

Herpes

This condition yields to the influence of ultra-violet radiation with unfailing certainty. Herpes of the scalp, probably on account of the tightness of the tissues in this region, is more obstinate to deal with than herpes in other situations, and the post-neuralgic pain is more difficult to relieve. Post-herpetic neuralgia is not a usual sequel in cases treated by actinotherapy. Many observers have recorded good results in the treatment of herpes by artificial light. M. Weinbren reports: 'There is little doubt that ultra-violet treatment was of benefit in the nine cases I have treated. It would appear (1) that general ultra-violet treatment will not prevent the onset of herpes, nor will the pigmented skin prevent the appearance of vesicles or scarring; (2) local ultra-violet radiation will remove the vesicles and relieve the accompanying discomfort.'

Technique.—If the blebs are very irritable use the Sollux lamp (luminous heat irradiation), with red filter for its drying effect, before applying the ultra-violet rays. The Sollux lamp is applied for fifteen to thirty minutes at a distance of twenty inches. The mercury-vapour lamp is applied locally to the lesion, giving a heavy second degree erythema. This is repeated daily until the vesicles disappear. The Kromayer water-cooled lamp may be applied in contact, to produce a second to third degree erythema on to all the vesicles. This is repeated at one to two all the vesicles. This is repeated at one to two days' intervals until irritation disappears. E. J. Deck treats these cases with the tungsten focal arc at a distance of about twenty to twenty-four inches with a moving lamp. A four minutes' exposure can be given to begin with and gradually increased to about eight minutes. Amongst many other authorities who have reported favourably may be mentioned D. Vajano, Tarfardini, Jackson, M. Cipriani and A. Devois. One should mention that post-herpetic neuralgia should be treated with the Sollux lamp. The lamp, with localizer, is applied to the affected area at the shortest tolerable distance, giving a dose of ten to twenty minutes according to tolerance. The time is increased progressively to thirty minutes. Daily irradiation is given.

The technique adopted by Dr. C. J. White is as follows:—'The ultra-violet light is applied to the whole circumference of the trunk, beginning with two minutes to the front of the chest and abdomen, two minutes to the whole back,

and two minutes to each side with the respective arms raised. Repeat these manœuvres each day, increasing the time two minutes in each position daily. In the rare instance of zoster within the oral cavity, use in addition applicators directly to the intra-oral vesicles'. 'By the employment of this light we hasten the cure, reduce the accompanying (often acute) pain, and lessen the chances of the distressing post-zosteriform neuralgia which may endure for five years, more or less'. Lumbroso and Perez have also found ultra-violet irradiation to be of great value in the treatment of this condition. Their method is to give daily exposures—up to the number of twelve. The duration of the exposures is two minutes at first, the time being increased by one minute each day. The lamp is used at a distance of 60 cm. They also find that the treatment causes rapid disappearance of pain and general discomfort.

Alopecia

The general opinion is that this condition benefits by actinotherapy. The condition seems to be associated with causes both constitutional and local. On this assumption it becomes obvious that general as well as local treatment is necessary. The aim in local treatment is to stimulate the hair follicles to regrowth. Prognosis is best in recent cases, but age and long-standing disease are not contraindications. The scalp must be scrupulously cleansed before treatment. The aim of general treatment is to raise the resistance of the individual and to act as a tonic. It is accordingly given on the lines of a tonic course.

Before describing the technique, quotations of a few workers may be given: W. Knowsley Sibley reports: 'All forms of alopecia, both those of limited extent and those which have advanced to the totalis stage, are greatly benefited by ultra-violet rays'. Thederling writes: 'Loss of hair due to seborrhœa, fevers, or anæmia can also be favourably influenced by light treatment. Irradiation of the head at a distance of 30 cm. for one or two minutes at a time, once a week, not only cures the seborrhœa, but stimulates a new growth of hair. Even incipient baldness can be cured by this form of treatment. . . . Loss of hair, as a result of anæmia or after fevers, can, as a rule, be arrested and a new growth stimulated. In addition to local irradiation, general irradiation should be applied'. The Senior School Medical Officer at Nottingham reported:—'The x-ray treatment of scalp ringworm depends for its success on complete shedding of the hair. I have recently observed that in such cases the period of baldness can be very materially shortened by appropriate ultra-violet radiation, as the result of which vigorous growth is usually obtained.'

F. Nagelschmidt's excellent results in a series of 200 cases should be consulted. Finsen reported thirty-nine cases cured out of forty-nine treated with his lamp. McCormac stated that

he was able to cure five cases of several years' standing out of six treated.

Technique.—(Alopecia totalis).—A second to third degree erythema reaction is obtained on the affected areas. Nagelschmidt uses the Alpine sun lamp, twelve inches distance, giving a ten minutes' exposure. Other parts of the head (ears, neck, forehead, etc.) are screened from the rays, cotton-wool being recommended to prevent sharp demarcation. It is important to see that the rays fall at right angles on the area. Two or three exposures may be required. Pain or œdema should be allayed by cold compresses (resorcin, aluminium acetate, boric lotion, calamine lotion, etc.), or ointment ('Hanoviol', 2 per cent, salicylic ointment, zinc oxide, etc., etc.) may be applied. The reaction is repeated every two to three weeks, increasing the first exposures. The course is continued for two or three treatments after regrowth is thoroughly established, or it becomes evident that the follicles are dead.

Technique.—(Alopecia areata).—A second to third degree erythema reaction is obtained with the Kromayer water-cooled lamp or the ordinary mercury-vapour lamp on each bald spot, treated separately, including a margin up to half an inch. The healthy hair should be cut short, and in the case of women the hair has to be parted and retained in position during treatment. The intense reaction is repeated every two or three weeks. The regrowth of hair usually begins in from ten to twenty days after the commencement of actinic treatment. Fragile white lanugo hairs first cover the site of the lesion, and gradually more hairs appear, which in many cases are darker than the original growth. Hall states: 'When treating cases of alopecia, general irradiation is best avoided in most cases'.

Acne vulgaris

Ultra-violet radiation gives very good results in all forms of acne, although relapses sometimes occur, and certain forms require concomitant measures. It is essential to treat the patient for any underlying disorders, particularly anæmia or constipation, and prescribe an alkaline diet. Finsen stated, in the earliest results which he published, that he had cured by the

use of his lamp thirteen out of twenty-five cases which had resisted ordinary measures. Mild forms of acne respond very favourably to ultra-violet rays. Obstinate forms which have resisted ordinary treatment show marked improvement after the first few applications of ultra-violet light. When keloid formation or much induration is present, or when there is a tendency to relapse, conjoint x-ray therapy is also necessary. Sequeira has stated that in acne he has found that artificial sunlight treatment given to the whole body has proved of value, probably by improving the general health and possibly by increasing the hæmobactericidal power of the blood. Russell has found that the chest and back respond to treatment more quickly than the face; probably shaving may account for this, since the heads of pustules are incised by the razor blade, and the infection is thus spread.

Technique.—The mercury-vapour lamp is used, giving a second degree erythema dose, to produce desquamation on all the affected areas. On the face each profile is treated separately, and the whole forehead to the roots of the hair is exposed. The eyes must be kept closed, but need not be covered by goggles. It may be necessary to protect the ears. The second degree reaction is repeated, increasing the exposure as required, until the skin is quite clear. Resistant infiltrations may need local third degree reactions with the Kromayer water-cooled lamp and applicator in contact, repeated as needed. Much benefit can often be obtained if simultaneous irradiation or pre-irradiation with infra-red rays, such as from the Sollux lamp, 'open' or screened with a red filter, is used. Irradiations from this source are performed with the lamp as close to the patient as can be tolerated, and exposures should last for from one half to one hour, and be performed at daily or alternate daily intervals, until a response is shown. In pustular acne it is well to evacuate the pustules before irradiation, and cleanse with alcohol. Some authorities (W. K. Sibley, L. C. Donnelly and F. Thedering) recommend x-rays, in combination with ultra-violet radiation, for resistant nodules. An extensive literature is available regarding the treatment of this disease by ultra-violet light.

Medical News

TWENTY-FIFTH SESSION OF THE HEALTH COMMITTEE

The Health Committee of the League of Nations held its twenty-fifth session from 26th April to 1st May.

The health committee discussed and approved its next three-year programme. The last three-year programme expired at the end of 1936. The new programme is largely a continuation of the work already being done by the health organization. It is divided into two categories: permanent activities and those intended to deal with topical problems.

In the former category may be mentioned the work of the Epidemiological Intelligence Service, the Commission of Biological Standardization, Leprosy and Malaria, and the duties of the Health Organization under international conventions.

EPIDEMIOLOGICAL INTELLIGENCE SERVICE

The creation at Singapore in 1924 of the Eastern bureau with its network of weekly telegraphic and wireless communication with the ports and countries of the East, was an important step forward. Indeed it