

calmed at once without waiting for the delay which accompanies the administration of other sedatives, such as chloral, the bromides, or sulphonal.

The methane, ethane, propane, and butane group are used extensively for their hypnotic effects, and not as anodynes.

Sulphonal, tetronal, and trional are all comparatively insoluble powders, and are taken in doses varying from 10 to 30 grains. Sulphonal, which is tasteless and odourless, is the most often employed, and tetronal, which has a camphor taste, the least. The sulphonal group are cumulative in their action; muscular exercise diminishes their influence, so that to obtain full effect the patient should be kept in bed. Being almost insoluble in water, although less so in warm alcohol, their effect as hypnotics are stated to be due to their solubility in the lecithin or the cholesterine of the nerve-cell. Winterstein's experiments seem to suggest that all hypnotics are effective because of their deoxidising powers over the plasma lipid material of nerve-cells, and, as stated, the hæmatoporphyrin found after taking sulphonal, which is a form of deoxidised hæmatin, would seem to support this view. Their action is certainly to disintegrate the red blood corpuscle by breaking up the lecithin. I consider that sulphonal is a strong neuronie poison, probably disintegrating the lecithin of the nerve-cells. Sulphonal is believed to diminish the alkalinity of the blood. It should only be used for the sleeplessness of chronic cases.

The urea compounds are also useful, and veronal, adalin, proponal, and bromural, all of which are colourless and tasteless crystals, are of this group. Each of these is more soluble in hot water than the methane group, and all are more soluble in alkalies, hence their effect is believed to be retarded until the intestinal juice has acted upon the drug. The urea groups are all more hypnotic in their effects than the methane or ethane groups. They are useful for the insomnia of restless nervous cases, those with anxiety and depression, which come on—as is usual in the case of melancholics—in the early hours of the morning. These compounds act quicker than do the sulphonal group, and their effects pass off sooner also.

Urethane, introduced by Schmiedeberg in 1885, given in 5-grain doses, is chemically ethyl carbonate. This is also of the urea group, and this class includes hedonal, which is given in 10 to 30 grain doses. Urethane is a very safe and useful hypnotic and is very soluble, more so than the other members of this group; the taste is not unlike that of nitrate of potassium, and, like it, urethane is also a diuretic. It can be given to children, and is occasionally given before an operation to supplement the anæsthetic effects of chloroform. I have known it to produce calm and refreshing sleep with no unpleasant after-effects. It does not depress the respiratory or the circulatory system. It has the advantage over paraldehyde of being nearly tasteless. Its action as a pure hypnotic is quick and not too lasting, and the sleep induced is not too deep in character. Patients taking it wake up at slight noises, but quickly fall asleep again when interruption ceases, the sleep lasting from five to seven hours. Kraepelin and others agree that, apart from causing sleep, urethane has no power to relieve pain, only acting as a pure hypnotic. Where there is a tendency to excitement or to restlessness urethane is inferior to paraldehyde. It is most effective in cases where there is exhaustion or sleeplessness with a low state of nutrition, because the amide group gives the stimulation of the ammonia it contains. In the longer duration of its action as compared with paraldehyde it is, in my opinion, preferable to it. It seems to act directly upon the cerebrum and it does not give rise to disturbing effects upon the digestive tract. It is, as a rule, well borne by patients, and the sleep which it causes more resembles normal physiological sleep than that obtained after the use of any other hypnotic. I used it largely years ago.

Some of the coal-tar derivatives other than those already named—hypnone, for instance (which chemically is acetophenone), introduced by Dujardin-Beaumetz, given in 1 to 5 minim doses—have been used as hypnotics when freely diluted. Hypnone is only stable in oil or in alcohol, and the taste strongly resembles that of bitter almonds, and in some cases it has quite failed to give sleep.

Hypnal in 10-grain doses has also been used as a sedative and a hypnotic. It is a recrystallised mixture of chloral and antipyrin. Turpentine has been used for sleeplessness in some cases of hystero-epilepsy with striking benefit, and

belladonna combined with the bromides, when other remedies have failed, has been of use in epilepsy and sleeplessness resulting therefrom.

Amylene hydrate, or tertiary amyl alcohol, introduced by von Mering in 1887, is a colourless liquid, of pungent taste and odour, resembling a mixture of paraldehyde and camphor; it has been freely used as a hypnotic before paraldehyde came into common use. It is a comparatively safe hypnotic, although it weakens the respiration. Its hypnotic effects are those midway between chloral and paraldehyde. It is quicker in its action than the latter and more transient in its effects. I used it largely some years ago in mental cases.

Luminal (one of the veronal group) by the mouth (3–5 grains) and luminal sodium subcutaneously have been used by one of my colleagues in Claybury to relieve sleeplessness associated with malignant disease of the upper jaw, and it has acted when other drugs have failed.

Mr. Langford Moore, the pharmacist to St. Bartholomew's Hospital, has kindly given me a list of the hypnotics and sedatives in most common use at that hospital, and in addition to opium, chloral, and the bromides they are paraldehyde, chloral amide, chlorotone, urethane, pyramidon, sulphonal, and trional.

The chief aim in the relief of sleeplessness is to break the habit, and, as in other things, a slight change in the mode of life may do this. Dr. Johnson used to advocate change of air, and if this were not possible then a change of room, and if not this, then a change of bed! The hygiene of the bedroom must not be neglected, its temperature, the bed, bedding, and the pillow may all need attention. At times reading to sleep may soothe, at another hot drinks, and even a dose of peppermint water may send one to sleep when more specific remedies are demanded. Although much has been written about the real physiological cause of sleep, we are yet far from understanding it.

A CONTRIBUTION TO THE STUDY OF PELLAGRA IN ENGLAND.

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(With Illustrative Plates.)

IN connexion with a case of doubtful nature under my care, my chief, Dr. L. W. Rolleston, called my attention to a series of articles¹ dealing with the subject of pellagra as found in Great Britain. With his consent, I asked Dr. L. W. Sambon if he would care to see the patient. This the latter very kindly did, and expressed the opinion that she was suffering from pellagra of the typhoid type. Such a diagnosis, made by one whose opinion on the subject carries so much weight, caused me some concern, for I had a very clear recollection of a patient of mine (Case 7) who died last year in the asylum, and who presented an almost parallel condition.²

My attention having in this way been drawn to the subject, it was natural that I should discuss it with my colleagues and with the senior members of the nursing staff, and one name after another came to our minds of patients now deceased whose records I examined for evidence to confirm our recollections. The next move was to search the wards for any possible cases amongst the present population of the asylum. Having regard to the attention recently directed to this matter, and to its intrinsic importance, I feel sure that the results of my investigations will not be without interest. These results, I submit, tend to show that in all probability pellagra is not so rare a disease in England, or at any rate in English asylums, as has been supposed.

[Since writing the above I have had the opportunity of visiting Prestwich Asylum, Manchester, and thanks to the courtesy of Dr. J. L. Stephenson, I have seen the two very instructive cases of pellagra which are under his care. I also saw at Bethnal House Asylum on August 15th, 1913, a patient (again a woman) who is suffering from pellagra,

¹ Brit. Med. Jour., July 5th, 1913.

² These cases, with another which will be referred to later, are briefly mentioned by Dr. Sambon in an article (p. 12) in the *British Medical Journal* of July 19th, 1913.

and Dr. J. W. E. Cole kindly permits me to mention her case. Very striking is the symmetry of the skin lesions on the face, neck, and hands. This patient links up in my mind different cases I have seen. The dull brown dry appearance of the hands recalls Case 1 of my series, whereas the face approaches more to the type of the first Prestwich case and of my Case 10. Professor Sturli, of Trieste, who was present, supported the diagnosis with the weight of his wide experience of pellagra. It is of interest to note that this case came, as did some cases in my series, from the Middlesex County Asylum, Wandsworth, and that the patient had the disease while in that institution.]

I do not propose to attempt any lengthy clinical descriptions—opportunities for which will, I think, occur next spring—but rather, if it may be, to make good my case for the existence in this asylum of several cases during the eight years it has been open, and to suggest that it is at least likely that my experience may not differ greatly from that of others in large asylums, that the precise nature of certain cases may have escaped the attention of others besides myself. This would only mean, in connexion particularly with pellagra, that history was repeating itself. I will refer first to the case of the patient who was visited by Dr. Sambon as above mentioned.

CASE 1.—A. B., an unmarried girl engaged in housework, admitted from the Infirmary, Edmonton, on May 15th, 1913, aged 29, height 4 ft. 11 in., weight 7 st.

History.—Born at Holloway, was for two years at Stevenage (aged 10), next lived at Highgate, subsequently at Whetstone, at which place she suffered (her mother tells us) with pain in her eyes before rain fell, the pain passing off with the downpour. In 1907 she went to live at Palmer's Green, and her medical attendant there is said to have described her as an obstinate neurotic patient. The only other place she had visited was Newbury, Berks. In November, 1912, she had two teeth out, and has "never been right since." Her sister tells me, however, that she had not been well for 12 months. She complained, she says, of having numbness of her legs, which were "hot inside and had no feeling outside." She adds that two years ago there was a dryness of the backs of her hands, but that her face was not affected at all. She was not overworked, and had a comfortable home, but six years ago she was acutely depressed. No family history of insanity obtained.

State on admission.—Her general health was indifferent, but there was no evidence of any well-defined disorder. Her mental state was one of confusion, with excitement. She was restless, noisy, and incoherent; she had visual and auditory hallucinations—e.g., she heard the birds talking to her. There was a tendency to refuse food. She could give her name and age correctly, but was unable to say how long she had been in the hospital. She fancied that little children were being cut up near by. At this time the calls of nature were not neglected. The pupils were equal and reacted to light. No definite nystagmus was then or subsequently made out. The knee-jerks were brisk. At this time the urine was free from albumin, specific gravity 1025, reaction acid. The temperature chart is attached. (Fig. 12.)

Progress of case.—June 2nd: "Much quieter and looks better, but has lost weight since admission. Still spoon-fed and is very confused." 20th: "Her condition is unsatisfactory. She has had irregular fever (about 100° F.) for a few days and has a troublesome stomatitis." 25th: About this time I went on sick leave for a fortnight, but I am informed that a few days later an eruption appeared about the patient's mouth and at the muco-cutaneous junction of the nose, of a scabby and pustular nature on a reddish and inflammatory base. A few days later still a reddish cuff was noticed around the wrists "like the early stage of a bruise, as though someone had seized her by the wrists," then in patches (not noticed if symmetrical) on the back of the hands coalescing into one widespread dermatitis of the dorsal aspects of hands and fingers. The hands had not been noticed to be much swollen. July 9th: I saw her from this date until the time of her death. The rash on her hands had faded to a brownish tint, and at one point there was a tendency to pustulation. On the forehead and root of the nose were scattered patches of scabby roughness, not nearly so dark nor so well defined as on the hands, and showing no tendency to suppurate. She was gradually sinking into a "typhoid" state; the fever had subsided, but the pulse was rapid and very weak; the mouth was very sore; she was delirious, oblivious of the calls of nature, and her general condition was pitiable to witness. The peri-anal skin became denuded, and it was difficult to prevent the formation of bedsores, as the patient emaciated rapidly. On two occasions the medical officer on duty was sent for as she showed signs of collapse. It was at this point that Dr. Sambon first saw her, when she was in a state of muttering delirium with spasmodic muscular contractions, particularly of the face and hands. 15th: The urine examined on this date contained albumin. There was no active diarrhoea, but a tendency at times to constipation, at others to loose stools. At times the confusion was less marked, and she would speak intelligibly—e.g., she asked the nurse to give her "everything cold" and complained of thirst. 22nd: A fatal termination appeared inevitable some days ago, but the patient displayed great tenacity of life. Her general condition changed, the picture now being one of utter prostration—the breathing being easy and rapid, the pulse slower, the cheeks of a pink tinge. She could occasionally speak an intelligible word, and she recognised her mother on the 20th. The active muscular contractions almost ceased, the stomatitis improved, the pustular condition about the mouth cleared up, the eruption faded somewhat, though the thickening of the skin was most noticeable, like wrinkled parchment. Figs. 1 and 2 show the condition of the eruption about July 17th. A small patch of skin, yellowish-brown in colour and thickened, appeared symmetrically on the ulnar side of the elbows, but this is not brought out in the photograph, and the condition of the skin of the forehead is not well shown. The terminal phalanges were much less affected than the rest of the hand. No definite extensor response

was obtained at any time. No notice was taken by the patient of the stimulus of a pin on the legs, but she felt and brushed away flies that settled on her face. Her condition did not now, or for some time previously, admit of exhaustive examination. 29th: She became gradually weaker and died to-day. 30th: A necropsy was made, at which I had the advantage of the kind assistance of Dr. S. A. Kinnier Wilson. The macroscopical findings were, as was expected, almost entirely of a negative character. There was no marked nephritis.

Dr. Wilson is engaged in a complete pathological investigation of the above case, the results of which will be subsequently reported. The patient was not out in the open at any time while in this hospital, but was on one occasion only under a verandah which was protected from the sun.

Dr. Sambon tells me that he has ascertained that there is a stream at Palmer's Green which is simulum-bearing, and that the deceased patient frequented its neighbourhood.

It will be observed that, though with the onset of the stomatitis some fever appeared, the disease in this case ran for the most part an afebrile course. Professor Tanzi speaks of pellagrous typhoid as being associated with fever varying from 102° to 107° F., and as occurring usually only in extremely inveterate cases of several years' duration; but he says also that some cases which do not reach the terminal or demented stage die in a state of acute delirium.³

CASE 2.—C. D., a married woman, admitted on Feb. 12th, 1912, aged 46. Duration of insanity eight to ten weeks; the only cause assigned was worry.

History.—Born at Totnes, Devon. She had a mental breakdown when aged 23, and was at Colney Hatch Asylum. She went to New Southgate in 1881, and to Wood Green in 1908, where she has since lived. Her husband never knew her to suffer from sunburn or roughness of the hands, but after she was taken ill she had "blood poisoning and was very bad." He noticed then that "her hands and legs were in a very bad state, hard lumps formed on the back of the hand, and the skin was very rough and appeared to irritate." There was no vertigo, but headache was present, which was only relieved when she wore glasses.

State on admission.—General health poor; slight cyanosis; temperature 97°, pulse 78. Height 5 ft. 3½ in.; weight 8 st. 4½ lb. Knee-jerks brisk; pupil reactions normal. Urine: specific gravity 1008; no albumin or sugar. She was acutely depressed, agitated, and resistive, would not converse, and was spoon-fed. It is very well remembered that her hands were at this time rough and the skin over the backs of the hands was thickened. She was in the habit of rubbing one hand with the other, and of picking her skin on different parts of her body.

August 5th: Figs. 3, 4, 5, and 6 represent the condition of the hands at this date, when she is in bed on account of a slight attack of diarrhoea. There is slight soreness of the lips and around the nostrils. On the front of the neck over the thyroid and left sterno-mastoid is a small patch of rough, thickened skin of a dull red colour, which shows a little branny desquamation. Very striking is the appearance of the backs of the hands and of the forearms. The distal limit of the eruption is on both sides just short of the first interphalangeal joint; the affected area is not of uniform appearance; in places the skin is a hard crust, shading into rough cracked patches which peel off leaving a raw surface, while on the forearm the condition suggests rather hide or parchment. On the front of the wrist, at the junction with the palm, and also at the upper limit of the eruption on the forearm, the margin is of a reddish colour, suggesting a more active inflammation. The palms, elbows, and feet are quite unaffected. Whenever the opportunity presents the patient picks at her hands, but she does not complain or give signs of any pain, her mental distress occupying her attention, as she fancies that she is very wicked and should be hanged. The urine now contains albumin and indoxyl.

This case also was seen by Dr. Sambon, who told me that the condition is a very good example of pellagrous dermatitis.

CASE 3.—E. F., a married woman, admitted on Jan. 8th, 1910, aged 37.

History.—Duration of insanity a few weeks. A history of insane heredity was obtained, and lactation and privation were offered as exciting causes. The patient developed delusions to the effect that she would be put in prison, became excited, and would have killed her baby had she not been prevented. She lived at Hornsey. No sunburn on the hands had been noticed by her friends prior to admission, and she had not complained of vertigo.

State on admission.—The patient's general health was indifferent. Temperature, 98·4° F.; pulse, 114; respirations, 26. Urine: specific gravity 1028, albumin present, no sugar; height, 4 ft. 10 in.; weight,

³ Vide A Text-book of Mental Diseases, by Professor Eugenio Tanzi, chap. x.

DESCRIPTION OF ILLUSTRATIONS.

FIG. 1.—Illustrates the pustular condition about the mouth and nose, and the non-pustular eruption on the dorsum of the hands in Case 1.

FIG. 2.—The anterior aspects of the wrists in Case 1.

FIGS. 3 and 4.—The back of the hands in Case 2.

FIG. 5.—Shows the comparatively uncommon extension of the eruption up the forearm, also Case 2.

FIG. 6.—The patch on the radial side of the anterior aspect of the wrist, also Case 2.

FIG. 7.—The neck and hands in Case 3.

FIG. 8.—The neck, also Case 3.

FIG. 9.—The fading V-shaped patch on the radial side of the wrist, also Case 3.

FIG. 10.—The back of the hands in Case 9.

FIG. 11.—The front of the wrist in Case 9.

6 st. 4 lb. Her mental condition would, I think, be described variously as stuporose melancholia, or by some as a form of primary dementia, and this has not changed materially since admission. She is silent, unoccupied, apathetic, has a rather fixed expression suggesting depression, and probably has auditory hallucinations, for she will at times smile or cry for no apparent reason. The charge nurse, having been told about pellagra, called my attention to her hands, which I found to be desquamating in strikingly symmetrical areas, and when the hair was raised from her ears symmetrical patches of a similar nature were found, as seen in Figs. 7 and 8. The dorsum of the hands and a V-shaped area on the front of the wrist on the radial side showed a reddish-brown roughness, the distal limit being half-way up the proximal phalanges, the upper limit some two inches above the bend of the wrists. The oval patches on the neck were desquamating in larger flakes.

The photograph in this case was taken only just in time, for a week later the condition could only be discerned on close inspection.

This patient is now heavier than she was on admission (7 st. 2 lb.), and she has no confirmatory symptoms at present. Dr. Sambon refers to this patient as a pellagrin.⁴

In the case records of the asylum I found notes on the following case, extracts from which I give.

CASE 4.—G. H., male, aged 25, transferred from Wandsworth Asylum on June 7th, 1905. In 1901 he was at Banstead Asylum.

History.—There was a marked alcoholic family history. I infer that he was a case of primary dementia very far advanced.

May 28th, 1910: "Is under observation for suspected scabies." May 16th, 1912: "Slight fever with mild attack of diarrhoea. He has developed extensive sunburning on dorsal aspects of both hands." June 28th: "Has large blisters on both hands, probably sunburnt." July 19th: "Had a syncopal attack last night. Suffers much from sunburning." July 31st: Died quite suddenly.

The post-mortem notes of the above case refer to the

from attack of diarrhoea, with slight constitutional symptoms;" Feb. 28th, 1910: "Is subject to returns of diarrhoea." July 27th: "She has now got an attack suggesting tinea circinata—her skin is constantly a source of trouble." 29th: "She has developed an ulceration of gums with 'foul discharge.'"

It is quite clear that this patient was profoundly ill at this time, for the staff remember her well, and it was not expected that she would recover as she did. The eruption was on the back of the neck and on the hands and arms, but no written note was made of its situation. The similarity to sunburn was also remarked in this case. This patient had prolapse of the rectum. I should not have thought of recording this fact, but that Dr. Sambon showed me some notes which had been sent to him relating to a private case, and I noticed that this patient had suffered from the same condition. The matter could not be further pursued as the patient accidentally choked herself and died on Oct. 3rd.

[*Note.*—A troublesome outbreak of scabies occurred in the asylum, and all suspicious skin conditions tended to be included under this heading. It is not unlikely that the entries of May 7th and August 7th in this case concealed a pellagrous eruption as a complication.]

CASE 7.—M. N., female. When admitted on Dec. 31st she was 37 years of age.

History.—Maternal epilepsy was known to exist. The patient's insanity dated from the age of 17. The mental condition was one of manic-depressive insanity, in which the excited phase predominated and to which an element of confusion was added when she became seriously ill. The patient's sister informs me that she

FIG. 12.

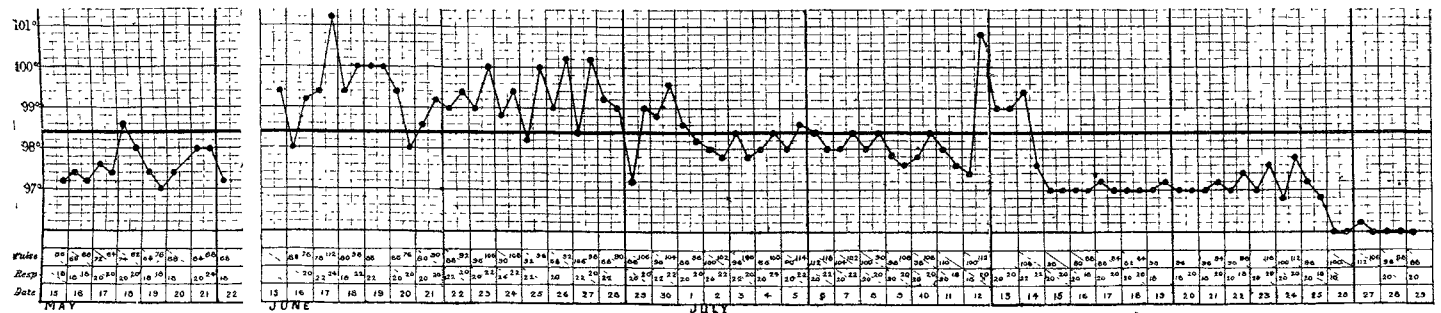


Chart of Case 1, giving temperature and pulse-rate.

blistering of the dorsal aspects of both hands, and pulmonary tuberculosis was found and given as the cause of death. The charge attendant tells me that he remembers the skin coming off "like a scald."

From the asylum records also I quote notes on the following case:—

CASE 5.—I. J., female, unmarried, who when admitted from Wandsworth Asylum on Nov. 28th, 1905, was aged 30.

History.—Only a very scanty history could be obtained.

State on admission.—She was a noisy, violent, destructive, chronic maniac. Urine: Specific gravity 1014, no albumin or sugar.

July 27th, 1910: "The patient has an eruption like ringworm in patches on the neck and hands, and there is considerable ulceration of the mouth." 29th: "Symptoms more marked. Extensive ulceration of mouth, foul discharge, temperature 102.8° F. Restless and excited, swallows with difficulty." 31st: "The patient has had an attack of diarrhoea. Temperature 99°." August 5th: "Gangrene of the lung supervened and the patient died to-day."

The post-mortem notes of the above case refer to small patches of congestion of the mucous membrane of the intestine, and no longer speak of the dermatitis as tinea but as a marginal eczema.

I remember going to see this patient shortly before she died, and my recollections of her, and those of others who saw her frequently, leave me in no doubt that she was a very severe case, similar to Case 1 in many respects. The resemblance to sunburn was remarked in this instance.

When the question of pellagra was raised the following case was at once thought of, and I give brief extracts of the notes.

CASE 6.—K. L., female, admitted Sept. 8th, 1905, aged 20. There was a family history of suicide and epilepsy and the mental state was one of idiocy.

June 13th, 1907: "Very indifferent health, at times she gives evidence of intestinal trouble." Jan. 20th, 1908: "Looking better but has lost 1 st. 2 lb. in last six months. May 7th: "Scabies." August 7th: "Scabies recovered." April, 1909: "Is under treatment for small ulcers, result of blistering of her feet." Nov. 21st: "Is suffering

had lived at various times in North London, Devonshire, Yorkshire, Frinton, and Gloucestershire, but chiefly in London, and goes on to say that she remembers having noticed the sunburn on the patient's hands at Napsbury for "three distinct years" before her death, adding that previously "at the seaside she would only sunburn in the ordinary way, and that it would not last long or peel," and that in the hot weather the patient would occasionally complain of giddiness.

State on admission.—Knee-jerks brisk. Pupil reactions normal. Urine: specific gravity 1010, acid, no albumin or sugar. Weight 8 st.

The patient was under my own care and I remember her very well. Her mental disease followed the usual course, and the attacks of excitement became more and more frequent and were always ushered in by precardial distress, emotionalism, and various apparently neurasthenic symptoms. In 1909 appeared the first unusual symptoms. The matron of Tooting Bec Asylum, who was here at the time, tells me she remembers well that the patient was very much sunburnt in the summer of this year and that the backs of her hands became rough. In September, 1909, it is noted that she has had diarrhoea and has become worse mentally, there being much confusion.

September, 1910: "Her physical condition has suffered greatly of late. She has had stomatitis and diarrhoea." June 15th, 1911: "Is now recovering from a severe but brief attack of excitement. She has again suffered from ulceration of the mouth."

Subsequent notes show that the patient's health gradually failed. From Feb. 3rd to 20th, 1912, she was confined to bed, having had a very obstinate form of diarrhoea without blood or mucus, but of a peculiarly offensive character. It followed on a state of exhaustion after prolonged and intense excitement; apparently causeless vomiting complicated her condition, which was now very grave. While the diarrhoea continued the mental condition was better, but with its cessation the latter became worse again. August 19th: In bed; more small, loose stools. Oct. 19th: "Her condition has occasioned grave anxiety. The diarrhoea ceased, but she became weak, emaciated, very irritable, and difficult to nurse. A troublesome dermatitis of the hands is only now beginning to clear up."

I should mention here that the notes of this case, as of others quoted, are partly statutory, and are not to be considered as a clinical report on the case such as might be expected in a general hospital; thus it is necessary to supplement them from memory.

The patient used to run about in the garden without a hat and became much burnt. The "sunburn," however, to our surprise, did not fade in the usual manner, and I was forced to the conclusion that it had been the starting point for a dermatitis associated with her

* Brit. Med. Jour., August 9th, 1913.

generally impaired health. Both hands became infected, pus burrowing under the thickened skin, until finally as this was shed a raw surface remained. We supposed the infection had been by the patient herself from a focus around the nose and mouth, which had an appearance almost identical with that seen in Case 1, Fig. 1.

Nov. 1st, 1912: "She is in a most unhealthy state, nourishment is not absorbed it would seem. There is now albuminuria, and the temperature is subnormal and the patient becomes increasingly more feeble." 17th: "A week ago she gave some indications of improvement, but she became worse again and died this morning."

At the post-mortem examination of the above patient very marked chronic nephritis, some pulmonary infarcts, and a small, evidently terminal, empyema were found.

CASE 8.—O. P., a widow, aged 74, admitted on April 1st, 1912, from the Edmonton Infirmary.

History.—Very scanty. She had had a previous attack at the age of 37 lasting eight months. Duration of present attack three months. She had some sort of "fit" in January, 1912.

State on admission.—General health feeble, there being evidence of cardio-vascular degeneration. Temperature 97.4° F., pulse 98, respirations 22. Mentally she was confused, restless, incoherent, irrational, and disoriented.

April 16th: "Syncope attack." May 23rd: "Excitement is less marked, she had another syncope attack." June 10th: "She recently sustained a burn on either hand as the result of the action of the sun. These heal very slowly as she will not keep on her dressings." 20th: "Is steadily losing ground physically and is more demented." July 2nd: "She rallied from another syncope attack, but a day or so after her lungs became involved and she died to-day."

Post-mortem notes.—Extreme cardio-vascular degeneration, chronic nephritis, and bronchial catarrh.

We can well recall that the distribution of the so-called "sunburn" was on the dorsum of hands, including the fingers, and on the front of the wrists, closely resembling Cases 1 and 7 in appearance. The area on the back of the hands became infected, and the skin peeled off, leaving a raw surface like that of a dirty burn. The face appeared to be only deeply sunburnt, and there is no recollection of the details of its appearance; it did not peel.

To the foregoing eight cases, in which I feel sure the diagnosis of pellagra can be fairly made, I am able to add another.

CASE 9.—A female patient in the Herts County Asylum, Hill End, who is, in my opinion, a pellagrin. Dr. J. Grimmond Smith, the deputy medical superintendent, very kindly permitted me to examine her on August 6th, 1913, and to have photographs taken of the hands and forearms, and these are reproduced in Figs. 10 and 11. The patient is of early middle age; she is the wife of a farm labourer and lived near Aldenham, Herts. She was admitted in May, 1912. Her bodily health is poor. She has, I am informed, recently had stomatitis, but this is much better. She has also had more than one attack of diarrhoea. She is in a state of mental confusion, is restless, depressed, has hallucinations of hearing, and requires tube-feeding. The eruption on the hands has the same distribution as in Case 2, but is less extensive, and the skin is not so indurated. The face, neck, and elbows are free from signs of the disease.

We have under observation at Napsbury several doubtful cases, and I was also shown a patient at Hill End Asylum, who was, I think, a slight case, but I propose only to refer to those already mentioned.

It is no part of my object to attempt to review the main features of this puzzling disease, if for no other reason than that has so recently been done by Dr. C. R. Box.⁵ It may, however, be useful to discuss briefly some of the points which arise from the consideration of the foregoing cases:—

Sex.—Of nine cases all but one occurred in females. This preponderance amongst women accords with the prevailing opinion in America,⁶ but I believe on the Continent a different view is held. Only the male patients at Napsbury are agricultural workers. I have been unable as yet to find one living undoubted pellagrin amongst them.

Age.—With the exception of Case 8 (aged 74), at the time when the disease was manifest, all were in early middle life (20–40 years).

Social condition and residence.—Case 7 was a private patient, and though in Case 3 privation was mentioned by the husband, generally speaking none of the patients could be said to be destitute, and they did not come from the lowest grades of society. In some instances the patients had lived so long in the asylum that their social condition was really that of the institution. So far as I can ascertain, none of these patients had ever lived abroad. When I have been sure of their various places of residence these are given, but it may be said that the patients were all Middlesex cases.

Diet.—The asylum dietary is liberal, and so far as I am aware no maize products, unless it be cornflour, are comprised

within it. This fact, and the good hygienic conditions that obtain at Napsbury, militate against the deprivation theory as far as the asylum is concerned.

Type.—A very striking feature of the cases described in this article is their severity. It will be recalled that the earlier American cases are said to have been of a very grave type, more so than is now the rule. A fatal issue in Case 8 would have caused little surprise had there been no pellagra. Case 4 had, it is true, tuberculous lesions, but in Cases 1, 5, and 7 the unfortunate termination must be attributed primarily to the pellagra. Case 6 made a recovery that was quite unexpected, though it is possible that the choking which caused the patient's death not long after may have been associated with the well-recognised tendency to collapse in this disease. Case 3 is the only one of the series which is quite slight, and but for the extraordinary symmetry of the eruption would not have been included in this category.

Symptoms.—I have not attempted to diagnose pellagra unless some skin lesion was certainly noted, though I am tempted to describe one case, now dead, the features of which strongly suggested to my mind the "pellagra sine pellagra" described by several authors. In asylums, as is well known, dirty mouths and slight gastro-intestinal disorders are not uncommon, but in these cases the stomatitis has been of such an unusual character as to call for special mention in the notes, and the same applies to the diarrhoea, which has been free, however, from any of the more alarming features of so-called asylum diarrhoea. Albuminuria appeared in the late stage of the illness in Cases 1 and 7, was present on admission in Case 3, and is now present in Case 2; there was a trace at one time in Case 4. Unfortunately I cannot find data as regards some of the other cases. In no instance have I record of definite nervous as distinct from mental symptoms, unless one mentions the convulsive twitchings noticed in Case 1 and which were present in a lesser degree in Case 7 at one time. A very interesting question arises:—viz., To what extent was the pellagra in my series a factor in the cause of the insanity?

I will attempt to classify the cases as follows:—

Case 1.—Confusional insanity (exhaustion psychosis).

Case 2.—Agitated melancholia.

Case 3.—Stuporose melancholia.

Case 4.—Primary dementia.

Case 5.—Chronic mania, to which was added the features of an exhaustion psychosis, when she became seriously ill.

Case 6.—Idiocy.

Case 7.—Manic-depressive insanity with later confusional symptoms.

Case 8.—Confusional insanity.

Case 9.—I do not know what view Dr. Smith takes of this case, but it appeared to me to be a case of confusional insanity.

As it is stated that pellagra may exist in a quiescent or unnoticed state for years, one cannot come to any definite conclusion as to the question of *post* or *propter hoc*, but except in Cases 1 and 9, and possibly Case 2, I find a great difficulty in believing that the insanity was not quite independent of any pellagrous factor. The duration of the mental disease in Cases 4, 5, 6, and 7, the hereditary taint in several, and the other sufficient factors in Case 8, all support this view, and in Case 2 there had been a previous attack 20 years ago.

Seasonal incidence.—It would be strange if the following approximate dates could be explained by coincidence:—

Case 1.—Admitted May 15th; died July 29th.

Case 2.—Here the eruption appears to have been first noticed in the winter, and to have reached a maximum in July.

Case 3.—Eruption only noted in July; fading in early August.

Case 4.—Severe symptoms noted May 16th; patient died July 31st.

Case 5.—Acute illness July 27th; patient died August 5th.

Case 6.—Acute illness July 27th.

Case 7.—Last illness February to October.

Case 8.—Sunburn noted early in June; patient died July 2nd.

Case 9.—Admitted May; eruption peeling early in August.

Time and mode of origin.—Except that in Case 2 we have the husband's history of the roughness of the hands before admission, there are no facts, so far as I am aware, which are inconsistent with Cases 1 to 8 having contracted the disease while here at Napsbury, but if such were the case the incubation period in Case 1 must have been exceedingly short, and the mental disease due to some other cause.

As regards the distribution of the cases in the hospital, Cases 5 and 6 occurred at the same time, and were in contact with one another. Case 4 was isolated by his sex and mental state. The three patients were in the same block. Case 7 would appear to have contracted the disease not later than 1909, and Case 8 came in contact in the same ward with

⁵ Vide Practitioner, June, 1913.

⁶ Vide Pellagra, by E. J. Wood, p. 122.

Case 7 in 1912. Case 3 was also associated with Case 7 and with Case 2. Case 1 occupied a bed in the ward where Cases 7 and 8 had died in the previous year. All these patients, however, were in the hospital block and separated from Cases 4, 5, and 6.

My short acquaintance with this disease cannot permit me to offer any opinion as to its mode of origin. It is difficult not to be carried away by the enthusiasm of Dr. Sambon for his very attractive simulum theory, which he supports with so many interesting and impressive facts. While, however, it is comparatively easy to associate the life-history of any individual patient in this country, when means of transit are so plentiful, with some or other river, it is almost impossible to find a case that can at no time have been in the near neighbourhood of a simulum-bearing stream. In this connexion I may mention that Case 9 (the Hill End Asylum patient) comes from a village but a short distance from the continuation of the stream (river Colne) that a few miles higher up bounds the Napsbury estate. The mean distance from the river to the asylum, as the crow, or the simulum, might fly may be taken at about 700 yards. Mr. Amoruso, on behalf of Dr. Sambon, searched the river near the asylum on August 14th. He found larvæ and pupæ of simulidæ, but was unable to capture any fly on this occasion.

One further fact I must mention for what it is worth: Dr. Sambon told me recently that an Italian peasant once said to him, "Our pigs have got this disease which you are investigating." Until recently there was a herd of pigs at Napsbury, and recollecting this story I asked the farm bailiff what skin diseases his pigs used to have. He volunteered the information that a small percentage of them had had skin affections associated with soreness about the mouth, that this complaint appeared mostly in the spring, and that he had not met with it before he came to Napsbury, but had heard of it as occurring elsewhere, but more so in institutions than in rural districts generally.

This paper has been hurriedly put together, but with the object indicated in the earlier paragraphs. I had scarcely finished it when my colleague, Dr. A. O'Neill, called my attention to two more cases in this asylum, one of particular interest, and I will briefly mention these.

CASE 10.—Female, single, admitted June, 1912, from the Edmonton district, aged 39. First attack, duration five days. Cause unknown, no neuropathic history. Temperature 97.6°F., pulse 88, respiration 22, height 5 ft. 5 in., weight 7 st. 1 lb. Urine: specific gravity 1026, acid, albumin present, no sugar.

State on admission.—The patient was resistive, impulsively violent, noisy, incoherent, and was spoon-fed; her memory and attention were much impaired. At times there was tachycardia.

Progress.—The patient became steadily worse mentally, developed a voracious appetite, stole the food of others, and lost all sense of decency and self-respect.

April 15th, 1913: "A sore place, the size of a shilling, has appeared on the right arm; it looks as if she had burnt herself on the fire-guard." 24th: "She has a blister with surrounding inflammation on the first finger of right hand; cause unknown." August 13th: On the back of the neck, partly hidden by the collar, is an area of skin some six inches vertically by three inches horizontally, looking just as though it had been recently burnt, and a good deal of desquamation has evidently taken place. Just above the outer angle of the eyebrow on both sides a small rough patch of skin, not red but desquamating, is to be observed. The hands looked slightly swollen, and have a much more raw appearance than any other case I have seen (except Dr. Stephenson's first case—Prestwich). The fingers of the right hand are red and swollen, but only the back of the hands and of the proximal phalanges of the first and second fingers of the left hand are desquamating. The elbows are unaffected. A V-shaped patch appears symmetrically on the radial side of the anterior aspects of the forearms. Salivation is profuse, but the patient violently resists any examination of her mouth. There is no history of diarrhoea; the knee-jerks are brisk.

Clinically this case is remarkable for the rapidity with which the most profound mental degradation has developed.

CASE 11.—Female, married, admitted June 21st, 1912, from the Middlesex County Asylum at Wandsworth, aged 52.

History.—There is a history of insane heredity. She became insane 21 years ago.

State on admission.—The patient is much deformed (kyphosis), but appears to be in good health; there is, however, a trace of albumin in the urine. Her nurse tells me that she has recently had sore lips. There is pyorrhœa, but no definite stomatitis, nor is she known to have had any diarrhoea. The skin of the backs of the hands is rough, wrinkled, and thickened, and there is a little branny desquamation. The forearm is involved on the left side.

The case is quite a mild one, but I think there is no doubt of the diagnosis. Mentally she may be classed under the heading of chronic mania.

Each day, I am told, brings to light fresh cases in different parts of England. It is not difficult to imagine the possibilities to which their appreciation may lead. Should the hopes that I imply be fulfilled in the future, psychiatry in this

country will owe much, it seems to me, to Dr. Sambon, to whose papers in 1912 and 1913, and to whose energetic pioneer work, the general recognition of this disease in Great Britain will be so largely due.

I wish, in conclusion, to thank Dr. Rolleston for his permission to publish these cases, and my colleagues for much kindly assistance.

I am indebted to Mr. Chas. G. Rolliston, of Napsbury, for the photographs which illustrate this article.

Napsbury.

NOTES OF A CASE OF PELLAGRA.

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I HAVE the kind permission of Dr. J. K. Will, medical superintendent of Bethnall House Asylum, to communicate the following notes of a case of pellagra.

A woman, aged 25, was transferred here on July 3rd. Three days after admission a shiny redness appeared on the bridge of the nose and rapidly spread over the malar regions, forehead, and around the mouth, extending about 1½ inches down the chin. I saw her on July 21st. The rash on the face was then covered with dry, yellowish-brown, scaling epidermis. This scaling surface had a clearly defined rosy-red margin. It was strikingly symmetrical in its distribution over the areas mentioned above. The conjunctivæ were healthy and the eyelids themselves were unaffected. There were one or two small islands of healthy skin on the forehead. It extended right up to, but did not encroach upon, the scalp. There was no œdema. There was a small patch on the lobe of the left ear; the right ear was unaffected. On the right side of the neck was a patch 1 inch wide, extending 3 inches round the neck; on the left side of the neck was an irregular patch extending up the neck rather than around it. The remaining skin on the face and neck was deeply and evenly pigmented, but whether more so than she would normally exhibit I cannot say. On August 8th she was placed in bed in a comparatively dark corner of the ward. By the 11th the desquamation was practically complete. The reddened edges were still well marked, and a few adherent flakes gave a powdery appearance to the affected site. On the 12th she again went into the open air, and now, August 17th, the whole of the area is again assuming a shiny red appearance. Had I not read the recent articles on pellagra I should have made a diagnosis of severe sunburn, vaguely attributing the fact that she became so affected when others escaped to some inherent peculiarity.

Coincidentally with the facial symptoms parts of the hands became deeply stained to a purplish brown. The affected area is continuous and contains no healthy patches. It covers roughly the backs of the hands and fingers and by a band one inch broad the entire area of the wrist. The ends of the fingers from the roots of the nails are entirely free. There is a distinct limiting line along the ulnar edge of the hand and fourth finger. It is definitely limited by the lines of contact of the fingers when extended. The limit on the radial edge of the first finger is not so definite, but when the thumb is adducted against the radial edge of the palm there is a definite line on the back of the hand where it comes in contact with the thumb. The back of the thumb is affected in the same way as the fingers. On the wrist band the pigmentation is less deep, and its upper edge fades off into the normal skin of the arm.

Desquamation has been less rapid on the hands than on the face. A striking feature is the fact that the fine crossing lines of the skin stand out as a glistening network on the pigmented area. Round the wrist there is a tendency for desquamation to occur in patches, causing islands of healthy skin to appear surrounded by a frayed edge of dry epidermis. The skin feels very coarse, harsh, and dry. She occasionally rubs her peeling hands, but neither on the face nor hands has the eruption appeared to be very irritable. Although the palms were unpigmented, desquamation is appearing along the palmar folds. Very slight redness occurred on the lower surface of the elbow, but definite desquamation is now present. Throughout there has been a goose-flesh condition of the skin of the legs, but the skin of the feet and of the rest of the body has been normal. The nipples are very