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Part I.—Original Articles.

Some Cases of Pellagrous Insanity. By JOHN WARNOCK, M.D., Director of the Cairo Asylum, Egypt.

THE existence of pellagra in Egypt has been pointed out within recent years by Dr. F. M. Sandwith, and for a description of the disease as it occurs in hospital practice reference may be made to his articles.(1)

As a cause of insanity in Egypt, pellagra seems to have attracted little notice until Dr. Sandwith drew my attention to its existence in this asylum in 1895. Since then the number of cases admitted annually has been as follows:

Year.	Number of cases of Pellagra admitted.		
	Male.	Female.	Total.
1896 . .	9	2	11
1897 . .	13	10	23
1898 . .	29	10	39
1899 . .	14	19	33
1900 . .	27	8	35
Total .	92	49	141

Most cases came from the Delta, few from Upper Egypt. The *country* districts produce practically all the cases, in contrast to the *towns*, which, free from pellagra, send almost all the general paralytics and hasheesh cases that arrive here.

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The usual symptoms as observed here are those of melancholia, which soon passes into dementia; later on great emaciation and anæmia with paresis of the lower limbs, intermittent diarrhœa, and a prolonged state of prostration precede the fatal termination.

Pellagra is never uncomplicated in the stage seen here. Every patient suffers from parasitic diseases. Favus, often producing complete baldness, is frequently present. The anchylostomum worms are always present, and the resulting extreme anæmia accounts partly for the great prostration of these cases. Other intestinal worms often occur. Bilharziosis of the rectum or bladder affects many cases and further aids the development of the anæmia and exhaustion. In fact it is a matter for astonishment that an individual preyed on by so many kinds of parasites is able to survive so long. Many of these patients have a dried-up wizened look, suggesting that of a mummy.

All cases admitted here arrive late in the course of the disease, the mental symptoms not having been sufficiently alarming in the early stages to necessitate removal to the asylum. The characteristic skin lesion of pellagra has therefore often disappeared before the patient is brought here ("pellagra sine pellagra"), but its former existence can be inferred from the state of the skin left bare after the exfoliation of the rash. The dark flaky rash of pellagra leaves the diseased skin paler than that of the surrounding parts, with a darker areola along the line where the diseased meets the healthy skin. This paleness does not always persist, but gradually the skin assumes a brownish shrivelled appearance and its texture becomes thinner, especially around the neck.

The situations where the signs of old pellagrous rashes are most often found are the dorsal surfaces of the hands and feet, the forearms and legs, the neck and the front of the upper portion of the thorax; all these parts are exposed to the sun when the patients work in the fields. Dark indurated patches are also found over the great trochanters and on the elbows and knees, which persist often when the rest of the rash has disappeared.

A number of patients who were admitted without noticeable skin lesion have developed the characteristic rash of pellagra while in hospital during the spring. The rash appears annually, chiefly at this season, and after some months gradually de-

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squamates and disappears, only to return in the next spring-time.

Some sufferers complain of burning and itching in the affected skin, and there seems to be a connection between this discomfort and the frequent delusions of being burned, of sorcery, and of persecution.

Tenderness on pressure at the sides of the dorsal vertebræ, near the scapulæ, was obtainable in many cases, but the mental condition often prevented the investigation of this symptom. I noticed scars of cauterisation over the spinal column, probably done to cure back pain, in ten out of forty-five consecutive cases.

The patellar reflexes are usually much increased in force, though in five out of forty-five cases they were noted to be absent. A paretic gait is observed in advanced cases; the patient walks with the legs well apart, the shoulders raised and bent forwards, and after a few short feeble steps he falls over. Many cases are unable to stand up, or even to raise themselves up in bed. This loss of power is sometimes accompanied by tremors of the limbs. Ankle-clonus can be obtained in some advanced cases. Wrist-drop developed suddenly in one case, and epileptic convulsions in another. I may mention that epilepsy is a common disease in Egypt, and, as in other countries, is associated with insanity; no doubt epileptic patients acquire pellagra occasionally, and the convulsions observed in the course of pellagra may not be a symptom of this disease. A general atrophy of all the muscles of the body occurs as part of the general emaciation and malnutrition. Loss of control of the rectum and bladder is common.

The alimentary system is profoundly affected. Intermittent and uncontrollable diarrhœa occurs almost invariably. The pale anæmic tongue has often a peculiar appearance, being smooth and "slimy looking" at the tip and sides, as though stripped of its epithelium. This "bald tongue," as Sandwith calls it, was noticed in about three fourths of the cases, but its presence varies with the state of the patient's nutrition. Spongy gums, easily bleeding on pressure, and scorbutic cachexia were several times noted. A swelling of the parotid glands occurred in a few cases.

Mentally.—Usually the mental condition on admission is

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one of melancholia. There is great depression, with feelings of illness and discomfort, and a childish, unreasoning discontent with everything. Resistiveness, refusal of food, and suicidal tendencies are common. Unpleasant delusions as to possession by devils, persecution, poisoning, sorcery, or of impending violent death of self or relatives often occur. Hallucinations of taste and smell are more frequent than those of the other senses. The melancholia does not last long without showing signs of oncoming dementia. Besides apathy, one notices some confusion and incoherence, loss of memory and slowness in comprehension, and gradually the patient becomes demented, so that in the later stages there are few signs of melancholia remaining; the patient smiles vacantly and appears to have lost interest in everything, and cannot give any account of himself. His remarks become limited to requests for more food and cigarettes.

It seems to me that the form of insanity occurring with pellagra is one peculiar to it, and is not simply the mental expression of the incidental cerebral malnutrition and anæmia. For we admit numbers of emaciated patients suffering from the terrible anæmia of anchylostomiasis who do not present symptoms of such grave melancholia as occurs in pellagra; in fact, the majority of them are maniacal, and, indeed, so excited that the treatment of their parasitic malady has to await their becoming more tranquil.

The frequent early occurrence in pellagra of symptoms of dementia, with loss of memory and childishness, points to organic brain disease, and reminds one of the mental condition of patients suffering from organic dementia due to gross brain lesions, and of the later stages of general paralysis. Indeed, the last stage of a general paralytic of the melancholic type and that of a pellagrous patient have many resemblances to one another.

The melancholia of pellagra is so much in contrast to the maniacal forms of insanity prevailing among the Arabs, that whenever an Arab fellah is melancholic the suspicion is raised that he may have pellagra, and search is made for signs of that disease. Among the Copts, on the other hand, who are descended from the ancient inhabitants of Egypt and profess a form of Christianity, melancholia is not uncommon even apart from pellagra. I may note in passing that the Copts suffer more

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frequently from insanity than the Arabs, and that in them hereditary influence is often apparent. Also the Copts use alcohol as well as hasheesh, while the Arabs mostly indulge in the latter stimulant.

One type of pellagrous insanity, though not common, deserves special mention. In lieu of melancholic ideas, the patient develops expanded notions of himself. He has an exaggerated feeling of *bien-être*, mental and physical; although emaciated and unable to stand he declares he is in good health, very strong and rich, etc. The differential diagnosis of cases of this type from general paralysis is not always easy. At first sight one would expect the skin lesions of pellagra to be sufficiently distinctive; however, in some cases the rash has disappeared, and the patient having been confined to his house for some years from debility only exhibits a dirty-coloured skin. Unfortunately the pupillary reactions are often unobservable owing to old eye disease resulting in corneal opacities, iritic adhesions, etc. Even when the eyes are healthy, the observation of the pupillary reactions of an insane Arab patient in whom the iris is almost black is not easy. So far as my experience yet extends, the speech does not seem affected in pellagra, beyond being hollow and nasal in tone in a few cases, and, provided the patient can be induced to speak freely, the diagnosis may thus be effected. I append notes of two cases of pellagrous insanity of this uncommon type (Cases I and II).

Cases III and IV are in advanced stages of the disease.

Case V was formerly an inmate here in good bodily health, but maniacal and without pellagrous symptoms.

Case VI presented the usual melancholic symptoms.

Case I.—A. R. A—, admitted July 1st, 1901; Arab, fellah, from Gharbieh Province, æt. about 45. His *medical certificate* states that he is delirious, talks nonsense, is destructive, and is dirty in habits.

On admission his weight is 46 kilogrammes. He is emaciated and anæmic; all musculature atrophied. He has a typical pellagrous black rash on the back of the neck, on the legs, forearms, dorsal surfaces of hands and feet. The black scales are peeling off. There are no signs of syphilis.

Pupils.—Examination impossible owing to opacities of corneæ.

Gait.—Paretic. He staggers and falls after a few moments; while standing kept his feet widely separated.

Patellar reflexes exaggerated in both sides.

Ankle-clonus well marked in both legs.

Tongue pale flabby, fairly steady.

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Speech slow, but no actual articulatory defect.

He is bald from old favus of scalp. There are cautery marks along his spinal column, and he complains of tenderness on pressure over the dorsal vertebræ. He is dirty in habits.

Mentally.—He has expanded and quite unfounded ideas of his strength and abilities. He smiles, saying that he is happy and is as strong as ten men, is the "Lion of lions," etc. He is childish and can't explain his statements; he is passive, prostrate, and demented; his memory is much impaired.

Note of autopsy of Case I, who died on September 25th, 1901. P.M. twelve hours after death; temperature 95° Fahr.

The calvarium was very thin and transparent, especially in the temporal and parietal regions.

The brain, with membranes, weighed 1300 grammes. *Dura mater* thickened; on its under surface, over the superior and lateral surfaces of the left hemisphere, there was a layer of brownish-red semi-transparent membrane, adherent to the dura mater, but peeling easily; numerous rusty stains on under surface of dura mater (pachymeningitis hæmorrhagica). *The pia mater and arachnoid* were generally healthy, but there was some milky opacity over the fourth ventricle. These membranes stripped easily from the convolutions and left *no* erosions. Vessels at base healthy. The brain was generally soft and flabby, and collapsed on the table. On section no obvious changes were observed beyond anæmia, excess of fluid, and marked dilatation of lateral ventricles. (Spinal cord preserved for microscopical examination.)

Heart weighed 250 grammes; coronary arteries convoluted and white; endocardium shrivelled and pale; valves and aortic arch healthy; no atheroma; heart muscle flabby, and faded brown in colour; large *ante-mortem* clot; condition of *brown atrophy*.

Kidneys.—Capsules of both were difficult to remove; on removal, kidney surfaces were fairly smooth; long, depressed, linear scars traversed both kidneys. *Left* weighed 150 grammes; pyramids congested and dark in colour, large dilated veins; cortex not atrophied, but yellowish. *Right*, in section, was of dark purple colour; congested; weighed 140 grammes; pelvis dilated.

Intestines generally atrophied, and almost transparent, contained anchylostoma.

Spleen weighed 340 grammes; soft, friable, congested.

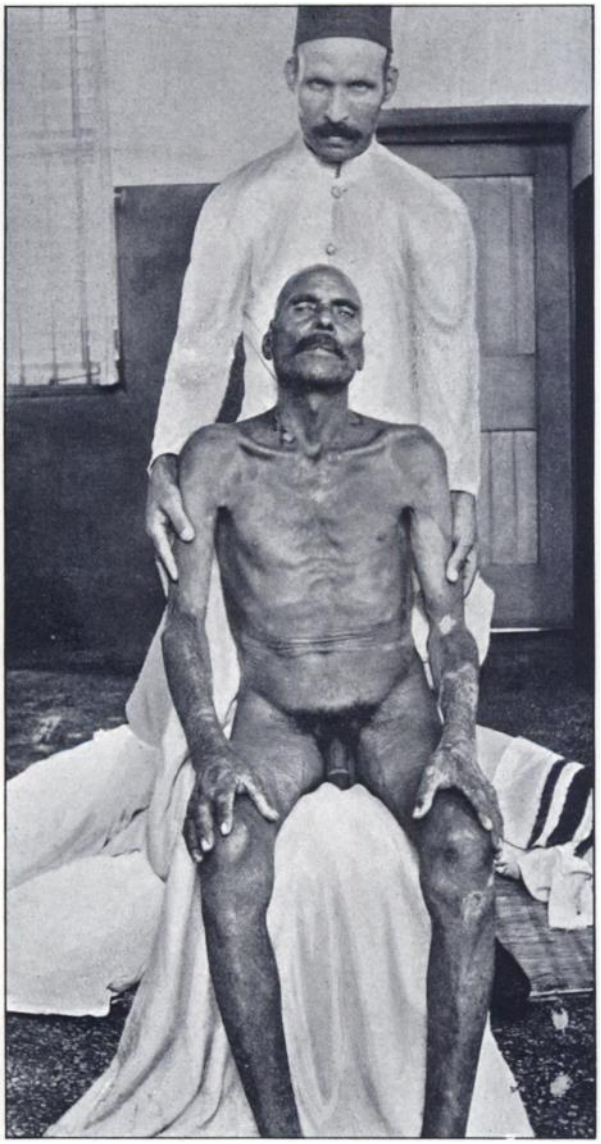
Liver 1220 grammes; dark purple in colour.

Lungs both congested and œdematous. A patch of gangrene existed at base of right lung.

Case II.—S. K—, admitted July 27th, 1901; Arab, fellah, from Gharbieh Province, æt. about 45. His *medical certificate* states that he is excited, dirty in habits, and suffers from pellagra.

On admission patient was found to be emaciated and anæmic from anchylostomiasis. The skin of the neck, especially behind, is the seat of marked changes; flakes of hardened epithelium, black as though caked with soot, still adhere in some places; in others, pale

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CASE II.

To illustrate Dr. WARNOCK's paper.

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skin is left bare by the exfoliation. A yoke of diseased skin is easily discernible around the neck. Over the upper portion of the chest, on the extensor surfaces of the forearms, wrists and hands, legs and feet, a similar, though somewhat paler, indurated layer of diseased epithelium exists. The patient says that he has had eruptions for seven years (see photograph).

Patellar reflexes.—Very strong reactions.

Pupils.—Both clouded.

Gait.—He makes a feeble attempt to walk, but has little power in his lower limbs, and soon falls.

Tongue.—Pale, clean, steady.

Speech clear, no stammer.

There is no pain in back or cautery marks. He is clean in habits here.

Mentally.—He says he is very well and strong, "stronger than the world," then says he is weak; he says he is happy; he is incoherent; his memory is much impaired; he cannot relate his recent history; he is passive, contented, and unconcerned; he is demented, asks for food at all hours, and doesn't know where he is.

CASE III.—M. I—, admitted July 2nd, 1901, from Sharkiyeh Province; Arab, fellah, æt. 35. Duration of insanity, two years (?). His *certificate* states that his neighbours complain of his excitement, and that he is irrational and resistive.

On admission he objected to examination, and refused to give any information about himself. There are patches of black indurated skin over his elbows, buttocks, great trochanters, and knees. He is extremely emaciated, and has a dried-up appearance.

Gait.—He walks feebly, with bent back; he has tremors in his limbs.

Pupils equal; reactions cannot be observed on account of patient's violence.

Tongue smooth, denuded, and characteristic of pellagra.

Speech clear, but his voice is hollow and nasal in tone.

Patellar reflexes.—Slight reaction on right side, none on left. The existence of back pain cannot be investigated, but he has cautery scars along the spine. His habits are dirty. There are no signs of favus or syphilis.

Mentally he is very demented, and appears unable to comprehend simple questions; he is irritable and restless; he gropes about the floor, and snaps at me, and makes feeble attempts to strike the attendants; he mutters incoherently; he seems to be suspicious of every one; he strips himself naked.

CASE IV.—F. S. F—, admitted June 18th, 1901, from Sharkiyeh Province; Arab, fellah, æt. about 40; his brother is insane. Duration of existing attack, three months (?). His *certificate* states that he is unfit to be at liberty, that he talks incoherently and is resistive.

On admission he was emaciated and anæmic, weighing 43 kilogrammes. There is a well-marked pellagrous rash on the elbows and arms; it is exfoliating, leaving pale skin evident.

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Gait.—He couldn't stand on admission; to-day (August 1st) he can walk feebly.

Speech.—Nasal and monotonous voice.

Tongue raw, denuded at tip and edges.

Pupils react to light satisfactorily.

Patellar reflexes both exaggerated. He has back pain and cautery scars on spine. His habits are dirty. No signs of favus or syphilis.

Mentally.—His memory is impaired as to recent events. He sleeps much and is always hungry. He has a vacant expression of face; he doesn't know where he is; he is demented; he talks to himself, but cannot converse intelligibly; he seems to be uncomfortable; continually asks for food.

CASE V.—K. I—, re-admitted July 17th, 1901, from Gharbieh Province; Arab, prostitute, æt. about 30. Her *certificate* states that she is noisy, weeping and laughing, frowning and making grimaces. She has pellagra.

On admission she was emaciated and anæmic. A well-marked dark pellagrous rash exists on her neck and chest, and on the extensor surfaces of her arms (see photograph).

Gait normal.

Tongue coated. She suffers from diarrhœa.

Pupils sensitive to light.

Speech clear. She has tenderness on pressure over the dorsal vertebræ.

Patellar reflexes are diminished. Her habits are dirty.

Mentally.—Patient is depressed and in a state of fear; she rushes suddenly away from me and moans and weeps. She is restless and resistive.

In 1895 this patient was an inmate of the asylum for seven months, suffering from mania from which she recovered.

In 1898 she was again admitted, suffering from mania, attributed to hasheesh. She was also suffering from secondary syphilis. She completely recovered after ten months' treatment. On neither of these occasions were there any signs of pellagra.

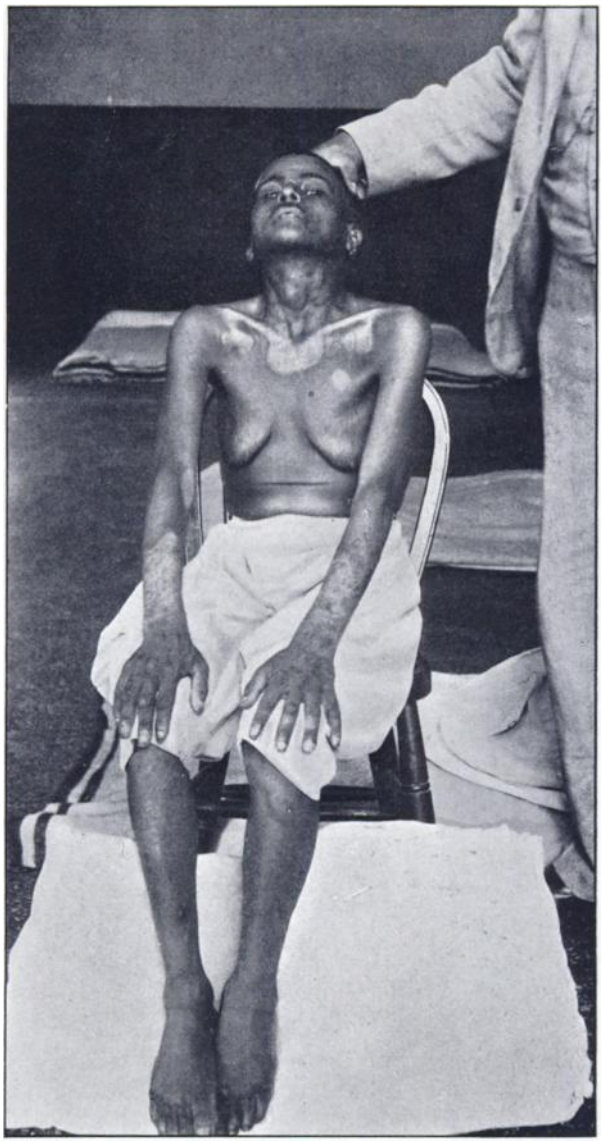
CASE VI.—A. N. A—, admitted June 20th, 1896, from Sharkiyeh Province; Arab, fellah, æt. about 20.

On admission he was emaciated and had a dwarfed, shrivelled appearance. Weight 33 kilogrammes. Anæmic and cachectic. Skin of a yellowish tint generally. Had pellagrous rash, and cautery marks along spine.

Mentally.—He was talkative, emotional, and deluded. He kept repeating the statement that he had drunk poison and would be killed. He was melancholic and frantically afraid of poison.

June 1st, 1898.—Since admission he has steadily become worse mentally, and is now a restless, urgent melancholiac, distressing his neighbours by his cries, catching hold of visitors and imploring protection from his poisoning enemies. He often refuses food and exhibits his abdomen, declaring it to be full of poison. He becomes destructive and reckless when his entreaties are disregarded. He is usually sleep-

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CASE V.

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less, declaring that when he sleeps his enemies fill him with poison; he says that salt drinking-water has made his legs swell. He points to the ward medicine bottles, declaring they are for the purpose of poisoning him. He steals food when unobserved; he thinks that the tell-tale clock shakes him at night. He had an attack of stomatitis last year, and became very exhausted, refusing food and medicines, and suffering from retention of urine. He often suffers from diarrhœa; he has back pain between the scapulæ; his tongue is raw-looking. His face, hands, and shins are black in patches; his patellar reflexes are much exaggerated. No abdominal skin reflexes exist. Cremasteric reflex is weak. He has advanced favus of scalp.

He died in January, 1899.

(1) Sandwith, F. M., "Pellagra in Egypt," *Journal of Tropical Medicine*, Oct., 1898, and *Brit. Journal of Dermatology*, No. 121, vol. x, 1898. "Three Fatal Cases of Pellagra, with Examination of the Spinal Cords," *Journal of Pathology and Bacteriology*, November, 1901. Article on "Pellagra" in *Encyclopædia Medica*, 1901.

Note on the Prefrontal Lobes and the Localisation of Mental Functions.

By P. W. MACDONALD, M.D., Medical Superintendent, Dorset County Asylum.(1)

ABOUT the time that this very interesting specimen came under notice, the members of the Medico-Psychological Association were being treated to an able exposition of the present-day views on the burning question of the localisation of mental functions. The intention of this short contribution is very humble, my main object being to explain the specimen, and while doing so to offer a few general observations on any bearing it may be thought to possess regarding the localisation of intellect.

Before dealing with the specimen, I think I ought to say a few words respecting the subject from which it was obtained. The patient had been in the Dorchester Asylum for over twenty-five years, and at the time of his death was almost 60 years of age. He was a congenital imbecile, with a fairly well-formed head, a short stumpy body and limbs, and was from birth afflicted with primary spastic paraplegia. He could not read or write, but he could mutter words and appeared to know after a fashion what was going on, whether in a room or out of doors. By the aid of his mutterings and signs he was able

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