blance in certain points to the alveolar sarcoma and carcinoma must be borne in mind. These three tumours present some marked resemblances. All have the arrangement of alveoli supported by fibrous tissue, and all have their blood vessels not running in and anastomosing between the individual cell-elements, as in most of the sarcomatous tumours, but running in and supported by the fibrous tissue stroma.

In *alveolar sarcomata* each individual cell is surrounded by a fine prolongation of the fibrous tissue forming the supporting framework of the tumour. Further in this tumour there is never seen the radiating arrangement nor the true processes of the special cell-elements as observed in the tumours under discussion.

In *carcinoma* there is not the concentric arrangement of spindle cells around a central axis. The situation of the tumour debars it from being a carcinoma, growing from a fibro-serous membrane which contains no epithelial elements. The presence and absence of secondary growth would, undoubtedly, weigh in the diagnosis here.

The study of endotheliomata will ever remain a matter of scientific and pathological interest and curiosity, but probably it will never come to possess any measure of clinical importance by reason of their comparative non-evidence during life.

My thanks are due to Dr. T. W. McDowall for permission to record this case, and also to Dr. Whitwell, of the West Riding Asylum, Menstone, for the careful preparation of the sections of the tumour.

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*Syphilitic General Paralysis.** By M. J. Nolan, L.R.C.P., M.P.C., Fellow Royal Academy of Medicine, Senior Assistant Medical Officer, Dublin District Asylum.

At the present time, when our *fin de siècle* knowledge of "general paralysis" enables us to recognize under that generic term many types of the disorder, and when the relation between it and syphilis continues a rather vexed question, little apology is needed for introducing to notice the following cases. They illustrate unmistakably some of the instances in which syphilis is solely responsible for what

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is termed by Dr. Savage "A process of degeneration which ultimately produces the ruin we recognize as general paralysis."* Whatever may be hereafter formulated from the present evolutionary crisis in the history of the disorder there can be but little doubt that syphilis will be one of its most intimate and important relations. The story of its methods is briefly sketched in the following two short life-histories—in one asserting itself in the offspring of its victims by right of impure heredity, in the other carrying death direct into the vital centres by the force of its malignant virus.

Case I.—*Hereditary Syphilis.*—General paralysis due to congenital syphilis.

History.—J. B., æt. 18, admitted September 10th, 1891. Paternal grandfather died in Richmond Asylum. Patient's father had been many years ago "a show case" of syphilis in the Dublin hospitals, furnishing the subject matter for cliniques on nearly every manifestation of specific disease. At present he is convalescing from an attack of hemiplegia, and is pathologically exalted on every point—family position, independence, etc.—but on none more than the fact that he has been so favoured a victim of syphilitic virus, which he proudly states he has transmitted to his wife and children! In the case of the patient, the wretched old man would seem to have watched and noted every evidence of the poison he transmitted with the interest and joy which a gardener takes in regarding the successful unfolding and conformation of a prize exhibit, and, stranger still, he has infected his wife—cachectic and miserable through her husband's misdeeds—with the same morbid and revolting sense of satisfaction! The patient, it would seem, as a small and sickly infant, had convulsions a few hours after birth. Subsequently he enjoyed fairly good health to the age of 14, was active, intelligent, and gifted with rather more than the usual musical talent. When 14 years old he had "convulsions" for two days. These were followed by some degree of mental deterioration. At 16 the fits returned, producing more marked mental damage, insomnia, change of temper, and loss of memory. Early in January, 1891, he had four very severe epileptiform seizures, and on the 27th March one fit, which left him "paralyzed," and since that time to date of admission, a period of nearly six months, he has had slight attacks, averaging about one per month, which did not apparently increase the mental or bodily breakdown.

On admission.—*Physical condition.*—Patient has the characteristic physiognomy of the victims of congenital syphilis. Head is

* Tuke's "Dict. Psycho. Med.," Art. "Syphilis and Insanity," Vol. ii., p. 1257.

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small and misshapen, scars at angles of mouth, pegged central incisors; skin dry and wrinkled; hair scanty, short, and brittle. Examination of the eyes showed interstitial keratitis. The nose is depressed. He is miserably wasted, weighing only 7st. 7lb. in his clothes, though five feet five inches in height. His upper limbs are out of proportion to his body, his lean, withered hands being unduly long, the joints nodular, and the skin lying in fissured folds. His pupils are unequal, and irregular in contour, responding sluggishly to accommodation and light, and but very slightly to the sympathetic reflex. There is general tremor, and febrillar twitching of facial muscles. The plantar, knee jerk, and cremasteric reflexes are very exaggerated. Ankle clonus is well marked. His gait is hasty, uncertain, and tottering, There is general cutaneous hyperæsthesia. The tongue movements are jerky, and its extrinsic muscles are very tremulous. The speech has the most typical characteristics of "general paralysis" articulation.

Mental state.—Patient smiles and grimaces. It is difficult to arrest his attention, as he is busily engaged in gathering up and secreting any rubbish that is about. His responses to questions evidence a marked dementia. He can tell his name, but not his age, residence, names or number of other members of his family. He states that he is feeling "very well" and "very happy," and in silly fashion spars at those about him; a moment later he cringes as if in fear, and whimpers like a beaten cur.

Progress of case.—For six weeks subsequent to his admission patient underwent very little mental or physical change. His conduct was practically identical with that of many of the general paralytics with him in the infirmary, and his physical signs and symptoms (already noted) continue to correspond closely to their similar conditions. His speech trouble seemed to increase more rapidly, perhaps, than his other advancing infirmities, and his mental state was almost uniformly a restless dementia.

November 1st, 1891.—Suffered from a slight epileptiform seizure, which was followed by paresis of right side, and spastic rigidity of his right side. Control over the rectum and bladder lost. Pupils widely dilated, unequal, and very tardy reaction to light. A few hours later *decubitus acutus* formed over sacrum. Is unable to respond to any questions, or comprehend any direction. Very weak; temp, 100·6; pulse 90. Mentally apathetic.

November 3rd.—General spastic rigidity. Marked fibrillar twitching of all muscles, most pronounced on the vastus externus. Increased hyperæsthesia over spine. Temp. 102°; pulse 97. Condition in other respects unchanged.

November 4th.—Rigors. Deep flush over malar prominences. Cardiac action feeble and excited. Pulse 110; temp. 104°. Grinds teeth and makes masticatory efforts.

November 5th.—Pupils regular, with brisker reaction. Further

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increase in patellar, plantar, and cremasteric reflexes. Temp. 100°; pulse 90.

November 12*th*, 1891.—Apparent slight improvement during past week. Temperature ranged between 100° and 101°, pulse about 90. Mentally has become excited, shouting, crying, and destructive.

November 17*th*.—Continued as last noted for past five days. To-day several petechial spots appeared on the chest, arms, and legs, and large purpuric extravasations over the buttocks and abdomen. He became very prostrate, refused food and medicine, and gradually collapsed, his temperature falling to 97° on the 20th. He died on the morning of the 21st, death being preceded by a succession of slight convulsive seizures.

Post-mortem examination.—Calvaria thickened and asymmetrical. Dura mater adherent, thickened and rough. Pia mater opaque and thickened; when removed left the convolutions exactly as in general paralysis. Cerebrum small, with badly marked and indefinite fissures. Brain substance soft and watery; ventricles distended with fluid. Examination of viscera showed large syphilitic gumma of right pleura extending from the second to the fifth rib.

Lungs and heart small, but healthy. Stomach small; intestines diminished in lumen; mucous membrane opaque and jelly-like, giving amyloid reaction. Liver, spleen, and kidneys were atrophied, and gave amyloid reaction.

Remarks.—The physical signs and symptoms indicative of "general paralysis" are fully confirmed by the post-mortem appearances, which were absolutely typical of the most characteristic lesions noted in that disorder.

Possibly cases of this kind are not as rare as asylum physicians would incline to think from their intern experience, as for many reasons they may not find their way into these institutions. On the other hand, in general hospitals they may very probably sometimes be confounded with the "juvenile dementia of inherited syphilis,"* with which it has many points of contact in its symptomatology, but it will be remembered that pathologically they are wide as the poles asunder. Again, had this patient died at home his terminal illness, so very suggestive of meningitis, would have diverted attention from the real nature of the case were not the full antecedent history known to the physician.

CASE II.—*Acquired syphilis*.—General paralysis of local cerebral origin (gumma in the right frontal lobe).

* See Tuke's "Dict. Psycho. Med.," Article "Syphilitic Disease" (Drs. Barlow and Bury), Vol. ii., p. 1267.

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History.—A. B., æt. 41, admitted 27th February, 1892. Van driver. No hereditary history of insanity, or evidences of collateral neuroses. Married 25 years; very industrious habits, anxious temperament, moderate sexual appetite, and remarkably temperate. Six years prior to admission patient returning from a friend's house late at night, and fuddled by three glasses of whisky which he had taken, had connection with a prostitute, from whom he contracted a hard chancre. In recognition of his uniformly excellent character and the exceptional circumstances that led to his offence, his wife forgave him, so that their cordial relations remained unchanged. He suffered in due time from all the constitutional evidence of syphilis, which he gave to his wife, who became a victim of grave specific uterine disease. At the end of three years all active symptoms ceased, and for the two years immediately following they enjoyed fair health. About thirteen months prior to his admission Mrs. B. noticed that her husband, who had previously a very acute sense of smell, could no longer perceive any odour, and about the same time he became sleepless, dull, and very forgetful. Later he complained of a fixed pain in the right antero-lateral cephalic region, and this increased in area and intensity until it invaded the entire right side of cranium, and was so severe that he frequently screamed aloud, struck his head violently against the wall, and at night, when its exacerbations were at their maximum, he was accustomed to hold it under a water tap, and tie cords as tightly as possible round the scalp. The apathy, insomnia, and amnesia increased daily, and taste hallucinations became prominent. His action became purposeless, his movements uncertain, and general tremor set in, at the same time that he began to lose sexual power and desire, which latter had been for a brief period abnormally strong. His broken slumber was disturbed by dreams of a distressing character. Three weeks prior to admission he dreamt that he had made a post-mortem examination of his wife's remains and removed all her viscera. After this he became very violent, threatening, and obstinate. Two days prior to his admission he recurred to the dream and said, "I have that post-mortem to make yet!" Since then he had been annoyed by visual hallucinations, "seeing the room full of men," and was very much excited, struggling with his imaginary assailants.

Diagnosis.—Syphilitic tumour of brain, with paretic dementia.

On admission.—Physical condition.—Patient is suffering from a cachexia, which has already resulted in advanced marasmus. The gait is tottering and the wasted limbs are ataxic in their movements. There is marked general tremor, and pronounced fibrillar twitching of the muscles of expression, which are also flattened. The patellar, plantar, and cremasteric reflexes are all exaggerated, and there is well-marked ankle clonus. Cutaneous sensibility much increased. Tongue clumsy and ataxic in its voluntary

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movements; tremulous, indented, and flabby when at rest. The pupils are small, irregular, and unequal; sluggish in their response to direct consensual and light stimuli, and fixed to the sympathetic reflex. The movements for accommodation are spasmodic and ill-directed, the pupillary reaction being slow and incomplete. Absolute loss of smell. Sight normal. He is unable to hold a writing pen when placed between his fingers, likewise he fails in efforts to button or unbutton his clothes. On close examination the cicatrix of a chancre on the glans, the scar of a bubo in the groin, and traces of characteristic specific eruptions are detected. The respiration is quick and shallow, pulse small and feeble; tongue coated with a thick, dirty, creamy fur. His pronunciation is blurred and chippy. Voice is broken, resembling a hoarse whisper.

Mental state.—Patient stands or sits in an attitude of rapt attention, gazing fixedly into distance; his features set and immobile, the want of expression indicating dementia. He responded to questions in a low, awed, despondent voice, saying as few words as possible to express his meaning. Now and again he shook his head hopelessly, and repeated in a tone pregnant with despair, "I am done. A bad business. I am done." When put to bed his tremor increased, and a few minutes later he was seized with a slight epileptiform convulsion, during which he passed water involuntarily. Scrambling out of bed with repeated clumsy efforts he remained with outstretched feet, swaying to and fro, trembling violently all over, and almost unconscious of his surroundings.

Progress of case.—For twelve days following there was rapid mental and physical deterioration. He sat all day in one place, limbs all flexed, neck craned forwards, eyes gazing into the distance, and expression that of intent listening. He could be roused with great difficulty from this state, and he could not tell day of week, month, or year; but gave details of imaginary events of the previous day; of his supposed walks, visitors, and other doings. On the 12th March he had a violent epileptiform seizure, the convulsions causing him to fall out of bed. This was followed by an increase of the dementia; he could no longer respond to questions, nor could his attention be fixed. While confined to bed he lay in a state of general flexion; there was marked rigidity of the limbs, tendency to acute bed-sores, spasmodic masticatory and swallowing movements, and almost constant grinding of the teeth. The reflexes became more exaggerated, and general hyperæsthesia was well marked. On the 30th March bullæ formed over the metatarso-phalangeal articulation of the left foot, followed next day by an acute diffused erythema extending to the knee. Three days later the bullæ burst, and exposed a sinus leading down to diseased bone, and giving exit to exceeding foul pus. The sinus was enlarged and dressed antiseptically, with the result that the

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diffuse inflammation subsided, and healed on discharging some dead bone, but repair was slow. Meanwhile there was a very marked remission of the dementia, he became bright, answered questions readily, and even volunteered remarks. Gradually, however, his expression became more and more "wiped out;" general and facial tremor increased, yet on the 26th April he was noticed to have spoken more intelligently than previously. Control over the bladder was impaired, and he was out of bed and rolling about the bedclothes at night. On the 30th he had slight but frequent epileptiform seizures, after which his expression became suddenly exceedingly fatuous; he could not be induced to speak, and his tongue when protruded was deviated to the right side. On the 1st and 5th of May he had several slight epileptiform and syncopal seizures and became alarmingly weak. Mentally he was mute, fearful, and emotional. He remained in this state until 8 o'clock p.m. on the 7th, when he was seized with epileptiform convulsions. The left side became rigid, the right relaxed; lower jaw drawn down and back; tongue projected and directed to right side; strings of thick mucus hanging from the mouth; pupils dilated and insensible to light; plantar reflexes absent; temperature rose suddenly from normal point to 102°; pulse 80, small and compressible; conjugate deviation of head and eyes to the left side. He died at 11 o'clock same night, six years from the date on which he contracted syphilis, one year after the appearance of the first mental symptoms, and ten weeks from the first convulsive seizure and committal to the asylum.

Post-mortem examination.—By the express injunction of the relatives this was unfortunately limited to the cranial cavity.

Scalp and calvaria normal. No adhesion or thickening of membranes over the vertex, but vessels of the pia mater were engorged. The convolutions were normal in appearance, their configuration being particularly well defined, the membranes being readily separated from them. On the under surface of the brain, over the region of the right inferior frontal convolutions, the dura mater seemed adherent to the brain surface, and also to the bone beneath. On separation from the latter, which was normal in appearance, the condition was found to be due to the presence of a firm tumour embedded in the substance of the brain; its base rather pear-shaped, pressing on the orbital surface of the frontal bone. It bridged obliquely across the tri-radiate fixture, receiving in its caudal and external end the roots of the olfactory tract; the remains of the olfactory bulb were contained in the rounded and distal extremity. The dura mater was closely adherent to the presenting base, forming a dense fibrous floor for the support of the tumour. This condition contrasted markedly with the freedom of the membranes from attachment in any other region. On removing the tumour from the nest of congested and partly softened cerebral matter in which it lay, it was found to be about

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the size and shape of a small walnut. It presented all the usual characteristic appearances of a syphilitic gumma.

Remarks.—Apart from its resemblance in every detail to the classic cases of gummatous cerebral growths (recorded by Lancereaux and others) associated with mental disorder and paralysis, some special points of interest may be briefly mentioned.

(*a.*) In the absence of any history the case when it first came under notice would have seemed identical with "general paralysis" of non-specific origin. The advanced dementia rendered it very difficult to test smell, and even when discovered that the sense was lost, the fact would probably be attributed to widespread rather than a very circumscribed brain lesion.

(*b.*) The fact that hallucinations of taste set in soon after the anosmia would point in this case of local cerebral disease to the close proximity of the cortical areas for the senses engaged—a point yet unsettled by physiologists. The left olfactory bulb, though *apparently* healthy, was quite inactive, the patient having had complete loss of smell. It is probable the destructive lesions were propagated into the centric origins of the nerve roots.

(*c.*) The association of spastic spinal symptoms with frequency of fits and mode of termination indicates very probably degeneration of the pyramidal tracts of the cord. This, unfortunately, could not be determined. Were it demonstrated it would prove the co-existence of the two classes of cases which Savage terms "true general paralysis of local (syphilitic) cerebral orgin," and "general paralysis of syphilitic origin, with spastic spinal symptoms."

(*d.*) Prior to the development of the characteristic "hemicrania" the pain of an intense neuralgic kind was referred to a spot a little in front of the tip of the right ear, the patient sometimes introducing his finger into the mouth and pointing upwards to indicate its centric situation. Had the case been seen at this stage it might have given way to brisk specific treatment, which could not overtake the ravages the disease had made when it came under notice.

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