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THE

Alienist and Neurologist

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OF

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Intended especially to subserve the wants of the General Practitioner of Medicine.

"Quantam ego quidem video motus morbosi fere omnes a motibus in systemate nervorum ita pendent ut morbi fere omnes quodammodo Nervosi dici queant."—*Cullen's Nosology: Book II., p. 181—Edinburgh Ed. 1780.*

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THE
ALIENIST AND NEUROLOGIST.

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ORIGINAL CONTRIBUTIONS.

Evidence of Sanity in Criminal Cases.*

By JAS. G. KIERNAN, M. D., Chicago.

Fellow of the Chicago Academy of Medicine; Professor of Forensic Psychiatry, Kent Law School, Chicago; Professor of Nervous and Mental Diseases, Milwaukee Medical College.

PSYCHIATRY, despite the broad scientific basis of the common law, is but too often regarded as a detective of the state in criminal cases.

Sane motives, variability in delusional acts from ordinary human causes, premeditation and skill in violation of law, concealment of such violation, flight from the immediate consequences of law violation, simulation of insanity, accomplices, and confession of crime, are very generally regarded as proofs of sanity. The question raised in psychiatry, is but too often not whether a thing be a fact but whether it have consequences supposed to be dangerous to Society.

This detective bias, foreign to science and the spirit of the common law alike, plays too often a part in forensic psychiatry. The matter is not approached from a scientific standpoint but from an *a prior* society protection basis; the source of all mob law and tyranny.

* Read before the Chicago Academy of Medicine, February, 1894.

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Motive, it is widely claimed, is evidence of sanitv when seemingly the impelling force to crime. Is this scientifically true? Motives of the sane are not always what they seem but often involve a nice question of pyschological analysis. Men have committed murders from seemingly sufficient motives when the real one was suicide at the hands of the executioner. Frederick the Great's soldiers often killed "children sure of heaven" to avoid the guilt of suicide by securing death at the hands of the executioner. Arson has been committed simply to call attention to zeal as an employe. Such complexity attends the motives of the sane. In the domain of morbid mental processes, the complexity is intensified. Some eleven years ago in an analysis of attacks on the medical officers of insane hospitals, I showed that there were demonstrable five propositions:*

FIRST—Criminal acts committed by the insane often originate in logical motives.

SECOND—Acts committed by the insane for insane reason are often referred to logical motives.

THIRD—Acts committed by the insane may be the distant outcome of an insane delusion yet the act be an outcome of a logical, seemingly sane motive.

FOURTH—The execution of decidedly insane projects may be interfered with by a healthy conception.

FIFTH—An insane man committing a homicide for insane reasons may take due precautions to preserve his life for execution of delusional projects.

Dr. J. P. Gray † in the Guiteau case denied emphatically the truth of the first and fifth proposition. This denial is rendered totally unjustifiable by the following case in a table of homicides furnished by him, on direct examination, in the same trial.

CASE I.—A thirty-two years old intemperate, disreputable "chronic maniac" killed a boy by repeated stabs with a pitch-fork and knife. The motive was personal hatred and revenge. The deed was done in day time. The murder was premeditated, plans of concealment arranged and weapons

* American Journal of Neurology and Psychiatry, 1883-4.

† Trial Chas. J. Guiteau Vol. II., p. 1684.

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washed. The patient became demented and was removed to the county institution.

Dr. D. R. Brower has observed the following case:

CASE II.—A superintendent of the Williamsburg (Va.) insane hospital was a gruff dictatorial man. An insane planter of good family questioned him courteously.

"Don't bother me with your nonsense" was the reply. The question was repeated and answered with a taunt, whereupon the patient struck down the superintendent with a chair, fatally injuring him.

Such conduct was nothing more than might have been expected under the same circumstances from a hot tempered man.

In the first proposition there is therefore nothing startlingly novel. Indeed numerous equally demonstrated cases led Judge Wilson of the Wisconsin Supreme Court* to decide as follows, in full consonance with the spirit of the common law, "that the instructions to the jury upon the trial of the issue of insanity; that if the defendant at the time of the killing was sufficiently sane to deliberate and premeditate a design to effect death, then he was sane within the spirit and meaning of the law although he may have been in truth subject to insane delusions on other subjects, and that if he had sufficient power of mind to deliberate and premeditate a design to effect death, you should find him sane," unexplained are clearly erroneous as they set up as an absolute test of sanity, the power to deliberate, premeditate and design. They make the presence of sufficient intelligence in the party accused to form a design to do a criminal act, conclusive evidence that he is sane and subject to punishment if he execute such design. The presence of intelligence is by no means an absolute test of sanity for with intelligence there may be an absence of the power to determine the true nature and character of the act, its effect upon the subject and the true responsibility of the act—a power necessary to control the impulse of the mind and prevent the execution of the thought that possesses it.

The truth of the second proposition is excellently illustrated in the following two cases. One coming under my own

* North Western Reporter Vol. XIV.

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observation. The other reported by Dr. Lockhert Robertson.*

CASE III.—Patient in the New York City Insane Hospital made an attack on Superintendent R. L. Parsons. To myself and another physician who had charge of him some years later he claimed that Dr. Parsons treated him insultingly in asking for his discharge. The real cause for the assault was the delusion that Dr. Parsons violated his sister every night. That the influence of the first (alleged) cause was but slight if at all existent was shown in the fact that Dr. Parsons' successor treated him very insultingly without being assaulted.

CASE IV.—The patient stabbed an attendant in the head. He took advantage of the attendant being alone and carrying a tray of utensils. He attempted to gouge out the eyes of Drs. Huxey and Hill with a sharpened stick. The patient was hallucinated and had the delusion that he was a prophet. Afterward he quieted down and was so seemingly recovered that his discharge was contemplated. The question was referred to the Commissioners in Lunacy six months after the assault: twelve days thereafter he was treated for malaise by the assistant superintendent in a surgery where instruments were in his reach. The next day he attacked the assistant superintendent with a pointed stick. He said that this attack was due to an objection he always had to the medical officers and that he knew what he was about.

Here the alleged motive was one on which a criminal prosecution could have been based. Had the assaults been committed elsewhere than in an insane hospital, "experts" would have pronounced, and juries adjudged, the accused sane.

The truth of the third proposition is demonstrated by the following two cases:

CASE V.—Dr. G. C. Palmer, of Flint, Mich., reports that Dr. Adams, assist. supt. of the Kalamazoo Asylum, was killed by a patient suffering from insanity due to sunstroke the onset of which was marked by maniacal symptons. The patient after these passed off, became confused and on one or two occassions passed into a stuporous state for some weeks, requiring artificial feeding. At the time of

*Sankey's "Mental Disease."

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the homicide, irritability and mental enfeeblement were the most marked symptoms. The patient also had the delusion that he had changed his sex. Dr. Adams had detained several of his letters deeming them too obscene to send and tried to induce the patient to write differently. The day before the homicide, the patient handed the attendant a letter which the latter forgot to deliver. At Dr. Adams' visit next morning, the patient asked him if he had sent the letter. Upon a negative reply, the patient stabbed Dr. Adams with a pen-knife which he had concealed in his sleeve with the blade open. He admitted that he had carried this knife for two days and that the night before the homicide he had planned to kill Dr. Adams in the event that the letter was not sent. He has never expressed any regret but has repeatedly threatened to kill the other physicians were his letters not sent.

CASE VI.—Dr. Orange* was attacked under the following circumstances. The attack, although originating in an insane delusion was the direct outcome of a demonstrably logical process of reasoning. The patient several years previously, shot at the Master of the Rolls to obtain justice. As this did not succeed he made up his mind a year previous to the attack on Dr. Orange, that nothing less than murder would be sufficient to call public attention to, and deliver him from, the conspiracy of which he was the victim.

The truth of the fourth proposition is illustrated in the case reported by Dr. Yellowlees.

CASE VII.—A joiner became a printer in order to publish his insane documents. For seven years he had been a laborious teacher and precentor in the church. He became noted for his sensitiveness which formed the basis of persecutory delusion. He summoned people before a magistrate for hallucinatory persecution. They were discharged; whereupon he assailed the magistrate as an unjust judge. In consequence he was sent to prison and thence to an insane hospital, whence he was discharged after a brief residence. He became a publisher and issued numerous insane pamphlets. His hallucinations continuing he had numerous arrests made, the accused being

* Journal of Mental Science, July, 1882.

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always discharged. In consequence of these failures to obtain justice he determined to take the law into his own hands. He declared openly he would kill somebody, and fortified his house against his enemies and the police. He threatened that an attempt to take him would result in his entry swimming in blood. He was thereupon committed as a dangerous lunatic to the workhouse insane department where he assaulted the medical officer. He was removed to the Morningside Insane Hospital, where he remained for years under the care of Drs. Skae and Mac Kinnon. He frequently attempted to kill in a cunning, premeditated fashion. He had much difficulty from rising in the hospital chapel, while acting as precentor, and braining Dr. MacKinnon with a chair. For months he occupied himself in fabricating a slung shot with which he brained an attendant. He attempted to kill another attendant under circumstances which led Dr. Yellowlees to remark that "it is scarcely possible to describe his devilish ingenuity, deliberativeness and determination and his fiendish delight in his attacks." He spent much time in writing about extravagant delusions and inventions.

CASE VIII.—Came under my observation at the Cook County Insane Hospital. An American, in consequence of a row with a drunken Irishman in which the last was totally to blame, was arrested, found insane and sent to the insane hospital. He had a decidedly bad heredity but had not been under hospital care until his arrest albeit he had reached the age of 60. He was a "model youth" and had bright dreams of the future over which he delighted to muse in solitude. These, in his opinion would have been realized but for the great influx of foreigners into the United States. During his youth his ability had received great commendation from many men who took a roseate view of his political future. He had, from time to time, in the "waking state", what he termed visions of his future. He was an active "knownothing" politician. On the decadence of that movement his delusions of persecution became decidedly dominated. There are in the United States, he says, two great parties; one, AntiAmerican ("red and green"), and the other, American ("white,") The "red and green" are mostly Irish. The "white," mostly Americans

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with some "Germans." In consequence of persecution by the "red and green" foreigners, he led a wandering life. These were determined to destroy all Americans of great ability. He had had auditory hallucinations, and used to argue with the hallucinations which were, he stated, quite logical. For eight years prior to admission he had smell hallucinations of "senna," potash and gases. His enemies placed below his room door a box two feet high by about seven feet long with a shelf in it on which was a charcoal stove with a plumber's pot. The "stuff" is put into the pot and the "smells" thus generated. He never saw the apparatus, but *heard* the people making it. At times these smells became so annoying that he had to arrange special ventilation. He built a canopy of paper and cloth over his bed and secured communication with the open air by means of a tin tube. On application to the police for protection he was told to cry "police" when bothered by his tormentors. For a long time this had a good effect, but at length it created such excitement that he was forced to abandon it for fear of disturbing his neighbors and adding them to his persecutors.

Motive when present at all in the first case was of insane origin based on reasoning from premises of delusional origin, hence the patient naturally exhibited premeditation and skill. The case demonstrated the falsity of the dictum that the insane are not affected by outside influence, since this pious persecutory lunatic was only prevented from braining Dr. MacKinnon during the chapel services by his reverence for the sanctity of the occasion. In the second case, the healthy conception of being under protection of the police dominated the hallucination, and thereby prevented violent demonstration. The influence of outside factors on the delusions of the insane is shown in the fear of adding the neighbors disturbed by his cries of police to his perscutors. The escapes from insane hospitals furnish many illustrations of the truth of this last proposition, as Dr. J. Edwardes Lee,* in an analysis of escapes from insane hospitals, published nearly half a century ago, pointed out.

CASE IX.—A patient ran away from the Worcester, Mass., insane hospital. When all hopes of his return were

* Amer. Jour. of Insanity, Jan., 1847.

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given up, he, much to the surprise of the officers, walked into the office saying that unintentionally he had committed a great crime, since in the excitement of escape he had forgotton that his clothes were property of the state.

The assault on Dr. J. P. Gray by Remshaw furnishes decided evidence of the truth of the fifth proposition.

CASE XX.—Remshaw, a persecutory, delusional paranoiac entered the Utica insane hospital, and shot Dr. Gray, whom he had repeatedly bathed in a Utica Turkish bath establishment without the latter recognizing his mental state. He then fled into an adjacent town to his brother-in-law and said he was going to New York. He afterward went to the jail and gave himself up. A lunacy commission appointed by the court found him insane and sent him to the Auburn (N. Y.) insane hospital.

The case cited from Dr. Gray is proof positive in the same direction. The "homicide was premeditated, plans of concealment arranged, weapons washed." Ray remarks* "that the insane do certain things as well as they ever did. They plan, contrive and anticipate in furtherance of a special purpose." The truth of this remark is evident especially in the escapes from insane hospitals. Dr. J. Edwardes Lee, in the article to which reference has already been made, points out that:

"Many insane show much skill and stratagem in originating and carrying out plans for this purpose, in procuring and secreting instruments and especially in deceiving their attendants, making them believe they are well contented and do not desire to leave. Rare and curious is the collection of instruments collected in such an institution; keys, made out of wood, pewter and wire, files manufactured from old knives, saws from hoop-iron and screw drivers from ten-penny nails. No less skill is shown in concealing their operations; making fac-similes of screwheads out of bread and covering in different ways the gaps they have made until they can get further opportunity to work. Rarely, however, do they combine to any great extent, although instances of two or three uniting in some project to gain their liberty, are not uncommon." He cites in illustration the following cases:

* American Journal of Insanity, October, 1874.

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CASE XI.—A patient of the Utica Insane Hospital had eloped from a distant institution. His anxiety to get away was known to a clever companion, "The Major." After due consultation the two united on a plan which was mutually satisfactory. "The Major" had opportunities for getting instruments which his friend did not enjoy. The agreement was that the "Major" should procure a key by which his friend would escape, on condition that he promise to raise an army of 10,000 men with which he was to return, sack the institution, imprison the officers, and liberate the inmates while the "Major" remained to co-operate within the walls. Everything passed off exellently so far as the escape of the emissary was concerned who, needless to say, never returned with the ar my.

Dr. Awl* narrates the following case;

CASE. XII.—Four patients in the same ward of the Ohio Insane Hospital devised a plan of escape. One was a New England Yankee, one a German, one English and the fourth, a Pennsylvanian. All were comfortably situated and doing well; the first three especially. Becoming discontented they began to consult together and contrive plans of escape, encouraged by the Pennsylvanian, a persistent eloper. A plan devised by the Yankee met with universal acceptance for it was well calculated to outwit the medical officer and attendant, provided they could safely elude the perpetual curiosity and vigilance of a very stirring ward whom they were afraid to trust, well knowning his candor in such matters, and being fully appraised of his partiality for the head of the institution with whom he made a very satisfactory contract to study medicine, for twenty one years. As this famous student was fond of preaching and could easily be set going at that, it was proposed that one or two of the band should keep him at this employment while the others were engaged in carrying out their plans. Having procured the rusty blade of an old trowel left carelessly within reach, they selected an evening, at the commencement of religious services as the best time to take out the window and give them all an opportunity to get out, thinking it probable that their unsuspecting

*Ohio Insane Hospital Fifth Annual Report 1846.

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attendant would, upon that occasion, accompany other patients and be a short time out of the way. They commenced daily operations on a front window and succeeded in removing all the screws and fastenings so that it would at any time be easily removed. They carefully disposed of all dirt and filled the screw holes with soft bread to prevent detection. All things being ready for action, the attendant having gone out, they mounted the student on a chair, with his head away from the window, started him on a favorite text and while he was in full oratorical swing, each in succession commenced a hasty escape. A lady who saw the procedure gave the alarm too late to save any but the Pennsylvanian. The others were retaken only after a twelve miles chase.

Similiar plots are reported by Chambard† as occuring in French insane hospitals. The instigators are usually paranoiac criminal, and the accomplices, epileptics and paranoiacs.

Over a decade ago,* I pointed out that *folie-a-deux* had important relations in regard to value of accomplices as a test of sanity. In certain cases of this type evidence of seeming collusion is apparent. The following cases illustrate this.

The following cases come under my own observation:†

CASE XIII.—A twenty-nine-year-old Irish-American had attacks of incoherent hallucinatory confusion subsequent to a sunstroke. He became recurrently insane thereafter. Alcoholism, associated with irritability, was probably the exciting cause. The attacks, preceded by kleptomania, are epileptoid in type, since in them he is not conscious. The second patient was a congenital paranoiac, with systematized erotico-religious delusions, both persecutory and megalomaniacal.

The third was an epileptic, with post-epileptio-maniacal attacks, followed by conditions of suspicion. The fourth was an epileptic, who, up to the age of fifteen, had grave epilepsy. It gave place to the epileptic equivalent mental state of unconsciousness. These states were followed by periods of paralucid, suspicional, hallucinatory irritability. He "could then walk through the sea and cut the earth in half." These

*Alienist and Neurologist, 1887.
†Alienist and Neurologist, 1883.

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patients made a seemingly joint attempt to escape. The four were seated in the grounds together, after the usual walk. The third and fourth were in their usual post-epileptic mental states. The patient first described, suggested that they all go home, more from a spirit of mischief than any serious desire for escape. The third patient rushed on the attendant and threw him down, while the other three rushed for the woods. He did not have a clear consciousness of what he was doing as he contented himself with attacking the attendant. He had no recollection of his violence nor of the suggestion of escape, albeit his conduct was evidently prompted by it. The paranoiac looked upon the whole occurrence as a providential means of freeing him from his persecutors. The other three patients he regarded as lunatics, but as they were in his opinion, instruments of providence, he accepted their aid. Strictly speaking, there was in this case no real concerted action on the part of the insane. There were several coincidences which led to the appearance of such a concert. The post-epileptic states rendering the patient liable to respond to suggestions from without in an indefinite manner, the paranoiac delusional state and logical perversion, all combined to give the appearance of a plot to what was the result of quickly-suggested action.

CASE XIV.—A paretic dement, a paranoiac, an epileptic, and a hebephreniac made a united attempt to escape. The paretic dement and paranoiac agreed to escape; the first to secure his unlimited, delusional wealth; the second to escape from his persecutors. The hebephreniac, who was mentally much enfeebled, had accepted the grandiose delusions of the paretic dement so far as to enter into some of the million-making delusional plans. The epileptic was present when the attempt was made, and his action was the result of pure suggestion, as he was in a state of post-epileptic, dazed consciousness. The paretic dement and paranoiac threw the attendant down. The epileptic seized the keys, while the hebephreniac held the attendant's hands. The attempt failed, because the epileptic turned the key upside down in the lock and broke it.*

*Alienist and Neurologist, 1887.

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Such "communicated insanity" may exist independently of insane predisposition* and other conditions cited by Laseegue.† Ball‡ points out that "the influence of the insane on crowds cannot be contested. The epidemics of religous insanity, of hysterical religion, and of demonolatry attest this too emphatically."

The crowd, Fournial§ remarks, may be considered as a being which feels and acts but does not reflect. This individualization is the result of the unconscious but suggestive diffusion of an emotion. It is produced by imitation or by mental contagion. Such a mental state predisposes to the reception of insane notions. The question arises how far can this influence of the insane on the sane extend. The English and American witchcraft epidemics show that entire communities may be affected thereby. The same is shown in the crusades, in the "dancing mania," and to a certain extent in the flagellants. The history of "fire" panics in crowded theatres illustrates the psychological principle involved. The principle underlying the frequent testimony of the sane to the truth of the delusions of the insane appears in the remark of Savage‖ that "extraordinary complications result from the occurrence of combination or agreement of persons of unsound mind upon the same delusion." Despite all dicta on the subject, the insane may have accomplices and abettors; some sane, some insane. Freeman, of Pocasset, Mass., was a paranoiac; his wife was an ill-balanced women, but aiding and abetting them were, as Dr. Folsom¶ has shown, sane Second Adventist fanatics. In Sandwich, Ill.,** a sane father and his paranoic son abetted an insane mother in what proved to be a fatal forty-day fast preparatory to the immaculate delivery of a new Christ. The paranoiac son gave inventively stupid "spiritual" reasons why an autopsy disproved the existence of pregnancy.

Ball has not put the case too strongly, however, when he says that the sane of mediocre mental calibre are much more apt to accept the delusions of the insane than their fellows.

*Interni. Med. Mag., Mch., 1893.
†Ann. Medico-Psych. t. VII s. x.
‡Maladies Mentales.
§Psychologie des Fonles.
‖Insanity and Allied Neuroses.
¶Boston Medical and Surgical Journal, 1879.
**American Journal of Neur. and Psych., III.

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More than one lunatic recognized as insane by his fellow patients has been released as sane by a "sane" jury on the testimony of "sane experts" to demonstrate his "sanity" by a brutal, uncalled-for homicide. How far this influence of the insane on the sane extends has been shown in more than one revolution or religious sect. As Lombroso has shown, Marat, Billaud, Lebon, and Carrier were degenerate lunatics who, aided by Burke's attempt to create a "White Terror," by Marie Antoinette's inventively stupid mendacity, and by the selfish partition schemes of Austria and Prussia, were able to impose their suspicional delusions on the French people and produce the undue severities of the "Red Terror." Masaniello was, as Sir Walter Scott† has shown, a paranoiac who, aided by very similar conditions to those just described, became the head of the Neapolitan revolution. Rienzi was also, as Lombroso‡ has proven, a paranoiac, guilty, when a ruler of Rome after his succesful revolution, of a thousand insane inconsistencies. The paranoiac Julia de Krudener was strongly potential in forming the "Holy Alliance" against Napoleon 1. The paranoiac Joan of Arc§ broke the spell of terror England had cast over France. The paranoiac Louis Reil‖ nearly shook off Canadian rule over the Indian of the Northwest.

John of Leyden, Muggleton, Naylor, and Johanna Southcotte were paranoiacs able to impose their delusions of divinity, of prophetship, or of divine maternity on numerous followers, and thus establish religious sects. The pseudocyesis of Johanna Southcotte, which recalls that of Mrs. Lay, was accepted as pregnancy with Christ, by numerous devotees, whose faith in this "pregnancy" endured, albeit it was "protracted" for years. Religion and revolutions are sufficiently out of the common to be accepted as predisposing to insane delusions. In finance the same story is told. Clouston¶ had under his care a paranoiac who was able to impose his delusion, anent the "elixir of life," on sane people, and sell them the same while on parole from the insane hospital. That

*Criminal Man.
†Essays: Masaniello.
‡Ireland, Blot on the Brain.
§Man of Genius.
‖Ireland, Through the Ivory Gate.
¶Mental Diseases.

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Patterson, the "Darien Schemer," was a paranoiac, Macaulay's* account leaves no doubt. His "Darien Scheme" ruined half Scotland. One case forensically analyzed by Liman† illustrates the origin of certain sexual anomalies in religious sects.

CASE XV.—A forty-nine-year-old man charged with incest was examined by him. The man's wife who made the complaint, gave details which left no doubt that the man was a religious paranoiac. Liman found that he had hallucinations and delusions. It was divinely revealed to him that from intercourse with his daughter would spring the everlasting son, who would free his family from sin. This divine command he obeyed. The daughter was a well-built, very stupid, nineteen-year old girl, who had not realized her father's mental state, and had been the tool of a lunatic.

The leader of a recent Wisconsin lynching was a paranoiac and he and two epileptic aids were adjudicated insane. The much-boasted civilization of the United States has afforded more than four instances during the last decade in which sane Americans worshiped paranoiacs as deities.

Arrago Tamassia‡ claims that there is "an undue tendency in Continental Europe to under value simulation as a test of sanity. A paradoxical dictum of Vingtriniers, that he who simulates insanity, if he be not insane, is on the point of becoming so, has been received with the utmost deference by alienists. To affirm that simulation of insanity by itself creates suspicion of mental integrity, contradicts the daily data of forensic practice."

Judging from the number of chronic lunatics sent to penitentiaries on the continent of Europe, simulation of insanity is rare as a defence for crime. Regis§ indicates that this is true of France. It is evident from an analysis of reported cases that detection of simulation is not positive evidence that insanity is feigned. Only the dilettante or dishonest alienist could claim this. The physician who studies his cases carefully will not admit that the simulation of certain symp-

*History, vol. v. p. 341.
†Verteljahrschrift f. Gerichtl. Med., B, xxxiii.
‡Alienist and Neurologist, Oct. 1892.
§Mental Medicine, Bannister's Translation, p. 665.

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toms is sufficient to disprove the existence of other pathognomonic symptoms of insanity present in the patient.

This test of sanity is an old one yet its fallacious nature was evident even to laymen in the sixteenth century. Ray* discussing the alleged simulation in 'Hamlet' remarks:

"In this scene he adjures his friends if they see him bearing himself however strange or odd, as he might, perchance think meet to put an antic disposition on, never to let drop the slightest intimation of his design. This remark, on which the theory of Hamlet's insanity being feigned is mainly founded, indicates at most an indefinite half-formed resolve to accomplish a purpose by simulating a disease that was already overshadowing his spirit in all its fearful reality." This spectacle of the insane feigning insanity was a common popular spectacle in the 16th and 17th centuries, for Shakespeare again employs it in "Lear." Edgar about to feign insanity remarks:

Whiles I may escape, I will preserve myself; and am bethought
To take the basest and most poorest shape
That ever penury in contempt of man
Brought near to beast; my face I grime with filth.
Blanket my loins, elf all my hair in knots;
And with presented nakedness out-face
The winds and persecutions of the sky.
The country gives me proof and precedent
Of bedlam beggars who, with roaring voices,
Strike in their numbed and mortified bare arms,
Pins, wooden pricks, nails, sprigs of rosemary
And with this horrible object, from low farms,
Poor pelting villages, sheep-cotes and mills,
Sometime with lunatic bans, sometime with prayers, enforce their charities.

Feigning of insanity by the insane, at the time Shakespeare wrote, was a familiar street sight. Bethlem† was a contracted and penurious charity with more patients than funds.

The governors were in the habit of relieving the establishment by discharging patients whose recovery was very equivocal.‡ These discharged patients, thrown upon the world without a friend, wandered about the country chanting wild ditties and wearing a fantastical dress to attract the notice of the charitable.

Simulation in a case of criminal accusation, however, long continued to be regarded as proof positive of sanity. On the continent of Europe the lack of value of this test was early

*Mental Pathology.
†Curiosities of Literature.
‡Bucknill "Mad Folk of Shakespeare."

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recognized. Delasiauve*, Stark†, Ingels‡, Pelman§ and Laurent‖ all cite cases in which lunatics feigned insanity to escape punishment.

Dr. Dagonet has reported the following case:

CASE XVI.—A lunatic feigned insanity to secure admission to an insane hospital for an insane purpose of delusional origin.‖

Lahr¶ had observed the case of a patient of markedly defective heredity who committed a sexual crime. He shammed a form of insanity which he had not, and the real insanity came out after the sham was exposed. Ray**, as shown already, had noticed this feigning of insanity by the insane. In discussing the case of the homicide, Trimbur, he remarks;

"The criminal classes to which most of these simulators belong, know as well as any one else that the plea of insanity is one of the dodges whereby people now escape the punishment of their crimes, and they may not forget to act accordingly when they are insane. Trimbur being unconscious of his real insanity, but with mind enough to understand his situation, and to remember what he had heard about insanity in connection with crime, concluded to make a show of being crazy."

Dr. C. H. Hughes††, in the first systematic American article on the subject, remarks:

"The insane appear at times, when they have an object to accomplish more crazy than, and different from, what they really are; this is the sense in which we use the term simulation, and this condition is akin to that of feigning by the sane. Simulation, while it presupposes a degree of intelligence, does not require that the patient should be wholly sound in mind, and it might be attempted by a convalescent patient not thoroughly recovered, desirous of remaining longer in the hospital, or for some other cause." He then cited several demonstrative cases.

*Jour. de Med. Ment. 1868.
†Allg. Ztschaft f. Psych. 1870.
‡Ibid 1872, Irrenfreund 1874.
§Etude Medico-Legale sur la Simulation.
‖Jour. de Med. Ment. 1868.
¶Arch. f. Psch. B. 1.
**Amer. Journal Ins. 1874.
††Alienist and Neurologist, 1883.

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This paper was read before Section X, on Mental Diseases, of the International Congress of 1876 and after corroborative discussions by Drs. I. Ray, J. P Gray, W. Kempster, Nichols, Kirkbride and others, the section unanimously resolved:

"It is not only not impossible for the insane to simulate insanity for any purpose, in any but its gravest forms of profound general mental involvement, but they actually do simulate acts and forms of insanity, for which there exists no pathological warrant that we can discover in the real disease affecting them."*

Dr. Workman,† of Toronto, has observed the following case:

CASE XVII.—An insane man who escaped from the insane hospital under Dr. Workman's charge and killed his wife during an insane fit of jealousy; the man professed to the doctor to be completely amnesic while under trial for murder, denied that he had ever been under the doctor's charge, or that he knew anything about the asylum. The doctor stated to the jury that the man was both simulating insanity and was insane. The prisoner was acquitted, and sent to the Criminal Lunatic Asylum, at Kingston, Canada. The doctor saw him there two years subsequently. He then fully recognized the doctor, and, in answer to a question, said that "he did not want to know the doctor" when previously examined by him. Had he been sane, he would, as Dr. Workman suggests, have known that sufficient proof of his past insanity could have been produced, and he would have abstained from his clumsy simulation, or he would have acted more cleverly.

Dr. E. C. Spitzka‡ has reported a case in which a criminal lunatic with degeneracy stigmata feigned a psychosis with religious delusions. He also states that a lunatic who killed a woman under persecutory delusions and was acquitted of murder, feigned amnesia.

Dr. C. H. Nichols§ has reported the following case:

CASE XVIII.—A man committed murder under, as he believed, the command of the Virgin Mary, who appeared to

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*Transactions of the Congress.
† Alienist and Neurologist, 1883.
‡Jour. of Nerv. and Mental Dis., 1877.
§Chicago Medical Review, Vol. III, 1881.

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him in the flame of a candle. Two young lawyers were assigned as his counsel; they advised him to feign insanity, which he did, under the form of dementia. The experts, Drs. Nichols and Ranney, detected both the sham and the real insanity, and had him sent to an asylum, where his insanity became unmistakable.

Dr. J. P. Gray, in 1876 report of the Utica Insane Hospital, narrates the following case;

CASE XIX.—A man two or three days before being admitted, was met in the woods going towards his father's, carrying a gun, and said he was "going to shoot the old man." When admitted, he said he "had been out of his head for quite a while; should think twenty-four hours."

Dr. C. B. Burr, of Flint*, Mich. described the case of a paranoiac who feigned insanity as a basis for a pension.

Dr. J. H. McBride† has reported a case in which a female paranoiac feigned insanity for a purpose. Marandan de Monteyel‡ reports the following case:

CASE XX.—A woman killed her illegitimate child. She was a paranoic but feigned dementia preceeded by hallucinations and attended by irregular amnesia. She was quiet one night after having been extremely noisy the night previous. Her insanity having been demonstrated she was sent to an insane hospital where her real mental condition became apparent.

About a dozen years ago, in the second systematic American papers§ on the subject, I pointed out that the insane could and did feign insanity for a purpose and cited in illustration the following cases;

CASE XXI.—The patient had been for a long time a pauper, and was somewhat demented. He had at times hallucinations of hearing, but complained continually about having tar and grease in his head, and says he is insane in consequence. He says but little on the subject, except to the physician, and for a long time refused to work, as being insane and having tar and grease in his head. He found that his statement of being insane and having tar and grease in his head drew the attention of visitors toward him, and lead to his receiving to-

*Amer. Jour. Med. Sc. Jan. 1883.
†Alienist and Neurologist, 1883.
‡L'Encephale, 1882.
§Alienist and Neurologist, 1882.

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bacco. He is therefore markedly obtrusive with these statements when in the presence of visitors. He denies that he has hallucinations and these can be drawn from him only after prolonged questioning. The contrast between his concealment of his real insanity, and the obtrusive manner in which he manifests his assumed delusions is very marked.

CASE XXII was a hebephreniac who displayed all the self-importance of that psychosis, but who found that a case of monomania attracted much more attention than he did, simply because the latter claimed to have written several of Shakespeare's tragedies; whereupon he claimed to have written "all of Byron, all of Shelley and all of Milton." A simple cross-examination showed this claim to be a feigned one, and this patient not infrequently so admitted to the physician, but kept up making the claim to visitors, although he refrained from so doing to the physicians themselves.

CASE XXIII was a victim of acquired secondary paranoia who plunged every morning into the river for a bath, breaking the ice if necessary to secure it. This man found that by feigning dementia he was able to secure tobbacco and other little comforts, and he therefore kept this up on occasion, relapsing into his usual condition when his end was attained.

The secondary incoherent lunatics often furnish instances of simulation of insane which puzzle the alienist who fails to recognize that, as Dr. Crichton Browne* remarks, the perceptive faculties are often as active as ever. Things going on around them are noticed. The patient apprehends very quickly, and as a rule, despite his incoherence, is often a very useful inmate of the asylum. One patient of mine was an excellent shoemaker, and the fact that he was not able to put together three coherant sentences did not interfere with his good cobbling and shoemaking. As Crichton Brown remarks, these patients are quick to recognize, classify and name the persons brought before them. One of these patients, whose only coherent sentence was, "Isn't that so," was able to render very valuable assistance in gardening, being much interested in his work. He acted so intelligently about this that an attendant whom he had worked with for a day without much speaking was astonished to find how incoherent he was and thought he was feigning. This psychosis is not necessarily attended with mental confusion or loss of memory. Crichton Brown well says: "These patients have

*West Riding Lunat. Asylum Reports, Vol. V. 1875.

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lost control over their mental processes. They cannot pursue any train of thought. They can no longer regulate the inner life which itself is out of accord with the external environment. The patients are not so much weak as wild minded. They are not so much fatuous as fantastic. The proud and compact phalanx of intellect is almost unthinned but it is converted into an unruly mob. The steady tread of rational progression is possible for a -ow ment but has given place for the most part to the hurried shuffling and confused scrambling of mental tumult. Their minds are active but the activity is morbid. The majority of the patients laugh very much. They have an exaggerated sense of the ludicrous. They are very loquacious as a rule. They are capable of extended application provided this application be directed by an intelligent attendant or be of an absorbing nature.

This intellectual peculiarity leads the idle patient of this type to much mischief and not infrequently to simulation to conceal the mischief as in the following case:

CASE XXIV.—An incoherent chronic patient allowed out on parole had been permitted the freedom of their orchards by many farmers to whom he rendered some service by assisting therin. Occasionally he wandered out of his usual territory, took the same liberties with strangers who resented this, whereupon the quiet man became transformed in a second into an apparently raving lunatic. A posse armed with pitchforks would then convey the "dangerous" lunatic back to the insane hospital. On one occasion my little girl with whom the patient was a great favorite met such a posse with this "dangerous" lunatic in charge. To their horror she ran into his arms, scolded them for hurting him and the "dangerous" seemingly violent maniac vanished to give place to a mild mannered genial individual who ran with the child on his shoulder in great glee to the insane hospital. His captors had previously had to drag him every single step toward the institution. He was conveyed to Kankakee with 150 others in a car. Apple venders crowded around this at one stopping place on the journey. The patient opened the window and held out a round piece of tin the size of a dime. The apple-

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vender handed up a dimes-worth of apples. When these were safe in the car the patient howled maniacally and made fearful grimaces, whereat the apple vendor fled in terror whereupon the "raving maniac" laughed uproariously and during the rest of the journey was in evident incoherent jubilation over the results of his stratagem.

The following case I was enabled to study in 1882 through the courtesy of the Bridewell officials:

CASE XXV.—A supposedly harmless hebephreniac was confined awaiting trial for insanity in the Chicago Bridewell in the same cell and bed with a surly one-legged man who forced the hebephreniac to lie on the floor. The hebephreniac waited till the cripple was asleep and then killed the latter with his own wooden leg. The turnkey in the morning when attempting to enter the cell met the hebephreniac who assured him all was right. The cripple was found dead. The stump had been cleaned off with a rag and in the bucket were hidden blood-stained bed-clothing. The hebephreniac replied to all questions anent the killing with mere looks, vacuous and demented. Subsequently he denied that he killed any one, or that he had ever seen a dead man. As to the blood which disfigured his hands and face, he said that his nose had bled during the night. He was a tall, slim boy, twenty years old, pale-faced and light-haired. His face had the aimless expression of a dolt except for an occasional gleam of cunning, which furnished ground for the belief that he was not so insane as he looked. Insane he was certainly, but the story of the bleeding nose and the unwillingness to talk were evidence that the boy had at least a partial conception of the enormity of his crime and of the expediency of feigning insanity. That he was insane and feigning insanity was clearly evident to even the newspaper reporters and to the jury who subsequently tried and found him insane.

(To be continued.)

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Observations on the Histological Development of the Cerebellar Cortex.*

IN RELATION TO LOCOMOTION.

Prefatory Note by DR. AURELIO LUI, Brescia Provincial Asylum.

In Prof. Stefani's Laboratory, during the past year, I have been examining histogenetically, the strata of the cerebellar cortex in some mammals and birds and have been able to establish this important fact, that the complete development of the cerebellum was attained in them at that period in which they respectively were able to assume the upright attidude and to walk; and that the different developments at the time of birth and in the succeeding periods advanced *pari passu* with the more or less early dates at which such attitudes were assumed.

These conclusions were reached after observing the cerebellum of the chicken, which walks as soon as born, and those of young sheep, of dogs and doves, which walk at varying periods after birth.

Nuclear stains were almost exclusively used, and with these I was able to determine that the modifications by which the cerebellum attains its complete development consist in a gradual disappearance of the external granular layer, in a constant increase of molecular substance and in a change in the cells of Purkinje, which, from being pyramidal in shape, become approximately globular owing to an increase in their protoplasm and a change in the position of the nucleus, which tends to become centralized, or to occupy a position in the upper part of the cell.

* Translated by Susanna P. Boyle, M. D. C. M., Lecturer and Demonstrator in Normal and Pathological Histology, Toronto Woman's Medical College. Physician to Girls' Home, Toronto.

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Moreover it was interesting to observe analogous occurences in other mammals and in birds, and to note besides, those peculiar structural changes which could be most clearly followed in the elements constituting the cerebellar cortex, and to ascertain what was the significance and ultimate fate of the external granular layer.

In these recent investigations Golgi's rapid black stain (fixation of sections in osmio-bichromic solution, and subsequent impregnation with silver nitrate) was almost entirely used as being that which most effectively stains the nervous tissues of new-born animals, especially if care be taken, when treating such structures in this way, not to leave them too long in the mixture; sixteen or eighteen hours being generally quite sufficient to obtain a good reduction afterwards.

Rabbits, rats and cats afforded material for the researches on mammals; studies at the time of birth being followed later by others undertaken in connection with animals that had learned to walk. In birds, besides repeating all the researches on chickens which walk at birth, investigations were carried on, in a similar way, with sparrows and starlings, both of which do not acquire the habit till later.

Examinations of sections hardened in Flemming's fluid and stained with saffranin, acid fuchsin, etc., gave similar results to those obtained in the preceding investigations. This was especially satisfactory in the case of the cerebella of birds, the small size of which had rendered the previous researches somewhat defective.

The black reaction method, in the cerebellum of the chick, showed at the outer edge of the molecular substance, a sharply marked strip, corresponding to the small amount of the external granular layer which still remained.

Owing to the difficulty of obtaining a good reduction, I have been able to observe in this granular layer only the so-called radial fibres of the neuroglia cells situated on a level with or a little lower than the bodies of the cells of Purkinje, with their terminal plates on the free surface of the cerebellum, some small neuroglia cells, some prolonga-

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tions of the stellate cells of the molecular layer, those of the internal granular stratum, and some elements of rounded form, analogous to those described by Retinz, Ramon j Cajal, Kolliker and others in the external granular layer. The molecular substance was shown completely developed. We observed also the cells of Purkinje, globular in form and provided with protoplasmic processes which were widely spread and extended to the internal boundary of the thin strip of external granules. They are not, as is generally stated, incompletely developed in newly-born or very young animals, (see Gehuchten and others) but have reached, what may be called, their normal development.

In fact the body of the cell is not flattened in form, they have not large cylinders with collateral horns of great thickness, nor serrated protoplasmic processes provided with those large spines, which are found in embryo cerebella, but are diffusely and widely extended and provided often with a fine dentation which is frequently met with in the same elements of the adult cerebellum.

Besides partaking of the adult type in this respect, they possess also all the rest of the molecular and internal granular layers. Here are shown most clearly, not only the various ganglionic elements, but also that complicated plexus of fibrils which is to be seen in the adult cerebellum, to some peculiarities of which we shall make furthur reference in our complete work.

In the internal granular zone, where, with the method followed in the preceding researches, I was unable to discover any differential characteristic by which to distinguish between the embryonic state and that of complete development, I could not find, in the chick, by Golgi's method, anything which could be described as an embryonic nature.

The large cells of Golgi, especially, show no difference of any kind; they are for the most part polyhedral or vertically elongated in shape and provided with a finely-branching nerve process, and are not, as stated by Ramon j Cajal and others, larger than in the fully developed organ. The nerve-fibres possess only to a limited extent that varicosity which the black stain shows so satisfactorily in the

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cerebellum of a newly-born animal. These varicosities are present also in processes from embryonic nerve cells and neuroglia, but here are entirely absent. In my opinion the absence of this characteristic, peculiar to the embryonic nervous elements in the cerebella of the newly-born, is very significant, especially when we consider that in other animals it is found for some time after birth.

The cerebellum of the sparrow and that of the starling, on the other hand, have, at birth, all the characteristics of an embryo organ. Carmine preparations show but slight development of the molecular substance and a large amount of external granular layer. In this latter we found very well brought out by the black stain, some rounded elements of varied diameters, provided with short processes, turned either toward the base or apex, and reunited with each other especially in the more external portions; of these some probably represent only the flattened extremity of the radial fibres of the large neuroglia cells, others the large round or oval varicosities of the processes of such neuroglia cells, which varicosities sometimes proceed very near to them and follow for a long distance one of these processes except in those cases where the direction of the cut has left them isolated or with short peduncles. Besides this there are found in the deeper parts of this stratum, either arranged parallel to, or at right angles with the convoltuions, some cellular bodies provided with two processes which leave opposite ends of the cell; the horizontal bodies are more developed than the others, have a more decidedly cellular appearance and less branching of the processes. We cannot say whether or not these processes of nerve cells extend into this layer from the subjacent stratum of nerve fibres. In the molecular substance there may be seen a slender fibrillar layer; very rarely are nerve cells found in this part, if we do not count those elements just described in the deeper parts of the granular layer, in which are effected the progressive structural modifications. The body of the cells of Purkinje is described as being rough and covered with tufts of short, coarse protoplasmic processes provided with large spines and they do not extend past the inferior boundary of the external granular zone. In the

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internal granular stratum are found some cellular elements and very often nerve fibres possessing large and numerous varicosities throughout their entire course.

During development the granular layer slowly diminishes and in its place comes the molecular substance with its abundant cellular formation and its rich web of fibres and their processes.

There is not room here to speak of some peculiarities in structure of the sparrow's brain; it is sufficient to say that, placed a little above the cells of Purkinje, there exist some special cells with bodies of different shapes globularly polyhedral, or beautifully pyramidal, from the base of which goes a nerve process, which either subdivides at once or proceeds for some distance undivided into the next layer, while from the opposite end of the cell there arises a rich arborization of protoplasmic prolongations which intertwining with those of Purkinje's cells, reach to the periphery.

Research on mammals only tended to confirm the coincidence between the definite development of the cerebellar cortex and the manifestation of locomotive phenomena.

The cerebellum of rabbits, cats, rats and dogs at the time of birth is very similar in its state of immaturity to that of sparrows. The subsequent evolution is accomplished more or less rapidly; and, without wishing to deny that there exist differences of certain degree in the morphological constitution of the cerebellar cortex in these different animals, I do desire to say that, after an accurate examination of numerous preparations, I am convinced that many of the differences which have been noted, have their foundation in the different ages at which the animals have been studied, even though all the researches have been conducted on very young animals.

The best reductions of the external embryonic stratum of granules and of the molecular substance are obtained from the new-born rat, and those of the internal granular layer in the cat immediately at, and also for some days after birth. The granular stratum offers for consideration a structure analogous to that described in the swallow, excepting that some of the above-mentioned horizontal bi-polar cells situ-

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ated at the internal limit of this zone, resemble more closely in the shape of the body and course of processes, those cells with long horizontal prolongations which are met with in the adult. Purkinji's cell is represented by an irregular body covered with short and irregular protoplasmic processes; the nerve prolongations can be followed very easily, appearing however, larger, less flexuous and uniform than those of adult cells. It is worthy of note that the internal granular stratum, in all else almost analogous to that of birds, has already at birth almost attained its full development.

There may be noted as embryonic characteristics, varicosity of the fibres and processes, and greater size and irregularity of the cell-bodies, granules as well as the large nerve and neuroglia cells, but the complex structure of this zone is already most apparent. Gradually as the time of ambulation approaches the various strata become progressively modified and reach their complete development when that epoch is entirely accomplished.

In the plates accompanying the forthcoming work these various morphological phenomena will be clearly demonstrated.

At present it is sufficient to sum up with the following facts, viz.;

1. That in many other mammals also the cerebellar cortex reaches its complete development coincidentally with the development of the upright attitude and art of walking; that in birds, which walk as soon as born, the cortex is at birth in possession of its complete development, while in others such a form is attained at a period after birth, corresponding to that at which the above mentioned phenomena manifest themselves.

2. That the modes of development of the single elements are very complex.

It seems evident that the external granular layer is only an embryonic stage of the molecular substance, for the greater part of the elements which are found in it have not the appearance of nervous tissues and in some of them the neuroglia nature can be demonstrated; it is only in the zone bordering on the molecular substance and which we may consider part of the same stratum, that we may dis-

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tinguish in the embryo, some cells which have a certain amount of resemblance to the nerve cells found there in the adult organ. Karyokinetic figures may here be demonstrated satisfactorily by Bizzozero's method, or with the aid of saffranin. It is probable that owing to the multiplication of these cells, the increase in the fibrillar plexus of the molecular zone and the rich develpment of the cells of Purkinje, this stratum is compelled to undergo a process of slow atrophy.

3. That the elements which gradually develop with such regularity, as the animal begins to assume the walking attitude, are the cells of Purkinje and those cells which are found in the deeper parts of the external granular zone; these cells therefore have the significance of motor cells and those which, at least in part, according to some authors, represent a system of association by the aid of their processes which extend among the gangliar elements. The internal stratum of granules, on the other hand, shows an advanced degree of development at birth, whether or not the animal be then endowed with the faculty of walking.

When the addition of some other researches will permit me to publish in an extended form, the results of my observatlons I shall describe more minutely the structural changes in the cortex during its period of development and some other particulars which appear to me worthy of consideratlon.

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Physiological and Therapeutic Researches on the Pseudohyoscyamine of Merck.*

By Doctor GIUSEPPE GUICCIARDI.

PSEUDOHYOSCYAMINE is an entirely new substance, both to chemical analysis and physiological or therapeutic experiment. It is a powerful alkaloid, belonging to the group of poisonous mydriatics, whose prototype is atropine.

Merck, who discovered it recently, has studied it from a chemical point of view. On my own part I have made some physiological and therapeutic experiments, especially in the psychoses; at the Psychiatric Institute of Reggio-Emilia. I have compared its action with that of other substances analogous in composition and of known chemical constitution. Merck has isolated the new alkaloid from Duboisia myoporoides, a plant of the family of the Solanaceae. The new alkaloid is not identical with any of the bases actually known and obtained from the Solanceae, such as atropine, daturine, hyoscyamine, hyoscine and duboisine. By reason of its polarimetric properties, it has already been called by Merck, the awkward and inelegant name of pseudohyoscyamine, pseudohyoscyamine is isolated by repeated crystallizatlon from hyoscyamine and hyoscine. It becomes separated from chloroform by the addition of a large quantity of ether and is then deposited as small, feebly, yellow crystals. These crystals are soluble with difficulty in water and ether; but easily in chloroform and alcohol. They have a sinistral polarimetric deviation of 0.897°. It may be heated to 133°-134°C. without decomposition. It has therefore a fusion point different from other vegetable bases derived from the solanaceae; such as atropine fusing at 115°, hyoscyamine at 106° and apoatropine at 60-62°C.

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*Translated from the Italian by Dr. Arthur E. Mink, St. Louis.

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The formula of the alkaloid is $C_{17}H_{23}NO$ and is similar to that of atropine and hyoscyamine. But pseudo-hyoscyamine is distinguished from atropine and hyoscyamine in this; that after decomposition by treatment with barium hydrate, we have neither tropine nor pseudotropine; but a base isomeric with these present as reddish-yellow crystals, indecomposible, except at a fusing point of 250°. No simple salts have yet been made from pseudohyoscyamine, as has been done with the other mydriatic alkaloids lately discovered; such as hyoscine hydrochlorate and hydrobromate, and duboisine sulphate. Having received the substance directly from Merck, I have employed in my experiments, either a 2% aqueous solution, a 1% solution in alcohol and water, for experiment on animals, or a 1-600 solution as a collyrium. Such solutions are limped, have an alkaline reaction and a pronouncead bitter sweetish taste. *Physiological and Therapeutic facts:* I report in a cursory manner the most important conclusions of my researches, reserving the right in a future communication of completing and strengthening them, by a detailed exposition of the clinical and physiological experiments. I have used the alkaloid as a collyrium in order to see its action upon the pupil, when applied directly; and also as a subcutaneous injection in animals and man. In man the injection always produces a circumscribed turgor and intense redness, in the region of puncture, which is felt subjectively as a painful tension of the part along with a scorching feeling. To the touch, the skin at this point is quite warm. Such phenomena disappear very slowly; but have no other consequence, such as persistent induration or production of abscesses. Still the injection of duboisine amongst others, is sufficiently painful. It is to be noted, however, both in the case of duboisine and pseudohyoscyamine, that the patient after a little, no longer notices the local symptoms of the puncture owing to the torpor which overcomes him.

The dose in which we can employ pseudohyoscyamine without producing grave toxic phenomena, we have always found stands in a certain relation to the developement of the brain. Herbivorous animals (rabbit and guinea pigs) bear the poison much better than carnivoroa (dog),; perhaps

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because among the first, elimination is accomplished more rapidly, as I have already found it happen with atropine. The guinea pig and rabbit bear doses of 7 to 8 centigrammes best, injected at once or at short intervals; only showing symptoms of torpor and somnolence. For dogs the dose is from 2 to 4 centigrammes.

In man it happens that idiots and dements resist the effects of the alkaloid in a very sensible manner; even in doses of 5-6 milligrammes. In a young and robust idiot, 8 milligrammes produced no pronounced effects. Other insane show these effects with doses of 2 to 3 milligrammes, and the very excitable and intelligent, with doses of from 6-7 decimilligrammes up to 1 milligramme.

The absorption is most rapid subcutaneously, much more so than that of duboisine or atropine. In fact the modification of the pulse (which is a valuable criterion of the action of poison) was influenced by doses of 2 milligrammes; one minute after injection, of duboisine sulphate from 3 to 4 minutes after, by atropine sulphate from 8 to 10 minutes after. I was anxious to know the maximum of action and cessation; thus with doses of 2 milligrammes, the maximum action of pseudohyoscyamine is reached after 15-18 minutes, by duboisine and atropine between 25-30 minutes. After 2 hours the effects of pseudohyoscyamine are no longer manifested by the pulse; with atropine, after 2 hours and 20 minutes; while two hours and a half after the injection of duboisine the effect is still most pronounced on the pulse. Following the introduction of rather large doses, the concomitant disturbances of the skin and digestive organs are much less than those attending the use of atropine and often with the use of relatively large doses of duboisine. The face is a little flushed, skin slightly dry and there is some dryness of the mouth and pharynx, but no nausea nor vomiting. With small doses the number of respirations is augmented notably, with large doses they are diminished more or less; especially at the acme of drug action. When drug action diminishes they deepen. The pupil becomes only moderately dilated when pseudohyoscyamine is injected subcutaneously in comparison with that produced by duboisine

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and especially atropine. Analogous results are obtained when it is locally applied. Small doses produce more or less generalized muscular contraction, and an apparent augmentation of reflex excitability. These phenomena are notably diminished when the dose is discreetly augmented. The action of the alkaloid on the vagus and circulation is typical of atropine.

At first there is a temporary slowing of the pulse and then an enormous acceleration.

We have constructed a graphic table, which will demonstrate this, and at the same time permit us to compare the action of equal doses on the same subject, under identical conditions, of pseudohyoscyamine in comparison with sulphate of atropine. The action of pseudohyoscyamine appears quicker and is more moderate, and less lasting than that of atropine, much more, of duboisine. Along with acceleration of the pulse there is elevation of blood pressure, but not so intense as with atropine. The intermittance of the pulse is rarely found in comparison with that resulting from the use of atropine and especially duboisine. Numerous sphygmographic tracings taken before and after injection of larger or smaller doses of pseudohyoscyamine (5-6 milligrammes) on normal, hysterical, maniacal, and idiotic subjects, will clearly prove all this.

Four of the tracings I give of a hysteric under the action of a milligram and a half of the alkaloid, will show very well the facts here quoted, and I report such tracings here as an example of what commonly occurs. We have also taken the curves of the number of heart beats on the whole and decapitated frog, after which we injected 2 decimilligrammes of pseudohyoscyamine. One of the tracings taken from a more succesful experiment, will demonstrate the elective action of the alkaloid on the encephalic centres.

The general phenomena of pseudohyoscyamine are similiar to those of atropine, but less disagreeable than to those of duboisine, but less intense and more fleeting. A small dose gives a sense of exhilaration, stronger ones produce weakness, the feeling of inertia, torpor, partial arrest of ideation, abulia, somnolence and rarely sleep. These phenomena resemble those of alcoholic intoxication. A col-

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league of mine, after the injection of 4 decimilligrammes, was affected with weakness—the need of being seated, was taciturn, yawning, with heaviness in the head, the legs gave way, involuntary contraction of the muscles, a dryness in the mouth, with difficulty in swallowing. Three hours after he recovered, and only appeared to be somewhat unstrung and fatigued.

In the insane, I have so far used the drug in only selected cases. I have used it with the special intent of modifying the psychomotor excitement of mania, of certain forms of imbecility, and of hysteria; in hysteria especially to cut short or lesson the convulsive attack. Inasmuch as its hypnotic power is very uncertain, it should never be given with this intent, like duboisine. There is a better use for it. I can say nothing of the curative effect of the alkaloid: but as a sedative I can affirm that it succeeds very well, possessing an action analogous to that which Belmondo found in duboisine when experimenting in this Institute. In comparison with duboisine it has, as far as I can determine, some advantages and not a few defects. Puncture is more painful with pseudohyoscyamine, the action less lasting, the effects less prominent and sure, but it is more rapid and fulminating in its action and its effects as rapidly cease—two things which will make it useful in therapeutics, especially for modifying hysterical convulsions, where I have used it in some cases with great advantage. It is more convenient in dose, because less dangerous and infinitely less toxic, and it can be longer used, because of its more moderate action on the heart.

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Bilateral Paralysis of the Facial Nerve.*

By DR. MONJOUSHKO, Russia.

CASE 1. (Conclusion)--The irritability of the nerves and muscles to the faradic current is destroyed (Normal apparatus of Krueger). With a distance of 50 mm between the electrodes, the corrugator supercilli frontalis, sphincter palpebrarum, levator labii sup., zygomatici and depessor anguli oris muscles did not contract. These currents caused only intense pain in the face.

On testing the nerves with the constant current, no reaction could be observed (Stoerers apparatus with 24 cells). On examination of the muscles with this current, the spincter palpebrarum, levator labii sup., zygomatici, depressor anguli oris et depressor menti muscles contracted considerably with 6 cells, reacting more however on the application of the Ka than the An—KaSZ> An. SZ. These contractions were slow.

The sense of taste in the anterior two-thirds of the tongue on its application with proper solutions is considerably diminished and slow, so that he is able to determine the kind of taste only after a few seconds and then in most instances incorrectly. He mixes sour (week solution of muriatic or citric acid) with salty. Strong salty, sweet or even bitter solutions, he is better able to differentiate. On the right half of the tongue the sense of taste is worse. If sugar or salt be applied to his tongue in powder form, he cannot feel them at all, unless he swallows some particles.

The patient complains of noise in his ears, but nothing points to a weakening of his sense of hearing. Dr. Heyman, the superintendent of the aural department, pronounced the organs of hearing, after a careful examination, entirely normal.

For completeness of the examination of the cranial nerves I must add that his sight and the motion of his eyeballs were entirely normal. The tactile sensibility of the face,

*Translated from the Russian for the ALIENIST and NEUROLOGIST by Dr. Gustavus Blech, St. Louis, Mo.

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the walls of the mouth and the tongue are well preserved. (V. p.) Sometimes the patient observed that the right-half of his tongue felt worse; the motion of the tongue being free, no atrophy and no trembling in the latter could be observed.

Thus we have before us a bilateral paralysis of the facial nerves with a weakening of the sense of taste and a subjective derangement of hearing, in consequence of the affection of both nerves in the Fallopian canal between the ganglion geniculatum and the exit of the nervus stapedius (according to Erb's schedule No, 5).

According to Erb, the reaction to electricity determines this case of diplegia facialis to the difficult paralyses; with no prediction for a quick cure.

Excluding as the cause of the paralysis, traumatic injuries, ear-affections, rheumatic influences and acute infectious diseases, syphilis remains as a possible etiological cause, although, true, we have little subjective proofs in the anamnesis. (Dec., 10, there was a little vesicle on the penis—four weeks after its appearance, there were noticed some kind of vesicles in the mouth and an adenitis indolens in the neck, which later however amounted to very little). But, as in this case, the paralysis occured about 1 1-2 months after the appearance of the vesicle on the penis, i. e., hardly before the eruption in the mouth, so we suspect syphilis, considering Fournier's opinion, that paralysis of the facial nerve occurs early with the secondary phenomena, but according to Dargaud, in from one and a half to eight months after the appearance of the first sign of infection; in one-half of his 18 cases, earlier than three months.

As regards the character of a syphilitic affection of the Fallopian canal, agreeing with Dargaud, there are oftener than anything, periostitides, recognizing this also in our case, and supposing the possibility that the syphilitic periostitis, irritating the nerve, which it compresses, produced in the latter a perineuritis.

In view of the neglect of a grave case of paralysis, we commenced an energetic, united specific treatment. From March 14th to May 14th, with small interruption, the patient injected himself with 30 frictions of hydrarg. nit, Zi. To this he used warm baths. After a month, i. e., after the twentieth friction, he received 5grs. potassium iodide from five

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to six times a day. A nutritive food was ordered; the general condition all the time was satisfactory; the weight fell from 147 to 142—and this loss he soon regained.

The local treatment consisted of daily galvanization of the muscles of the face and of the trunk of the facial nerve with a current of from 10 to 14 cells. There occured alteration during galvanization. After a month and a half massage of the face muscles was added. After somewhat more than two months, although little, we first began to observe that the electrical reaction of the muscles on the faradic current returned, then daily faradization was ordered and galvanization every second day. Regarding the general progress of the disease, it is necessary to say this; the voluntary contraction in the paralysed muscles began to appear 1 1-2 months earlier than their reaction to the faradic current.

Something of interest, among other things, in this case, is the weakening of the tactile sensibility on the right side of the tongue at the time when the muscular paralysis of this half of the face began to disappear which was sooner than on the left side. The dryness in the tongue diminishes under the influence of medication, principally due to the re-establishment of the function of the secreting cells of the facial nerve, coming from the Fallopian canal into the chorda tympani. With the disappearance of the dryness, the sense of taste, although slowly, became re-established. After a month the tactile sensibility in the middle third of the tongue improved while in the right half it was weaker. Bernhardt observed twice a weakening of the tactile sensibility on the affected side in paralysis of the facial nerve, and this, surprisingly, on the side, which in every other respect improved considerably. May be that the peripheric tactile nerve apparatus is in an abnormal state of irritation in consequence of considerable dryness on the left side, at that time the more affected side, while on the right side, which is faster improving with the re-establishment of the function, the hyperasthesia disappeared.

We can also consider, as proposed by a few authors, the possibility of an anomaly in the distribution of the sensory nerve endings of the tongue, which are sup-

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plied by the chorda tympani, but not by the n. lingualis; on the other hand it is possible to admit that the periostitis of the Fallopian canal is worse on one side than on the other, whereby the re-establishment on both sides was not equal.

CASE II.—Soldier, E. K., aged 23, private occupation, farmer, entered the neurological department of the hospital, July, 9th, 1891. Examination on the same day. Anamnesis: The parents of the patient are healthy, father does not drink, mother suffered from headaches, brothers and sisters healthy. When a child, the patient had variola and in youth suffered from headaches. Does not drink and had no syphilis.

While in service he developed trachoma and was sent to Nomechoff station for eye-patients, where, two months ago, he was attacked by severe headaches in the posterior inferior region of the head, on the right side, which prevented him from sleep; after this he ceased to close the right eye and the face contracted to the left; three weeks later such pains also occurred in the left half of the head after which the patient ceased to close the left eye. With this the face became more symmetrical but heavy and was changed in its expression.

Objective examination: The face of the patient is covered with deep scars as the result of small-pox; height, short; body, symmetrical and well nourished. Careful examination reveals a normal condition of all viscera. The skin, tissues and bones show no evidence of syphilis. The strength of the hands and feet is satisfactory, he walks heavily, he stands poorly on one leg and this gets some worse when closing his eyes. Sensibility is equally conserved on both sides of the face. The patellar and cremasteric reflexes are energetic.

Sight, motion of the eyeball and of the tongue are normal; the tactile sensibility is equal on both sides of the tongue and equal to the sensibility of the lips and cheeks. The sense of smell [after elevation of the nostrils] is well on both sides. The patient can neither elevate the eye-brows over the nose nor frown.

The eyes do not close, and with the effort to close them, the angles below the upper eye-lid bend somewhat. The conjunctivæ are hyperæmic. The conjunctival sac is always full of tears. The lids of both eyes are in contraction. The lower lid is drawn out from the eye-ball, especially at the internal angle, in consequence of which there is a constant flow of tears. The patient can neither whistle or laugh nor show his teeth. He also can not

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elevate or move the angles of his mouth in one or the other direction. The angles of the mouth are hanging down—the mouth half open. The speech, in consequence of the indistinct pronunciation of the lip consonants and some vowels, is indistinct.

The patient complains of an intense dryness and of a bad taste in his mouth. The patient can differentiate different test solutions and determines even the strength of the solution. He does not complain of any weakening of his hearing, on the contrary complains of some greater ability of hearing. It is disagreeable to him, when he hears the sound of a little bell [hyperacusis], besides the patient has always a noise in his ears. Dr. Heyman pronounced this organ of hearing normal, both anatomically as well as in "function." Relation to electricity: Neither the faradic nor the galvanic current can produce any contraction of the muscles of the face—no matter what strength of current was tried. On irritation of the muscles with a strong galvanic current [26 cells Stoerer's apparatus] it was found that An SZ = Ka SZ, whereby the contractions were slow.

Thus we have before us a case of grave bilateral complete paralysis of the facial nerve, due, perhaps, to its infection by a perineuritis of unknown cause—higher than the ganglion geniculatum, but lower than the internal, dry orifice.

Lack of taste is explained by the excessive dryness in the mouth. The treatment consisted of daily galvanization with a current of medium strength [10 elements]. The self-feeling of the patient became better from the very beginning of the treatment; the noise in the ears and the dryness in the mouth diminished rapidly, the eyes began to close better, the paralysis disappeared, the face assumed better form in consequence of the return of tonus of the muscles.

At the end of August appeared an irritability of the muscles to a faradic current, but a contraction through the nerves and to the galvanic current did not appear until the middle of September, when I turned over the department to Dr. Irwortsoff and lost the patient from my sight.

This second case of diplegia facialis, as to its clinical character, ought to be counted with the peripheric paralysis of the facial nerve, where the pain in the neck, even in

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the whole half of the head appears earlier or even at the same time with the paralysis of the seventh pair. Similar cases were demonstrated by Prof. Charcot in his clinics on Tuesdays. According to Charcot, painful paralyses of the facial nerve were studied first by Weber who found them in half of the cases of paralysis of the face. Afterward, Testar, in his *These de Paris*, 1887, written under the direction of Prof. Dieulafoy, pointed out that the pain is localized in the auditory canal [on the side where the paralysis is formed or about so formed]. These pains are either partial or general. In the latter case they may at once occupy the whole half of the face. Sometimes these pains are very severe; sometimes hardly felt, but nearly always forming a prodromal appearance to the locomotor paralysis; in some cases they appeared in about eight to twelve days after the first appearance of locomotor derangement and continued two to three days after the appearance of the paralysis in general.

The cause of the pain in paralysis is not yet defined, but according to Testar its existence has a special clinical interest as to prognosis, the intensity and continuation of the pain corresponding with the gravity of the disease. But a case of Charcot and our second case, show that there is no relation between the intensity and continuation of pain and the gravity of the disease.

In his case and in his lectures on Tuesdays, Charcot, while speaking of the causes of paralysis of the facial nerve, recalling Neumann's work, asserts decidedly that cold, syphilis, and trauma, serve only as exciting causes for this affection, to which however the patient is disposed by heredity (especially skeptical is Charcot in regard to so-called "cold" paralysis). This suggestion is supported in both our cases, as in them there were neither trauma nor cold and we could not with surety state the causes. Is it in both cases not the fault of the nervous system?

In conclusion, we must say with Charcot that we are far from knowing all about paralysis of the facial nerve.

Finishing my article, I feel it my pleasant duty to express my feeling of deep thankfulness to Prof. N. M.

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Popoff, of the Warsaw University, for his numerous services rendered to me while working at the Zjasdofsk hospital. This same belongs also to the Superintendent of the psychiatrical department, P. A. Wiktorofsky, and L. Stefjanovich, physician-in-chief, for their readiness to help me with word and deed.

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The Evolution of Scientific Neurology and Its Utility in Medical Practice.*

By JOHN PUNTON, M. D., Kansas City, Mo.

Professor Nervous and Mental Diseases, University Medical College; Special Lecturer Western Dental College; Neurologist to All Saints, Bethany, Scarrit Training School, K. C., F. S. & M. R. R., and Mo. Pacific R. R., Hospitals, Etc.

GENTLEMEN:—In all ages of the world the nervous system has attracted the attention of the brightest intellects of every department of learning, and this attraction is even greater to-day than ever before.

Long before the Christian era it was the subject of much controversy and wild speculation and the growth and development of ideas and their crystallization into facts in regard to it is not only full of interest, but important to every student of medicine. Its earliest conception furnished the material which formed the basis of all the ancient philosophic beliefs embraced in the term Psychology and amid the infinite variety of erroneous and jarring opinions a splendid system of modern Philosophy has slowly but surely been evolved which to-day constitutes the science of neurology.

In their attempt to solve the problems that existed between mind and matter the Greeks were led into a maze of error, doubt, and superstition which unfortunately hindered rather than advanced the questions at issue, besides having the disastrous effect of leaving behind their "Foot-prints on the sands of time."

The marvellous correlation of all the various forces which constitute our common human nature, and its endowment with that vital spark or essence we term life, has

*Read before the Tri-State Medical Society at Jacksonville, Illinois, Oct. 10, 1894.

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furnished a stumbling block not only for the ancients but for the students of every age, and the nearer we seem to approach the mysterious realms where the living forces of all our mental activities are silently elaborated and put forth, the more formidable the obstacle appears, and the more liable are we to mistake matter for mind. In no department of study has there been such a brilliant display of intellectual talent and ingenuity of purpose as is found engaged in unravelling the secrets of the nervous system, the details of which, though scattered throughout the whole domain of medical literature, when gathered together, constitute the material comprising the science of Neurology.

Standing at the very threshold of such a task, is it any wonder that we find the Greeks bewildered and forming conclusions based on suppositions which to-day we reject and ridicule, yet the evolution of scientific neurology would certainly be incomplete without their mention. Hence among the vague impressions of the ancients in regard to the brain we find that they recognized it as a secreting gland, that it acted as a sponge attracting to itself the humidity of the body. Even the great Plato imagined that the Deity formed sublunary beings in part of his own nature and that to these the duty of the manufacture of animal bodies was entrusted. Following in his footsteps the learned Hippocrates imbibed quite freely of this false philosophy, and consequently became entangled in its web of superstition.

Later we find Aristotle led into similar pitfalls by theorizing from incomplete observations for he regarded the brain as a cold humid mass destined to temper the heat of the heart. Such docrines were introduced into Rome by the Greeks, and in course of time a famous physician, Galen by name, demonstrated the falacy of Aristotle's pet theory by simply exposing the brain of an animal and finding it equally as warm as the heart. But Galen was not free from censure for he accepted the nonsensical notion advanced many years prior by a Greek physician, Erasistratis by name, who believed that the air we breath was converted into animal or vital spirit, which we now translate to mean nervous energy, nevertheless, Galen by his teachings and writings so influenced medicine that he was esteemed infal-

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