be assumed, but only that previous members of the family showing this syndrome have been buried even beyond the knowledge and memory of those still alive. Sufferers from this syndrome are of course unlikely to marry, and even if they do so are unlikely to have children—a factor which of itself curtails the passing on of the defective gene except as a latent recessive type.

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Medical Memoranda

A Fatal Case of Solanine Poisoning

Of the *Solanaceae*, *A. belladonna* (deadly nightshade) has long been recognized as having very poisonous properties owing to the high content of atropine in the plant. The commoner members of the nightshade genus—*S. dulcamara* (woody nightshade) and *S. nigrum* (black nightshade)—are generally regarded as being harmless, although the alkaloid solanine has been recovered from the berries of these plants and has been shown to have toxic properties in experimental animals and to a less extent in human beings. We can trace only one authenticated case of death following ingestion of the red berries of the woody nightshade and one fatal case of black nightshade poisoning (Taylor, 1875).

CASE RECORD

A female child aged 9 years was admitted to hospital on the evening of Aug. 13, 1948, suffering from vomiting, abdominal pain, and distressed breathing. Her home was on the outskirts of a town and she was apparently in the habit of eating berries from hedges and from the embankment of a disused railway near her home. She had eaten berries on several occasions during recent weeks, the last occasion being three days before admission. The following day she had felt unwell but had improved. On the day before admission she had been taken ill with vomiting and had vomited "coffee-ground" material four times during the five hours before admission.

The child responded weakly to questioning and complained only of abdominal pain and thirst. She looked exhausted, the skin was pallid and dry, the expression anxious. There were slight restless movements of arms and head. She was not delirious. A feature which remained marked throughout was dyspnoea. Inspiration was short and gasping; expiration was prolonged and active and accompanied by a sigh. The respiratory rate was 32 per minute.

The pupils were of normal size and reacted to light. Although the child was dehydrated the tongue was moist. Examination of chest and abdomen revealed nothing of significance. The extremities were warm. There was neither paraesthesia nor paralysis. Temperature 96.4° F. (35.8° C.), pulse rate 140 per minute, blood pressure 120/88.

A provisional diagnosis of vegetable irritant poisoning with central effect on the nervous system was made, and treatment was immediately instituted. This included stomach lavage, soap and water enemas, nikethamide 1.7 ml. hourly, and latterly oxygen. Fluids were given by mouth and per rectum. Some improvement in her general condition was maintained for 24 hours, but she later became weaker and more cyanosed and her respirations became very feeble. Death occurred in the morning of Aug. 15, 1948.

A post-mortem examination was carried out two hours after death. The main feature was an acute inflammation of the mucosa of the stomach and intestines, the inflammation decreasing in intensity towards the distal coils of small intestine and caecum. There were small haemorrhages in the mucosa of stomach and jejunum. The stomach contained about 1 pint (568 ml.) of dark brown fluid, and dark greenish-brown semi-solid material was present in the upper coils of jejunum. The bowel contents decreased in amount and became paler towards the distal end of the small intestine. The contents of the colon were normal in appearance. Small fragments of the skin of a berry were found microscopically. The rectum was empty. Other abdominal organs appeared healthy. Thoracic organs, with the exception of the lungs, which were congested and oedematous, appeared healthy. The brain was normal in appearance.

Microscopically the liver showed moderate fatty infiltration and necrosis.

The post-mortem findings were regarded as being consistent with death from respiratory failure following the ingestion by mouth of some poisonous substance, and specimens of stomach and intestinal contents and liver were submitted for analysis. No alkaloid was found in the liver by the normal Stas-Otto process. A special search was made for solanine, and from about one-third of the liver 7 mg. of crude alkaloid was isolated, which on recrystallization from alcohol gave a product giving characteristic tests for the solanine complex.

A search at the place where the child played revealed the presence of masses of woody nightshade entangled with blackberries. The child's symptoms, the finding of solanine in this organ and the presence of much woody nightshade where the child played provide evidence that death was almost certainly due to poisoning by *Solanum dulcamara*.

DISCUSSION

Fatal cases of solanine poisoning are very rare, and although much work has been done on the potato as a source of the poison very little appears in the literature concerning the other two common sources, *Solanum dulcamara* and *Solanum nigrum*. It is known that the potato varies greatly in solanine content with the season of growth. Abnormally wet summers appear to favour high alkaloidal content. It appears possible that *Solanum dulcamara* may be subject to similar variations and that this abnormally wet summer may have favoured high toxicity of the berries. Recorded cases suggest that some individuals may be abnormally sensitive to solanine.

According to Reil (1857) solanine destroys life by producing paralysis of the muscles of the chest. It is a slow-acting poison, and so far as we know has not yet been isolated from the vomit or stomach washings of suspected cases. It differs from atropine (deadly nightshade) and hyoscyamus (henbane) in not producing stupor or delirium, dilatation of the pupils, sphincter paralysis, or pyrexia.

Plants of the genus *Solanum* can be identified only by a botanical examination of the leaves and berries. The following brief accounts are extracted from Bentham and Hooker (1945).

"(1) *Solanum dulcamara*. Synonyms: Bittersweet, woody nightshade, felonwort, violet bloom, scarlet berry. Found commonly in hedges and thickets in moist shady situations all over Europe except the extreme north. Common in England and Ireland. Rare in Scotland. Stem shrubby at base, with climbing or straggling branches, often many feet in length. Leaves stalked, ovate or ovate-lanceolate, two or three inches long, usually broadly cordate at the base and entire, but sometimes with an additional lobe or segment on each side. Flowers rather small, purple or blue with yellow anthers, in loose cymes, on lateral peduncles shorter than the leaves. Flowers in summer. Berries small, globular or ovoid and red when mature."

"(2) *Solanum nigrum*. Synonym: black nightshade. One of the most widely spread weeds. Common in England but local in Scotland and Ireland. An erect annual or biennial with very spreading branches, about a foot high. In Britain usually glabrous. Leaves stalked, ovate with coarse angular teeth. Flowers small and white in little cymes almost contracted into umbels on short, lateral peduncles. Berries small, globular, black."

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Five Cases of Belladonna Poisoning

On Sept. 2, 1948, at 10.30 a.m., three children, Rosemary and Elizabeth, aged 7, and John, aged 8, were admitted to St. Mary's Hospital, Portsmouth, with the statement that during the night they had become delirious, lost the use of their legs, and could not see. All three were extremely restless on admission, twisting about, plucking at the bedclothes, and constantly grimacing. John and Rosemary were extremely talkative and obviously hallucinated; their speech was a little slurred. Elizabeth appeared to have some photophobia and lay with her head buried in the pillow, fiercely resisting any interference. All three children had hot, dry skins and a marked malar flush. The lips were dry and fissured, the pupils widely dilated and inactive to light. They had rapid pulses, 120-130, but normal temperatures and respiratory rates. The highest B.P. recorded was John's, 138/80 mm. Hg. Lying in bed there was no obvious muscular incoordination, though they continuously executed purposeless movements. All deep reflexes were brisk. The following facts were elicited from the mother.

The patients and another brother had gone out to play in the park the previous afternoon. They returned home about 5 p.m. stating

they were very tired and did not want tea; all complained of great thirst but otherwise appeared to be normal. At 7 p.m. the children went to bed and slept. At 9 p.m. three were awake and extremely restless. Their speech was rambling, they complained of being unable to see, and John, who climbed out of bed, "kept falling about the room." The mother thought all of them had high temperatures.

The fourth child in the family remained unaffected, and during the morning directed us to a plot of waste ground where there were two large blackberry bushes covered with ripe berries. Entwined among the stems were several plants of deadly nightshade (*Atropa belladonna*) also bearing large black berries. The child stated that he had eaten one berry, but five more children "had eaten a lot." Three of the five were the patients, and the fate of the other two was at this time unknown. Later during the morning the hospital was asked to admit a child, Keith, aged 9.

On arrival he was found to have a hot, dry skin, rapid pulse, and moderately dilated pupils inactive to light. He was extremely drowsy and resentful of any examination. The story was that this child had been blackberrying with the others. He had a large tea at 6 p.m. and went to bed at 9 p.m., apparently a normal child. At 2.30 in the morning he was found fighting with his elder brother. He talked incoherently, did not appear to know his parents, and kept picking imaginary objects off the bedclothes. At 4 a.m. he was given morphine by a local doctor, and remained drowsy up to his admission at 1.30 p.m.

Just after his arrival a fifth child, Derek, aged 6, was admitted with identical symptoms to the first three. He had returned from the blackberrying party about 7.30 p.m., had his supper, and went to bed. He was awake and vomited twice during the night. At 6.30 a.m. both parents went out, leaving the child in charge of an elder sister. The sister sought the help of neighbours about 12.30 p.m. because the boy was talking strangely. The onset of symptoms in this case must have been delayed for twelve to eighteen hours.

TREATMENT

On admission gastric lavage was carried out on all five children, first with plain water then with potassium permanganate solution, 10 gr. (0.65 g.) to the pint (568 ml.). This procedure induced vomiting, and over 30 berries were recovered from John's stomach and nearly as many from his two sisters. The berries, mixed with gastric contents, closely resembled raisins, but the seeds were smaller and darker than raisin "stones." No berries were recovered from Keith and Derek.

Rectal wash-outs with normal saline were also given, but no seeds or berries could be detected in the washings. Four hours later the gastric lavage was repeated, and several more berries were obtained from John and one of his sisters. At the end of the lavage a solution containing magnesium sulphate 90 gr. (6 g.) was left in the stomach.

By late evening there was no appreciable change in the children's condition; all were still extremely restless and hallucinated; pulse rates remained high, and they were all incontinent. At no time was there any evidence of urinary retention. During the night they slept sporadically, and by 9.30 a.m. the next morning all, except John, were quieter and fairly co-operative, though suspicious and resentful of any examination. The children all complained of great thirst and two of severe frontal headaches; there was still a marked malar flush, but the pupils were smaller and showed a slight reaction to light. The saline aperient was repeated, and all had several bowel actions during the day; by evening large numbers of seeds and berry skins were still being passed by John and his two sisters. At a conservative estimate John must have eaten at least 40 berries, and his two sisters between 20 and 30. Why no berries or seeds should be recovered from the other children, whose symptoms were no less severe, is a mystery.

The important features in these five cases of poisoning appear to be: (1) The prolonged period between the ingestion of the berries and the appearance of symptoms. (2) The absence of any fever or respiratory depression and the prominence of the hallucination. (3) The significance of "raisins" in the vomit—so unlike fresh deadly nightshade berries—might not have been appreciated in a case where no history of eating berries was obtainable. (4) The necessity for administering an emetic: many of the berries would have blocked the largest size of stomach tube.

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Reviews

MODERN OPHTHALMOLOGY

Modern Trends in Ophthalmology. Edited by Arnold Sorsby. Volume 2. (Pp. 600; illustrated. £3 3s., plus 1s. 6d. postage.) London: Butterworth and Co. (Publishers). 1948.

Modern Trends does not aspire to be a textbook describing its subject adequately and fully, but, like a connoisseur, surveys the whole field, neglects what is fully established and has become ensconced in the standard textbooks, and discusses those aspects of the subject which are showing emergent tendencies, in which active research is progressing, and which are still matters of speculative interest. A book of this kind, if written by those who are contributing actively to new knowledge and edited adequately and with wisdom, is of great interest. The first volume in this series appeared in 1940. The second, which is now published and contains accounts of many subjects not included in the first, maintains the same standard of excellence as its predecessor.

There are forty-eight articles on all aspects of ophthalmology—physiology, optics, diagnostic procedure, pathology, treatment, and social aspects—written by authors in Britain, the Continent, and the Americas. They are all of high standard and it would be invidious to single out any for special mention, although some of them are somewhat short and superficial. A composite compilation of this type often suffers from great inequalities, but the thoroughness of the editorship is seen in the relative standard maintained in the presentation of the various sections: many of these must have been rewritten. The illustrations and the general production of the book are a credit to the publisher.

STEWART DUKE-ELDER.

THE DIFFICULT ADULT

The Doctor and the Difficult Adult. By William Moodie, M.D., F.R.C.P., D.P.M. (Pp. 296. 15s.) London: Cassell and Co. 1947.

Dr. Moodie, primarily a child psychiatrist, has always maintained that it is just as necessary, if not more so, to treat the parent as to treat the child. He has therefore provided a sequel to his book on the difficult child with one on the difficult adult and how the medical man may deal with such a problem. Throughout the book he is at pains to show how the difficult child becomes the father or mother of the difficult man or woman by handing on his peculiarities of idea, emotion, and behaviour, not by heredity but by example.

The book starts with a brief résumé of the progress of psychiatric understanding of mental illness during the present century, but the author deprecates the modern tendency to pamper the neurotic, whereby he may derive more advantage than ever from his illness and assume an importance in the family and the community which is not warranted. He warns against the possibility of the psychiatrist encroaching too far into the fields of education and criminology and making practical issues of half-digested theories. The descriptions of the psychoses and psychoneuroses are admirably terse, and the narratives of the illustrative cases are throughout so vivid and dramatically told that a living picture of the individual patient is presented to the reader. Dr. Moodie makes a useful distinction between the anxiety neurotic, who thinks but really does not feel, and the agitated depressive, who feels intensely, often attributing his distress to a situation which is really the outcome of the depression. He points out that obsessive people live close to the unconscious and are closely allied to the schizophrenic, so he doubts whether they should be classed with the psychoneurotic.

He briefly discusses epilepsy, emphasizing its close association with emotional disturbance and the harm that may be done both to the patient and his relatives by too ready diagnosis of a disease that they dread so much. In many cases simple psychotherapy may be very effective and a hopeless prognosis very