

neon is produced. Whence come the helium and the neon?

An atom of helium is 4 times as heavy as an atom of hydrogen; an atom of oxygen, 16 times; an atom of neon, 20 times. A reasonable explanation of what has been found would appear to be given by the supposition that four atoms of hydrogen have combined to form an atom of helium; that if oxygen be present, an atom of helium and an atom of oxygen combine to form an atom of neon. But the case is not quite so simple; for the atom of neon is not exactly 20 times as heavy as an atom of hydrogen, but 20.2 times. Whence comes the decimal .2? In all probability from the electrons, or atoms of electricity; we may therefore speculate that neon is a compound of hydrogen in

the form of helium, and of oxygen, together with electrons.

The case is by no means proved; but enough has been said to give some idea of the progress which is being made in the direction of ascertaining the nature of the elements. "Facts are chiefls that winna ding," and it is necessary to account for the facts which have been described. The explanation may be wrong; but the human mind cannot rest content with retaining in the memory a mere catalogue of facts; theories are put forward, and it remains to be seen whether they will be justified by new facts. Such is the history of the progress of science; and whatever the explanation, the fact is incontestable that a new chapter in the history of chemistry—that is, in knowledge of the world around us—has been opened.

Day and Night

BY JAMES STEPHENS

WHEN the young eyes of the day
 Open on the dusk, and see
 All the shadows fade away
 Till the sun shines merrily,
 Then I leave my bed and run
 Out to frolic in the sun.

Through the sunny hours I play
 Where the grass is warm and long;
 I pluck the daisies, and the gay
 Buttercups, or join the song
 Of the birds that here and there
 Sing upon the sunny air.

But when night comes, cold and slow,
 When the sad moon climbs the sky,
 When the whispering wind says, "Boh!
 Little boy," and makes me cry,
 By my mother I am led
 To my home and to my bed.

The Imperturbable Duchess

BY J. D. BERESFORD

WHILE it is difficult to defend Cunningham Black, his conduct needs no explanation. That diablerie which spices all his writing is characteristic of the man himself; there is more than a hint of the satyr about him. The two waves of hair on each side of his forehead inevitably suggest horns, and the set of his eyes, the half-whimsical cynicism of his expression, are all in keeping with the popular conception of the hoofed devil. Lastly, his extraordinary thinness, which is emphasized by his prim, neat dress; his narrow, bony hands and feet, the curious squareness of his little shoulders, all heighten the impish effect of him.

As to the origin of the long campaign—that, too, is easily explained. Cunningham Black was the son of a bookseller, and although he had made himself acceptable to society by his cleverness and his wonderful adaptability, he was always a little over-assertive. He had not forgotten the bookseller's shop, and he continually persuaded himself into a contempt for those who moved so easily in ways which he had studied with long effort. Doubtless he tried very earnestly to despise these people with whom he loved to be seen.

Every one now knows the other protagonist. The unhappy Valetta, Duchess of Tottenham, has attained a celebrity she neither desired nor deserved. Her very tricks of manner and speech are familiar to the general public. Unhappy she certainly is, and for no fault of her own. There were no less than three Duchesses of Tottenham when the trouble began, and she was the younger of the two dowagers. She was, in fact, quite terribly poor for her position, and she cannot be blamed for staying with the Davidsons, or with any other people in whose houses she could really economize. Meanness in the matter of tipping the servants was excusable in a duchess.

Black was not in an unusually bad temper when the incident happened. He had lunched on the corridor-train, not to his complete satisfaction, but still sufficiently, and when he had found a first-class smoking-carriage on the branch line and settled himself down to a very decent cigar, he was probably in a fairly comfortable humor. Then, just as the train was starting, Valetta was ushered with some ceremony into his empty compartment.

Black did not know that it was the Duchess; he did not know that the Duchess was going to the Davidsons. He only knew that a thin, middle-aged, rather expensively dressed woman in a *pince-nez* had been thrust upon him, and he resented it. He realized, too, the fact that she was treated with much deference by the attendant guard. There was an innate radicalism in Black which was always up in arms against this show of deference to the upper classes.

He had put up his long, thin feet on the cushion of the opposite seat, and he withdrew them very deliberately when he found that the intruding woman intended to enter that compartment and no other.

The train started immediately; the Duchess, already affronted, took her seat in the corner by the farther door, and Black put his feet up again and continued his cigar.

The Duchess coughed and let down the window. She had her back to the engine; Black was facing it, and he was immediately conscious of a draught. He scowled at his companion and turned up the collar of his overcoat.

The Duchess coughed again—a cough which perfectly expressed her dislike of the cigar and the smoker of it.

Black was exasperated. "Why travel in a smoking-carriage, madam, if you object to the smell of smoke?" he asked, acidly. "The train is not full."

"I did not notice," said Valetta, and