suddenly swerved to the side of the road and plunged into a fence. Every moment I expected the carriage to topple over; but one of the horses stumbled and fell on the soft ground, and the other could not go on with the additional weight. We all sprang out as the carriage came to a standstill.

Of a far different type were the vehicles used in the countries of the Orient. When our steamer entered the harbor of Yokohama, we were surrounded by a host of watermen in small boats that might be termed aquatic hacks, and like the hack drivers the oarsmen shouted and gesticulated at the passengers as they approached the ship, calling out in high keyed voices, and not hesitating to knock one another overboard in their eagerness to secure patrons. The Captain's gig, a very small affair, had room only for himself and the mail, so that we had to risk our lives in the slender craft of these scantily clad boatmen. But they proved to be very skilful in handling their boats, and beyond getting a little wet from the spattering water we reached the shore without accident.

The jinrikishas of Japan, the sedan chairs of China, and the elephants of India were comfortable enough, although comparatively slow. Our rides on the elephants were without incident, and the same may be said of our trips in the vehicles of Japan and China. At Fu-chau, China, however, we had an exciting experience while traveling in our diminutive coach behind our own ponies.

Bad Luck With the Thumbs

THE startled natives could not understand the phenomena we presented, and imagined that we would bring them bad luck. They gathered round our carriage, chattering and gesticulating in great excitement. Some who had a smattering of English exclaimed, "Why come? No good! Bringee bad!" Our guide harangued them when they showed a disposition to attack the carriage and declared that God had sent us as good omens. His arguments seemed to be convincing, for when presently he waved his arms at them they ran off and dispersed, as Minnie said, like so many chickens in a barn yard.

If my experience with the vehicles of two generations in all quarters of the globe was unusual, no less was my experience with inns. I must have gained a practical knowledge of every variety of public house in the world, from the most elaborate of modern urban hotels to the crudest lodging house of the frontier and the queer hotels of the Orient, unless it be that the Eskimos or the Hottentots have establishments for the accommodation of travelers. Some of my adventures in these hotels were humorous; others were quite the reverse. Such were the fire in the Newhall House in Milwaukee, and the attempted robbery at a hotel in New York.

One night the General, who was always exceedingly careless with money and jewels, made me very nervous by bringing into our room in this hotel a large quantity of money, as well as several cases of paste diamonds which he thought it expedient for me to wear instead of my real ones. I begged him to put them down stairs in the safe, but he insisted that everything was all right and went to bed. Putting the money between the mattresses, I too went to bed, but not to sleep.

About an hour later, as I lay shivering with a nameless terror, I was sure I saw the window move slightly. I elbowed the General and whispered my suspicions. "Oh, nonsense! Don't bother!" he muttered, and turned over to go to sleep again. But a little later, when I saw the window move again and heard footsteps in the hall, I insisted on his waking to share my observations if nothing more. At last the General was convinced that my fears were not wholly groundless, and he began to dress, when suddenly we heard a crash in the corridor, followed by the sounds of a struggle and a hurried tramp of feet.

A Tussle With Robbers

INVESTIGATION proved that thieves had entered the house. The footsteps I had heard were those of the porter, whose suspicions had been aroused. Not finding any intruders on the first floor, he had begun to ascend the stairway to the next floor, when the robbers let fall a heavy table over the baluster in an effort to crush him. He escaped, however, and with the assistance that the crash had called forth succeeded in capturing them, when they confessed that they had come with the intention of robbing the General.

In great contrast with this hotel, which was equipped with every desirable convenience, was the one we were forced to patronize at Corinne, Utah. It was a large canvas building, with the sign "Uinta Hotel" painted in huge letters across the front. The rooms, if rooms they could be called, were all in a row. Two wooden partitions, six feet high and three feet apart, formed a hall extending the full length. At intervals of about six feet in the partition openings were cut, in which were suspended rude doors, partly concealing the interior. The rooms were divided off from one another by old army blankets, remnants of unbleached sheeting, pieces of old calico, etc. The bedsteads consisted of two narrow strips of wood about four feet apart supported by props hardly a foot above the ground. On each of these crude affairs was placed a very thin mattress covered with one brown sheet and a dirty army blanket. The toilet room was at the end of the passage way, and was supplied with two old tin pans placed upon a low shelf, one piece of hard yellow soap, a bucket of water with a tin dipper, and one large jack towel for the common use of more than thirty guests.

Another instance of the character of service that the traveler had to be content with in the West in those days was our experience at Silveyville, California. In going from Suisun to Silveyville we lost our way, and after wandering around for two hours at length struck the Sacramento River, and at one-thirty reached the hotel, dusty and fatigued. Mr. Bleeker, our manager, sought the landlady and inquired whether we could have dinner.

"You should have come before," said she sharply; "it was ready at twelve o'clock."

"We lost the road," explained Mr. Bleeker, "and wandered ten miles out of our course."

"I can't help that," she replied. "Dinner was ready, and you'd oughter been here to eat it."

"I regret our delay," said Mr. Bleeker; "but may we have dinner?"

"I suppose so," she answered. "Sit down."

Mr. Bleeker called us, and we took seats at a table, which was swarming with flies.

"Well, speak up!" exclaimed the landlady. "Don't be afraid. What'll yer take?"

"I'll take that feather duster to brush away the flies," said the General.

"No, you won't!" she burst in, and then addressing a lad, "Bill, brush 'em out."

We all felt confused, and no one spoke.

"You've got tongues!" she snapped. "Why don't you use 'em?"

"Give your orders," said Mr. Bleeker to us.

"No orders here," she exclaimed. "Say what you want—beef or mutton."

We all expressed our wishes, and she disappeared, soon returning with the plates, which she whirled across the table.

A Particular Diner

MR. Bleeker looked at his and remarked, "Madam, I asked you for beef without gravy, and you give me mutton swimming in gravy."

"You're awful particular!" she snapped, snatching the plate from the table. In a few moments she brought back the correct order, and with the injunction, "Eat your dinner, now you've got it!" retired and left us to finish the meal in silence.

The servants in the hotels in Japan always reminded me of the extraordinary vigor of this landlady, on account of the difference between them. When we went in to inspect Minnie's room in the hotel at Nagasaki we discovered a huge centipede on the wall, and called in a servant to kill it. He came, calmly looked it over, and went out, presently returning with a second man. Both examined it critically, but made no motion to dispose of it. Our anxious demands, "Kill it, kill it!" evoked only a surprised stare, and the two retired, leaving us rather bewildered. Soon, however, they returned again with two more servants, carrying a large square piece of cloth. Then all four with much ceremony but without uttering a word grasped the corners of the cloth, and folding it up against the wall brushed the insect into it. Then they left the room as silently as they had entered it. What the reason for their queer actions was I'm sure I don't know, but I'm equally sure that had the landlady of Silveyville been there she would not have left me in doubt.

NATURE'S PATENT OFFICE

By GEORGE E. WALSH

SO fearfully and wonderfully is the human body made that scientists are beginning to realize that many of the inventions of the day are infringements on Nature's patent office. A good deal of trouble and worry in the past could have been avoided had inventors made a careful study of the devices employed in making these human bodies of ours the useful things they are. The principles of the block and pulley or the tackle could have been discovered ages before had the files of Nature's patent office been ransacked; for there are several complete pulleys in the body, notably the one which moves the eyeball inward toward the nose.

The First Ball Bearings

ENGINEERS made exhaustive tests and experiments before they discovered that a hollow shaft or rod of iron or steel is about twice as strong as a solid one. Yet Nature had patented this device in our bones since the birth of Adam and Eve, and every important bone is practically constructed on this principle. The ball and socket of the hip bones were the forerunner of the modern ball bearings, and it was the first automatic oiling machine used in the world. The value of air pressure and a vacuum was unknown to man until the last century, but everyone of us carried the secret in the air tight hip joint which Nature had designed to lessen the muscular effort to hold our legs upright in position.

Engineers have made wonderful progress in developing compound suction and circular pumps; but all of the principles contained in them are found in the heart, and this little pumping machine is still without a rival in the mechanical world. Nature had patented nearly everyone of the devices which have since been registered at Washington.

The principles of the safety valve for steam engines are not so new as they seem. Our human bodies carry with them the first automatic safety valves ever designed. There are upward of two and a half million of them. We call them by the common name of sweat glands. Each such little gland has a safety valve which lets off heat from the body when it gets beyond a safe temperature. We cannot stand a rise of more than eight to ten degrees of temperature and live. If, therefore, the two and a half million safety valves were closed for twenty-four hours death would supervene.

Adam's apple was the first storage cistern ever built, and it works with automatic regularity through health and sickness. It is a most important organ of the body, although for centuries it was considered a superfluous attachment. It regulates the flow of blood between the heart and the brain. When it ceases to operate, somebody dies of apoplexy or a rush of blood to the brain. When the heart sends up too much blood to the head, the Adam's apple steps in to check the flow and store it up for future emergencies. If the heart is temporarily weakened or put out of good running order, the blood stored in this cistern is given up and sent to the brain. The perfect working of this little device is apparent when we consider how comparatively few die of rush of blood to the brain or from a deficiency of supply.

Our Quarantine Stations

THE eye has a score of small inventions worthy of recording, the ear nearly as many more, and the vital organs an equal number. There is the liver with its quarantine station. Let any poisons enter our systems with food, and they are immediately held up at this quarantine station and destroyed by a secret process. It is only when poisons enter in large quantities that the station cannot handle them.

But the stomach coöperates with the liver and intercepts some of the poisons. There are small machines there which manufacture minute quantities of hydrochloric acid from the salts eaten. This acid is made in exact proportion to the amount of food consumed, and suffices to destroy the microbes which we swallow. But there is even a third quarantine station located in the mouth. Millions of microbes are destroyed in the mouth daily by the juices elaborated there for this very purpose. If it was not for these three quarantine stations working continuously night and day we should be killed off by microbes within an hour after eating a meal.

In the ear there is a little device which might have been the original of our modern compressed air inventions. The delicate drum of the ear must have an equal pressure from the outside and inside to receive and transmit the sound vibrations. To make this possible the Eustachian tube was devised. Its function is to regulate the air pressure inside the ear. Let it fail to work, and one becomes stone deaf.

Human Spirit Levels

IN the bones of the head there are many little channels hollowed out which are called the semicircular canals. These canals are filled with fluid lymph. For centuries no one could understand their meaning. Some physicians considered them of no use. This tendency to belittle organs in the human body whose functions could not be explained has characterized more than one generation of savants. Now these peculiar semicircular canals are known to be wonderful little devices to assist us in keeping our balance. They act a good deal as the ballast does on a ship, or more properly speaking like the fluid in a spirit level. The brain keeps an eye on this spirit level and is made conscious of the body's relative position. The fluid flows back and forth in the canals, and when we get it at a dangerous angle the brain knows it.

No sensitive electrical device is more carefully protected than the spinal cord in its movable frame of vertebræ. Nature has adjusted it with more precision than the movements of a watch.

A whole line of important patents could be evolved from these devices. In the splicing of broken bones Nature can give the best surgeon pointers. When a bone is broken, the splintered ends are surrounded with cartilage until they are firmly held in position. Then gradually a layer of bone is placed between them and soldered together. All the physician has to do is to bring the two ends of the bones together so that the joint will be smooth and even. Nature's little agents do the rest.