

## Lunar Photography

A new atlas of the moon is being prepared for publication by Professor W. H. Pickering, of the Harvard observatory, from material obtained during the past season by means of the 136-foot telescope at the observatory's temporary astronomical station in Jamaica. Although observations were interrupted by the approach of the rainy season in May the undertaking is sufficiently advanced to be completed by midsummer, and Professor Pickering has already brought to Cambridge a full set of the photographs necessary for the proposed publication. The apparatus is the long "horizontal telescope," already described in the Herald, built on the principle of reflecting the rays from the object horizontally through a fixed lens. The method permits of an extremely long focus and secures a much larger picture than is possible where the tube of the telescope is pointed at the object. The arrangement is also an extremely economical one, temporary sheds serving all the purposes of the old-time tube, though the instrumental parts are very expensive. It is also the only known method of making large instrumental powers readily portable. The mirrors, lenses and machinery of the telescope were all taken from Cambridge early in October, but nearly three months were spent in the work of getting ready, so that it was not until the morning of the first day of the new century, a few minutes after midnight, that the first observations were made, and several days later before satisfactory photographs were obtained. A 12-inch lens is used with a "stop" reducing it to a six-inch diameter, for the photographic work, and exposures of eight minutes are made for the quick plates and of a minute and a half for the slow plates, the apparent inconsistency in the times of exposure being due to the fact that the more sensitive plates are used just after the lunar sunrise or before the lunar sunset, when but little light is obtainable from the crescent of the moon. While the lunar geography is being studied at Jamaica, it appears that the local geography is not without its peculiar problems. The tem-

## Results Attained With Use of Horizontal Telescope.

porary station is in a lonely region surrounded by forests with but one other house in sight. As it sometimes happens that no rain falls during a whole month the water supply is a serious consideration. Rain water is collected on cement platforms called barbecues, which are built primarily for the drying of coffee and the pimento berries which provide the all-spice of commerce. The barbecue at the observatory is something like 40 by 80 feet in size, slightly inclined so that the rainfall can be conducted to a cement tank for storage. However, in the mountains the dew is exceedingly heavy, and as the observatory buildings are roofed with galvanized iron, the Harvard party undertook by means of gutters to gather the nightly fall for drinking purposes. Sometimes two or three gallons were collected in a night. At present, of course, it is the rainy season in Jamaica, with water enough and to spare, but it is Professor Pickering's intention to complete his observations as soon as the conditions of the climate will permit. He will then abandon the station, selling the buildings and removing the instruments to Cambridge. All in all, the station has been a decided success. Aside from the photographic work on the moon, which, of course, has resulted in records of permanent value, the "seeing"—as the astronomers call it—from the highlands of Jamaica has proved to be good, much better than in Cambridge, though not equal to that of the permanent Harvard station at Arequipa, Peru, where the conditions are well nigh ideal.—Boston Herald.

### Coreans as Smokers.

The Coreans are inveterate smokers of green tobacco, which they use in pipes with tiny bowls and stems two or three feet long. They stick their pipes down the back of the neck when not using them. There is a deal of drinking, too, though they have many proverbs against it—"Heaven and earth are too small for a drunken man," "White whisky makes a red face," "There is no bottom to the appetite for drink."

## Fame and Poverty

## Have Walked Hand-in-Hand Through Herbert Spencer's Career.

Herbert Spencer, whose name will live in the world of thought as that of one of the nineteenth century's greatest thinkers, has recently passed his 81st birthday. After a lifetime of self-sacrifice and privations, the great philosopher finds himself at the threshold of the grave almost as poor in worldly possessions as when he started the career that has brought him so much fame but so little pecuniary recognition. There is something almost pathetic in the life-work of a man like Herbert Spencer. The son of a school-master, Mr. Spencer was educated very largely at home by his father, though he also went to a school at Bath, the head-master of which was his uncle. From 1837 to 1846 he plied the profession of a civil engineer, and for five years later acted as sub-editor of the Economist before he turned to the work with which his name will always be identified.

It is as a popular philosopher that Herbert Spencer seems to hold his reputation, and yet one must read the account of his self-sacrifice and privation before one can realize the tremendous battle which the best known philosopher of this century fought before he found any readers at all. "Social Statics," certainly a rather un-

handy book, took fourteen years to sell, although the edition ran only to 750 copies. The "Principles of Psychology" with a first edition of 750 copies, did not sell out for twelve years, and at the end of fifteen years the author lost no less than \$6,000 through his publications. The strongest man, however, is the man who can wait, and Herbert Spencer waited. The scientific method of studying human life began to find willing pupils, not only among scientists, but also among young students of philosophy at the universities and workingmen, who gave up their evenings to the study of technical or social sciences. Few books of philosophy have enjoyed so wide a popularity or sale as the "Data of Ethics," where flowing and persuasive argument delight and enchant the reader.

### The Elevated in Boston.

Boston opened its elevated railroad recently and there was a great rush to patronize it. It crosses the congested parts of the city and will greatly relieve the crowded street cars, which latterly were unable to carry all who wanted to ride. Over 120,000 passengers were carried the first day, and the intervening days since the average has been 108,000.

## Life in Persia

## Differs Little from What It Did in Olden Times.

Here are to be seen women covered with a cloth thrown over the head and coming down to the knees, or lower, a fold of which they always draw up over the face when a man appears. Their legs and feet are bare, and large earthen water jars are on their backs. There are others of a better class, who have their heads completely covered with a piece of cloth which has a small aperture of fine needlework over the eyes, so that they can see out, just enough to enable them to get along the street. They wear a dark blue outer garment, which is thrown over the head and reaches nearly to the ground, bright green baggy trousers, which are gathered at the ankle and fit snugly to the foot like a sock, and bright red or yellow slippers just large enough to slip the toes into; the heel of the slipper comes under the instep of the foot, so that they are compelled to shuffle along walking on their toes only.

The men wear coats of heavy gathered skirts, loose, short trousers, low leather shoes, a leather strap around the waist, a close fitting skull cap; or, as is usually the case of the better class of citizens, a loose flowing robe, much like the ecclesiastical gown sometimes worn by the clergy, and a high black astrakhan turban.

The people live largely on rice, wheat fruit and vegetables; but mutton, beef, fowls and eggs are very cheap and are used freely for food. The milk of the water buffaloes, cows, sheep and goats, also, is made into butter, cheese and curds and various dishes of the thickened or lopped milk. The wheat is reaped by a cycle

threshed by driving over it cattle and horses hitched to a wide plank, with pieces of iron or stone set in the lower surface, winnowed by tossing it into the air against the wind, and carefully picked over by hand, before going to the mill, where it is ground by water power into a coarse flour.

### Moist Air Is Light.

One of the commonest errors is to speak of moist air as heavy. You find the error everywhere—in the newspapers, in magazines, in books, by the best writers—the "damp, heavy air." Ten persons out of 12, old or young, say that when the smoke from chimneys hangs close to the ground it is because the air is "damp and heavy," and that keep the smoke from rising. Now, all this is just the other way, as everybody ought to know, since the weather bureau has made us so familiar with barometric conditions and changes. It is dry air that is heavy, and moist air that is light; it is dry air that bears down on the mercury cup of the barometer, and sends the column up in the tube; it is damp air that bears less heavily on the mercury, and lets the column fall. A high barometer indicates dry air and fine weather; a low barometer, damp air and stormy weather. And so far as the smoke is concerned, it lies close to the ground when the air is damp and light; it does not ascend because it is heavier than the air; on the contrary, when the air is dry and heavy—as it is on a fine day—the smoke ascends because it is lighter than the air.

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