

# THE ILLUSTRATED LONDON NEWS



REGISTERED AS A NEWSPAPER FOR TRANSMISSION IN THE UNITED KINGDOM, AND TO CANADA AND NEWFOUNDLAND BY MAGAZINE POST.

No. 3797.—VOL CXL

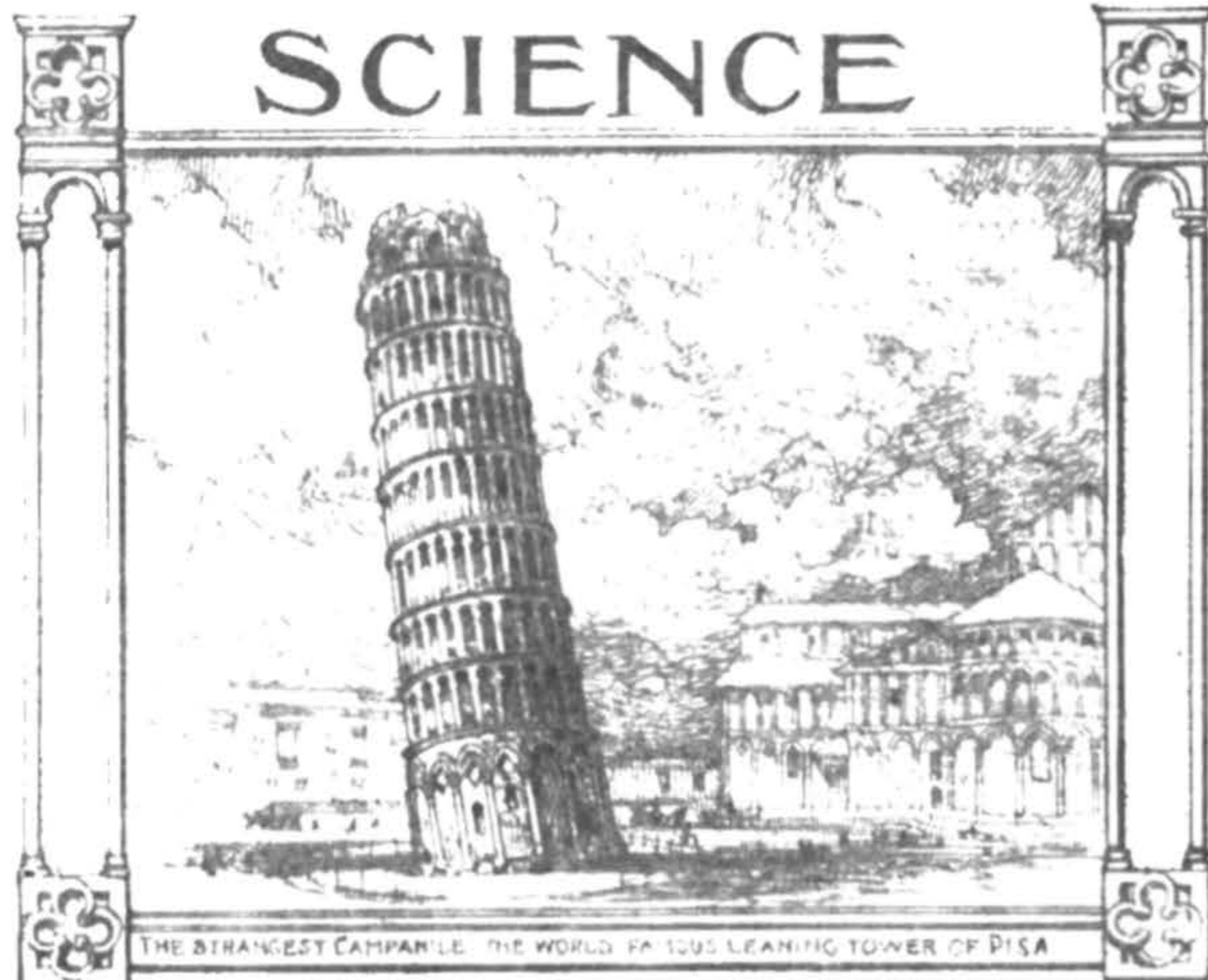
SATURDAY, JANUARY 27, 1912.

With Beautiful Coloured Supplement: "Partridges in the Winter - Time." SIXPENCE.

SCIENCE

& NATURAL

HISTORY.



THE STRANGEST CAMPANILE: THE WORLD'S TALLEST LEANING TOWER OF PISA



THE "EQUAL-TIMENESS" OR ISOCRONISM OF THE PENDULUM SUGGESTED TO GALILEO BY A CHANDELIER, IN THE CATHEDRAL AT PISA



CONTAINING THE CANDELABRA WHICH INSPIRED GALILEO: PISA CATHEDRAL

SCIENCE JOTTINGS.

DOG - PSYCHOLOGY.

ONE of those critical, but illuminating, letters from a reader of this page, such as it is always a pleasure to receive, suggests that I might be able to throw some light on what he calls the "psychology of the dog." My friend has been vexing his brain with questionings which inquire what his dog knows, how he knows, how he learns his tricks and ways—and how, in a word, he adapts himself so completely, as wise dogs do, to the environment which surrounds him. I confess I have always been suspicious of

obsure by his ratiocination the ways and works of brain-cells?

The dog, inheriting from his centuries of ancestors all the training and experience which long association

to me, we light upon a very fundamental distinction between the man and the dog. Plainly put, the man knows the reasons of things; the dog does not. The human goes to the root of the matter, because, in virtue of his "psychology," he has argued out the relations between the fire and its fuel.

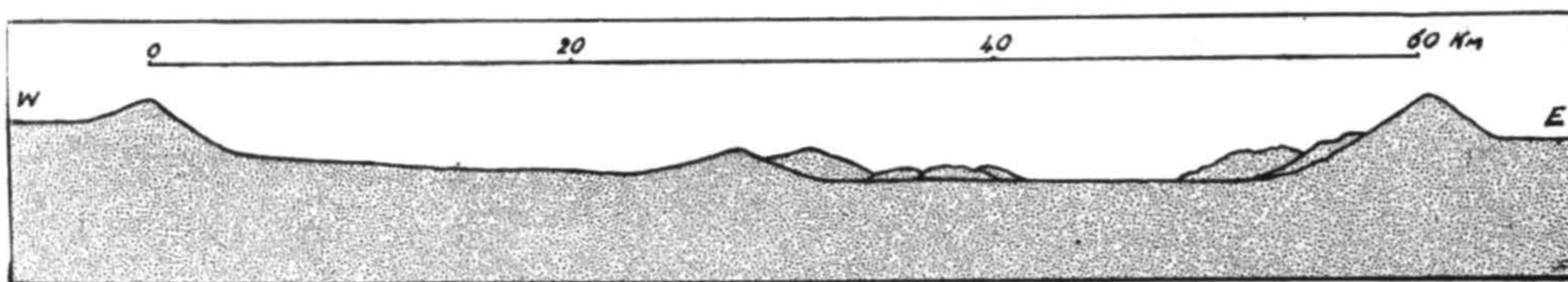
The dog stops very far short of this reasoning. His world is highly limited as compared with ours: he eats and drinks without a thought of to-morrow, or even of to-day; he acts and reacts on what outer nature supplies and offers; there is no thought or reasoning about the causes of things, and his very instincts, inherited, for the greater part,

are as automatic in action and nature as that whereby we ourselves draw back the head from a threatened blow.

True, in some ways the dog's universe may be more extensive than ours. It has been said that the canine world is largely a cosmos of smells. The dog undoubtedly has a wider range of certain senses than we possess; but man possesses the immense advantage, even with more limited sensations, to make the most of his environment, simply because he has argued out things to their causes.

I confess Descartes' idea of the automatism of animals has always had an attraction for me, in the sense that it explains a good deal of what lower life exhibits and practises. Your dog loves you, it is true; responds to your voice, and shows a lively interest in any of your doings in which he is concerned. But, beyond the moment, what does the dog think, expect, or anticipate? I should say little or nothing. He is emphatically *laudator temporis acti*: a well-behaved living machine, which, despite efforts to understand or anxieties to please you, remains always on the automatic level when his mind falls to be considered.

I do not know that these thoughts of mine will please my correspondent. They may still less satisfy lovers of dogs, among whom I rank myself as chief. But we may all gain some comfort in the love of our canine friends from the consideration that perhaps, here and there, we may trace glimmerings of something higher than mere instinct. Than the fidelity of the dog, for example, I know



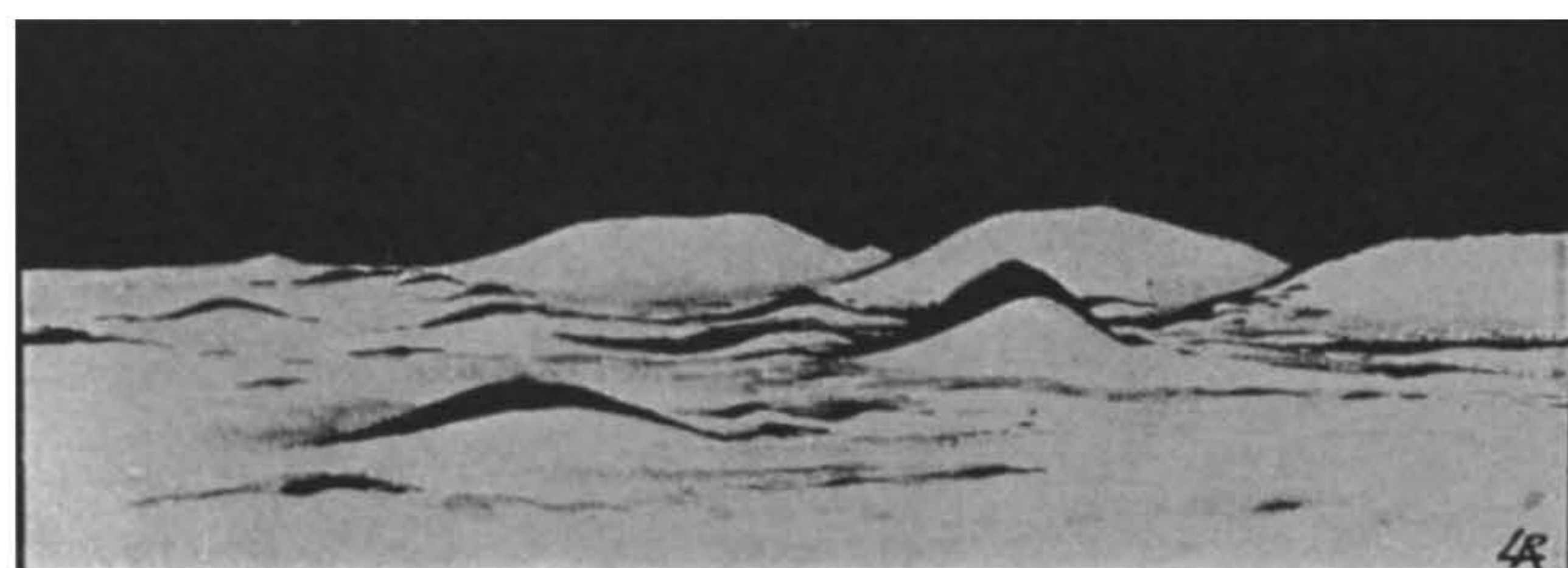
POSSIBLY THE VOLCANIC VENT FOR THOSE FORCES WHICH THREW UP THE APENNINE RANGE OF THE MOON: A SECTION OF THE ERATOSTHENES CRATER, WHICH IS OVER THIRTY-SEVEN MILES IN DIAMETER



THE LOFTIEST OF THE DETACHED MOUNTAINS ABOVE THE GREAT PLAIN PLATO: MOUNT PICO—A DRAWING BASED ON CAREFUL OBSERVATIONS AND CALCULATIONS.

the word "psychology." It has seemed to me that whatever you have to learn about the ways and works of yourself, or of your lower animal neighbours, you can acquire from a study of what we call "physiology," the science which deals with the functions of the body at large—from the duties of the gastric glands in the sweetbread to the ways of brain-cells. "Psychology," so called, has always seemed to me to be an impertinent interloper which takes care to utilise what physiology discovers, and to put its own, and often feeble, interpretation on the facts the physiologist elucidates. There can be no science of "mind" apart from that which investigates the structure and action of the organ which thinks, and which necessarily rules and dominates the living frame. There can be no psychology without physiology: therefore why not let the physiologist end the matter, as he assuredly begins it? You do not call in a psychologist to explain what is undoubtedly a very complicated function, that of the liver-cell and its duties; why should I need a meta-physical crank to

with man has produced, is born into the world a civilised animal, and not a wild dingo. Keep this clearly in mind, for the dog's experience of humanity does not start with his birth. His mind and instincts have already been educated in some degree, like the inherited instinct of the young bee, which, fresh from its metamorphosis, sets at once about the work of cell-building and all the other duties which pertain to the upkeep of the hive. Therefore, we start with something to account—indeed a very great deal—if we reckon up what centuries of ancestral civilisation must mean to an animal. What the dog's ancestors learned to do, to fetch and carry, to beg for food, to open doors on occasion, and to anticipate feeding times and other festivals, the dog of to-day does not require to learn—at least in so far as he has to begin at the very alphabet of elementary reasoning. His brain is more receptive



THE SOUTH POLE OF THE MOON: ITS MOUNTAINS—A DRAWING.

than would be that of a purely wild dog, and there is something in the canine mental constitution that lends itself readily to education. It is different with the cat. The feline nature is non-responsive. It has never troubled itself to get into close touch with its human friends. It is still of the wild, and it is this want of perfect understanding of things that makes the cat, as a small boy eloquently termed it, "beastly independent."

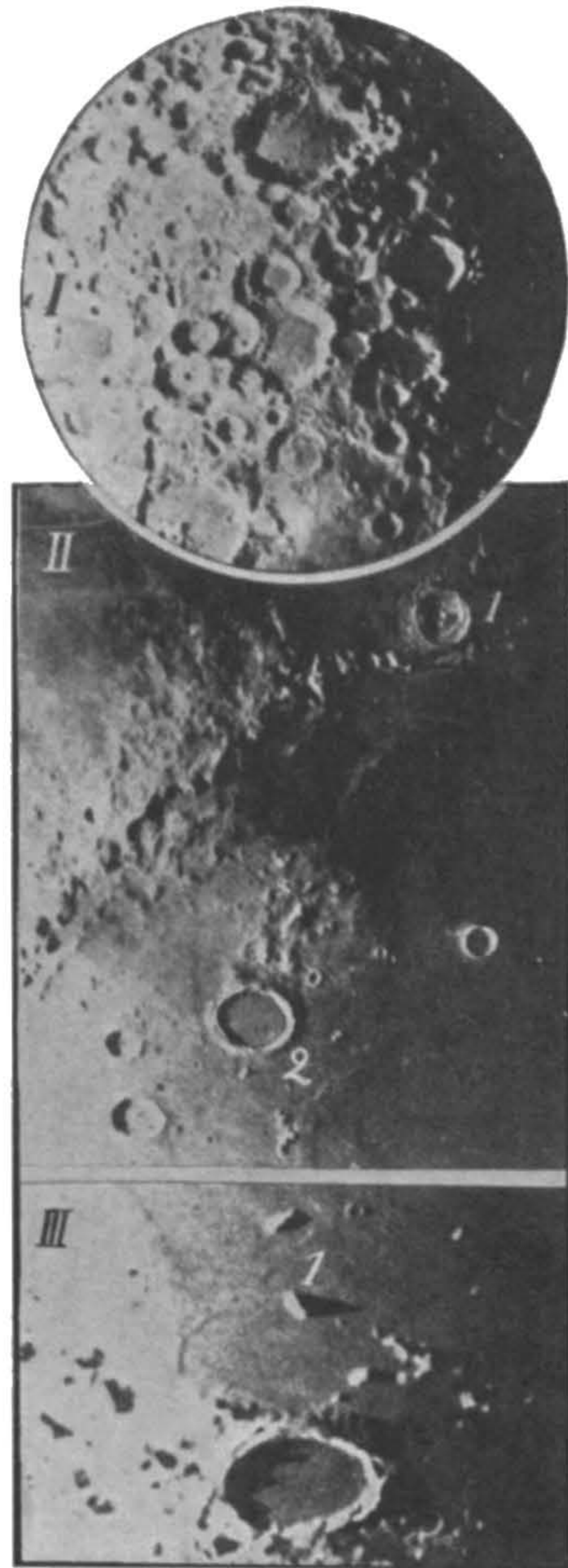
But the problem of the dog's mind is really a question to be satisfactorily argued only on the broad lines which apply to all animal acts and understandings. Take a simple example. Your dog, lying on the hearthrug, enjoys the heat of the fire. He luxuriously revels in the comfort of the glow. But the fire grows dull and the heat declines, and presently the dog shivers with cold. The human being in like circumstances—for we have here to institute some comparison with ourselves—would replenish the fire from the coal-scuttle. No dog I have ever heard of—not even in the palmy dog-days of the *Spectator*—was ever trained, and still less made use of observation of his master's ways, to replenish the grate. Now, here, it seems



AS THE OBSERVER CALCULATES IT TO BE: A DRAWING OF THE LUNAR PLAIN OF ARCHIMEDES, WHICH IS ABOUT FIFTY MILES IN DIAMETER.

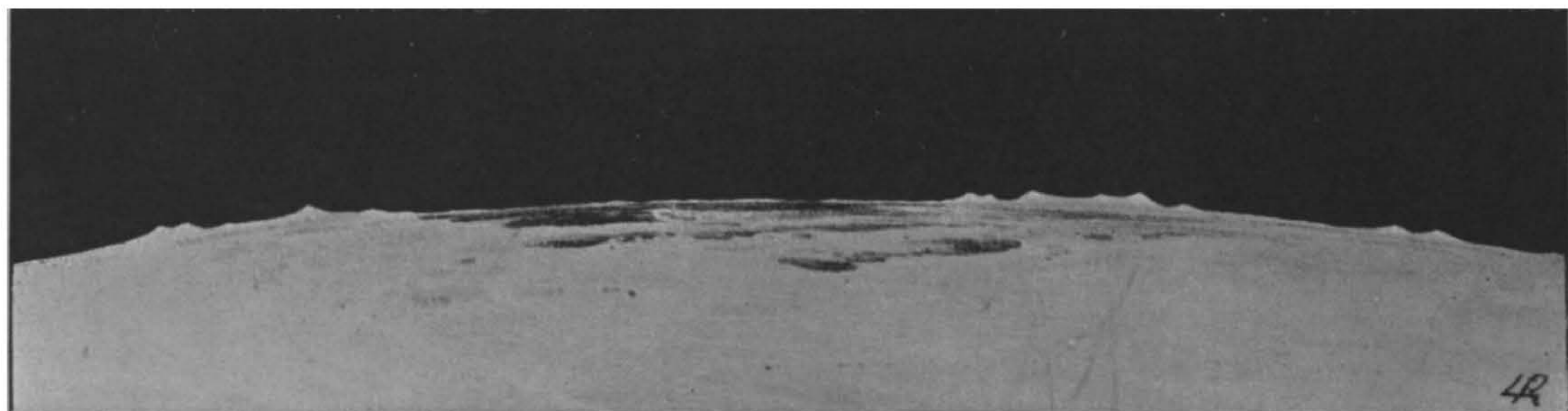
of nothing more touching in all the vast experience which humanity owns.

ANDREW WILSON.



LUNAR OBJECTS WHOSE SIZES ARE DETERMINED ON EARTH BY THE MEASUREMENT OF THE SHADOWS THEY CAST: LUNAR CRATERS AND MOUNTAINS.

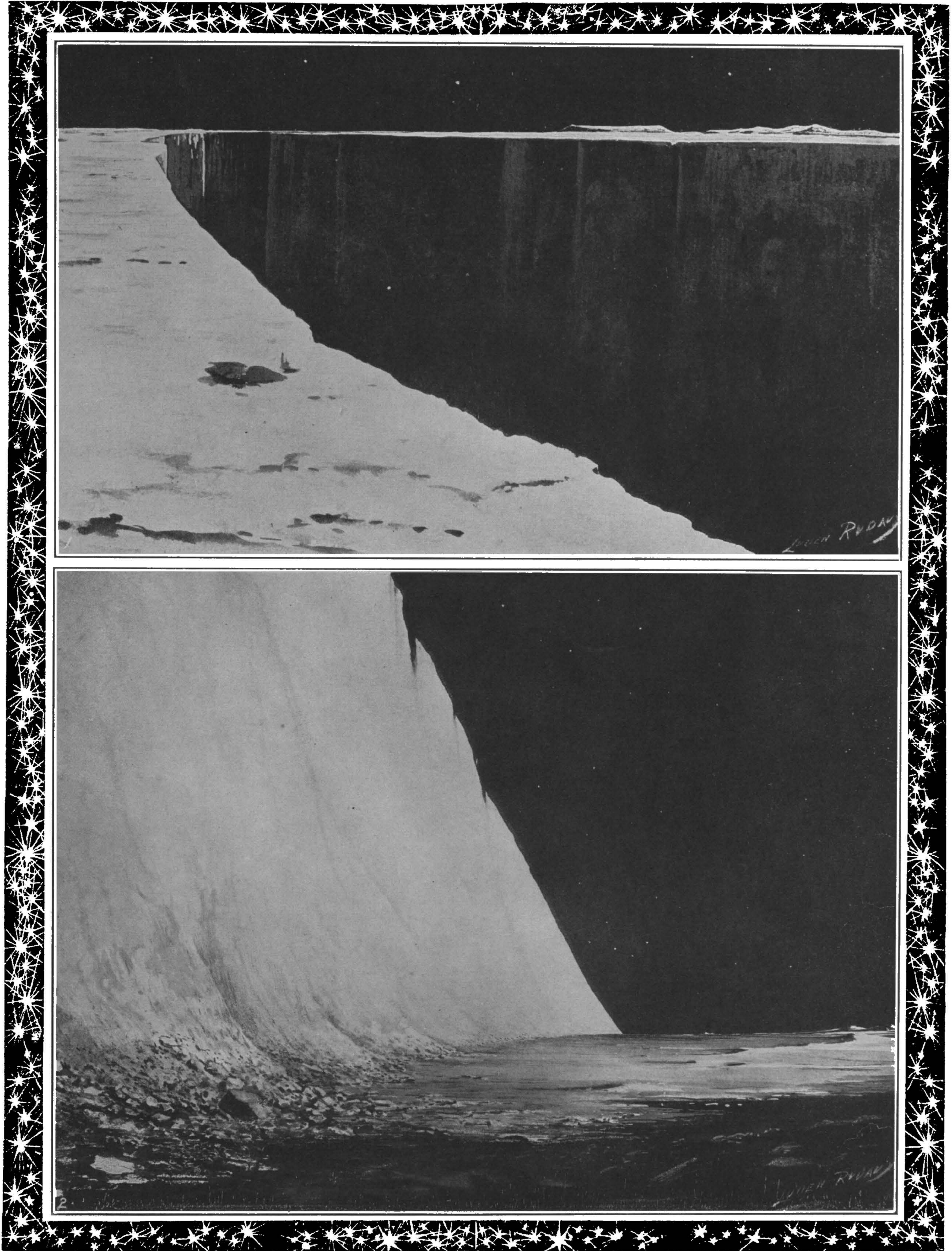
I.—Massed craters in the southern regions of the moon. II.—The Apennines of the moon, showing (1) Eratosthenes, a crater over thirty-seven miles in diameter; and (2) Archimedes, a plain some fifty miles in diameter. III.—The northern region of the moon, showing Plato, a great circular plain, and (1) Mount Pico, a mountain 8000 feet high.



SEEN FROM THE EASTERN EDGE OF THE MOON: LUNAR MOUNTAIN RANGES.

# LUNAR LANDSCAPES: VIEWS ON OUR NEAREST CELESTIAL NEIGHBOUR.

DRAWINGS, BASED ON MOST CAREFUL OBSERVATION AND CALCULATION, BY LUCIEN RUDAUX.



1. 239,000 MILES FROM THE EARTH: ON THE EDGE OF ONE OF THE GREAT CREVASSES OF THE MOON.

Lunar heights are estimated by those on earth by the measurement of the shadows cast by lunar objects. To quote Sir Robert Ball: "The mountain peaks on the moon throw long, well-defined shadows, characterised by a sharpness which we do not find in the shadows of terrestrial objects. The difference between the two cases arises from the absence of air from the moon . . . and the sharpness of the shadows is taken advantage of in our attempts to measure the heights of the lunar mountains . . . By measurements of this kind the altitudes of other lunar objects, such, for example, as the height of the rampart surrounding a circular-walled plane, can be determined." The man of science, it need scarcely be said, is much

2. PART OF THE WALL HEDGING A GREAT PLAIN ON THE MOON: A LUNAR RAMPART.

aided in his researches by the fact that the moon, of all celestial bodies, is the earth's nearest permanent neighbour. On an average it is no more than 239,000 miles away, and it may be as near as 221,000. It has been said, indeed, that its surface is better known to astronomers than is the interior of Africa to explorers. Some idea of sizes may be gained when it is said that the diameter of the great crater Posidonius is sixty miles; that of Aristotle, fifty. The lofty wall of the latter exceeds 10,500 feet in height. With regard to the altitude of lunar mountains, it may be said that a peak in Clavius "rises to a height of 24,000 feet above the bottom of one of the included craters."