THE NATIONAL GEOGRAPHIC MAGAZINE

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VOL. XII, No. 8 . WASHINGTON AUGUST, 1901

THE NATIONAL GEOGRAPHIC MAGAZINE

ASIA, THE CRADLE OF HUMANITY*

BY W J MCGEE, VICE-PRESIDENT NATIONAL GEOGRAPHIC SOCIETY

NEVER have I been so overwhelmed with the magnitude of a task as in beginning this attempt to epitomize Asia in an hour.

Asia is the Continent of continents; a giant land to which Africa is but an appendage and all Europe only an excrescence. Larger as to mainland than both Americas combined, Asia with her insular extension southeastward might swallow the great landmass of Africa with Europe in addition. Of the 50,000,000 square miles of land on the face of the earth, Asia holds fully 15,000,000, or three-tenths of all—indeed, stretching as she does from the equator to the very shadow of the pole and within a few degrees of half way around the globe, she is as a world in herself, and can be likened to the rest of the planet only by means of superlatives: Her climate ranges from the utmost type of torridity to extremest cold, from heaviest equatorial torrents to bleakest aridity, from recurrent tropical typhoon to poleward calm. Her features are stupendous as her expanse is vast: The Himalaya Mountains and the Pamir Plateau—the Asian highlander's "Roof of the World"—make pygmies of all other elevations on earth. The world's most extensive plain forms central and northern Asia, and comprises the greatest tundra and vastest forest on the planet; one of the two largest deserts of the world (Gobi, with its extension in Takla-Makan) lies at the eastern base of this unparalleled upland, though out of the world's ten rivers exceeding 2,500 miles in length six are in Asia as against two in Africa and one in either America—and even this reckoning misses three of the mightiest among the world's waterways (Ganges, Brahmaputra, and Indus), rivers raised to foremost rank by unequaled loftiness of basin and swiftness of flow. Gauged by any measure, Asia is Titanic, the land of all lands in length and breadth, the queen of continents.

Great as is physical Asia, human Asia is far greater; for as the home of mankind and the cradle of culture, she outcounts all the rest of earth. Out of the world's population of 1,500,000,000, nearly 900,000,000, or six-tenths of the

* The closing lecture of the Afternoon Course of 1901 on "The Growth of Asia."

whole, abide in Asia; out of the four or five or more races of men, all but one (the Amerind) are indigenes of Asia or its immediate insular and peninsular extensions; and if Egypt be placed with Arabia (where she belongs in every cultural aspect), then out of the fifty or eighty centuries of recorded history running from the hazy dawn of antiquity to the clear light of modernity, the earlier half must be credited wholly to Asia. Music and drama were old in Asia before Athens and Rome were planted, and oriental schools of painting and sculpture prepared the way for a nobler culmination in Greece and Italy. In industries, the long, long way from bestial tooth and claw to the stone knife and thence to the metal tool was first trodden by Asian folk and their Egyptian brethren; nearly all of the world's domesticated animals came from Asia, where horses and kine, sheep and swine, and the dog and fowl were tamed in the eastern morning of humanity (undoubtedly through uncounted generations of totemism and beast-worship after the manner of all lowly men) and the cat and the camel were caught in some part of that industrial tide which ebbed and flowed over the Red Sea basin for millenniums, while the hardy reindeer of the arctic and the ponderous elephant of the tropics were enslaved so late as yet to retain the characters of their wilder kindred; so, too, the world's richest crop-plants, like wheat and rice, oats and barley, were created in Asia by ages of experiment to feed millions, and to render all other lands eternal debtors to the queenly continent. The fundamental laws of the world, from motherright to the Decalogue and from bloodvenge to the Golden Rule, were framed in Asian centers and tested by the experience of millions before their germs were exported by Cecrops and Romulus and sown by Solon as seeds of future justice; and it is to Asia that the student turns for the longest dynasties, the largest nations, the grandest empires in history. Most of the well-springs of language flowing westward to unite in the great Aryan reservoir of world-speech arose in Asia; several Asian centers gave letters to the eastern world long before Cadmus came to Greece; and despite the teeming output of the occidental press of a century, a large share of the literature of the world is still Asian, and leading poets and prosaists of western lands are flocking back to the oriental storehouse for motives just as their contemporaries are building new towns out of the ruins (and for the spoils) of ancient cities. Of the nine world religions that have spread to millions of men—Shintoism, Brahmanism, Buddhism, Taoism, Confucianism, Judaism, Zoroastrism, Mohammedism, with the sublimation of their finest essences in Christianity—all were nurtured in Asia, and all but one attained highest development beyond the Bosphorus; indeed of the modern sciences, three—mathematics, astronomy, chemistry—originated in the almacabala and astrology and alchemy of ancient Asia; while the metaphysical philosophies of even mid-European shrines are dull and feeble besides the ethereal emanations of the oriental mind, emanations so subtle yet strong as to react in bodily abnegation (in the self-immolation of the suttee, in the ecstatic self-torture of the dervish dance, and in the hypnotic self-paralysis of priestly fakirs) far transcending the saner powers of the western world.

Such is human Asia. Seen in any aspect, she is extended, picturesque, majestic, full of meaning; viewed in her various phases at once, she is bewildering in wealth of detail, if not an utter chaos of redundant facts. It were easier to deal with the human affairs of all of the rest of the world together than with those of Asia alone.

Happily the scientific student is not

unaccustomed to dealing with chaotic assemblages—indeed, it is his business to classify facts by their relations, to reduce these to principles, and thus to bring order out of chaos. Now in seeking to classify so vast an array of facts as that presented by human Asia, it were well to profit by the widest possible range of experience, by the wisdom of the ages as well as by the methods of modern science; and this is made fairly easy and safe by the nearly uniform ways in which the minds (and the tongues) of men respond to the stimulus of the unknown—for every language has its spontaneous interrogatives arising in natural order, whereby child and sage alike seek ever to enlarge their store of knowledge.

What (or who)? Where? How? Whence (and whither)? Why? These are the normal interrogatives of our vigorous language; they may be translated into other tongues so widely as to prove that they express spontaneous impulses of inquiring minds—indeed, they are thought-mates to demonstratives of voice or gesture shared by all higher animals; and their order is fairly uniform from prattling childhood to old age, and from savagery to enlightenment. Science finds guidance and strength in the unreckoned experience embodied in these nature-questions, yet reciprocates in full measure by defining the questions more clearly and fixing their order on a rational basis; and it is through this wedlock between common sense and practical science that the chaos of Asian facts may perhaps become understandable.

THE RACES OF ASIA

What are the peoples of Asia? Time was when this inquiry would have been met by a list of the races occupying the great continent, defined by the standards of the day; and the enumeration might have ranged from two to a score or more, according to the definitions of the particular doctor thus opening the door to disagreement. Of late less attention is given to racial distinctions: The European in Asia (whether as adventuring cyclist or pomp-girt viceroy) is far less concerned with the racial affinities of the villagers than with their laws of hospitality or exclusion, their customs of eating and lodging; Dr. Talcott Williams touches race questions but lightly on his way to the far weightier questions of intertribal traffic and international commerce; Mr. Barrett passes easily from the practically immaterial race-bonds of the Far East to the vital relations arising in industries, and the potent influences founded on faith; Professor Morse Stephens properly points to the racial bases of rank and caste in Indian society, but justly insists on the dominant importance of the economic factor by which the social lines have been maintained for centuries or millenniums; and Professor Grosvenor summarizes Siberian history as a series of industrial and political stages each deeper and broader than the last, and all rising successively higher and higher above the bonds and barriers of racial affinity. These instances are merely straws indicating the drift of thought; they might be multiplied indefinitely; and all point toward the growing mass of current opinion that there are other factors of humanity of an importance transcending ethnic features and affinities. Yet the Continent of continents cannot be comprehended in its fulness without some note of the indigenous races; and with a single exception the races of Asia are practically those of the world.

Passing over the multitude of minor details of fact and opinion, the peoples of the world may be assigned to five groups or divisions, conveniently termed races. These may be recapitulated as (1) the Caucasian or white race, indigenous in western Asia, transplanted to all parts of Europe, and now replanted in every land; (2) the Malayan or brown

race, pertaining chiefly to southern Asia; (3) the Mongolian or yellow race, of eastern and northern Asia; (4) the African or black race, pertaining chiefly to central and southern Africa, but represented by the Negrito of southeastern Asia, the Blackfellow of Australia, etc.; and (5) the Amerind or red race, indigenous to the western hemisphere, but represented in northeastern Asia by immigrant Eskimo from across Bering Strait. It is not to be supposed that these groups are so trenchantly defined as to permit the confident assignment of every people to one or another of them; neither is it to be supposed that they indicate in any adequate way the origin and distribution of mankind over the earth; primarily they stand merely for a series of types or ideals about which peoples may be arranged conveniently, with more or less uncertainty concerning those of intermediate characters. At the same time the classification has the merit of expressing, albeit vaguely, an obscure and unmeasured attribute of humanity, which may be designated race-sense and defined as that instinctive sentiment holding unlike peoples apart and drawing like peoples into ever closer unity of character and purpose. Apparently the time has gone by for far-reaching classifications of mankind by so-called race-characters; the fact that the doctors disagree so widely is in itself an indication that there is something radically wrong with the system; yet the race-sense of primitive folk, with its feebler vestiges among even the most altruistic and philanthropic of mankind, is a factor with which the student must reckon, a trustworthy pointer toward some natural law.

CULTURE-STAGES OF ASIA

In view of the overwhelming and ever-growing opinion that there are weightier factors of humanity than racial affinities, it behooves the student of human Asia to find some better way of classifying and describing the vast and variegated population of the great continent. Fortunately, such a way is at hand; it was developed through researches among the aborigines of America, mainly by Powell, and forms the basis of what has been called the New Ethnology—a science differing from its prototype in that it deals with men as human beings rather than animals, defining them by what they *do* rather than by what they merely *are*. The classification is based on culture, using this term in a sense so broad as to include all that mankind know, all that mankind do.

Now when the multifarious facts of knowing and doing are first assembled and then assorted by similarity, certain kinds of knowledge and actions (or of activities, if a single term be used to denote both knowing and doing) are recognized, namely, (1) knowledge and actions pertaining to the arts, or esthetic activities; (2) knowledge and actions pertaining to industries; (3) knowledge and conduct connected with convention or law, and collectively constituting the social activities; (4) knowledge and practices involved in speech and writing; and (5) opinions and observances connected with faith and philosophy, or sophic activities. So, in brief, all that men know and do (and hence what in active sense they *are* in the visible economy of the cosmos) may be summed as pertaining respectively to arts, industries, laws, languages, and systems of faith or opinion. Furthermore, when the numberless facts pertaining to each great activity are assorted by similarity, they are found to reveal phases which are fairly consistent among the several activities of each people, yet more or less diverse among different peoples; and by these phases of culture the peoples of any continent, or of all, may be classified more usefully than by racial affinities—for the culture-phase is the real index to what the people think and

do, to their attitude toward one another and toward other peoples. These culture-phases have the additional and immeasurably great advantage of indicating stages of development—but of that more anon.

Now the coincidence between culture and the activities (or the harmony between what men know and what men do) is so close that the culture-phases may be outlined in terms of arts, industries, and the other activities, either separately or jointly; and it is convenient and customary to define the phases in terms of law, or social organization, with due reference to the attendant faiths—for it is to be remembered that only a fraction of mankind have severed civil from ecclesiastical law, statute from commandment, justice from faith. Defined in this way, culture begins in that obscure phase shared by men and such animals as most nearly approach the plane of human thought and conduct (like the Bandar-log of Kipling); and this indefinite condition is followed by the well-established phases of (1) savagery, in which the sole law is the social one of maternal blood-kinship accompanied by a profound animism—*i. e.*, faith in a vague pantheon of beast-gods; (2) barbarism, in which the laws are chiefly social, in which society is based on real or assumed consanguinity traced through the paternal line, and in which sun, fire, and other impressive nature-objects are personified, either as beasts or as men, and added to the pantheon; (3) civilization, in which the laws relate primarily to territorial and other proprietary rights, while the beliefs are more or less completely spiritualized, the civil and ecclesiastical functions more or less completely divorced; and (4) enlightenment, in which the law is based on the right of the individual to life, liberty, and the pursuit of happiness, and in which faith works as a moral force. The first two of these phases represent tribal law, the last two national law; and it is especially noteworthy that throughout all tribal culture the law is dominated by faith, while in national culture faith is blent with, or controlled by, the principles of justice and right established by experience.

Classified by culture-phases, human Asia loses nothing of her supremacy among the continents save at a single point; three of the great classes are represented among her peoples, two of them (barbarism and civilization) more numerously if not more typically than elsewhere on earth; she lacks only indigenous enlightenment—that broadest phase of culture which all the world awaited until it budded in Switzerland and blossomed in America.

PEOPLES OF ASIA

In the light of this classification the first large question as to the peoples of Asia is easily answered: They comprise an assemblage, with more or less intermixture, of all the world's races; they comprise a few tribes of lowly savages still clad in leaves, still fearing and worshiping beastly associates, still clinging to the beastly diet of raw fruit and flesh, still dreading contact with alien men and broader culture; they comprise also the world's best and largest examples of barbaric life, from its poorest squalor to its richest pomp and circumstance; and they comprise subjects of monarchical nations of nearly every known type from pettiest principality to most resplendent empire.

In the light of the same classification it would be a simple task to answer together the second and the third great questions as to human Asia—*i. e.*, Where are the peoples? How do these peoples live, move, and have being? But such is the vastitude of the queenly continent, the magnitude of her population, the multitude of her tribal and national divisions, that the full answer would in-

evitably reduce itself either to a mass of statistics, or to a catalogue of facts summarized in every encyclopedia, even in scores of school geographies—the facts are literally, in the phrase of the auctioneer's bill, "too numerous to mention." Yet facts of object, place, and agency too many for statement but form a chaos which all scientists of recent years concur in reducing—or at least in seeking to reduce—to the order suggested by the fourth nature-question, Whence? And this inquiry is answered by a statement of the facts in terms of genesis, growth, evolution, or (to use the broadest term of all) development. The genesis of the primeval Asian is indeed lost in the haze of prehistoric antiquity, or even worse enshrouded in the mists of myth-burdened tradition; yet the sciences of geology and archeology and ethnology, on the one hand, and critical history interpreted in their light on the other hand, combine to illumine in some degree the obscure problems of early man. So, too, the chains of developmental succession among the races and peoples, tribes and nations, of the great continent are regrettably incomplete; many links are lacking even from the longest, while some are too short to give good ground for confidence concerning their invisible portions; yet all are sufficiently consistent in trend, and so far accordant in direction with those found in other lands and among other peoples, as to render them worthy of tracing.

A BIRTHPLACE OF MANKIND

Most, or all, of the leading naturalists and anthropologists of the day agree fairly as to a probable birthplace of *Homo sapiens*. Ernst Haeckel, the foremost German naturalist of his generation, assumed that the human species originated in a now submerged region between India and northern Africa, known as Lemuria, the land of the lemur; Brinton, recognizing the vestiges of mountain life in the morning of humanity, looked to the upland zone stretching from the Alps to the Himalayas, and especially to the western part of this belt, as the home of man primeval; Keane finds suggestions of four birthplaces for so many widely distinct race-stocks, but locates all in the same quarter of the globe; while other students, impressed by the evidence of lowest savagery that primeval man must have been both arborean and otarian—both forest-dweller and shore-dweller—and impressed also by the archeologic evidences of antiquity in southern Asia, have regarded the shores of Indian Ocean with its affluent bays as the region of earliest human development. Within a few years these inferences have been strikingly corroborated by the discovery of the long-mooted "missing link," *Pithecanthropus erectus*—upright monkey-man—in late Pliocene deposits of Java by Eugène Du Bois. This discovery was of prime importance to the scientific world, and especially to the student of Asia, on various accounts: in the first place, the bones are more nearly intermediate between those of Homo and those of the higher subhuman anthropoids than any skeleton known before; in the second place, the geographic position of the fossil serves at once to verify previous inferences and to locate more clearly than any (or indeed all) other evidence the home of a human prototype; while, in the third place, the deposits in which the remains were found afford the most trustworthy record of the geologic age of a Homo-like creature thus far obtained.*

So the *Pithecanthropus erectus* of Du Bois gives the starting point for the tracing of human development on the Continent of continents; the testimony of the fossil is supported by other scien-

*The most accessible and satisfactory account of this fossil may be found in the Smithsonian Report for 1898, pp. 445–459, pls. I–III, figs. 1–4.

tific evidence already written in entire volumes; and when interpreted in the light of known human development, it is in significant harmony with the world's oldest lore and earliest literature—for it marks the quarter of the earth glorified as the place of creation in the traditions of the Far East, in the Sacred Books of the East, in Hellenic mythology, in the more mystical portions of the Koran, as well as in our own Classic of the Ages, and in the belief of most of humanity. The prevailing faith of mankind is not, indeed, of a kind with the testimony of rocks and fossils: yet the dusty evidence is enlivened by its harmony with the essence of knowledge summed in the coincident traditions of many peoples.

COURSE OF HUMAN PROGRESS

In tracing the obscure trails of early human development, it were well to avoid a notion instinctive to all mankind, fostered by hero-worship and honorable regard for worthy grandsires, kept alive by the unassailable doctrines of biology, and adopted by every anthropologist at the outset of his career (and dropped only by part of them as their studies progress)—*i. e.*, the notion that the human genus necessarily sprang from a single parentage, necessarily arose in a single place. The fact that the genealogic tree of the biologist is the antithesis, or reverse, of that of the genealogist, receives too little attention: the one begins with a known or assumed primordial form, and divarications and diverges forward in time to a diversified progeny; while the other begins with a certain descendant, and bifurcates and expands backward in time to a diversified ancestry. Now the dominant fact of anthropology—the fact attested by every experience and denied by no observation—is well illustrated by the tree of human genealogy; it is the constant *convergence* of developmental lines, whereby families are united in clans, clans blent into tribes, tribes joined in confederacies, racial lines obliterated, cities assimilated in states, and states combined in nations. The great fact brought out by the Science of Man is that human stocks, whether of blood or belief, language or industries, are not originating, have not originated since history began, and are steadily blending, running together into that great magma of humanity already encircling the globe and surely pushing into the most distant corners of the remotest lands. How many were the original races no man may say; Keane estimates four primary race-stocks, but this number might be multiplied, probably many times, without violence to any known fact or direct generalization in the entire domain of the Science of Man. The Gordian entanglement of innate notion, biologic doctrine, and anthropologic observation may not readily be undone; it suffices to sound a warning against the besetting hypothesis of monogenesis, and note the greater probability that, just as the inhabitants of India are not a people but many peoples, so the ancestry of human Asia is to be traced not so much to *man* primeval as to many *men* primeval scattered in separate colonies along her fertile and fruitful southern shores during the geologically near, but historically remote, period of the later Pliocene.

Beginning with the *Pithecanthropus* colony and a dozen or a score others, and assuming that the habits of the prototype stood midway between those of the higher anthropoids and surviving savages, various glimpses of the inevitable lines of development may be caught. At first the colonies were clans or enlarged families, something like those of the gorilla, more like those of the Australian Blackfellow and the American Red man, each antagonistic to all others;

in time some of these grew into the custom of interclan mating, thereby learning for the first time in the human world the great lesson of experience, that in union there is strength; in this way some clans grew into tribes, while others were either absorbed or extinguished under the hard law of natural selection—and the vestiges and proof of this stage survive today among the leaf-wearing and rat-eating savages of southeastern Asia, savages whose gods are beasts and whose worship is debasing fear. In this stage the law of organization was maternal descent—for at the outset and long after, the mystery of paternity remained unsolved. With the growth of tribes along the fecund lowlands, some were forced into the adjacent uplands, and eventually into the higher mountains; the relief from tribal pressure brought partial surcease of strife, yet demanded harder peaceful labor, sharper shrewdness in the chase, greater activity of body and mind; so that those who would purchase peace bought at the cost of vigorous exercise, yet were in due time rewarded by the superior faculty born of stressful organic function. Incidentally those who pushed highest on the Titanic stairway leading to the Roof of the World breathed the more deeply and of a purer air; the hepatic activity required to throw off the miasmatic poisons of the coast diminished, and the respiratory activity required by longer journeying and steeper climbing increased in larger measure—and thereby the excess of pigment in skin and inner tissues was eliminated, and the face of the human forbear bleached to brown, to yellow, and at last to the tinted whiteness of standards which grew as the color changed. This was but one of the ways of human beautification, whereby prognathic jaws were retracted, arms shortened, legs straightened, and the hirsute covering cast off and concentrated to the feminine crown and masculine halo—but this most entrancing of all the lines of human progress, measuring as it does the rise of young affection and the growth of human feeling, must be passed over.*

Meantime strength grew with exercise and self-confidence with strength, until the hill tribesmen and the denizens of deserts made conquest of their animal contemporaries, slaying the fierce and taming the gentle, and so far made conquest of trees and rocks as to utilize them for tools and utensils; and as self-confidence grew, fear and worship were withdrawn from visible beasts, from tangible trees and rocks and rivers, and were concentrated on the remoter mysteries of sun and storm—though these were long personified as superpotent animals. Meantime, too, the problem of paternity was solved, and the law was so reconstructed as to cluster about paternal relationship. This stage in the development of the Asian people is represented today by some of the hill tribes of India, some of the remoter folk of Thibet, some of the groups about Lake Baikal; it is represented also by the world's best-known records of patriarchy in olden times.

The meaningful feature of the growth from savage clan to patriarchal tribe thus outlined is its spontaneity, its necessity; for, with the given conditions of organic structure and budding intelligence, the way from savagery to barbarism is certain and sure as the growth of the plant from its seed, as the development of the insect from egg to larva, as the flow of a river formed by highland tributaries on its way to the sea. Herein lies the lesson of the special usefulness of the great culture-phases in the classification of mankind; they may be like-

* The subject may be pursued in "The Trend of Human Progress," *American Anthropologist*, n. s., vol. 1, 1899, pp. 415–418, and in "The Seri Indians," Seventeenth Report of the Bureau of American Ethnology, part 1, 1898, especially pp. 154–163, 279–287.

ened to the insect stages of ovum, larva, pupa, imago; they may succeed more swiftly or linger longer in coming, but under natural conditions they *must* follow their established order of growth, unless interrupted by the extinction of the stock. Nor is it to be supposed that the stages are hypothetic or uncertain; for their definition rests on the sum of observed facts not only of Asian peoples but of those of all the world.

THE RISE OF NATIONS

Now the hill tribes of Asia at first developed faster than those of the shorelands, and sent branches or isolated colonies in all directions; one of the earliest, and in all respects the most noteworthy, of the human streams trickled westward through the passes of the Caucasus and over the sands of Suez, to grow gradually into the world's greatest peoples; another branch apparently crept around the western flanks of the Pamir, and then filtered eastward to form the tribes of the Middle Kingdom, to displace the earlier comers by more easterly routes, and to grow at last into the world's most populous empire; still other rivulets flowed northward even unto the shores of the Arctic; while some of the strongest streams of blood and culture ebbed again toward the Indian lowlands, sweeping the most sluggish indigenes westward to the Dark Continent (where they doubtless foregathered with local groups) and eastward into Malacca and the great archipelago stretching thence to Australia. Yet not all of the indigenes were displaced; enough still remain to form that stratified series of peoples and cultures described by Professor Morse Stephens and defined by the world's most striking examples of race-sense—for, in spite of the economic factors, the castes of India find their roots in racial antipathies.

The story of the growth of intertribal commerce, of the Alexandrian invasion, and of the pushing of Asian influence into Europe has already been told by one of us;* the story of the welding of Mongolian tribes into a nation and empire, and of the westerly crusade aimed for Christianity but content to stop at Buddhism, has been told by another;† the story of slow confederation among the tribes of India, and of more rapid national assimilation under the influence of alien empire, has also been told;‡ while the story of the absorption of those northern tribes occupying the world's greatest woodland and tundra by one of the foremost world-powers is still fresh in mind.§ So these events and episodes of Asian development, important though they be, may be passed over.

HUMAN ANTIQUITY IN ASIA

The developmental outline of human Asia would be incomplete without some intimation as to the relative antiquity of mankind on the great continent and elsewhere. Fortunately the geologic estimate is made definite for Asia, and for other lands as well, by the finding of the fossil prototype, *Pithecanthropus*, in late Pliocene deposits; and so far as definite knowledge goes this forms the geologic and archeologic datum-point for the world. The archeologic record is consistent with that of geology, in so far as the time-measures of the two sciences are commensurate; the partly traditional history of China runs more than fifty centuries into the past, yet begins

* Dr. Talcott Williams on Western Asia; printed in this volume as "The Link Relations of Southwestern Asia."

† Hon. John Barrett on Eastern Asia; printed in this volume under the title "China: Her History and Development."

‡ Prof. H. Morse Stephens on Southern Asia; soon to be printed.

§ Prof. Edwin A. Grosvenor on Northern Asia; also soon to be printed.

with accounts of conquest over earlier peoples and with great eras* which must have begun far earlier still; the sacred books of India summarize several millenniums of history from the days when "the noble races had to struggle with the low-caste tribes, people of black complexion and flat nose, and even with the Anasikas, demons, and monkeys," up to modern centuries—and even at this beginning there were long eras, like the Kali-yug, implying traditional preservation of observations for millenniums already past; and throughout southwestern Asia and Egypt ruin is superposed on ruin, and the later ruins are so identified by records of fifty centuries and more of history as to indicate an occupation of certainly 80 to 100, and probably 150 to 200, centuries from the beginning to the present. The historical record of human Asia is long, very long; the archeologic record runs a long way farther into the past through a succession of relics and ruins beyond compare in Europe or Africa, immeasurably beyond the earliest human traces of the western world.

So, it is just to consider Asia the cradle of humanity; within her ample borders the earliest races sprang, over her shorelands and uplands the earlier culture-stages were developed, and from her plains and mountains all other lands were at least partly peopled. More than this; Asia witnessed within her own borders the natural growth of nations from crude confederacy at the beginning of barbarism to brilliant empire. Yea, and still more; Asia illumined the world with its brightest examples of ennobling faith, from the crude shamanism and Shintoism that did good service in their time, through higher and higher stages to the Golden Rule of Confucius in the Far East, to the Light of Asia in the great midland, and at last to the Light of the World in far western Palestine.

THE WORLD'S DEBT TO ASIA

On the whole, when the Continent of continents is fairly viewed in her length and fullness of history as in her breadth and wealth of land, Asia must be held at once the cradle of humanity, the birthplace of nations, the nursery of the world's religions; and all right-thinking men must hope that the debt of the western world to the queenly continent will be paid in full measure, and in peace and good-will to the men of ancient lineage, whether their skins be brown or yellow.

*Chinese chronologers reckon their history by dynasties running back to the era of Yao, beginning B. C. 2357. Still more impressive are their natural time units; for not only were the Chinese astronomers familiar with the luni-solar period (or eclipse cycle) of 7,421 lunations or 600 years, known as the Chaldean naros, long before the cycle was recognized in the west, but they conjoined this with an arbitrary period of 60 days to form the Chinese Great Year of 57,105 lunations, or 4,617 years (Bibliographie générale de l'Astronomie, par J. C. Houzeau et A. Lancaster, tome premier, première partie, 1887 [Introduction], p. 95; cf. "Comparative Chronology," *American Anthropologist*, vol. v, 1892, pp. 327–330).

THE LINK RELATIONS OF SOUTH-WESTERN ASIA*

By Talcott Williams, LL. D.

WHATEVER test, therefore, we adopt, whether we regard the differences of precipitation, weather, or plants, whether we trace the distribution of species or the wanderings of the human race—only a degree less unconsciously flowing in the channels made by the invisible walls of temperature, rain, elevation, and their joint product in the vegetable and animal world—we reach at last in man the same distribution of life more highly organized in urban conditions on the east and west, with a narrow linked region connecting them, between vast northern and southern spaces. In these the rigor or the vigor of climate and the perpetual conflict of continental areas develop single, dominant, destructive, or exclusive types, as the ocean spaces the shark, once absent from seas like the Mediterranean. The effect of this on warfare in northern Asia is perhaps best illustrated by the differing arrow release to which that observant and ingenious ethnologist, Prof. E. S. Morse, long since drew attention. As we pass from the simple primary thumb and forefinger release of the savage to the three-finger release of the Mediterranean races and on to the thumb ring of the Mongolian arrow release, we are passing through a successive development in missile weapons, of which the last represents the strongest and shortest bow and the weightier missile—the highest development which this weapon has reached on horseback. Joined to the habit of concerted action and the capacity for wide rule which the plains races always develop, whether they be the Arab of the Southern plains, the Turk or Tatar of the Northern plains, or even the Teuton of that brief analogue of the Riverine plains of Asia, which lies just north of the mountain masses of Europe, there exists, both in warfare and in predatory organization, an overmastering advantage in the races to the north and the races to the south.

If we ask why these riders have not ridden down the world about and broken this link between the development of the East and the West, it is because the bridge is protected by the dike created by the elevations extending from the center uplifts of Asia and Europe, as Professor Suess has shown perhaps more clearly than any other physiographer. When the mountain ranges are reduced as they are in his diagrammatic map to elementary conditions, it is at once apparent that a continuous chain runs from the Pamir Dagh to the end. There the curving Carpathian line loses itself in the Noric Alps at the point where the Danube breaks through and the Celtic huts of Vindobona have been replaced by the roofs and towers of Vienna. To the south this linked region is differently separated. The Pusht-i-Kuh and its continuing ranges, which for five millennia have separated Semitic and Iranic realms, lie to the north of the Euphrates River Valley, and nearly join the Armenian Taurus, which closes off Asia Minor. As a result, while the Arabian Patesi broke into this linked region in the fourth millennium before Christ, the Turkish Bey had not made his appearance south of the northern more defined dike until the close of the first millennium of our area, unless in-

*Concluded from the July number.

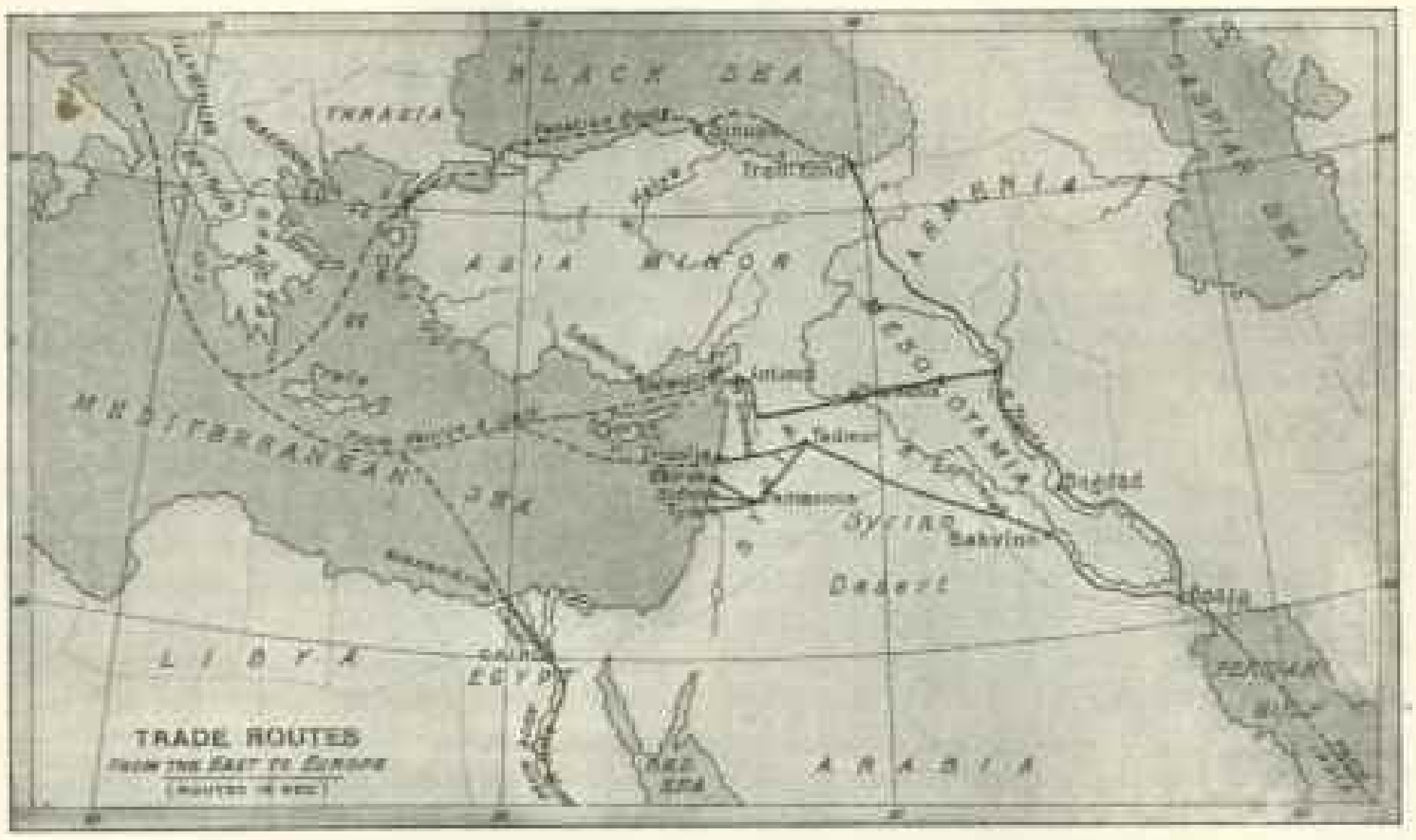
deed the Hittites were the early precursors of the Turks. These successive invasions of this region found there the earliest development of civilization. This, in its turn, was probably due to the early existence of the same trade which has through all modern history been the foundation of commercial prosperity and maritime empire.

It is not improbable that when all is known it will be found that the reason why the Nile and Euphrates early figure with settled institutions is because in these river valleys the slight advantage given by the opportunity to offer protection and gain tribute from the trade between the East and the West along this connecting region enabled ruler and city to secure their primitive advance over other river valleys not less well situated in climate and product, but lacking the fertilizing fruits of this stream of trade. The sacred caravan which now leaves Cairo and passes along the Sinaitic Peninsula meets the Haj from Damascus in the north and defiles southward along the earliest of these trade trails, which goes through Mecca and ends in Yemen at Aden. The reason why the ancient sanctuary of the Caaba stands at Mecca is because the city is threaded on this route. The development of Islam itself accompanied a period when the closing of the Red Sea route and the interruption of trafic across Persia forced traders through Arabia and led to the attempt of Justinian to secure new trade connections with China north of the Black Sea by way of the chain of Nestorian mission stations.

When from any cause the sea routes are interrupted the land of Arabia flourishes and Arabian expansion comes. But the more ordinary trade routes are those which pass by the Red Sea or by the Persian Gulf by diverging caravan routes northwardly to Trebizond; next due east to Antioch; and third, more ancient, by Babylon, Tadmor, Damascus, to the Phœnician cities.

Along one or the other of these routes, like beads on a string for three millennia before Christ, slipped the seats of rule over this tract from the days of Luggal-Zaggizi, always following more or less closely the shift of trade, always maintaining relations due to their independent commercial share in the Mediterranean trade, first with Sidon and then with Tyre.

The relation of these routes to the Mediterranean becomes instantly apparent in the admirable study of the physiographic conditions of this historic sea, which I owe to Dr. Daniel C. Gilman. These routes both finally reached the Mediterranean at different points along that great fissure first suggested by Professor Suess, and more lately discussed by Mr. Gregory in his lucid, illuminating, and instructive work. What might be called the germinal point of our civilization is the place at which this great rift, the largest on the earth's surface, meets the great fold, also the largest of its character, which constitutes the backbone of the Eurasian mass. The link region owes most of its relations to the circumstance that it falls in the angle between the junction of these two great physiographic phenomena. The north-and-south uplift attending this rift, which began far south of Lake Tanganyika and ends in Lebanon (the fish of their streams retaining traces of their earlier connection) creates the eastern end of the Mediterranean, just as the Mediterranean, as a whole, is a depression on the southern side of the great Alpine fold. Along this great rift were developed, first Judaism, then Christianity, and last Mohammedism, three world religions, of which the last two today alone survive among all earth's faiths with the capacity for conversion still existent. To the north of the end of this rift lies Asia Minor, itself physiographically a part of the great Asian plain, opening toward it like a funnel between the



Trade Routes from the East to Egypt

From Giblin's History of Commerce in Europe

mountain ranges already noted, the northern dike, and the lower barrier of the Taurus. Into this funnel poured the Hittite, and across it still wander the low tents of the Kizil-Bash, kin of scattered Asian hordes.

From the very opening of history Asia Minor has always been, as to its interior, Asian, and as to its coasts, European. When Greek history opens, Greece rims Asia Minor, but its interior is full of strange tongues, faiths, and gods. Somewhere at its mid-point along the Halys the two tides of migration, one from Europe and the other from Asia, early met, for through all the historic period, as Mr. W. M. Ramsay has pointed out,[1] east of the Halys the Semitic horror of the pig prevails, while west it is an esteemed purificatory sacrifice. In some relation with this great rift valley, the trade of the East has always flowed. Wherever it impinges on Europe, economic expansion comes. This was as true when it poured through Venice in the fourteenth century after Christ as when it poured through Ephesus in the fourth century before. When the Suez Canal turned this profit-giving stream onto Salonica and Trieste, instantly the Hungarian plains awoke from their economic lethargy and made in the last thirty years a material advance such as outstrips that of most of our own western cities.

In its early stages this trade, as we have pointed out, passed from Babylon to Tyre and Sidon. There instantly followed the expansion of Phœnicia, which brought on a long struggle between Greece and Persia. This, in the phase to which Marathon, Thermopylæ, and Platæa direct attention, was a struggle for the conquest of Greece. In its wider and more enduring battle, it was in a truer sense a wrestle for the trade of the Mediterranean. The shock of conflict was decisive, not on land but at sea. Themistocles and Aristides, Gelon and Theron are the real heroes, and the

[1] W. M. Ramsay: The Historical Geography of Asia Minor, 1890, p. 32.

bays of Salamis and Himera the real scenes, of Greek triumph. Early a few Sidonian colonies had been scattered along the northern shore of the Mediterranean. Wherever these seamen landed they left some mark of the worship of Astarte and of the strange vice of a seafaring coast to corrupt for all the future the space wide-scattered from Corinth to Massalia, a moral stain which not the flow of thirty centuries has wholly effaced. But after the battles in which the Phœnician, rather than the Persian, fleet and their Carthaginian ally had been defeated, Phœnician colonies were confined to the southern edge of the Mediterranean. Neither were exclusive. The earliest of Greek colonies was to the south, at Cyrene.[1] In like manner the earliest of Phœnician colonies were to the north. But the drift of both was along opposite banks of the Mediterranean. It is only at some point like Sicily, where at Girgenti the Temple of Theron, and at Monreale the Saracenic cloisters of Frederick, remind us that these eddying tides of Semitic and Aryan strife have left their early and late beach-marks side by side.

The fashion in which not only commerce but the arts spread along these routes of trade is best illustrated by the diffusion of some simple article like the majolica of Chaldea; its early examples have just been recovered by the German excavator at Hillah; its later glories are seen in the Persian archer which M. Dieulafoy brought to the Louvre from Susa. When Chosroes in the last expansion of the Sassanidæ held Rhodes, he planted there a colony of Persian potters. From them came Rhodian ware; their glaze spread through the Mediterranean; their patterns still live in the potters of Brusa. Of their cer-

[1] Etablissements et Commerce des Phéniciens. Lenormant Francois Atlas D'Histoire Ancienne De L'Orient. Planche XX.

Greek Colonies. Gibbin's History of Commerce in Europe.

amic lineage has sprung the majolica of Faenza and the Mauresque pottery of Spain. Over the Mediterranean basin they displaced the wares and the glaze of the Greek and Roman potter. By the hands of the Huguenot Palissy they passed from southern France to northern Europe. Of their family is the entire field of modern glazed wares, distributed along lines of trade from Susa to Staffordshire.

When the Persian archer was pictured in them he held Asia Minor and conquered Egypt; he closed to Greece and opened to Phœnicia the route of the Red Sea. The legendary peace of Cimon represents the commercial fact that no Phœnician vessel passed in to the Ægean, and no Greek vessel could safely go south of Crete. Towns like Ephesus grew and flourished and carved the great sculptured drums which stand in the Louvre and in the British Museum, under the stimulus of a trade which could only reach Greece by the Persian land routes and dubious relations. The Greek trader left these routes, and again, as ten centuries later under Justinian, Greek trade sought a route above the Black Sea, and the Greek colonies of Euxine had their brief period of bloom prior to Alexander.

When the expansion of Greece came under Alexander, the linked area which we are considering had been for nearly two centuries under the control of the Persian Empire. The organized rule which had established itself early in the Nile and still more in the Euphrates Valley, as important for trade routes as they were for the fertility and security which they offered for agriculture and the basis they furnished for the development of trade, had in both cases been expanded beyond its original area. In the case of the eastern valley it had been replaced first by successive waves of invasion from the plains to the south, from the days of Hammurabi certainly and probably earlier, and next by the

Assyrian rule, with its steady commercial policy, its continuous extension along trade routes which stretch to the westward, the more northern toward Antioch and the gates of Syria, the more southern to the Phœnician cities—always extending along these lines by annexation and by treaties manifestly intended to control trade. All these early areas had been engulfed by the Persian realm, which, as was later to be repeated under the Abasside Caliphate, held all the channels of trade, the southern by sea and land on either side of the Arabian Peninsula, the great mountain routes which descend from Balkh or from Cabul, and the lesser lines of travel which reach the Persian plateau. Open to trade and travel as these were, the Phœnician exclusion had turned the steady stream of Greek traders toward the Bactrian routes and those which reached the Indus across the higher passes of Asia. The direct routes were impeded. The commerce which in the second and the first half of the first millennium before Christ had made Naucratis and the other Greek settlements in Egypt centers of a trade which fed the obsidian works of Delos and enriched the buildings of the Peloponnesus with the work of Egypt and Phœnicia was closed. The Greek trader was present only by sufferance on the caravan routes of Mesopotamia. Nothing so proves the extent to which this trade was diverted to another channel as the wealth of gold ornaments which the spade is perpetually turning up, all made within a comparatively narrow period, in the brief existence of Greek colonies in the Tauric Chersonese and the adjacent mainland. When in his easternmost campaign Alexander was moving with the skill and certainty of a man maneuvering and marching in an accustomed region, it was undoubtedly because his army was thick scattered with Greeks who in trading expeditions had threaded all the defiles which enter Bactria to the north or debouch upon the valley of the Indus.

His campaigns throughout are marked by that intelligent and instinctive knowledge of physiographic conditions which marks the great commander and sets him apart from the mere winner of individual battles or the mere leader of a charge. It was because Alexander added this power to those other two, both of which he had as only a few men have ever possessed them, that he stands alone in all the surge of conquest which has ebbed and flowed over the narrow region which joins the east to the west. He began by winning at the Granicus, the entrance to eastern Asia Minor, wasting no time upon its internal conquest, an error from which Cæsar later was not wholly free, or his work would not have been so soon undone. He struck straight for the heads of the great trade routes, passed around Asia Minor, fought his great battle at the very point where, as has already been indicated, the great rift of the south meets the rounding curve of the outwork of the great system of mountains which divide into two great channels the course of Eurasian history north and south, halted only for two great sieges—one of Tyre, where he redressed the long exclusion of generations from the trade of the Levant, and the other of Gaza, which owed all its importance, its garrison, and doubtless the selection of a commander of the ability of Batis to its position at the head of the trade routes through the passes of Arabia Petra. Holding the ends of the land routes, he turned aside, and founding Alexandria, established the supremacy of the Greek trader for nearly five centuries over the Red Sea. Alone of all men who have struggled for this region, Alexander seems to have divined that his work could not be complete until he had pushed his boundaries to the extreme limit of the physiographic territory which we are considering. His

eastward march, the Aryan at last on the bridge, carried for the first and only time in history the supremacy of European ideas and organization over the entire space which constitutes the inevitable link between the three groups of population which, from the nature of things, constitute the three great hives of the human race in the Eastern World. The far-flung line of Greek cities which he left starred the whole region with spots and dots of enlightenment, free colonies extending to the Indus and the Oxus. So completely has this perished and left no trace that it is not easy for us to realize that for over a century and a half Greek coins were being struck in Bactria, that Buddhist sculpture received a form and comeliness which has never left it and which places it alone among the bizarre modeling of the East. It is as difficult for us to understand that for three centuries a great Greek city like Seleucia, with its own assembly and council, its agora, and its Boulé, maintained itself on the Tigris. There is something invincibly pathetic in the disappearance of these cities one by one like guttering candles. Their glory,

> Like the shooting star,
> Fell to base earth from the firmament.

These Greek cities had no land or rural cultivators about them. In the ancient city the death rate was steadily higher than the birth rate. As fresh supplies of Greeks ceased, it was a mere question of brief generations when the Greek lines were extinct and the effort to hold this tract for civilization faded and was lost first in the Arabian and then the Tatar migration.

ROME AND THE ROMAN EMPIRE

The successor of Greece, Rome, was a sea power. Its first treaty was a commercial compact with Carthage. Its conflict with that maritime power was really a struggle for the basin of the Mediterranean. In its zenith the Roman Empire was a rim of land about the Mediterranean, with an outlying region like South Britain, but limited always in the full exercise of its power by its command of the great sea. When Augustus fixed the policy of the Roman State he adopted a new practice in regard to these great trade routes, which were the arteries or connecting ligaments between the East and the West. They were no longer left wholly in Asiatic hands; neither was the effort made to hold them from end to end. An expedition of Augustus seized Aden, but left it. The police of the Red Sea was maintained, but the effort was not carried farther, so as to hold its entrance, and trade from south Arabia to Zanzibar was allowed to grow. The Persian frontier was expanded so as to grip Palmyra because it was the end of one caravan route. Its great colonnades in the desert marked the wealth of this outpost. The carved Roman fronts of Arabia Petræa, a tract always held by a strong imperial garrison, was the head of another route. Later Dara was the fortified fort and outpost which protected the heads of the divergent caravan roads which came up the Mesopotamian plain and then separated. Here, as along the line of the Rhine and Danube or the southern edge of north Africa, strategic points were held, but no effort was made to expand beyond them until the period between Trajan and Heraclius.

When this advance came the Arab expansion was near. It had been preceded by causes which prepared the way. Augustus' policy of holding the heads of the trade routes, instead, as under Alexander's far-sighted plan, of garrisoning the routes themselves with a long line of Greek cities and settlements, divided the springs and sources of control over a region whose free transit was indispensable to the health of each member of the human race whose trade it carried. The Roman fringe from Tra-

pezus, Erzerum (Arx Romana) to Alexandria, through Antioch and Palmyra to the carved cañons of Petræa, grew in splendor and in wealth. As long as the Parthian policy left Seleucia and her sister Greek cities in touch, the trade around the Arabian peninsula was unvexed by the Arabic dhow. The Greek trader was in all the waters about Arabia. These conditions disappeared under the more rigorous administration of the Sassanidæ, and the Greek cities withered. The Arab expansion into Abyssinia, possible under the policy of Augustus, an expansion which so narrowly transferred the birth of Islam from Mecca to this mountain plateau, was accompanied by the spread of Arabian commerce around Asia. A century later the Chinese junk was a frequent visitor in the Euphrates, and the hongs of Arabian merchants at Canton preceded by 1,000 years the like and later establishments of north Europe. The trade of the Red Sea was replaced, as it had been preceded, by cargoes debarked at Aden and following the northern routes which passed through Mecca, and whose farther journey Mohammed more than once shared.

Whenever from any cause the Red Sea became closed, or when, early, the vessel of the day was incapable of the long trip around the Arabian peninsula, then always as in Himaryitic and earlier days, southern Arabia becomes an organized monarchy because enjoying the revenue of this trade. The line of sparse settlements which follows the extinct volcanic heights of the great Rift along the eastern shore of the Red Sea springs into an activity which in the seventh century burst forth in the explosion of Islam. The outlines of this outburst are familiar. Under it this entire region, with the exception of Asia Minor, was in the hands of a rule centered on the Tigris, as ten centuries before at Nineveh or Babylon; but since the Mediterranean outposts were no longer, as for ten centuries past, under alien hands, Greek or Roman, the Caliphate exceeded in power and in splendor the two Asiatic rules which, without this aid and vantage, had preceded it in the same valley.

One fatal change, however, came. This inroad from the southern plain swept across the dividing line of mountains in north Persia and pushed what, remembering its results, may fairly be called a sluice into Tatary. The province which stretched down the Oxus, Ma-wara-l-nahr, made the first open communication between the great plain to the north and the valleys and plateau to the south. Under the Samanids it felt Persian civilization, Arab learning, and Moslem faith. There began that steady migration, first of Turkish slaves to the court of Baghdad and later of the Tatar horde, until there burst forth all

> The black Tatar tents which stood
> Clustering like beehives on the low, flat strand
> Of Oxus, where the summer floods o'erflow
> When the sun melts the snow in high Pamir.

The results of these successive invasions, Seljuk, Turk, Tatar, or Mongol, in all its hideous forms, spread terror, desolation, and lasting death and decay from the Pacific to the Mediterranean. It broke all the channels of trade, interrupted the connected development between the East and the West, which had been slowly developing through nearly four millennia, and played no small share in causing the arrest of the Mediterranean basin, which had for nearly seven centuries but the fitful light of a dying civilization in which a new faith was making its way, *ducente deo, flammam inter et hostes*.

Its growth led to an attempt in the crusades to stay the joint progress of Arab and Seljuk, for the men of the flatlands south and north had both overspread the region between. Meanwhile the currents of trade were moving again to the north of the Black Sea, southern

routes being closed, and this trade was doing its share to awake into consciousness the vast inert mass of wandering men in the northern Asian Plain with results later apparent. The only fruit of the shock between the East and the West from Nicæa to Edessa, from Edessa to Montroyal, was to leave no one eastern power equal to the eruption of the Mongol swarm when it burst on the world just after the close of the crusades. These hordes from the north had poured through the open gate which the extension of the provinces of the Caliphate into Transoxiana had provided. First the Turkoman of the Oxus came, later Chingiz' Mongols, in the center of the Northern Plain, and last the more civilized organization of Timur. From Novgorod to Pekin, over the entire stretch of the Great Plain in which the Urals are so small an interruption; from Siberia to India, their descendants ruled.

Their only check came in the Ayyubid dynasty, founded by Saladin, which the crusades had consolidated, and which held the ends of the trade routes that found their way up the Red Sea and across the caravan routes to the ports of Syria. In all the annals of the relations of this region, for the first time the Asian swarms closed all the traffic by land. The route north of the Black Sea, which had so often been opened when all others were shut, was in their hands. The lines which passed across Persia were blocked by all the internecine feuds whose rapine darkens the Quatrains of Omar. Instantly a new relation was established. The real close of the crusades is the treaty between Venice and an Ayyubid Sultan of Egypt, Adil, 1208, by which the city of the Adriatic obtained a monopoly of the trade of the East. Straightway there arose in Cairo and every Italian city those buildings, the mosques and tombs of Ayyubid and Mameluke sultans, and the churches of the later Romanesque and earlier renaissance. In every age, wherever the opportunity of levying toll upon this traffic between the East and the West comes, there also buildings rise and a new architecture is born—from the Ziggurats of Babylonia to the dome of St. Paul's, itself the first fruits of that growing trade which marked England's appearance in the East. Through nearly two centuries of the free-flowing profit of Italy, the narrow duct through which flowed the trade of the East, was the open way kept by the independent government of Egypt in close communication with the small republics of the peninsula. When the Othman Sultan, Selim, in 1517, swept over Egypt the last shred of the passageway which nature has provided between the Asian and the European centers of population passed into the hands of the representatives of the northern flood which had first burst forth when Hulaku ended the civil power of the Abasside five centuries before. The flask of pepper instantly arose from six to eightfold in the markets of Europe. Sugar increased in proportion. The trade of the Italian cities was ruined. The trade routes along which the cities of central Europe had grown were swept with bankruptcy. There succeeded an economic convulsion such as always accompanies every shift in the channel of this great trade, which had no small share in precipitating the Reformation, acting not so much as cause as furnishing the occasion for the sudden appearance of a growing ferment.

First Portugal and then northern Europe, since all paths across the bridge were at last held and closed, began their attempts to find a way around the continent of Africa. Out of this attempt grew the voyage of Columbus. Through successive maritime discoveries the northern half of Europe made its connection with the Asiatic centers by sea instead of by land, and there came that fission in faith, in trade, and in devel-

opment between Teuton and Latin Europe which has so powerfully influenced modern history, one half having and the other lacking a direct route to the East. Asia remained in the hands of the men of the Northern Plain; Ming and Manchu dynasties rose at Pekin, and the Turk sits on the throne of the Eastern Cæsars. The descendants of Timur ruled in India until the English Raj, itself a product of the maritime movement which the control by the Tatar over the natural connecting link between India and Europe made necessary. If I were to select the one object in human history which sums and typifies this great march of events in the long defiles formed by nature creating and guiding its course, it would be those shivered fragments once the serpent's seat of the Pythian oracle at Delphi—the spoil of the Persian when he first made Asian the coast of the Ægean, won by the Greek at Platæa, for seven centuries the seat of prophecy, and when "Apollo from his shrine can no more divine," transferred by Constantine to his new capital, at last the trophy of the Turk when the last of the Constantines fell in the breach broken by the mace of the conqueror as he rode into the Hippodrome.

Not until the Russian railroad crossed the plain east of the Caspian and extended itself to the Pacific had civilization its full revenge and established across the plain, whose folk had so long closed the connection between the East and the West, another sure pathway. With it the history of this central region enters on a new chapter and becomes secondary in its relations. Today it only plays its part in that wider duel extending over civilization between the approach to the eastern centers of population of the Russian railroad and the English steamer, the division of Asia between Slav and Briton. But through all its history the same continuous thread has run, which has made it the connecting link between the three great groups of population in the Eurasian mass, and, beyond any other of earth's tracts, it has had as its share and part

Res gestæ regum ducumque et tristia bella.

The Roman Empire

From "Europe," by Élisée Reclus

THE OLD POST-ROAD FROM TIFLIS TO ERIVAN

By Esther Lancraft Hovey

THREE hours by rail east of Tiflis, in Transcaucasia, lies the little hamlet of Akstafa, which has been the northern terminus of the post-road to Persia by way of Erivan since the completion of the Transcaucasian Railway. It is a wretched village, and what little importance it has enjoyed for some years will soon disappear, since it is far away from the line of the railway which the Russian government is about to open from Tiflis to Kars, one link of the great chain which is to stretch through Erivan to Tabriz and the Persian Gulf. The advent of the railway will render easily accessible a picturesque and interesting region which is now rarely visited by tourists, and will eventually make familiar to many the marvelous beauty of the Mountains of Ararat.

Our party for the journey across Russian Armenia consisted of several members of the great International Geological Congress which met in St. Petersburg in 1897. We gathered at Akstafa early one beautiful morning late in September to begin our long ride southward to Mt. Ararat, our objective point. When we finally sallied forth from the post-station our caravan consisted of four comfortless carriages and a baggage wagon, under the protection of a military guard of six Cossacks in full equipment. We had been warned that traveling in this part of the world was dangerous, and we could well believe it when we saw the armament of these men. In addition to the regulation rifle, short sword, and ornamental powder pockets, they wore belts fitted with ball cartridges and two or three extra revolvers in the most convenient places for instant use. The most conspicuous part of their dress was the *bash-lik*, which is a simple hood made of scarlet cloth, with long streamers. This was usually worn with the streamers crossed over the breast and tied at the back, the hood hanging on the shoulders. The *bash-lik* is a very useful article of dress in a climate subject to the sudden extremes which occur in Armenia and the Transcaucasian Mountains. After sundown the hood is drawn over the head beneath the fur cap, while the streamers are wrapped around the throat to keep out the sharp winds.

The Cossacks form a kind of semi-volunteer military organization, their services exempting them from certain items of taxation. The governor of the district is obliged to furnish a Cossack guard to travelers demanding protection, and this guard is supposed to serve gratuitously, but we noticed that when we changed guards, which took place about once in two hours, our leader handed the head man of the band a handsome fee. The changing of the guard was always accompanied by much saluting and some maneuvering.

For several miles our ride across the plain was dusty and uninteresting, except for the exhibition of fine riding given us by our Cossacks, who looked very picturesque with the streamers of their *bash-liks* floating in the wind. From time to time we met strange vehicles, and as we began to enter the mountains, following the valley of the Akstafa River, we encountered villainous-looking gypsies who had to be beaten away from our carriages by the guards, so persistent were they in their demands for

Our Guard of Mounted Cossacks

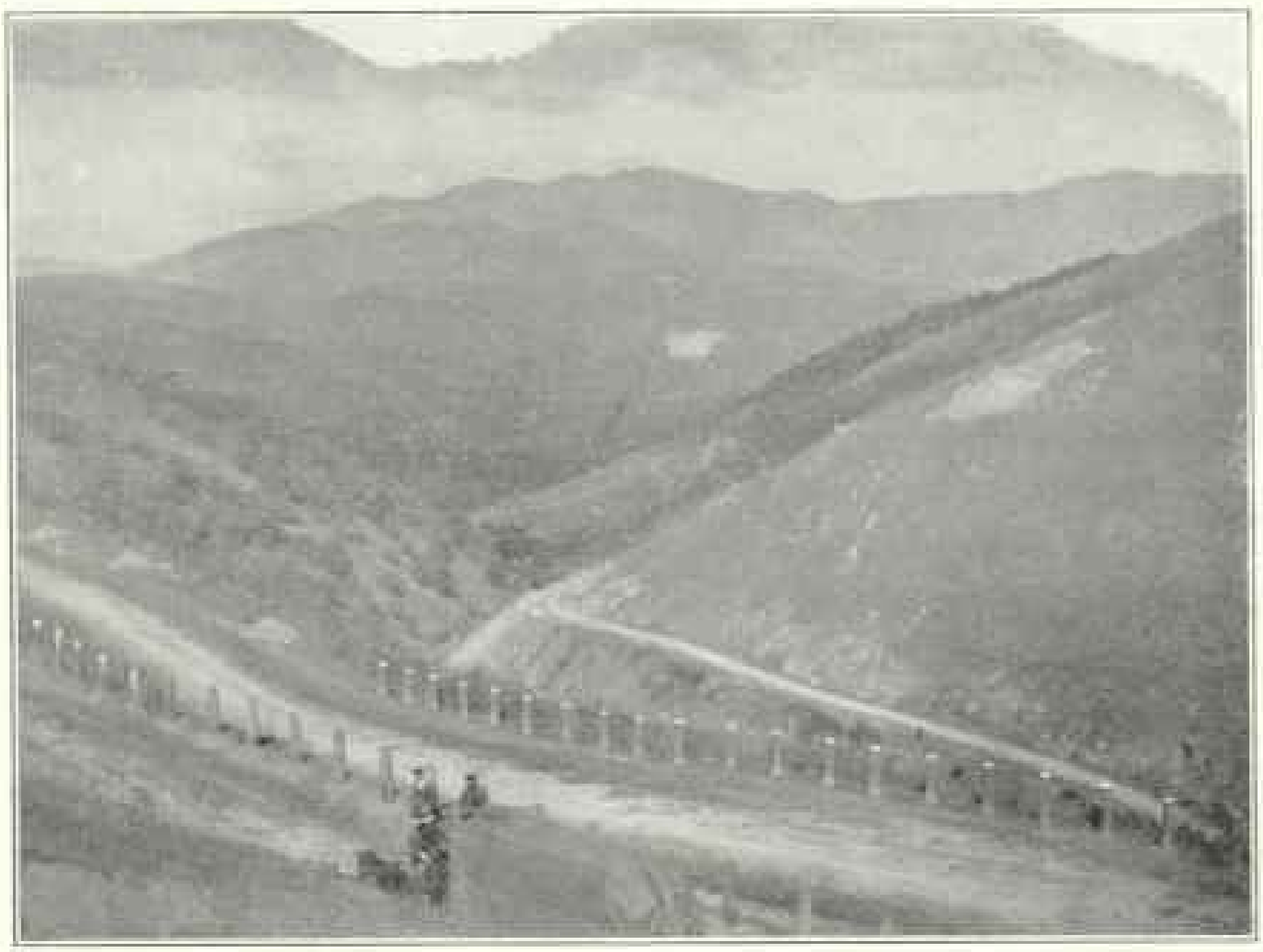
money. Nor did the tales related to us of recent exploits of brigands along this road lead us to regard these gypsies with very high favor.

We had entered the home of the Oriental rug—in fact, we were on the borders of the Carabagh country—and we soon began to understand the process of making them "antique." Beautiful rugs are used in fastening loads on to camels and donkeys, leaky roofs are mended with them, and people use them in place of chairs or beds in the houses, on the streets, and while on a journey. At Caravan-Sarai, in the Anti-Caucasus Mountains, we espied an especially pretty one on a bench, and asked the man who was sitting on it how much he would take for it. Twenty roubles ($11) was his price. On general principles we offered him ten, but he shook his head. His neighbors at once perceived a chance for a trade and flocked around us, each one offering his rug for sale and descanting upon its merits—at least, we took for granted that that was what they were doing, for we could understand scarcely a word of what was said. Indifference is the price of success in this kind of bargaining, and we walked through the village apparently paying little attention to the numerous rugs held out to our view. The first man, who had the rug we wanted, kept following us in the crowd, deducting a rouble every time we made a move to look at an attractive rug, but our invariable reply to him was "Desyat roubli" (ten roubles). Not until we started for our carriage did the other people despair of selling us anything, and then they all turned upon number one, urging him to accept our offer. It was funny to watch the men, for they are so excitable and use gestures to such an extent that one can almost understand them by these

alone. At last our man came forward with his rug, asking piteously for twelve roubles, and we compromised on eleven. His sharp Armenian instinct served him well at the last, however, for he suggested so ingeniously that the boy who rolled up the rug ought to have twenty kopecks (eleven cents) for his services that we could not resist the appeal.

Late in the evening of the first day we arrived at Delijan, a picturesque little village at the foot of the pass of the same name, and as we looked across the Akstafa Valley we could see what most of the United States contingent of our party had never seen before—the lights of a large camp of soldiers who were in active service. Delijan is the military headquarters of a district. The principal house of the village was thrown open for our accommodation, and we were settled for the night on beds and benches and on mattresses placed on the floor in the house and in the barn. The seven ladies of our party were put into the best room, which was so small that some of them had to retire before all the beds could be put into place. A fifty-mile drive in the mountains is apt to produce sleep under any circumstances, even if there are seven people in one small room and two of the beds fall to the floor during the night, and one of the occupants of the room has such a severe cold that her breathing sounds like the exhaust of a steam-engine and another has the nightmare!

Three o'clock in the morning came all too soon, but we had to arise to continue our journey. It was bitterly cold and many of us performed our toilets with as little ceremony and delay as possible, but others showed the influence of long and stylish habits. I saw one gentleman of the party, a noted English geologist, out on the porch



The Mountains Looking Northeastward from the Pass of Delijan

The Village of Semenovka

kneeling before a chair on which he had set a glass of cold water and a pocket mirror, shaving himself by the light of a coiled taper. The job was so well done, however, that it was evident that he had shaved under difficulties before. Later, when we were in the hot, arid country where water is so scarce, I learned that a half cup of water could serve for the toilet purposes of this same gentleman and his wife and still furnish him enough for his shave.

By sunrise we had had our breakfast and were on our way up the pass. As we climbed higher the view became wilder and more extended. At one time we could see ten zig-zags in our road below us, while above and around were snow-capped peaks and grassy slopes, on which the light of the rising sun gave effects which well-repaid us for the exertion of an early start. At the summit of the pass there is a great change in the character of the scenery, and as we looked toward the south, instead of the heavily wooded and grass-covered slopes through which we had been coming, stretched out before us we saw the great Armenian plateau, above which rises the barren cone of many an extinct volcano. For some miles our route lay along the shores of Lake Goktchii, a beautiful sheet of water 53 miles long by 23 miles wide, the surface of which is 700 feet above the top of Mount Washington. The region is inhabited by the adherents of several religious sects. From this region come a portion of the Dukhobortsi, of whom so much has been said of late years because of their emigration to British Columbia rather than give up their religious tenets, which forbid their bearing arms for any reason. The followers of another sect subsist entirely upon milk during Lent. We stopped at the little village of Jélénovka, on the

shores of the lake, and were entertained at dinner by the Molokani, as the members of one of these sects are called. Our repast was quite elaborate for that part of the country. It consisted of soup made from corned beef and cabbage, all being served in one dish, with whipped sour cream as a sauce; fresh trout from the lake, and boiled chicken. The last would have been very delicious had it not been for the sauce of sour cream and horseradish, which gave it a flavor which none but the educated taste could appreciate. One of the desserts consisted of watermelon, muskmelon, and pears cut into small pieces, mixed with grapes and plums, covered with a hot syrup and served in hollowed-out segments of melon rind. Grapes and melons grow to perfection in the irrigated fields on the Armenian plateau.

While passing through the village I had stopped to look at a very cunning baby, but what was my surprise during dinner to be told that I was wanted by some peasants in the front yard. There I found lined up before the door, under the generalship of the mother of the baby I had admired, several women dressed in their best Sunday clothes, and each one with a highly polished and carefully dressed babe in her arm. Never having attended a baby show, I can safely say that this was the proudest set of women I had ever seen. Unfortunately these people are very superstitious, fastening blue beads not only upon their children, but also upon their animals, to ward off the evil eye. They were afraid of my camera, and departed hurriedly when they saw it pointed their way, only three succeeding in making politeness overcome fear.

For many miles after leaving the lake there was not a tree or a shrub to break the monotony of the scene as far as the eye could reach. The plain is a dreary waste of ancient lava. The houses oft-

At Jélénovka

An Armenian Household

entimes are built on the slopes of the mountains, and of the blocks of lava in such a way as to be almost indistinguishable therefrom at a short distance. The dwellings are made mostly one story high, with flat mud roofs, and often are surmounted with piles of straw. This straw, as we soon observed, is put to a curious use in the making of fuel. It is cut up and mixed with the manure as that is taken fresh from the stable. Cakes about ten inches in diameter and two or three inches thick are made from this mixture and plastered on to the sunny side of the house to dry. When thoroughly dry they are piled up in pyramidal and conical heaps beside the front door, usually reaching far above the tops of the dwellings. These great piles beside every house make a striking feature of the landscape, and incidentally indicate the wealth of the householder and the desirability of his daughter's hand in marriage.

The house usually consists of two rooms, one for the family, while the other is used as a stable. A hole dug in the ground in the center of the front room answers as a stove. The fuel is broken up and put into the hole, while from an iron rod laid across it hangs the earthen vessel which contains the food to be cooked. There is no chimney to carry out the dense smoke which this fuel makes; a simple hole in the roof serves as an outlet, and as one door furnishes light and air for both room and stable, the ventilation cannot be considered perfect. At night the people roll themselves up in rugs and sleep on the ground around the fireplace. Roads are rarely or never repaired. When a hole becomes so deep that the wheels of a wagon cannot touch bottom or there is danger of a sheep getting lost in it if it gets larger, a new road is made around the hole. If a bridge tumbles down or is swept away, the people change their route, if possible, so as to cross where they can ford the stream.

Late in the afternoon of the second day, as we reached the summit of the ridge we were climbing, the full grandeur of Mt. Ararat burst upon us, and even the most experienced travelers in the party could but marvel at the view, the peculiar colors of a sunset in an arid region making the snow-capped mountain a never-to-be-forgotten picture. The peak is isolated and dominates the country for fifty miles around. It has two summits—one, Great Ararat, which is 17,260 feet in altitude, and the other, Little Ararat, 13,093 feet high—the two being connected by a ridge or saddle more than 8,000 feet above the sea. As the surrounding plain has an elevation of but 3,000 feet, these great solitary cones are much more impressive than most other mountain masses of equal elevation. There is a belief cur-

The Ancient Mosque at Erivan

rent among the peasants that Great Ararat has never been ascended since Noah's time, and that no human being can ascend it and live. The summit has been gained, however, by several travelers, and two of our party succeeded, after much exposure and hardship, in reaching the highest point. The unfortunate death of another who made the attempt probably served to strengthen the prevailing opinion of the peasants. Little Ararat presents no mountaineering difficulties, and twenty of the men of our party climbed to its top.

Erivan, the present capital of the province of Russian Armenia, is situated on the Zanga River, about 30 miles from Mt. Ararat. It has belonged to Russia since 1827. Before that time it was the stronghold of the Turks and Persians alternately, and as a result is an extremely interesting place, containing the ruins of the palaces and fortifications of the different nations, while it remains essentially Persian in its characteristics. The lofty brick and mud walls along the river were built by the Turks, and, although formidable in Medieval times, they would certainly offer very little resistance to the attack of modern weapons, even if they were in good repair. The Persian quarter of the city is most interesting, the narrow, crooked streets and lanes, filled with men, veiled women, camels, and donkeys, presenting a curious scene. On one side of the street might be seen a barber plying his trade, holding his patient's head against the side of the house while he shaved the narrow strip from forehead to crown or dyed his whiskers that peculiar red color which all Persians affect. Opposite the barber, or perhaps beside him, one might find a public stove covered with little pots filled with mutton stew, or a huge frying pan filled with a mixture of fish and tomatoes. Here one stumbles upon an entrance to a caravanserai or khan, there upon a long, dark passage to a public bathing place, where the men

A Study in Rags

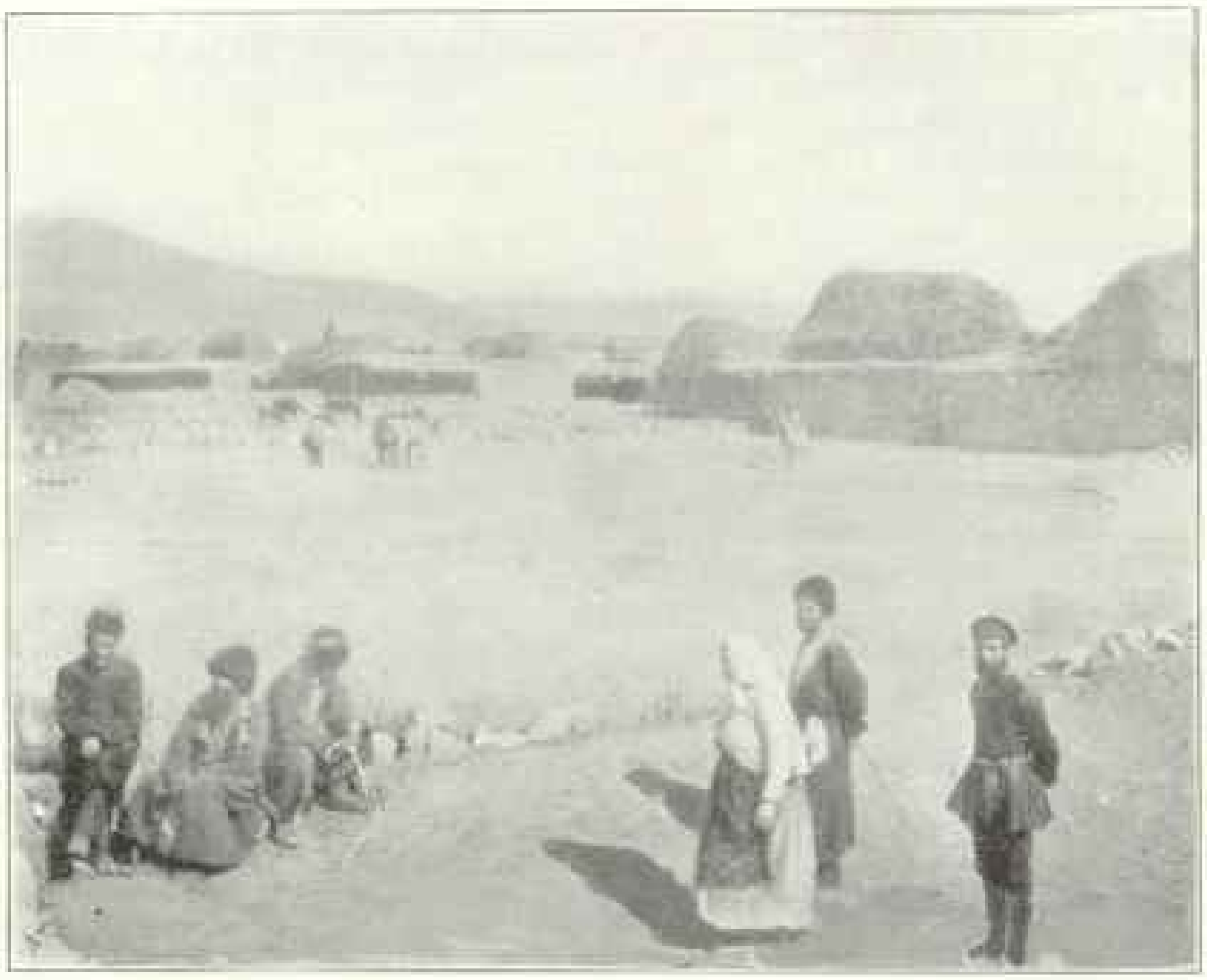
congregate to smoke, sip coffee, gossip, and bathe.

The khans are great courtyards, surrounded by barren rooms or alcoves, in which, on payment of a small sum, a traveler may make himself and his camel or donkey as comfortable for the night as his resources of bedding will permit. A small open cistern in the middle of the space receives the drainage of the courtyard, and at the same time furnishes water to the occupants of the khan for washing, cooking, and drinking. I have seen a man wash his face and hands in the reservoir while another was drawing water from it with which, apparently, to do his cooking, this, too, in spite of the presence of the pump beside the cistern.

In the hotels it seemed impossible to put down hat, umbrella, or gloves and find them in their place again. Articles would disappear, and when the proprietor was sent for and told that the things must be found at once, there would be great running hither and thither, with the resulting report that they could not have been left where you said they were. At the suggestion of police assistance, however, the articles would be forthcoming, a servant bringing them up and asking naïvely if these could be the missing articles, at the same time remarking that he had found them in a place not at all that in which they actually had been left. One gentleman of our party who had a dress hat with him besides his traveling cap had it taken from his room four times in two days, and, although he left Erivan at last with it in his possession, had not traveled far before he discovered that it was gone, and that time for good.

It was interesting to watch the natives baking bread. The dough is rolled out into sheets three or four feet long, about

The Village of Nijhi Akhty on the Lava Plain



The Village Threshing Floor at Jélénovka

fifteen inches wide, and about as thick as pie crust. These are baked either on beds of hot pebbles or in the regulation oven, which consists of a hole in the ground three or four feet deep and as many in diameter, lined with hardened clay, and narrowing toward the top, a fire being built in the bottom to heat the clay. The baker spreads his sheets of dough on a sort of pillow, and, dextrously seizing it by a handle on the bottom, bends down into the oven and spats the dough against the side, where it sticks and is baked in a few minutes. The sheets of bread are pulled out of the oven by means of a hook and hung on the walls of the shop to cool. The bread is sold by weight, the price being about one and one-half cents per pound, and is delivered without wrapping paper.

The people roll up their sheets of bread and carry them home under their arms as if they were packages of brown paper. It is literally whole-wheat bread, and though it contains no salt, tastes better than it looks.

There are two kinds of butter, one made from buffaloes' milk and the other from that of cows. The former is white and tastes like tallow, but the latter cannot be said to be as attractive or any more palatable, for the people churn it in a goat skin with the hair inside.

Each farmer seems to prepare his own grain for grinding. After the harvesting, the grain is spread out two or three feet deep on a spot of specially hardened ground, and oxen and buffaloes are driven around over it until the kernels are broken out of the heads. In some cases the threshing instrument is a

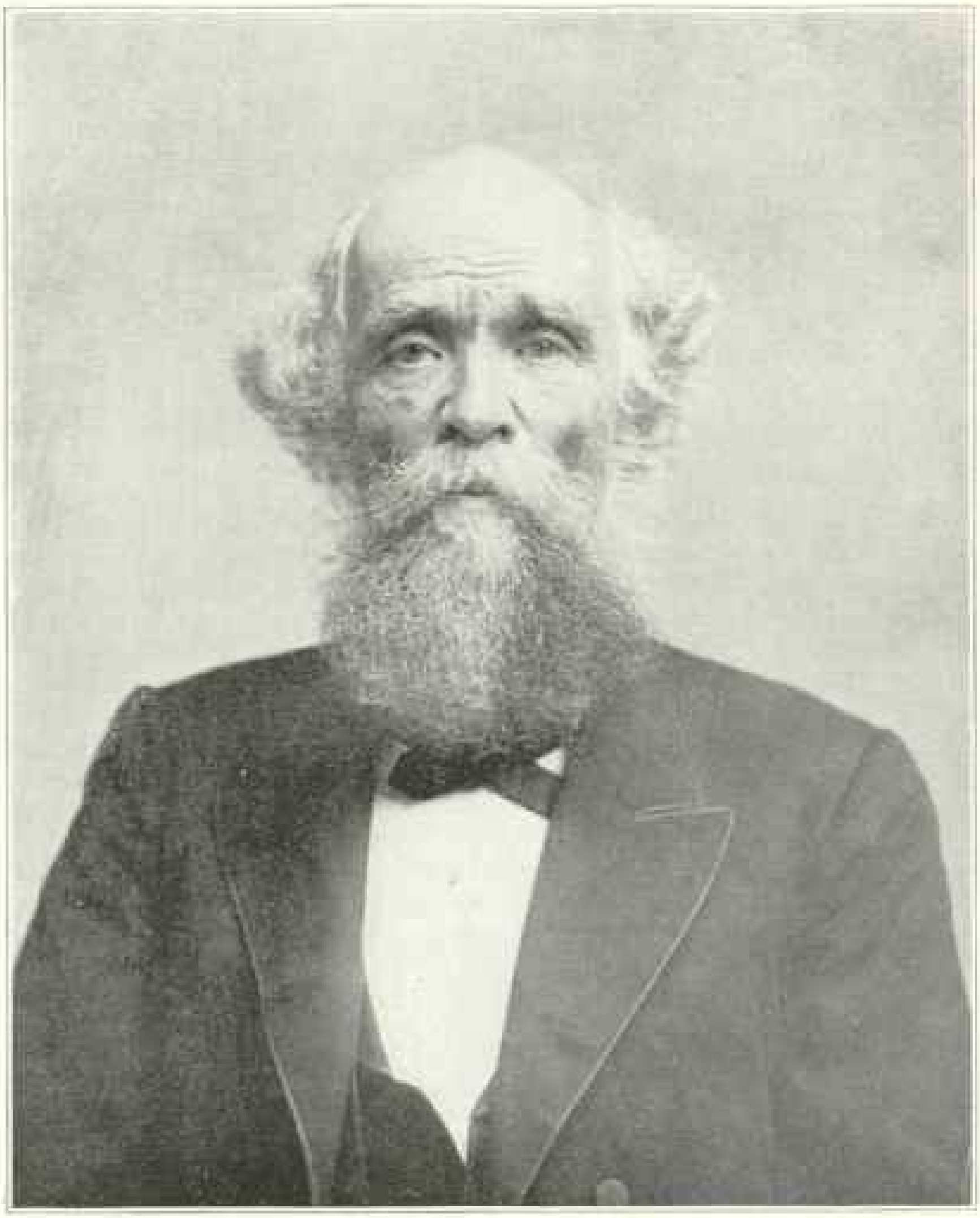
heavy oblong board, like one of our stone sledges, the bottom of which has been armed with pieces of sharp rock. The drivers of these contrivances were usually women, and sometimes they were nursing their babies as they stood or sat upon the threshing-board. When the grain has all fallen to the ground, the straw is removed and the wheat is winnowed by throwing it up into the air by means of long-handled wooden shovels, thus allowing the wind to blow away the chaff. Then the grain is gathered up and spread out on skins by the roadside or in any other convenient place to dry before being stored or taken to the mill for grinding. The millennium evidently has not come to these people, for, contrary to the Scripture injunction, they muzzle the ox which is treading out the grain by tying wisps of straw about his mouth.

JOSEPH LE CONTE

IN the death of Professor Le Conte, science loses one of her most honored expouents, the country one of her most exemplary citizens.

Joseph Le Conte was born in Georgia, February 26, 1823. He graduated from the university of his native state as A. B. in 1841, and from the College of Physicians and Surgeons in New York as M. D. in 1845. After some years of medical practice in Macon, he took a special course at Harvard under the elder Agassiz, graduating as B. S. in 1851. Within a year he became professor of natural sciences in Oglethorpe College, Georgia; later he occupied the chair of geology and physics in South Carolina College, and during the civil war he served as chemist of the Confederate government. During these early years his fame grew and spread throughout his own country and others, and his abilities shone through the war-clouds beyond those of his contemporaries with scarce an exception; and in 1869 he was invited to the chair of geology in the University of California. This important position he filled, with a success bringing him world-wide renown, to the day of his death.

The instinct of the explorer, as well as of the scientific geographer, was strong in Professor Le Conte. While still a youth (in 1844) he set out with a young kinsman to explore the then remote regions about the Great Lakes and the sources of the Mississippi; and for weeks the two were beyond settlements, out of reach of habitations save those of Indians, subsisting on fish and game, and mastering wood-craft and all manner of travel-sense—for, in addition to walking, they paddled a thousand miles in birch-bark canoes. After his transfer to the Pacific coast, Professor Le Conte continued to seize every opportunity for outdoor work; he was more intimately acquainted with the Yosemite Valley than any scientific contemporary, and explored the neighboring and still more picturesque Hetch-hetchy more minutely than any other man; and his personal knowledge of the high sierras, the auriferous foot-hills, the coast ranges, and the great valley of California was unexcelled. His taste for and experience in the actual flavored all his numerous geologic writings: to him earth-science was geography seen deep and clear. These writings are unrivalled in simplic-



Joseph Le Conte

ity and comprehensiveness—his "Elements of Geology," indeed, is beyond comparison in any language as an introduction to the science of the earth.

Professor Le Conte was geographer and geologist, and much more besides; his original researches in optics, in several lines of human physiology, and in various other subjects, raised him to the rank of authority; and he had the faculty withal of comprehending and assimilating the results of other men's work in such wise that he was at home in every field of science. In his prime when the doctrine of biotic evolution was first formulated, he contributed to its diffusion materially and with a special effectiveness by reason of his own original work, as well as his charm of personality and manifest sincerity of purpose; and one of his most noteworthy books is "Evolution in its Relation to Religious Thought" (1887). He was among the pioneers also in the acceptance and promulgation of the doctrine of conservation, one of the first to extend the principle to the domain of vitality, and the first to extend it into the realm of mentality; and he was one of the few thinkers of the last decade to consider favorably that form of the doctrine of conservation in which the persistence is conceived to inhere in the particle rather than primarily in the cosmos as a whole. In fullest sense he was a savant; and every subject touched by his versatile mind was enlivened and made clearer and more attractive by the touch. At the same time his heart reached out to every matter of human interest; he abounded in the milk of human kindness; his modesty and charity and never-failing courtesy impressed and captivated; in every respect he was one of the most lovable as well as the most admirable of men.

Professor Le Conte died as he lived, a student of nature. With a small party he returned to the Yosemite Valley early in July, for the purpose of reviewing recent suggestions as to the origin of the magnificent gorge; but the diminished air-pressure of the mountains led to a cardiac derangement, which proved fatal within a few hours. He died on July 6, at the ripe age of 78, in a little camp shadowed by the towering granite walls of the cañon he had lived to make famous.

W J M.

The German South Polar Expedition will take a full equipment of aerial apparatus to make systematic kite ascensions from aboard ship during the voyage southward and also during the months in the Antarctic regions. The *Monthly Weather Review* states that the kites "are of three sizes: the large Marvin, like those used by the Weather Bureau, of 6½ square meters surface; Hargrave kites, of 4 and 2¾ square meters surface, and light Eddy kites, of 2¾ square meters, which are very advantageously used in lifting and sustaining the larger kites with instruments in light winds." Probably no expedition has ever made such complete preparation for the systematic exploration of the upper air conditions in South Polar regions.

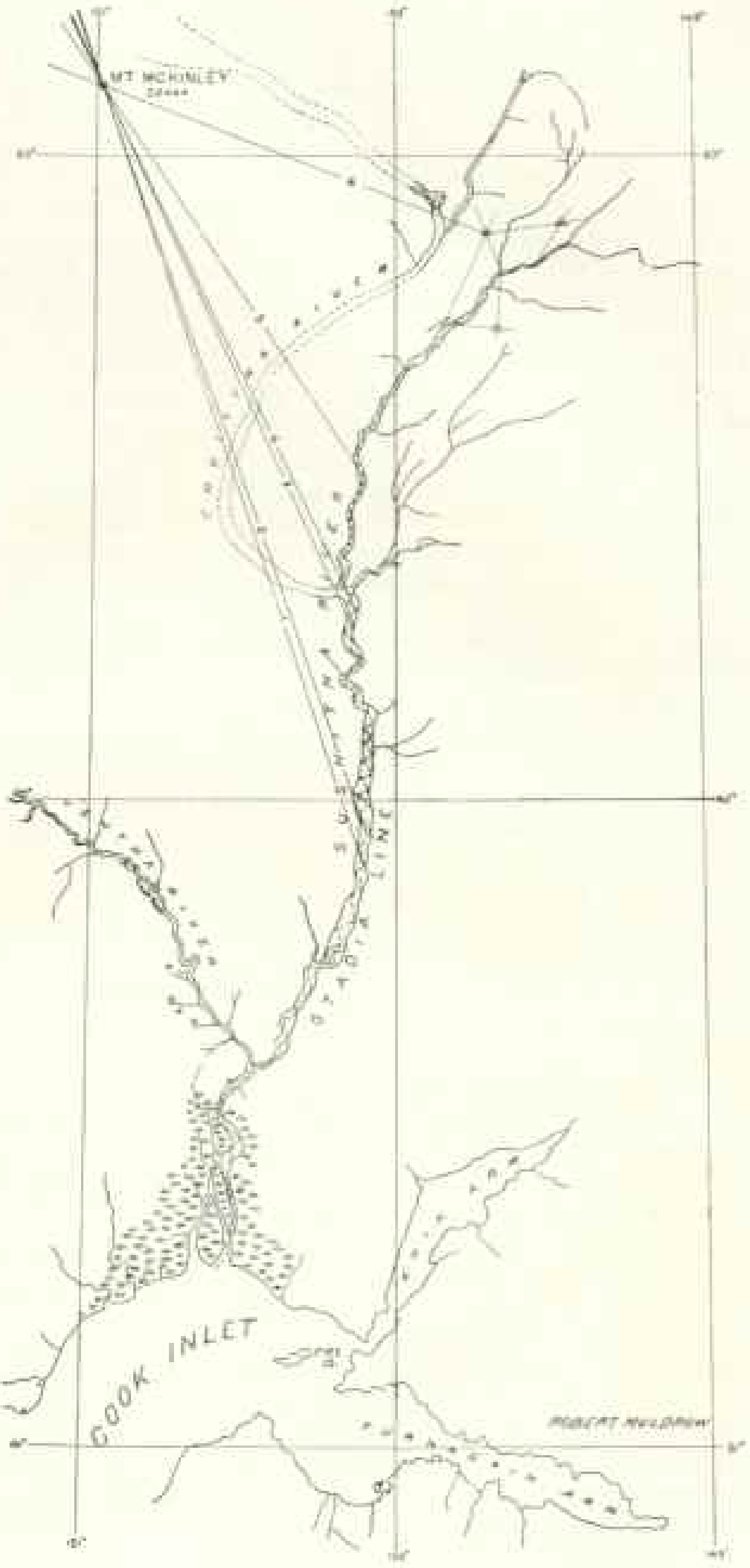
The Carnegie Museum, Pittsburg, Pa., has several parties working in the field. Prof. J. B. Hatcher is engaged in taking up fossils at Cañon City, Col.; Messrs. W. E. C. Todd, D. A. Atkinson, and George Mellor are in the Maritime Provinces and in Newfoundland making natural history collections for the museum, and other scientists are at work in Western Nebraska and Wyoming.

MOUNT McKINLEY

MT. McKINLEY, with an altitude of 20,464 feet, is the highest mountain in North America, and forms the central point of an enormous and surpassingly grand mountain mass, situated at the headwaters of the Sushitna and Kuskokwim Rivers, in Alaska. The range is a portion of the Cordilleran system of North America, which follows in a general way the contour of the west coast of the continent through Alaska and down the Alaskan peninsula.

The mountain group is extremely rugged and is covered with snow and ice to within 2,000 or 2,500 feet of sea-level. Down the sides of the mountains flow many glaciers; one which flows off to the northeast is between 20 to 30 miles in length and six and eight miles in breadth, and extends to the Chulitna River, a branch of the Shushitna forming the chief source of water supply of that stream. The Chulitna River at the base of the mountains has an altitude of only about 500 feet, showing a descent of 20,000 feet in the 30 miles between the summit of the mountain and the river.

Mt. McKinley was known to the Russians settled about the head of Cook Inlet nearly 100 years ago, and was called



by them *Baltharia*—*i. e.*, Big. The first American to see and publish an account of it was a prospector named W. A. Dickey, who gave the mountain its present name.*

The writer made the only measurements of height ever obtained of this mountain, in the summer of 1898, while exploring the Shushitna River with a party from the U. S. Geological Survey. For this purpose a stadia line was run up the river, measuring elevations as well as directions with a transit instrument reading to minutes. From points on this line six angles for location and elevation were obtained upon the mountain, and from these angles its position and height were determined. The plan of this triangulation is shown on the accompanying sketch map, and the following are the results:

Latitude, 63° 5′ north; longitude, 151° 00′ west. The height and distance as determined by the various vertical angles are as follows:

Line.	Distance, miles.	Height, feet.
1	89	20,422
2	88	20,561
3	65	20,518
4	64	20,874
5	50	20,737
6	43.4	20,069
Weighted mean and adopted height,		20,464

ROBERT MULDROW.

* N. Y. *Sun*, January 4, 1897, p. 6. Dickey estimated the height at "over 20,000 feet."

GEOGRAPHIC NOTES

THE TRANS-AUSTRALIAN RAILWAY

ON June 30, 1900, there were 12,589 miles of railroad in operation in Australia, almost all owned and worked by the government. These lines hardly more than skirt the eastern, southern, and western shores of the island continent, and their entire length is small in proportion to its 2,946,358 square miles of territory. Nevertheless this railway development is remarkable when one remembers that the population is hardly more than four and a half millions, and that the country was so recently approached by colonists. Four of the provinces—New South Wales, Victoria, South Australia, and Queensland—are connected by rail with one another—that is, one can make a circuitous tour, skirting the shore, from Longreach, in Queensland, to Oodnadarta, in South Australia; but on arrival at the latter settlement he is still about a thousand miles distant from the nearest railway station in Westralia. The latter province is thus entirely isolated from the rest of the Commonwealth.

One of the most important projects now under the consideration of the federal government aims at bringing these separated regions into communication by rail. Sir John Forrest, Federal Postmaster General and Premier of Westralia, has worked out a scheme which provides for a railway, over a thousand miles long, from Port Augusta, the western terminus of the South Australian system, to Kalgoorlie, in the Westralian gold-fields. This line would run along the edge of the Great Australian bight and traverse a region that thus far has been hardly visited except by explorers. The cost is estimated at about $12,500,000. This plan will probably be adopted by the Australian Government. The country to be traversed is reported to be generally level, requiring few tunnels or bridges. The arguments for the Trans-Australian Railway are partly sentimental, as a means to bind a future empire together. None the less is

it true that it would exert enormous influence in opening unknown regions to enterprise and would become a mighty instrument in advancing the financial prosperity of the Commonwealth.

A practical obstacle to railway communication between the provinces, or states as we must now call them, is found in the different gauges employed. Queensland, South Australia, and Westralia use a 3 feet 6 inches gauge, Victoria a 5 feet 3 inches gauge, and New South Wales alone the standard gauge of 4 feet 8½ inches. Without doubt the new system will conform to the standard.

RIVER PROFILES

AN interesting publication of the Department of Hydrography of the U. S. Geological Survey on the Profiles of Rivers in the United States has just been published and is now available for distribution. Mr. Gannett, the author, has embodied within a hundred pages the leading facts relating to about one hundred and fifty of the most important rivers and streams of the country, noting their length, drainage area, the location of water-power in their courses, their peculiarities of flow, and the nature of their drainage basins.

The rivers selected are those which are the largest in size and bear most directly upon the varied interests of the country, such as the Connecticut, Hudson, Susquehanna, Ohio, Potomac, Mississippi, Missouri, Platte, Colorado, Sacramento, Columbia, and others. The figures for the tables, showing height above sea-level and fall per mile, were collected from various sources. Some were obtained from the report of the Chief Engineer of the U. S. Army, some from railroad companies when their lines cross the streams, and some from the atlas sheets of the U. S. Geological Survey.

In the case of such rivers as the Connecticut, Susquehanna, Mississippi, and Colorado, where the surrounding country is of peculiar physiographic interest, very excellent and vivid descriptions of the leading physical characteristics are given which add to the interest and render it valuable from an educational standpoint in geographic and physiographic instruction. The pamphlet is the result of much careful work, and is the first attempt to collect and compile this information.

DRAINING THE ZUIDER ZEE

IT is more than fifty years that the project of draining the Zuider Zee has been under contemplation by the Dutch government and people. The scheme proposed would restore to cultivation and habitation a tract of land comprising about 490,000 acres. This land was submerged in the terrible storms of the ninth and twelfth centuries, and has since been lying at an average depth of 10 feet below the surface of the sea. It is reckoned that the cost of this restoration would be something like $50,000,000, but that the value of the reclaimed land would repay the cost at least three times over.

At present the Zuider Zee is too shallow for navigation, and its shores are constantly inundated and hardly better than swamps. It is proposed to construct a dike, 28 miles in length, from Enkhuizen to the River Yssel, and by steam pumps to remove the water south of this dike. Through the reclaimed area canals are to be made, with railroads along their banks. Thus distances would be shortened—Friesland and North Holland, for example, being 30 miles nearer by railway than at present.

A new province, to be called Wilhelminaland, would be added to the Netherlands, and the territory of the little kingdom would be increased one-sixteenth. Various modifications have recently been proposed in the comprehensive plan sub-

mitted by the Dutch engineers in 1870, and it is still an open question whether the entire project will be undertaken, and if so, when. The time requisite for completion of the drainage is estimated by different experts as from twelve to thirty-six years.

EXCAVATIONS OF M. DE MORGAN AT SUSA

IN a brief paragraph one can hardly do more than hint at the remarkable work accomplished by M. de Morgan, head of the French expedition, in his investigations at the ancient site of the Persian city Susa. One must read his first report, just published by the French government. He found traces of five successive settlements on the same site: First, remains of a Græco-Parthian settlement dating from the third century B. C.; under these, remains of two successive Persian settlements; then the settlement coeval with Nebuchadnezzar, and, lowest of all, vestiges of the city destroyed by the Assyrians 2000 years before Christ.

In each layer of habitation important discoveries were made whereby the world's knowledge is greatly increased. For example, in the record chamber was found an inscription giving complete details as to the corvée system in Babylonia. Other still more ancient inscriptions conveying a mass of information were unearthed in the same chamber. Specially to be noted is a finely carved stele of Naramsin, son of Sargon, going back to about 3900 B. C. M. de Morgan is at present engaged in working up the vast amount of material he has laid bare. His first report can be considered only as introductory to the volumes in course of preparation. What he has already done marks an epoch in oriental archæology.

Paul du Chaillu is on his way to Russia, where he will live for three or four years studying the great Slav Empire and its people. Mr. du Chaillu believes that Russia is entirely misunderstood in America. It is his aim to see personally the problems that confront this expanding race, and to learn the motives and ambitions that animate them. He will study and live among all classes and in all parts of the empire, from St. Petersburg to Vladivostok. Probably no American traveler since the days of George Kennan has had such liberty of action as Mr. du Chaillu will enjoy.

The United States Consular List furnishes some interesting information concerning the tenure of office of our Diplomatic Corps and Consular Service. Out of 276 persons employed in these services it appears that 190, or 69 per cent, have served for five years or more; that 37 per cent have served for ten years or more, and that 14 per cent have served for 20 years or more. Three persons have served for 27 years each, two persons 28 years, and one person each 29, 30, 32, 37, and 48 years. The average term of service of persons in the United States Consular and Diplomatic Service abroad has been 9.4 years. From the above figures it would seem that the charge that our Consular and Diplomatic Service is wanting in experience is scarcely sustained.

New French Ocean Cables.—With the desire to make French trade independent of the British cable service, the French Ministry of Commerce and Posts has lately completed the laying of two new cables. The first is from Oran, in western Algeria, to a port in Morocco. The other is from Hué, in Annam, to Amoy, in the Chinese province of Fukien, opposite Formosa. From Amoy messages from and to French Indo-China will be carried over the Chinese land lines and the Russian-Siberian wires. Thus the French Gov-

ernment will have direct communication with its representatives without the use of foreign cables. A line to Madagascar, in conjunction with the German-Dutch cable to German East African colony, and a cable from Madagascar to Lorenzo Marques are also projected.

Massacre of Dr. James Chalmers.—A dispatch from Sidney, New South Wales, announces the massacre of the Rev. Dr. James Chalmers and a party of white men by the cannibals on the Fly River, New Guinea. For more than twenty years Dr. Chalmers has labored among the natives of this large island, both as teacher and explorer. It is owing mainly to his exertions that New Guinea is so well known today. He explored the Alps of New Guinea, that range of mountains extending for 200 miles parallel to the southern coast and reaching an altitude of from 10,000 to 12,000 feet. He was also one of the founders of Fort Moresby, the present capital of British New Guinea. The Fly River, where he met his death, was explored for hundreds of miles by this intrepid explorer.

The U. S. Board on Geographic Names has published a special report containing a list showing the approved spelling of about 4,000 coastwise names in the Philippine archipelago. There has hitherto been much difficulty with the names, inasmuch as existing charts, books, maps, and publications all disagreed. Spanish charts contained either all Spanish names or Spanish names and also Malay names written according to Spanish methods. On English charts the spelling of some of the Malay names had been altered to conform to English and American methods of writing native names, and naturally numerous errors and great confusion had arisen. The U. S. Board on Geographic Names, when appealed to for advice, after due consideration, recommended that the names in current use and their spelling, as shown on the best Spanish official maps and charts, should be followed. The Hydrographic Office, pursuant to this advice, under the direction of Capt. C. C. Todd, U. S. N., prepared, chiefly from Spanish official charts, the list of names which are included in this special report of the Board. It is interesting to note that the names were approved by Father José Algué, of Manila, the highest authority in the Philippine Islands.

Remeasurement of the Arc of Quito.—A large party of French scientists have landed in Peru to begin the remeasurement of the arc of Quito, first measured 160 years ago by Bouguer, La Condamine, and Godin, of the French Academy of Sciences. As great improvements have since been made in the method and instruments for geodetic work, arcs of the earth can now be measured with an almost inappreciable error, and it will be interesting to note how closely the remeasurement will follow the first.

In 1899 the French Government dispatched a reconnaissance party, in command of Captains Maurain and Lacombe, to make a general survey of the country and to submit a plan of organization. They spent several months in 1899 in Peru, and on their return recommended that the arc be prolonged in both directions. Their plan has been adopted, and the party that has recently landed in Peru will work four or five years there carrying it out. The arc will extend over 7 degrees, or about 430 miles.

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