

ALEXIS CARREL

GEORGE H. MURPHY

AT the age of 71, November 5, 1944, at his home in Paris, Alexis Carrel made his last observations on the problem of human life, as the pillars of his own great brain were crumbling into the gathering shadows. His records of this last experience go with him into the great silence. I have little doubt that he watched with interest Death's pace from hour to hour, and wondered when the last lamp of consciousness would flicker out. I think Carrel was such as this; a mind of such enquiring urge as would snatch from the lees of life's stilling stream the last hidden nugget of knowledge. Besides, and after perhaps many wanderings, he came to accept in full faith the continuity of life beyond the bounds of time and matter. Was the problem of man, which the analysis and synthesis of a long life of scientific effort could not wholly fathom, now on the verge of solution? Was what he saw but darkly in his numerous researches, in the ways of nature, now about to be clarified in the light of a great intelligence, where no muddy vesture of decay shadowed or deformed the way of truth?

As an observer, in a small way necessarily, of Carrel's modes of thinking, I have a notion that such as these coursed through his brain, urged by the stimulus that "thought fly out to thought", linking the here and the hereafter in ever increasing knowledge. Much the same idea is found in *In Memoriam*. Referring to Arthur Hallam:—

They do not die
Or lose their mortal sympathy;

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Rapt from the fickle and the frail
With gathered powers, yet the same,
Pierces the keen seraphic flame
From orb to orb, from veil to veil.

It may seem like a far cry, but I find some sorts of similarity of thought in the minds of Carrel and the author of *In Memoriam*. The frequent instances in which Tennyson makes some phenomenon of nature speak the deepest emotion of his own soul is evidence of this. He saw the "far off divine event" in the inherent harmony of nature's plan, and was content with the thought that time and evolutionary processes would somehow, sometime, reach this goal. Carrel, the scientist, profound biologist, practical man, with his scalpel and microscope, with the aid of all known chemistry and physics of living

and inert matter, sees and studies at close range every element that goes into the making of a human being, calls to his aid the proved things of past masters of research, and turns the full power of all upon the biped man; the whole man, in his manifold aspects of the physical, psychological, intellectual and moral parts of his being.

When this paragon of the animal world was well understood, then science would create ways and techniques for improving the standards of mind and body of all mankind. Perhaps, by a process of re-making the human race, there might appear supermen who would lead the lesser endowed of the species along the various channels of a great and glorious civilization, where man's inherent dignity could reach its full development. He would shorten the way to the "far off divine event" of the poet. So, it would seem, ran his dream. And dreams are the inspiring power of the greatest minds of science. To bring the abstract to the concrete may need the labor and techniques of one or more scientists for one or more generations. "Our little life is rounded with a sleep", and we must dream or lose our bearings.

While Carrel's discoveries and observations were put to their proper use during his career as a surgeon, it was in his later years that he turned his thought to the ills of society. From the ills of social and industrial life he could link up a chain of causes which led many of his patients to his clinic and the operating table. If these potential sources were remedied and normal hygienic environment provided, the natural resistance of the individual to disease would prevail, and many of the ills of body and mind would slacken and finally disappear. Besides, science would then be moving in its ordained mission, finding essential causes and employing its various techniques for turning them to the use and good of mankind. Carrel approached every problem that confronted him with the eyes of science. Gather the proved data, sift and understand the whole thoroughly, and then apply it. A full and complete understanding of the individual man was his first step to remodelling society and the human race. Just here were plenty of difficulties; for this secretive old biped had changed his ways and habits a lot since he first bubbled up from the slime of his creation, got on his feet and began to find his way about. It was a rather remote descendant Carrel tried to understand. He belonged to the big crowd that was making such a mess of things in the economic, moral, and political life of the world.

He had come a long way, had pushed his course through the ages, overcame and was overcome, but survived, and learned a lot of tricks, deceits and subtleties which even a biologist might balk at. His history, therefore, called for study as searching as the structure and function of his body cells.

True to an axiom, often spoken on approaching a great problem in science, Carrel would bare his mind of what youth and the schools copied there, which could not withstand the most searching scientific tests. Old philosophies and theologies were either discarded completely or consigned to the dusty attic of his brain, where they should remain in a sort of suspended animation; within call, however, if their better parts could be found to fit into the great structure which, he hoped, the new pillars of science would support. With a less ambitious objective, Pasteur had disciplined his mind in much the same manner.

This supreme effort of Carrel's life, in which he sought a complete mastery of the science of man and its application to human society, is fully unfolded in one of the greatest books of our time, *Man the Unknown*. It is the great exposition of an eminent scientist, endeavouring to convert a huge mass of scientific data into a formula which would bring man to a clear understanding of himself, and save the world from the disaster he believed to be impending. Carrel failed to produce the formula. His data were incomplete: man was still the unknown. Like many other great biologists, he found that, in this being of flesh and life, of mind and spirit, of will and conscience, were more things than chemistry could explain, or the united efforts of all the sciences uncover. The interest of this truly great book lies in its collected data, rich in knowledge, tempered and seasoned by observation and experiment. Whether Carrel's findings would warrant any radical re-shaping in the ways of world economics, government systems, etc., is another matter. He made the attempt, however, in his "Remaking of Man", a very interesting part of his book, as it is too the most debatable.

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Up to recent years, Dr. Carrel was known to the medical profession chiefly as a brilliant surgeon, with a flair for independent research in biology. Bits of his experimental results in the latter field were novel and sensational, and found their way into the lay press. Some of his surgical techniques were so advanced that they, too, broke through the crust of professional convention to receive from the newspapers a glitter and

gloss that partly concealed their real significance. The so-called mechanical heart was an example in point. It was not Carrel's fault that this received such wide-spread publicity, and stirred in lots of people the hope that their old and failing hearts could, ere long, by a surgical miracle, be discarded and a brand new one, from the laboratories of Carrel and Lindbergh, be adjusted into the old settings as a going concern. The mechanical heart was not a heart but an ingenious type of pump operating outside the body, which when adjusted to the central artery of the circulatory system, would keep the animal alive for a spell, or until the mechanism got out of order. Carrel's mechanical heart was also supposed to keep alive whole organs of animals by using an artificial circulating medium in place of blood. The object was to verify certain physiological suppositions. All of this was scientifically praiseworthy; although it should be mentioned that neither the mechanical heart nor its objective was actually new. A Dalhousie professor, some dozen years earlier, had kept experimental animals (cats) alive for days with a mechanical heart, acting similarly, and of his own design and construction.

The best mechanism Carrel controlled and trained, as a surgeon, was not of his own making. His nimble, sensitive fingers were a real marvel. So accurately did they move through living tissue that they seemed to see as well as to feel. To this fine asset of the surgeon he owed much of the success of his earlier professional years in operations requiring the most delicate techniques, in which brain and hand wrought in perfect harmony. Many stories are told of the super-dexterous feats of those hands of his; one, "that he could thrust his thumb and index finger inside a match box, and tie a catgut knot impossible to undo with two hands". But manual dexterity in itself does not beget greatness; else we should have to magnify the pick-pocket, and a lot of other nimble-fingered individuals. Besides, there are plenty of excellent surgeons with thick hands and stubby fingers. A good surgeon operates with his brain, and with hands trained to his will. When nature has done her best job on both, the way to the highest efficiency is eased and cleared. Carrel had a richly endowed mind, and a well ordered capacity for hard work. He trained every physical and intellectual resource he possessed to the one supreme purpose of making his garnered knowledge work, by surgery or otherwise, for the general good. As an original delver into nature's hidden ways, he had not the impelling, almost fanatical scientific vehemence of Pasteur, though doubtless many of his ideals were inspired by the life and work of his great fellow-countryman.

Alexis Carrel was born at Lyons, in 1873. His mother, early widowed, confided his education to the Jesuits of St. Joseph's College, where he took his bachelor's degree in Science and Letters at the age of 17, and at once started the study of medicine with the Faculty of Lyons. Up to this time he attracted no special attention as a student. Quiet, thoughtful, and detached from the other boys, he went from class to class in much the routine fashion. His latent powers seem to have responded early to the influence of medical studies. While accepting established facts as workable machinery in the great structure of medicine, he demurred at anything which would not bear the full weight of scientific proof. He became interested in vivisection and other forms of research, such as were available in the laboratories of M. Soulier, to which he attached himself in 1901. So absorbed did he become in research that he was out of touch with the professors of the examining board, and when he came up for his license, the Council promptly rejected him. He had refused to accept certain forms of treatment, which were not susceptible to scientific proof, and thus antagonized some of the judges who held other views. Carrel, naturally of independent thought, had progressed far enough to know that the accepted way was not always right. He was some laps ahead of his scientific environment, and decided to seek wider fields and better resources for research.

He came to Montreal in 1904. On the advice of the noted surgeon, M. de Martigny, he decided to continue his studies in Chicago, where he came under the influence of Nicholas Senn, John Benjamin Murphy, Clarence Webster, and others; at a time, too, when the interest of the whole surgical world was being focussed on the original work of Senn and Murphy. In 1906, Carrel was chosen by the Rockefeller Institute to head the department of surgery. Here, with every facility dear to his heart, he labored, experimented and built up a world-wide reputation in surgery and biological science. The Nobel Prize was one of the many distinctions that came to him. To his native France he offered his services in the last war, and the Carrel-Dakin treatment of war wounds became the standard surgical practice in the hospitals and dressing stations of the allied armies.

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To me, and to many, I think, Carrel's supreme performance is his book, *Man the Unknown*, published in 1935. It is a master treatise on the science of man. But it is much more, for into it

he put himself. The garnered data of his life's labor, of course; but beside this, one feels the spirit of a terribly earnest personality urging its way through the covering vestures of inert and living matter to the elements of truth. No one who has not read and studied this book can hope to understand the real Carrel. It is worth while to remember this, when appraising the alleged shadows of his later days. Bold and assertive when backed by proved facts, in the presence of things which would not reveal themselves through the lenses of science he was humble and reverent. In his book "he has endeavoured to describe the known, and separate it from the plausible". Then, upon the conception of the human individual obtained, to create a basis "sufficiently simple and complete for remaking of man", and improving his relations with every activity he is capable of pursuing. Nothing is to be left out. "The science of man makes use of all other sciences." But there are still mysteries locked in the brain. The relation of consciousness to brain function is still outside the ken of science:

Our states of consciousness glide through time as a river through a valley. Like the river, we are both change and permanence. We are independent of our environment, much more so than are the other animals. Our intelligence has set us free.

Of morality:

This form of beauty is more impressible than the beauty of nature and of science. It gives to those who possess its divine gifts a strange and inexplicable power. It increases the strength of intellect. It establishes peace among men. Much more than science, art, and religious rites, moral beauty is the basis of civilization.

Of Prayer:

The prayer which is followed by organic effects is of a special nature. It is entirely disinterested. Man offers himself to God. He stands before Him like the canvas before the painter, or the marble before the sculptor. At the same time, he asks for His grace, exposes his needs and those of his brothers in suffering. Such a type of prayer demands complete renunciation. The modest, the ignorant, and the poor are more capable of this self-denial than the rich and the intellectual. When it possesses such characteristics, prayer may set in motion a strange phenomenon, the miracle. Despite the small number of such cures, they prove the existence of organic and mental processes that we do not know.

In Carrel's study of many-sided man, no phenomenon is ignored as being too exceptional or insignificant. This brings

him at times into the psychic, and its borderland. All such observations are as real to an understanding of this prime operator on the world stage as the chemistry of his body cells, the structure and functions of his organs, or the strange genes of the fertilized cell of his own beginning, which pass on to him many of the good and bad tendencies of his forebears. Very likely there are no fairies on the lawn of a May morning. It would seem foolish to go out to prove their absence. But it is well within the range of science to search into the psychic reactions which made a lot of people in the past, and perhaps some even in the present, believe in their objective existence. Telepathy, clairvoyance, spiritualism, all must be appraised on the evidence they present.

Carrel's passionate pursuit of full knowledge of physical man had some repercussions. He was called frequently a rank materialist, who saw nothing but matter and function behind the track of his scalpel and the lens of his microscope. His earlier years, when his immersion in the knowable was greatest, probably gave some cause for such forebodings among his hypercritical friends. It was said of Sir Christopher Wren: "If you would see his monument, look around you." With almost equal truth might the dictum be given: "If you would know the architect, see, study and reflect on his works." Carrel looked about with the steady eyes of science at all created things, and focussed the energies of a lifetime on intense study of the supreme Architect's crowning work, man.

Like many great truth searchers, when reason stumbled and was failing, he found the light of Faith to continue his pilgrimage into the unknown. He found God, through the wonders of His works. Of the proved data and observations of his life, he could say with Tennyson:

They are but broken lights of thee,
And thou, O Lord, art more than they.

THE ORIGIN OF THE HEBREW PEOPLE

H. A. KENT

HISTORICAL investigation is often compelled to content itself with answers and solutions which are not at all satisfactory. It has often to accept probabilities and possibilities where it greatly desires certainty, and it pursues its task of exploration in the hope of clearer and more adequate evidence. The further back the investigation is carried, the greater is likely to be the uncertainty, and the greater must be the reserve with which assertions are made. And most of all is this the case where research is carried back to the beginnings of nations and national movements. Both written and oral sources have faded out long before origins are reached. Nations can no more recall the time and circumstances of their origin than an individual can keep in mind the time and conditions of his birth. The memory of nations and individuals does not go back to birthdays. Not one of the nations on the earth to-day can give us an authentic account of its ultimate derivation. We can only examine the factors that have gone into their making and trace them back as far as possible; but there will always be an ultimate which we cannot reach.

On a literal interpretation of the Biblical narrative, this principle does not seem to hold for the Hebrew people. The narrative tells us that the people calling themselves Israel descended by natural generation from an ancient person bearing that name. He had, according to the story, twelve sons and from these the twelve tribes, bearing the same names, derived by lineal descent. More than that, this ancient patriarch Israel had a twin brother called Edom from whom the nation known as the Edomites who lived south of Palestine took their name and descent. Still further, Edom and Israel and the various Arab clans find their unity in Abraham, and if we go somewhat farther back the whole of existing humanity is traced back to the three sons of Noah—Shem, Ham and Japheth, whom the older Biblical interpretation regarded as real individuals. We know, however, that the peoples of history do not arise in this way. There is no nation that can trace its descent back to one man. True, the Greeks claimed descent from Hellen, the Ionians from Ion, and the Romans from Romulus, but no one would care to claim Hellen and Ion and Romulus as historical characters. If one were to read somewhere the statement that the sons of Teuton were Germania, Scandinavia and

Britannia, and that Britannia begat the Canadian and the Australian, the meaning would be quite clear. In the same manner what look like family trees in *Genesis* are usually to be taken as Ethnography. We read that the sons of Ham were Kush and Mizraim, and Put, and Canaan, which means that the southern group of nations known to the writer are Ethiopia, Egypt, Libya and Canaan. The sons of Shem are Elam, Asshur, Aram, Lud, and Arpachshad; i.e. the most important peoples for the writer are the group made up of Elam, Assyria, Aram (Syria), Lydia, and Chaldea. The 10th chapter of *Genesis* which looks like only a dull list of very uninteresting names, is really a most valuable ethnographical document. It tells of the world of the ancients and the various races that filled it, some only dimly and some quite inaccurately known.

It is now recognized that the early narratives of *Genesis* are not to be regarded as history, though they contain many historical reminiscences. They are folk-lore, and indicate to us how the Hebrew writers thought upon their past and how they found a purpose in it all leading up to their present. It thus comes about that it is the faith of Israel which makes it extremely difficult to get at her actual historical development. The strength of the Hebrew conviction that his was a chosen people makes it no easy matter to set the story of his nation in comparison with the other narratives of that early world, knowledge of which has come to us so richly since the middle of the 19th century. It is this information that gives us the setting for the early Hebrew people, and some light at any rate on the problem of their origin.

Let me ask you to take a long leap backwards and look at the ancient world as it was 2,000 years B.C. Civilization (and history) began perhaps about the same time, in the two river valleys of the Nile and the Euphrates, and the connection between them was made by Palestine and Syria, or to give their Biblical names, Canaan and Aram. Professor Breasted has described this world of the ancients as the "fertile crescent". The two sides of the crescent are the valleys of the Nile and the Euphrates and the top is Syria. Between the two sides lies the vast Arabian desert with its edges of steppe country inhabited by the Semitic Beduin from time immemorial. From time to time at intervals of 1000 or 1500 years these Semites burst from the steppe country into the fertile valleys or into Syria, the latest and best known of these migrations being that of Mohammedanism in the 7th century A.D. Something like that movement of Islam has been going on in Western Asia since before the dawn of

history. The empires on the Nile and the Euphrates were the result, and Palestine and Syria were also occupied though the nations there (e.g. Phoenicia) never attained to the greatness or riches of Babylonia or Egypt. Away up to the north also that strange people the Hittites, whose hieroglyphs we are not yet able to read, pushed into Cappadocia and settled along the river Halys. Their capital Hattushash (Boghaz-Keui), which was very close to the present Turkish centre Angora, has been excavated in our own day chiefly by German explorers in the years just prior to the first Great War. By 2000 B.C. the great empire of Babylonia had been consolidated under its greatest king Hammurabi, and the 12th Dynasty of the Pharaohs was ruling securely at Thebes. The Euphrates valley was threatened constantly by marauders from the north and east, and the inhabitants of the steppe country, then as now, watched their chances. Egypt, defended by the deserts, was more secure, her vulnerable frontier being the narrow isthmus leading to Asia which the Pharaohs had strengthened with fortresses and garrisons. But, as in the Roman empire many centuries later, the forces of barbarism proved too strong for the defences of civilization. The great Babylonian world-empire went down in ruins and even remote Egypt was entered by the invaders, conquered by them, and held in subjection for several centuries. The collapse of Rome before Goths, Huns and Vandals is a fair comparison to the destruction of civilization which went on in the ancient world in the second millennium B.C.

The first blow came from the Hittites of the north. From their fortresses in Cappadocia they burst into the valley of the Euphrates, followed it down toward the Persian Gulf, and in 1925 B.C. captured and sacked the city of Babylon, so long mistress of the world. Then came in hordes of people from the mountains of the east (Cassites) after the fashion of the Turks and Mongols of a later time. They set up their rule in Babylon and reigned there for centuries, but their Babylon was only a shadow of what it once had been. The Hittites pressing south again into Syria and Palestine in the 19th century drove before them the Syrian Beduin, and these again driven southward attacked Egypt and conquered it about 1800 B.C. These are the people whom Egyptian history knows as the Hyksos or Shepherd kings, and they held Egypt for 200 years until finally driven out by the valour of a Theban prince Ahmosis I who founded the 18th Dynasty and launched Egypt on a policy of imperial development not known in that country before. The Pharaohs, resolved that a Hyksos conquest should not occur again, carried their

arms into Syria, driving back both Syrian Beduin and Hittite armies and putting the Egyptian boundary away north in Syria instead of on the isthmus of Suez. Some Egyptian Baldwin probably declared "Our frontier is on the Orontes". At any rate it was established there by the great Egyptian conqueror Thutmosis III who in 1479 B.C. fought a tremendous battle at Megiddo, which has been the battle-ground of Palestine from that date until Allenby defeated the Turks in the same place in 1918 A.D. Modern history, some contend, properly begins with the year 1479 B.C.; the 34 centuries since may be called the era of territorial imperialism. The subjugation of neighbouring peoples and the occupation of land has been uppermost in men's minds. The victory of Thutmosis III in 1479 B.C. inaugurated the age. The bold swoop of Allenby's cavalry through the same ravine was the turning point in the military action of a war which some thought might prove to be the end of the age of territorial imperialism. (Robinson, *History of Israel*, vol. 1, p. 4). Professor Fleure has pointed out that this is also the age in which the horse plays a prominent part, both in civil life and in war. Earlier ages moved on foot; later generations, it seems, will rely on machinery for locomotion.

It is during the latter part of the Hyksos occupation of Egypt that a people calling themselves Bene Yisrael first make their appearance. A number of Beduin tribes, bearing this name, pressed by hunger make their way toward the Egyptian frontier. Our information comes this time from the book of *Genesis*. When we have disentangled the personal from the tribal in the accounts, the story indicates that a sept or clan of these people known as Joseph made its way into Egypt, where its members were received with favour by the closely related Beduin or Hyksos rulers. This tribe was followed soon after by others who settled either on the borders of Egypt or, according to one of the accounts, within the land itself. Here they remained until the usurping Hyksos were driven out by the patriotic Egyptians about 1600 B.C. When that happened, the descendants of these immigrant tribes of Israel found themselves reduced to slavery from which ultimately they fled, and made their escape back again to the old haunts of the steppe country under the leadership of one Moses, who, when all allowance has been made for the legends which gathered about him, still remains one of the greatest characters of history. Through the force of his own personality and still more through the power of the new religion of Yahweh he welded this company of slaves into a confederacy that was able to withstand all the forces of disintegration in the

centuries that followed. For the time being, however, they vanish into the wilderness away from the home of civilized man. The Pharaohs strengthened their hold upon Canaan, forcing the Hittites back into the north and establishing garrisons and governors as far north as the Orontes river. Such is the situation about 1400 B.C.

Our next information comes out of the soil of Egypt. The mounds of Tell-el-Amarna in Upper Egypt are the remains of a city which had a brief but brilliant existence in the 14th century B.C. under the famous heretic king Amenophis IV, 1375-1358. This ruler attempted to suppress the established religion of the country, from motives partly political. He wished to curb the power of the priesthood of Thebes. He deserted that ancient capital and built a new one which he called Akhet-aton (the Glory of the Sun) the modern Tell-el-Amarna, 300 miles north of Thebes. To this place he transferred his official archives and those of his father Amenophis III, (1410-1375) including despatches and letters from the provinces, and diplomatic correspondence with the kings of Mesopotamia, Assyria and Babylon. Here in 1887 some Arab peasants digging in the ruins found about 300 clay tablets written in the cuneiform language and script of Babylon. They had found the royal Archives of Amenophis III and his heretic son. Some of the tablets found their way to the Cairo Museum, some to Berlin, but the greater number to the British Museum. For our present purpose the most important of these documents are letters from Egyptian governors and soldiers in Canaan. They complain that the home government is taking no interest in the problems and difficulties of Canaan, and they declare roundly that unless something is done, the whole land which is seething with intrigue and revolt will be lost to the Egyptian empire. The Pharaoh Amenophis IV had no interest in maintaining the lands which his forbears had conquered. History knows few more pathetic figures than this young Egyptian dreamer called to be the head of a great imperial state at the height of its magnificence when his own temperament was that of a philosopher, theologian, and even saint. Like the Hebrew prophets seven centuries later, he reasoned from a world-empire to a world-god and spent the whole of his pathetically short life in a futile struggle with the entrenched power of the local priesthoods of Thebes, Memphis and Heliopolis, and turned a deaf ear to the frantic and constant appeals of his lieutenants in the provinces for assistance against the numerous foes who were breaking in. One of these officers,

the Egyptian governor in Jerusalem, writes desperately as follows: (And it is significant of the world-wide influence of Babylon for many centuries previous that this Egyptian official writes to his Egyptian lord in the cuneiform script and language of Babylon, the language of diplomatic correspondence as French was in Europe long after):

Let the king turn his face to the troops, and the king, my lord, send troops. No territory remains to the king, my lord. The Habiru are devastating all the lands of the king. If there be troops in this year, then the lands will remain the king's, my lord's; but if no troops arrive, the lands of the king, my lord, are lost. To the scribe of the king, my lord: Abdi-Hiba, thy servant. Bring clearly before the king, my lord, (these) words: All the lands of the king, my lord, are going to ruin.

What interests us most at the moment is that the people named as breaking into Canaan and taking possession of its fairest parts are called Habiri, a name which is identical with the word Hebrew. The name is a general one, meaning "other-siders" and, used by a dweller in Canaan, undoubtedly refers to those restless bands of semi-nomads on the other side of the Jordan valley and the Dead Sea who were always on the watch for an opportunity to enter the country to the West. The inhabitants of Canaan, long accustomed to being defended by Egyptian garrisons, had lost their virility, and on the failure of these troops were unable to protect themselves against the marauder. The situation has its later parallel in Britain of the 5th century A.D. when the withdrawal of the Roman legions by Honorius exposed the country to the inroads of the English from the coasts of the continent. One Canaanite stronghold after another fell into the hands of these Habiri, until ultimately the whole country came into their possession. They did not, of course, call themselves by that name. They were "Hebrews" only to the people of Canaan. Their name for themselves was Bene Israel, Sons of Israel. Moses and his successors had done their work well. The sons of those who had been slaves were now welded into such a unity that, in spite of the disintegrating forces which operated in the centuries following, Israel never forgot that she was one nation. That unity was a religious unity. It holds still wherever the Jew is found, and it was Moses who was its founder.

It will thus be seen that the West Jordan country was overrun, somewhere about 1300 B.C., by bands of Semitic Beduin calling themselves Israel, and called by the native people, Hebrews. In that, both the Biblical and the non-Biblical nar-

ratives agree. But even that is not yet a satisfactory account of Hebrew origins. It is also true that the Normans conquered England in the 11th century A.D., but the English people cannot be referred back simply to the Normans. The incoming Hebrews who got into Palestine were probably comparatively few in number. They owed their success to their own superior virility and to the disorganized, weakly-defended cities and communities which they attacked. And the people whom later history knows as the Hebrews was a mixed nation made up of their own original stock *plus* that of the tribes and people whom they conquered. The process was often one of accommodation and peaceful penetration rather than actual conquest. So much so that the language known as Hebrew, the language spoken by Amos and Isaiah, is not the tongue of the conquering Israelites but of the Canaanitish people whom they overcame. Even in the Old Testament the Hebrew language is referred to as the "tongue of Canaan", and the Tell-el-Amarna letters are proof that that is correct. Egyptian governors in their letters from Canaan use many Canaanitish words, and these are practically identical with Hebrew as we know it.

We need therefore to see who these native people were and how they came to influence the newcomers.

Excavations have been going on in Palestine since the early 90's of last century. They indicate that, compared with Egypt and Babylonia, Palestine was a poor and backward country. The buildings were small and mean, the art almost non-existent. Even the objects of art that have been found are all imitative. In building and sculpture the ancient Canaanite seems to have originated nothing. His religion was nature worship and its rites, as far as we can gather, were primitive, obscene and cruel. Professor Macalister in the early years of this century excavated very thoroughly the ancient city of Gezer which lay near the famous "highway of the Sea" which connected Egypt with Syria. He dug down as far as the caves occupied by the pre-historic troglodyte population, and found that about 2500 B.C. these had been succeeded by a Semitic people who evidently came, like so many of their successors, from the steppe country beyond the Jordan valley. They are the people whom the Old Testament writers variously call the Amorites or Canaanites, and they are the people whom Israel encountered and conquered after 1300 B.C. Their name indicates that they were a trading people, as the word "Canaanite" means a travelling merchant. They probably took their place as carriers of merchandise along the commercial routes

between Egypt and Babylonia, and their cities and towns were either on or near the great caravan ways which passed through and along the West Jordan country. They had made considerable progress in agriculture, so that the really poor land of Canaan seemed to the hungry dwellers on the edges of the desert "a land flowing with milk and honey". These are the people with whom Israel was amalgamated and whose language became the Hebrew tongue.

There are still, however, two contributions to the make-up of the Hebrew nation which are of real importance. One was that of the Hittite people in the far north. We have seen how these people drove south from Asia Minor about 1800 B.C., pushing the Hyksos before them into Egypt, establishing their own power in Syria and Palestine, and maintaining themselves there for the next 200 years. We shall doubtless know more about this dim period in their history when we are able to read their hieroglyphics. For the past fifty years various scholars have thought themselves just on the verge of unlocking these secrets, but the key has never fitted more than a few words. The latest efforts, only very partially successful, have been those of Professor Hrozný, and there is no very general agreement as to his results. The decipherer is faced with two unknown quantities, a system of signs which he cannot read, and a language which we do not recognize. It is therefore a problem which requires some optimism, but doubtless it will be solved some day. Actual Hittite reference to their occupation of Palestine is lacking, but traditions of it are found in the book of *Genesis*. In that document already referred to, namely *Genesis* 10, we are told that Canaan begat Zidon his first-born and also Heth (the Hittite), which is only a way of saying that, in the records on which this chapter is based, Hittites were described as settled in Syria along with the Phoenicians. They next appear far in the south of Palestine where Abraham bought from them the cave of Machpelah as a burial place for his wife. They appear to have been there for trade, as it is said that the place was paid for in "coin which passes current with the merchant". (*Genesis* 23).

The picture here is of Hittite people in peaceful possession of places farthest south in Palestine, and we may suppose a very general occupation of the country by them. But the plainest evidence of a great and prolonged Hittite influence in Palestine is a physical or physiological one. The Jewish physiognomy, so distinct even yet in every country where the Jew is found, is essentially Hittite. It is not Egyptian, nor Arabian, nor

Assyrian, but corresponds most closely to the type seen in the Hittite sculptures unearthed by Hugo Winckler in the ruins of the old capital of Boghaz-Keui. That the physical type of the Hittite could have so impressed itself upon the Canaanite and through him upon the Hebrew is sufficient evidence of a long and strong occupation of the land by these invaders from Cappadocia. In the expansion of Egypt after the expulsion of the Hyksos kings (*cir* 1600) they were driven again north of the Orontes river. The Tell-el-Amarna tablets show us that enough of them were still left in Palestine to make common cause with the Habiri in the attack on the deserted garrisons of Amenophis IV.

One other factor remains to be noticed briefly. This one came from the West. "From an immemorial antiquity the island of Crete, fortified by her navies that commanded the eastern Mediterranean and rendered possible a mutually advantageous trade with Egypt, had been advancing by rapid steps along the road of culture till it developed what was perhaps the highest and in many respects the most modern civilization that the ancient world ever saw." To describe this Minoan culture is not my business just now. We must take its glories for granted, noting only that, just at the time indicated by the Tell-el-Amarna tablets, the great Cretan civilization received its death-blow. "The island was sacked and its people dispersed to various parts of the Aegean and the south coasts of Asia Minor carrying with them their traditions of the sea, their superior weapons and skill and their achievements in the field of art, but too much broken to attain again the old heights in a foreign land." Some of them turned pirate and gave trouble to the Egyptian fleets. Some pushed into North Syria and seriously damaged at least the outposts of the Hittites. "In short, the sack of Knossos and the breaking of the Cretan power was an episode—it may be a crucial one—in the general disturbance which the 14th to the 12th centuries B.C. witnessed over the whole Eastern Mediterranean basin. The mutual relations of the different communities were as delicately poised as in modern Europe: any abnormal motion in one part of the system tended to upset the balance of the whole." These "sea-peoples" as the Egyptian narratives call them forced their way from the west into the territories of the Asiatic peoples, and disorders of various kinds resulted from the consequent congestion.

It was about 1200 B.C. that a dangerous clash occurred between these people and the Egyptians. The Pharaoh Rameses III found them menacing his country both by land and by sea. His records tell of a great assault of hordes from the north

accompanied by war-galleys, a double advance by land and sea. It was a migration of wanderers accompanied by their women and children and seeking a new home. "The ensuing battle is graphically portrayed. We see the Egyptian archers sweeping the crews of the invading vessels almost out of existence, and then closing in and finishing the work with their swords. One of the northern vessels is capsized, and those of its crew who swim to land are taken captive by the Egyptians on the shore. In later scenes we see the prisoners paraded before the king and the tale of the victims, counted by enumerating the hands chopped off the bodies." It was a great victory for Egypt, and the baffled invaders could only fall back along the sea shore by which they had come. The Egyptian record names these attackers Purasati, a word which in that form does not look much like the word Philistines, but is really identical with it when we remember that the Semitic script had no vowels, and that Egyptian had no *l* and represented its sound by that of *r*. Beaten back from the entrance of Egypt, these people settled along the coastal plain as far north as Mount Carmel and at once constituted a new menace for Israel so lately settled in the West Jordan country. In the first conflicts the aggressive Philistines were everywhere the victors. Their armour and weapons made up for their smaller numbers. But in the end they were worn down by larger forces and by the genius of a vigorous chief called David who had learned the art of war in Philistine camps, and when he became king provided himself with a bodyguard of Philistine mercenary troops who on more than one occasion proved to be the salvation of his person and his throne. Before the end of his reign the Philistine had been absorbed by the Hebrew. But he had done two things for his Israelite conqueror: he had taught him the art of war, and he had given his own name to his enemy's country. Palestine is just the word Philistine with a slight vowel change which has come with the Greek version of the term.

It thus appears that the Hebrew people, like others known to us, is the result of the union of many streams. The original element was the Beduin of the desert, but that is the smallest part of the subsequent mixture. There is little in common between the Arab and the Jew as is quite apparent to-day. Canaanite, Hittite, Aramean, Egyptian, Assyrian, Philistine, all combined with the nomad who followed Moses and Joshua, to form the type which developed in Palestine. What has happened to the Hebrew through the long and bitter centuries when he has been an exile in all lands and a citizen of none, is, of course, another story.