

Next stop? A human biologist looks at social trends

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I have listened not only with interest but with a very great deal of feeling to what Dr. Wuerpel wrote you. It is very literally a benediction to some of the things that I want to tell you about tonight. Dr. Brodie used one phrase in speaking to you that, as far as I am concerned, strikes a keynote for my presence here this evening. He used the word "homecoming." Dr. Schour told you that it had been my great privilege and honor for a number of years to take off every Friday, while I was at the University of Chicago, and go to the University of Illinois to sit in on the growth seminars. It is related to one of the mythological men of old that he renewed his strength by occasionally touching his feet to the earth, and I want you to know, deeply and sincerely, that that is exactly what I did when I went out there to meet with my colleagues, all of whom were interested and concerned with problems of growth and development.

I am going to talk to you tonight on some things that have concerned me as a professional student of my fellow men. I am going to speak to you in some respects as a physical anthropologist — that is because that is a field that is nearest and dearest to my heart — I am going to talk with you — or rather discuss with you — some of the implications of the findings in our field as they relate to the culture, the civilization, of which we are a part. I

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have long felt as a human biologist that unless we can implement some of our findings into the social structure and make them work, and make them useful — unless that happens, I say — it were better that we did no research whatsoever. We would be as sounding brass and tinkling cymbal; all noise but nothing constructive. If there is any one thing that has motivated me in my selection of some of the things about which I want to talk to you this evening it is this quotation from John Donne in his 17th century *Devotion*. "No man is an Island, entire to itself; every man is a piece of the Continent, a part of the main; if a Clod be washed away by the Sea, Europe is the less, as well as if a Promontory were, as well as if a Manor of thy friends or thine own were; any man's death diminishes me, because I am involved in Mankind; And therefore never send to know for whom the bell tolls; it tolls for thee."

It seems to me that that exemplifies the inter-relationship of every single man, every single human being, as part of the entire structure to which he belongs. It is in essence therefore the answer to the Biblical, "Am I my brother's keeper?" The answer must, in all conscience, be in the affirmative, if we are going to take our place in society.

Let me be a little bit more graphic in one point I want to get across to you. I put down here three things that I want to cover: human values; human nature; and human numbers. What I am going to do is to develop the thesis

that the social structure of which we are a part is in a major sense an emergent one; some of the problems associated therewith happen to have come to a fruition during a time when we are living. The responsibility of the past has literally devolved into the duties, the responsibilities and problems, of the present and the obligations of the future. Some years ago when I was studying with Sir Arthur Keith there came to my laboratory (or rather the page boy brought) a gentleman. This gentleman presented his card. I don't remember the name any more, that's immaterial, but it was something like Herr Professor Doctor Manfred von Stumpf-nagel, Dr. Med., Dr. phil., and so on. I want you to know that on that card was printed his achievements of the past, his accomplishments of the present, and his aspirations for the future! As I looked it over it rather annoyed me, because I had a very innocuous little paste board: Mr. Wilton Marion Krogman. I couldn't compete with his card, but still I had to. So I wrote down W. M. Krogman, P.C., S.V., C.M., O.P., S.A., G.C., F.M., G.H., S.S. That stopped him. He looked at it and I heard him mutter, "Erstaunlich! Diese Amerikaner, und er so jung." What he didn't realize was that we may all write that! It is, if you wish, our phylogenetic calling card. Here it is: Phylum Chordata, Subphylum Vertebrata, Class Mammalia, Order Primates, Suborder Anthropoidea, Group Catarrhina, Family Homidae, Genus Homo, and Species Sapiens. The important part of that is that every single human being who has existed on the face of this earth for the last fifty thousand years, and who is alive today, is to be found within the confines of that definition. That means, therefore, that all living human beings are infinitely more alike than they are different; that means that the human biologist, as he evaluates his

fellow man, realizes that these asserted differences between the races of man are, as it were, negligible in the face of the fact that the fundamentals of *being human* are the biologic endowment of all peoples.

You know that it is stated in "All's Well That Ends Well", these lines, "Strange it is that our blood of heat, weight, color and composition, all poured together, would quite confound distinction; yet stand apart in differences so mighty." It is part of our culture that those "differences" are made to "stand apart" as though they were "mighty" factors. This challenge I have met in another way. Some years ago I read a chemical analysis of mankind. At that time we were worth around about 79 cents, with females 10 percent less; so much phosphorous, so much calcium, and so on down the line. I am not quite sure that either with the depreciated dollar or with spiralling values we are worth much more today. Let's say that the status quo may obtain. But at all events here is what I wrote:

The Worth of Man

Let's not talk of man in terms polemical,
 But rather consider his make-up chemical:
 Well, to begin with, and 'tis so,
 He easily yields ten gallons of H₂O;
 And tho, if he comes clean, I hope,
 He'll give FAT for seven cakes of soap;
 Enough CARBON for 9000 pencil leads,
 And PHOSPHORUS for 2200 match heads;
 Even with all his many faults
 He's got MAGNESIUM for one dose of salts;
 And tho, with physique so frail,
 Enough IRON for a ten-penny nail;
 If he works like the very dickens
 He yields LIME to whitewash one coop of chickens;

Finally, and at the last, if you please,
He's got enough SULPHUR to rid one
dog of fleas.

'Tis not much over which we can
whoop and holler,

For, alas, we're worth but one Fair
Deal dollar;

And if the chemically precious from
man we refine,

'Tis all the same, be he idiot or Ein-
stein!

Discussion, therefore, of the implementation of the findings of the physical anthropologist and the human biologist into the pattern of our thinking, our social structure, must irrevocably bring this fact to the attention of thinking people: that the biological oneness of man is an established fact, the brotherhood of man is religious belief, and the equality of man is a social aspiration that we are working toward. Dr. Wuerpel would say that is idealism. It is idealism, yes, but it is idealism that is fructified by the findings of science. This is proof that may be placed at the disposal of the thinking people of our civilization. Therefore, any prejudice which is based upon presumed biological differences, or assumed biological differences, immediately must give way before the onslaught of scientific fact. And I join with Dr. Wuerpel in speaking to you as representatives of the community who are the leaders. *You* are the leaders who will help frame the thought of the people of your community. It is wise and good, therefore, that all of you — all of us — take some of these facts and implement them into our thinking and into our behavior and make them part of the everyday living of getting along with one's fellow man.

Now I want to go to another theme, and that theme, perhaps, comes more vividly to our attention in terms of the strained international relations that exist, not so much between peoples, as between the philosophies of peoples.

Essentially, then, the problem must focus upon the question, "Is it part of human nature that we find ourselves not only with the threat of continued strife but the actuality of a hot-and-cold war existing side by side?" "Is it inevitable that man is a war-like creature?" Is it inevitable that in his dealings, one with the other, he must constantly focus upon the element of competition and therefore wage a war of nerves? — ceaseless competition of one ideology with another?" I want to tell you, very, very briefly, a story.

It is the story of Mr. Martin Frobisher, an Englishman. It is the story of Dr. Finchhatton, an English doctor. It is the story of Dr. Norbert, the "intolerable psychiatrist." (I am speaking, by the way, of an individual, not a group.) Mr. Frobisher was a very good English citizen. He read the *Times* regularly. He read the editorial column and even wrote letters to the editor. He was concerned with the fact that the even tenor of his existence was being threatened. Mr. Frobisher solved this problem by going to the Riviera for a holiday. As he was sitting, having afternoon tea, he noticed a gentleman with a number of tomes, ponderous volumes, on his tea-table. He was thumbing them through desperately, muttering, "I can't find it; it isn't here, it isn't here." Martin looked, and he listened, and he pondered, and finally he summed up courage enough (because it really wasn't the thing to do you know!) to say, "Sir, I have been listening to you. Just what do you mean, 'It isn't here, I can't find it'?" The gentleman said, "Let me introduce myself, I am Dr. Finchhatton. Several years ago, because of the fact that my practice in London was really getting on my nerves and I was on the verge of exhaustion, I took a local practice in the countryside. I hadn't been there very long before I sensed that something was wrong.

There was an aura of fear; there was a miasma of horror; there was a feeling — a feeling that I can't communicate to you — of something welling up from below. I went to the Vicar one day and I asked him about this and he said, 'Ah, so you have observed it too, you have observed it too.' And then one day I went to a Museum (it was an anthropological museum) and there I saw in a case the prize specimen of that Museum. It was the skull of a prehistoric man — of a cave man. I looked at this skull: here were the beetling eyebrows, the receding forehead, the prognathic face, and the cavernous eye sockets of an ancient, ancient man, a man of our primeval days, a man who lived when the law was of tooth and claw, of fang, an eye-for-an-eye, and a tooth-for-a-tooth: the man from whom we all sprang. And I looked at that and I wondered. I went back to my practice and still, still, this uneasiness — I just couldn't understand it. Finally I went back to the Vicar one day, and he said, 'Doctor, do you know the name of this place?' And I said, Why yes I do, it is Cain's Marsh — Cain's Marsh. 'Ah', he said, "Cain's Marsh! Do you know what that means? It means that after Cain slew Abel he fled from his homeland and wandered aimlessly about the earth. Finally he came here, and it is part of the legend of this area that he died here and is buried here. And buried in the ground with him is the essence of all human evil, that man was born to fratricide, and here it is concentrated." That night Dr. Finchhatton had a dream and in that dream the skull of the cave man returned to him. In the dream it assumed gigantic proportions so that he had to gaze up at it. The eye-ridges became the margin of a huge cliff, the sockets became caves, and as he looked (he said), as he looked, small figures began to

emerge. At first I thought (he said) that they were ants, and then as they came closer I realized that they were men — men walking four abreast in endless, ceaseless rows, marching from eternity into eternity, with the object of destroying their own kind; soldiers! marching, marching. And as I looked there seemed to come from the lipless teeth, there seemed to emerge, he went on, a dark flow, and as I watched I realized it was blood. It was the blood of little children and of women, slain in the street by bombs dropped from above." That dream so tormented him that he went to Dr. Norbert, the psychiatrist, and he told him of the dream. And Dr. Norbert said, "Don't you realize what that means? It means the very fact that the cave man, the brute man, the primeval man, is dormant within us, within all civilization; latent, sleeping, waiting for the moment when the veneer of civilization will be thrown off and again we shall have the brute instinct that is dominant and inborn in men to kill and to destroy; and that he knows only the one law; that the lust of destroying his own kind is his basic impulse, and basic need." Then Dr. Norbert went on to say, "The only answer to that is that each individual, recognizing the sleeping brute within him, must seek to bring only that part of his nature forward that is capable of the best in terms of human value, and human warmth and human understanding." That is the story, then, of Mr. Frobisher, the story of *The Croquet Player* written in 1937 by H. G. Wells, written just before World War II, written also, I think, with some prescience for the events that were to occur during, shall we say, that restless armistice in which we now live.

I would challenge the concept that the emergent brute is the lot of man and would say to you that a study, a careful study and appraisal of all biol-

ogy, of all ecology, of all organic living forms, cries out, mutely — we ourselves must give it articulate speech—cries out mutely, I repeat, against the assumption that the law of tooth and claw is indeed the law of life. Rather the law of survival is not either necessarily to the fit or to the strong but to those forms that realize that the species is guaranteed existence by cooperation, by working together. You know, again, that it is the meek who shall inherit the earth; the meek, not in their meekness in the sense that they have subordinated themselves, have in suppliancy laid down before the problems of life, but the meek who in their cooperative endeavor have given their species the strength of unanimity, and the power of oneness of purpose. Here, again, I refer to what Dr. Wuerpel said (and in some respect I am now saying things that are anticlimatic) that it is we as individuals, but as individuals all working together, who will have the moral and the ethical and the human power to make our voice felt. The spirit of organic life is basic, and we are part of all organic life, even though we have the superficial of a man-made culture to veneer over our essential biological being. The law, then, is in the direction of cooperative endeavor and that cooperative endeavor is something that we have to work for and strive for. How weak that sounds, “to work for and to strive for,” but if we admit that it is weak then we are licked before we start. If we feel that one voice is not enough then we have withdrawn that voice from the chorus that must be the ultimate appeal of all of us; and so the raising of one still, small voice is merely part of the symphony of all human voices that have to be raised in order that the dominant notes of human value, human dignity, be implemented into cooperation between peoples.

Now, I go on to another theme. That is one that has occasioned me a lot of thinking in recent years because it has been my privilege since 1930 to study bygone civilizations. I am not one of those chaps who goes into the field and digs, and all that. There's a lot of glamour to that, but I am one of those chaps who stays at home, and I have the material sent to me: The Oriental Institute of the University of Chicago, The University Museums of the University of Pennsylvania, The Boston Museum of Fine Arts and The American School of Indic and Iranian Research, have for the last two decades sent to me for study most of the ancient skeletal material excavated by them in Asia Minor and the Middle East. I have therefore been in a unique position to make a small contribution to racial history (before the dawn of history as a matter of fact) to the racial proto-history of the people of Europe, on their march *into* Europe. I am not going to talk to you about that, but I am going to talk to you about some of the things that I have observed in working with these human remains. That has to do now with the theme of human numbers. There are two aspects to this problem. First, the mere volume of numbers. I don't want to inflict too many facts and figures upon you but let me tell you of these facts about *Homo sapiens*. By 2000 A.D. — that's only fifty years hence — (some of us, some of you, here may live to see that) China will have 950 million people; India will have 500 million people; the U. S. S. R. will have 300 million people, exclusive by the way of their European people; and Africa will have 250 million people. By that time therefore, 2000 A.D., the peoples of Asia and Africa will equal 2 billion people, which is the present world population. I have not included any whites in this series, the so-called

whites, the Caucasoids or non-Mongoloids or non-Negroids, for the very simple reason that I want to emphasize the changing balance in the world population that will result when over four-fifths of the world population belong to that great group of mankind we speak of as the "colored" races of mankind; I use the term colored in its broadest sense, including all those peoples who have pigmented skin to any degree or of any type. The changing balance, therefore, within the world population is an imminent reality. It seems to me that there is a lesson in it right now, that at the moment we regard ourselves — we Europeans and the descendants of Europeans — we arrogate to ourselves the dominant role in the affairs of modern civilization. We not only arrogate, but we are arrogant about it! I feel, therefore, and I am now being not only the physical anthropologist but an American citizen who views the changing population, that there must come before us the recognition of the dynamic swing in the population construct of our world, which must inevitably carry with it changing impacts in terms of the cultural balance of the world. We must be prepared, not only to make concessions but recognitions of the values of those cultures which are soon to be, or already are, numerically superior and must be reckoned with and must be coped with in terms of the internationality of our thinking. Now I am not waving any political flag for or against isolation. I believe that these things are superimposed upon such triflings as whether or not we are a continent large enough to survive were we to be encircled by a wall five miles high. I believe that the realities of the facts are, that so potent are the dynamics of the changing population construct of our world that we must recognize that we are part of the whole,

and that our civilization (and again I use that term advisedly: that "our" should be in quotes because I am referring to the civilization engendered by and sprung from Europe) is only part of a vast picture and is by definition a smaller fragment.

Now I want to go on to another phase that's going to strike much closer to us. I told you I studied all these skulls. Sure, I measured them and all that sort of thing! I also ascertained their age at the time of death; let me give you some figures along those lines. The time of the populations that I studied was roughly between four and five thousand B.C., and up to the time of the Roman Empire. If one may tabulate the frequency of the age of the skulls with which one works, and therefore get a curve giving the peak of death, then we can say that up to the time of the Roman Empire an individual who had been born, and had at least survived the vicissitude of the moment of entrance into this sphere, might look forward to 23 years of post-natal life. Up to 1850 one might look forward (by the way this refers only to the better circumstanced people in the United States) to about 40 years. In other words, in something like 2000 years the gain was 17 years in total life expectancy. By 1900 the age had gone up to 50 and by 1950 the age is now up to 67. In other words, in the last 50 years our life expectancy has increased as much as it had in the preceding 2000 years. That means, therefore, that not only are the numbers increasing but the population profile of the total numbers is changing. That is not yet a world-wide phenomena. That is a phenomenon characteristic of those civilizations in which the blessings of medical and dental science have brought to them a greater measure of security from the onslaught of disease, either dental or more systemic.

Now I want to go a little bit further than that and take a break-down of our own population. Let me give you these figures: from 1900 to 1950 the United States' population doubled; from 1900 to 1925 we received 20 millions by immigration, but from 1940 to 1950 we went up 20 million. There was restriction of immigration in the 1940-50 period, so that represents an addition of the so-called native or indigenous American people. I use that term in its broadest sense. That is an increase within the ranks of those who are already here. But that is not all. Now I go a little further and I take you to other figures. In 1900 there were 3 million people in the United States 65 years and over. In 1950 there were 11.2 million 65 years and over. If the trend continues, in 1960 there will be between 14 and 18 million people 65 years and over and by 1980 there will be 20 million people in these United States who are 65 years and over. Two Sundays ago I picked up the paper and read some of the statistics emanating from our most recent census, and I found that in the last decade the number of Americans over the age of 85 has increased by 37 percent and the number of Americans under the age of 5 has increased by 17 percent. We are therefore faced within our own ranks of a changing population profile so radical as to be a literal challenge to our economy as we have known it. I might tell you that of the 11.2 million 65 years of age and over that obtained in 1950 only 25 percent were gainfully employed, and I used the word "gainfully" in a statistical sense that they were earning anything, let alone enough to live on. That means now, putting it in population terms, that we are faced with the imminence of a situation whereby the productive one third of the population will have to be taxed to support the initial one third and

the terminal one third. I am taking out the middle one third of our entire population representing for the most the adult males between the ages of 25 and 50 who are gainfully employed, and are supporting the other two thirds of the population.

I want to go still further, because I want to show you, to give you, some other aspects of the tremendous amount of dislocation that has been occasioned by some of these changing figures. In the first instance, we are now faced with the prospect of having within the next few years some 20 million school children who must occupy school houses geared to a 1920 population of about 8 million children less. Obviously, therefore, the appalling situation is before us that so rapid has been the turn-over — (I might add that the trend in our shifting young population is not recent but had its initial break in the curve in 1906, but was tremendously accelerated by the number of children that were born immediately following both world wars) — we are faced now with the appalling situation that so tremendous and immediate has been the change in the basic composition of our American population that our educational facilities simply are not up to coping with it. The rate of change that has gone on in the educational system is, I repeat, far outstripped by the rate of change that has gone on in the production of children. There is one new American born every 8 seconds, and that goes on with no overtime and with no double-time for Saturdays and Sundays. It is an irrevocable fact. If that rate continues then the figures that I have laid before you are the inevitable outcome of, I repeat, a process that we must cope with because we are living with it today.

Now you may say that all of this sounds as though the physical anthropologist, and I in particular, were lit-

erally a prophet of doom. Remember that word "realist" that we heard a little while ago? These are the realities of absolute cold facts with no percentages, ands, ifs or buts. They are the realities with which we must cope because we represent an element of the population that, and I use the term here again very advisedly, is the so-called "thinking element" of the population. I wonder how many of us think about these things in terms of the larger picture. It may concern us about our own family, about our own child, or our own youngster's opportunity to go to this school or that school, as part of the whole picture. The complex, however, that faces us all is a much more vast one. It is inherent in some of these figures that I have put before you, it is inherent that also cresting the tide of the times comes the insistent clamor for so-called programs of social betterment, of social welfare, and indeed as far as we are concerned within the professions, of socialized medicine and socialized dentistry. I have read of the so-called welfare legislation that has emanated and is emanating from the bureaucracies of our present political structure in Washington. They have, of course, taken cognizance of all of these things we've been talking about. It seems to me, however, that the mere recognition by them of the cold, sober facts of population shift had been met by equally unemotional, and in some instances rather thoughtless, legislation. The problem is therefore not so much one of saying to the great bulk of the people, "we are going to take care of you", as it is of educating that element of the population to have a sense of mutual responsibility in the civilization of which it is a part. The problem is (and Dean Brodie can tell you more about this than I can) education of an infinitely greater number of doctors and dentists who will be available to

provide the necessary services to the increased number who at the tail end of the population curve are now in the vast field of Geriatrics, and who must, because there are new problems attendant upon the attainment of the seventh and eighth decades of life, inevitably make increasing demands upon our social system. And one thing else I want to call to your attention, namely, the development of such "miracle drugs" as ACTH with its potential of, if not arresting, at least alleviating some of the usual senile changes in bone structure. If therefore medical science is going in the direction of alleviating, or arresting, or possibly curing some of those ills that represent the so-called, or normally accepted terminus to the period of life span, if, I say, the improvement is also at the terminal end, then we are in the position of observing an increasing old-age extension.

Buffon, the great French naturalist, calculated that the life span of any animal is 5 to 7 times its growth period. We may accept man's growing periods as roughly two decades (taking him on up to the period when epiphyses of the long bones have closed and he ceases to "grow"). If you want to follow that to its logical conclusion the optimum life span of man finds itself anywhere from 100 to 140 years. If, therefore, the march of progress continues to accelerate, then once more we have the changing terminal end of the population profile to contend with. It isn't going to be (at all) settled by bureaucratic fiat; we are not going to have handed down to us decisions by a bunch of men who are seeking to gather votes, and all that sort of thing, by making all sorts of promises. They are going to find that the promises are empty in so far as the economy of this nation is not geared to fulfill all of those promises. By 1980 the people

65 years and older will be enough of a political bloc to swing a national election; if we have the continuation of this pork-and-bean, ham-and-egg legislation that is so deeply entrenched in the thinking of many, if that, I say, continues, then we will find ourselves, even though they be given only \$100 a month, saddled in 1980 with an annual debt of 25 billion dollars, merely to take care of one-tenth of the total amount of our population.

These then be some facts. These are the facts that call for sober thinking on all of our parts. These are the facts that call for educative instruction by the professions that are most deeply concerned, the professions of the healing arts, the medical profession and the dental profession. It will be part, and it will be increasingly part, of your philosophy as a dentist and as a member of national dental societies to understand and to cope with the problems of the population of which you are a part, and to see to it that those men that you send to the legislature are aware of the dynamics of that population and are not swayed solely by the loud and persistent voice of a population element that is in last analysis only a small part of the total American population. A small part, ah yes, but it's going to be a vociferous one and an organized one; in order to meet that small vociferous minority it will be necessary for the organization of the affected majority to understand all of the changes that are going on.

Well, I have said what I came to say. And then finally I want to take the long-term view of the physical anthropologist who, having studied the evolution of man, is accustomed to thinking not alone of the moment but of the ages that have gone on, and to realize that if we are on today's stage it is because there have been acts before us, that even today's scene may have been predicated by similar scenes

that have occurred again and again, and will occur again. One may find perspective in these lines of poetry:

The world is old, and thou art young;
the world is large, and thou art small;
Cease, atom of a moment's span,
to hold thyself an all-in-all.

In those terms, the macrocosm of our own present universe, of our own thinking of the problems of the world as we see it, are reduced to the microcosm of the universe of all time. It is perhaps comforting and sobering, yet reassuring, that these problems have faced civilizations before; they are facing us now, certainly intensified by virtue of the fact that we human beings have so far out-stripped our social awareness by our physical inventions that there is a lag between that which we have wrought and that with which we may cope. The feeling then means simply this; that the despair of the moment (oh, I shouldn't use that word!) the fears or the apprehensions of the moment, are really rooted in the traditions of the past, and we are part of that tradition. Our response, our ability to arise to the exigencies of the moment, are going to be part of the tradition of the future. Instead of saying, "these be the things that confront us, to mow us down by the terrific nature of all that we have wrought," is to say that man, in so having achieved, has really said, in effect, "I have set my eyes on far horizons and what I am achieving now and what I am doing now and what I am thinking now, must be part of the plan of all Mankind." That Plan is between all people, between all nations, that there be neither creed, nor color, nor nationality, nor any other barrier that may set brother apart from brother, or against brother. We are rooted in time, we belong to the ages; and you and I — all of us — are walking with and into the ages!

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