

Some Racial Comparisons of Inventiveness

By S. C. GILFILLAN

One approach to the differing inventiveness of races is through statistics by nation, although this is very imperfect since different races can live in one country, and countless other active factors such as climate, mineral resources, natural water transport, the accumulation of capital, and history are involved. However, for a per capita count by nation of the 1012 most important inventions and discoveries between 1750 and 1953 we can use the carefully prepared list of Streit.¹ Others have used patent counts, but such statistics need much refining to equalize the effects of varying patent laws and opportunities which exist in different countries, and to omit unimportant inventions. To obtain these corrections we can use my own study based on patents registered abroad in 1925. Although these are old figures the relative per capita inventiveness of the nations mentioned has changed little since then. The elaborate statistical methods used are explained in an article in the *Geographical Review*.² Only inventions patented outside the inventor's country were considered, and those made where two countries shared a common boundary or language were omitted. Non-White populations were also excluded from the per capita scores of all the English-language countries except India. Indian per capita inventiveness was exceeded about 8000 times by the leaders, the Swiss, and in any case half of her inventions were produced by a handful of Europeans.

The United States, Canada and Russia were under-rated in my study.³ The United States raised her share of abstracted physics papers from 23 to 30 per cent of the world's total between 1925 and 1961, although in chemistry her share fell from 32 to 20 per cent between 1932 and 1961, and in electrical engineering it decreased from 47 to 29 per cent between 1922 and 1960.⁴

¹ Clarence Streit, *Freedom Against Itself*, Harper, New York, 1954, pp. 239-272. A plea for an Atlantic Union of the nations which have produced almost all the inventions since 1750.

² S. C. Gilfillan, "Inventiveness by Nation," *Geographical Review*, 1930, Vol. XX, pp. 301-304. Reprinted with additional comparison of the American states in the *Journal of the Patent Office Society*, Vol. XII, pp. 259-267.

³ Due to the fact that they were less inclined to have inventions patented abroad. For Tsarist and Communist Russian inventions see my "Measuring Russian Inventiveness," *Journal of the Patent Office Society*, 1951, Vol. XXXIII, pp. 328-333.

⁴ S. C. Gilfillan, *Invention and the Patent System*, published by the Joint Economic Committee of Congress, 1964, p. 211. See also chapter 3 on the measurement of inventiveness and chapters 12 and 13 on the psychology of invention and inventors.

The pre-eminent inventiveness indicated for Switzerland, the Netherlands and the United Kingdom may be partly accounted for by their being havens for heretics from other lands. Switzerland is also the headquarters of international patenting companies. The high standing of the Protestant countries is probably due not only to the Protestant ethic and outlook but to the influence provided for centuries by ministers' children, who have an outstanding record for achieving distinction.⁵ Huntington reported that Harvard and Yale graduates from ministers' families were given a success rating by their former classmates second only to children of missionaries and professors.⁶ The table shows that Scandinavian countries rank particularly high in inventiveness. Huntington discovered similar evidence of their inventiveness in science through references in the *Encyclopaedia Britannica*.⁷

INVENTIVENESS BY NATION MEASURED BY SUPERIOR
INVENTIONS PATENTED ABROAD IN 1925

<i>Country of patentee</i>	<i>Per capita patent score</i>	<i>Country of patentee</i>	<i>Per capita patent score</i>
Switzerland	167.0	Italy	9.15
Germany	47.0	Finland	5.3
Sweden	46.0	Canada	4.0
Netherlands	41.2	South Africa	3.7
Denmark	38.0	Spain	3.23
Norway	36.3	Argentina	1.68
Austria	35.81	Poland	1.1
Great Britain	27.0	Yugoslavia	1.02
Belgium	26.7	Three Baltic States	0.9
France	25.1	Rumania	0.81
Czechoslovakia	18.1	Japan	0.63
United States	16.5	Chile	0.56
Hungary	12.75	USSR	0.41
Australia	11.85	Mexico	0.2
New Zealand	9.4	India	0.02

Weyl points out that whereas the rest of Western Europe underwent about eleven centuries of clerical and monastic celibacy,

⁵ D. O. S. Lowell, "The Sons of Clergymen," *Munsey's Magazine*, 1907, Vol. XXXVII, pp. 689-706; Nathaniel Weyl, *The Creative Elite in America*, Public Affairs Press, Washington, D.C., 1966, pp. 5-70, 84 and 169; and Nathaniel Weyl and Stefan T. Possony, *The Geography of Intellect*, Henry Regnery Company, Chicago, 1963, pp. 28-29, 97-99, 113-116 and 138-139, and pp. 285-287 on clerical celibacy.

⁶ Ellsworth Huntington and L. F. Whitney, *Builders of America*, Wm. Morrow, New York, 1927, pp. 205-239.

⁷ Ellsworth Huntington, *Character of Races*, Scribner, New York, 1924, pp. 221-227.

Scandinavia—which was late in becoming Christian and still later in accepting clerical celibacy—saw only about three centuries of celibacy amongst the clerics and presumably little monasticism, since it is rarely mentioned. Likewise Weyl's account of leading engineers in the American population shows that English names of clerical origin are most frequent in proportion to their numbers. The figures are: English names of clerical origin, about 1.6 times the White average; miscellaneous English and Scottish names, 1.4; Dutch, 1.4; German, 1.3; Scandinavian, 1.2; Irish, 0.85; French, 0.78; and Italian, Spanish and all others, much lower.

The foregoing inductive evidence certainly suggests wide differences of racial ability. Another approach to the problem is the deductive one; working from established principles of statistics and evolution. First take racial equality. The modern gospel, which has been endorsed by UNESCO, holds that although *individuals* differ vastly, they become automatically equal when they are gathered into races, nations or classes. Yet every statistician and social scientist knows that human traits are so often linked and correlated that any selection out of any group by such criteria as their place of residence or migration, or their race or profession, is bound to entail differences in other respects between the groups. We know that we can never separate two groups so that they have the same characteristic throughout and become equal—unless we employ some rigorous method of purely random selection. As another example, two coins can be equal because they were made by machinery designed to produce equality. But two mountains can never be equal because they were produced by forces having no equalizing principle. Neither can two races, because they were produced by forces of Darwinian evolution containing no principle for equality.

The only basis on which racial equality in inventiveness or other intelligence could possibly be argued is that of "gene flow." This theory holds that all races have had at least occasional contacts so that genes *can* spread. If they are mutations valuable for survival, as inventiveness is commonly thought to be, then they *will* spread everywhere promptly and equally to reach exactly the same proportion in each stock.

If that claim is not obviously absurdly exaggerated, consider this aspect of man's history suggested by Reed.⁸ It is a reasonable guess that a million years ago the I.Q. of our ancestors was around 30. The difference between that figure and today's 100 for American Whites shows an average rate of advance of just one I.Q. point per 500 generations! Why such extraordinary slowness? One explanation could be that new genes for intellect had to be created by mutation and then had to spread. But that could not be the whole

⁸ Sheldon C. Reed, "The Evolution of Human Intelligence: Some Reasons Why it should be a Continuing Process," *American Scientist*, 1965, Vol. LIII, p. 317-326.

explanation because man is not a uniform race breeding true, like an inbred laboratory strain or a thoroughbred racehorse. He displays vast variety—above all in his mind. He is like the rats which Tryon bred.⁹ In just seven generations Tryon produced by drastic selections a race of geniuses at solving mazes and another race that were stupid at it. A different and better explanation must be that intelligence, far from being always a help to survival as one would think, has nearly as often been a handicap. There was an example in Roman times when lead poisoning and other dysgenic factors removed from each generation about three-fourths of all who could earn, grab, keep or marry *money*.¹⁰ Today intelligent people are barely reproducing enough to replace their numbers, while many of the unintelligent throughout the world are doubling their numbers in each generation. Again, in the primitive past there were men endowed with superior intellect who accumulated property, women, prestige and perhaps a reputation for sorcery, who were consequently killed by envious inferiors.

However, before we can talk profitably about race we must first avoid the usual utter confusion surrounding the word with a clear definition of what we mean by race. It is scientifically defined as a group who have long interbred and have certain visible physical traits in common, with a large degree of uniformity. Presumably, according to the best established principles of Darwinism, a race must have common mental as well as physical traits that distinguish it from other races, since both mental and physical traits have been produced by evolutionary selection acting upon mutations and cross-breeding. This has been due to the survival of those whose inborn traits—whether good or bad from our point of view—best promoted survival in their past environments, including the invented and social elements of the environments. These situations have differed greatly among varying cultures in different parts of the world. Weyl and Possony have marshaled well the statistical evidence for the differences in revealed ability between many stocks and epochs, especially in the frequency of genius.¹¹ So have Coon, Shockley and many others with irrefutable evidence.¹²

Now let us take a race of particular interest. According to that

⁹ R. C. Tryon, "Genetic Differences in Maze-learning Ability in Rats," *Yearbook*, National Society for the Study of Education, 1940, Vol. XXXIX, Pt. 1, pp. 111-119.

¹⁰ S. C. Gilfillan, "Roman Culture and Dysgenic Lead Poisoning," *THE MANKIND QUARTERLY*, Vol. V, No. 3, January-March, 1965, pp. 131-148.

¹¹ Nathaniel Weyl and Stefan T. Possony, *op. cit.*

¹² Carleton S. Coon, *The Origin of Races*, Alfred A. Knopf, New York, 1962, in which he says the Negro race is 200,000 years behind; William B. Shockley, "Is the Quality of the United States Population Declining?" *U.S. News and World Report*, 22nd November 1965, pp. 68-71; and H. M. Roland and Donald M. Swan, "Race Psychology and Education: Wilmington, North Carolina," *THE MANKIND QUARTERLY*, Vol. VI, No. 1, July-September, 1965, pp. 19-36.

scientific definition of race there can be no such thing as "the Negro race" in America because we know from history and from the merest glance at their faces that the so-called American "Negroes" vary in ancestry from nine-tenths Negro to nine-tenths White or to half Amerindian. They are a caste, not a race; their ascription is by custom, not by reason. I prefer to define the Negro as the full black race found in Central Africa, such as from the Congo to the Niger. Very few ancestors of the American Negro came from this region; practically all came from the Slave Coast of West Africa—differing in appearance from the central Africans, higher in culture and non-Bantu in speech. This western region has been *partly White* in race since prehistoric times when the Sahara was better watered, easily crossed and inhabited by both White and Negroid cattle-raising tribes, as has been revealed by recent archaeological work. The slaves imported from this West African coast—usually by way of Brazil or Spanish America—have been absorbing further White and Amerindian genes ever since. In 1953 Negroes in Baltimore were found to have received 30 per cent of their genes from White ancestors.¹³ The White element has been particularly obvious in their usually respected leaders, such as Walter White, Adam Clayton Powell, Senator Brooke, W. E. B. Dubois, Booker T. Washington, Sammy Davis, Percy Julian, Mr Justice Marshall and Robert Weaver. All these have been mainly White in race, with a certain Negro strain.

Now that we know what we mean when we speak of race, let us see how prolific in invention have been various races of the world. Historically the White race or races have produced the great bulk of the inventors. The Mongoloids, in both their Asiatic and Amerindian branches, have fathered fewer. The Oceanic Negritoes, Hottentots, Bushmen, Pygmies and Negroes have never produced any that I have heard of, and the Australids scarcely any. It seems that none of these races has produced any inventions that were useful enough to have spread.

It is true that they have invented ways of catching game and fish, but the higher techniques of Africa, such as metal working, spread south from Egypt. It is also true that some of those races which do not seem to have produced successful inventions are small populations, and all of them have been more or less under the disadvantage of a tropical or desert environment. It is natural, therefore, that having once fallen behind other races they would tend to borrow rather than originate inventions if contacts and common problems made borrowing possible. But equatorial Africa has a large population. Like West Africa its central region is elevated with a fairly good climate and seems to be the sort of environment that should

¹³ William B. Shockley, "The Environment-Heredity Uncertainty and the Negro Ghetto," lecture at the University of California Medical School, 25th November 1967.

have been responsible for at least a few inventions. Excuses for non-inventiveness are readily found but can never prove equality, or that the non-mental drawbacks are the *whole* explanation for the failure to achieve.

Thus, those equalitarians who, defying Darwinsim, claim that all races have the same inherent mentality, or who would like to seem to believe so, in order to follow the democratic, equalitarian and anti-colonial line should not confine themselves to caviling at the abundant evidence for *inequalities* but should produce some positive evidence for their own position, such as some good evidence for inventiveness in these races. There is a *prima facie* case against some of these stocks on inventive and other more compelling grounds, such as the anatomy of the brain. And a *prima facie* case is entitled to stand, unless and until impugned by definite evidence against it.

The equalitarians can indeed cite inventions made by *colored* people in the far more favorable environment of modern America. There were said to have been about 1200 American colored patentees by 1930, but although I have been a lifetime student of invention there were only three of whom I remember hearing anything. One was Matzelliger, who invented the first good shoe-lasting machine which workers called "nigger-head" in his honor. But his father was Dutch and his picture shows a man about nine-tenths White. The second is Percy Julian, an eminent synthetic chemist. He seems more than half White so again is hardly pertinent to our inquiry. The third, the distinguished chemist George Washington Carver, appears to have been half Negro, a quarter Amerind and a quarter White. Baker tells of various colored inventors, including Rillieux, whose vacuum pan for refining sugar was important; Elijah McCoy, with 28 patents; Granville T. Woods, with a similar number; and four others with at least seven inventions each.¹⁴ They all *must* have been part White, since they were American Negroes.

A particular obstacle to Negro invention is presumably their deficient perception of the third dimension and spatial relationships reported by Schwarz. Osborne and Gregor found through studies of twins that the environmental differences were no more influential for the disadvantageous American Negro *milieu* than they were for the White population.¹⁵ The average I.Q. of the American Negro is at least eight points below the White average—and probably much lower. The Army Classification Tests of the Second World War

¹⁴ Henry E. Baker, "The Negro in the Field of Invention," *Journal of Negro History*, Vol. II, 1917, pp. 21-36; Joseph Rossman, "The Negro Inventor," *Journal of the Patent Office Society*, Vol. XII, pp. 549-553.

¹⁵ Paul A. Schwarz, *Aptitude Tests for Use in the Developing Nations: Monograph No. 1*, American Institute for Research, June 1961; R. T. Osborne and A. James Gregor, "Racial Differences in Inheritance Ratios for Tests of Spatial Ability," Paper given at the Twenty-second congress of the International Institute of Sociology, 1967. To appear in *Perceptual and Motor Skills*.

and the Korean War showed that only 12 per cent of the Negroes overlapped the White mean—or only 10 per cent when allowance is made for the 45 per cent who were of too low a standard for acceptance, and for Whites who were diverted to officer training and special services.¹⁶ To those who ascribed such differences to environmental handicaps, one may cite the almost total failure of attempts to remedy this by special and very expensive schooling, and the persistently lower Negro standing found in all the tests designed to equalize cultural influences, such as by matched pairs, culture-freed tests, or consideration of Canadian “Negroes” long immersed in White culture. The Coleman Report¹⁷ of the Office of Education measured the adverse environmental factors for Whites, Blacks and Indians, and found that the Indians had much worse—probably twice—cultural handicaps of the Blacks, yet their non-verbal achievement scores in the ninth grade of school were not lower than the Blacks’ but nearly half of the Black-White difference higher. Since the Indian environment was much worse this higher achievement could only be due to heredity. William B. Shockley, a Nobel prize-winner and member of the National Academy of Sciences, reported that “the offset distribution of Negro performance on science is about 0.8 of a standard deviation or 12 I.Q. points more than the offset of about 1.2 standard deviations for other high levels of achievement.”¹⁸

In contrast to the apparent failure of the Negroid races to produce a rich inventiveness we must realise that this is not due to their till recently uncivilized condition. Primitive illiterate people have made thousands of inventions which today form the basis of our civilization. The domestication of all our animals and plants, and vast improvements in their breeds were carried out by barbarians. Our common mechanical devices, building methods and materials, and all our common metals save zinc, nickel and aluminium, have mostly prehistoric origins, as do our major social institutions. Primitive culture has not barred primitive invention.¹⁹

Indeed, we can cite one race which is still primitive but which seems

¹⁶ Henry E. Garrett, “The Relative Intelligence of Whites and Negroes: The United States Armed Forces Tests,” *THE MANKIND QUARTERLY*, Vol. VIII, No. 2, October-December, pp. 64-79; and Audrey M. Shuey, *The Testing of Negro Intelligence*, Social Science Press, New York, 1966, p. 578.

¹⁷ R. E. Kuttner, “Use of Accentuated Environmental Inequalities in Research on Racial Differences,” *THE MANKIND QUARTERLY*, Vol. VIII, No. 3, January-March 1968, pp. 147-160.

¹⁸ William B. Shockley, “A ‘Try Simplest Cases’ Approach to the Heredity-Poverty-Crime Problem,” *Proceedings of the National Academy of Sciences*, Vol. LVII, 1967, pp. 1767-1774.

¹⁹ E. Nordenskiöld, “The American Indian as an Inventor,” *Journal of the Royal Anthropological Institute*, Vol. LIX, 1929, pp. 273-307; R. H. Lowie, “Inventiveness of the American Indian,” *American Mercury*, Vol. XXIV, 1931; and L. Mumford, “Man and Culture,” *Technology and Culture*, Vol. VI, 1965, pp. 375-381.

to be markedly inventive. The Central Eskimo have one of the lowest civilizations, at least by such tests as social and religious development and ability to count. Living in a region where life is perhaps the hardest on earth, entailing an extremely sparse population and thus hampering development, they have yet evolved a remarkable material culture by means of which alone such a region can be made habitable, and they are believed to have introduced it to the other Eskimo races.²⁰ We have ourselves borrowed their kayaks and dog sleds. Consider the ingenuity of their invention for catching a wolf. Two ends of a strip of whalebone are sharpened, coiled tightly, buried in a piece of fat and the fat bound up. The piece of fat is frozen, the binding removed and the titbit left as bait. The wolf swallows the fat whole, the fat melts and the sharpened whalebone uncoils and pierces its vitals. These Eskimos are also the only people in the world (as far as I know) who practise invention as a game, in which one asks the others to propose solutions for a dangerous situation. Another of their traits is a remarkable artistic ability. Their sculpture has a naturalness and power that is astonishing, especially for a primitive people, and in spite of the difficulties of transport by sled and boat they carry their stone sculptures with them, not for magical reasons, but for love of art.

The Central Eskimos are also unique in other ways, leaving us at a loss to deduce the true cause of their inventiveness. They are subject to particularly heavy radiation, such as produces mutations. While such mutations are almost always harmful, by rarest luck some can be beneficial. The Eskimos' particularly strong teeth, which help them chew their almost exclusively meat diet, could be due to such mutations. Even a single beneficial mutation in one person, such as a gene for inventiveness, might have spread by now to a large part of the stock if it occurred centuries ago. Those lacking it would have perished in the rigorous conditions of the north. The radiation comes from two sources: the cosmos and rock. The cosmic source is stronger where the Eskimos live than anywhere else at sea level. The lines of force stretching between the two magnetic poles more or less shield the rest of the earth, but their effect is least where they dip downward at the magnetic poles. High mountain plateaux receive more radiation in any latitude. As far as the rock source is concerned, the Eskimos live atop granite as often as not, and this produces three times more ground radiation than sandstone or limestone. Weyl has made the interesting suggestion that the regions of high radiation, especially the northern granitic and high plateau lands, may be the scenes of faster evolution.²¹ This would support the theory of Griffith Taylor that the

²⁰ A. L. Kroeber, "The Eskimos as Aboriginal Inventors," *Science America*, Vol. C, 1914, No. 54.

²¹ Nathaniel Weyl, "Radiation and Racciation," *THE MANKIND QUARTERLY*, Vol. IV April-June, 1964, pp. 205-210.

human and other late species have been evolved in the rising plateau of Tibet, where they were subjected to increasing radiation and severe climatic changes, and have then spread.²² This would explain the fact that brachycephalism (broad-headedness) measured along the migration routes varies proportionately to the distance from Tibet.

If we compare the world's peoples we often see powers of invention increasing from the Equator northward. This might be explained by a theory that, before Tibet, subman originated in Africa and then spread into increasingly cool and difficult regions as his growing intelligence and inventions enabled him to cope with their new problems, such as scarcer food and variable seasons with winters of numbing or killing cold. As the glaciers retreated, land previously uninhabited because of the cold permitted rapid expansion of a race which could cope with it.

Finally, the Central Eskimos seem to have had an infusion of White blood, producing frequent blonds. This was probably received from Norsemen from Greenland and Vinland, and from later whalers.²³ These genes would certainly supplement any other sources for a predisposition towards inventiveness.

We have discussed the case of the Central Eskimos merely to indicate that not all primitive peoples have been backward in inventiveness. As a result, that retardation which is self-evident in the Negroid stocks cannot easily be explained on grounds of lack of opportunity, or of unfavourable environment.

In summary, I think I have established a presumption and strong *prima facie* case for a high degree of inequality between some of the world's races in inventive capacity. Those who believe in a basic equality of potential in all races should produce some positive evidence for their views, but in my experience they never do. Instead, they content themselves—but unconvincingly to any rational mind—with either citing excellent people of part-White race, or simply with caviling at the evidence for inequality, such as pointing out the shortcomings of I.Q. tests. But it is logically impossible for them thus to prove that A equals B, by finding defects in the evidence that A is greater than B. They would not have proved equality even if they had totally demolished each separate evidence for inequality.

To draw attention to these facts is an unpopular practice today. But should it dishearten a fellow citizen of color? Personally, I should love to be a great inventor, but with my various incapacities I am perfectly certain that that greatness is utterly beyond me. Therefore I cheerfully resign myself to the realities of the situation, and cultivate other achievements that give me self-respect.

²² G. Taylor, "Evolution and Distribution of Race, Culture and Language," *Geographical Review*, Vol. XI, 1921, pp. 54-119.

²³ V. Stefansson, "The Blond Eskimos," *Harper's Magazine*, Vol. CLVI, 1928, pp. 191-198.

It is to be expected that this discussion of apparent racial differences in inventiveness will be attacked as undemocratic, un-Christian, unkind, intolerable and untrue, though it will not be proved untrue on the facts. This is another case in the long history of conflict between science and the established doctrine of the period, commonly that of the state or the church. But science demands the right to say anything it can prove to be true or probable. Today in America—and Russia—the established doctrine in nearly all walks of life, perhaps not really believed or acted on but considered alone proper for public voicing, stresses equality, fraternity and that there can be no second class citizenship or nationhood. Any scientist with a contrary opinion is expected to keep silent—and I fear many do for the sake of peace or for other reasons.

What the Journals say

Although not always of actual scientific interest in the fields of racial genetics, anthropology and ethnology, many topical issues still within the scope of the related sciences for which this journal exists, especially concerning applied social and cultural anthropology, appear from time to time in the daily Press and other media. The editors feel that for the general information of our readers, it might be of value if we extract from time to time from the Press and other journals matters of this kind as well as any items of more academic interest which might also appear. The first series of these extracts appear below.

Protest by Immigrants to Premier

Immigrant organisations in this country are planning to protest to Commonwealth Prime Ministers next week about discrimination in this country.

The protest is being sponsored by Mr Abdullah Patel, 29, leader of the Bradford-based Coloured Peoples' Union, who has drawn up a memorandum for the Prime Ministers at their conference in London next week.

It demands repeal of the "racist and discriminatory" Commonwealth Immigrants Act, 1968, and British Government action to stop discrimination in this country. It will also ask the Prime Ministers to consider ending the Commonwealth unless they get assurances on these points.

Mr Patel, a Bombay University graduate, said yesterday that representatives of almost 40 immigrant organisations throughout the country would sign his memorandum before it was handed to the Prime Ministers. He was also seeking an interview with Mrs Gandhi, Indian Prime Minister.

The memorandum complains of the treatment of immigrants on their arrival at British airports and ports. It says that "petty, technical and procedural" excuses are sought to justify refusal of entry. Refusals on medical grounds were rapidly growing.

"What is most shocking is that, pending inquiry, some incoming immigrants are detained in prison, either Holloway or Brixton, for as long as 50 days."

The document complains of the creation of slums or