THE DISTRIBUTION OF BODY HAIR IN WHITE SUBJECTS[1]

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The desirability of a comparative study of the hairiness of the body as a whole was suggested by Waldeyer and has been emphasized by a number of subsequent writers. Nevertheless, practically all work relating to the anthropology of hair has been confined to studies on the hair of the head. Satisfactory methods for the study and description of hair in regions where it is relatively sparse have not been developed, and until such methods are perfected accounts of body hair will necessarily be of a more or less preliminary character. Much of the material which we are able to present at this time was collected incidentally in connection with other work and partakes of some of the deficiencies just mentioned. It is reported, and discussed briefly, in order to call attention to one or two problems in methodology and interpretation.

The material in question consists of notes on several thousand soldiers made at the time of their demobilization at Camp Dix in 1919, and the records from an examination of 350 college women, together with some observations on the families of clinic patients.

For the use of the data on soldiers we are indebted to the Office of the Surgeon General of the Army. The observations on the demobilized soldiers were made by the senior author and by a few carefully instructed assistants. The women were all examined by the junior author. Both groups represent individuals of about the same age, mostly from 18 to 24 years. Some of the clinic patients were older.

The method of examination at the demobilization camp may be briefly described. When the subject came to the section for anthropometric measurement a general inspection was made of the hair of the whole body, keeping the subject in as favorable a light as possible. Five grades of body pilosity were arbitrarily established and each subject examined was recorded as belonging to group 0, 1, 2, 3 or 4 depending on the estimated amount of hair on the body. Grade 0 was constituted to cover the condition in which the distribution of terminal

[1] This work was undertaken in connection with a special investigation of hypertrichosis being carried on at Washington University School of Medicine.

hair on the trunk was confined to the pubic and axillary regions or to these and the hypogastric region with no hairs apparent on the chest. In Grade 1, terminal hair was obviously present in the center of the chest or about the nipples. Grade 2 included individuals with a considerable area of hair on the chest and breasts but with no marked extension over the shoulders or back (except occasionally in the lumbar region). In Grade 3 the hair was conspicuously present and abundant over the greater part of the abdomen, chest and shoulders and to some extent over the back. Grade 4 included the few cases in which the body hairiness was very extreme. Increase in the amount of hair does not always follow in the exact sequence indicated in these progressive grades, although there is a strong tendency for it to do so. While the classification of the subjects involved the formation of an estimate rather than a quantitative measure of the amount of hair in each case the conditions for making this estimate were exceptionally favorable.

In the routine official examination made at the time, the color of the hair on the head was recorded and also information bearing on the race of the individual. These data are brought together with the notes on pilosity of the trunk and included in the accompanying tabulation.

In the examination of the women only two grades of pilosity were employed. In the case of the college women the thoracic and abdominal segments were inspected both in front and behind. Here grade 0 means that, with the exception of pubic and axillary hair, there was no well developed hair on the body, but only the fine downy covering which is generally considered to be normal. Grade 1 includes all those individuals who had terminal hairs in any other region or regions than the axillary and pubic, as for example around the umbilicus, in the center of the chest, around the nipples, or on the back. The examination made on the third group, the clinic patients and their families, consisted only in differentiating between downy and terminal hairs around the nipples and in the center of the chest. In all of these examinations the greater conspicuousness of dark hair was kept constantly in mind and care was taken to avoid any resultant errors.

Table 1 summarizes the data gotten from the demobilized soldiers. The card employed for anthropometric records provided for six grades of hair color. In Table 1 these are grouped as follows: *Light* in the table includes "flaxen" and "light brown" of the record card; *Medium*, corresponds to "medium brown" and "clear red," and *Dark* to "dark brown" and "red and black." The grades of pilosity entered as 2, 3 and 4 are all grouped together, since their total numbers are small. They

represent a little over nine percent of the total and have a relative incidence of 17 : 7 : 1. The different race groups are indicated according to the designations in the records. Only those with over 100 representatives in the data available to us are recorded in this table. The figures on college women are presented in Table II.

TABLE I. BODY PILOSITY IN WHITE MEN (DEMOBILIZED SOLDIERS.)

Parentage	Hair Color	Grade of body pilosity 0	1	2, 3, 4	Total
Both parents born in United States					
	Light	125	879	108	1112
	Per cent	*11*	*79*	*10*	
	Medium	73	433	40	546
	Percent	*13*	*79*	*8*	
	Dark	177	1833	228	2238
	Percent	*8*	*81*	*11*	
Neither parent born in United States					
English Protestants	Light	16	49	2	67
	Percent	*24*	*73*	*3*	
	Medium	2	31	2	35
	Percent	*6*	*88*	*6*	
	Dark	18	165	12	195
	Percent	*9*	*84*	*7*	
Irish Catholics	Light	23	131	19	173
	Percent	*13*	*75*	*12*	
	Medium	12	98	10	120
	Percent	*10*	*81*	*9*	
	Dark	42	563	57	662
	Percent	*6*	*85*	*9*	
Irish or Scotch Protestants	Light	6	51	3	60
	Percent	*10*	*85*	*5*	
	Medium	3	12	2	17
	Percent	*17*	*71*	*12*	
	Dark	6	105	8	119
	Percent	*5*	*88*	*7*	
German Protestants	Light	21	161	6	188
	Percent	*11*	*85*	*4*	
	Medium	3	48	3	54
	Percent	*6*	*88*	*6*	
	Dark	17	233	8	258
	Percent	*7*	*90*	*3*	
German Catholics	Light	17	76	5	98
	Percent	*17*	*77*	*6*	
	Medium	5	29	1	35
	Percent	*14*	*82*	*4*	

Parentage	Hair Color	Grade of body pilosity			Total
	Dark	14	33	5	52
	Percent	*9*	*86*	*5*	
Austrian Catholics	Light	4	22	2	28
	Percent	*14*	*78*	*8*	
	Medium	1	9	1	11
	Percent	*9*	*82*	*9*	
	Dark	8	54	5	67
	Percent	*11*	*80*	*9*	
Polish Catholics	Light	13	90	5	108
	Percent	*12*	*83*	*5*	
	Medium	3	35	2	40
	Percent	*8*	*87*	*5*	
	Dark	5	108	8	121
	Percent	*4*	*89*	*7*	
Russian Jews	Light	0	16	5	21
	Percent	*0*	*76*	*24*	
	Medium	0	13	1	14
	Percent	*0*	*92*	*8*	
	Dark	6	160	33	199
	Percent	*3*	*80*	*17*	
Russian Catholics	Light	6	30	3	39
	Percent	*15*	*77*	*8*	
	Medium	2	18	0	20
	Percent	*10*	*90*	*0*	
	Dark	9	40	4	53
	Percent	*17*	*75*	*8*	
French or Belgians	Light	3	16	0	19
	Percent	*16*	*84*	*0*	
	Medium	0	9	1	10
	Percent	*0*	*90*	*10*	
	Dark	4	62	10	76
	Percent	*5*	*81*	*14*	
From Italian Provinces	Light	2	29	3	34
	Percent	*6*	*85*	*9*	
	Medium	1	23	3	27
	Percent	*3*	*85*	*12*	
	Dark	22	526	102	650
	Percent	*3*	*81*	*16*	
Scandinavian	Light	11	111	7	129
	Percent	*9*	*86*	5	
	Medium	3	59	4	66
	Percent	*4*	*89*	*7*	
	Dark	14	65	3	82
	Percent	*17*	*79*	*4*	

Several questions arise on examining these tables. Do they indicate any racial differences or any differences of type? Can the data for men and women be correlated? How satisfactory and reliable is the classification? Considering the last point first, there are, as already indicated, chances for individual bias to show and also there is the danger that light terminal hairs were overlooked more often than dark ones. Careful measurements which the junior author made on facial hairs from a considerable series of women showed that estimation of the amount of terminal hair, even when conditions are favorable, may be by no means accurate. The slightly more glabrous condition indicated for soldiers with light hair (as shown in Table I) might possibly arouse a suspicion of error in recording. In view of previous study of facial hair we should have inclined to this suspicion had it not been for the fact that the data for women show a still more marked correlation between the color of head hair and the amount of body hair. When this apparent (and unexpected) correlation was noticed it was still possible to reëxamine a number of the women subjects. Such reëxamination, so far as it was carried out, only verified the original figures. The total number of women is rather small but the differences are large enough to appear significant. We must consequently admit that the evidence, so far as it goes, indicates that individuals with dark hair on the head are, on the whole, inclined to have more terminal hair on the body than do lighter haired subjects.

TABLE II. BODY PILOSITY IN COLLEGE WOMEN

Hair Color	Grade of body pilosity		Total
	0	1	
Light	82	24	104
Percent	*77*	*23*	
Medium	97	47	144
Percent	*70*	*30*	
Dark	49	51	100
Percent	*49*	*51*	
Total			350

We may now inquire whether this apparent difference in the amount of terminal hair on the body is related to race or to types within the race. Table I shows some of each grade of hair color under all "races" considered, but in most cases the numbers are not sufficient to be really significant. If the association between hair color and amount of body hair is not a causal one, comparison of similarly pigmented individuals of different races should show whether the differences are racial or not.

While it is quite possible that blond Italians, for example, are of prevailing Nordic ancestry and that brunet Scandinavians have descended from Mediterranean stock, still the mixtures with native strains should tend to break up any grouping of traits which have no necessary interdependence. From this point of view a comparison of the blond and medium haired Italians with the blond and medium haired Scandinavians and Poles is of interest. The numbers are unfortunately small, but the light Scandinavians and Poles show about 9% with no excess body hair while the correspondingly pigmented Italians show only 5%. The number classed as grade 1 in body hairiness is essentially the same in both groups but the light Italians show nearly twice as many graded 2, 3 and 4. This is suggestive of a true racial difference independent of pigmentation but it is in no sense conclusive.

Another point of interest is a comparison of body hair in men and women. Tables I and II do not correspond at all. Two possible explanations of the discrepancy present themselves; the two sexes may not be comparable when it comes to variation in body hair, or the method of grouping may be faulty.

The possibility that the two sexes are really not to be compared with reference to terminal hair, that the stimulus for its development is different in the male and the female, leads to a consideration of endocrine relations and can not be profitably discussed in this connection. Bearing on the other alternative, a possible faulty basis of classification, we happen to have observations on an additional 436 soldiers not included in Table I. These were classified on a slightly different basis, grade 0 in this case including individuals with well developed hypogastric hair and a very few hairs on the chest. The figures are shown in table III. Comparing Tables II and III, the number graded as 0 is seen to be 58% for the men and 65% for the women.

TABLE III. BODY PILOSITY IN MEN (DEMOBILIZED SOLDIERS).
(Revised Classification)

Hair Color	Grade of Pilosity			Total
	0	1	2–3	
Light	55	16	10	81
Medium	94	37	17	148
Dark	106	52	49	207
Totals	225	105	76	436

For grade 1 and over, the corresponding percentages are 42 and 35. This is not a good agreement but it is much closer and suggests that the

natural division between the lowest and next higher grade of pilosity in man is not that which was arbitrarily established for taking most of the data on soldiers. In the light of all the data now available it is rather more probable that over half of the individuals of each sex are included by a group in which the women have no terminal hair on the body (exclusive of the axillae and pubes) and the men have as a maximum well developed hypogastric hair and a very moderate amount on the chest and about the areolae. Hair in excess of this may be considered as hypertrichosis provided it is understood that the term carries no implication of pathological involvment.

The solution of the question as to the nature of these sex differences in the percentage of types will probably be reached most directly through an adequate study of heredity. A few observations from clinic patients are included in Table IV, which shows that there is at least some cor-

TABLE IV. FAMILIES OF CLINIC PATIENTS (WOMEN ONLY)

MOTHERS		DAUGHTERS	
Grade of Pilosity	Number	Grade of Pilosity	
		0	1
0	162	259	63
		Percent *80*	Percent *20*
1	38	33	33
		Percent *50*	Percent *50*

relation between the amounts of body hair in mothers and daughters.

In conclusion, we would like to point out that the figures that we are able to present suggest several interesting lines of inquiry with reference to differences in body hairiness associated with race, physical type and sex. They also make very apparent the need of a more precise method of examination and a new scheme of classification.