

RESULTS

R E S U L T S

Table (1) shows the distribution of age among the 500 pregnant women of the study.

Table (1) Age distribution

Range (years)	No.	%
17 - 24	202	40.4 %
25 - 32	203	40.6 %
33 - 40	95	19.0 %
17 - 40	500	100.0 %

Mean age = 26.4 years

Table (2) shows the distribution of parity among the 500 pregnant women of the study.

Table (2) Parity distribution

Parity	No.	%
P ₀	93	18.6 %
P ₁ - 4	328	65.6 %
P ₅₊	79	15.8 %

Primigravidae = 93 women representing 18.6 %

Multigravidae = 407 women representing 81.4 %.

Table (3) shows the distribution of the gestational age among the 500 pregnant women of the study.

Table (3) Gestational age distribution.

Gest. age (weeks)	No.	%
8 - 15	126	25.2 %
16 - 23	113	22.6 %
24 - 31	71	14.2 %
32 - 40	190	38.0 %
8 - 40	500	100.0 %

Mean gestational age = 25 weeks.

Table (4) shows the colour distribution of the 500 pregnant women of the study.

Table (4) Colour distribution.

Parameter	Brunettes	Whites	Negroes	Total
No.	329	168	3	500
%	65.8 %	33.6 %	0.6 %	100 %

Out of the five hundred, successive, Egyptian pregnant women studied only 5 showed a positive sickling test (1 %).

Positive cases were subjected to hemoglobin electrophoresis on cellulose acetate strips. Two cases out of them showed minimal amounts of Hb-S (1.6 % and 3.5 % respectively), with nearly normal amounts of Hb-A and Hb-F indicating that they were sickle cell trait carriers. Therefore, the incidence was 0.4 % of the 500 pregnant women.

Table (5) shows important medical and obstetrical data of previous pregnancies in the 5 positive sicklers.

Table (5) Important medical and obstetrical data of previous pregnancies in the positive sicklers.

Data	S u b j e c t					Total
	1	2.	3	4	5	
Medical data						
Special painful attacks	+	-	-	-	-	
Obstetrical data						
Gravidity	5	3	13	5	6	32
Previous pregnancies	4	2	12	4	5	27
Full term (living)	3	1	6	3	4	17
Premature delivery	-	-	-	-	-	0
Abortions	-	1	6	1	1	9
Stillbirths	1	-	-	-	-	1
Neonatal deaths	1	-	1	-	-	2
Puerperium	Abnorm. ^a	Norm.	Abnorm. ^b	Norm.	Norm.	

a) Puerperal sepsis after each operation of previous 4 C.S.

b) Puerperal fever (occasionally once).

Table (6) shows the important medical and obstetrical data of previous pregnancies in the pregnant women of the control group.

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Table (7) shows the important medical and obstetrical data of previous pregnancies in the 2 pregnant women with sickle cell trait.

Table (7) : Important medical and obstetrical data of previous pregnancies in the 2 sickle cell traits.

Data	Subject 1	Subject 2	Total
Medical data			
- Special painful attacks	-	-	
Obstetrical data			
- Gravidity	5	6	11
- Previous pregnancies	4	5	9
- Full term (living)	3	4	7
- Premature delivery	-	-	0
- Abortions	1	1	2
- Stillbirths	-	-	0
- Neonatal deaths	-	-	0
- Puerperium	Normal	Normal	

Table (8) shows the hematological data of the 5 pregnant women with positive sickle cell test.

Table (8) : Hematological data of the positive sicklers.

Parameter	Case 1	Case 2	Case 3	Case 4	Case 5	Range	Mean	S.D. ±
Hb	11	10.5	10.5	11	9.5	8.5-11	10.5	0.61
PCV	30	32	33	36	31	30-36	32.4	2.3
RBCs Million/mm ³	3.4	3.6	4.44	4.4	3.8	3.4-4.44	3.9	0.47
MCV	88	89	74	82	82	74-89	83	6.0
MCH	32	29	24	25	25	25.32	27	3.39
MCHC	37	33	32	31	31	31-37	32.8	2.49
WBCs Thousand/mm ³	5.7	10.7	11.1	7	4.95	4.95-11.1	7.9	2.84
-Staff	2	2	4	4	6	2-6	3.6	1.67
-Segmented	50	58	50	60	64	50-64	56.4	6.23
-Total PNLs	52	60	54	64	70	52-70	59.2	7.35
-Lymphocytes	46	38	40	28	28	25-46	36	7.88
-Eosinophils	0	0	2	0	0	0-6	1.6	2.6
-Basophils	0	0	0	0	0	0	0	0
-Monocytes	2	2	4	2	2	2-4	2.4	0.89
Serum bilirubin :								
-Total	0.44	0.8	0.5	0.8	0.6	0.44-0.8	0.53	0.16
-Direct	0.1	0.2	0.1	0.2	0.2	0.1-0.2	0.16	0.05
-Indirect	0.34	0.6	0.4	0.6	0.4	0.34-0.6	0.47	0.03

Table (9) shows the hematological data of the 10 pregnant women of the control group.

Table (9) : Hematological data of the control group

Parameter	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8	Case 9	Case 10	Range	Mean	S.D. ±
Hb	14	12	12	14	14	13	13.5	14	12.5	12	12-14	13.1	0.9
PCV	38	40	39	42	40	38	35	38	34	35	35-42	37.9	2.58
RBCs	4.8	5	4.8	5.2	5	4.8	5	4.6	4.5	4	4-5.2	4.8	0.34
MCV	79	80	81	81	80	79	70	83	76	88	70-88	79.7	4.62
MCH	29	24	25	27	28	27	27	30	28	30	24-30	27.5	1.96
MCHC	37	30	31	33	35	34	39	37	37	34	30-39	34.7	6.42
WBCs	7.2	8.2	4.2	4.8	5.2	6.1	4.2	7.8	6.5	7.45	4.2-8.2	6.2	1.5
-Staff	2	4	2	4	2	4	2	2	2	2	2-4	2.6	0.97
-Segmented	70	60	76	62	62	64	60	60	64	52	52-76	63	19.35
-Total PNLs	72	64	78	86	64	68	82	62	66	54	54-78	65.6	6.38
-Lymphocytes	22	28	20	30	30	28	36	32	28	40	22-40	29.4	5.89
-Eosinophils	2	6	0	0	4	2	0	2	2	2	0-6	2	1.89
-Basophils	0	0	0	0	0	0	0	0	0	0	0	0	0
-Monocytes	4	2	2	4	2	4	2	4	4	4	2-4	3.2	1.03
Serum bilirubin													
-Total	0.4	0.5	0.3	0.6	0.7	0.6	0.8	0.4	0.4	0.7	0.3-0.8	0.5	0.16
-Direct	0.1	0.2	0.15	0.22	0.18	0.1	0.24	0.12	0.2	0.2	0.1-0.24	0.17	0.05
-Indirect	0.3	0.29	0.15	0.38	0.52	0.6	0.56	0.28	0.2	0.5	0.15-0.56	0.37	0.14

Table (10) shows the hematological data of the two pregnant women with sickle cell trait.

Table (10) : Hematological data of the 2 sickle cell traits.

Parameter	Case 1	Case 2	Range	Mean	S.D.±
Hb g %	11	9.5	9.5-11	10.25	1.06
PCV %	36	31	31-36	33.5	3.54
RBCs Mil./mm ³	4.4	3.8	3.8-4.4	4.1	0.42
MCV μ^3	82	82	82	82	0
MCH pg	25	25	25	25	0
MCHC %	31	31	31	31	0
WBCs Thous./mm ³	7.0	4.95	4.95-7	5.96	1.45
-Staff %	4	6	4-6	5	1.41
-Segmented %	66	64	60-64	62	2.83
-Total PNLs %	64	70	64-70	67	2.83
-Lymphocytes %	28	28	28	28	0
-Eosinophils %	0	0	0	0	0
-Basophils %	0	0	0	0	0
-Monocytes %	2	2	2	2	0
Serum bilirubin					
-Total mg%	0.8	0.6	0.6-0.8	0.7	0.14
-Direct mg%	0.2	0.2	0.2	0.2	0
-Indirect mg%	0.6	0.4	0.4-0.6	0.5	0.14

Table (11) shows the comparison between the hematological data of the positive sicklers group and those of the control group.

Table (11) : Comparison between mean hematological data of the positive sicklers and of the control group.

Parameter	control group Mean $\pm$ S.D.	+ve Sicklers Mean $\pm$ S.D.	t value (df=13)	P	Comment
Hb g %	13.1 $\pm$ 0.9	10.5 $\pm$ 0.61	7.178	<0.001	Sig.
PCV %	37.9 $\pm$ 2.56	32.4 $\pm$ 2.3	4.795	<0.001	Sig.
RBCs Mil./mm ³	4.8 $\pm$ 0.34	3.9 $\pm$ 0.47	2.180	<0.05	Sig.
MCV μ^3	79.7 $\pm$ 4.62	83.0 $\pm$ 6.0	-0.770	>0.1	Insig.
MCH pg	27.5 $\pm$ 1.96	27.0 $\pm$ 3.39	0.383	>0.1	Insig.
MCHC %	34.7 $\pm$ 6.24	32.8 $\pm$ 2.49	1.384	>0.1	Insig.
WBCs Thous./mm ³	6.2 $\pm$ 1.5	7.9 $\pm$ 2.84	-1.588	>0.1	Insig.
-Staff %	2.6 $\pm$ 0.97	3.6 $\pm$ 1.67	-1.553	>0.1	Insig.
-Segmented %	63.0 $\pm$ 19.35	56.4 $\pm$ 6.23	0.139	>0.1	Insig.
-Total PNLs %	65.6 $\pm$ 6.38	59.2 $\pm$ 7.35	8.728	<0.001	Sig.
-Lymphocytes %	29.4 $\pm$ 5.89	36.0 $\pm$ 7.88	-2.013	>0.1	Insig.
-Eosinophils %	2.0 $\pm$ 1.89	1.6 $\pm$ 2.6	0.333	>0.1	Insig.
-Basophils %					
-Monocytes %	3.2 $\pm$ 1.03	2.4 $\pm$ 0.89	1.763	>0.1	Insig.
Serum bilirubin					
-Total mg%	0.5 $\pm$ 0.16	0.53 $\pm$ 0.16	-0.4	>0.1	Insig.
-Direct mg%	0.17 $\pm$ 0.05	0.16 $\pm$ 0.05	0.42	>0.1	Insig.
-Indirect mg%	0.37 $\pm$ 0.14	0.47 $\pm$ 0.03	-2.092	>0.1	Insig.

The +ve sicklers group shows significant reduction in the Hb %, PCV, RBCs count and in the total PNLs in comparison with the control group.

Table (12) shows the comparison between the hematological data of the 2 sickle cell trait cases and those of the control group.

Table (12) Comparison between mean hematological data of the 2 sickle cell traits and the control group.

Parameter	Control group Mean $\pm$ S.D	S.C.T. cases Mean $\pm$ S.D.	t value (df=10)	P	Comment
Hb g %	13.1 $\pm$ 0.9	10.25 $\pm$ 1.06	3.56	<0.01	Sig..
PCV %	37.9 $\pm$ 2.56	33.5 $\pm$ 3.54	1.67	>0.01	Insig.
RBCs Mil./mm ³	4.8 $\pm$ 0.34	4.1 $\pm$ 0.42	2.26	<0.05	Sig.
MCV μ^3	79.7 $\pm$ 4.62	82.0 $\pm$ 0	-1.49	>0.05	Insig.
MCH pg	27.5 $\pm$ 1.96	25.0 $\pm$ 0	1.29	>0.05	Insig.
MCHC %	34.7 $\pm$ 6.24	31.0 $\pm$ 0	1.11	>0.05	Insig.
WBCs Thous./mm ³	6.2 $\pm$ 1.5	5.96 $\pm$ 1.45	0.21	>0.1	Insig.
-Staff %	2.6 $\pm$ 0.97	5.0 $\pm$ 1.41	-2.29	<0.05	Sig.
-Segmented %	63.0 $\pm$ 19.35	62.0 $\pm$ 2.83	0.15	>0.1	Insig.
-Total PNLs %	65.6 $\pm$ 6.38	67.0 $\pm$ 2.83	-0.48	>0.1	Insig.
-Lymphocytes %	29.4 $\pm$ 5.89	28.0 $\pm$ 0	0.71	>0.1	Insig.
-Eosinophils %	2.0 $\pm$ 1.89	0	2.41	<0.05	Sig.
-Basophils %					
-Monocytes %	3.2 $\pm$ 1.03	2.0 $\pm$ 0	3.49	<0.01	Sig.
Serum bilirubin					
-Total mg%	0.5 $\pm$ 0.16	0.7 $\pm$ 0.14	-2	>0.05	Insig.
-Direct mg%	0.17 $\pm$ 0.05	0.2 $\pm$ 0	-1.79	>0.05	Insig.
-Indirect mg%	0.37 $\pm$ 0.14	0.5 $\pm$ 0.14	-1.3	>0.05	Insig.

The SCT group shows significant reduction in the Hb %, RBCs count, eosinophil count and in the monocyte count with a significant increase in the staff cell count in comparison with the control group.

Table (13) shows the comparison between the hematological data of the two sickle cell trait cases and those of the positive sicklers.

Table (13) Comparison between mean hematological data of the sickle cell traits and of the positive sicklers.

Parameter	+ve sicklers Mean $\pm$ S.D.	S.C. traits Mean $\pm$ S.D.	t value (df=5)	P	Comment
Hb g %	10.5 $\pm$ 0.61	10.25 $\pm$ 1.06	0.23	>0.05	Insig.
PCV %	32.4 $\pm$ 2.3	33.5 $\pm$ 3.54	-0.421	>0.05	"
RBCs Mil./mm ³	3.9 $\pm$ 0.47	4.1 $\pm$ 0.42	-0.606	>0.05	"
MCV μ^3	83.0 $\pm$ 6.0	82.0 $\pm$ 0	0.5	>0.05	"
MCH p g	27.0 $\pm$ 3.39	25.0 $\pm$ 0	1.769	>0.05	"
MCHC %	32.8 $\pm$ 2.49	31.0 $\pm$ 0	2.169	>0.05	"
WBCs Thous./mm ³	7.9 $\pm$ 2.89	5.96 $\pm$ 1.45	1.121	>0.05	"
-Staff %	3.6 $\pm$ 1.67	5.0 $\pm$ 1.41	-1.069	>0.05	"
-Segmented %	46.4 $\pm$ 6.23	62.0 $\pm$ 2.83	-1.942	>0.05	"
-Total PNLs %	59.2 $\pm$ 7.35	67.0 $\pm$ 2.83	-2.467	>0.05	"
-Lymphocytes %	36.0 $\pm$ 7.88	28.0 $\pm$ 0	3.045	<0.05	Sig.
-Eosinophils %	1.6 $\pm$ 2.6	0	1.845	>0.05	Insig.
-Basophils %					
-Monocytes %	2.4 $\pm$ 0.89	2.0 $\pm$ 0	2.694	>0.05	"
Serum bilirubin					
-Total mg%	0.53 $\pm$ 0.16	0.7 $\pm$ 0.14	1.149	>0.05	"
-Direct mg%	0.16 $\pm$ 0.05	0.2 $\pm$ 0	-2.353	>0.05	"
-Indirect mg%	0.47 $\pm$ 0.03	0.5 $\pm$ 0.14	0.333	>0.05	"

The SCT group shows significant reduction in the lymphocytic count in comparison with the +ve sicklers group.

Figure (1) shows hemoglobin electrophoresis on cellulose-acetate of normal individual pattern, sickle cell T-pattern and sickle cell anemia pattern.

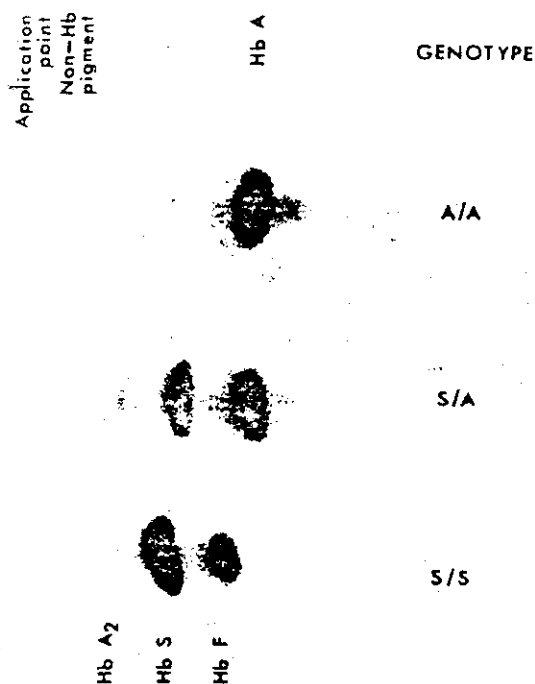


Figure (1) : Hemoglobin electrophoresis of normal, sickle cell trait and sickle cell anemia patterns(Horger,1974)

Figure (2) shows hemoglobin electrophoresis on cellulose acetate of the five positive sicklers, including a control pattern and the two sickle cell trait patterns(subject No. 4 and subject No. 5).

Control
 Subject No. 1
 Subject No. 2
 Subject No. 3
 Subject No. 4
 Subject No. 5

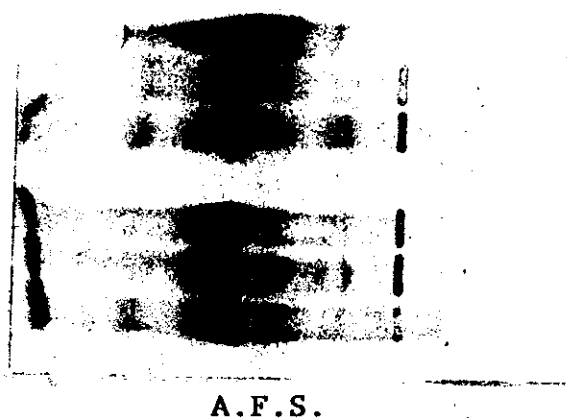


Figure (2) : Hemoglobin electrophoresis of the 5 positive sicklers

Figure (3) shows scanning diagrams of (a) normal hemoglobin, (b) sickle cell anemia, (c) sickle cell trait and (d) 50-50 mixture of (a) and (b)

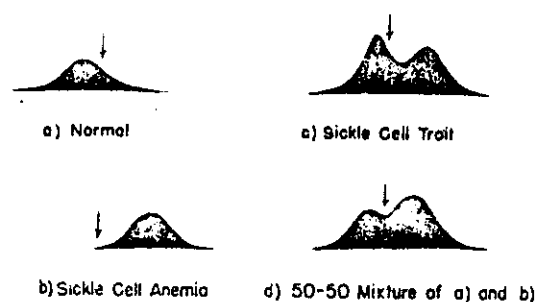


Figure (3) : Scanning diagrams of (a) normal, (b) sickle cell anemia, (c) sickle cell trait and (d) mixture of (a) and (b) (Pauling et al., 1949).

Figure (4) shows scanning graph of hemoglobin electrophoresis of the control case.

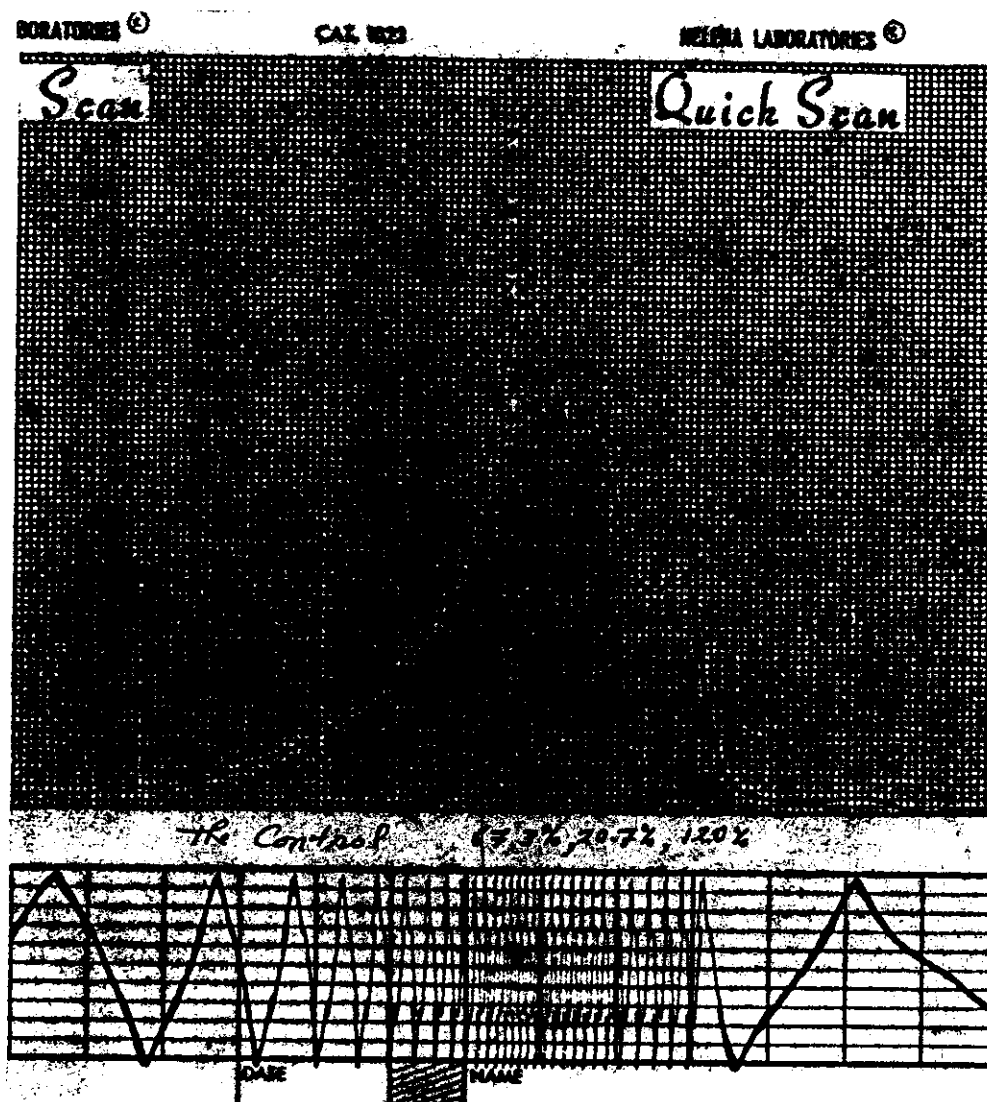


Figure (4) : Scanning graph of Hb-electrophoresis of the hemo-control.

Figure (5) to (9) show scanning graphs of hemoglobin electrophoresis of the five positive sicklers cases including the two sickle cell trait cases (Subject No. 4 and Subject No. 5).

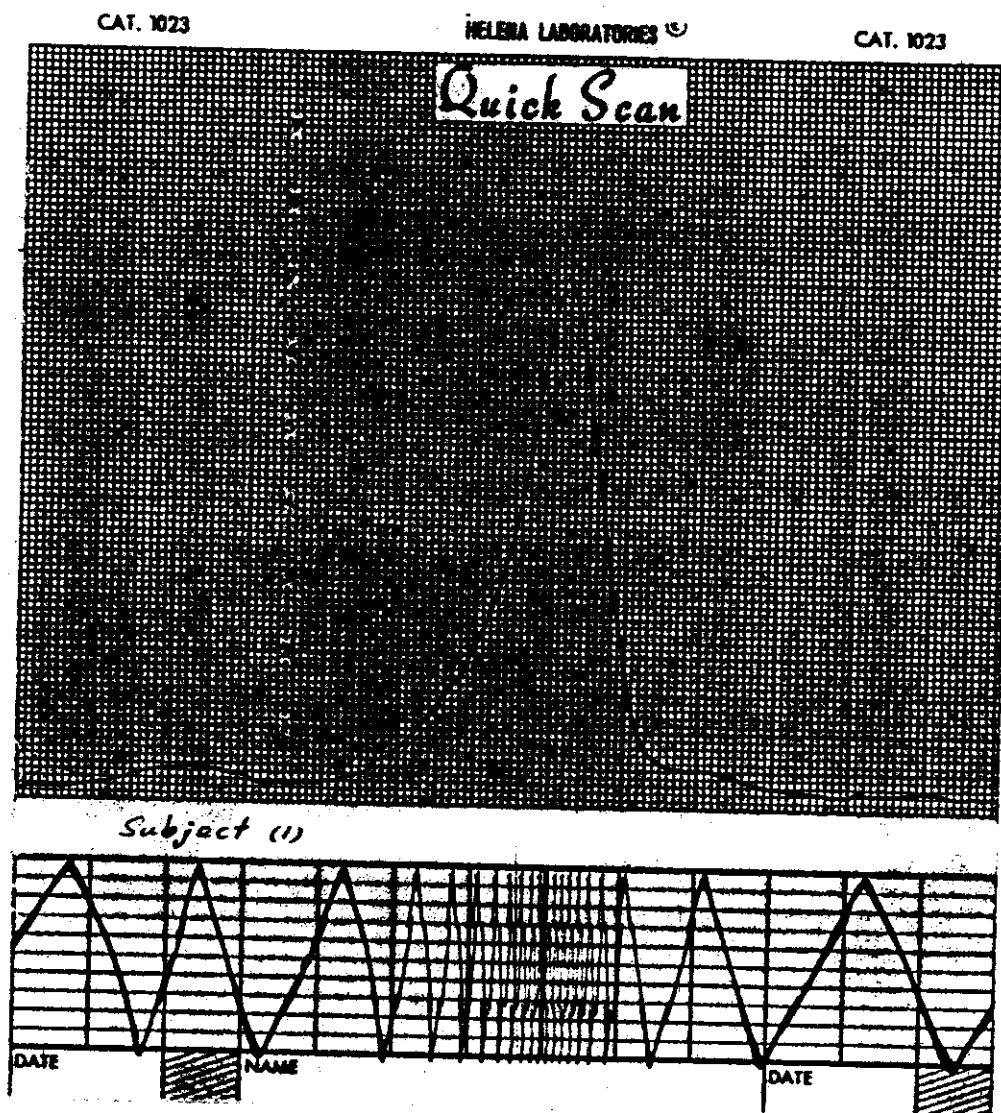


Figure (5) Scanning graph of Hb-electrophoresis of subject No. 1 positive sickler.

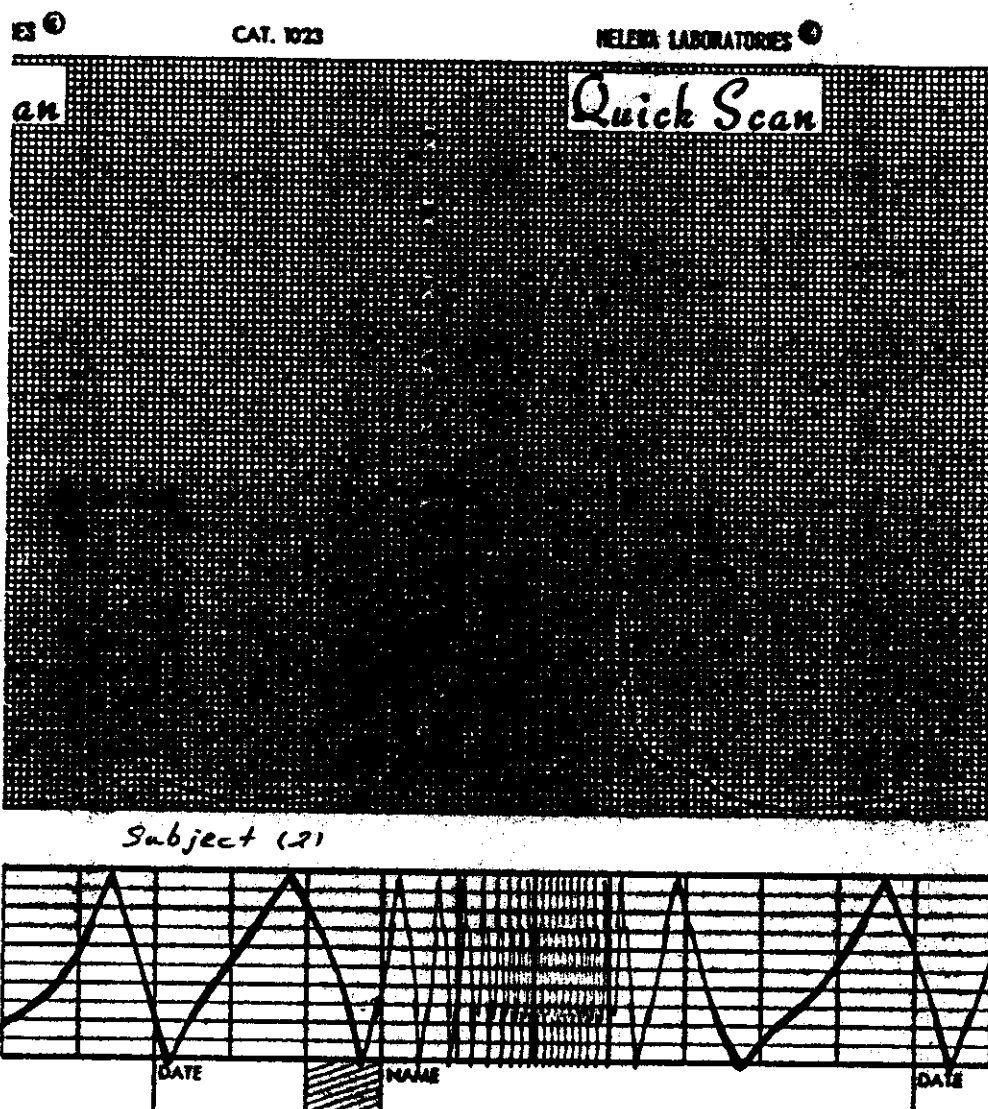


Figure (6) : Scanning graph of Hb-electrophoresis of subject No. 2 positive sickler.

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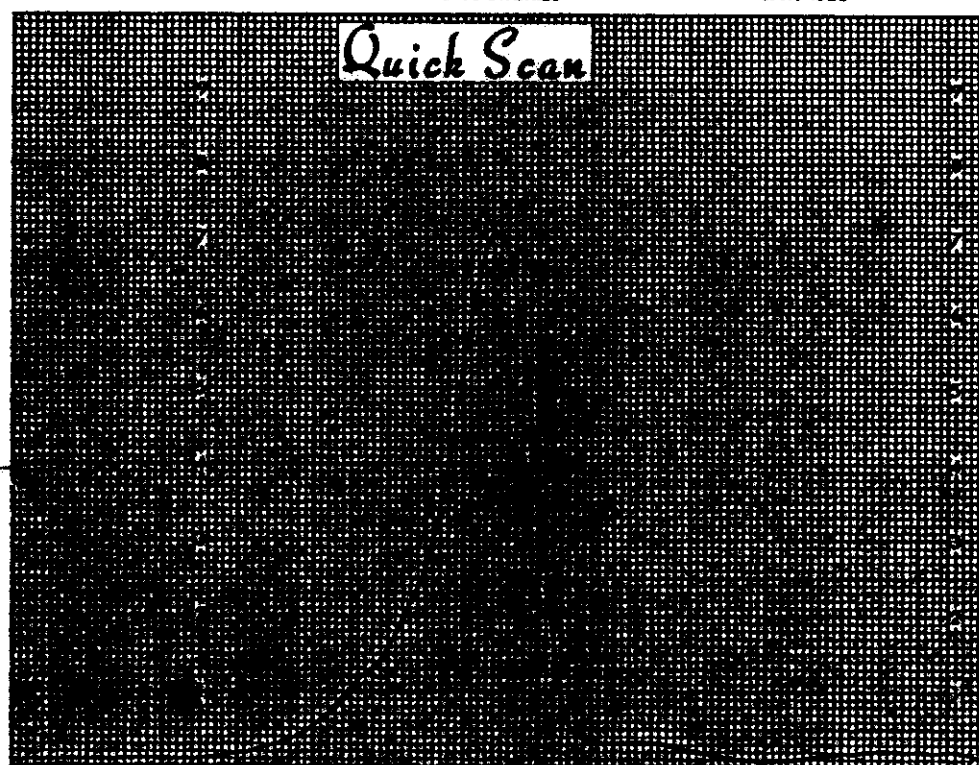
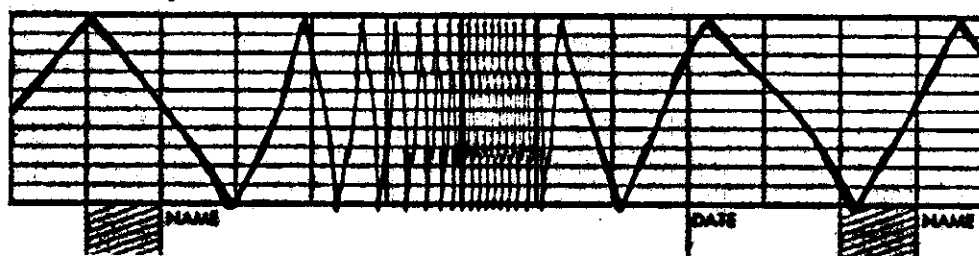
*Subject (3)*

Figure (7) : Scanning graph of Hb-electrophoresis of subject No. 3 positive sickler.

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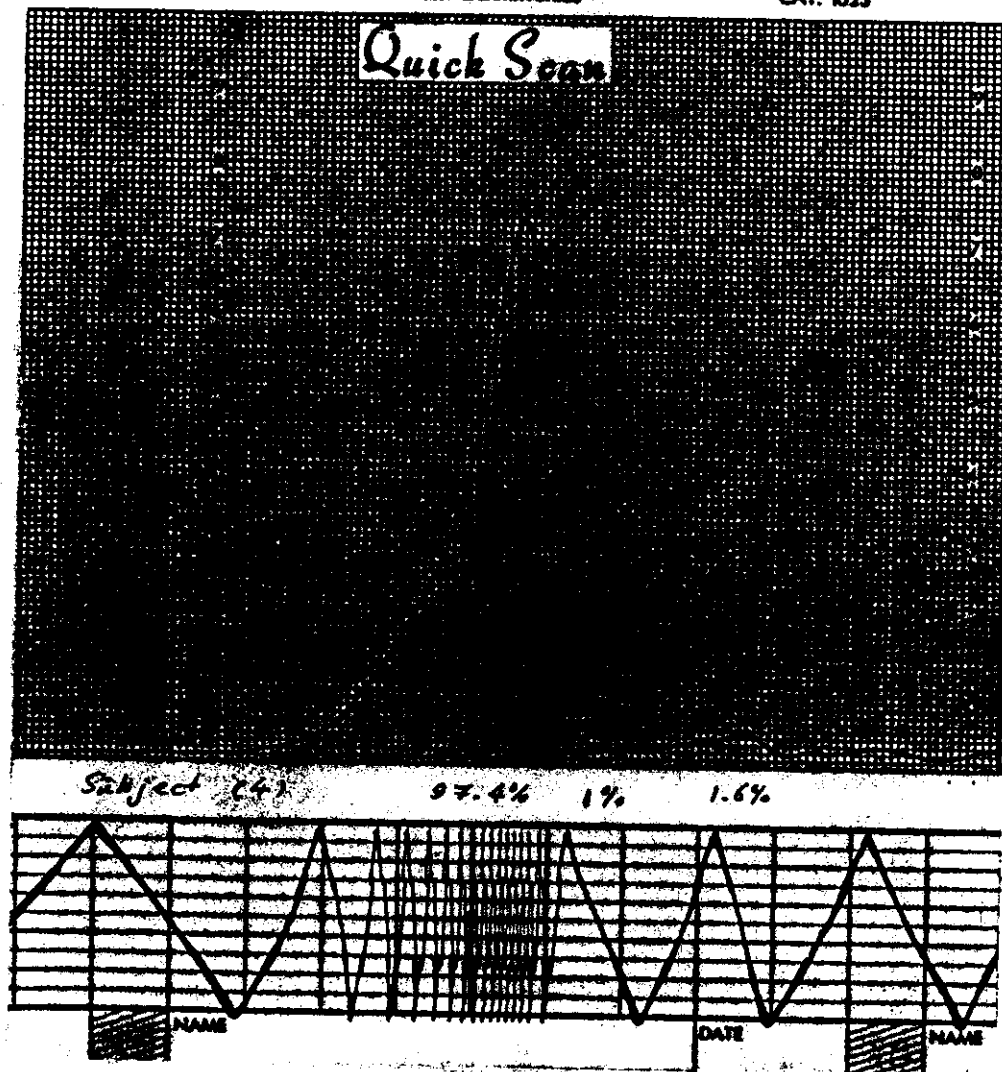


Figure (8) : Scanning graph of Hb-electrophoresis of subject No. 4 positive sickler (No. 1 sickle cell trait).

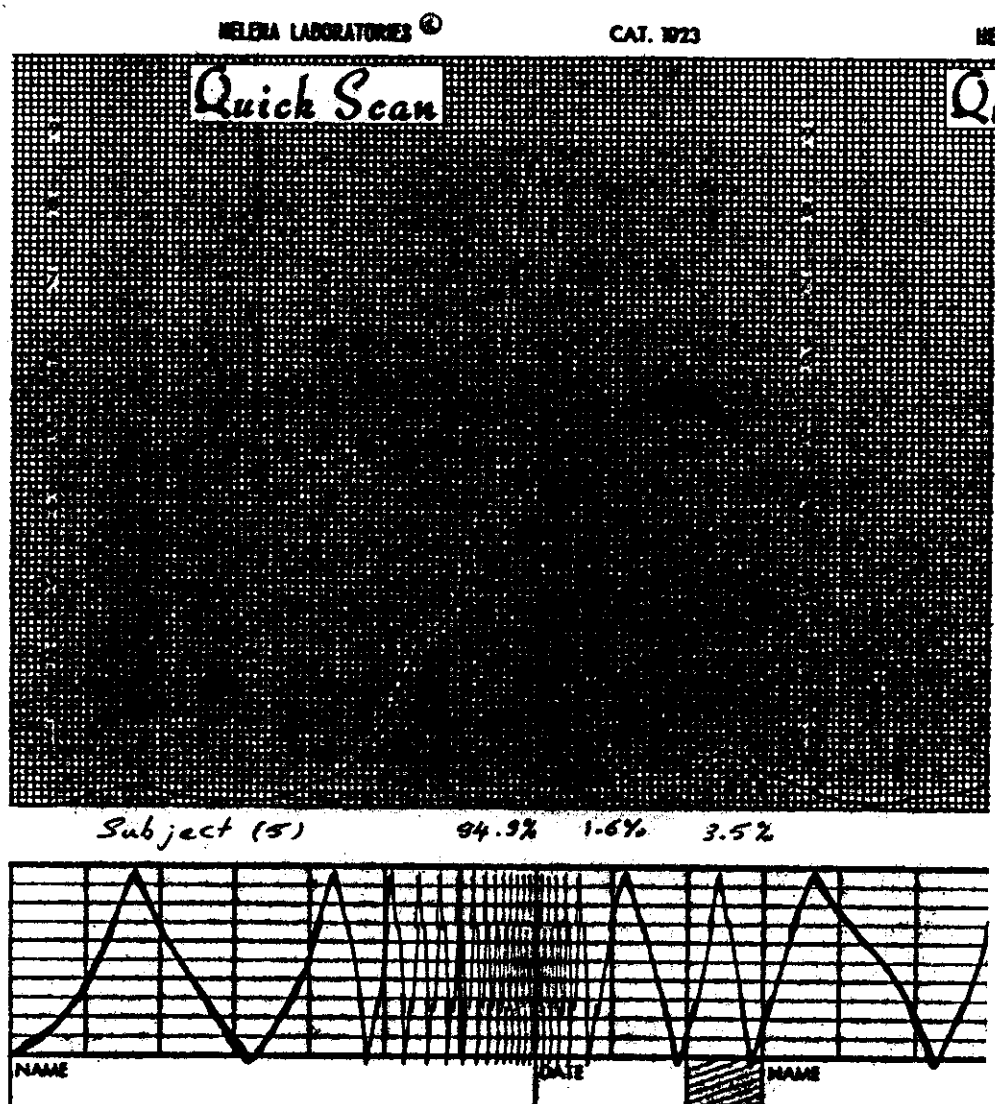


Figure (9) : Scanning graph of Hb-electrophoresis of subject No. 5 positive sickler (No. 2 sickle cell trait).