ously described control, and its use was therefore discontinued.

Forty-four naturally penicillin-resistant strains and 39 penicillin-sensitive strains of coagulase-positive *Staph. aureus*, all of which were isolated from suppurative conditions and from nasal swabs, were tested for penicillinase production by this method. The results were clear-cut and reproducible. All strains of the former group were found positive, and all strains of the latter negative.

In parallel with this method, the same strains were tested by the cup method described by Bondi and Dietz (*3*), with slight modification. The results obtained by the two methods were in complete agreement.

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The Decrease of Albumin Concentration of Human Blood Serum during Heat Inactivation

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Perusal of available literature fails to reveal a record of the consistent decrease of albumin content of human blood serum which occurs during heat inactivation.

In the following study, freshly obtained, undiluted blood serum was heated for 30 min at 56° C. Total protein and albumin concentrations, the latter after separation of globulins by Kingsley's modification of

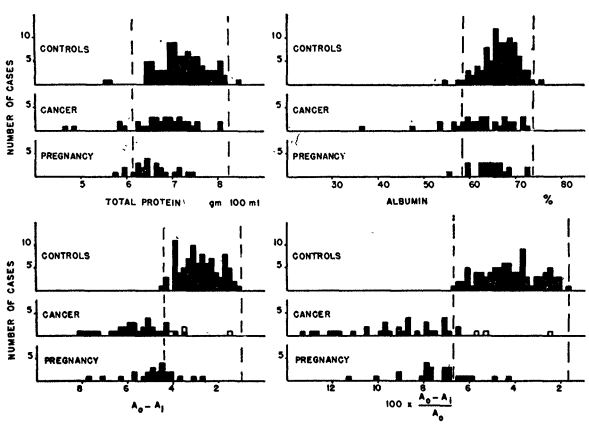

FIG. 1

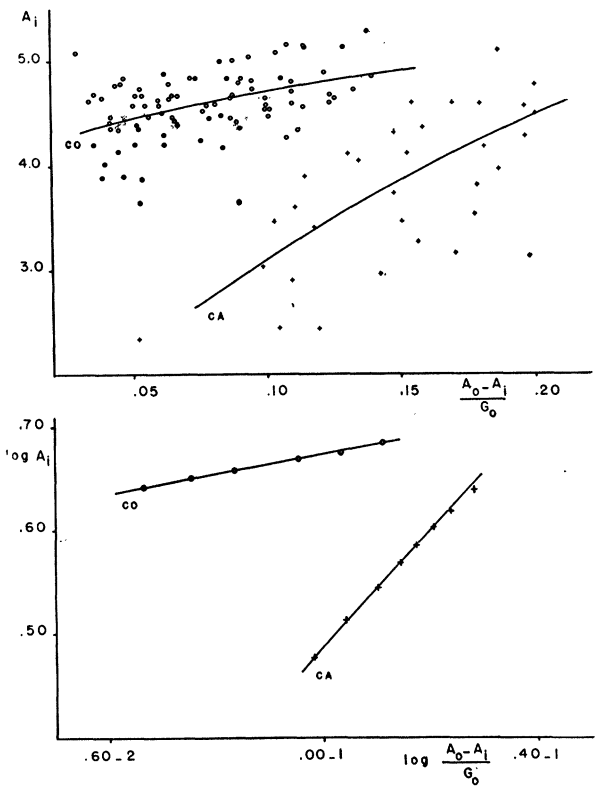

FIG. 2

Howe's procedure using 22.6% sodium sulfate at room temperature (*1*), were determined without delay in samples of the unheated and of the inactivated serum by means of the biuret color reaction (*2*).

The 92 "controls" were predominantly ambulant patients of the Gynecological Clinic. Excluded were patients who had had recent surgery or irradiation, those who were known to have fever, and those known to have a positive serum Wassermann reaction. Grouped separately were 37 cases of cancer involving cancer of the salivary gland, 1; esophagus, 1; stomach, 3; colon, 3; pancreas, 1; vulva, 1; vagina, 1; cervix uteri, 11; endometrium, 5; ovary, 2; breast, 4; skin, 3; and retroperitoneal sarcoma, 1. Also grouped separately were 24 pregnancy cases ranging from 10 weeks to term.

Fig. 1 represents the frequency distribution of total serum protein (mean value of "controls" 7.17 g/100 ml, standard deviation 0.53 g), of the albumin fraction of unheated serum (mean value of "controls" 65.7%, standard deviation 3.8%), and of the difference between the albumin fractions of unheated and of inactivated serum, $A_o - A_i$ (mean value of "controls" 2.75%, standard deviation 0.85%). Since serum albumin concentrations can vary greatly in pathological conditions, the decrease of albumin during inactivation was further expressed as a percentage value of the albumin fraction of unheated serum, 100 $\frac{A_o - A_i}{A_o}$ (mean value of "controls" 4.17%, standard

deviation 1.26%). Broken lines indicate values of the mean plus and minus twice the standard deviation. It is evident that the decrease of albumin during inactivation expressed as a percentage of the albumin fraction of unheated serum is significantly higher in cancer sera. The 5 cases where this ratio is found to be less than 6.7% were cancer of the skin (open squares), 3; cancer of the cervix, 1; cancer of the cervix *in situ*, 1. Under the described conditions the results obtained with pregnancy sera are similar to those of cancer.

The conclusion has been advanced from electrophoresis studies of normal horse serum that a "colloidal aggregation product" with an approximate mobility of β-globulin is formed during heat inactivation at the expense of the serum globulins and that if "produced in large amounts it adsorbed considerable quantities of albumin" (*3*). The decrease of albumin during heating of human serum may be due to adsorption of albumin on globulin after denaturation, the extent of the adsorption depending on the nature of the proteins in each particular condition. When the individual values of albumin concentration after inactivation are plotted against the ratio of albumin decrease to globulin (all values in g/100 ml) and curves of mean values are constructed (Fig. 2), a relationship can be demonstrated expressed by

$$\log A_i = .76 + .09 \log \frac{A_o - A_i}{G_o}$$ for the "controls," and by

$$\log A_i = 1.04 + .55 \log \frac{A_o - A_i}{G_o}$$ for cancer sera.

It may be anticipated that similar relationships can be established in other conditions where the serum proteins differ from the normal.

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Comments and Communications

Further Notes on Discrimination

LORCH *et al.* (SCIENCE, **114**, 161 [1951]) have brought before the scientific public a subject that is of great importance today. Discrimination in the United States against Negro citizens in all walks of life raises questions concerning our boast of democracy. Especially in science, where we commonly speak with enthusiasm and pride of the contributions of all nations to our disciplines, we should be alarmed at the fact that Negro citizens do not have equality with the rest of us when they desire to better mankind through science.

Ten years ago Lillie (SCIENCE, **95**, 10 [1941]), in his obituary for his student, Ernest Everett Just, said:

> An element of tragedy ran through all Just's scientific career due to the limitations imposed by being a Negro in America. . . . He felt this as a social stigma, and hence unjust to a scientist of his recognized standing. . . . That a man of his ability, scientific devotion, and of such strong loyalties as he gave and received, should have been warped in the land of his birth must remain a matter for regret.

It would seem desirable for more white American scientists to follow Dr. Lillie's lead in protest against discriminatory policies and practices, inasmuch as these are discouraging participation by Negroes in the fields of scientific research and teaching.

During the December 1950 meetings of the AAAS in Cleveland there was, so far as I am aware, no gross discrimination against Negro participants. There were, however, conspicuously few Negro delegates or speakers. The reasons for this are not far to seek:

1) Negroes who might otherwise develop a keen interest and a great ability in science often lack incentives to undergo expensive training when they realize that, after obtaining their training, they will either be forced into menial employment despite their abilities or will be employed in segregated schools whose limited budgets make for limited salaries, overloaded schedules, and lack of equipment or funds for research.

2) With individual exceptions the grade school and high-school training of Negroes is relatively inferior in most sections of the country, both in segregated schools for Negroes in the South and in unsegregated schools in the Negro districts of our Northern communities. This situation eliminates many Negro students from competition for college and university training at the same time that white students of equal or inferior basic capacity are able to complete their studies.

3) Because of mass discrimination in employment, Negro parents cannot afford to give their children the necessary scientific training.

4) Those Negroes who have succeeded in mastering all the hurdles and who have become science teachers and research workers, by and large are employed in low-paying positions and institutions, and cannot afford travel expenses to national meetings, nor can their institutions afford to pay their expenses.

Commonly we associate discrimination with our Southern states. Paradoxically, however, the majority of our Negro scientists are able to find employment only in the segregated schools of the South, with all that this implies. Such scientists, because of legal and extralegal restrictions, find themselves isolated in