ERYTHROCYTES


Promazine retards in vitro sickling, possibly as a result of inhibition of the enzyme glucose-6-phosphate dehydrogenase (G-6-PD). For this reason a long-term trial of its efficacy in sickle cell anemia was undertaken. Since the effect tends to wear off with time, another G-6-PD inhibitor, dapsone, was added to the regime. Therapy was continued for two years and the majority of the patients were then followed up for a further two years after the withdrawal of this form of therapy. Only five crises warranting hospitalization in 84 patient years of observation during treatment with chloroquine and folic acid.—T. H. B.


Questionnaires relating to jaundice after blood transfusion were sent to unselected Caucasian patients over the age of 16 years, who had received one or more blood transfusions within the previous seven years. Most of the circulars were sent within 12-18 months of the transfusion. Replies were received from 1994 patients. Jaundice of one description or another was reported by 56 patients. In eight of these, the time intervals and nature of the illness suggested that the condition was probably homologous serum
hepatitis. This represents an incidence of 0.4 per cent, which is similar to that reported from other countries where donations are also made voluntarily and without financial reward.—T. H. B.


Healthy month-old piglets which were offered a balanced diet restricted in amount so as to maintain body weight at the one-month level were studied over an eight-to-10-month period. Alterations in erythropoiesis were observed within days of institution of caloric deprivation. Urinary erythropoietin excretion fell, and iron kinetics changed so that by 10 days, plasma iron turnover and iron incorporation into hemoglobin were at or below half the pre-study observations, while bone marrow iron transit time was doubled. Although reticulocyte counts quickly fell from 5.6 per cent to one per cent the hematocrit did not vary from the control levels until after one month of caloric restriction. During the total observation period the hematocrits fell from 37 to 31 per cent while the control animals showed an increase to hematocrits of close to 50 per cent. The anemia in the study group was normochromic and slightly microcytic. No abnormalities in serum iron, serum folate or serum protein levels were observed. The total red cell mass fell after the first month by approximately 25 per cent; since there was an almost concomitant fall in plasma volume, the fall in hematocrit did not truly reflect the fall in red cell mass. After seven or eight months some of the study animals were permitted to increase their intake ad libitum. Rapid weight gain ensued, and within a week urinary erythropoietin excretion, circulating reticulocyte count and iron kinetic studies were approaching levels normally found in rapidly growing pigs. Despite a slight early increase in red cell mass, hematocrit levels fell during the first week, as the result of a considerably expanded plasma volume. Iron supplementation was begun at this time and normal serum iron concentration was maintained. In the second paper the authors investigated the effect of a 33 per cent phlebotomy on a group of similarly deprived pigs. The control group had undergone similar dietary restriction until two months prior to the period of evaluation. In both the study animals and the "rehabilitated" group, there was a prompt increase in excretion of erythropoietin and in the rate of erythropoiesis so that the prephlebotomy red cell mass was reestablished within two to three weeks. The authors conclude that the anemia of caloric deprivation results from decreased hemoglobin and erythrocyte production which may reflect a hypometabolic state with a resultant decrease in tissue oxygen requirements. The response to an anoxic stimulus in the deprived animals indicates that no deficiency of essential nutrients existed.—J. B. S.


The red cells of the neonate lose potassium during incubation to a greater degree than do erythrocytes from adults. This increased loss results from a decrease in active potassium influx and is related to the ouabain sensitive transport system. When incubation with amphotericin B produced a rapid potassium efflux, the compensatory influx in the adults' erythrocytes was somewhat greater. Both primaquine and PCMB produced similar increases in potassium efflux in the two groups.—J. B. S.


In 405 patients who had neonatal jaundice and were followed for at least four years, the relationship between increasing bilirubin
level and CNS abnormality was notable only at levels above 20 mg./100 ml. Half the children with peak bilirubin levels above 30 mg./100 ml., 18 per cent had hearing loss and/or minimal cerebral dysfunction. These abnormalities frequently were not detected during infancy.—J. B. S.


Among Mexican-American infants, hyperbilirubinemia results from infantile pyknocytosis in one in 250 births. The authors believe that the defect causing this disorder is related to an extracorpuscular defect arising, perhaps, from the presence of a circulating toxin or from exposure of red cells to a diseased vasculature. In two infants following exchange transfusion, donor erythrocytes quickly demonstrated characteristic morphologic abnormalities. Although induction of the erythrocyte abnormality has not been observed by this abstractor, he believes the frequency of this hematologic condition is greater than is generally recognized.—J. B. S.


True hemolytic crisis is rare in SCA. In seven of eight patients with an abrupt fall in hemoglobin accompanied by reticulocytosis, red cell G6PD deficiency was present along with infection and/or administration of a drug which is known to cause hemolysis in individuals with G6PD deficiency.—J. B. S.


An 11-year-old girl with preexisting diabetes mellitus and deafness presented with moderately severe megaloblastic anemia not accompanied by laboratory evidence of abnormality in vitamin B12, orotic acid, iron, or folate levels or metabolism. The anemia partially responded to a multiple-vitamin preparation, and on several occasions, responded completely to thiamine administration in a dose of 20 mg. per day, which is approximately 10 times the M.D.R. No evidence for decreased intake, inadequate absorption or increased excretion of thiamine was found, and the three thiamine-dependent enzymes appeared to function normally. It was not clear what mechanism could be blamed for the impaired nucleic acid metabolism, but it appears that thiamine has a role in hemopoiesis and that in this patient, an increased need for thiamine existed.—J. B. S.


Beeturia, which is due to the presence of the red pigment betanin, occurs with significantly increased incidence in iron deficiency anemia. Of 19 children with iron deficiency anemia, 12 had significant beeturia, and among six youngsters with hypoferremia but no anemia, three had beeturia. Among nonanemic, non iron-deficient, or anemic, non iron-deficient children, significant beeturia was not observed. The mechanism causing the beeturia is unknown. It may arise from an inability of the apoferritin carrier system to distinguish between betanin and iron, or from an increased permeability of the gut secondary to the iron deficiency.—J. B. S.


A man of 72 with pancytopenia due to marrow hypoplasia was treated with oxymetholone 100 mg. daily. After three months
both hemoglobin and platelet levels began to rise and reached normal levels. Cessation of therapy led to a return of thrombocytopenia which again responded to oxymetholone. Abstractor’s comment: This case is unusual in showing a platelet response to androgen administration and suggests that the drug action is not simply concerned with erythropoiesis. Abstractor.—F. W. G.

Thalassemia Syndrome Found in Japan.


The present paper describes the 18 kindreds with thalassemia syndrome found in Japan (15 Japanese cases), including one case of α-thalassemia and three definite cases of β-α-thalassemia. Among them, two with F-thalassemia, one with β-α-thalassemia and one with hereditary persistence of fetal hemoglobin were examined by our group. The classification of thalassemia syndromes is discussed.—K. F.


The purpose of this study was to elucidate the following questions: Can short-lived cells be considered reticulocytes? What percentage of reticulocytes is destroyed in the early stage? In order to observe the fragility of only reticulocytes, in vitro Fe59 labeling of rabbit reticulocytes was carried out and observation on the decay curves was made after injection of these samples into animals. Curves obtained from animals injected with in vivo labeled normal young cells submitted to a similar in vitro procedure served as control. The decay curves attributed to reticulocytes labeled two, four and six days after bleeding showed a fall of 10.4 per cent, 4.2 per cent and almost none, respectively. Thereafter they ran parallel with the controls. These results indicate that the short-lived fragile cells, “stress reticulocytes,” seem to appear in higher percentage in the initial stage of a reticulocyte crisis.—K. F.


The author assessed the influence of Heinz bodies of different size formed in red blood cells by incubation with hydroxylamine in vitro on the osmotic and mechanical resistance of red blood cells, and their resistance during the passage through pores of a membrane ultrafilter with a diameter of 2.1 and 0.3 μ. The osmotic and mechanical resistance of erythrocytes with Heinz bodies was reduced as compared with controls independently of the size of Heinz bodies. The mechanical resistance was reduced even immediately after addition of hydroxylamine, before the Heinz bodies were formed. Red cells with Heinz bodies passed freely through filters with a pore size of 2 and 1 μ. They did not pass through 0.3-μ pores. During the passage the red cells were not hemolysed. It may be assumed that hemolysis by fragmentation of red cells does not occur in intoxications with aromatic aminoderivatives and nitrodervatives by simple mechanical injury, but due to the active participation of phagocytosing cells of the lineal reticuloendothelium.—L. D.


The results of serum iron estimations in Czechoslovakia in 463 women aged 16–95 years are presented. In 400 women with a normal hemoglobin level, the average serum iron is 103 gamma per cent which differs significantly from women with low Hb levels where the corresponding value is only 73 gamma per cent. No age dependence was found except for a decline after the age of 20.—L. D.


The permeation of different metal ions
into erythrocytes, their binding to the membrane and their effect on the electrophoretic mobility of erythrocytes were investigated. It was established that of the investigated metal ions (Fe++, Cr++, Co++, Ca++, Mg++, Pb++, Ni++, Zn++, Cu++, Hg++, Al+++) only iron decreased the mobility, though its uptake was by two magnitudes smaller than, e.g., that of Hg++ or Cu++. The concentration and time dependence indicated that the decrease of the surface charge in erythrocytes was the consequence of a membrane damage caused or mediated by iron.—S. R. H.

**Abstracts**

**ABSTRACTS**

**565**

**ABSTRACTS**

**565**

**ABSTRACTS**

**565**

**LEUKOCYTES**


Previous work had shown that mouse marrow cells can form colonies of granulocytes and mononuclear cells in an agar medium, when stimulated either by a "feeder layer" associated with the agar plates or by the serum of normal mice or leukemic mice or humans. Normal human urine when dialysed and concentrated is now shown also to contain a colony-stimulating factor (CSF). The urine dose has a linear relationship with the number and size of colonies growing from a standard suspension of marrow cells in agar. This provides an assay system for the CSF. In normal subjects the CSF level varied over a 40-fold range, and in any one subject daily and diurnal variations were found.—F. W. G.


Experiments are described for the purification and identification of the colony-stimulating factor (CSF) mentioned in the previous abstract. CSF was obtained from normal and leukemic human urine and no difference in the properties of urine from these two sources was noted. The concentrated urines yielded CSF which was not affected by RNase, DNase, ether, 8M urea, pH (range 2-12) or by ethanol or \((\text{NH}_4)_2\text{SO}_4\) fractionation. Heating at 90°C for 30 minutes, exposure to periodate and pronase destroyed activity. Physical properties were those of a probable glycoprotein with an apparent MW of approximately 190,000 and sedimentation coefficient \((S_{20,w})\) of 3.3S. These properties are somewhat like those of human urinary erythropoietin.—F. W. G.

**BETA-HEMOLYTIC STREPTOCOCCAL SEPTICEMIAS IN CHILDHOOD LEUKEMIA. B. Dudding, G. B. Humphrey and M. E. Nesbit.** From the Department of Pediatrics, University of Minnesota Medical Center, Minneapolis, Minn. Pediatrics 43: 359-364, 1969.

Approximately six per cent of 79 septicemic episodes observed in 209 leukemic children were caused by beta-hemolytic streptococci. A portal of entry was rarely found, and course was characterized by spiking fever, anorexia, lethargy, headache and usually leukopenia. Penicillin therapy resulted in recovery in nine of the 13 episodes.—J. B. S.

Sixty-four families with familial leukemia in Japan were collected and analyzed. The kinship of 64 families was composed of 13 families with parent and child, 25 families with siblings, six families with grandparent and grandchild, 14 families with uncle or aunt and nephew or niece, and six families with first cousins. In all the families, two cases of leukemia occurred in the same family except in one instance in which three cases of leukemia occurred among siblings. 

Classification of leukemic patients in the familial leukemia cases was 78 per cent with acute leukemia (57 per cent myelogenous, eight per cent lymphatic, three per cent monocytic, and 10 per cent unknown type), 19 per cent with chronic leukemia (16 per cent myelogenous and three per cent lymphatic), and three per cent with erythroleukemia. No characteristic type of leukemia in the familial leukemia cases was observed. The occurrence of the same type of leukemia in both patients in the same family was in 37.5 per cent of families. However, this concordant rate was not significantly different from the expected value. In 44.7 per cent of families, the interval between onset of disease in two patients of the same family was less than two years, and in 14.9 per cent the interval was more than 20 years. The occurrence of leukemia at short intervals in the same family might suggest the presence of common environmental factors. However, no such factors could be demonstrated in these patients. First cousin marriage among parents of leukemic patients were observed in five families (6.4 per cent), with 78 families with nonfamilial leukemia. First cousin marriage among parents of the proband with familial leukemia was observed in one family (5.2 per cent) with 19 families with kinship other than siblings. The numbers of consanguineous marriages among parents of 15 families with familial leukemia occurring in siblings were as follows: five (33.3 per cent) with first cousin marriage, two (13.3 per cent) with first cousin once removed marriage, and two (13.3 per cent) with second cousin marriage. High rate of consanguineous marriages was noted in the families with familial leukemia occurring in siblings. Furthermore, in familial leukemia occurring in siblings, it was noted that the patients whose parents were consanguineous developed the disease at a younger age than the patients whose parents were not consanguineous. These results might indicate the presence of a possible recessive gene influencing the development of familial leukemia in siblings. However, the influence of hereditary factors on the development of nonfamilial leukemia will have to be studied by further investigations.—K. F.


A report is presented of electronmicrographic studies on the fate, particularly survival and death, of staphylococci after being phagocytized by human leukocytes. The results obtained are as follows: Coagulase positive strain of staphylococci phagocytized by neutrophiles first show swelling of the cell wall, followed by swelling of the cytoplasm and the nuclear region. Then, the cell wall becomes uneven and irregular in configuration being accompanied by a thinning or partial disappearing of the cytoplasmic membrane. Subsequently, the cytoplasm becomes irregularly granular, the cell wall splits and breaks down, and eventually the cytoplasmic material flows out from the bacteria. Staphylococci of the coagulase negative strain are likewise destroyed by neutrophiles; Monocytes can phagocytize and kill both coagulase negative and positive strains of staphylococci. For phagocytic and bactericidal activities with both strains of staphylococci, monocytes are considerably inferior to neutrophiles. Qualitatively, the process of destroying staphylococci is similar in monocytes as in neutrophiles; Eosinophiles also can phagocytize both strains of staphylococci, but their phagocytic activity is still inferior to monocytes. Among the staphylococci phagocytized by eosinophiles, only a few show swelling of the cell wall or lowering of the cytoplasmic density; the rest of them is left rather intact.—K. F.

**Mononucleosis in Two Children Who Received Blood Transfusions after Major Operations.** J. Polák. From the Pediatric Department, University Hradec Králové, Czechoslovakia. Česk. Pediat. 24, 343-346, 1969.
ABSTRACTS

A case is presented where a condition resembling mononucleosis developed in a boy after splenectomy. Another similar case is demonstrated in a girl who was subjected to peritoneal dialysis due to hemolytic uremic syndrome.—L. D.


The authors present a report on 308 patients with infectious mononucleosis who were subjected to electrocardiographic examinations. The above number of 308 patients included 127 adults and 181 children. Pathological findings on ECG tracings were detected in 25.2 per cent of the adults and 13.8 per cent of the children. The diagnosis of myocarditis was made in six children (3.3 per cent) and 14 adults (11 per cent), since in these patients the authors found in addition to deviations of the electrocardiogram, enlargement of the hearth, changes of some other laboratory examinations, as well as subjective complaints, particularly dyspnea.—L. D.


Alkaline phosphatase in neutrophilic leucocytes using the cytochemical azocoupling method was estimated in a total of 374 children with measles, chickenpox, German measles, parotitis, infectious hepatitis, infectious mononucleosis, purulent tonsillitis and purulent meningitis. In bacterial infections, an increase of the enzyme activity in neutrophiles was observed. In virus infections an increase was recorded only in measles. In some of the children the enzyme rose after admission. In complicated virus infections, the enzyme activity was high in secondary bacterial complications. Where the complication was due to the original virus, the enzyme activity was the same as in the basic disease.—L. D.


A modified “skin window” method was used for the study of the cells of an inflammatory lesion stained for the presence of peroxidase, alkaline phosphatase and naphtol-AS D-chloralacetate esterase during the 120 hours of its duration. Both the peroxidase and esterase show a high degree of activity within the neutrophilic granulocytes, whereas the activity of alkaline phosphatase is either absent or very weak in them. Macrophages display a negative reaction for alkaline phosphatase and a slightly positive reaction for the remaining two enzymes during the initial 48 hours of the observation period. Preparations from later periods show an increase in peroxidase activity, most probably owing to the phagocytosis of positively reacting fragments of destroyed granulocytes.—L. D.

PARTICIPATION OF MONOCYTES IN THE ORGANIZATION OF PULMONARY THROMBOEMBOLI. M. Šimko. From the Department of Pathology, University of Bratislava, Brataslava, Czechoslovakia. Česk. Pathol. 5, 190–192, 1969.

The author investigated changes in the number of monocytes in 51 pulmonary thromboemboli during the initial stage of their organization. Already in the period when endothelialization begins, there are relatively many monocytes at the periphery of the white thrombus. In the course of organization their number declines, parallel to the increase of lipophages. The number of monocytes was significantly higher at the periphery of the white thrombus than in the center. In the red thrombus, monocytes were much fewer than in the white thrombus.—L. D.

The paper summarizes the results of a study on the biochemical and biological properties of some new types of analogs of folic acid. 4-Amino analogues of the coenzyme forms of folic acid, especially tetrahydroaminoaphoterin and its derivatives, differed in the mechanism of their inhibitory action from the classical antifolics. Their inhibition of folate reductase was an order-of-magnitude weaker than that of aminopterin and of its derivatives with a nonhydrogenated pyrazine ring. Moreover, they inhibited thymidy late synthetase, methylene-tetrahydrofolate dehydrogenase, tetrahydrofolate formylase, and with trans-formylases participating in the biosynthesis of the purine ring, they exhibited a coenzyme activity. In biological properties they differed from the classical antifolics by an easier reversal of toxicity by folic acid, and especially by derivatives of tetrahydrofolate acid. However, their toxicity in mice was not much lower, and their chemotherapeutic effect on the two experimental strains of mouse leukemia was also not much better. 3',5'-Dibromoaminopterin and its derivatives, in their interaction with enzymes interconverting folic acid and its derivatives in vitro, behaved analogously to the nonhydrogenated compounds. An exception was the stronger inhibition of formimino transferase by the brominated derivatives of aminopterin, compared to the halogen-free analogs. In the biological effect, 3',5'-dibromoaminopterin and its derivatives were 200–500 times less toxic for mice than aminopterin; however, the toxicity could not be reversed by folic acid and its derivatives under any experimental condition. The chemotherapeutic effect on two strains of mouse leukemia, expressed by the chemotherapeutic range, was much better than that of aminopterin.—L. D.

HEMOSTASIS


The paucity of reports of hemophilia in Negroes and other nonwhite races has led to the assumption that the disease is uncommon in them. In the present report, the records of the South African Institute for Medical Research for a 14-year period were reviewed. During this time 67 cases were diagnosed. The levels of factor VIII were assayed in 21 consecutive patients; they were less than one per cent in 17 and one to five per cent in the remaining four. The fact that none showed a milder form of the disease is possibly due to the fact that only severely affected Bantu subjects seek medical aid.—T. H. B.


The purpose of this study was to establish the origin of platelet factor XIII activity. Using a biological method, it was found that platelet factor XIII activity persisted on the platelet surface even after ten washes. On the other hand, platelets from a patient congenitally deficient in factor XIII (and therefore lacking factor XIII activity in the platelets), failed to adsorb and to retain this clotting factor from normal plasma, in normal amounts, both in vitro and in vivo. These experiments imply that platelet factor XIII is not a “surface coat” gained when a platelet begins to circulate. It is more likely that platelet factor XIII represents a biologically active, integral part of platelet structure (J. McDonagh et al.: J. Clin. Invest. 48:940, 1969, using a somewhat different technique, reached the same conclusion).—Z. R.


A girl with a factor IX level of five per cent, and a history of excessive posttraumatic as well as spontaneous bleeding, is described. Her father and two paternal male cousins have Christmas Disease. The authors postulate, on the basis of a 100 per cent factor IX level in the mother and no history
suggesting coagulation disorder in her family, that the patient is a symptomatic carrier. —J. B. S.

CIRCULATING ANTICOAGULANT FACTOR AGAINST THE FIRST PHASE OF COAGULATION. L. Donner and P. Klener. From the Department of Medicine, University Charles, Prague, Czechoslovakia. Vnitřní Lek. 15, 896–904, 1969.

Two cases with circulating antibody of the antithromboplastic type are described. In a 29-year-old woman, the clinical diagnosis was lupus erythematosus with temporary appearance of hematomas in the face. The patient was followed for three years without bleeding, although the laboratory change remained. In the second case, that of a 65-year-old woman, there had been in the history a resection of stomach for peptic ulcer and a resection of intestine for cancer, allergic bronchitis and generalized psoriasis. There were vast hematomas in both quadriceps muscles which disappeared after repeated transfusions of blood platelets. In both patients the laboratory examination showed prolonged blood clotting, plasma recalcification time and abnormal thrombelastogram. Even the 15 per cent and five per cent addition of the patient’s plasma to the normal plasma prolonged the clotting time of the latter. There was a disturbance in the formation of thromboplastin and a prolonged prothrombin time. Blood platelet suspension corrected in vitro the coagulation disturbances of plasma. In one patient, the injection of Brucella bacteria did not increase the formation of antibodies and of immunoglobulins. —L. D.


Split products of fibrin (SPF) were found in approximately two thirds of cord blood sera, and were not present with greater frequency following traumatic delivery. SPF disappeared from the serum within 24 hours, with a half-life of three to six hours. There was no apparent correlation between SPF in maternal and cord sera, nor between cord levels of SPF and coagulation studies in the infants. Cord blood levels of SPF were of no prognostic significance, however persistence beyond 24 hours was frequently associated with a pathologic condition such as sepsis, respiratory distress or internal bleeding. —J. B. S.


Add to the growing list of causes of DIC the presence in a multiple pregnancy, of one dead fetus, particularly if there is monochorionic placentation. Three such cases are described; two terminated fatally and demonstrated evidence of prenatal ischemic damage to kidneys and brain. In the surviving infant roentgenographic evidence of bilateral renal calcification was noted; however, the uremia present at birth progressively cleared. Coagulation studies were not performed in any infant. However, intravascular coagulation was obviously present. —J. B. S.


An increased fibrinolytic activity was found in plasma samples from the vein of 20 patients with neutral or toxic goiter. Examinations on fibrin plates revealed that in eight patients the fibrinolytic activity was due both to activator activity and plasmin activity. Histochemical studies indicated that the fibrinolytic activity of the thyroid tissue was related to activator activity only. —S. R. H.

PLATELET ADHESIVENESS IN CORONARY HEART DISEASE. Z Lupinek and V. Hule. From the Medical Department, University Purkyně, Brno, Czechoslovakia. Vnitřní Lek. 14, 768–774, 1969.

Using Moolten’s method in cases of recent myocardial infarction, high values of platelet adhesiveness, independent of the
extension of myocardial necrosis, were found. Similar values were seen even in simple stenocardia without signs of myocardial necrosis. Tromexan did not influence the increased platelet stickiness. The diagnostic importance of the determination of platelet adhesiveness in coronary heart disease is very small since platelet adhesiveness is a nonspecific sign. Its increase is found in various pathological states and it may be provoked in many ways even in healthy individuals.—L. D.

**IMMUNOHEMATOLOGY**


Submicroscopic findings of atypical myeloma cells and characteristics of their fine structure are reported. It is concluded that in the gamma-type paraproteinemias, a plasmacellular transformation of lymphoreticular elements is highly probable.—S. R. H.


A positive direct Coombs' test after blood loss in dogs is due to posthemorrhagic reticulocytosis. The ability of the antiglobulin serum to agglutinate reticulocytes is not associated with its activity on erythrocytes sensitized with isoimmune antibodies. The power displayed by reticulocytes to positively react with the antiglobulin serum is determined by the presence on their surface of a protein differing from immune gamma globulins. The ability of the antiglobulin serum to react with reticulocytes points to the necessity of considering this activity, both in evaluating the results of the direct Coombs' test and in preparing the diagnostic reagent.—S. R. H.

**MISCELLANEOUS**


The author has produced a panoramic and yet very personal view of the development of Hematology over the last 40 years. Highly recommended for those interested in the people behind the articles.—T. H. B.

**Microspectrofluorometry of a Periodic Acid-Schiff Reaction in Blood Cells. X. Yataganas, G. Garthon and B. Thorell.** From the Department of Pathology and Section of Haematology and Gastroenterology, Department of Internal Medicine, Karolinska Sjukhuset, and Institute for Medical Cell Research and Genetics, Medical Nobel Institute, Karolinska Institutet, Stockholm, Sweden. Exp. Cell Res. 56, 59-68, 1969.

A fluorescent periodic acid-Schiff (F-PAS) reaction was quantified in neutrophilic leukocytes by means of microfluorometry. A fluorescent Schiff-type reagent, 2,5bis(4'aminophenyl-1')1,3,4oxdiazol, BOA, was found adequate for quantification when used in low concentrations. Absorption- and fluorescence spectra of stained cells were found similar to spectra in pure glycogen. Alpha-amylase treatment also indicated that the stained substance consisted mainly of glycogen. Simultaneous micro-fluorometric and microspectrophotometric determinations of F-PAS and PAS-reactive (using the ordinary PAS-reaction) material respectively showed good correspondence. Thus neutrophiles from patients with CML had low amounts, and patients with tonsillitis had high amounts of reactive material with both methods. Although more difficult to work with, the microfluorometric method was found more sensitive than absorption microspectrophotometry and in addition independent of inhomogeneity of substance distribution. It was therefore found suitable for measurements on cells with small amounts of inhomogeneously distributed material, frequently seen in lymphocytes and thalassemic erythroblasts.—P. G. R.

**Neonatal Hyperbilirubinemia Associated with Ingestion of Maternal Blood.**
ABSTRACTS


A premature newborn who had ingested large amounts of maternal blood in utero and who passed bloody meconium three minutes after birth, developed jaundice at 12 hours of age, with a serum bilirubin level of 8.2 mg. per cent. No evidence of hemolysis was present in the infant, and the authors suggest that the hyperbilirubinemia resulted from absorption of heme from the gut.—J. B. S.