ABSTRACTS
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ERYTHROCYTES

Experimental Production of “Bantu” Siderosis Using Home-Brewed Beer.

Previous studies have shown that siderosis of varying degrees is common in the adult Bantu population of Southern Africa. This has been ascribed to the high iron content of the diet; most of this iron is derived from the utensils used for brewing beer. In the present study, illegally brewed Bantu beer was fed to guinea pigs in a dose of approximately 40 ml. daily (mean iron content 4.6 mg.). The experiment was continued for more than 40 days in the majority of animals. The test animals lost a mean of 19.5 per cent of their weight over the course of the study; in contrast, a control group gained 8.6 per cent. At sacrifice, the test animals were found to have moderate or severe deposits of stainable iron in the splenic pulp. Similar deposits were found in the stroma of the duodenal villi. In addition, stainable iron was found in the hepatic and Kupffer cells of the liver. The distribution of iron noted in this study is very similar to that in Bantu subjects with uncomplicated siderosis. The striking deposits of iron noted in the spleens of the animals given Bantu beer are of interest, since there is evidence that the spleen does not take up iron directly from the plasma. The author suggests that unidentified toxins in the beer may impair release of iron from the reticuloendothelial system.—T.H.B.


Compared with normal controls, the gas-
tric juice of patients with idiopathic hemo-
chromatosis (I.H.) showed no difference in
iron-binding capacity. The gastric juice of
I.H. patients had no increased effect on iron
absorption by patients with histamine-fast
achlorhydria. In vivo intestinal mucosal up-
take of iron was normal in untreated I.H.
patients but raised after venesection, as was
total body iron retention. It was concluded
that increased iron absorption in I.H. does
not result from a defect in gastric secretion
but rather from an abnormality of the in-
testinal mucosa.—F.W.G.

Inquiry on the Frequency of Microcy-
themia in the Student Population of
Rome University. V. Del Vecchio, I. Bi-
anco, G. P. Marini, B. Graziani and R.

The study was done in 3598 students in
about one year. Ninety-one were found to
be carriers of the hematologic picture of
typical microcythemia.—P.d.N.

Observations on Two Microcythemic
Families with Anomalous Genetic Be-
havior. E. Silvestroni, I. Bianco and B.
Graziani. Instituto d’Igiene, University,
and the Centro di studi della Microci-
245, 1969.

The anomaly regards $A_2$ hemoglobin. In
the first family, a woman carrier of micro-
cythemia with normal Hb$A_2$ and belonging
to a family of carriers of microcythemia
with high Hb$A_2$, married a normal man and
had one child with microcythemia and high
Hb$A_2$, and one normal child. In the second
family, a woman carrier of microcythemia
with only slight hematologic signs and nor-
mal Hb$A_2$, married a normal man and had a
normal son and another son who was a
carrier of Bart’s Hb at birth and is now
carrier of microcythemia with high Hb$A_2$.
These findings are discussed with respect to
the different varieties of thalassemia (alpha,
beta, beta-delta, delta-microcythemia.)—
P.d.N.

Hemoglobin J Oxford and Hemoglobin J
Sardinia. V. Venutino, L. F. Bernini, E.
Dini and N. Quattrin. Divisione Emato-
logia, Ospedale Cardarelli, Naples, Italy. Progr.

Two alpha-J hemoglobins were observed in
Campania. The former (Hb J Oxford-
alpha$_2$ $^{150}Glu^{\rightarrow}Asp$beta$_2$) was found in six
members of a family from Naples. The latter
(Hb J Sardegnia-alpha$_2$ $^{150}His^{\rightarrow}Asp$beta$_2$) was
found in a Sardinian carrier who lived in
Naples. In both cases there were no symp-
toms and the percentage of fast Hb did not
exceed 20 per cent. The need for a classifica-
tion of hemoglobin based only on their spe-
cific molecular anomaly is emphasized.—
P.d.N.

Method for the Detection of a Bio-
chemical Riboflavin Deficiency. Stim-
ulation of NADPH$_2$-Dependent Gluta-
Thione Reductase from Human
Erythrocytes by FAD in Vitro. In-
vestigations on the Vitmin B$_2$ Status
in Healthy People and Geriatric Pa-

tients. D. Glatzle, W. F. Körner, S.
Christeller and O. Wiss. Department of
Vitamin and Nutrition Research and
Group of Mathematical Statistics of F.
Hoffmann-La Roche & Co. Ltd. Basel,
Switzerland. Internat. J. Vit. Res. 40:166,
1970.

A test method for the measurement of the
riboflavin level in human subjects is de-
scribed. The changes in glutathione reduct-
ase activity after incubation with FAD in
vitro is used to calculate an activation co-
efficient. This seems to be a reasonable index
of the cellular riboflavin supply. Studies on
more than 300 human beings showed that a
"biochemical" vitamin B$_2$ deficiency can
be detected by this method. In a group of
124 geriatric patients 32 per cent had in-
creased activation coefficients. After admin-
istration of riboflavin to these subjects the
activation coefficients returned to the normal
range.—M.C.V.

Selective Defect of One Genetic Locus
For Phosphoglucomutase in Red Cells.
J. C. Kaplan, Y. Alexandre and J. C.
Dryfus. Institut de Pathologie Moleculaire,
Paris, France. C. R. Acad. Sci. 270:1061,
1970.

This represents for the authors the first
case of a genetic defect in the PGM$_1$-bands
which are nearest to the cathode on electro-
phoresis. Abstractor’s comment: This defect
does not bring any pathological con-
sequences even in the homozygotes.—J.C.

In two African men, aged 24 and 28, the authors discovered G-6-PD deficiency in the course of PAS therapy given for tuberculosis. They draw attention to the point that PAS can produce other types of hemolysis namely toxic or allergic.—J.C.


Eight-hundred blood donors were studied with Beutler’s screening test using the ultraviolet light. The test was chosen for its rapidity and simplicity, low cost and high specificity. Only in eight cases (1%) the test was positive. In all these cases a defect of G-6-PD was found with a residual activity lower than 10 per cent. Three of these subjects were from Sardinia, two from Puglia and one from Sicily. Among 85 subjects from the islands or from Puglia, the percentage of G-6-PD deficient subjects was of 7 per cent, with a 12 per cent ratio for the subjects from Sardinia.—P.d.N.


Increased numbers of circulating burr cells appear following splenectomy, and this is particularly noticeable when the splenectomy is performed for ITP. The relationship between burr cells and ITP is unclear. The variety of irregular red cells is described and theories regarding their formation are discussed.—J.B.S.

CONGENITAL INCLUSION BODY HEMOLYTIC ANEMIA, STUDY OF A FAMILY. I. Ben-Bassat, F. Brok-Simon, M. Benyaminov, D. Danon and B. Ramot. From Government Hospital, Department of Hematology, Tel Hashomer, Tel Aviv University Medical School and Section of Biological Ultrastructure, Weizman Institute of Science, Rehovot, Israel. Israel J. Med. Sci. 5:383–394, 1969.

A family affected by inclusion body anemia was described. The splenectomized propositus showed the full clinical picture, while his sister and niece manifested the course of the disease in the presence of an intact spleen. Cytoschemical studies showed that the intracytoplasmic inclusions contained phospholipids and iron and were surrounded by acid phosphatase-positive granules. Electron micrographs of the red cells of the patient and his sister showed intracellular structures consisting of remnants of mitochondria, ferritin aggregates and Heinz-body-like electron dense material. Active glycolysis, with high levels of glycolytic enzymes, was found. ATP levels and reduced glutathione stability were normal. Traces of a fast moving fraction of Hb were found on starch gel electrophoresis. Ten to 14 per cent of the patient’s Hb was heat-labile, however its structure could not be determined. The transmission of the disease in the family reported is compatible with a recessive autosomal gene.—B. R.


This rare observation in France occurred in a 13-year-old boy, Algerian born, who presented microcytic anemia, low serum iron and hepatomegaly. Treatment with iron, piperazine for parasitism and suppression of earth-eating were very efficient. The authors discuss iron-chelation and the zinc defect related with dwarfism.—J.C.

STUDIES IN KERNicterus III. THE SATURATION OF SERUM PROTEINS WITH BILIRUBIN DURING NEONATAL LIFE AND ITS RELATIONSHIP TO BRAIN DAMAGE AT FIVE YEARS. G. B. Odell, B. Storey and L. A. Rosenberg. From the Johns Hopkins Hospital, Baltimore, Md. J. Pediat. 76:12–21, 1970.

At ages 4 to 7 years, 18 of 32 youngsters
who had significant neonatal jaundice demonstrated evidence of brain damage. The abnormal psychometric studies did not correlate with the peak bilirubin levels, birth weight, sex, cause of jaundice or type of therapy. A significant relationship was found between presence or absence of brain damage and the relative saturation of the serum albumin with bilirubin as determined by the salicylate displacement technique. Several of the normal children had high saturation indices but for relatively short periods—J.B.S.


Although depressed serum concentrations of folate are apparently rare in women receiving oral contraceptive therapy. (Amer. J. Obstet. Gynec. 104:745, 1969), impaired absorption of folate polyglutamate has been described in this circumstance (Clin. Res. 17:345, 1969). Two patients are presented in this report who developed a megaloblastic anemia due to folate deficiency while taking an oral contraceptive drug. In both women the rise in serum folate that followed the ingestion of folate polyglutamates was lower while on contraceptive preparations than during a control period on no drugs.—F.A.K.

LEUKOCYTES


The paper describes the topographical features of Uganda, the distribution of malarial endemivity, and the incidence of Burkitt’s tumor in the various districts. It was found that holoendemic malaria and Burkitt’s tumor occurred in similar areas, thus confirming the observations made in Kenya. In addition, significantly higher parasitemia was noted in children below the age of 10 years. The fact that this coincides with the time when Burkitt’s lymphoma is most common raises the possibility that malaria may play a role in the causation of Burkitt’s tumor.—T.H.B.


Classical infectious mononucleosis is largely a disease of adolescents and young adults of relatively high socioeconomic status. However, this disease which is believed to be caused by the Epstein-Barr virus, may be difficult to distinguish from other causes of glandular fever, including adenovirus infection, toxoplasmosis, brucellosis and Vincent’s angina. The present study was undertaken to determine when antibodies to Epstein-Barr virus are generally acquired in East African children and to estimate what proportion of cases of clinical glandular fever are due to infection with this agent. In African children of low socioeconomic class, 82 per cent had antibodies by the age of 5 years and 94 per cent by the age of 10 years. This contrasted with the findings in African children belonging to a higher socioeconomic group; although only 54 per cent gave positive tests during the first 5 years of life nearly all had antibodies by the age of 10 years. Finally, it was noted that only about 50 per cent of Caucasians had antibodies by the age of 20 years. The high incidence of childhood infections with this virus in the African population, particularly in those of low socioeconomic status, probably accounts for the relative infrequency of infectious mononucleosis in African students attending college. These findings must be contrasted with the situation in the United States where infectious mononucleosis occurs predominantly in adolescents and young adults of relatively high socioeconomic status.—T.H.B.

ACTIVE IMMUNIZATION WITH ALLOGENIC LEUKOCYTES IN PATIENTS WITH ACUTE LEUCOSIS, THE TREATMENT BEING COMBINED WITH CHEMOTHERAPY. S. V. Skurkovich, T. I. Bulycheva, L. G. Kovalyeva,
ABSTRACTS


The results are reported of the treatment of nine adult patients with acute leukemia who were treated by active immunization with live allogeneic leukemic cells in combination with chemotherapy. Seven of the patients had blastic leukemia, one patient had myeloblastic leukemia, and the ninth case was of erythremocytosis. The scheme of treatment included prednisolone, vincristine, 6-merkaptopurine, and methotrexate. In five of the nine cases a full hematomatological remission was achieved. When compared with the results obtained in another group of patients with chemotherapy alone, these cases were characterized by an increased frequency of remissions, remission duration, as well as by an increase in life expectancy. 

Abstractor's comment: Although the observations are of great interest, it is only hypothetical that immunity had anything to do with the results obtained since no tests for immunity were performed. An objective study of immunity reactions would be indispensable because the patients were subjected to mutually opposing influences: one stimulating their immunity, and the other, including hormones and cytostatic agents which are known to be immunosuppressive.

—J.K.

THE EFFECT OF A GROWTH-ENHANCING SUBSTANCE FROM LEUKEMIC CELLS AND NORMAL MOUSE EMBRYO FIBROBLASTS, ON LEUKEMIC CELLS IN TISSUE CULTURE: H. Pluznik. Department of Medicine, Albert Einstein College of Medicine, Bronx, N. Y. Israel J. Med. Sci. 5:306-312, 1969.

Myelocytic leukemic cells and mouse embryo fibroblasts release a substance which enhances the growth of leukemic cells. This substance is different from another substance which is also released from mouse embryo fibroblasts and which induces growth and maturation of normal granulocytes and macrophages. The growth-enhancing factor for the leukemic cells can diffuse through agar and can be obtained in an active form in a conditioned medium. It is dialyzable, which suggests that it is different from other known substances which enhance and induce growth of other types of cells in tissue culture.—B.R.


Since the age of 6 months, the child reported by the authors suffered for 4 years of spleen enlargement, myelomonocytosis either in the blood, the marrow or the spleen accompanied by a moderate thrombocytopenia. Corticosteroids given twice during a short period of time were the only treatment. The authors discuss the importance of erythrocyte, immunologic and sometimes karyotype abnormalities in this type of leukemia. Abstractor's Comment: In this group, one usually finds an increase in fetal hemoglobin and increased hemolysis, two important features which were not present in this case.—J.C.


The authors treated 130 patients with L-asparaginase and obtained remission in cases of acute lymphoblastic and myeloblastic leukemia resistant to other drugs. The leukopenia was frequent, but for the authors, these signs of toxicity were not serious except for anaphylactic shock which required arrest of treatment. Liver toxicity also recurred and was measured by the fall in fibrinogen level. In animals, L-asparaginase could be used simulataneously with active immunotherapy.—J.C.


Maintenance therapy with methotrexate administered intravenously every 2 weeks is described. The initial dose of 1 mg. per Kg. was twice increased by increments of 1 mg. In half the patients further increments up to a total dosage of 6 mg. per Kg. were given. The median duration of remission was 11 months.—J.B.S.
Clinical and Pathological Aspects of Intestinal Lymphoma and the Relation to Alpha Chain Paraproteinemias. B. Ramot and N. Hula. From Departments of Hematology and Pathology, Tel Hashomer Hospital and Tel Aviv University Medical School, Israel. Harefuah 76:396–398, 1969.

A case of intestinal lymphoma with malabsorption accompanied by alpha chain (heavy chain of IgA) production was described. The pathological findings consisted of a diffuse plasma cell infiltration of the intestinal mucosa and of the abdominal lymph nodes. This association was also observed by Seligman in four young individuals, three of them Arabs. The pathological heterogeneity in this clinically uniform syndrome of intestinal lymphoma with malabsorption was stressed.—B.R.


A case of Sezary syndrome was reported in a 72-year-old woman. The disease started insidiously 3 years before admission with circumscribed pruritic erythematous patches which spread progressively to involve the entire skin. The blood count revealed 60,260 WBC per mm², 67 per cent lymphocytic and 23 per cent large round cells containing a large nucleus and scanty cytoplasm. The histological findings of the skin were compatible with mycosis fungoides. In addition, there was a massive infiltrate in the upper dermis consisting mainly of these mononuclear cells, with a tendency to penetrate into the epidermis, suggestive of lymphoma. A lymph gland showed total destruction of its normal architecture with infiltration by lymphocytes, large mononuclear cells and plasma cells, the picture of malignant lymphoma.—B.R.

Association of Kaposi’s Sarcoma and Lymphoreticular Disease. J. Pinkhas, U. Lewinski, J. Amir, H. Kessler and A. de Vries. From Department of Medicine and the Pathology Institute, Beilinson Hospital, Petah Tikva, Tel Aviv University Medical School, Israel. Harefuah 76:318–319, 1969.

Two patients with chronic lymphatic leukemia and one with Hodgkin’s disease in whom Kaposi’s sarcoma appeared, are described. The relatively frequent association of lymphoreticular disease and Kaposi’s sarcoma is stressed. The possibility that Kaposi’s sarcoma arises from the reticulo-endothelial tissue is noted.—B.R.

Hemostasis


Fourteen cases with severe hemorrhagic diathesis due to defibrination syndrome or primary fibrinolysis were described. Acute defibrination syndrome was observed in eight patients; four secondary to carcinoma of the stomach, kidney, prostate or bronchus, while in the others it accompanied snake bite, excision of a fistula in the thigh, mismatched transfusion or endotoxin shock. Chronic defibrination syndrome was observed in a young woman suffering from congenital cavernous hemangioma. Primary fibrinolysis was detected in multiple traumata, malignant melanoma, rhinoplasty, giant cell carcinoma of the lung and cirrhosis of the liver, respectively. The distinction between defibrination syndrome with secondary fibrinolysis, and primary fibrinolysis was in the low platelet count present in the former. Autopsy performed in four cases with acute defibrination syndrome secondary to metastatic carcinoma revealed in three cases thrombi in blood vessels and diffuse bleeding. These findings support previous assumptions that tumor cells invading blood vessels may release clot-promoting factors into the circulation which may induce intravascular coagulation. In two cases, the defibrination syndrome was accompanied by angiopathic hemolytic anemia. The common occurrence of both syndromes in the same individuals lends clinical support to recent experimental studies on the causal relationship between intravascular coagulation and angiopathic hemolytic anemia.—B.R.

Effects of Vipera Aspis Venom on

Vipera aspis venom (V.A.V.) acts on factors X and V in the presence of calcium and phospholipids. This action is comparable with the one of Russell viper venom (R.V.V.). V.A.V. hydrolyses fibrinogen and exerts an anticoagulant activity comparable with that of Echis Colorata. The authors suggest that the anticoagulant activity could have an effect on thrombin itself or on fibrin polymerization.—J.C.


Massive hemorrhage is rare in the course of the Moschowitz syndrome. This one occurred in a 28-year-old alcoholic man and was considered as caused by a consumption coagulopathy with low fibrinogen level, thrombocytopenia, short euglobulin lysis time and decrease of vitamin-K dependent factors. Therapy with heparin was without benefit. The anatomical findings were cirrhosis of the liver, gastric and esophageal hemorrhages and multiple thromboses in myocardium, kidneys, lungs, spleen and other organs. These were hyaline thrombi with PAS-positive material.—J.C.


Influence of acute bleeding (loss of 44 per cent of the total blood volume) on coagulation and fibrinolysis was examined in 10 mongrel dogs. It was found that acute bleeding was followed by a period of hypercoagulability (protracted prothrombin time, a decrease in fibrinogen level, in insoluble fibrin monomer complexes, plasminogen, and antiplasmin, and shortening of euglobulin clot fibrinolysis). This phase lasted several hours, and was followed by hypercoagulability and reverse changes.—M.K.


Thromboplastic and antiheparin activities in homogenates of various organs was compared in rabbits fed normally and others with cholesterol enriched diet. Significant increase of thromboplastic activity was detected in heart and kidney of cholesterol-fed rabbits while in brain and spleen this activity did not differ, and in lung and liver was decreased as compared with the controls. Antiheparin activity was increased in homogenates of heart, aorta and brain of cholesterol-fed rabbits.—M.K.


Thirty-one patients and 23 normal subjects were studied. In hyperthyroidism values of 31.6 and 49.9 seconds after 20 and 30 minutes respectively were found, while in normal subjects the mean values were of 21.4 and 29.3 seconds, respectively. The increase in hyperthyroidism was statistically significant. No correlation with thyroid function (BMR, 2-hour thyroid uptake, 48-hour PBI131) was found. Survey of the literature on coagulation disorders in hyperthyroidism and following the administration of thyroid hormones is reported.—P.d.N.

IMMUNOHEMATOLOGY


Seven months after rabbits had been
munization, after animals have acquired the many of anti-TNP molecules the production in with TNP-BG, evoked secondary

(DNP-BG or trmnitrophenyl bovine globulin mixed cultures of lymphocytes from two people and uremic patients were investigated.

BLASTIC TRANSFONrstTIoN OF LYMPHOCYTES
B.R. for homologous and cross-reacting ligands.

About one-half of the rabbits produced substantial amounts of antibody in response to the second injection. Isolated from serum, these antibodies were classified as anti-DNP or as anti-TNP on the basis of ligand-binding and fluorescence properties. Animals primed with DNP-BG formed anti-DNP antibodies in secondary responses provoked by either DNP-BG or TNP-BG or DNP-hemocyanin. The same antigens, given to rabbits primed with TNP-BG, evoked secondary responses in which the antibodies formed were anti-TNP. Thus, DNP immunogens stimulated the production of anti-TNP molecules and TNP immunogens evoked the formation of anti-DNP molecules. Referred to as degeneracy, this capacity for cross stimulation is pronounced many months after primary immunization, after animals have acquired the capacity to form antibodies with high affinity for homologous and cross-reacting ligands.—B.R.


The reactions of lymphocytes from healthy people and uremic patients were investigated in mixed cultures of lymphocytes from two donors in various combinations. Morphologic changes and incorporation of 14C-thymidine were examined. In uremic patients, two types of lymphocyte reactivity were observed. Lymphocytes from nearly 50 per cent of uremic patients showed energy, while in the remaining cases the transformation of lymphocytes in mixed cultures did not differ from that of the controls.—M.K.

STUDIES ON SERUM PROTEOLYTIC ACTIVITY AND THE BLASTIC REACTION AFTER ALLOGRAFTAL TRANSPLANTATION OF SKIN IN RABBITS. J. Patkowski, B. Halawa and J. Ciełdano
nowski. Department of Immuno-pharmacology, Institute of Immunology and Experimental Therapy and 3rd Department of Internal Medicine, School of Medicine, Wrocław, Poland. Acta Physiol. Pol. 20:538–544, 1970.

Proteolytic activity in blood serum and in lymph nodes was examined in rabbits after transplantation of allogeneic and autologous skin grafts. Casein labeled with 131I was used as a substrate. Blastic transformation in regional lymph nodes was investigated at the same time. In the first 5 days after transplantation an increased serum proteolytic activity was observed in both groups of rabbits but, later, the proteolytic activity increased further only in recipients of allo-
grants. This increase was parallel to the progressive changes in the transplanted skin. Regression of morphologic changes in the regional lymph nodes preceded the normaliza-
tion of serum proteolytic activity.—M.K.


Review of the literature and personal inves-
tigations are reported on the bone marrow and/or lymph node imprints of 21 cases of multiple myeloma, five of macroglobulinemia and one of chronic idiopathic cold agglutinin disease. The immunofluorescent reaction gave variable results. In all cases of multiple myeloma having a positive reaction with the tagged antisera, almost all the plasma cells adsorbed the specific immunofluorescent stain. In the five cases of macroglobulinemia an intense fluorescence of the cytoplasmatic rim of the larger lymphoid cells was obtained with anti-IgM sera. A similar picture was observed in the lymphoid cells infiltrating the bone marrow in the case with cold agglutinin disease when anti-IgM and anti-K tagged sera were used. Other features were the clasmatocytic aspect and the nuclear inclusions in the cases with IgA plasmacytoma; the monoclonal aspect in a case with double dysimmunoglobulinemia (IgA and IgG). Chronic idiopathic cold agglutinin disease was included among the immuno-
proliferative diseases, and the variant with no demonstrable lymphoid infiltration of the bone marrow, was considered as a rare equivalent of the former, "somewhat similarly to the relationship between monoclonal gammapathies and overt multiple myeloma."
ABSTRACTS

Abstractor’s comment: Well documented paper, which should be read in the original, also for the numerous and good illustrations which it contains.—P.A.N.


Of 38 hyperthyroid youngsters treated with PTU, 10 developed peripheral leukocyte counts below 4000/mm³; one developed rash, fever, hepatitis and arthritis associated with a positive latex fixation test; two developed fever and arthralgias and six developed generalized rash or hives. In several instances the leucopenia remitted despite continuation of therapy. The boy who developed SLE was treated with prednisone because of focal glomerular changes and proteinuria, which was still present 8 months after steroid therapy was begun.—J.B.S.

MISCELLANEOUS


The routine search was performed in 3362 subjects, 466 of which had received several blood transfusions. The antigen was found in 40 cases and the antibody in 20. Of 2788 blood donors, 18 possessed the antigen and 15 the antibody. Among the physicians and technicians, the incidence of one or the other was high (2-3 per cent). Abstractor’s comment: These results stress the necessity to know whether people beginning to work in blood banks are carriers of the Australia antigen.—J.C.


The authors studied 100 normal persons: 50 were adults, 30 males and 20 females; the other 50 were adolescents, 22 males and 28 females. The people studied were young medical doctors, medical school students and college students, all belonging to the middle class. All were living in São Paulo City at 750 meters of altitude. Minimum, maximum and mean values were determined as well as the standard deviation. The values obtained in the adults were: erythrocytes 5.06 ± 0.31 × 10⁶ per mm³ (males) and 4.29 ± 0.10 × 10⁶ per cu. mm. (females); hemoglobin 15.37 ± 2.65 Gm. per 100 ml. (males) and 13.01 ± 2.38 Gm. per 100 ml. (females); packed cell volume 48.1 ± 2.5 per cent (males) and 41.0 ± 2.2 per cent (females); reticulocytes 0.71 ± 0.39 per cent (males) and 0.96 ± 0.51 per cent (females); leukocytes 6.69 ± 1.95 × 10⁶ per cu. mm.; platelets 274.6 ± 111.4 × 10⁶ per cu. mm. (males) and 270.4 ± 103.4 10⁶ per cu. mm. (females); mean corpuscular volume 95 ± 2.5 cu. μ (males) and 95 ± 2.3 cu. μ (females); mean corpuscular hemoglobin 30.3 ± 1.06 μg. (males) and 29.9 ± 0.91 μg. (females); serum iron 139.5 ± 26.5 μg. per 100 ml. (males) and 132.4 ± 30.3 μg. per 100 ml. (females); total iron binding capacity 371.7 ± 37.2 μg. per 100 ml. (males) and 355.1 ± 46.0 μg. per 100 ml. (females); IBC saturation 37.7 ± 6.9 per cent (males) and 37.7 ± 10.9 per cent (females); total serum protein 7.26 ± 0.36 Gm. per 100 ml. (males) and 7.34 ± 2.27 Gm. per 100 ml. (females); serum albumin 4.34 ± 0.45 Gm. per 100 ml. (males) and 4.12 ± 0.37 Gm. per 100 ml. (females); serum globulin 3.03 ± 0.46 Gm. per 100 ml. (males) and 3.04 ± 0.26 Gm. per 100 ml. (females); serum folate 5.84 ± 2.01 ng. per ml. (males) and 6.75 ± 2.12 ng. per ml. (females); serum vitamin B₁₂ 366.7 ± 155.7 pg. per ml. (males) and 364.4 ± 147.7 pg. per ml. (females). The results in adolescents were: erythrocytes 5.11 ± 0.31 × 10⁶ per cu. mm. (males) and 4.45 ± 0.24 × 10⁶ per cu. mm. (females); hemoglobin 15.70 ± 2.86 Gm. per 100 ml. (males) and 13.73 ± 2.92 Gm. per 100 ml. (females); packed cell volume 48.2 ± 2.4 per cent (males) and 43.6 ± 2.4 per cent (females); reticulocytes 0.70 ± 0.60 per cent (males) and 0.85 ± 0.44 per cent (females); leukocytes 6.19 ± 1.51 × 10⁴ per cu. mm. (males) and 6.68 ± 1.33 × 10⁴ per cu. mm. (females);
platelets $398.1 \pm 117.4 \times 10^3$ per cu. mm. (males) and $377.7 \pm 105.2 \times 10^3$ per cu. mm. (females); mean corpuscular hemoglobin $30.3 \pm 1.36 \mu g.$ (males) and $30.4 \pm 0.72 \mu g.$ (females); serum iron $132.2 \pm 29.4 \mu g.$ per 100 ml. (males) and $118.9 \pm 21.3 \mu g.$ per 100 ml. (females); mean corpuscular hemoglobin saturation $37.7 \pm 7.7$ per cent (males) and $32.5 \pm 6.2$ per cent (females); serum total protein $7.61 \pm 0.66$ Gm. per 100 ml. (males) and $7.59 \pm 0.36$ Gm. per 100 ml. (females); serum albumin $4.36 \pm 0.28$ Gm. per 100 ml. (males) and $4.34 \pm 0.43$ Gm. per 100 ml. (females); serum globulin $3.25 \pm 0.63$ Gm. per 100 ml. (males) and $3.24 \pm 0.56$ Gm. per 100 ml. (females); serum folate $4.0 \pm 1.1 \mu g.$ per ml. (males) and $6.9 \pm 2.9 \mu g.$ per ml. (females); serum vitamin $B_{12}$ $403.0 \pm 160.3$ pg. per ml. (males) and $394.5 \pm 199.1$ pg. per ml. (females).—M.J.


This monograph is a valuable asset for the hematological literature. It is based on the authors' experience with radioisotopes in hematological patients during a period of more than 10 years in the Hôpital Saint-Louis, in Paris. The practical use of radioisotopes in hematology is discussed very lucidly. In the first chapter the organization and outfit of a radioisotope laboratory in a hospital is described. Next is a chapter in which the different curves which are found when estimating the life span of blood cells in the circulation are explained; the required calculations are briefly discussed. In a third chapter the authors point out the meaning of the different in vivo pools in which administered tracer doses diffuse. In a fourth chapter a general discussion follows on the possibilities of external radiation measurements on the body surface after administration of radioactive tracers, and there is discussion on scintigraphy. The next chapters are dealing with the different methods by which isotopes are used for diagnostic purposes in hematology. These methods are critically evaluated and causes of error are mentioned. The description of each method is followed by a critical discussion of the interpretation of the results. Finally a chapter is devoted to therapy with radioisotopes in hematological diseases. *Abstractor's comment:* It is my opinion that this book merits to be translated into other languages so that a larger public may profit from its very worthwhile contents.—M.C.V.