A S B E S T O S B U L L E T I N

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Editor: C. Z. Carroll-Porczynski

C O N T E N T S

PART 1. ASBESTOS MINING

CANADA.

1. DRILLING AND BLASTING AT THE CASSIAR MINE.
T.L. Horsley. Can. Mining Metall. Bull. No.638 (Trans. 68, 1965, 179-181) Montreal, June 1965 625-7

Drilling and blasting methods are described, which are employed at the Cassiar asbestos mine, located south of the B.C.-Yukon border. "Pit" and "peak" mining operations are discussed, including specific problems, such as working in frozen ground, in various rock formations etc. Equipment used is briefly described, and calculation of mining costs is outlined.

2. INDUSTRIAL MINERALS IN 1964. ASBESTOS. H.M.Woodroffe, H.K. Conn and S.J. Rice. Mining Engng. 1965, 17, No.2, pp. 120-1.

Data of the production of asbestos in 1964 and details of the activity of main asbestos companies of Canada and U.S.A. are given.

3. ASBESTOS PRODUCTION.

According to the Dominion Bureau of Statistics, Ottawa, production of asbestos in Canada during July 1965 amounted to 109,466 tons compared to 119,020 in July 1964. Total for the first seven months of 1965 was 674,554 compared to 716,708 for the same period in 1964.

4. AYLMER MINES.

With asbestos reserves in excess of 6,000,000 tons on its Coleraine Township, Canada, property, Aylmer Mines is negotiating with a firm having active mills in the area for further development or disposition of the property.

5. ASBESTOS MINING, MILLING AND USES.

"AMIANTE-ASBESTOS". Prepared by the Quebec Asbestos Mining Assoc., 580 GRANDE-ALLEE EST., QUEBEC. The eight company members of the Quebec Asbestos Mining Association have provided a most valuable bulletin on the Quebec asbestos industry.

6. ONTARIO MINING MAP.

A colourful new map has been prepared by the Ontario Department of Mines, Toronto, Ontario, Canada. The map itself shows the geology of the province in simplified form and also the major mineral deposits.

U.S.S.R.

7. ASBESTOS EXPORT OF THE SOVIET UNION IN 1964.
Vneshnaya Torgovlya S.S.S.R. za 1964 god.
(Foreign Trade of the U.S.S.R.in 1964) Page 64.

In 1964, the Soviet Union exported 212,200 tons of grade asbestos (compared with 180,100 tons in 1963), mainly to East Germany (24,700 tons), West Germany (23,500 ton), France (23,100 ton), Poland (18,600 ton), Czechoslovakia (17,300 ton), Bulgaria (15,800 ton), Hungary (14,100 ton), Japan (11,900 ton) etc.

8. RICHTERITE - ASBESTOS. I.P.Ivanov and G.A.Siderenko.
Zapiski Vsesoyuz. Mineralog. Obshchestva, 1965, No.5, p.p. 497-506.

Recently a new modification of amphibole asbestos found at Aldan (Soviet Union) has been described by A.M. Korchagin (1961). This greenish-grey variety occurs, in the form of inclusions in tremolite-actinolite deposits.

AFRICA

9. EXPORT OF CHRYSOTILE ASBESTOS FROM THE REPUBLIC OF SOUTH AFRICA.

Mineral Trade Notes, Vol. 61, No.2.

Country of destination	1963 S/Tons	1964 S/Tons
Angola	270	10
Australia	1,421	399
Denmark	-	500
Germany	3,390	4,162
Iraq	-	791
Italy	1,816	2,236
Japan	1,299	10,510
Morocco	-	251
Poland	250	-
Portugal	329	119
Rhodesia	732	4,143
Rumania	440	-
Spain	3,064	1,250
Thailand	1,302	687
United Kingdom	953	2,759
Other countries	843	756
Total	16,109	28,573

10. EMBARGOES ON RHODESIAN MINERALS. Mining Journal London, December 10, 1965.

The rate of asbestos production in Rhodesia is governed by the export demand. The industry had a sharp setback in 1962, when production fell to 142,200 short tons from the 1961 peak of 161,600 tons, due to the weakness of world markets and to growing competition from Russian fibre. Though the tonnage of asbestos produced in the following year was virtually unchanged from 1962, its value was 17 per cent lower. Much lost ground was recovered in 1964, when output rose to 153,390 tons and its value by 14 per cent to £6.85 million.

Exports went to 51 countries and included all grades of fibre. The largest market was the United Kingdom, which purchased 45,083 tons of asbestos from Rhodesia, valued at £3,798,641, out of total asbestos imports of 183,929 tons.

Most of the Rhodesian material came from the substantial mining interests of TURNER & NEWALL, the largest Rhodesian producer - the Shabanie Mine which employs 3,800 people, is controlled by that Group.

One of Rhodesia's largest customers is the cement piping and sheeting industry of Western Europe. The PANGANI mine near FILABUSI is being re-opened and equipped at a cost of £1 million, to produce a grade of fibre suitable for export to asbestos cement manufacturers. This mine, when completed, is expected to increase Rhodesia's asbestos exports by £2.25 million a year.

It is anticipated that Rhodesia's asbestos exports this year will be maintained at the 1964 level. Prospects for 1966 must now be considered more doubtful, however, having regard to the highly competitive world situation, in which alternative outlets capable of replacing markets lost through sanctions may not be easily found.

11. MINERAL RESOURCES OF THE BECHUANALAND PROTECTORATE C. Boocock. Overseas Geol. Miner. Resour. London, 9, No.4, 1965, 367-417.

Large areas of the Bechuanaland Protectorate have been already prospected, but vast tracts still remain without being covered by modern scientific prospecting methods. Gold, silver, asbestos, manganese, kyanite and copper have been worked out and the first four are produced at present.

12. THE GEOLOGY OF A PORTION OF THE COUNTRY BETWEEN THE KOMATI AND USUSHWANA RIVERS, NORTH-WEST SWAZILAND. D.A. Pretorius. Bull. Geol. Surv. Swaziland, No.1, Mbabane, 1961, pp.56-83.

A study is desribed of the stratigraphy, petrology and economic geology of the strip of country running along the Transvaal-Swaziland border. Ore formations described include, inter alia, asbestos deposits.

13. IS ASBESTOS ON ITS WAY OUT? O.E.B. Timmermans. Coal, Gold and Base Minerals South Africa, 1965, 12, No.12, pp. 35, 37, 39 and 41.

Perspectives of the application of asbestos are discussed.

U.S.A.

14. GEOLOGY OF THE INDEPENDENCE QUADRANGLE, INYO COUNTRY, CALIFORNIA. D.C. Ross. Bull. U.S.geol.Surv. 1181-O, Wash. D.C. 1965.

Geology is described of the area of approximately 240 sq. miles near the western margin of the Great Basin. Prospects have been dug for, inter alia, asbestos.

SPAIN

15. ASBESTOS. S. de la Concha. Boln. Inst. geol. min. Esp. Madrid, 75, 1964, 63-110.

Characteristics are given of various types of asbestos, genesis of deposits mining and processing methods, commercial classification etc. In one section (pp.97-99), Spanish asbestos is described.

ITALY

Production and imports of asbestos increased substantially in 1964 in response to growing domestic requirements. Most of the imported products was high-grade, long-fibre, asbestos.

	1963	1964
Production	57,532 Metric tons	68,559 metric tons
	38,757	43,890
	6,412	9,017

Source: Foreign Service Despatch A-1504, June 17, 1965 - Rome.

16. AUSTRALIA

Imports of asbestos for the YEAR 1964 amounted to 42,895 short tons (Amosite 7,373; Chrysotile 32,075; Other 3,447). Exports of asbestos for the same period for all types and grades amounted to 7,280 short tons. (Bureau of Mineral Resources.)

PART 2. ASBESTOS CEMENT.

17. ASBESTOS CEMENT - "MOFOTHERM" COMPOSITE MATERIALS
R. Stepita Plasticke Hmoty a Kenouk, 1964, 1. No.12, 361-5.

Prefabricated structural elements made of asbestos cement and foamed material "Mofotherm" were used in the construction of an East Slovakian foundry. The elements consisted of laminates comprising asbestos cement plates and layers of "Mofotherm", which is a foamed ureaformaldehyde resin. The resin was formed in situ by spraying simultaneously in between two flat or corrugated asbestos cement plates two separate solutions, viz. "Mofosol" (a 40-50% aqueous solution of ureaformaldehyde resin having a viscosity of 20 centipoises) and "Mofodur" (a mixture of dibutulnaphthalenesulphonic acid, lauryl alcohol, lauryl sulphate, sulphuric acid, phosphoric acid and resorcin). This method greatly reduced the costs.

18. METHODS OF MECHANICAL TESTING ASBESTOS CEMENT SHEETS.
P.A. Stefanovech. Stroit. Mat., 1965, No.10, pp.21-22.

Methods used now for determining the bending strength of asbestos cement sheets are inadequate and unreliable since they do not take into account various factors substantially influencing the bending strength, such as the thickness of asbestos cement sheets (the bending strength per unit area is smaller for thicker sheets than for thinner due mainly to non-uniform spacial distribution of the material during forming), moisture content (air-dried sheets are stronger than those dried by other method or wet), creeping tendency, hardening conditions etc. There is an urgent need for a standard method of measuring the bending strength of asbestos cement sheets.

19. RUSSIAN PATENT 172,213. PREPARATION OF ASBESTOS CEMENT MASS. I.I. Pogarskaya et al.

A coagulating agent is added to a mixture of asbestos fibres, cement and water in order to accelerate the dehydration of the mass and improve its plasticity. A suitable coagulating agent is polyacrylamide added in the form of a suspension, in an amount of 0.025-0.03% based on the weight of dry asbestos.

20. CAPRON NETTING FOR THE FILTRATION OF ASBESTOS CEMENT SUSPENSION. S.I.Dvoinichkov. Stroit.Mat. 1965, 11, No.9, 7.

Capron netting proved to be more suitable for the filtration of asbestos cement suspensions than brass screens. The netting, produced by the Kiev factory of technical fabrics, has a warp strength of 260 kg/cm^2., and a weft strength of 60 kg/cm^2. It is especially suitable for the production of asbestos cement pipes.

21. GLUE -METALLIC JOINTS OF THE ELEMENTS OF ASBESTOS CEMENT PANELS. A.A.Oleinik. Stroit. Mat. 1965, 11, No.9, 8.

In structural wall panels, asbestos cement linings attached to the framework, are exposed to considerable stresses. It has been found that the best results can be obtained by combining glue jointing with metal joints, such as screws or various clinches. As glues, synthetic adhesives are very suitable, preferably based on epoxy resins. In laminates, the glue joints between asbestos cement sheets can be advantageously reinforced by metal joints. Suitable for this purpose are 5-6 mm. diameter screws, or 10-14 mm diameter tubular rivets.

22. THE RESISTANCE OF ASBESTOS CEMENT TO THE ACTION OF SULPHATE WATERS. E.O. Barbakadze and Fedorova. Tr. n.-i. in-t asbesta, slyudy, asbestotsementn. izdelii i proektir. str-va predpriyatii slyud. prom-sti. 1965, No. 19, pp. 42-55; Ref. ZHur. Khim., 1965, 20M 189.

It has been found that under the action of SO_4^{2-} ion decrease in the strength of asbestos cement first starts when the $CaSO_4$ build-up reaches about 14-15% (11-12% in the form of calcium hydrosulpho-aluminate and 3% in the form of gypsum). The build-up of $CaSO_4$ on contact with sulphate waters is 2-3 times lesser in autoclave asbestos cement than in ordinary asbestos cement.

23. FRENCH PATENT 1,406,551. CEMENT-BASE MOULDED PRODUCTS. Centre de Recherches de Pont-a-Mousson.

Products based on a mixture of portland cement and asbestos have fly ash added to the mixture in a proportion at least equal to that of the cement. The mass is moulded and, then, subjected to a steam treatment at a pressure exceeding atmospheric pressure but less than 1 atm.gage.

24. LAYING OF ASBESTOS-CEMENT PIPES WITH A NEW TYPE BUTT JOINT. V.G.Grebenkin(Translation from Russian)

The yearly production of asbestos-cement pipes in the U.S.S.R. exceeds 40,000 kilometres. None of the two pipe couplings presently used have been found completely satisfactory. When assembling "Simplex" couplings great effort is required to set properly rubber rings over the couplings inner annular projections while "Gibault" coupling used for pipe joining calls for extra labour, is rather expensive and consumes metal.

The Scientific Research Institute for Asbestos Cement has designed a new type of coupling called Vodgeo, which secures air tightness at test pressure up to 10-15 kg/cm^2. Construction of the Vodgeo coupling is shown in Fig.1.

The annular projection at the blank end of the coupling holds the rubber ring inserted in the clearance between the pipe and the coupling. By not having annual projections at the mounting end an effortless insertion of the rubber rings is achieved. To prevent the rubber rings to be squeezed out, at the assembly end, there is a groove in which a mortar lock is formed. Instead of the latter a rubber ring can also be used.

Before laying the pipelines, butt joints of 456 mm diameter pipes were tested for inner pressure of 16 kg/cm^2 under operational conditions. It has been found that even when using rubber rings subjected to accelerated aging (elasticity loss of 20-38%) and an axial displacement in the butt up to 100 mm, tightness was not disrupted.

The first experimental 1 km long stretch of asbestos cement pipeline with Vodgeo butt coupling, was laid in 1961 in Kalinin. In following years such butt joints were used in pipelines 2-3 km long in Kalinin, Torzhok and other places.

The couplings were made on the usual lathes from pipes of larger diameter.

On the experimental stretches pipes of 100 to 45 mm were laid. At pressures of 12-15 kg/cm^2 the tightness of the butt joints in no case was disturbed. In some instances cracks appeared in the pipes due to the damage in transport. The butt joints were assembled by means of a simple tool or a special device for fitting of the couplings.

Experimental stretches of 100-300 diameter asbestos cement pipelines 1-3 km long were laid during the years 1962-1964, using "SAM" couplings designed by Scientific Research Institute for Asbestos-Cement. Tightness of the coupling "SAM" is achieved not by the standard round section, rubber rings, but by special rings of U section. The "SAM" coupling is shorter than the Vodgeo one but has thicker walls.

The pipelines with "SAM" couplings were tested under pressures up to 15 kg/cm^2 and tightness of the butt joints was not disrupted.

"SAM" couplings are easy to fit on pipes of small diameter, but when they are used with 300 mm diameter pipes great effort is required. Because of this, the question arose whether there is a point to use "SAM" couplings on pipes over 400 mm diameter. Moreover, when lowering pressure in a big diameter pipeline, some self entightening of the rings in the joints takes place.

Laying pipelines with the Vodgeo type coupling proved that by simple means it is possible to secure sufficient relayability and high tightness of asbestos cement pipe joints. This will allow to use them widely for pipelines with working pressures up to 10 to 12 kg/cm^2.

As a result of these experiments Gosstry of U.S.S.R. approved Provisional Code of Practice for laying asbestos cement pipelines with Vodgeo butt joints.

Summarising, the following observations can be made:

It is advantageous to use asbestos cement pressure pipes only for water pipelines and sewerage systems. Both Vodgeo and NII of Asbestos Cement "SAM" couplings should be used but for pipelines of over 350 mm in diameter, only the Vodgeo type should be used.

Manufacture of both types of couplings is simple. However, when using with "SAM" couplings not standard rings, extra difficulties are experienced. Standard ring for "SAM" coupling should be of U cross-section.

25. BELGIAN PATENT 661,499. FORMATION OF ASBESTOS CEMENT SHEETS. Johns-Manville Corp.

Deposition of asbestos fibres and cement on a conveyor to form a sheet of asbestos cement is assisted by the use of a coagulant. In order to control the relative thickness of sections of the sheet, the coagulant is spread onto the paste at definite stretches across the width of the conveyor.

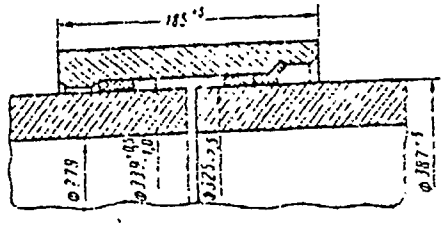

Fig.1. VCDGEO Type Butt Joint.

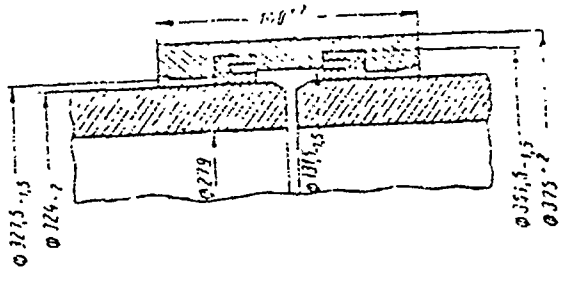

Fig.2. SAM Type Butt Joint.

26. BELGIAN PATENT 662,590. ASBESTOS CEMENT MOULDED PRODUCTS. Centre de Recherches de Pont-a-Mousson.

Moulded products are manufactured from a mixture comprising asbestos fibres, portland cement and fly ash, in an amount at least equal to that of the cement. The moulded products are hardened in water vapour at a manometer pressure of 0.1 bar. The process is suitable for the manufacture of flat or corrugated plates, pipes etc. Instead of asbestos, other fibres may also be used.

27. GERMAN PATENT 1,199,678. PROCESS FOR UTILISATION OF AQUEOUS SLUDGES FROM THE PRODUCTION OF ASBESTOS CEMENT ARTICLES. Soc. Anon. Eternit.

Residual sludges from the production of asbestos cement articles are mixed with such pulverulent materials which harden by reaction with calcium hydroside contained in the sludge. Suitable pulverulent materials include quartz sand, natural or synthetic pozzuolana, powdered slag, fly ash etc. Mineral or organic fibres may be added to the mixture. In this way strong bricks, plates, or similar products can be obtained. In an example, 500 kg. of a sludge containing 80% water were mixed with 50 kg. pozzuolana earth and 15 kg. of mineral or organic fibres to produce, in a paper-making machine, structural plates.

28. GERMAN PATENT 1,203,173. PROCESS AND APPARATUS FOR THE PRODUCTION OF ASBESTOS CEMENT ARTICLES. Torfit-Werke G.A. Haseke & Co.

A process for the production of asbestos cement articles from mixtures of fibrous material, binder and plasticisers, by extrusion, is characterised in that the mixture, before the final shaping, is cooled to 0-5°C and pre-formed into homogeneous blocks of a higher density.

PART 3. ASBESTOS TEXTILES.

29. FRENCH PATENT 1,408,892. TREATMENT OF ASBESTOS FABRICS. S.A. Francaise de Ferodo.

Asbestos fabrics containing at least 84% asbestos fibre are colour-printed, at least on a part of their surfaces, to mask the velvety appearance of the material.

30. THE INORGANIC FIBRES. J.A. Goodrich and R. Matchett Prod. Engng., 1964, 35, No. 18, pp. 63-66.

A review is given of the characteristic properties and applications of 14 basic types of inorganic fibrous materials including asbestos.

31. RUSSIAN PATENT 172,727. METHOD FOR RESTORING THE OPTIMUM PERMEABILITY OF ASBESTOS MEMBRANES OF CHLORINE ELECTROLYSERS. V.I. Arzhadeeva et al.

For this purpose, a surface-active substance is added to the electrolyte introduced into the cell. Suitable surface-active compounds include ethylene glycol, diethylene glycol, glycol, glycerol, etc.

32. GERMAN PATENT 1,199,441. A RAM WITH A PACKING RING FOR COLD-CHAMBER PRESSURE-CASTING MACHINE. Volkswagenwerk A.G.

A ram for a pressure-casting machine is provided with an extensible packing ring which is pressed against a conical seat by means of an axially movable header, being thus spread against the walls of the chamber. The packing ring is preferably made of asbestos.

PART 4. FRICTION MATERIALS.

33. CANADIAN PATENT 706,443. MOULDED BRAKE SHOE. Raybestos-Manhattan Inc.

A composition suitable for producing moulded brake shoes having a marked reduction in wheel tread or wear, good wet/dry friction ratio, uniformity of friction over the range of operating temperatures and good mechanical properties, comprises (according to one example) 6wt% of fine synthetic graphite, 10% of natural galena ore concentrate, 9.6% of a cashew resin solution, 12% of calcined kyanite, 5.2% of calcined petroleum coke, 20% of white iron grit, 10% of fine cryolite, 8% of asbestos fibres and 19.2% of a milled rubber binder. Reduced wheel wear is attained by the incorporation in the composition of cryolite along with a comparatively high proportion of organic binder.

34. GERMAN PATENT 1,202,076. FRICTION LINING. Soc. d'Etudes Physico-Chimiques et des Realisations Industrielles S.A.

Friction linings for brakes or clutches made of normally bonded lining material, such as asbestos, and containing as additives, copper, brass, calcined clay, titanium dioxide, carbon black, graphite and metals, such as Zn, Fe, Ni, Pb, Mo, W, Cr or their oxides are characterised in that they contain at least in the surface layer, as an additive to horn mass, glue or casein, cupric oxide, preferably with the addition of cuprons oxide. A typical composition comprises 40-50 wt.% CuO (optionally with Cu_2O), 5-15 wt.% Zn powder, 1-6% calcined clay and 29-54% of phenoplast.

35. RUSSIAN PATENT 173,919. PRODUCTION OF FRICTIONAL MATERIAL. A.A. Primatov et al.

The heat resistance of frictional materials based on asbestos as a filler, and a rubber-resin binder, is improved by the addition of 2-3 wt.% of an organo-silicon liquid and 4-5 wt.% of aluminium oxide.

36. RUSSIAN PATENT 173,918. APPARATUS OF THE ROTARY TYPE FOR THE VULCANISATION OF RUBBER AND ASBESTOS-RUBBER ARTICLES. A.A. Shavanov et al.

A rotary apparatus is described for the production of rubber, or asbestos-rubber articles, e.g. friction-linings for clutches, by an automatic method including mechanised charging, pressing and unloading of the finished product.

PART 5. ASBESTOS REINFORCED PLASTICS

37. GERMAN PATENT 1,200,072. NOZZLE FOR A ROCKET MOTOR. Bristol Aerojet Ltd.

A convergent-divergent nozzle for a rocket motor consists of a body of a light metal provided with a lining of asbestos fibres bonded by means of a phenol-formaldehyde resin. The construction of the nozzle is described in detail.

38. ASBESTOS-REINFORCED PLASTICS. ASBESTOS IN DUROPLAST LAMINATES. H. Berger. Gummi-Asbest-Kunststaffe, 1965, 18, No.10, 1207-18.

ASTM tests relating to Duroplast plates and tubes are described in detail.

39. INDUSTRIAL APPLICATIONS OF ASBESTOS-REINFORCED PHENOL RESINS. Plastica, 1965, 18, No.3, 128-130.

Industrial applications of asbestos-reinforced phenol resins are briefly discussed. Various "Ferobestos" products of J.W. Roberts Ltd., England, are described in detail. The mechanical properties and chemical resistance data of "Ferobestos" materials comprising different forms of asbestos reinforcement (woven fabrics, felt, non-orientated loose fibres, asbestos paper etc) are tabulated.

40. PRELIMINARY PROCESSING OF ASBESTOS AS A PLASTIC FILLER AND ITS SORPTION PROPERTIES. A.B.Davydov Z.G. Ivanova Plast.Massy. No.1, January 1965, pp. 46-48.

The type of asbestos, i.e. soft or hard, and the preliminary treatment have a marked effect on the reaction and sorption of organo-silicon binder resins by this filler.

41. HITCO ELASTOMER 1020. Chemical & Insulating Co. Ltd., Refrasil Product data. Darlington 1963, pp.1.

This is an asbestos/silica reinforced butadiene-acrylonitrile compound approved for many aerospace applications, notably nozzle covers, chambers, and closure insulation for surface protection from flame temperature up to 5000°F for up to 120 seconds duration. It is designed for use by hand lay-up or compression moulding and requires heat and pressure to effect a cure.

42. FRENCH PATENT 1,399,049. REINFORCED PLASTIC MATERIALS Monsanto Co.

Reinforced materials comprise a polymeric substance and a major proportion of a reinforcing inorganic material linked to the polymer by means of a coupling agent. Suitable reinforcing agents include alumina, feldspar, wollastonite, chrysotile asbestos. Suitable polyamides, polystyrene, polyesters, polymeric compounds of vinyl, allyl, methacrylates etc. As coupling agents, derivations of halosilane or alkoxysilane are used.

PART 6. PLASTIC BUILDING MATERIALS AND PIPES.

43. THE RESISTANCE OF HYDRO-INSULATING MATERIALS TO THE GROWTH OF ROOTS. I.V. Provinteev. Stroit. Mat., 1965, 11, No.6, 31-33.

Wherever sand or dust accumulate on roofs, plant growth may start and the roots may strongly attack the roofing material. In the NIIAsbestsement institute research has been carried out on the resistance of various hydro-insulating roofing materials against attack by plant roots and micro-organisums. Samples of a number of roofing materials (containing in most cases asbestos as a reinforcing agent) were investigated, including Ruberoid, roofing board impregnated with different bituminous and similar substances, Izol etc. It has been found that whenever attack by plant roots is possible, protective layers should be applied, made of materials such as polyethylene-pitch compositions, or combinations of Ruberoid with "hydrokam", or similar asphalt-base products.

44. STACKS FOR TEMPERATURES UP TO 180°C. Resin News 1964, 4, No.9, 8.

Marex Excelsior Ltd. of Wolverhampton, produce "Marex" reinforced plastic chimneys which can be used when the fume temperatures are low. Under these conditions "Marex" stacks are much more resistant to corrosion by gases than steel or brick stacks. These anti-corrosion properties are due to a special lining made from "Durestos" asbestos-reinforced plastic.

45. GERMAN PATENT 1,179,906. PRODUCTION OF SURFACE COATINGS FOR INSTANCE FLOOR COVERINGS. Armstrong Cork Co.

Surface coatings, such as floor coverings with a grainy finish, are produced by applying a mixture of granulated polymeric materials onto a fibrous support, under pressure and at a temperature near the melting temperature of the polymers. The polymer mixture comprises two polymeric materials having different viscosities, e.g. polymerized vinyl chloride and its copolymer with vinyl acetate. The mixture may also contain plasticisers, stabilisers, dyestuffs or pigments, and fillers, such as powdered limestone, silica, clay, asbestos etc. The fibrous support may be impregnated or coated with a resinous substance. In examples, an asbestos layer is used as a support; it is coated, before the application of the polymer mixture, with an acrylic resin adhesive.

46. NETHERLANDS APPLICATION 6,414,388. HEAT-STABILIZED RESIN COMPOSITIONS. Heyden Newport Chem. Corp.

Compositions useful especially as floor coverings comprise a vinyl halide homopolymer, asbestos, an inorganic filler and a stabilizer consisting of a mixture of pentacrythritol and/or dipentaerythritol with dicyandiamide. In an example, a composition comprising 100 parts of polyvinylchloride, 111 parts of chrysotile asbestos, 285 parts of ground limestone, 32 parts of di-2-ethylhexylphthalate, 4 parts of expoidized soyabean oil and 35 parts of titanium dioxide, is stabilized with 5 parts of a 1:1 mixture of pentacrythritol and dicyandiamide. The mixture is rolled for 20 minutes, at a temperature of 149°C, to produce sheets of a thickness of 1.15 mm. In tests, sheets containing pentacrythritol as a sole stabiliser turned dark blue after heating for 150 minutes at 149°C; under the same conditions, sheets of the composition specified above changed from an off-white colouration to light grey.

47. PIPES & PIPELINES INTERNATIONAL - DECEMBER 1965. Epoxy Resin Internal Pipe Coating.

Perivale Paint Products Ltd. have developed the PERILINE process in which solvent-free epoxy resin coatings 0.008 in. thick upwards are deposited on the interior of pipes from 3 in. to 24 in. diameter with a possibility of coatings on pipes up to 48 in. diameter. Lengths up to 40 ft. or possibly more can be handled.

48. NEW LOOK AT PLASTIC PIPE. Mod. Plast. June 1965, 42, No. 10.

A general review.

49. THE PIPES & PIPELINES MANUAL & DIRECTORY. Published by Scientific Surveys Ltd., 11a Gloucester Road, London, S.W.7.

Review contains:

A. Non-metallic pipe (excluding plastics), glass pipe, asbestos cement pipe, salt glazed pipe, prestressed concrete pressure pipe, glass fibre reinforced concrete, pitch fibre pipe.

B. Plastics pipes, the thermoplastics and the thermosets, properties, manipulation design and installation, maintenance, technical data.

50. AUSTRALIAN PATENT 251,708. FIBRE-REINFORCED FOAMED GYPSUM TILE. Ceilbit Ltd.

A process for the production of fibre-reinforced foamed gypsum tiles comprises mixing together pulverulent calcium carbonate, portland cement, asbestos fibres and plaster of Paris, adding a dilute solution of sulphuric acid to cause foaming, and forming files from the foamed material. The tiles are then wire-brushed to form fissured surfaces. The product is pleasing in appearance, tough, non-hygroscopic, and has good heat-insulating and sound-damping properties. (This patent is: "lapsed before acceptance.")

51. CANADIAN PATENT 660,812. FIBERED LIGHTWEIGHT GYPSUM PLASTER. D. Lane.

This material is made from about 13 wt.% of exfoliated vermiculite, 65% of gypsum plaster, 12% of sand, 6% of lime or hydraulic cement and 4% of asbestos fibres. The product is suitable for undercoatings and finishing work as well. It has good elastic and acoustic properties, is more resistant to fire than normal gypsum plasters, and does not shrink or crack during drying.

52. JAPANESE PATENT 24185/65. FIREPROOF BUILDING MATERIALS. Nitto Boseki Co.

Building materials are produced by mixing light, particulate, inorganic materials, such as expanded perlite, exfoliated vermiculite or pumice, with inorganic fibres such as glass fibres, mineral wool or asbestos, and covering a layer of this mixture with a thin film of an adhesive prepared from a sodium silicate solution with a small amount of an organic tackifier, such as gum arabic, starch or carboxymethylcellulose. The product is then hot-moulded at a temperature at which the adhesive melts.

59. CANADIAN PATENT 701,290. PROTECTIVE COMPOSITIONS
Winn and Coales Ltd. London.

A composition for protecting buried metal pipes against corrosion comprises a mixture of plasticized coal tar pitch, a polyvinyl chloride resin, tar oil and up to 30 wt.% of a fibrous filler, preferably asbestos fibres, or pulverised talc. A cloth or tape may be impregnated with the above composition and wrapped around the pipe.

60. GERMAN PATENT 1,198,475. COATING AND FILLING PREPARATIONS FOR STRUCTURAL PURPOSES BASED ON PHENOL-CONTAINING EPOXY-RESINS. Shell Intern. Res. Mij.

In an example, a preparation is made of 245.6 parts of asbestos, 10.1 parts of silica, 275.1 parts of a polyglycidyl ether of a multivalent phenol, 229.1 parts of an industrial fuel oil, 91.6 parts of dinonylphenol, 63.7 parts of xylene, 63.7 parts of secondary butyl alcohol and 28.8 parts of diethylenetriamine. The preparation has a very good adhesion to cement and asphalt, and high resistance to chemicals and to wearing.

61. BRITISH PATENT 993,963. SEALING AND COATING COMPOSITION
Bostik Ltd.

Asbestos used as a filler.

62. INDIAN PATENT 69,305. MASTIC COATING COMPOSITIONS
Benjamin Foster Co.

Coatings impermeable to water and water vapour, having a good elasticity and heat-resistance, are produced using a bitumen-base composition comprising a liquid mixture of petroleum asphalt and gilsonite, a resinous chlorinated fire-retardant compound, Canadian 7R chrysotile asbestos fibre, a suitable pulverulent non-fibrous filler and a transient volatile solvent mixture of inflammable and non-inflammable organic solvents.

63. FRENCH PATENT 84651 (ADDITION TO No. 1,318,029)
MICROPOROUS FILTERING MATERIALS. Lloyd & Hillman Ltd.

The coating dispersion contains amosite fibres.

PART 8. ASBESTOS PAPER, HEAT INSULATING MATERIALS.

64. FRENCH PATENT 1,385,628. NON-COMBUSTIBLE FILTER PAPER
Etablissements Schneider-Poelman.

A non-combustible filter paper is made of asbestos fibres and a binder, e.g. a strichiometric mixture of polyvinyl chloride and a polymer of $NH_2CON = CH_2$.

65. CANADIAN PATENT 706,579. REINFORCED THERMAL INSULATION MATERIALS. Johns-Manville Corp.

A reinforced high temperature insulating material is produced by weaving into the desired shape a plurality of strips or tapes of e.g. a resin-impregnated glass cloth, covering the shape with a surfacing material consisting preferably of a high bulk asbestos paper saturated with a solution of phenol-formaldehyde resin, and pressing the shape in a closed mould at about 200 p.s.i. and 300°F. to fuse together the resinous material and provide a good bonding to the product. The same method can be used for strengthening insulation materials comprising asbestos fibres in combination with magnesia, diatemite or hydrous calcium silicate.

66. CANDIAN PATENT 663,959. INSULATION OF STRUCTURAL STEEL R.S. Wood and F.G. Foster.

Structural steel is insulated in such a manner as to eliminate the possibility of moisture accumulating between the insulation and the steel parts, using a mixture comprising 44-50 wt.% of asbestos fibres or shorts, 10% of a silica gel as a binder, 40-46% of exfoliated vermiculite aggregate and 2% of a rust inhibiter consisting of sodium nitrate and trisodium phosphate. The mixture is sprayed onto the steel structure until a thickness of about 1/16 in. is built up. The coating is air dried, cured and coated with one or more additional layers of the same composition to obtain the desired thickness.

67. INDIAN PATENT 66,442. HEAT-AND SOUND-INSULATING BOARD. N. Majumder.

A process for producing heat-and sound-insulation boards comprises mixing asbestos powder and/or powdered glass with powdered calcined magnesite wetting the mixture with a solution of magnesium chloride, adding wood wool, preliminarily wetted with a solution of magnesium chloride and casting the slurry thus produced into moulds. The hardened product can be used as a substitute for cork in refrigeration or heat-insulation applications.

68. NETHERLANDS APPLICATION 6,500,311. HEAT INSULATING MATERIALS. Philip Carey Mfg. Co.

A heat insulating material is made of 40-80% expanded perlite, 5-20% montmorillonite clay as a mineral binder, 4-10% of a starch derivative with a low viscosity as a flexible, film-forming organic binder, about 1-4% of a phenolic resin, 5-25% short asbestos fibres of grade 7, and 0.2-3% of long glass fibres as a mechanical reinforcement. The product has a low density, high flexural strength, resistance to cracking good heat-insulating power in the range of -45.6 to +427°C, and low moisture-absorption. It is resistant to the action of boiling water.

69. NETHERLANDS APPLICATION 7,500,786. PRODUCTION OF INCOMBUSTIBLE FILTER MATERIALS. Comp. St. Gobain.

Porous materials, suitable for use as filters for gases at high temperatures, are produced from a mixture of glass fibres and/or asbestos fibres and an alymina trihydrate, such as hydrargillite, forming with water stable, colloidal dispersions, which have film-forming properties.

70. POLISH PATENT 48,361. HEAT-AND SOUND-INSULATING MATERIAL. Instytut Wzornictwa Przemyslowego.

Heat-and sound-insulating laminates comprise a layer consisting of expanded "Styrofoam" grains, ground "Styrofoam wastes, cork powder, other foamed plastics and a polyvinyl acetate-rubber binder; another layer containing ground asbestos and foamed plastic wastes is sprayed on top of the first layer. The product is non-corrosive.

PART 9. REFRACTORY FIBRES

71. FILAMENTARY CRYSTALS OF REFRACTORY OXIDES AND THEIR APPLICATIONS. P.P. Budnikov and D.B. Sandulov. Zhur. Vsesoyuz. Obshchestva im. D.I.Mendeleeva, 1965, 10, No.5, 506-511.

Literature relating to the production, properties and applications of refractory oxide whiskers is given. Whiskers described include those of Al_2O_3 (sapphire), Be.O.MgO. MnO, CuO, and MoO_3. Data of the tensile strength and maximum elastic deformation of oxide whiskers are tabulated. Examples are quoted of metals reinforced with sapphire whiskers, and the strength of the oxide whisker-metal compositions is discussed from the theoretical standpoint. 41 references.

72. NETHERLANDS APPLICATION 6,502,032. HEAT-RESISTING CRYSTALLINE FIBRES. Babcock & Wilcox Co.

A solution containing one or more salts, such as sulphates, chlorides, phosphates, acetates and nitrates of aluminium, beryllium, chromium, magnesium, thorium, uranium or zirconium, is concentrated to a viscosity of the order of 1-1000 poises, and the viscous solution is transferred into fibres by a blowing, spinning or drawing method and then, heated at temperatures between 430°C and 1320°C to eliminate the solvent, decompose the residue to one or more metal oxides, and to densify the product thus obtained.

73. HIGH-STRENGTH PLASTIC COMPOSITIONS BASED ON FILAMENTARY CRYSTALS. Ya. N. Shneiderman. Plasticheskie Massy, 1965, No.9, 57-59.

A review is given of foreign literature relating to whisker-reinforced plastics.

74. WHISKERS MAKE REINFORCED PLASTICS BETTER THAN METALS
J.V. Milewski, J.J. Shyne, Proc. 20th Anniversary Tech.Conference SPI, Reinforced Plastics Div., New York, 1965, Section 6-C, pp. 10.

A definition of whiskers (made of metals or sapphire), their properties and an explanation of their super strengths are first given. Whisker potential use in reinforcing plastics, and as supplementary reinforcement in filament winding is considered. The author discusses how this revolution in high strength is going to affect the plastics engineer and how it will affect the plastics industry in competition with metals and ceramics.

75. THE SYNTHESIS OF A NEW FORM OF HIGH-REFRACTORY INORGANIC FIBRES. I.M. Yarmolenka & R.N. Strirydava Vestsi Akad. Navuk Belarusk. S.S.R. Ser. Khim. Navuk, 1965, No.1, 39-43.

High-refractory metal-carbon fibres can be obtained by heating organic fibres, particularly cellulosic fibres, with metals attached to ion-exchange polymers and then pyrolysing the modified fibres under controlled conditions. The fibres thus produced have a high temperature resistence, a good chemical stability and mechanical properties.

76. BRITISH PATENT 981,933. GLASS COMPOSITION.
Vereinigungs Volkeseigener Betriebe Glas.

A glass is described which is free of boric acid and alkali and is suitable for the production of glass fibres for the reinforcement of plastics or for electrical purposes. The composition of the glass (in moles) is 5-7 silica, 0-0.5 alumina, 1-2 barium oxide, 1-2 zinc oxide and 0-0.5 lead monoxide.

77. FRENCH PATENT 1,412,775. SILICON NITRIDE WHISKERS
British Ministry of Aviation.

Whiskers of silicon nitride are produced by heating a mixture of silicon and its oxide to a temperature above 1200°C to form a vapour phase containing silicon, mixing this vapour with nitrogen in the presence of carbon and a small proportion of hydrogen, and contacting the resulting mixutre with a substrate heated to at least 1200°C.. Silicon nitride whiskers grow on the surface of the substrate.

PART 10. MISCELLANEOUS.

78 RUSSIAN PATENT 175,389. MASS FOR THE PREPARATION OF CARTON. O.V. Vyatkina et al.

Carton used as a filter for fine clarification of wine is prepared from a mass consisting of (in wt.%): ground cellulose 70-50, chrysotile asbestos 15-25 and diatomaceous earth 15-25.

79. NLTHERLANDS APPLICATION PATENT 6,505,506. ABRASIVES MATERIALS. Hooker Chemical Corp.

These materials comprise asbestos fibres, an abrasive material and a binder based on a thermohardening phenol/aldehyde condensation product. In an example, the binder is produced from (in weight parts): phenol 2000, sulphuric acid 24(catalyst), isobutyraldehyde 360, 37% formalin 400, d-limonene 1100, linoleol 2110 and soyabean oil 3200.

80. CANADIAN PATENT 706,076. DEFIBERIZATION OF CRUDE ASBESTOS. K.A. Oesterheld.

An apparatus for defiberizing crude asbestos, particularly South African blue asbestos, comprises a cylindrical housing closed at least at one end by a cover and a cylindrical drum rotating within the housing. Between the housing and the drum there is an annular passage through which the fibre-liquid mixture is forced.

81. CANADIAN PATENT 656,174. DEGRITTING OF CRUDE ASBESTOS FIBRES. R.F. Bourne and D.G. Cheyne.

An apparatus for separating grit and other impurities from crude asbestos fibre comprises a horizontally disposed rotor enclosed in an elongated housing provided with an inlet for an air stream carrying raw fibres, an outlet and means defining a restricted passageway. The fibres are set in rotational movement whereby grit particles are dislodged and discharged through an outlet.

82. CANADIAN PATENT 656,800. ACETYLENE CONTAINER FILLER. Chemetron Corp.

A filler for holding dissolved acetylene is prepared by admixing water-soaked charcoal to an aqueous slurry of asbestos fibre, then adding diatomite or another source of silica, followed by a lime slurry. The resulting composition is thoroughly mixed, charged into a container under vacuum until the container is about half full, vibrated and allowed to settle. Then the remaining place is filled with the slurry in a similar manner. The filler thus obtained is highly permeable and dimensionally stable.

83. CANADIAN PATENT 659,508. REMOVAL OF ANIONIC SURFACTANT SUBSTANCES FROM ASBESTOS. Flammer Seifenwerke K.G.

Residual soap or synthetic detergents, remaining on the surface of asbestos fibres after cleaning, are removed by treatment with an aqueous solution of a salt of an alkali metal phosphate or silicate, followed by washing with water and drying.

84. INDIAN PATENT 91037. PROCESS FOR EXTRUDING METALS OR ALLOYS. G.G. Platel.

In metal extrusion processes, glass mixed with one or more additives is used as a lubricating agent. Suitable additives include asbestos powder, molybdenum oxide, powdered enamels, powdered slags, salts and similar substances.

85. FRENCH PATENT 85629. (Addn. to 1,346,402). ANTI-IMPACT SUPPORTING DEVICE . Etabs. Lemer & Cie.

Anti-impact supports for use in containers for the transportation of radioactive materials are made of asbestos sheet, corrugated paper or cardboard or plastic, shaped in a specified manner.

86. RUSSIAN PATENT 175,863. PRODUCTION OF MATERIALS OF THE "SOVELITE" TYPE BASED ON THE HYDROXIDE AND TRIHYDROCARBONATE OF MAGNESIUM. R.I. Arav et al.

Materials of the "Sovelite" type are produced from a mixture of the hydroxide and trihydrocarbonate of magnesium and of calcium carbonate with addition of the light filler, perlite, and a fibrous filler, asbestos, in a weight ratio at 1:0.85 : 0.15. The mixture is then subjected to a heat treatment. The resulting product is characterized by low bulk weight, low heat conductivity and improved mechanical strength.

PART II. REVIEW OF JOURNALS

"ASBESTOS" September 1965
807 Western Saving Fund Buildings, Philadelphia, Penn. 19107.

87. FIBRE TESTING FOR THE ASBESTOS CEMENT INDUSTRY, Dr. A.A.Hodgson McNett method and Asbestos Fibre Surface Area evaluations. P.2.

88. J.M. POLYESTER CHEMITE, page 10. Announcement of Johns-Manville Corporation development of asbestos reinforced polyester pipes.

89. J.M. ASBESTOS-CEMENT BULKHEAD , page 14. Protection of shoreline.

90. MARKET CONDITIONS, page 28.

91. PRODUCTION, page 34.

92. IMPORTS AND EXPORTS, page 36.

93. INDUSTRY NEWS, page 40.

"ASBESTOS", November 1965.

94. THE SURFACE PROPERTIES OF ASBESTOS FIBRES, page 2.
Dr. A.A. Hodgson.

95. ATI 21ST ANNUAL MEETING, page 18. Asbestos Textile Institute.

96. MARKET CONDITIONS, page 30.

97. PRODUCTION, page 34.

98. IMPORTS AND EXPORTS, page 36.

99. INDUSTRY NEWS, page 38.

ASBESTOS-CEMENT REVIEW NO. 40.
Kirchgasse 40, Zurich, Switzerland.

100. A NEW DUTCH POLYTECHNIC INSTITUTE, page 3.
101. LEAD AND SINC EXTRACTION PLANT IN FRANCE, page 9.
102. AN AUTOMOBILE FACTORY IN AUSTRALIA, page 9.
103. WELFARE BLOCK OF A FACTORY IN MILAN, page 9.
104. CONCRETE WORKS IN SOUTHERN GERMANY, page 10.
105. FACTORY FOR REFRIGERATION PLANT AT BASILDON NEW TOWN, page 12.
106. SALT MILL AND WAREHOUSE AT GODERICH, ONTARIO, page 17.
107. A BUILDING MATERIALS STORE AT AGADIR, page 20.
108. FACTORY FOR INDUSTRIAL GAUGES IN NORTHERN FRANCE, page 22.
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113. A COMPOUND MILL AT BROMBOROUGH, page 32.
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116. TEXTILE WAREHOUSE AT BESANCON, page 40.
117. FURNITURE WORKSHOPS IN AUSTRIA, page 41.
118. A TYPE FOUNDERY IN FRENCH SWITZERLAND, page 42.
119. POWER STATION AT LIVORNO, ITALY, page 45.
120. MACHINE TOOL FACTORY IN NORTHEASTERN SWITZERLAND, page 49.
121. CELLARAGE FOR WINES AT MENDOZA, ARGENTINIA, page 52.
122. FACTORY FOR ELECTRIC BULBS IN SAN SALVADOR, page 53.
123. INCENDIARY DAMAGE TO A TEXTILE PLANT, page 53.