gold, pure platinum, pure iridium, and pure rhodium in combination with the gallium solution. All these alloys harden at room or mouth temperature and possess a wide range of properties. By suitable alloying of these elements with each other or with pure palladium, a considerable variation in properties can be obtained for their respective gallium alloys.

The use of intermediate phases containing high percentages of palladium such as Pd_2Ga can also produce hard gallium alloys, and intermediate phases of the other platinum-group metals might also be used.

Summary and Conclusions

As a result of this research it has been established that gallium-palladium alloys possess a number of properties which may make them superior to dental amalgam as a restorative dental material.

1. An ability to "wet" the tooth structure.
2. Higher strengths and greater resistance to flow.
3. Greater retention of strength at higher temperatures.
4. A thermal expansion coefficient closer to that of human teeth.

At present the only obvious obstacle to the use of gallium-palladium alloys in dental fillings is inadequate knowledge of their tissue tolerance and of their stability in the oral environment. A considerable latitude exists for alloying palladium with other noble metals in order to improve the properties of the gallium-palladium alloys.

SUPPLY REFERENCE

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Culture Tube and Pipette For Cultivation of Tissues On Standard Microscope Slide

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Tissue cultures prepared on coverslips have been used for many years. One of the earliest systems is the double coverslip method of Maximov in which a small coverslip containing adherent tissue fragments is held by the capillary action of a drop of water onto a larger coverslip. The two are inverted with the tissue hanging in the well of a large depression microscope slide. An adap-

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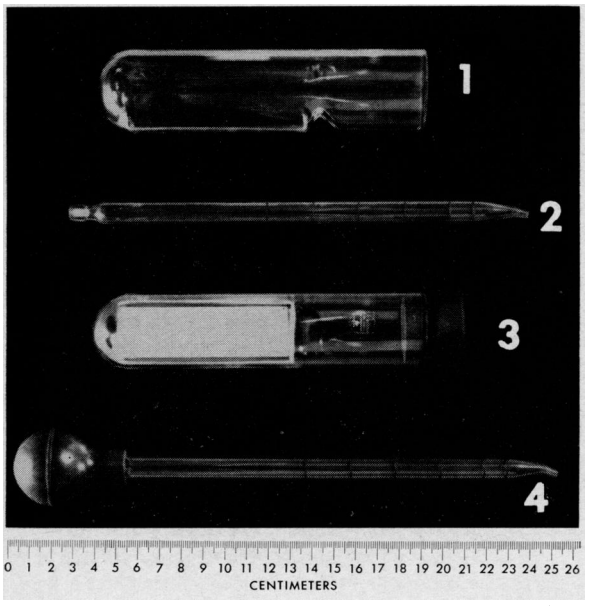
tation of the double coverslip technique to tube culture has been used in our laboratory for several years (*1*). The cultivation of tissues on a small coverslip (11 by 22 millimeters) is optically satisfactory except at high magnification, but presents other limitations. The area available for the cultivation and outgrowth of cells is small. Furthermore, in the procedures of fixation, staining, dehydration, and mounting of cultures on coverslips the possibility of damage to the culture including the breaking of the coverslip is ever present.



1. Side view of the culture tube for microscope slides, prepared from 35-millimeter O.D. tubing. The culture tube is 150 millimeters long, which permits it to be washed and stored in the same containers used for conventional culture tubes. The flat surface against which the microscope slide rests is 3¼ inches long and 1⅛ inches wide.

2. Pipette used in association with these cultures. It is 20 to 21 centimeters long, calibrated to 5 milliliters with an additional one-half milliliter calibration near the tip. The tip is bent to permit the handling of explants.

3. Culture tube in use containing a microscope slide. The tube has been rotated 90° from the position in No. 1.

4. Pipette ready for use, with a one-half ounce B–D rubber bulb attached.

To circumvent these problems a tube was designed that can hold a standard microscope slide, a rectangular piece of glass measuring 1 inch by 3 inches. Tissue is planted on a sterile slide in a petri dish, and the slide is then slipped into a large culture tube. The culture may be fed medium in volumes ranging between 4 milliliters and 10 milliliters. The tubes are closed with No. 7 rubber stoppers and placed in a stationary rack or on a rocking platform in the incubator.

The cultures may be examined using an inverted microscope. The degree of magnification for study of the living culture is limited, the highest magnification being that provided by a 10 × objective. During the period of cultivation a large volume of feeding mixture may be used, permitting the cultivation of several explants on the same slide.

A calibrated 5-milliliter pipette has been used with these tubes. The 1 milliliter nearest the tip has an additional line marking the 0.5-milliliter level. The tip of the pipette is bent to facilitate removing fluid from the culture tube and manipulating explants on the slide in the tube.

The particular value of the system is apparent in the technical preparation and in the microscopic examination of the final fixed, stained, and mounted culture. The slides may be fixed appropriately in a Coplin dish with a procedure similar to the technique used for processing histological sections. Since the culture may be thicker than a histological section, longer periods of time are needed in each of the steps for staining, dehydration, and clearing. The incidence of breakage during the preparation of stained cultures is nil.

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Federal Publications

Inventory of Interstate Carrier Water Supplies by States and Public Health Service Regions, July 1963. *PHS Publication No. 1116; February 1964; 27 pages.* Lists the 766 interstate water supplies which serve 76 million residents and 2 million interstate travelers in airplanes, buses, railway cars, and vessels. Information is given regarding the States, city, or name of private supply, population served, points served, ownership, and date of last Joint Survey by the State health department and Public Health Service. All supplies listed must conform to the Public Health Service Drinking Water Standards.

The Northeast Shellfish Sanitation Research Center. Narragansett, Rhode Island. *PHS Publication No. 1164; April 1964; leaflet.* Brief description of location, staff, and research program of the newest PHS Shellfish Sanitation Research Center, established by the Division of Environmental Engineering and Food Protection in 1962 and formally dedicated May 9, 1964.

Summary of State Legislation Relating to Public Health, 1962. *PHS Publication No. 1089; September 1963; 64 pages.* Summary of State legislation relating to public health of general interest to public health workers. Summary shows what has been done in public health legislation, what remains to be done by the inclusion of legislative resolutions and acts which indicate areas of legislative concern. Summarizes each act and resolution, as well as direct quotation of excerpts of the acts themselves.

Research Grants Program of the Division of Community Health Services. *PHS Publication No. 1145; April 1964; 8 pages.* Tells how the Public Health Service supports research in community health services and stresses the urgent need for more investigation in this broad field. Publication notes that research is not limited to investigators in the health disciplines. Researchers from such fields as anthropology, political science, law, and economics, as well as many types of organizations are eligible.

Life Cycle Charts: Common intestinal protozoa of man. *PHS Publication No. 1140; revised 1964; by M. M. Brooke and Dorothy M. Melvin; 19 pages.* Presents life cycle charts of the more common intestinal protozoa and of *Isopora hominis* and *Trichomonas vaginalis* for students of parasitology, laboratory workers, and others. Details of epidemiology, incubation periods, latent periods, and exceptions to the usual pattern are omitted.

Nurses for Leadership. *PHS Publication No. 1098; 1963; 53 pages; 40 cents.*

This publication reports the Second National Evaluation Conference, (authorized by the Health Amendments Act of 1959) held in July 1963. The 58 conferees represented nursing, medical, and allied professions from all sections of the nation.

The report includes basic data used by the conferees to substantiate achievements of the Professional Nurse Traineeship Program as well as three major recommendations for continuing and expanding it to meet effectively the challenges of future nursing needs.

Directory of Homemaker Services, 1963. Homemaker agencies in the United States with selected data. *PHS Publication No. 928; revised 1964; 324 pages; $1.50.* Brings up to date the listing of all known homemaker agencies in the United States. Each agency is identified by address, telephone number, name of director, type of service provided, schedules of fees, and hours of service. Also included are a number of tables of selected data pertaining to homemaker services in the United States, definitions of homemaker and homemaker service, a copy of the questionnaire used to gather the data, and a descriptive summary of homemaker services in the United States.

National Library of Medicine Classification. Third edition. *PHS Publication No. 1108; 1964; 286 pages; $2.* Presents a notation system for the classified arrangement of books and periodicals in the field of medicine and related subjects. The schedules in this edition have been expanded to provide more adequately for medical material currently being published in such fields as psychopharmacology, space medicine, and radioactivity. In addition, fuller explanatory notes have been added, terminology has been modified to agree more nearly with the Library's related publication, "Medical Subject Headings," and the index has been expanded.

Planning the Labor-Delivery Unit in the General Hospital. *PHS Publication No. 930–D–15; 1964; 16 pages; 20 cents.* Provides guidelines for new construction or modification of existing labor-delivery facilities. Functions of the labor-delivery unit and the equipment and physical facilities necessary to perform these functions are discussed. Included is an architectural plan of a unit based on 1,500 births per year.

This section carries announcements of new publications prepared by the Public Health Service and of selected publications prepared with Federal support.

Unless otherwise indicated, publications for which prices are quoted are for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402. Orders should be accompanied by cash, check, or money order and should fully identify the publication. Public Health Service publications which do not carry price quotations, as well as single sample copies of those for which prices are shown, can be obtained without charge from the Public Inquiries Branch, Public Health Service, Washington, D.C., 20201.

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U.S. GOVERNMENT PRINTING OFFICE: 1964